Tionscadal Soláthair Uisce
Water Supply Project

Environmental Impact Assessment Report (EIAR)

Volume 6 of 6: Appendices

(Appendix 10.9) Lot 2 Pipeline Ground Investigations

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Uisce Éireann
Irish Water

Jacobs

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IRISH DRILLING LIMITED

LOUGHREA, CO. GALWAY, IRELAND

CONTRACT DRILLING
SITE INVESTIGATION

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WSP LOT 2, PIPELINE

GROUND INVESTIGATION CONTRACT FACTUAL REPORT

FINAL

Irish Water,
Covill House,
24-26 Talbot Street,
Dublin 1.

Mott MacDonald Ireland,
Consulting Engineers,
Rockfield,
Dundrum,
Dublin 16.

	Prepared by	Approved by	Rev. Issue Date:	Revision No.
	Ronan Killeen	Declan Joyce	31st March 2023	21 _OY _102/07
Signature	RK	DJ		

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Operations Manager: MICHAEL MAHON Registered Office: OLD GALWAY ROAD, LOUGHREA, CO. GALWAY Registered No. 379801

FOREWORD

The borehole, trial pit and dynamic sampling records have been compiled from an examination of the samples by a Geotechnical Engineer and from the Drillers' descriptions.

The report presents an opinion on the configuration of the strata within the site based on the borehole trial pit and dynamic sampling results. The assumptions, though reasonable, are given for guidance only and no liability can be accepted for changes in conditions not revealed by the boreholes, trial pits and dynamic samples.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

Contents:

6.1	Introduction	Page 1
6.2	The Site & Geology	Page 1
6.3	Fieldwork	Page 3
6.4	Laboratory Testing	Page 9

Appendix 6A	Borehole Records
Appendix 6B	Dynamic Sampling Records Part 1 Dynamic Probes Part 2 Windowless Samples
Appendix 6C	Trial Pit Records
Appendix 6D	Peat Probe & Russian Core Records
Appendix 6E	In-Situ Test Records Part 1 Permeability Part 2 Shear Vane Part 3 Slit Trenches
~~Appendix 6F~~	~~Specialist In-Situ Test Results~~
Appendix 6G	Geophysics Report Part 1: Geophysical Survey Part 2: GPR Survey
Appendix 6H	Laboratory Test Results Part 1 Cable Percussive Boreholes/Trial Pits Part 2 Rotary Core Boreholes
Appendix 6I	Photographs Part 1 Rotary Core Part 2 Trial Pits
Appendix 6J	Groundwater Level Data
Appendix 6K	Drawings
Appendix 6L	Digital Data (AGS)

6.1 Introduction.

The Water Supply Project (WSP) – Eastern and Midlands Region is a scheme to provide water from the River Shannon and pipe it east to the Dublin Region.

The proposed scheme extends from Parteen Basin in North Tipperary to Peamount Reservoir in West Dublin with a proposal to transport water approximately 170km.

The proposed civil works will include the construction of some or all of the following:

- Raw Water Abstraction Point.
- Raw Water Intake and Pumping Station.
- Raw Water Rising Main.
- Water Treatment Plant connected to the Raw Water Rising Main.
- A pressurised pipeline extending from the WTP to a new Break Pressure Tank (BPT).
- A gravity fed pipeline from the BPT to a Terminal Point Reservoir (TPR).

The geotechnical investigation works for the overall project has been divided into three lots as follows:

Lot 1 (Contract 1):

- Raw Water Intake
- Raw Water Rising Main
- Water Treatment Plant
- Pipeline Ch.0 to Ch36,000 (36km)

Lot 2 (Contract 2):

- Break Pressure Tank
- Pipeline Ch.36,000 to Ch. 103,000 (67km)

Lot 3 (Contract 3):

- Termination Point Reservoir
- Pipeline Ch. 103,000 to 170,000 (67km)

Irish Drilling Ltd. (IDL) has been awarded Lot 2 (Contract 2) and as part of this contract IDL has been instructed by Mott Macdonald Ireland, Consulting Engineers, on behalf of Irish Water to carry out a site investigation along the proposed pipeline route from Chainage 36,000m to Chainage 103,000m (a distance of circa 67km).

This site investigation was carried out to provide detailed factual geotechnical information of the underlying ground conditions along the route.

The factual report issued here for the pipeline route will be collated with all other factual reports generated for the WSP Project (Lots 1 to 3) to provide the client with a factual report for the overall WSP Eastern and Midlands Region Project.

The fieldwork commenced on September 27th 2021 and was completed on June 15th 2022.

6.2 Site & Geology

The proposed pipeline route commences adjacent to the proposed Break Pressure Tank site at Chainage 36,000m and ends at Chainage 103,000m.

The fieldwork was carried out predominantly on agricultural lands. Weather conditions in general were quite variable with the majority of the fieldwork carried out over a typical winter period in Ireland.

A Site Plan, prepared by the client's representatives and showing approximate 'As-Built' fieldwork locations, is included with this report.

The following were the main published information sources used:
Geological Map of Ireland: 1:500,000 scale map series.

Site investigation data is available as point source data along the proposed route, and the majority of the ground in between the points can only be assumed to follow the characteristics of the nearest available data.

Overview of Subsoil Geology

Peat:
The deposition of peat occurred in post-glacial periods and is generally associated with the start of warmer and wetter climatic conditions. Peat is an unconsolidated usually dark brown to black organic material comprising a mixture of decomposed and undecomposed plant matter that accumulated in an acidic waterlogged environment. Peat has an extremely high-water content generally averaging over 90% by volume.

Estuarine Deposits:
These comprise of estuarine sands, gravels and silts from water borne deposits.

Glacial Till:
Glacial Till is what was often referred to as Boulder Clay. It is a diverse material that is largely deposited sub-glacially and has a wide range of characteristics due to the variety of parent materials and different processes of deposition. Tills are tightly packed, unsorted, heterogeneous, unbedded, and can have a wide range of particle sizes and types, which are often but not exclusively angular or sub-angular.

The type of parent material plays a critical role in providing the particles that create different subsoil permeability with sandstones giving rise to a high proportion of sand sized grains in the till matrix.

The Quarternary sediments are Till derived from limestone (Map Reference GSI: 1:50000).

Solid Geology
The Geological Map of Ireland: (GSI 1:100,000 scale map series) indicate that the site is underlain by mudstone and limestone rock of the Dinantian Waulsortian Limestone Formation.

Ground conditions encountered during the completion of the fieldwork were typical and as expected for this region and predominantly consisted of Glacial Tills.

The Glacial Tills in general consisted of slightly gravelly sandy silt/clay with cobbles and boulders and/or silty sands and/or gravels with cobbles and boulders.

Intact bedrock was encountered in the boreholes at depths ranging from 1.10m to 12.10m below ground level. Weathered bedrock was also encountered in many of the borehole at shallower depths while a number of boreholes were terminated at target depth without bedrock being encountered.

Bedrock is predominantly described as very strong, thinly-bedded, grey, fine and medium grained Limestone.

6.3 Fieldwork.

6.3.1 Fieldwork Plant:

The following plant was mobilised to site by IDL to carry out fieldwork operations:
1nr. Zaxis LCV 12T Tracked Excavator.
1nr. Dando 2000 Cable Percussive Boring Rig.
1nr. DeltaBase 520 Rotary Core Drilling Rig.
1nr. GEO 602 Rotary Core Drilling Rig.
1nr. LMSR-V(k) Geotool Dynamic Probing Rig.
3nr. Yanmarr All-Terrain Support Vehicle.
1nr. GeoboreS Drill String.
1nr. HQ Rotary Core Drill String.
1nr. Permeability Test Equipment.
1nr. Honda Water Supply Pump.
1nr. Drilling Water Recirculation Tank Syatem.

Fieldwork carried out to date has included the following:

6.3.2 Fieldwork Operations:

A general summary of fieldwork operations carried out to date includes the following:

- Ecological Survey prior to mobilisation to site.
- Completion of 15nr GeoboreS Boreholes.
- Completion of 5nr Rotary Core Boreholes.
- Completion of 61nr Cable Percussive Boreholes.
- Completion of 117nr Cable Percussive with Rotary Core 'follow-on' Boreholes.
- Completion of 14nr dynamic (window) sampling locations.
- Completion of 447nr Peat Probes and 123nr Russian Core Samples.
- Excavation of 455nr Trial Pits with in-situ hand shear vane tests.
- Completion of 14nr Dynamic Probes.
- Completion of 13nr In-Situ Shear Vane Tests using H70 Shear Vane.
- Completion of Standard Penetration Tests in overburden at borehole locations. SPT Hammer Certificates included in Appendix 6A.
- Completion of 18nr Variable Head Permeability Tests at borehole locations.
- Installation of 35nr 50mm diameter standpipes at borehole locations.
- Completion of Geophysical Survey.

6.3.3 Ecological Survey:

Prior to mobilisation of plant and personnel to site an ecological survey was commissioned by IDL. The survey was carried out by Moore Group, Environmental Consultants, and their scope included a study/review of any ecological and/or environmental issues on site that may have been influenced by fieldwork operations.

A record of their observations was presented as a 'stand-alone' report and presented to the client's consultants prior to mobilisation to site.

6.3.4 Archaeological Survey:

Prior to mobilisation of plant and personnel to site an archaeological desktop study was commissioned by IDL. The study was carried out by Through Time Ltd and a summary of their study has been presented to the client as a 'stand-alone' report.

6.3.5 Cable Percussive Boreholes:

Sixty-one cable percussion (Shell & Auger) boreholes were completed using a Dando 2000 Cable Percussive Boring Rig. The boreholes were bored to 'refusal' or to depths as instructed by the client's representatives.

The borehole depths ranged from 0.80m to 10.80m below ground level.

In–Situ testing consisting of Standard Penetration Tests were carried out at regular intervals (predominantly 1.0m intervals) or as instructed by the client's representatives.

Disturbed bulk and jar soil samples were taken at each change in strata and were returned to the laboratory and logged by a Geotechnical Engineer and presented for testing. Groundwater samples were taken where possible and returned to the laboratory for storage and analysis.

A 50mm diameter standpipe was installed in the following boreholes and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time:
BH-38786A
BH-44676
BH-62741
BH-69405
BH-71397
BH-84203

Groundwater readings recorded during the completion of fieldwork activities are included with this report as Appendix 6J.

Variable Head Permeability Tests were carried out at The following borehole locations and the records of same are included as Appendix 6E, Part 2:
BH-49513
BH-49880
BH-54278
BH-62741
BH-69405
BH-77404
BH-89604
BH-98002

Detailed engineering logs for the cable percussive boreholes completed are included with this report in Appendix 7A.

6.3.6 Cable Percussive with Rotary Core 'Follow-On' Boreholes:
One hundred and seventeen cable percussion (Shell & Auger) with rotary core 'follow-on' boreholes were completed using a Dando 2000 Cable Percussive Boring Rig and GEO602/DB520 Rotary Core Drill Rigs.

The borehole depths ranged from 8.00m to 25.20m below ground level. The boreholes were carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

The cable percussive element of the boreholes were bored to 'refusal' or to depths as instructed by the client's representatives while the rotary core boreholes were carried out as 'follow-on' rotary core boreholes at locations where the cable percussive boreholes encountered relatively 'shallow' refusals.

In–Situ testing consisting of Standard Penetration Tests were carried out at regular intervals (predominantly 1.0m intervals) or as instructed by the client's representatives.

Disturbed bulk and jar soil samples were taken at each change in strata and were returned to the laboratory and logged by a Geotechnical Engineer and presented for testing. Groundwater samples were taken where possible and returned to the laboratory for storage and analysis.

The rotary core drilling was carried out using HQ size (64mm core diameter, 96mm hole diameter) drill strings with wireline drilling techniques were used to recover the core samples.

A water based flush system was used as the drilling medium while a biodegradable polymer gel was also used where necessary to aid the drilling and soil / rock recovery process.
The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

A 50mm diameter standpipe was installed in the following boreholes and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time:
BH-36789
BH-38523
BH-42851A
BH-43817
BH-46402
BH-47262
BH-48139
BH-49214
BH-50608A
BH-50885
BH-56109
BH-56857
BH-59932
BH-60345
BH-69703
BH-72683
BH-76545
BH-78412
BH-78862
BH-79595
BH-83591
BH-94016
BH-96005
BH-97837
BH-97881
BH-102037

Groundwater readings recorded during the completion of fieldwork activities are included with this report as Appendix 6J.

Variable Head Permeability Tests were carried out at the following borehole standpipe locations and the records of same are included as Appendix 6E, Part 2.
BH-61605
BH-63008
BH-69703
BH-76545
BH-92680
BH-97788

Detailed engineering logs for the cable percussive with rotary core 'follow-on' boreholes completed are included with this report in Appendix 6A.

6.3.7 Soils/Rock Rotary Core Boreholes (GeoboreS):
Fifteen rotary core boreholes using GeoboreS drilling techniques were carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

The borehole depths ranged from 10.00m to 15.10m below ground level.

The rotary core boreholes were carried out as 'stand-alone' rotary core boreholes using wireline drilling techniques to recover soil and rock core samples.

GeoboreS drill strings ((101mm core diameter, 146mm hole diameter) were used to recover soil core samples in the overburden.

A water based flush system was used as the drilling medium while a biodegradable polymer gel was also used where necessary to aid the drilling and soil / rock recovery process.

The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

In-Situ testing consisting of Standard Penetration Tests were carried out in the overburden at regular intervals.

A 50mm diameter standpipe was installed in the following boreholes and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time:
BH-47812
BH-61515
BH-81864

Groundwater readings recorded during the completion of fieldwork activities are included with this report as Appendix 6J.

Detailed engineering logs for the soils/rock rotary core boreholes (GeoboreS) completed are included with this report in Appendix 6A.

6.3.8 Rotary Core Boreholes:
Five rotary core boreholes using were carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

The borehole depths ranged from 10.00m to 15.00m below ground level.

The rotary core boreholes were carried out as 'stand-alone' rotary core boreholes using wireline drilling techniques to recover soil and rock core samples.

HQ drill strings ((64mm core diameter, 96mm hole diameter) were used to recover soil and rock core samples.

A water based flush system was used as the drilling medium while a biodegradable polymer gel was also used where necessary to aid the drilling and soil / rock recovery process.

The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

In-Situ testing consisting of Standard Penetration Tests were carried out in the overburden at regular intervals.

A 50mm diameter standpipe was installed in the following boreholes and as instructed by the Client's Engineer, to allow for monitoring of groundwater levels over a prolonged period of time:
BH-74851

Groundwater readings recorded during the completion of fieldwork activities are included with this report as Appendix 6J.

Detailed engineering logs for the rotary core boreholes completed are included with this report in Appendix 6A.

6.3.9 Trial Pits:
Four hundred and fifty-six trial pits were excavated on site using a 12T tracked excavator.

The pits were logged and photographed by an Engineer with observations made on ground conditions, pit stability, water ingress and services encountered. The pits were excavated to depths ranging from 1.50m to 4.50m below ground level.

Small and bulk disturbed soil samples were recovered at each change in strata and returned to the laboratory and presented for testing.

In-Situ tests consisting of hand shear vane tests were also carried out where possible in cohesive soils and a summary of the shear vane test results are included on the engineering logs.

Detailed engineering logs for the trial pits completed are included with this report in Appendix 6C.

6.3.10 Dynamic Probing:
Fourteen dynamic probes (Dynamic Probe Heavy, DPH) were carried out to 'refusal' using a LMSR-V(k) Geotool Dynamic Probing Rig.

The dynamic probe was carried out to depths ranging from 0.80m to 10.00m below ground level.

The Dynamic Probing Rig involves the dropping of a 50 kg hammer onto rods from a standard height (500mm) and recording the number of blows it takes to penetrate the rods (with a cone tip) to depth of 100mm increments into the soil.

The dynamic probe engineering logs then graph the number of blow counts required to penetrate each 100mm incremental depth. The probe is considered to have encountered 'refusal' when a blow count of 25 does not achieve the full 100mm incremental depth.

Detailed engineering logs for the dynamic sampling completed are included with this report in Appendix 6B, Part 1.

6.3.11 Dynamic Sampling:
Fourteen dynamic sampling probe holes were carried out to 'refusal' using a LMSR-V(k) Geotool Dynamic Probing Rig.

Windowless samples are retrieved by pushing the rods to depth using rig hydraulics with the sample recovered in a seamless plastic liner contained within the rods. The plastic liner is then extracted from the rods once target sample depth is reached.

The windowless sampling was carried out to depths ranging from 0.90m to 3.00m below ground level.

Detailed engineering logs for the dynamic sampling completed are included with this report in Appendix 6B, Part 2.

6.3.12 Peat Probes and Russian Core Samples:
Four hundred and forty-seven peat probes were carried out using hand-held steel rods pushed by hand to 'refusal'

One hundred and twenty-three Russian Core samples testing were carried out to recover undisturbed soil samples using a core unit pushed by hand to 'refusal'.

The peat probes and Russian core sampling were carried out at soft ground locations and to depths ranging from 0.10m to 3.20m below ground level.

Detailed engineering logs for the peat probes and Russian core sampling completed are included with this report in Appendix 6D.

In-situ test consisting of shear vane test were carried out at thirteen peat probe and/or Russian core locations. The test were carried out using a Geonor H70 Shear Vane and the records of same are included with this report as Appendix 6E, Part 1.

6.3.13 Slit Trenches:
Four slit trenches were completed on roads along the proposed route to ascertain and record existing underground services. The trenches were excavated using a JCB Excavator.

Bulk and/or environmental soil samples were recovered from the slit trenches and presented to the laboratory for testing.

Ground conditions, trench stability and water ingress encountered during the excavation of the slit trenches were also recorded by Geotechnical Engineers and the records of same are included in Appendix 6E of this factual report.

6.3.14 Geophysical Survey:
A geophysical survey along the pipeline route was carried out by Minerex Geophysics Limited.

The survey consisted of Seismic Refraction and 2-D Resistivity and the records of same were presented as a ‘stand-alone’ report and included here with this report as Appendix 6G.

A Ground Penetration Radar(GPR) Utility Survey was also carried out by Scantech Geoscience Ltd at forty-one road locations along the proposed route and the records of this survey have been included as a ‘stand-alone’ report in Appendix 6G of this factual report.

6.3.15 General Summary:
The borehole locations were set out on site using a Trimble CU Bluetooth GPS Surveying Unit and the co-ordinates are included on the logs presented in the appendices.

All fieldwork co-ordinates are reported to Irish Transverse Mercator (ITM) with Reduced Levels recorded relative to Malin Head Datum and with an accuracy level of + or – 0.10m.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930:2015+A1:2020 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

6.4 Laboratory Testing

Representative samples recovered from the boreholes and trial pits were scheduled for testing in the laboratory.

The test schedules were prepared by the Client's Engineer and included the following tests on bulk disturbed soil samples, soil core samples and/or undisturbed soil samples:

Test Type:	Number
Moisture Content	1030
Atterberg Limit	991
Particle Density	05
Particle Size Distribution	1258
Sedimentation	633
Organic Content	53
Loss on Ignition	52
Sulphate Total	41
Chemical (pH, Sulphate)	06
Compaction (Light)	08
Compaction (Heavy)	02
Compaction (Vibrating)	02
Moisture Condition Value	113
Moisture Condition Relationship	03
CBR	54
Direct Shearbox (Small)	21
Triaxial (UU, Multistage)	02
BRE, Suite B	366

The test schedules also included the following tests on rock core samples:

Test Type:	Number
UCS	63
Point Load	218
Mohr Hardness	09
LA Abrasion	03
Water Absorption	01
Magnessium Sulphate Soundness	01
AAV	01
Slake Durability	08
Particle Density / Flakiness Index	01
Simplified Petrography	01
Brazilian Tensile Rock Test	02

The test schedules were carried out predominantly at the IDL Laboratory located at Loughrea, County Galway.

A number of specialist tests not available at the IDL laboratory were carried out by designated laboratories on a subcontract basis as follows:

Laboratory chemical tests (BRE Suite) were carried out by ALS Ltd., Hawarden, UK.

Shear Strength, Triaxial and Consolidation (Oedometer) Tests were carried out by NMTL, Carlow, County Carlow.

Groundwater samples tests (Mott MacDonald Groundwater Suite) if scheduled were also carried out by ALS Ltd., Hawarden, UK.

ALS Ltd., Hawarden, UK is accredited to ISO/IEC 17025:2017 (UKAS).

Specialist rock tests including Mohr Hardness, UCS with Young's Modulus and Poisson's Ratio, Magnessium Sulphate Soundness, Brazilian Tensile Strength, Direct Shear and Petrographic Analysis were carried out by Structural Soils Ltd, UK.

Structural Soils Ltd., Castleford, UK is accredited to ISO/IEC 17025:2017 (UKAS).

Soil samples (disturbed and undisturbed) in general were recovered from the excavation of trial pits and completion of cable percussive boreholes. Soil and/or rock core samples were recovered from the completion of rotary core boreholes and the records of the laboratory test results carried out on same are reported in Appendix 7H.

The soil and rock descriptions as noted on the borehole and trial pit logs are in general visual descriptions as observed and logged by our Engineers and are described in accordance with IS EN 1997-2 and BS5930:2015+A1:2020 Code of Practice for Site Investigations.

Soils descriptions (cohesive or otherwise) are also initially assessed based on the texture and 'feel' of the soil materials as witnessed by our Geotechnical Engineers and in accordance with IS EN 1997-2 and BS5930:2015+A1:2020.

Where laboratory classification tests have been carried out on soil and/or rock samples then these visual descriptions have been amended accordingly to take into account the results of these classification tests.

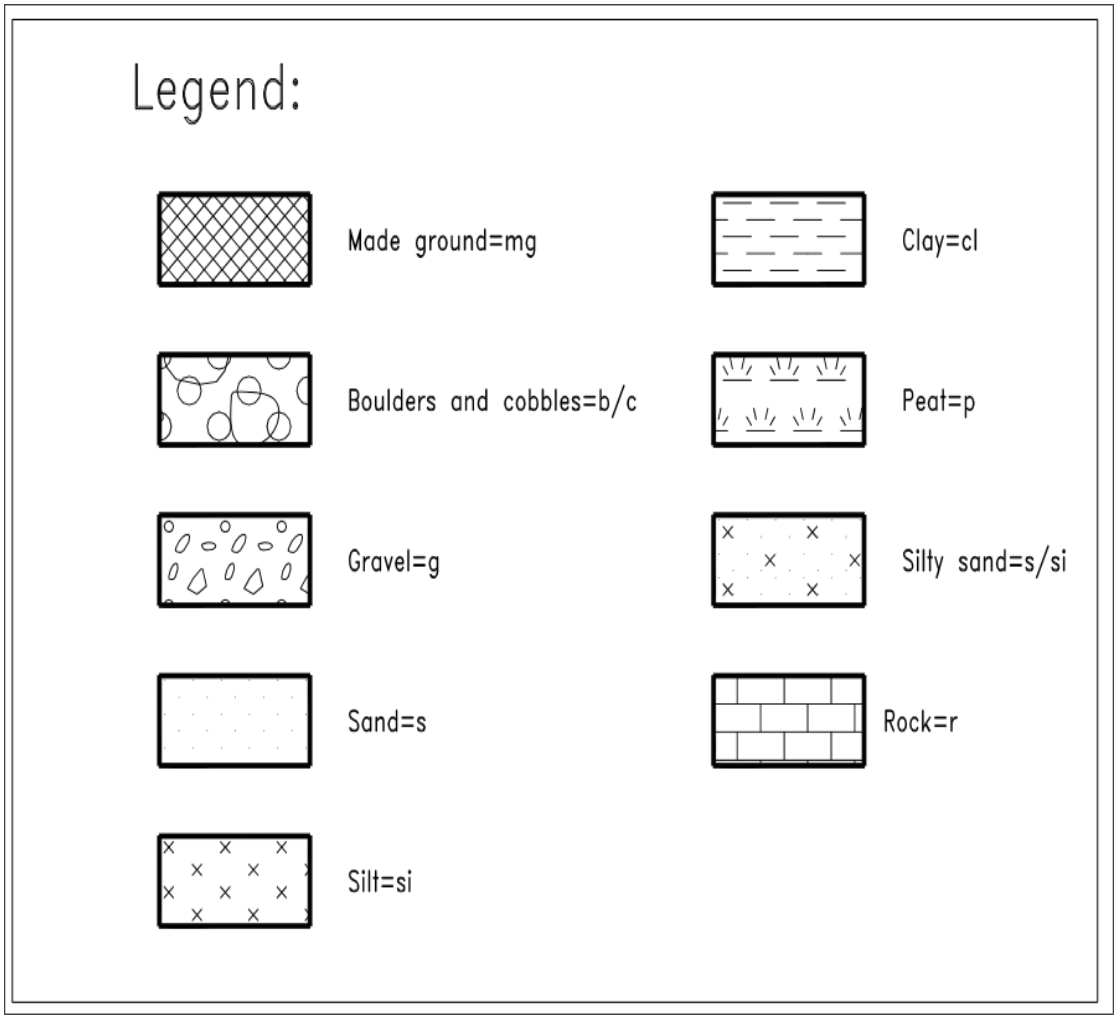
The records of the laboratory test results are included with this report as Appendix 6H.

Ronan Killeen

Ronan Killeen
Chartered Engineer
Irish Drilling Limited
March 31st 2023

Appendix 6A
Borehole Records

The following Key Legend Table details the symbology used in general on the engineering logs to describe ground conditions encountered:



Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling
Unit 8
Victory parkway
Victory rd
Derby
DE24 8ZF

Hammer Ref:	118
Test Date:	08/09/2021
Report Date:	09/09/2021
File Name:	118.spt
Test Operator:	B HUNTER

Instrumented Rod Data

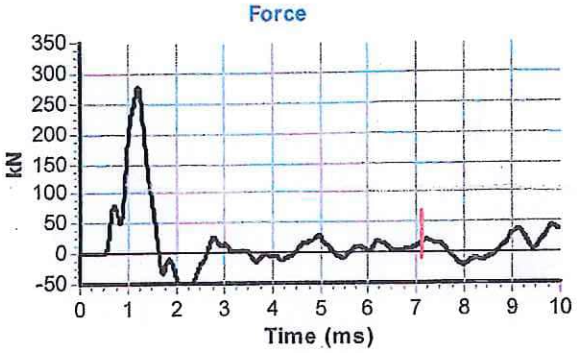
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	62901
Accelerometer No.2:	62902

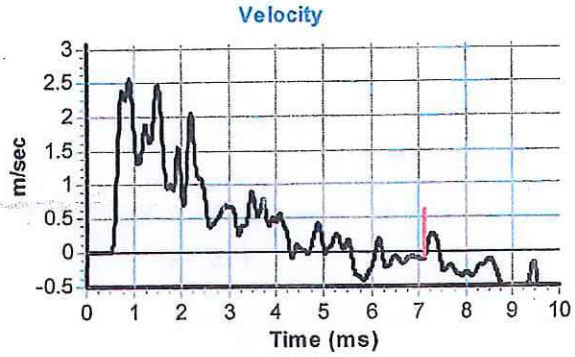
Hammer Information

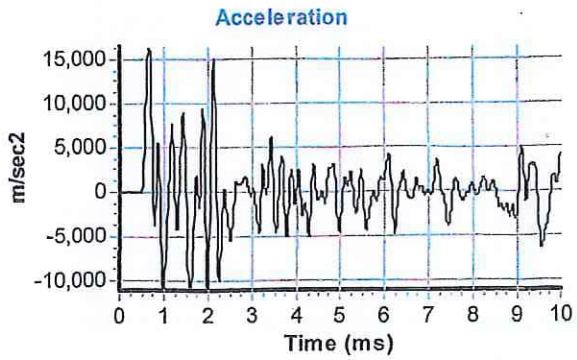
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
String Length L (m):	10.0

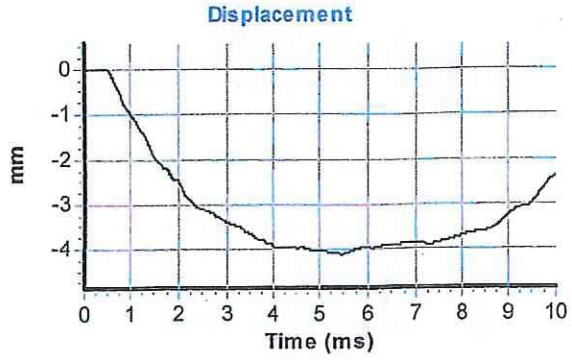
Comments / Location

Drillwell hammer tested at Dynamic samplings yard.





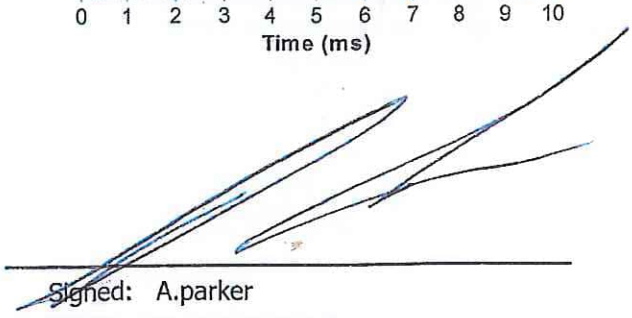




Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	286

Energy Ratio E_r (%): **60**



Signed: A.parker

Title: Associate director

The recommended calibration interval is 12 months

SPTMAN ver.Hammer Energy ver. 1.93 All rights reserved, Testconsult ©2010

Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling
Unit 8
Victory parkway
Victory rd
Derby
DE24 8ZF

Hammer Ref:	119
Test Date:	08/09/2021
Report Date:	09/09/2021
File Name:	119.spt
Test Operator:	B HUNTER

Instrumented Rod Data

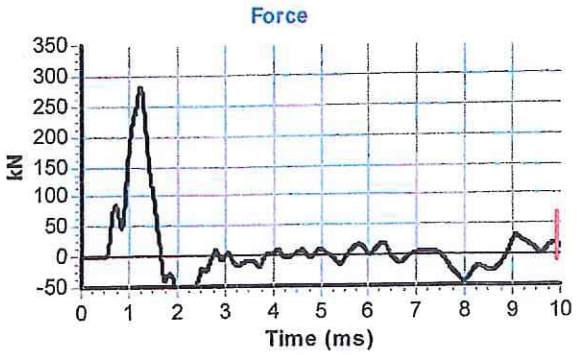
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	62901
Accelerometer No.2:	62902

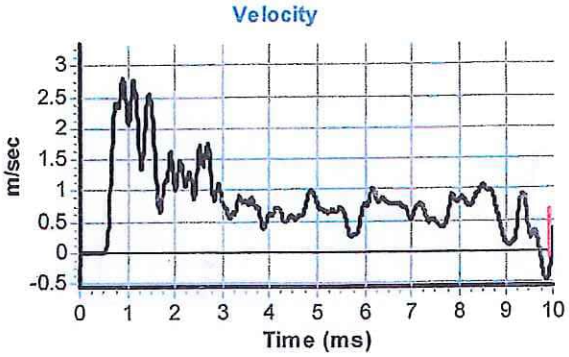
Hammer Information

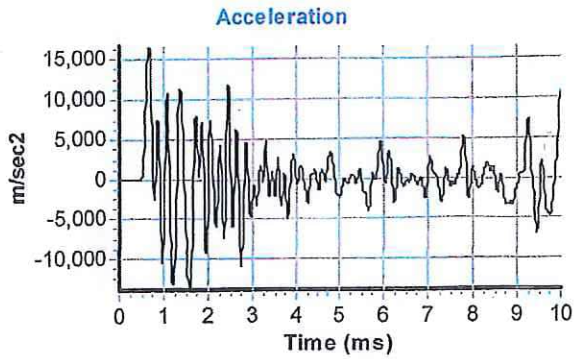
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
String Length L (m):	10.0

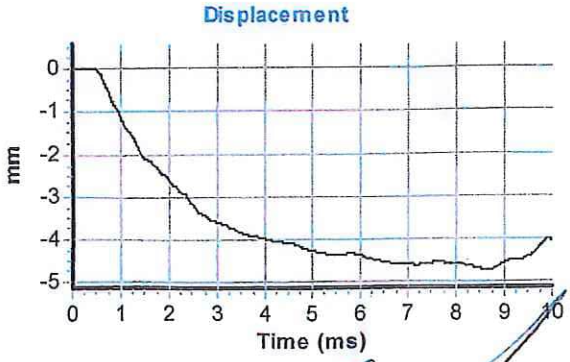
Comments / Location

Drillwell hammer tested at Dynamic samplings yard.





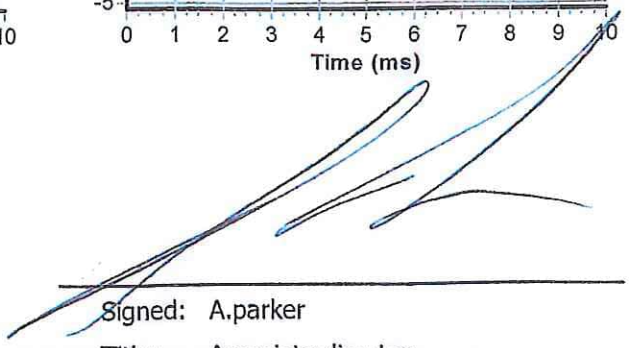




Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	291

Energy Ratio E_r (%): **62**



Signed: A.parker

Title: Associate director

The recommended calibration interval is 12 months

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Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling
Unit 8
Victory parkway
Victory rd
Derby
DE24 8ZF

Hammer Ref:	120
Test Date:	08/09/2021
Report Date:	09/09/2021
File Name:	120.spt
Test Operator:	B HUNTER

Instrumented Rod Data

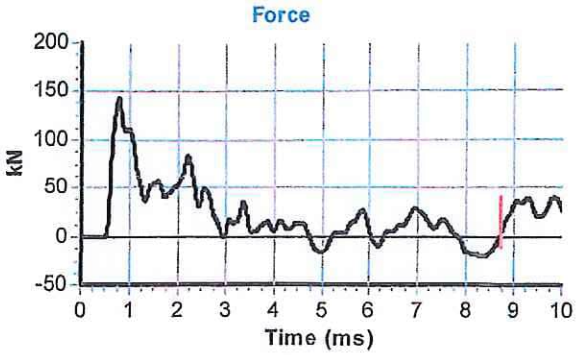
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	62901
Accelerometer No.2:	62902

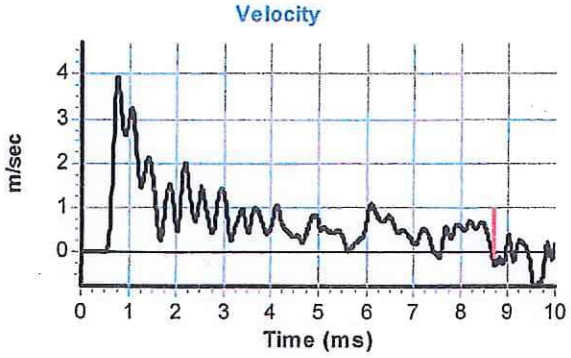
Hammer Information

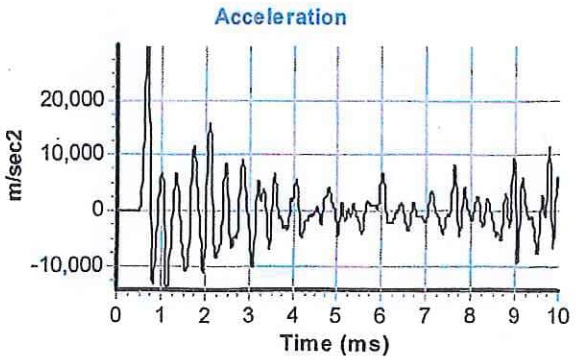
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
String Length L (m):	10.0

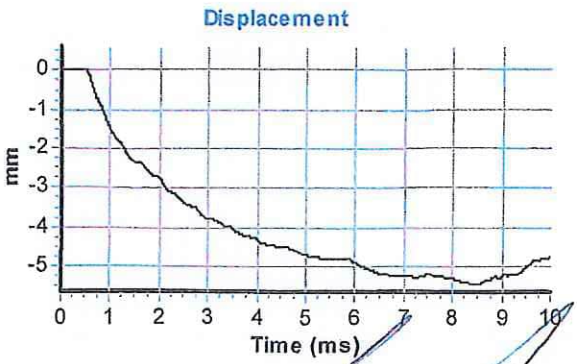
Comments / Location

Drillwell hammer tested at Dynamic samplings yard.





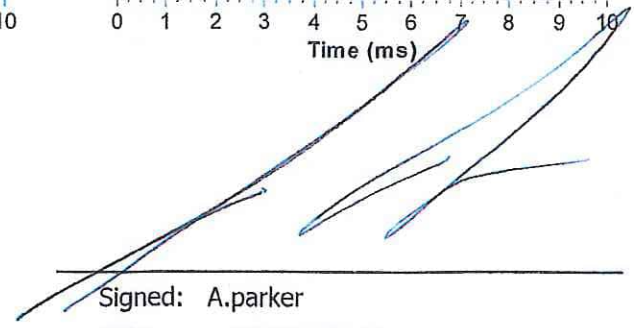




Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	314

Energy Ratio E_r (%): **66**



Signed: A.parker

Title: Associate director

The recommended calibration interval is 12 months

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36391**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-05-22 09-09-22	130.11	E 596,861.4 N 689,906.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	C			129.91		0.20	TOPSOIL: Grass over soft reddish brown sandy SILT with rootlets. Sand is fine to coarse.	
							Dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL.	
1.00-2.00	C					(2.50)		
2.00-3.50	C							
2.50	SPT	50 for 75 mm (12, 15, 20, 30)		127.41		2.70		
						(0.40)	Dense dark grey slightly silty fine to coarse SAND.	
				127.01		3.10		
						(0.50)	Weathered LIMESTONE rock. Strong and very strong thinly bedded grey 'marbled' brownish white and white fine and coarse grained limestone with very strong dark grey fine grained chert nodules recovered as angular fine to coarse gravel sized clasts.	
3.50-5.00	C			126.51		3.60	*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
23-05-22	15.00	3.60	3.60	203	dry	3.4	3.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: CR/EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36391**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-05-22 09-09-22	130.11	E 596,861.4 N 689,906.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
23.05		NI	126.51		3.60	3.60 - 4.10 Non-intact as weathered rock.	Weathered LIMESTONE rock. Strong and very strong thinly bedded grey 'marbled' brownish white and white fine and coarse grained limestone with very strong dark grey fine grained chert nodules recovered as angular fine to coarse gravel sized clasts.	
					(0.50)			
		2	126.01		4.10	4.10 - 11.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12 and 16 to 18°, stepped, smooth, with 0.5 to 1mm thick light greyish white silty clay smear. 4.20 - 4.25 Joint, subvertical dip, stepped, smooth with 0.5 to 1mm thick light orangish brown clay smear, open. 4.45 - 4.60 Joint, subvertical dip, undulating, rough, clean, open as drilling induced?		
	100 (96) 93	2					Very strong massive grey 'marbled' light grey and white slightly bioclastic fine grained LIMESTONE.	
		1						
	100 (95) 94							
		2						
					(6.90)			
	100 (96) 94	3						
		3						
	100 (95) 91							
		3						
09.09			119.11		11.00		BH terminated at 11.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
23/05/22	15.00	3.60	3.60	203				3.6	11	Water	100	BH backfilled with grout.
09/09/22	16.00	11.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: CR/EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36789**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 13-06-22	151.08	E 597,231.0 N 690,021.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 5 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			150.78		0.30	TOPSOIL: Grass over firm brown SILT.	
						(0.80)	Firm grey slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	50 for 0 mm (7, 25, 50)		149.98		1.10		
1.00	D2						*Borehole continued by coring*	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
19-05-22	12.00	1.10			

Chiselling

From	To	Hours
1.1	1.1	1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 10.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36789**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 13-06-22	151.08	E 597,231.0 N 690,021.2

Engineer	Sheet	Status
Mott MacDonald	2 of 5	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
19.05 1.10	40 (9) -	1.10 (50/0mm)	149.98		1.10	1.10 - 4.10 Non-intact as possible weathered rock with clay. No obvious area of core loss. No recovery as washout of fines during drilling. No record of cavity.	Possible weathered DOLOMITISED LIMESTONE rock. Strong locally very strong massive light whitish grey 'marbled' white crystalline vuggy fine and coarse grained dolomitised limestone recovered as angular fine to coarse gravel and cobble sized clasts and orange fine to coarse sandy gravelly clay.	
2.00	20 - -	NI			(3.00)			
3.00	50 - -							
3.80		NI	146.98		4.10			
	100 (56) 33	8				4.10 - 6.10 Possible weathered rock.	Very strong massive light whitish grey 'marbled' white crystalline vuggy fine and coarse grained DOLOMITISED LIMESTONE.	
5.10					(2.00)			
	100 (67) 65	5	144.98		6.10			
6.60		NI				6.10 - 9.50 Non-intact as possible weathered rock with clay. No obvious area of core loss. No recovery as washout of fines during drilling. No record of cavity.	Probable weathered LIMESTONE rock. Very strong massive light whitish grey 'marbled' white crystalline vuggy fine and coarse grained weakly dolomitised limestone recovered as subangular fine to coarse gravel and cobble sized clasts and orange gravelly clay.	
	35 (11) -							
8.00								
8.60	83 - -	NI						
	56 (20)							

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
19/05/22	12.00	1.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.1	25	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 10.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36789**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 13-06-22	151.08	E 597,231.0 N 690,021.2

Engineer	Sheet	Status
Mott MacDonald	3 of 5	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
9.50	-				(6.90)	9.50 - 13.00 Possible weathered rock.		Probable weathered LIMESTONE rock. Very strong massive light whitish grey 'marbled' white crystalline vuggy fine and coarse grained weakly dolomitised limestone recovered as subangular fine to coarse gravel and cobble sized clasts and orange gravelly clay. *(continued)*	
	100 (11) -								
11.00									
	100 (12) -	NI							
12.50									
			138.08		13.00				
	100 (64) 57	2				13.00 - 25.00 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear. 13.45 - 13.80 Joint, subvertical dip, undulating, tight. 14.00 - 14.10 Joint, dipping 60°, planar, smooth, with 0.5 to 1mm thick orangish brown clay smear and orange and orangish brown iron stain, open.		Very strong locally strong massive grey 'marbled' light grey and white fine and coarse grained LIMESTONE. Point Load Test - 13.50m to 13.65m: strong.	
10.06 14.00 13.06									
	100 (94) 85	6				14.25 - 14.35 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open. 14.80 - 14.85 Joint, dipping 45°, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open.		14.75m to 14.80m: orange clay.	
15.60		3				15.85 - 16.05 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.			
	100 (97) 89	0							
17.00									

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
10/06/22	17.00	14.00					
13/06/22	08.00	14.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 10.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36789**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 13-06-22	151.08	E 597,231.0 N 690,021.2

Engineer	Sheet	Status
Mott MacDonald	4 of 5	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
		0						Point Load Test - 17.00m to 17.10m: strong. Very strong locally strong massive grey 'marbled' light grey and white fine and coarse grained LIMESTONE. *(continued)*	
	100 (99) 98								
18.60		1			(12.00)				
	100 (97) 96							Point Load Test - 19.00m to 19.05m: very strong. Point Load Test - 19.05m to 19.10m: strong.	
		2							
20.00									
		2							
	100 (97) 96							Point Load Test - 21.00m to 21.05m: weak.	
21.60		4				21.80 - 21.90 Joint, dipping 60°, planar, smooth, with 0.5 to 1mm thick orangish brown clay smear and orange and orangish brown iron stain, open.			
	100 (97) 92								
		2							
23.00						23.00 - 23.48 Joint, dipping 56o, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.			
		2							
	100 (97) 96								
24.50		2							
	100 (98) 98								
13.06 25.00			126.08		25.00				

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
13/06/22	16.00	25.00										50mm standpipe installed. Response zone 5.50m to 10.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36789**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 13-06-22	151.08	E 597,231.0 N 690,021.2

Engineer	Sheet	Status
Mott MacDonald	5 of 5	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	Main	Instrument/ Backfill
							BH terminated at 25.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	50mm standpipe installed. Response zone 5.50m to 10.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36829**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 15-06-22	150.60	E 597,266.4 N 690,042.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 5 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00 0.00-0.50	C B1			150.30		0.30	TOPSOIL: Grass over firm brown SILT.	
				150.10		0.50	Medium dense grey sandy subangular fine to coarse limestone GRAVEL. Sand is fine to coarse.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
19-05-22	15.00	0.50				0.3	0.5	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36829**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 15-06-22	150.60	E 597,266.4 N 690,042.3

Engineer	Sheet	Status
Mott MacDonald	2 of 5	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
19.05 0.50		0.50 (50/0mm)	150.10		0.50	0.50 - 3.00 Non-intact as weathered rock.	Medium dense subangular to subrounded fine to medium assorted dark grey and grey limestone GRAVEL.	
	100 -		149.60		(0.50) 1.00		Weathered LIMESTONE rock. Very strong massive grey 'marbled' white fine and coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts with a little orangish brown clay.	
1.70								
2.10	100 (80) 33	NI			(2.00)			
	100 (81) 30		147.60		3.00			
3.50		5				3.00 - 25.20 Discontinuities, medium spaced, locally closely spaced and very closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick gey silt smear to 7.00m bgl, then 0.5 to 2mm thick orange clay smear. 3.30 - 3.38 Joint, dipping 56°, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.	Very strong locally strong and medium strong massive grey 'marbled' light grey and white fine and coarse grained LIMESTONE. Point Load Test - 3.00m to 3.05m: very strong.	
	100 (80) 33							
		8				4.40 - 4.45 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.		
4.80								
	100 (98) 88							
5.60		4						
	100 (83) 62					6.30 - 6.40 Joint, subvertical dip, undulating, tight. 6.50 - 6.60 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick orangish grey silt smear, open.		
		4						
7.00								
	100 (78) 66							
		4						
8.10							Point Load Test - 8.10m to 8.20m: strong.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
19/05/22	15.00	0.50						0.5	25.2	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36829**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 15-06-22	150.60	E 597,266.4 N 690,042.3

Engineer	Sheet	Status
Mott MacDonald	3 of 5	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	100 (97) 86	3				8.75 - 8.90 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick orangish brown clay smear, open.		Very strong locally strong and medium strong massive grey 'marbled' light grey and white fine and coarse grained LIMESTONE. *(continued)*	
9.70		4							
	100 (95) 85	2							
11.10									
		2							
	100 (89) 68								
12.70		5				12.10 - 12.25 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open. 12.30 - 12.70 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.			
	100 (98) 86	3							
14.06 15.06 14.10					(22.20)				
		4							
	100 (90) 71					14.70 - 14.85 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open. 14.80 - 15.05 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open. 15.45 - 15.60 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick orangish brown clay smear, open.			
15.70		6							
	100 (94)							Point Load Test - 16.00m to 16.10m: medium strong.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
14/06/22 15/06/22	17.00 08.00	14.10 14.10										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36829**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 15-06-22	150.60	E 597,266.4 N 690,042.3

Engineer	Sheet	Status
Mott MacDonald	4 of 5	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	83	5						Very strong locally strong and medium strong massive grey 'marbled' light grey and white fine and coarse grained LIMESTONE. *(continued)*	
17.10									
		5							
	100 (96) 91							Point Load Test - 18.00m to 18.10m: very strong. Point Load Test - 18.10m to 18.20m: very strong.	
18.70		4							
						18.75 - 19.15 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open.			
	100 (92) 40	4							
20.10								Point Load Test - 20.00m to 20.10m: very strong.	
						20.10 - 20.46 Joint, subvertical dip, undulating, tight.			
		2				20.60 - 20.85 Joint, subvertical dip, planar, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.			
	100 (97) 89								
21.70		2							
	100 (96) 93	4							
23.10									
		3							
	100 (90) 83								
						24.30 - 24.45 Joint, subvertical dip,			

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36829**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-05-22 15-06-22	150.60	E 597,266.4 N 690,042.3

Engineer	Sheet	Status
Mott MacDonald	5 of 5	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
24.60	100 (98) 94	2				stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.	Very strong locally strong and medium strong massive grey 'marbled' light grey and white fine and coarse grained LIMESTONE. *(continued)*	
15.06 25.20			125.40		25.20		BH terminated at 25.20m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
15/06/22	15.00	25.20										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36879**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-10-21 14-03-22	142.67	E 597,301.7 N 690,085.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-2.00 0.00-1.00	C B1					(0.50)	TOPSOIL: Grass over firm brown SILT with low cobble content. Cobbles are subrounded of limestone.	
				142.17		0.50		
							Firm greyish brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00 1.00 1.00-1.50 1.50	SPT D2 B4 D5	N = 28 (5, 3, 8, 7, 7, 6)				(1.70)		
2.00	SPT	N = 48 (8, 9, 10, 17, 10, 11)		140.47		2.20		
							Stiff light brown sandy SILT with low boulder content. Sand is fine to coarse. Boulders are subrounded to rounded of grey limestone.	
2.00-3.50 2.00-2.50 2.50	C B7 D8					(0.80)		
				139.67		3.00		
3.00	SPT	50 for 75 mm (8, 17, 50)		139.37		3.30	Light brown very sandy very silty sandy subangular to rounded fine to coarse limestone GRAVEL with low boulder content. Sand is fine to coarse. Boulders are subrounded to rounded of grey limestone.	
3.00-3.40	B10			139.27		3.40		
							Obstruction as possible weathered LIMESTONE rock. Very strong light grey 'marbled' grey and white fine and coarse grained limestone recovered as angular fine to coarse gravel sized clasts with much light orangish brown clay.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
19-10-21	12.00	3.40			dry	2.4 3.3	2.6 3.4	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36879**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-10-21 14-03-22	142.67	E 597,301.7 N 690,085.2

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
19.10 3.40			139.27		3.40	3.40 - 15.00 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Strong and very strong light grey and grey 'marbled' grey and white with 'anastomosing' white calcitic veinlets fine to coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts with much light orangish brown clay. Point Load Test - 3.40m to 3.50m: strong.	
	33 (21) -							
5.00							Point Load Test - 5.50m to 5.60m: weak.	
	60 (36) -							
6.50		NI						
	33 (15) 12							
8.00								
	60 - -				(11.60)			
9.50								
	60 - -							
11.00								

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
19/10/21	12.00	3.40						3.4	15	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36879**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-10-21 14-03-22	142.67	E 597,301.7 N 690,085.2

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	40 (13) -							Possible weathered LIMESTONE rock. Strong and very strong light grey and grey 'marbled' grey and white with 'anastomosing' white calcitic veinlets fine to coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts with much light orangish brown clay. *(continued)*	
12.50		NI							
	20 - -								
14.00									
	40 - -								
14.03 15.00			127.67		15.00				
								BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
14/03/22	17.00	15.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36883**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-10-21 11-03-22	144.08	E 597,311.3 N 690,057.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			143.68		(0.40) 0.40	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular fine to coarse of white calcitic and assorted grey limestone.	
				142.98		(0.70) 1.10	Stiff greyish brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	50 for 30 mm (25, 50)		142.78		1.30	Obstruction as limestone BOULDER.	
1.00	D2						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
19-10-21	15.00	1.30			dry	1.1	1.3	1:30			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36883**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-10-21 11-03-22	144.08	E 597,311.3 N 690,057.1

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
19.10 1.30	40 -		142.78		1.30	1.30 - 3.00 m: overburden	Dense brown slightly clayey subangular fine to coarse white calcitic and assorted grey limestone GRAVEL.	
2.00	-				(1.70)			
	60 -		141.08		3.00			
3.50	-					3.00 - 5.50 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Possible weathered LIMESTONE rock. Very strong and strong dark grey and grey fine and coarse grained limestone recovered as angular fine to coarse gravel cobble and boulder sized clasts with a little brown clay. Core run - 3.50m to 5.00m: 1 No white calcitic boulder 240mm in length.	
	67 (18) 13	NI			(2.50)			
5.00							Point Load Test - 5.00m to 5.10m: very strong.	
			138.58		5.50			
	60 (41) 22					5.50 - 9.90 Non-intact as probable weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Very strong thinly interbedded grey with white calcitic veinlets fine and coarse grained LIMESTONE.	
6.50								
	87 (56) 39							
		NI			(4.40)			
8.00								
	71 (68) 61							

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
19/10/21	15.00	1.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.3	1.8	Water	100
1.8	15.2	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36883**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-10-21 11-03-22	144.08	E 597,311.3 N 690,057.1

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
9.50			134.18		9.90		Very strong thinly interbedded grey with white calcitic veinlets fine and coarse grained LIMESTONE. *(continued)*	
	100 (10) -	NI			(1.10)	9.90 - 11.00 Non-intact as slightly gravelly orangish brown clay.	Very stiff orangish brown slightly gravelly CLAY. Gravel is subangular fine of assorted grey limestone.	
11.00			133.08		11.00			
	87 (27) 21	NI			(1.40)	11.00 - 12.40 Non-intact as orangish brown clay with cobbles.	Very stiff orangish brown slightly gravelly CLAY with low cobble content. Gravel is subangular fine of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone	
12.50			131.68		12.40			
	100 (96) 88	1 4			(2.80)	12.40 - 15.20 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear.	Very strong thinly interbedded locally massive grey with white calcitic veinlets fine and coarse grained LIMESTONE.	
14.00							13.90m to 15.20m: white calcitic vein.	
	100 (95) 64	2				14.15 - 14.65 Joint, subvertical dip, undulating, rough, clean, open as drilling induced?		
11.03 15.20			128.88		15.20			
							BH terminated at 15.20m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
11/03/22	17.00	15.20										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36920**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-03-22 16-03-22	138.45	E 597,346.3 N 690,078.8

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
0.00						0.00 - 1.40 m: overburden	Stiff brown slightly sandy gravelly SILT. Sand is coarse. Gravel is subrounded to subangular fine of assorted grey limestone. (0.20m recovered).	
	50 -				(1.40)			
	-		137.05		1.40			
						1.40 - 2.30 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Very strong and strong massive grey fine grained limestone recovered as angular coarse gravel and cobble sized clasts. Point Load Test - 2.00m to 2.10m: strong.	
2.00					(0.90)			
			136.15		2.30			
	100 (77) 50	5				2.30 - 15.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear.	Very strong massive locally thinly bedded grey 'marbled' brownish white and light grey fine grained LIMESTONE.	
						2.90 - 3.25 Joint, subvertical dip, stepped, smooth, with 0.5 to 6mm thick light brown silt smear, open to moderately wide.	Point Load Test - 3.00m to 3.10m: strong.	
15.03 3.50 15.03		7					3.50m: reduce from GBS core format to HQ core format.	
	100 (96) 86						Point Load Test - 3.80m to 3.90m: very strong.	
		7					Point Load Test - 4.00m to 4.10m: very strong.	
5.00						5.00 - 6.50 No obvious area of core loss. Probable washout of fines during drilling. No record of cavity.	Point Load Test - 5.00m to 5.30m: very strong.	
	60 (59) 58							
6.50							Point Load Test - 6.20m to 6.50m: very strong.	
		2						
	100 (95) 74							
		8						
8.00						7.80 - 8.20 Joint, subvertical dip,		

Drilling Progress and Water Observations								
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	
15/03/22	11.00	3.50						

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	15	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Rotary Core/Comacchio Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36920**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-03-22 16-03-22	138.45	E 597,346.3 N 690,078.8

Engineer: Mott MacDonald

Sheet 2 of 2

Status FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
	100 (87) 39	9			(12.70)	stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open. 8.30 - 8.90 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open.	Very strong massive locally thinly bedded grey 'marbled' brownish white and light grey fine grained LIMESTONE. *(continued)*	
9.50		6						
T5.03 T6.03	100 (87) 64	4				10.60 - 10.80 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and orange and orangish brown iron stain and powder, open.		
11.00								
	100 (98) 96	3						
12.50		2						
	100 (95) 85	4						
14.00								
	100 (81) 65	2						
T6.03 15.00			123.45		15.00	14.80 - 15.00 Joint, vertical dip, undulating, smooth, clean, open as drilling induced?	BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
15/03/22	16.00	10.00					
16/03/22	08.00	10.00					
16/03/22	12.00	15.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Rotary Core/Comacchio Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36956**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-10-21 10-03-22	135.31	E 597,381.2 N 690,079.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			134.91		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 47 (8, 7, 10, 9, 9, 19)				(1.70)	Stiff grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are angular of limestone. Boulders are angular of grey fine grained limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	50 for 0 mm (25, 50)		133.21		2.10	*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
20-10-21	12.00	2.10			dry	2 2.1	2.1 2.1	1:00 0:30			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36956**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-10-21 10-03-22	135.31	E 597,381.2 N 690,079.9

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
20.10 2.10			133.21 133.11		2.10 2.20	2.10 - 15.00 Discontinuities, closely spaced, locally medium spaced to 5.00m, then medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick light brown clay smear.	Obstruction as LIMESTONE rock. Very strong grey fine grained limestone recovered as angular fine to coarse gravel sized clasts.	
	100 (74) 41	16					Point Load Test - 3.80m to 3.90m: very strong.	
3.50		8				3.45 - 3.80 Joint, subvertical dip,'V' shaped, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open.	Very strong thinly interbedded grey with white calcitic veinlets fine and coarse grained LIMESTONE.	
	100 (96) 64	6						
5.00								
	100 (96) 85	5					Point Load Test - 6.00m to 6.10m: very strong.	
6.50		4				6.30 - 6.45 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and orange brown and dark orangish brown iron stain and powder, open.		
	100 (90) 89	2						
8.00								
	100 (96) 95	2			(12.80)			
9.50		4				9.25 - 9.30 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick light brown clay smear and minor orangish brown iron stain, open.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
20/10/21	12.00	2.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.1	15	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-36956**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-10-21 10-03-22	135.31	E 597,381.2 N 690,079.9

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	100 (94) 75	6				10.45 - 10.65 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and orange brown and dark orangish brown iron stain and powder, open.		Very strong thinly interbedded grey with white calcitic veinlets fine and coarse grained LIMESTONE. *(continued)*	
11.00									
	100 (96) 90	2							
12.50		4							
	100 (97) 88	3							
14.00									
	100 (93) 88	3							
10.03 15.00			120.31		15.00			BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
10/03/22	16.00	15.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-37230**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-10-21 09-03-22	115.26	E 597,655.3 N 690,099.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			114.76		(0.50) 0.50	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 33 (4, 5, 5, 7, 10, 11)				(1.00)	Stiff greyish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	D2			113.76		1.50		
1.00-1.50	B4							
1.50	D5						Dense orangish brown slightly clayey subrounded fine to coarse assorted grey limestone GRAVEL. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-10-21	12.00	1.60			dry	1.6	1.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-37230**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-10-21 09-03-22	115.26	E 597,655.3 N 690,099.4

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
13.10 1.60	45 -	1.60 (50/0mm)			(0.50)	1.60 - 2.00 m: overburden		Dense orangish brown slightly clayey subrounded fine to coarse assorted grey limestone GRAVEL. *(continued)*	
2.00	-		113.26		2.00	2.00 - 4.90 Non-intact as possible weathered rock.		Possible weathered LIMESTONE rock. Strong and very strong thinly bedded grey 'marbled' brownish white and white fine and coarse grained limestone with dark grey fine grained fine to medium gravel sized chert nodules recovered as angular fine to coarse gravel and cobble sized clasts.	
	100 (25) -								
3.50		NI			(2.90)				
	100 (35) 24								
5.00			110.36		4.90	4.90 - 15.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear.		Very strong thinly bedded grey 'marbled' brownish white and white fine grained LIMESTONE with dark grey fine grained fine to medium gravel sized chert nodules. Point Load Test - 5.00m to 5.20m: very strong. Point Load Test - 5.50m to 5.70m: very strong.	
	60 (96) 71	2				5.70 - 5.85 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick orangish brown clay smear, open.			
6.50		7							
	100 (96) 93								
		3							
8.00						8.00 - 8.85 Joint, vertical dip, undulating, smooth, with 0.5 to 1mm thick orangish brown clay smear, open as drilling induced?			
	100 (97) 93	3							
9.50									

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
13/10/21	12.00	1.60					

Rotary Flush			
From (m)	To (m)	Type	Return (%)
1.6	1.8	Water	100
1.8	15	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-37230**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-10-21 09-03-22	115.26	E 597,655.3 N 690,099.4

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
		3						Very strong thinly bedded grey 'marbled' brownish white and white fine grained LIMESTONE with dark grey fine grained fine to medium gravel sized chert nodules. *(continued)*	
	100 (98) 96				(10.10)				
		4							
11.00									
		3							
	100 (97) 96								
12.50									
		3							
	100 (97) 86					12.95 - 13.15 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick orangish brown clay smear, open.			
		4							
14.00									
	100 (85) 84	3							
09.03 15.00			100.26		15.00				
								BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
09/03/22	16.00	15.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-37778**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-10-21 08-03-22	104.58	E 598,118.6 N 689,906.8

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1					(0.40)	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content and rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
				104.18		0.40	Stiff light greyish brown slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	N = 15 (2, 2, 3, 4, 3, 5)						
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 63 (5, 7, 10, 18, 20, 15)				(3.70)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 35 (6, 7, 7, 8, 9, 11)						
3.00-3.50	B10							
3.50	D11							
3.50-3.50	D11							
4.00	SPT	50 for 75 mm (25, 50)		100.48		4.10		
				100.28		4.30	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-10-21	17.00	4.30			dry	2.4 4.1	2.7 4.3	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-37778**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-10-21 08-03-22	104.58	E 598,118.6 N 689,906.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
12.10 4.30	40 - -		100.28		4.30	4.30 - 10.00 m: overburden		Very stiff greenish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
5.00									
	53 - -	5.80 (50/75mm)							
6.50									
	53 - -				(5.70)				
8.00								Point Load Test - 8.40m to 8.60m: very strong.	
	67 - -								
9.50									
08.03 10.00	100 - -		94.58		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
12/10/21 08/03/22	17.00 16.00	4.30 10.00						4.3	10	Water	0	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38106**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-10-21 07-03-22	98.31	E 598,452.7 N 689,995.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over stiff brown SILT.	
				97.71		0.60		
							Firm greyish brown SILT with low cobble content. Cobbles are subangular to rounded of limestone.	
1.00	SPT	N = 62 (5, 8, 16, 17, 20, 9)				(0.90)		
1.00	D2							
1.00-1.50	B4			96.81		1.50		
1.50	D5						Light brown very silty very sandy subrounded to subangular fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.50-1.50	D5					(0.40)		
1.60	SPT	50 for 21 mm (25, 50)		96.41		1.90		
				96.31		2.00	Obstruction as possible limestone rock.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-10-21	16.00	2.00			dry	1.4 1.9	1.6 2	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38106**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-10-21 07-03-22	98.31	E 598,452.7 N 689,995.0

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
13.10 2.00			96.31		2.00	2.00 - 2.30 m: overburden		Subrounded to subangular fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
			96.01		2.30				
	100 (51) 10					2.30 - 6.30 Non-intact as possible weathered rock.		Possible weathered LIMESTONE rock. Strong and very strong thinly bedded grey 'marbled' brownish white and white fine and coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts with some light orangish brown clay.	
3.50									
	80 (45) 16	NI			(4.00)				
5.00									
	73 (17) -								
			92.01		6.30				
6.50		4				6.30 - 10.20 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, rough, with 0.5 to 3mm thick light orangish brown clay smear.		Very strong locally strong thinly bedded locally massive grey 'marbled' brownish white and white with coarse grained sparite fine grained and coarse grained LIMESTONE.	
	100 (94) 62					6.50 - 6.75 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear, open.		Point Load Test - 6.40m to 6.50m: very strong.	
		6				7.20 - 7.40 Joint, subvertical dip, stepped, rough, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide.			
8.00					(3.90)	7.70 - 7.75 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear and minor dark orangish brown iron stain and powder, open.		Point Load Test - 8.00m to 8.20m: strong.	
	100 (90) 42	7				8.25 - 8.40 Joint, subvertical dip, stepped, rough, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide.			
9.50						8.65 - 8.70 Joint, dipping 45°, planar, smooth, with 0.5 to 1mm thick light orangish brown clay smear, open.			
	100 (92)	5							

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
13/10/21	16.00	2.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2	2.8	Water	100
2.8	10.2	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38106**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-10-21 07-03-22	98.31	E 598,452.7 N 689,995.0

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
07.03 10.20	85		88.11		10.20	8.80 - 8.95 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear, open.	BH terminated at 10.20m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
07/03/22	16.00	10.20										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38523**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-10-21 04-03-22	105.50	E 598,837.6 N 690,010.2

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-2.00	C						TOPSOIL: Grass over firm brown SILT.	
0.00-1.00	B1					(0.70)		
				104.80		0.70		
1.00	SPT	N = 29 (3, 5, 5, 6, 8, 10)					Firm greyish brown slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(2.10)		
2.00	SPT	N = 23 (5, 4, 3, 5, 6, 9)					2.00m: becoming stiff.	
2.00-3.50	C							
2.00-2.50	B7							
2.50	D8							
				102.70		2.80		
						(0.40)	Obstruction as limestone BOULDER.	
3.00	SPT	50 for 25 mm (15, 10, 50)		102.30		3.20		
				102.20		3.30	Obstruction as possible limestone rock.	
3.00-3.30	B10						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
18-10-21	14.00	3.30			dry	1.7 3.2	1.9 3.3	1:00 1:00			50mm standpipe installed. Response zone 1.00m to 3.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38523**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-10-21 04-03-22	105.50	E 598,837.6 N 690,010.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
18.10 3.30	47		102.20		3.30	3.30 - 3.50 m: overburden	Subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone	
3.50	- -		102.00		3.50	3.50 - 5.50 Non-intact as possible weathered rock.		
	100 (38) 11	NI			(2.00)		Possible weathered LIMESTONE rock. Very strong and strong thinly bedded grey slightly bioclastic fine and coarse grained limestone recovered as angular fine to coarse gravel cobble and boulder sized clasts.	
5.00			100.00		5.50		Core run - 3.50m to 5.00m: 1 No grey limestone boulder sized clast 300mm in length. Point Load Test - 5.30m to 5.45m: very strong.	
	67 (62) 59	2				5.50 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear.	Very strong thinly bedded 'marbled' white and light grey with coarse grained sparite fine grained and coarse grained LIMESTONE.	
6.50		3						
	100 (96) 83	5			(4.50)		Point Load Test - 7.00m to 7.16m: very strong.	
8.00						8.00 - 8.30 Joint, vertical to 8.15m, then subvertical dip, stepped, smooth, with 0.5 to 1mm thick light brown clay smear, open.	8.00m to 9.00m: becoming massive.	
	100 (98) 81	4						
9.50								
	100 (94)	3					9.70m to 10.00m: 5mm wide vertical calcitic veinlet.	
04.03 10.00	80		95.50		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
18/10/21	14.00	3.30					
04/03/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.3	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 1.00m to 3.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38786**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-10-21 03-03-22	103.98	E 599,097.9 N 689,971.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			103.58		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
							Firm greyish brown SILT with low boulder content. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	N = 53 (6, 4, 10, 9, 11, 23)				(1.30)		
1.00	D2							
1.00-1.50	B4							
1.50	D5			102.28		1.70		
1.70	SPT	50 for 16 mm (25, 50)		102.18		1.80	Limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
14-10-21	11.00	1.80	1.50	203	dry	0.6 1.7	0.9 1.8	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38786**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-10-21 03-03-22	103.98	E 599,097.9 N 689,971.5

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
14.10 1.80 2.00	20 -		102.18		1.80	1.80 - 4.40 m: overburden	Very dense grey slightly silty subrounded to subangular fine to coarse assorted grey limestone GRAVEL.	
	40 -				(2.60)			
3.50	93 (29)		99.58		4.40			
	-	6				4.40 - 10.10 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 50mm thick light orangish brown clay smear.	Very strong locally strong thinly bedded locally massive grey 'marbled' light grey and white calcitic slightly bioclastic fine and coarse grained LIMESTONE. Point Load Test - 4.50m to 4.60m: strong.	
5.00	100 (78) 49	8						
6.50		5						
	100 (96) 91	2			(5.70)			
8.00		2						
	100 (94) 89							
9.50	100	2					9.15m to 9.20m: very stiff light orangish brown slightly gravelly clay. Gravel is subangular fine of assorted grey limestone.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
14/10/21	11.00	1.80						1.8	10.1	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38786**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-10-21 03-03-22	103.98	E 599,097.9 N 689,971.5

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
03.03 10.10	(100) 100		93.88		10.10			BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
03/03/22	16.00	10.10										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-38786A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-10-21 18-10-21	104.02	E 599,103.0 N 689,974.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			103.62		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 47 (8, 10, 10, 10, 13, 14)				(1.60)	Firm greyish brown slightly gravelly slightly sandy SILT with low cobble content. and is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are rounded to subrounded of limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			102.02		2.00		
2.00	SPT	N = 51 (7, 6, 11, 12, 11, 17)					Very dense grey very sandy very silty subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone	
2.00-2.50	B7					(0.90)		
2.50	D8							
2.50-2.50	D8			101.12		2.90		
2.90	SPT	50 for 0 mm (25, 50)		101.02		3.00	Obstruction as probable limestone BOULDER. BH terminated at 3.00m bgl. Obstruction as probable limestone boulder.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
14-10-21	14.00	3.00	2.90	203	dry

Chiselling

From	To	Hours
1.5	1.7	1:00
2.9	3	1:00

Water Added

From	To

GENERAL REMARKS

50mm standpipe installed. Response zone 1.00m to 3.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-39229**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-10-21 02-03-22	99.56	E 599,532.0 N 689,872.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-2.00 0.00-1.00	C B1					(0.70)	TOPSOIL: Stubble over firm brown gravelly SILT with low cobble content. Gravel is subangular fine to coarse of rare brown sandstone and assorted dark grey and grey limestone. Cobbles are subrounded of assorted grey limestone.	
				98.86		0.70		
1.00	SPT	57 for 150 mm (8, 10, 29, 28)				(0.60)	Stiff grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of rare brown sandstone and assorted dark grey and grey limestone. Cobbles are subangular to subrounded of limestone.	
				98.26		1.30		
1.00	D2			98.16		1.40	Obstruction as possible limestone rock.	
1.00-1.30	B4						*Borehole continued by coring*	
1.30	D5							
1.30-1.30	D5							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-10-21	17.00	1.40			dry	1.3	1.4	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-39229**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-10-21 02-03-22	99.56	E 599,532.0 N 689,872.3

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
11.10 1.40	45 (8) 7		98.16		1.40 (0.50)	1.40 - 1.90 m: overburden		Dense brown organic slightly silty subangular fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL.	
2.00			97.66		1.90	1.90 - 4.00 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.		Possible weathered LIMESTONE rock. Very strong and strong thinly bedded fine and medium grained limestone recovered as angular fine to coarse gravel and cobble sized clasts with some brown clay.	
	73 (41) 32	NI			(2.10)				
3.50			95.56		4.00			3.50m to 4.00m: subangular fine to medium assorted grey limestone gravel.	
	100 (87) 32	11				4.00 - 8.00 Discontinuities, closely spaced, locally medium spaced, dipping 12 to 14°, stepped, rough, with 0.5 to 3mm thick light orangish brown clay smear. 4.60 - 4.80 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick light brown clay smear, open.		Strong locally medium strong thinly bedded light grey crystalline with coarse grained sparite fine and coarse grained weakly dolomitised LIMESTONE. Point Load Test - 4.80m to 5.00m: very strong.	
5.00									
	100 (77) 21	15			(4.00)	5.35 - 6.40 Joint, vertical dip, stepped, smooth, with 0.5 to 5mm thick orangish brown clay smear and minor orangish brown and dark orangish brown iron stain and powder, open to moderately wide.			
6.50						6.40 - 6.60 Joint, subvertical dip, stepped, smooth, with 0.5 to 4mm thick orangish brown clay smear, open to moderately wide. 6.50 - 8.00 No obvious area of core loss. No recovery as washout of fines during drilling. No record of cavity. 7.10 - 8.00 Joint, apparently vertical dip, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear and minor orangish brown and dark orangish brown iron stain and powder, open.			
	73 (37) 21	NI							
8.00			91.56		8.00				
	100 (96) 69	9			(2.00)	8.00 - 8.20 Joint, subvertical dip, undulating, smooth, with 0.5 to 1mm thick grey silt smear, open. 8.00 - 10.00 Discontinuities, closely spaced, locally medium spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 1mm thick grey silt smear.		Strong thinly bedded dark grey and grey silty bioclastic fine and medium grained LIMESTONE.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/10/21	17.00	1.40					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.4	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-39229**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-10-21 02-03-22	99.56	E 599,532.0 N 689,872.3

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument / Backfill
9.50	100 (94) 40	14				9.70 - 9.80 Joint, dipping 60°, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open.	Strong thinly bedded dark grey and grey silty bioclastic fine and medium grained LIMESTONE. *(continued)*	
02.03 10.00			89.56		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
02/03/22	16.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-39518**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-10-21 01-03-22	108.23	E 599,859.9 N 689,898.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1			107.83		(0.40) 0.40	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subangular fine to coarse of rare brown sandstone and assorted dark grey and grey limestone. Cobbles are subrounded of assorted grey limestone.	
				107.23		(0.60) 1.00	Firm greyish brown slightly sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
1.00	SPT	N = 55 (6, 5, 10, 10, 18, 17)		106.63		(0.60) 1.60	Dense grey very sandy very silty subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.	
1.00 1.00-1.50 1.50 1.50-1.50 1.60	D2 B4 D5 SPT D5	50 for 0 mm (25, 50)		106.53		1.70	Obstruction as probable limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-10-21	12.00	1.70			dry	1.6	1.7	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-39518**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-10-21 01-03-22	108.23	E 599,859.9 N 689,898.2

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
12.10 1.70 2.00	55 - -		106.53		1.70	1.70 - 3.20 m: overburden	Dense grey slightly silty slightly sandy subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.	
	73 (10) -				(1.50)			
			105.03		3.20			
3.50		NI			(1.20)	3.20 - 4.40 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Very strong and strong grey with coarse grained sparite fine and coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts.	
	73 (36) 23		103.83		4.40			
		3				4.40 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, rough, with 0.5 to 3mm thick light orangish brown clay smear.	Very strong thickly bedded grey slightly bioclastic with coarse grained sparite fine and coarse grained LIMESTONE.	
5.00							Point Load Test - 5.00m to 5.10m: very strong.	
	100 (97) 94	3						
6.50		6				6.65 - 7.05 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick orangish brown clay smear and minor orangish brown iron stain, open.		
	73 (95) 62				(5.60)			
		2						
8.00								
	100 (95) 94	1					Point Load Test - 8.50m to 8.60m: very strong.	
9.50								
	100	5						

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
12/10/21	12.00	1.70					

Rotary Flush			
From (m)	To (m)	Type	Return (%)
1.7	2.1	Water	100
2.1	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-39518**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-10-21 01-03-22	108.23	E 599,859.9 N 689,898.2

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
01.03 10.00	(93) 80		98.23		10.00	9.65 - 9.70 Joint, dipping 45°, stepped, rough, with 0.5 to 1mm thick grey silt smear, open.	BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
01/03/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40004**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-10-21 28-02-22	88.43	E 600,149.9 N 690,242.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			88.13		0.30	TOPSOIL: Grass over firm dark blackish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
						(0.80)	Firm greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 28 (3, 2, 5, 8, 9, 6)		87.33		1.10		
1.00	D2						Soft grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00-1.50	B4					(0.90)		
1.50	D5							
1.90	SPT	50 for 30 mm (25, 50)		86.43		2.00		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-10-21	12.00	2.00			dry	1.9 2	2 2	1:00 1:00			50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40004**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-10-21 28-02-22	88.43	E 600,149.9 N 690,242.0

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
21.10 2.00			86.43		2.00	2.00 - 2.50 m: overburden		Brown slightly clayey subangular to subrounded fine to coarse assorted grey limestone GRAVEL.	
			85.93		(0.50) 2.50				
	100 (58) 26	6				2.50 - 10.00 Discontinuities, medium spaced, locally very closely and closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 1mm thick light grey silt smear. 2.51 - 3.00 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and minor orangish brown iron stain, open.		Very strong thinly bedded grey and dark grey bioclastic fine to medium grained LIMESTONE. Point Load Test - 2.70m to 2.80m: very strong. 3.00m to 3.10m: light greyish brown silt. Point Load Test - 3.50m to 3.60m: strong.	
3.50		5							
	100 (91) 76	13							
5.00									
	100 (94) 69	7				5.50 - 5.70 Joint, vertical dip, undulating, smooth, with 0.5 to 1mm thick light brown silt smear, open.			
					(7.50)			6.05m to 6.10m: light grey silt.	
6.50		5							
	100 (95) 87	6							
8.00									
	100 (94) 86	2							
9.50									
	100 (96) 90	3							
28.02 10.00			78.43		10.00				

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
21/10/21 28/02/22	12.00 16.00	2.00 10.00						2	10	Water	100	50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40004**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-10-21 28-02-22	88.43	E 600,149.9 N 690,242.0

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40405**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-10-21 24-02-22	88.75	E 600,459.0 N 690,497.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm dark blackish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				88.15		0.60		
1.00	SPT	N = 18 (3, 5, 4, 6, 4, 4)				(2.40)	Firm grey slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 22 (3, 3, 4, 7, 5, 6)						
2.00-2.50	B7							
2.50	D8							
2.50-2.50	D8							
				85.75		3.00		
3.00	SPT	68 for 265 mm (4, 3, 5, 5, 21, 37)				(0.80)	Very dense light brown very sandy very silty angular to subangular fine to coarse GRAVEL with high cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular of assorted grey limestone. Boulders are subangular of assorted grey limestone.	
3.00-3.50	B10							
3.50	D11							
				84.95		3.80		
				84.75		4.00	Firm grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
20-10-21	17.00	4.00			dry	3.4 4	3.6 4	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40405**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-10-21 24-02-22	88.75	E 600,459.0 N 690,497.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
20.10 4.00	33 - -	4.00 (50/0mm)	84.75		4.00	4.00 - 7.80 m: overburden		Brown slightly clayey subangular to subrounded fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL.	
5.00					(3.80)				
	37 (3) -								
			80.95		7.80				
8.00		NI			(0.80)	7.80 - 8.60 Non-intact as possible weathered rock.		Possible weathered LIMESTONE rock. Very strong and strong thinly bedded slightly bioclastic with coarse grained sparite fine and coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts. Point Load Test - 8.50m to 8.60m: very strong.	
	100 (69) 60	2	80.15		8.60	8.60 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear.			
9.50					(1.40)			Very strong thinly bedded grey slightly bioclastic with coarse grained sparite fine and coarse grained LIMESTONE. Point Load Test - 9.50m to 9.70m: very strong.	
	100 (99) 98	3							
24.02 10.00			78.75		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
20/10/21	17.00	4.00					
24/02/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40830**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-10-21 23-02-22	84.48	E 600,801.9 N 690,759.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 1.70m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	Grass and reeds over blackish brown PEAT.	
				83.98		0.50		
							Soft grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 17 (2, 2, 4, 7, 3, 3)					1.00m: becoming firm.	
1.00	D2							
1.00-1.50	B4							
1.50	D5		1			(2.50)		
2.00	SPT	N = 21 (3, 2, 5, 5, 4, 7)						
2.00-3.50	CORE1							
2.00-2.50	B7							
2.50	D8							
2.50-2.50	D8							
			1	81.48		3.00		
3.00	SPT	55 for 225 mm (10, 10, 11, 13, 31)					Dense grey slightly silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are subrounded to subangular of limestone.	
3.00-3.50	B10						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
22-10-21	13.00	3.50			1.80	3.4	3.5	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40830**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-10-21 23-02-22	84.48	E 600,801.9 N 690,759.1

Engineer: Mott MacDonald

Sheet 2 of 3

Status FINAL / REVFINAL

RUN DETAILS / STRATA

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
22.10 3.50	73 (28) 13		79.88		(1.60) 4.60	3.50 - 4.60 m: overburden	Dense grey slightly silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL with high cobble content. Sand is fine to coarse. Cobbles are subrounded to subangular of limestone. *(continued)* 3.50m: with low boulder content. Boulders are subrounded of grey limestone. Point Load Test - 3.50m to 3.62m: very strong. Point Load Test - 3.62m to 3.72m: strong. Point Load Test - 4.00m to 4.10m: very strong.	
5.00		NI				4.60 - 5.20 Non-intact as fractured rock. 4.60 - 15.00 Discontinuities, medium spaced, locally very closely and closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 6mm thick orangish brown clay smear.		
	100 (67) 43	4				5.20 - 5.40 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open.	Very strong massive locally thinly bedded grey 'marbled' light grey and white slightly bioclastic with coarse grained sparite fine grained LIMESTONE. Point Load Test - 4.85m to 5.00m: very strong. Point Load Test - 6.10m to 6.24m: very strong.	
6.50		4						
	100 (98) 97	1						
8.00								
	100 (97) 83	6						
9.50		3			(10.40)	9.80 - 9.90 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light greyish brown silt smear, open.		
	100 (98) 94	4						
11.00								

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
22/10/21	13.00	3.50					1.80

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.5	15	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-40830**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-10-21 23-02-22	84.48	E 600,801.9 N 690,759.1

Engineer: Mott MacDonald

Sheet 3 of 3

Status FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
	100 (98) 97	3						Very strong massive locally thinly bedded grey 'marbled' light grey and white slightly bioclastic with coarse grained sparite fine grained LIMESTONE. *(continued)*	
12.50		3							
	100 (97) 96	3							
14.00									
	100 (94) 91	2							
23.02 15.00			69.48		15.00				
								BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
23/02/22	17.00	15.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-41053**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-10-21 22-02-22	84.87	E 600,829.8 N 690,986.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			84.57		0.30	TOPSOIL: Grass over firm dark blackish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 40 (4, 4, 8, 7, 9, 16)				(1.70)	Stiff grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			82.87		2.00		
2.00	SPT	N = 38 (5, 8, 8, 9, 10, 11)				(0.40)	Dense grey very silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low boulder content. Sand is fine to coarse. Boulders are of limestone	
2.00-3.50	C			82.47		2.40		
2.00-3.50	CORE1					(0.40)	Grey silty sandy limestone BOULDER. Sand is fine to coarse. Point Load Test - 2.50m to 2.66m: very strong.	
2.00-2.50	B7			82.07		2.80		
2.50	SPT						*Borehole continued by coring*	
2.50-2.50	D8							
2.70		50 for 50 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
27-10-21	13.00	2.80			dry	1.45 2.7	1.7 2.8	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-41053**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-10-21 22-02-22	84.87	E 600,829.8 N 690,986.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
27.10 2.80	73 (49) 31	NI	82.07		2.80	2.80 - 3.50 Non- intact as fractured rock. No recovery as probable washout of fines during drilling. No record of cavity.	Very strong massive grey 'marbled' white with coarse grained sparite fine to coarse grained LIMESTONE.	
3.50		2				3.50 - 10.00 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 3mm thick light grey silt smear and minor orangish brown iron stain.		
	100 (95) 89	5						
5.00					(4.30)		4.80m to 7.10m: 'marbled' brownish white.	
	100 (97) 89	5					5.50m to 5.60m: 30 x 10 x 10mm deep vug infilled with orangish brown iron powder. Point Load Test - 5.55m to 5.66m: very strong.	
6.50		5						
			77.77		7.10			
	100 (98) 97	4					Strong thinly bedded greyish brown bioclastic fine and coarse grained LIMESTONE. 7.30m: becoming grey.	
8.00								
	100 (90) 89	6			(2.90)			
9.50								
	100 (98) 94	5					Point Load Test - 9.50m to 9.70m: very strong.	
22.02 10.00			74.87		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
27/10/21 22/02/22	13.00 16.00	2.80 10.00						2.8	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-42602**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-11-21 17-02-22	74.11	E 601,311.4 N 692,220.7

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			73.71		(0.40) 0.40	TOPSOIL: Grass over firm dark blackish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				73.11		(0.60) 1.00	Firm grey sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
1.00	SPT	N = 33 (4, 5, 5, 8, 10, 10)					Dense grey very silty very sandy subangular fine and medium assorted grey limestone GRAVEL. Sand is fine to medium.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
1.90	SPT	50 for 0 mm (25, 50)					*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
01-11-21	17.00	2.10				1.9	2.1	1:00			BH backfilled with grout.
02-11-21	08.00	2.10				2.1	2.1	0:30			
02-11-21	09.00	2.10									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-42602**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-11-21 17-02-22	74.11	E 601,311.4 N 692,220.7

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
02.11 2.10						2.10 - 10.00 m: overburden	Dense grey very silty very sandy subangular fine and medium assorted grey limestone GRAVEL. Sand is fine to medium. *(continued)* 2.20m to 10.00m: sand becoming fine to coarse.	
	53 -							
3.50		3.60 (29/0mm)						
	60 -							
5.00		5.10 (50/0mm)			(9.00)			
	27 -							
6.50		6.60 (50/75mm)						
	27 -							
8.00		8.10 (50/75mm)						
	55 -							
17.02 10.00			64.11		10.00			

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
01/11/21	17.00	2.10						2.1	10	Water	100	BH backfilled with grout.
02/11/21	08.00	2.10										
02/11/21	09.00	2.10										
17/02/22	16.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-42602**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-11-21 17-02-22	74.11	E 601,311.4 N 692,220.7

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-42851**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-11-21 02-11-21	80.29	E 601,559.5 N 692,249.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-0.40	B1			79.89		(0.40) 0.40	TOPSOIL: Grass over firm grey slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
0.40	SPT	50 for 0 mm (25, 50)					BH terminated at 0.40m bgl. Obstruction as probable limestone boulder.	
0.40	D2							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
02-11-21	13.00	0.40				0.4	0.4	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-42851A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-11-21 21-02-22	80.18	E 601,559.6 N 692,247.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-0.70	B1			79.88		0.30	TOPSOIL: Grass over firm grey slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				79.48		(0.40) 0.70	Firm greyish brown sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
02-11-21	15.00	0.70				0.7	0.7	1:30			50mm standpipe installed. Response zone 5.00m to 10.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-42851A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-11-21 21-02-22	80.18	E 601,559.6 N 692,247.0

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
02.11 0.70		0.70 (50/0mm)	79.48		0.70	0.70 - 3.70 m: overburden		Subangular to subrounded fine and medium brown sandstone and assorted grey limestone GRAVEL. 1.40m to 1.60m: grey slightly silty fine and medium sand. 2.40m to 2.60m: grey slightly silty fine and medium sand.	
	50 - -								
2.00					(3.00)				
	53 - -								
3.50			76.48		3.70				
	87 (54) 28	15				3.70 - 10.20 Discontinuities, medium spaced, locally closely spaced to 6.00m, then medium spaced, dipping 8 to 10°, planar, smooth, with 0.5 to 1mm thick light brown clay smear. 3.90 - 4.20 Probable joint, apparently subvertical dip, stepped, smooth, with 0.5 to 3mm thick light brown clay smear, open to moderately wide, non-intact. 5.20 - 5.35 Joint, subvertical dip, undulating, smooth, with 0.5 to 2mm thick light orangish brown clay smear, open to moderately wide.		Very strong locally strong thinly bedded dark grey and grey slightly bioclastic fine and coarse grained LIMESTONE.	
		3							
5.00								Point Load Test - 4.80m to 5.00m: very strong.	
	100 (84) 62	6							
6.50		2			(6.50)				
	100 (98) 97	1						Point Load Test - 7.30m to 7.50m: strong.	
8.00									
	100	1							

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
02/11/21	15.00	0.70						0.7	10	Water	100	50mm standpipe installed. Response zone 5.00m to 10.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-42851A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-11-21 21-02-22	80.18	E 601,559.6 N 692,247.0

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	(98) 97							Very strong locally strong thinly bedded dark grey and grey slightly bioclastic fine and coarse grained LIMESTONE. *(continued)*	
9.50								9.40m to 10.20m: becoming bioclastic.	
	100 (98) 97	2							
21.02 10.20			69.98		10.20				
								BH terminated at 10.20m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
21/02/22	16.00	10.20										50mm standpipe installed. Response zone 5.00m to 10.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-43407**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-11-21 15-02-22	104.61	E 601,802.7 N 692,754.8

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm grey slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				104.01		0.60		
1.00	SPT	N = 41 (4, 4, 9, 7, 10, 15)					Firm greyish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 26 (3, 5, 6, 6, 6, 8)				(2.90)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 40 (4, 6, 8, 8, 10, 14)					3.00m: becoming slightly gravelly slightly sandy.	
3.00-3.50	B10							
				101.11		3.50		
3.50	D11					(0.60)	Very stiff brown slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
4.00	SPT	50 for 0 mm (25, 50)		100.51		4.10		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
03-11-21	13.00	4.10			dry	1.4 4	1.6 4.1	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-43407**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-11-21 15-02-22	104.61	E 601,802.7 N 692,754.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
03.11 4.10	67 - -		100.51		4.10	4.10 - 10.00 m: overburden	Very stiff light orangish brown sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of assorted grey limestone.	
5.00								
	100 - -	5.60 (50/75mm)						
6.50								
	87 - -	7.10 (50/0mm)			(5.90)			
8.00								
	67 - -	8.60 (50/0mm)						
9.50								
	100 - -							
15.02 10.00			94.61		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
03/11/21	13.00	4.10					
15/02/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.1	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-43817**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-11-21 16-02-22	88.07	E 601,981.3 N 693,125.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			87.67		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				87.17		(0.50) 0.90	Firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 26 (4, 3, 4, 5, 8, 9)					Stiff greyish brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of limestone.	
1.00	D2					(0.80)		
1.00-1.50	B4							
1.50	D5			86.37		1.70		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
03-11-21	16.00	1.80			dry	1.7	1.8	1:00			50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-43817**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-11-21 16-02-22	88.07	E 601,981.3 N 693,125.4

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
03.11 1.70 03.11 2.00	35 (7) -	1.70 (50/10mm) 6	86.37		1.70	1.70 - 10.10 Discontinuities, closely and very closely spaced, locally medium spaced, dipping 10 to 12°, planar, smooth, with 0.5 to 3mm thick orangish brown clay smear.	Strong locally medium strong thinly bedded grey and dark grey silty bioclastic fine and coarse grained LIMESTONE. Point Load Test - 2.10m to 2.20m: medium strong. Point Load Test - 2.30m to 2.40m: medium strong. Point Load Test - 2.40m to 2.50m: medium strong. Point Load Test - 2.50m to 2.60m: medium strong. Point Load Test - 2.60m to 2.70m: medium strong. Point Load Test - 2.70m to 2.80m: medium strong. Point Load Test - 2.80m to 2.90m: medium strong. Point Load Test - 3.00m to 3.13m: weak. Point Load Test - 3.40m to 3.50m: weak.	
	100 (75) 32	16				2.65 - 2.80 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light orangish brown clay smear, open.		
3.50		8				3.55 - 4.00 Joint, dipping 45°, stepped, smooth, with 0.5 to 2mm light orangish brown clay smear.		
	100 (91) 60	6						
5.00							Point Load Test - 5.40m to 5.55m: strong.	
	100 (99) 98	4			(8.40)			
6.50		3				6.70 - 6.90 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and minor orange brown iron stain, open.		
	100 (98) 85	2						
8.50		7						
	100 (97) 79							
9.50		6						

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
03/11/21	16.00	1.80					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.7	10.1	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-43817**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-11-21 16-02-22	88.07	E 601,981.3 N 693,125.4

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
16.02 10.10	100 (98) 58		77.97		10.10				
								BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
16/02/22	16.00	10.10										50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-44177**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-11-21 14-02-22	83.13	E 602,282.0 N 693,319.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			82.73		(0.40) 0.40	TOPSOIL: Grass over firm black slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
						(0.80)	Firm brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of limestone.	
1.00	SPT	N = 33 (10, 4, 8, 7, 7, 11)		81.93		1.20		
1.00 1.00-1.50 1.50	D2 B4 D5					(0.90)	Firm grey SILT with low cobble content. Cobbles are subrounded to rounded of sandstone and limestone.	
2.00	SPT	50 for 15 mm (25, 50)		81.03 80.93		2.10 2.20	Obstruction as probable limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
04-11-21	12.00	2.20			dry	0.6 2 2.1	0.9 2.1 2.2	0:30 1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-44177**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-11-21 14-02-22	83.13	E 602,282.0 N 693,319.3

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
04.11 2.20	27		80.93		2.20	2.20 - 10.00 m: overburden		Brown slightly silty subrounded to subangular medium to coarse grey limestone GRAVEL.	
2.60	-		80.53		(0.40) 2.60				
	44				(0.90)			Dense dark orangish brown slightly silty fine and medium SAND.	
3.50	-		79.63		3.50				
		3.60 (25/0mm)			(1.40)			Very dense brown slightly silty subrounded fine granite and assorted grey limestone GRAVEL.	
	20								
5.00	-		78.23		4.90				
		5.10 (44/75mm)			(1.60)			Dark orangish brown slightly silty fine and medium SAND.	
	27								
6.50	-		76.63		6.50				
		6.60 (50/0mm)			(1.40)			Subangular to subrounded fine and medium brown and purple sandstone and assorted grey limestone GRAVEL.	
	27								
8.00	-		75.23 75.13		7.90 8.00			Dark orangish brown slightly silty fine and medium SAND.	
		8.10 (50/0mm)						Subangular to subrounded fine and medium brown and purple sandstone and assorted grey limestone GRAVEL.	
	27				(1.80)				
9.50	-								
	80		73.33		9.80				
14.02 10.00	-		73.13		10.00			Dark greyish brown silty fine and medium SAND.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
04/11/21	12.00	2.20					
14/02/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.2	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-44177**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-11-21 14-02-22	83.13	E 602,282.0 N 693,319.3

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-44534**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-11-21 04-11-21	76.62	E 602,338.6 N 693,673.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.70m 1.30m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			76.32		0.30	TOPSOIL: Grass over firm black slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				75.62		(0.70) 1.00	Firm greyish brown SILT with low cobble content. Cobbles are subrounded to rounded of sandstone and limestone.	
1.00	SPT	N = 24 (4, 3, 5, 5, 6, 8)	▽1					
1.00	D2			75.12		(0.50) 1.50	Medium dense grey very sandy very silty subrounded to subangular medium to coarse grey limestone GRAVEL. Sand is fine to coarse.	
1.00-1.50	B4							
1.50	D5			74.62		(0.50) 2.00	Firm reddish brown sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of limestone.	
2.00	SPT	N = 21 (3, 2, 3, 4, 7, 7)						
2.00-2.50	B7					(0.70)	Medium dense brown very silty fine to coarse SAND and subrounded to subangular medium to coarse grey limestone GRAVEL.	
2.50	D8		▽1	73.92		2.70		
2.70	SPT	50 for 0 mm (25, 50)		73.82		2.80	Obstruction as limestone BOULDER.	
2.70	W9						BH terminated at 2.80m bgl. Obstruction as limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
04-11-21	15.00	2.80			0.30	2.7	2.8	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-44534A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-11-21 11-02-22	76.81	E 602,333.7 N 693,669.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 1.40m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			76.51		0.30	TOPSOIL: Grass over firm black slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 22 (3, 4, 4, 5, 7, 6)				(1.20)	Firm greyish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1.00	D2		1	75.31		1.50		
1.00-1.50	B4							
1.50	D5			74.81		(0.50) 2.00	Firm reddish brown sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of limestone.	
2.00	SPT	N = 17 (3, 3, 4, 3, 5, 5)					Medium dense orangish greyish brown silty very sandy subrounded to rounded fine to coarse sandstone and assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and assorted grey limestone.	
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 33 (8, 10, 7, 7, 8, 11)				(2.30)	3.00m: becoming dense very silty.	
3.00-3.50	B10							
3.50	D11							
4.00	SPT	50 for 10 mm (18, 7, 50)		72.51		4.30	4.00m: becoming silty.	
4.00-4.30	B13						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
05-11-21	12.00	4.30			0.40	3.6	3.8	1:00			BH backfilled with grout.
08-11-21	09.00	4.30				4.2	4.3	1:00			
08-11-21	15.30	4.30				4.3	4.3	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-44534A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-11-21 11-02-22	76.81	E 602,333.7 N 693,669.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
08.11 4.30	60 - -		72.51 72.11		4.30 (0.40) 4.70	4.30 - 10.00 m: overburden	Greyish brown slightly silty fine and medium SAND.	
5.00			71.61		(0.50) 5.20		Subrounded to subangular fine to coarse brown sandstone and assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of brown sandstone and grey limestone.	
	47 - -		70.51		(1.10) 6.30		Greyish brown slightly silty fine and medium SAND.	
6.50		6.30 (40/75mm)	70.31		6.50		Subrounded to subangular fine to coarse brown sandstone and assorted grey limestone GRAVEL.	
	40 - -		69.11		(1.20) 7.70		Greyish brown slightly silty fine and medium SAND.	
8.00		7.80 (50/75mm)					Very stiff brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subrounded to subangular fine of assorted grey limestone. Cobbles are subrounded to rounded of dark grey limestone.	
	53 - -				(2.30)			
9.50		9.30 (50/0mm)						
	100 - -							
11.02 10.00			66.81		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
05/11/21	12.00	4.30					0.40
08/11/21	09.00	4.30					
08/11/21	15.30	4.30					
11/02/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.3	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-44676**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-11-21 10-11-21	75.04	E 602,387.1 N 693,806.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1			74.74		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 51 (4, 8, 8, 10, 16, 17)					Greyish brown very silty fine to coarse SAND and subrounded to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and high boulder content. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length. 1.00m: very dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 28 (7, 6, 10, 8, 5, 5)					2.00m: becoming medium dense.	
2.00-2.50	B7					(4.10)		
2.50	D8							
3.00	SPT	N = 30 (5, 5, 6, 5, 10, 9)						
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 35 (8, 7, 7, 8, 9, 11)						
4.00-4.50	B13			70.64		4.40		
4.50	D14						Firm greyish brown slightly gravelly slightly sandy SILT with high cobble content and high boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
5.00	SPT	59 for 150 mm (8, 8, 10, 49)						
5.00-5.40	B16							
5.40	D17					(2.10)		
6.00	SPT	N = 58 (9, 8, 11, 15, 16, 16)						
6.00-6.50	B19			68.54		6.50		
6.50	D20			68.24		6.80	Very stiff black CLAY.	
7.00	SPT	50 for 20 mm (25, 50)		67.84		(0.40) 7.20	Obstruction as possible limestone rock.	
							BH terminated at 7.20m bgl. Obstruction as possible limestone rock.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
08-11-21	17.00	2.50	7.00	203	dry	1.4	1.6	1:00			50mm standpipe installed. Response zone 5.00m to 7.20m bgl.
09-11-21	09.00	2.50				5.3	5.4	1:00			
09-11-21	17.00	7.20			basal seepage	5.4	5.7	1:00			
						7.1	7.2	1:00			
						7.2	7.2	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-45501**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-11-21 11-11-21	74.32	E 602,849.1 N 694,476.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 6.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			74.02		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
						(1.30)	Firm greyish brown slightly sandy slightly gravelly SILT with low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Boulders are subrounded to rounded of limestone.	
1.00	SPT	N = 15 (6, 7, 3, 4, 4, 4)						
1.00	D2							
1.00-1.50	B4			72.72		1.60		
1.50	D5						Soft brown slightly sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
2.00	SPT	N = 12 (3, 2, 3, 3, 2, 4)						
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 19 (2, 4, 4, 5, 4, 6)						
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 19 (3, 3, 5, 5, 4, 5)				(4.90)		
4.00-4.50	B13							
4.50	D14							
5.00	SPT	N = 17 (4, 3, 5, 4, 4, 4)						
5.00-5.50	B16							
5.50	D17							
6.00	SPT	N = 24 (2, 3, 7, 6, 5, 6)					6.00m to 6.50m: becoming firm grey.	
6.00-6.50	B19		▼1	67.82		6.50		
6.50	D20					(1.00)	Stiff dark grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of grey limestone.	
7.50	SPT	N = 29 (5, 7, 8, 6, 6, 9)		66.82		7.50		
7.50-8.00	B22			66.32		(0.50) 8.00	Medium dense greyish brown silty very sandy subrounded to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-11-21	17.00	8.00									BH backfilled with arisings.
11-11-21	09.00	8.00			6.90						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-45501**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-11-21 11-11-21	74.32	E 602,849.1 N 694,476.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 6.50m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	D23						limestone. Cobbles are subrounded to rounded of grey limestone.	
						(0.70)	Very stiff black CLAY.	
8.50	SPT	50 for 75 mm (10, 15, 50)		65.62		8.70		
8.50-8.80	B25			65.42		8.90	Stiff grey sandy CLAY with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
8.80	D26						BH terminated at 8.90m bgl. Obstruction as possible limestone rock.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-11-21	12.00	8.90	8.80	203	6.80	8.7 8.8	8.8 8.9	1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46131**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-11-21 19-01-22	72.02	E 603,369.6 N 694,826.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			71.62		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 20 (3, 4, 4, 3, 6, 7)		70.52		(1.10) 1.50	Firm greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			68.92		(1.60) 3.10	Stiff greyish brown slightly gravelly sandy SILT with low boulder content. Sand is fine to coarse. Boulders are subrounded to rounded of limestone.	
2.00	SPT	N = 24 (2, 5, 4, 5, 6, 9)						
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 41 (8, 7, 10, 10, 9, 12)		67.92		(1.00) 4.10	Very stiff brown SILT with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
3.00-3.50	B10							
3.50	D11							
4.00	SPT	50 for 20 mm (25, 50)		67.72		4.30	Obstruction as probable limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
15-11-21	16.00	4.30			3.70	2.7 4.1 4.2	2.9 4.2 4.3	1:00 1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46131**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-11-21 19-01-22	72.02	E 603,369.6 N 694,826.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
15.11 4.30	42 - -		67.72		4.30	4.30 - 8.80 m: overburden	Very stiff brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of occasional brown siltstone and sandstone and assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone.	
5.00								
	67 - -							
5.60		5.80 (32)						
	35 - -				(4.50)			
7.00								
	72 - -	7.30 (25)						
8.10								
	44 - -		63.22		8.80			
9.00		8.80 (30)				8.80 - 10.00 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Very strong light grey slightly bioclastic fine and medium grained limestone recovered as angular fine to coarse gravel sized clasts with a little brown silt.	
	40 - -	NI			(1.20)			
19.01 10.00			62.02		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
15/11/21 19/01/22	16.00 16.30	4.30 10.00					3.70	4.3	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46402**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-11-21 20-01-22	79.88	E 603,619.0 N 694,923.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: 1st: dry 2nd: 3rd: Rose to (@ 20 min.): Sealed at:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				79.28		0.60		
1.00	SPT	N = 45 (4, 3, 8, 10, 17, 10)				(0.90)	Greyish brown very silty very sandy subrounded to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone. 1.00m: dense.	
1.00	D2							
1.00-1.50	B4			78.38		1.50		
1.50	D5						Stiff greyish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
2.00	SPT	N = 32 (5, 6, 8, 8, 7, 9)						
2.00-2.50	B7							
2.50	D8					(2.50)		
3.00	SPT	N = 43 (10, 10, 9, 10, 11, 13)						
3.00-3.50	B10							
3.50	D11							
				75.88		4.00		
4.00	SPT	50 for 0 mm (25, 50)		75.68		4.20	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
16-11-21	15.00	4.20				3.6 4 4.1	3.9 4.1 4.2	1:00 1:00 1:00			50mm standpipe installed. Response zone 4.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46402**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-11-21 20-01-22	79.88	E 603,619.0 N 694,923.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
16.11 4.20	72 - -		75.68		4.20	4.20 - 10.00 m: overburden	Greyish brown sandy subangular to subrounded fine to coarse rare brown siltstone and sandstone and assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
5.00					(2.30)			
	20 - -	5.60 (32)					5.60m: dense.	
6.50			73.38		6.50			
	53 - -	7.10 (50/225mm)			(1.30)		Brown speckled black silty very gravelly fine and medium SAND. Gravel is subangular to subrounded fine of assorted grey limestone.	
			72.08		7.80			
8.00							Very stiff orangish brown slightly sandy gravelly SILT with low cobble content. Sand is coarse. Gravel is subangular to subrounded fine to coarse of rare brown siltstone and sandstone and assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone.	
	30 - -	8.60 (23)						
9.00					(2.20)			
	70 - -							
20.01 10.00			69.88		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
16/11/21	15.00	4.20					
20/01/22	16.30	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.2	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 4.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46715**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-11-21 24-01-22	87.13	E 603,932.0 N 694,912.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.90)	TOPSOIL: Grass over firm brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
				86.23		0.90		
1.00	SPT	N = 64 (6, 4, 5, 13, 21, 25)				(0.70)	Stiff greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1.00	D2							
1.00-1.50	B4			85.53		1.60		
1.50	D5							
1.60	SPT	50 for 40 mm (25, 50)		85.33		1.80	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
17-11-21	12.00	1.80			dry	1.6 1.7	1.7 1.8	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46715**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-11-21 24-01-22	87.13	E 603,932.0 N 694,912.9

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
17.11 1.80	44		85.33		1.80	1.80 - 10.00 m: overburden	Brown speckled black slightly silty gravelly fine and medium SAND with low cobble content. Gravel is subrounded to subangular fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone	
2.60	100		84.33		(1.00) 2.80			
3.20	50		84.23		2.90		Brown speckled black slightly silty fine and medium SAND. Very stiff dark brown slightly sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is subangular fine to coarse of rare brown siltstone and sandstone and assorted dark grey and grey limestone.	
4.20	78							
5.60		5.30 (38)			(7.10)			
7.00	42	6.80 (40)						
8.50	67	8.30 (50/225mm)						
	100							

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
17/11/21	12.00	1.80						1.8	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46715**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-11-21 24-01-22	87.13	E 603,932.0 N 694,912.9

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
24.01 10.00			77.13		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
24/01/22	16.30	10.00					1.80					BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-46715A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-11-21 18-11-21	87.13	E 603,934.6 N 694,913.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.80)	TOPSOIL: Grass over firm brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
				86.33		0.80		
1.00	SPT	N = 64 (5, 6, 8, 8, 10, 38)					Stiff greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(2.00)		
2.00	SPT	N = 50 (8, 9, 11, 11, 13, 15)						
2.00-2.50	B7							
2.50	D8							
				84.33		2.80		
2.80	SPT	50 for 10 mm (25, 50)		84.13		3.00	Obstruction as limestone BOULDER.	
							BH terminated at 3.00m bgl. Obstruction as limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
17-11-21	16.00	3.00			dry	2.9	3	1:00			BH backfilled with arisings.
18-11-21	09.00	3.00			dry	3	3	1:00			
18-11-21	11.00	3.00			dry						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-47262**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-11-21 25-01-22	75.37	E 604,481.5 N 694,906.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			75.07		0.30	TOPSOIL: Grass over firm brown slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
						(1.00)	Firm greyish brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1.00	SPT	N = 48 (4, 3, 4, 6, 7, 31)		74.07		1.30		
1.00	D2						Stiff brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 43 (8, 8, 9, 10, 10, 14)						
2.00-2.50	B7							
2.50	D8					(2.70)		
3.00	SPT	N = 40 (7, 10, 9, 9, 11, 11)						
3.00-3.50	B10							
3.50	D11			71.37		4.00		
4.00	SPT	N = 55 (10, 10, 11, 15, 15, 14)					Very stiff grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are of sandstone and limestone.	
4.00-4.50	B13					(1.00)		
4.50	D14			70.37		5.00		
5.00	SPT SPT	50 for 0 mm (25, 50)		70.17		5.20	Obstruction as limestone BOULDER.	
5.10		N = 36 (6, 7, 8, 8, 9, 11)					*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
22-11-21	16.00	5.20			dry	1.4 5 5.1	1.7 5.1 5.2	1:00 1:00 1:00			50mm standpipe installed. Response zone 1.8m to 3.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-47262**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-11-21 25-01-22	75.37	E 604,481.5 N 694,906.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
22.11 5.20	37 - -		70.17		5.20	5.20 - 6.70 m: overburden	Medium dense light brown speckled black slightly silty fine and medium SAND.	
			69.37		(0.80) 6.00			
6.10	50 - -				(0.70)		Medium dense dark brownish grey speckled black silty sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL. Sand is fine to coarse.	
6.70		6.60 (33)	68.67		6.70	6.70 - 7.50 Non-intact as weathered rock.	Weathered LIMESTONE rock. Strong grey slightly bioclastic fine and medium grained limestone recovered as angular fine to coarse gravel sized clasts with a little brown silt.	
	100 (15) -	NI			(0.80)			
7.50			67.87		7.50	7.50 - 11.00 Discontinuities, closely spaced, locally medium spaced, dipping 12 to 14°, undulating, smooth, with 0.5 to 5mm thick dark orangish brown clay smear.	Very strong locally strong massive grey slightly bioclastic weakly dolomitised fine to coarse grained LIMESTONE. Point Load Test - 7.90m to 8.10m: strong.	
		11						
	100 (69) 17	9				7.55 - 8.00 Joint, subvertical dip, stepped, smooth, with 0.5 to 5mm thick dark brown silt smear, open to moderately wide.	8.50m to 8.60m: strong dark grey.	
9.10					(3.50)	9.00 - 9.15 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick dark orangish brown clay smear and orange and orangish brown iron stain, open.		
	100 (87) 14	12				9.50 - 10.40 Joint, vertical dip, stepped, smooth, locally rough, with 0.5 to 6mm thick orangish brown clay smear, open to moderately wide.		
9.80								
	100 (68) -	22				10.60 - 10.95 Joint, subvertical dip, stepped, rough, with 0.5 to 6mm thick orangish brown slightly sandy clay smear, open to moderately wide.	Point Load Test - 10.50m to 10.67m: strong.	
25.01 11.00			64.37		11.00		BH terminated at 11.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
22/11/21	16.00	5.20					
25/01/22	16.30	11.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.2	11	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 1.8m to 3.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-47431**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-11-21 16-11-21	74.56	E 604,569.8 N 695,046.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.90m 1.70m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			74.16		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 34 (4, 4, 6, 8, 10, 10)					Grey slightly silty sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. 1.00m: dense.	
1.00	D2							
1.00-2.00	B4		1 ▽					
2.00	SPT	N = 30 (4, 6, 9, 9, 6, 6)				(3.60)		
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 17 (3, 4, 4, 5, 4, 4)					3.00m: becoming medium dense.	
3.00	D8							
3.00-4.00	B10			70.56		4.00		
4.00	SPT	N = 52 (8, 8, 11, 11, 12, 18)					Firm light brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
4.00	D11							
4.00-5.00	B13					(1.30)		
5.00	SPT	50 for 0 mm (22, 25, 50)	▼	69.26		5.30		
5.00	D14						BH terminated at 5.30m bgl. Obstruction as possible limestone boulder.	
5.30		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
16-11-21	13.00	5.30	5.30	203	1.70	4.4 4.9	4.6 5.3	1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-47650**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-11-21 26-01-22	73.20	E 604,733.7 N 695,185.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(1.10)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	50 for 75 mm (4, 7, 39, 11)		72.10		1.10		
1.00	D2						Firm light brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1.00-2.00	B4							
2.00	SPT	N = 38 (4, 6, 9, 9, 10, 10)					2.00m: becoming stiff.	
2.00	D5							
2.00-3.00	B7					(3.50)		
3.00	SPT	53 for 140 mm (18, 7, 29, 24)						
3.00	D8							
3.00-4.00	B10							
4.00	D11			68.60		4.60		
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
16-11-21	17.00	2.00			dry
17-11-21	09.00	2.00			dry
17-11-21	14.00	4.60			dry

Chiselling

From	To	Hours
1.2	1.6	0:45
3	3.3	0:30
4.5	4.6	2:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-47650**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-11-21 26-01-22	73.20	E 604,733.7 N 695,185.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
17.11 4.60	20	4.60 (50/0mm)	68.60		4.60	4.60 - 10.00 m: overburden		Light brown speckled black slightly silty slightly gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
5.00	-				(1.60)				
	53								
	-								
	-	6.10 (40)	67.00		6.20				
6.50								Stiff greyish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of brown siltstone and sandstone and assorted dark grey and grey limestone.	
	33								
	-								
	-	7.60 (35)							
8.00					(3.80)				
	40								
	-								
	-								
9.00		9.10 (50/0mm)							
	70								
	-								
	-								
26.01 10.00			63.20		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
17/11/21	14.00	4.60						4.6	10	Water	100	BH backfilled with grout.
26/01/22	16.30	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-47812**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-01-22 27-01-22	65.17	E 604,879.1 N 695,259.1

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
0.00						0.00 - 5.90 m: overburden		Subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content and low boulder content and a little brown clay. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
	30 -								
	-	1.50 (50/75mm)			(3.50)				
2.00								Core run - 2.00m to 3.50m: 1 No grey limestone boulder 230mm in length.	
	80 -								
	-	3.00 (50/150mm)							
3.50			61.67		3.50				
	53 -							Dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content and low boulder content. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. Point Load Test - 3.90m to 4.40m: very strong.	
	-	4.50 (50/0mm)			(2.40)				
5.00									
	53 (37) 30		59.27		5.90				
		2				5.90 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 10mm thick light brown clay smear. 6.40 - 6.50 Joint, dipping 60°, stepped, smooth, with 0.5 to 5mm thick light orangish brown clay smear, open to moderately wide.		Very strong massive light grey 'marbled' white with coarse grained sparite fine to coarse grained LIMESTONE.	
6.50									
		1							
	93 (90) 87								
		2							
8.00									

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
								0	3.2	Water	100	50mm standpipe installed. Response zone 5.00m to 10.00m bgl.
								3.2	10	Water	0	

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Rotary Core/Comacchio Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-47812**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-01-22 27-01-22	65.17	E 604,879.1 N 695,259.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
					(4.10)	8.00 - 8.10 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick light brown clay smear, open. 8.15 - 8.25 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick light brown clay smear, open. 8.65 - 8.80 Joint, vertical dip, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide. 9.15 - 9.25 Joint, dipping 60°, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open.	Very strong massive light grey 'marbled' white with coarse grained sparite fine to coarse grained LIMESTONE. *(continued)*	
	100 (94) 59	11						
9.50								
	100 (83) 10	3						
27.01 10.00			55.17		10.00	9.50 - 9.90 Joint, vertical dip, stepped, smooth, with 0.5 to 2mm thick light orangish brown clay smear, open.	BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
27/01/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone 5.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Rotary Core/Comacchio Geo 602		Driller BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-48139**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-11-21 28-01-22	60.03	E 605,203.6 N 695,194.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(0.80)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				59.23		0.80		
1.00	SPT	N = 18 (2, 4, 4, 4, 5, 5)					Grey very silty fine to coarse SAND and subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone. 1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 23 (5, 8, 6, 5, 6, 6)				(3.00)		
2.00	D5							
2.00-3.00	B7							
3.00	SPT	50 for 0 mm (12, 18, 50)					3.00m: becoming very dense.	
3.00	D8							
3.00-3.80	B10							
				56.23		3.80		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
17-11-21	17.00	3.80			dry	3.1 3.7	3.3 3.8	0:30 1:00			50mm standpipe installed. Response zone 6.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-48139**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-11-21 28-01-22	60.03	E 605,203.6 N 695,194.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
17.11 3.80	83	3.80 (50/0mm)	56.23		3.80	3.80 - 8.00 m: overburden	Dense greyish brown slightly sandy silty subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low boulder content. Sand is fine to medium.	
4.10	-							
	-							
	80							
	-							
	-							
		5.30 (50/75mm)						
5.60								
	44				(4.20)			
	-							
	-							
6.50							Core run - 6.50m to 8.00m: 1 No grey limestone boulder 240mm in length.	
		6.80 (50/0mm)						
	53							
	-							
	-							
8.00			52.03		8.00			
		8.30 (50/0mm)				8.00 - 10.00 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Strong light brownish grey fine and medium grained dolomitised limestone recovered as angular fine to coarse gravel sized clasts with a little orangish brown silt and surficial orangish brown iron stain and powder.	
	75				(2.00)			
	-							
	-							
28.01 10.00			50.03		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
17/11/21	17.00	3.80						3.8	10	Water	0	50mm standpipe installed. Response zone 6.00m to 10.00m bgl.
28/01/22	15.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-48400**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-11-21 31-01-22	58.25	E 605,452.6 N 695,118.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
				57.65		0.60		
				57.45		0.80	Grey limestone BOULDER.	
1.00	SPT	50 for 295 mm (4, 8, 10, 10, 11, 19)					Grey slightly silty sandy subangular to subrounded fine to coarse sandstone and limestone GRAVEL. Sand is fine to coarse.	
1.00	D2					(1.00)		
				56.45		1.80		
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
18-11-21	13.00	1.80			dry

Chiselling

From	To	Hours
1.4	1.6	0:30
1.8	1.8	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-48400**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-11-21 31-01-22	58.25	E 605,452.6 N 695,118.3

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
18.11 1.80 2.00	70 -		56.45		1.80	1.80 - 6.40 m: overburden		Brown slightly silty very gravelly medium SAND. Gravel is subrounded to subangular fine to coarse of brown siltstone and sandstone and assorted dark grey and grey limestone.	
	27 -								
3.50		3.30 (43)			(3.20)			3.30m: dense.	
	27 -								
5.00		4.80 (50/75mm)	53.25		5.00				
	47 (7) 7				(1.40)			Orangish grey silty very gravelly medium to coarse SAND. Gravel is subrounded to subangular fine to coarse of assorted grey limestone.	
6.50		6.30 (50/0mm)	51.85		6.40				
		5				6.40 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 14 to 16°, stepped, smooth, with 0.5 to 3mm thick orangish brown clay smear and minor orangish brown iron stain and powder.		Very strong locally strong massive brownish grey 'marbled' light grey and white with coarse grained sparite fine to medium grained LIMESTONE. Point Load Test - 6.50m to 6.65m: very strong.	
	100 (83) 74								
		3							
8.00					(3.60)				
	100 (92) 43	6				8.45 - 8.55 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open. 8.70 - 8.80 Joint, dipping 60°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open.			
9.50						9.20 - 9.50 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick dark brown clay smear over 20mm thick		Point Load Test - 9.50m to 9.60m: strong.	
	100 (96)	4							

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
18/11/21	13.00	1.80					

Rotary Flush			
From (m)	To (m)	Type	Return (%)
1.8	2.5	Water	100
2.5	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-48400**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-11-21 31-01-22	58.25	E 605,452.6 N 695,118.3

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
31.01 10.00	74		48.25		10.00	white calcite, open. 9.85 - 9.95 Joint, dipping 60°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open.	BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
31/01/22	15.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-48795**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-11-21 01-02-22	53.88	E 605,806.8 N 694,943.0

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.40m 3.00m 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				53.38		0.50		
							Greyish brown very silty fine to coarse SAND and subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 27 (3, 4, 6, 6, 7, 8)					1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4							
						(2.90)		
2.00	SPT	N = 29 (5, 5, 7, 7, 7, 8)						
2.00	D5							
2.00-3.00	B7							
			1					
3.00	SPT	50 for 215 mm (10, 11, 16, 18, 16)						
3.00	D8		1	50.48		3.40		
3.00-3.60	B10			50.28		3.60	Obstruction as probable limestone rock. Point Load Test - 3.50m to 3.63m: very strong.	
3.40-5.00	C						*Borehole continued by coring*	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
18-11-21	16.30	3.60			3.00

Chiselling

From	To	Hours
3.5	3.6	2:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-48795**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-11-21 01-02-22	53.88	E 605,806.8 N 694,943.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
18.11 3.60		3.60 (50/0mm)	50.28		3.60			Very strong locally medium strong massive brownish grey 'marbled' light grey and white with coarse grained sparite fine to coarse grained LIMESTONE.	
		3							
	100 (95) 89								
		3							
5.00									
		4							
	100 (96) 92								
								Point Load Test - 6.00m to 6.10m: very strong.	
6.50									
		3			(6.40)	6.70 - 7.00 Joint, subvertical dip, stepped, rough, with 0.5 to 3mm thick orangish brown clay smear and orangish brown iron stain and powder, open to moderately wide.			
	100 (97) 77								
		2							
8.00									
								Point Load Test - 8.00m to 8.10m: medium strong.	
		2							
	100 (98) 97								
9.50									
		2							
	100 (98) 96								
01.02 10.00			43.88		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
18/11/21	16.30	3.60					3.00
01/02/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.6	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-49214**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-11-21 02-02-22	51.25	E 606,209.4 N 694,859.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-5.00 0.00-1.00	C B1			50.85		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
				50.25		(0.60) 1.00	Very stiff light brown sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are of sandstone and limestone.	
1.00 1.00 1.00-1.50	SPT D2 B4	57 for 150 mm (8, 10, 19, 38)					Brownish grey very silty subrounded to subangular fine to coarse assorted grey limestone GRAVEL and fine to coarse SAND with low cobble content. Cobbles are subrounded to rounded of grey limestone. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
23-11-21	16.00	0.40				1.4	1.5	1:00			50mm standpipe installed. Response zone 5.00m to 10.00m bgl.
24-11-21	08.00	0.40									
24-11-21	12.00	1.50									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-49214**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-11-21 02-02-22	51.25	E 606,209.4 N 694,859.8

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
24.11 1.50		1.50 (50/75mm)			(1.90)	1.50 - 2.90 m: overburden		Brownish grey very silty subrounded to subangular fine to coarse assorted grey limestone GRAVEL and fine to coarse SAND with low cobble content. Cobbles are subrounded to rounded of grey limestone. *(continued)*	
			48.35		2.90				
	72 (37) 25	3.00 (50/0mm) 8				2.90 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear. 3.20 - 3.25 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open. 3.50 - 3.60 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.		Very strong massive light grey 'marbled' grey and white with coarse grained sparite fine and coarse grained LIMESTONE.	
		4				4.45 - 4.50 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open as drilling induced?		Point Load Test - 4.32m to 4.47m: very strong.	
5.00									
	100 (96) 95	2				5.80 - 5.90 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.			
6.50		4			(7.10)				
	100 (97) 85	3				6.75 - 6.85 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open. 7.40 - 7.46 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick grey silt smear, open.			
8.00									
	100 (90) 33	4				8.15 - 8.50 Joint, subvertical dip, stepped, smooth, with 0.5 to 3mm thick orangish brown clay smear and minor orange iron stain, open to moderately wide.		8.80m to 9.40m: vuggy.	
9.50						9.20 - 9.45 Joint, vertical to subvertical dip, stepped, rough, with 0.5 to 3mm			

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
24/11/21	12.00	1.50					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.5	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-49214**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-11-21 02-02-22	51.25	E 606,209.4 N 694,859.8

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
02.02 10.00	100 (90) 89	6	41.25		10.00	thick orangish brown clay smear, open to moderately wide, with 20mm wide aperture.	Very strong massive light grey 'marbled' grey and white with coarse grained sparite fine and coarse grained LIMESTONE. *(continued)* BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
02/02/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone 5.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-49513**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	26-11-21 29-11-21	46.07	E 606,503.2 N 694,908.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass over plastic dry black amorphous PEAT.	
						(1.00)		
				45.07		1.00		
1.00		N = 0 (0, 0, 0, 0, 0, 0)					Firm wet brownish black fibrous PEAT.	
1.00	D2							
1.00-1.45	U1003	2 blows						
1.50	D4							
						(1.80)		
2.00-2.50	~~SPT~~ D6							
2.50	D7							
				43.27		2.80		
				43.07		3.00	Soft white SILT/MARL.	
3.00-3.45	U1008	8 blows					Soft greyish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone and limestone.	
						(0.50)		
				42.57		3.50		
3.50	D9						Soft greyish brown CLAY.	
				42.27		3.80		
3.80	B10						Bluish grey slightly silty sandy angular fine to coarse sandstone and limestone GRAVEL. Sand is coarse.	
3.80	~~D11~~ SPT							
4.00		55 for 75 mm (10, 10, 27, 28)						
4.50	B13							
4.50	D14							
						(1.60)		
5.00	SPT	58 for 225 mm (9, 8, 8, 20, 30)						
5.00	B16							
				40.67		5.40		
5.40	D17						BH terminated at 5.40m bgl. Obstruction.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
26-11-21	16.00	3.50	5.40	203		4.3	4.6	1:00			BH backfilled with grout.
29-11-21	09.00	3.50			0.50	5.4	5.4	1:30			
29-11-21	12.00	5.40			0.80						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-49654**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-11-21 25-11-21	45.78	E 606,617.9 N 694,964.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2nd: 7.00m 0.00m 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass over plastic dry black amorphous PEAT.	
						(1.30)		
1.00	SPT	N = 0 (1, 0, 0, 0, 0, 0)		44.48		1.30		
1.00	D2						Firm wet brownish black fibrous PEAT.	
1.00-1.50	B4							
1.50	D5					(0.70)		
				43.78		2.00		
2.00-2.45	U1006	2 blows NR					Greyish black very gravelly very silty medium to coarse SAND with low cobble content and fragments of peat. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles subangular to rounded sandstone and limestone.	
2.00-2.50	B7							
2.50	D8					(1.00)		
			1	42.78		3.00		
3.00	SPT	N = 12 (3, 2, 2, 3, 4, 3)					Medium dense grey gravelly silty fine and medium SAND. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 18 (2, 2, 4, 4, 4, 6)						
4.00-4.50	B13							
4.50	D14					(3.50)		
5.00	SPT	N = 20 (3, 2, 4, 4, 5, 7)						
5.00-5.50	B16							
5.50	D17							
				39.28		6.50		
6.50	SPT	N = 33 (3, 4, 4, 4, 8, 17)					Firm greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
6.50-7.00	B19		2			(0.50)		
				38.78		7.00		
7.00	D20						Angular fine to coarse sandstone and limestone GRAVEL and coarse SAND.	
						(0.80)		
				37.98		7.80		
	SPT			37.78		8.00	Obstruction as possible limestone rock.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
24-11-21	16.30	5.50	8.00	203		6.95	7.2	1:00			BH backfilled with arisings.
25-11-21	09.00	5.50				7.8	8	1:00			
25-11-21	14.00	8.00			0.40	8	8	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-49654**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-11-21 25-11-21	45.78	E 606,617.9 N 694,964.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2nd: 7.00m 0.00m 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
7.80		50 for 0 mm (25, 50)					BH terminated at 8.00m bgl. Obstruction as possible rock.	
7.80-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-49880**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-12-21 06-12-21	45.80	E 606,784.7 N 695,142.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.50m 0.60m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1		1				Grass over plastic dry black amorphous PEAT.	
						(1.10)		
1.00	D2			44.70		1.10		
1.00-1.45	U1003	2 blows					Firm brown fibrous PEAT.	
1.50	D4							
2.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)				(1.90)		
2.00-2.50	B6							
2.50	D7							
				42.80		3.00		
3.00-3.45	U1008	4 blows					Firm brown silty PEAT.	
				42.40		(0.40) 3.40		
3.50	D9		1				Firm grey slightly gravelly slightly sandy silty CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone.	
4.00	SPT	N = 33 (3, 5, 7, 10, 8, 8)				(1.20)		
4.00-4.50	B11							
4.50	D12			41.20		4.60		
							Dense grey silty very sandy angular fine to coarse limestone GRAVEL. Sand is fine to coarse.	
5.00	SPT	N = 31 (4, 5, 9, 7, 7, 8)				(1.10)	5.00m: dense.	
5.00-5.50	B14							
5.50	D15			40.10		5.70		
5.70	SPT	50 for 0 mm (25, 50)					BH terminated at 5.70m bgl. Obstruction as possible rock.	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To
03-12-21	15.00	5.70	5.70	203	1.70	4.6 5.7	4.9 5.7	1:00 1:00		

GENERAL REMARKS

Rising head test expedited in BH. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50108**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-12-21 08-12-21	46.40	E 606,899.4 N 695,336.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.50m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						Grass over firm blackish brown fibrous PEAT.	
1.00	SPT	N = 0 (0, 0, 0, 0, 0, 0)				(2.20)		
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 29 (1, 2, 7, 8, 10, 4)		44.20		2.20		
2.00-2.50	B7		▼	43.90		2.50	Grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.50	D8						Dense grey silty sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
3.00	SPT	N = 59 (8, 8, 9, 10, 10, 30)				(1.10)	3.00m: becoming very dense.	
3.00-3.50	B10							
3.50	D11			42.80		3.60		
							BH terminated at 3.60m bgl. Obstruction as possible rock.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
06-12-21	16.00	2.50	3.60	203	
08-12-21	08.30	2.50			0.70
08-12-21	13.00	3.60			0.80

Chiselling

From	To	Hours
3.5	3.6	1:00
3.6	3.6	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50608**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-12-21 02-12-21	62.57	E 607,064.2 N 695,809.1

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-0.80	B1			62.17		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
0.80	SPT	50 for 0 mm (25, 50)		61.77		(0.40) 0.80	Firm light greyish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
0.80	D2						BH terminated at 0.80m bgl. Obstruction as limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
02-12-21	11.00	0.80			dry	0.8	0.8	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50608A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-12-21 08-02-22	62.77	E 607,066.2 N 695,808.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			62.37		(0.40) 0.40	TOPSOIL: Grass over dense brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
						(0.70)	Firm light greyish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	50 for 20 mm (25, 50)		61.67		1.10		
1.00	D2			61.57		1.20	Limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
02-12-21	16.00	1.20			dry	1.1 1.2	1.2 1.2	1:00 0:30			50mm standpipe installed. Response zone 3.00m to 10.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50608A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-12-21 08-02-22	62.77	E 607,066.2 N 695,808.3

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument / Backfill
02.12 1.20	60 (10) 7		61.57		1.20 (0.60)	1.20 - 1.80 m: overburden	Dense subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
			60.97		1.80			
2.00	80 (28) 11	NI			(1.70)	1.80 - 2.90 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Very strong and strong massive light grey 'marbled' brownish white fine to coarse grained limestone recovered as angular fine to coarse gravel cobble and boulder sized clasts with a little light brown clay. Core run - 2.00m to 3.50m: 1 No light grey limestone boulder 240mm in length.	
3.50			59.27		3.50	2.90 - 10.20 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 6mm thick light brown clay smear.	Point Load Test - 3.35m to 3.40m: very strong.	
		1					Very strong massive light grey 'marbled' brownish white with coarse grained sparite fine to medium grained LIMESTONE.	
	100 (94) 86	4						
5.00						5.15 - 5.25 Probable joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick light brown clay smear, open, non-intact.		
	100 (87) 37	7				5.35 - 5.70 Joint, subvertical dip, stepped, smooth, with 0.5 to 6mm thick brown clay smear, open to moderately wide.		
6.50		5			(6.70)	6.00 - 6.50 Joint, subvertical dip, undulating, tight. 6.45 - 6.50 Joint, dipping 45°, stepped, smooth, with 0.5 to 5mm thick light brown clay smear, open to moderately wide.		
	100 (97) 89	3					Point Load Test - 7.20m to 7.33m: very strong.	
8.00								
	100 (98) 91	3				8.95 - 9.05 Joint, dipping 60°, stepped,		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
02/12/21	16.00	1.20					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.2	10.2	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 3.00m to 10.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50608A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-12-21 08-02-22	62.77	E 607,066.2 N 695,808.3

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
9.50	100 (100) 100	0				rough, with 0.5 to 2mm thick orangish brown clay smear, open.	Very strong massive light grey 'marbled' brownish white with coarse grained sparite fine to medium grained LIMESTONE. *(continued)*	
08.02 10.20			52.57		10.20		BH terminated at 10.20m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
08/02/22	16.00	10.20										50mm standpipe installed. Response zone 3.00m to 10.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50885**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-11-21 07-02-22	71.06	E 607,251.5 N 696,009.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			70.66		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 15 (2, 4, 4, 3, 4, 4)				(1.60)	Stiff brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4			69.06		2.00		
2.00	SPT	N = 17 (3, 5, 4, 4, 5, 4)					Medium dense grey very silty very sandy subangular to subrounded fine to coarse brown sandstone brown dolomitised limestone and assorted grey limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
2.00	D5							
2.00-2.80	B7						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
22-11-21	11.00	2.80			dry	2.8	2.8	1:00			50mm standpipe installed. Response zone 7.00m to 15.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50885**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-11-21 07-02-22	71.06	E 607,251.5 N 696,009.0

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
22.11 2.80	33 - -	2.80 (50/0mm)				2.80 - 6.10 m: overburden		Medium dense grey very silty very sandy subangular to subrounded fine to coarse brown sandstone brown dolomitised limestone and assorted grey limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. *(continued)*	
3.50	31 - -								
4.10					(4.10)				
	33 - -	4.30 (50/75mm)							
5.00								Point Load Test - 5.00m to 5.10m: very strong. Point Load Test - 5.20m to 5.30m: strong. Point Load Test - 5.30m to 5.40m: strong.	
	87 (17) 11	5.80 (50/0mm)							
			64.96		6.10			Point Load Test - 6.00m to 6.10m: very strong.	
6.50		10				6.10 - 11.90 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, rough, with 0.5 to 3mm thick orangish brown clay smear and minor orangish brown iron stain. 6.85 - 6.95 Joint, dipping 60°, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide. 7.15 - 7.20 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear, open. 7.30 - 7.40 Joint, dipping 45°, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide.		Very strong locally strong massive light grey 'marbled' grey and white with coarse grained sparite fine to coarse grained LIMESTONE. Point Load Test - 6.10m to 6.20m: very strong. Point Load Test - 6.30m to 6.40m: very strong. Point Load Test - 6.40m to 6.50m: very strong.	
	100 (87) 63	7							
8.00								Point Load Test - 6.50m to 6.65m: very strong. Point Load Test - 6.65m to 6.80m: very strong. 6.75m to 6.85m: light orangish brown clay. Point Load Test - 6.80m to 6.90m: very strong. Point Load Test - 6.90m to 7.00m: strong.	
	100 (94) 64	5			(5.80)	8.80 - 9.40 Joint, subvertical dip, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide.			
9.50		8				9.50 - 9.65 Joint, subvertical dip, stepped, rough, with 0.5 to 6mm thick orangish brown clay smear, open to moderately wide.		Point Load Test - 7.70m to 7.80m: very strong. Point Load Test - 7.80m to 7.90m: very strong. Point Load Test - 7.90m to 8.00m: very strong. Point Load Test - 9.90m to 10.10m: strong. Point Load Test - 10.10m to 10.20m: strong.	
	100 (67) 54	3							

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
22/11/21	11.00	2.80					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.8	5.6	Water	100
5.6	15	Water	0

GENERAL REMARKS

50mm standpipe installed. Response zone 7.00m to 15.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50885**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-11-21 07-02-22	71.06	E 607,251.5 N 696,009.0

Engineer: Mott MacDonald

Sheet 3 of 3

Status FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION Discontinuities / Detail / Main		Instrument / Backfill
11.00						Point Load Test - 10.50m to 10.60m: strong. Point Load Test - 10.60m to 10.70m: very strong. Point Load Test - 10.70m to 10.80m: very strong.		
	100 (97) 88	3						
11.90			59.16		11.90	Very strong locally strong massive light grey 'marbled' grey and white with coarse grained sparite fine to coarse grained LIMESTONE. *(continued)* Point Load Test - 10.80m to 10.90m: strong.		
	-				(3.10)	11.90m to 15.00m: core vandalised - no core seen.		
07.02 15.00			56.06		15.00			
						BH terminated at 15.00m bgl on REs instruction.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/02/22	17.00	15.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone 7.00m to 15.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50920**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-11-21 04-02-22	73.06	E 607,273.7 N 696,036.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1			72.76		0.30	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 19 (3, 3, 4, 5, 5, 5)					Firm grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	50 for 295 mm (4, 6, 6, 5, 14, 25)				(3.60)		
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 17 (3, 4, 4, 4, 4, 5)						
3.00	D8							
3.00-3.90	B10							
3.50-5.00	C							
				69.16		3.90	Point Load Test - 3.70m to 3.80m: very strong.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
23-11-21	15.00	3.90			dry	2.4 3.9	2.6 3.9	0:45 2:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50920**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-11-21 04-02-22	73.06	E 607,273.7 N 696,036.1

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
23.11 3.90		3.90 (50/0mm)	69.16		3.90	3.90 - 7.60 m: overburden		Light greyish brown slightly silty slightly gravelly fine to medium SAND with low cobble content. Gravel is subrounded to subangular fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
	100 -								
5.00	-								
		5.40 (50/0mm)						Point Load Test - 5.30m to 5.40m: very strong.	
	67 -				(3.70)				
6.50	-								
		7.00 (50/0mm)						Point Load Test - 6.90m to 7.00m: strong.	
	100 (26) 19							Point Load Test - 7.10m to 7.20m: very strong.	
			65.46		7.60				
8.00		3				7.60 - 15.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 5mm thick light brown clay smear. 7.90 - 8.20 Joint, subvertical dip, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide.		Very strong locally strong massive grey 'marbled' light grey and white with coarse grained sparite fine to medium grained LIMESTONE. Point Load Test - 7.70m to 7.80m: very strong. Point Load Test - 7.80m to 7.90m: strong. Point Load Test - 7.90m to 8.00m: very strong.	
	100 (75) 62	8							
9.50		4						Point Load Test - 9.50m to 9.60m: strong. Point Load Test - 9.60m to 9.70m: very strong. Point Load Test - 9.70m to 9.80m: very strong. Point Load Test - 9.80m to 9.90m: very strong. Point Load Test - 9.90m to 10.00m: very strong. Point Load Test - 10.00m to 10.10m: very strong. Point Load Test - 10.10m to 10.20m: very strong. Point Load Test - 10.20m to 10.30m: strong. Point Load Test - 10.30m to 10.40m: very	
	100 (97) 95								
		3							
11.00					(7.40)				
	100 (97)	4							

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
23/11/21	15.00	3.90					

Rotary Flush			
From (m)	To (m)	Type	Return (%)
3.9	15	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-50920**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-11-21 04-02-22	73.06	E 607,273.7 N 696,036.1

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	96							strong. Point Load Test - 10.40m to 10.50m: very strong. Point Load Test - 11.00m to 11.00m: strong. Point Load Test - 11.10m to 11.25m: very strong. Point Load Test - 11.35m to 11.45m: very strong. Point Load Test - 11.45m to 11.55m: very strong. Point Load Test - 11.55m to 11.65m: very strong. Point Load Test - 11.65m to 11.80m: very strong. Very strong locally strong massive grey 'marbled' light grey and white with coarse grained sparite fine to medium grained LIMESTONE. *(continued)* Point Load Test - 12.30m to 12.40m: very strong. 13.10m to 13.50m: non-intact as angular fine gravel sized clasts with some orangish brown clay. Point Load Test - 14.00m to 14.00m: strong. Point Load Test - 14.30m to 14.40m: very strong. Point Load Test - 14.40m to 14.50m: very strong. Point Load Test - 14.50m to 14.60m: strong. Point Load Test - 14.85m to 14.95m: very strong.	
12.50		3							
	100 (67) 61	NI				13.10 - 13.50 Non-intact as angular fine gravel sized clasts with some orangish brown clay.			
14.00		3				13.80 - 14.00 Joint, subvertical dip, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear, open to moderately wide.			
	100 (97) 94	3							
04.02 15.00			58.06		15.00			BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
04/02/22	17.00	15.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-51386**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-11-21 03-02-22	79.75	E 607,677.4 N 696,267.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				79.15		0.60		
1.00	SPT	N = 14 (2, 2, 2, 4, 4, 4)					Firm brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4					(2.40)		
2.00	SPT	N = 40 (3, 4, 4, 3, 5, 28)					2.00m: becoming stiff.	
2.00	D5							
2.00-3.00	B7							
				76.75		3.00		
3.00	SPT	N = 23 (3, 4, 4, 6, 6, 7)					Medium dense cream very sandy very silty subangular fine to coarse brown siltstone and sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
3.00	D8							
3.00-4.00	B10					(1.40)		
4.00	SPT	50 for 95 mm (11, 14, 18, 32)						
4.00	D11			75.35		4.40		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
24-11-21	15.00	4.40			dry	2.4 4.3	2.8 4.4	0:45 2:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-51386**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-11-21 03-02-22	79.75	E 607,677.4 N 696,267.3

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
24.11 4.40	53 - -	4.40 (50/0mm)	75.35		4.40	4.40 - 10.00 m: overburden	Grey speckled black silty fine and medium SAND.	
5.00					(2.00)			
	40 - -							
			73.35		6.40			
6.50			73.05		6.70		Subangular fine to coarse brown siltstone and sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
	7 - -						Grey speckled black silty fine and medium SAND.	
8.00					(3.30)			
	27 - -							
9.50								
	60 - -							
03.02 10.00			69.75		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
24/11/21	15.00	4.40						4.4	10	Water	100	BH backfilled with grout.
03/02/22	15.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-51540**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-11-21 25-11-21	76.54	E 607,820.0 N 696,330.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.20m 3.80m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			76.24		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 2 (1, 0, 0, 1, 0, 1)					Soft grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4					(2.50)		
2.00	SPT	N = 5 (1, 1, 2, 1, 1, 1)						
2.00	D5							
2.00-3.00	B7			73.74		2.80		
3.00	SPT	N = 20 (4, 4, 4, 5, 5, 6)					Firm grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
3.00	D8							
3.00-4.00	B10		1					
4.00	SPT	N = 20 (4, 4, 4, 5, 5, 6)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 16 (4, 4, 3, 4, 4, 5)				(4.40)		
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 38 (4, 5, 6, 8, 12, 12)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	50 for 10 mm (16, 9, 50)	1	69.34		7.20		
7.00	SPT D20						BH terminated at 7.20m bgl. Obstruction as probable boulder.	
7.20		50 for 0 mm (25, 50)						

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
25-11-21	15.00	7.20	7.20	203	3.80

Chiselling

From	To	Hours
5.8	6	0:30
7	7.2	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-52008**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	26-11-21 09-02-22	86.34	E 608,168.0 N 696,620.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			86.04		0.30	TOPSOIL: Grass over soft brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
						(1.10)	Damp brown silty fine to coarse SAND.	
1.00	SPT	N = 12 (1, 2, 2, 2, 3, 5)					1.00m: medium dense.	
1.00	D2			84.94		1.40		
1.00-2.00	B4						Medium dense grey silty very sandy subrounded to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone.	
2.00	SPT	N = 20 (4, 4, 4, 5, 5, 6)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 21 (3, 4, 4, 6, 5, 6)				(3.40)		
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 26 (4, 3, 3, 6, 8, 9)						
4.00	D11							
4.00-4.80	B13							
				81.54		4.80		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
26-11-21	15.00	4.80				4.7	4.8	1:00		1.4	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-52008**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	26-11-21 09-02-22	86.34	E 608,168.0 N 696,620.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
26.11 4.80	53 - -	4.80 (50/0mm)	81.54		4.80	4.80 - 10.00 m: overburden		4.80m: becoming very dense.	
5.00			81.34		5.00			Subrounded to subangular fine and medium assorted grey limestone GRAVEL.	
	33 - -				(1.30)			Light brownish grey slightly silty fine and medium SAND.	
			80.04		6.30				
6.50		6.30 (50/0mm)	79.74		6.60			Subrounded to subangular fine to coarse assorted grey limestone GRAVEL.	
	60 - -				(1.00)			Light greyish brown fine and medium SAND.	
			78.74		7.60				
8.00		7.80 (50/75mm)	78.34		(0.40) 8.00			Subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone	
	60 - -				(1.40)			Light greyish brown fine and medium SAND.	
			76.94		9.40				
9.50		9.30 (50/0mm)	76.74		9.60			Subrounded to subangular fine to coarse assorted grey limestone GRAVEL.	
	80 - -				(0.40)			Light greyish brown fine and medium SAND.	
09.02 10.00			76.34		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
26/11/21	15.00	4.80					
09/02/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.8	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-52406**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-11-21 10-02-22	99.26	E 608,384.5 N 696,954.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			98.96		0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 15 (2, 3, 3, 4, 4, 4)					Firm greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 29 (4, 6, 8, 8, 6, 7)				(3.50)	2.00m: becoming stiff.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 33 (3, 3, 6, 7, 10, 10)						
3.00	D8							
3.00-4.00	B10			95.46		3.80		
4.00	SPT	50 for 60 mm (17, 8, 50)		94.96		(0.50) 4.30	Dense brown sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
4.00	D11						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
29-11-21	14.00	4.30			dry	4.2	4.3	1:30			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-52406**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-11-21 10-02-22	99.26	E 608,384.5 N 696,954.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
29.11 4.30	13	4.30 (50/0mm)	94.96		4.30	4.30 - 10.00 m: overburden	Light brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
5.00	73	5.80 (63)			(2.40)			
6.50			92.56		6.70			
	40	7.30 (40/75mm)					Light brown speckled black slightly silty fine and medium SAND.	
8.00	20				(3.30)			
9.00		9.00 (69)					9.00m: very dense.	
	40							
10.02 10.00			89.26		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
29/11/21	14.00	4.30					
10/02/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.3	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-52680**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	30-11-21 30-11-21	94.84	E 608,596.3 N 697,121.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.30m 3.30m 6.00m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			94.44		(0.40) 0.40	POSSIBLE MADE GROUND: Grass over firm brown CLAY.	
				94.14		0.70	POSSIBLE MADE GROUND: Firm brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 10 (1, 1, 2, 2, 3, 3)		93.64		(0.50) 1.20	Soft brown slightly peaty SILT.	
1.00 1.00-2.00	D2 B4						Medium dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
2.00	SPT	N = 17 (2, 3, 3, 4, 5, 5)				(2.10)		
2.00 2.00-3.00	D5 B7							
3.00	SPT	N = 14 (2, 3, 3, 3, 4, 4)		91.54		3.30		
3.00 3.00-4.00	D8 B10						Medium dense brown silty fine SAND.	
4.00	SPT	N = 18 (3, 2, 2, 4, 5, 7)				(1.70)		
4.00 4.00-5.00	D11 B13							
				89.84		5.00		
5.00	SPT	N = 22 (3, 4, 4, 5, 5, 8)					Firm greyish green slightly sandy SILT. Sand is fine.	
5.00 5.00-6.00	D14 B16							
6.00	SPT	N = 27 (2, 3, 6, 6, 7, 8)				(2.60)		
6.00 6.00-7.00	D17 B19							
7.00	SPT	N = 34 (4, 4, 8, 8, 7, 11)					7.00m: becoming very stiff.	
7.00 7.00-7.60	D20 B22			87.24		7.60		
7.60	SPT	50 for 0 mm (25, 50)					BH terminated at 7.60m bgl. Obstruction as possible boulder.	
7.60	D23							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
30-11-21	16.00	7.60	7.60	203	damp	7.6	7.6	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-53367**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-12-21 13-12-21	88.16	E 608,717.7 N 697,813.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			87.66		(0.50) 0.50	TOPSOIL: Firm brown SILT with low cobble content and low boulder content. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
				87.16		(0.50) 1.00	Soft greyish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	N = 20 (10, 10, 4, 5, 5, 6)					Medium dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(1.20)		
2.00	SPT	58 for 115 mm (8, 9, 30, 28)		85.96		2.20		
2.00-2.30	B7			85.86		2.30	Obstruction as possible limestone BOULDER.	
2.30	D8						BH terminated at 2.30m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-12-21	15.00	2.30	2.20	203	dry	0.6 2.2	0.9 2.3	1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-53713**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-12-21 21-03-22	84.08	E 608,712.2 N 698,156.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			83.78		0.30	TOPSOIL: Grass over firm blackish brown slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	N = 65 (4, 5, 10, 17, 18, 20)				(1.70)	Greyish brown slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			82.08		2.00		
2.00	SPT	N = 27 (3, 3, 5, 7, 7, 8)					Medium dense greyish brown very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00-2.50	B7							
2.50	D8					(1.10)		
3.00	SPT	50 for 50 mm (25, 50)		80.98		3.10		
				80.88		3.20	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-12-21	15.00	3.20				1.45 2.6 3.1	1.7 2.8 3.2	1:00 0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-53713**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-12-21 21-03-22	84.08	E 608,712.2 N 698,156.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
10.12 3.20 3.50	40 - -		80.88		3.20	3.20 - 5.80 m: overburden		Grey sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is fine and medium.	
	60 - -				(2.60)				
5.00									
	60 (11)		78.28		5.80				
	10					5.80 - 10.30 Non-intact as weathered rock. No recovery as washout of fines during drilling. No record of cavity.		Weathered LIMESTONE rock. Very strong and strong massive grey 'marbled' brownish white fine and coarse grained limestone recovered as angular fine to coarse gravel cobble and boulder sized clasts with some orangish brown clay.	
6.50								Point Load Test - 6.10m to 6.30m: very strong.	
	80 (40) 9								
8.00					(4.50)			Point Load Test - 7.80m to 7.95m: strong.	
	60 (21) -								
9.50									
	100 (41) 16								
21.03 10.30		NI	73.78		10.30			BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
10/12/21	15.00	3.20					
21/03/22	16.00	10.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.2	10.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-54059**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-12-21 22-03-22	89.25	E 608,793.2 N 698,471.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00 0.00-2.00	B1 CORE1			88.85		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
				88.25		(0.60) 1.00	Firm greyish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00 1.00 1.00-1.50 1.50	SPT D2 B4 D5	N = 30 (10, 10, 8, 7, 7, 8)		87.65		(0.60) 1.60	Dense grey very silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is fine and medium.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-12-21	11.00	1.60			dry	0.8 1.6	1 1.6	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-54059**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-12-21 22-03-22	89.25	E 608,793.2 N 698,471.4

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
13.12 1.60	25	1.60 (50/0mm)	87.65		1.60	1.60 - 10.00 m: overburden		Very dense light grey silty fine to coarse SAND with subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
2.00									
	40								
3.50					(3.80)				
	47								
5.00								Point Load Test - 5.00m to 5.16m: very strong.	
			83.85		5.40				
	53							Very stiff light brownish grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
6.50									
	60				(4.00)				
8.00									
	13								
			79.85		9.40				
9.50									

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
13/12/21	11.00	1.60					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.6	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-54059**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-12-21 22-03-22	89.25	E 608,793.2 N 698,471.4

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
22.03 10.00	60 - -		79.25		(0.60) 10.00			Light greyish brown slightly gravelly silty fine to coarse SAND. Gravel is subrounded fine to coarse of assorted grey limestone. *(continued)* BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
22/03/22	16.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-54278**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-12-21 15-12-21	79.23	E 608,814.7 N 698,709.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 1.80m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.80)	Grass over soft black silty PEAT with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
				78.43		0.80		
1.00	SPT	N = 31 (13, 5, 8, 7, 6, 10)					Soft greyish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5		1			(2.20)		
2.00	SPT	N = 31 (3, 4, 6, 8, 8, 9)						
2.00-2.50	B7							
2.50	D8							
			1	76.23		3.00		
3.00	SPT	50 for 0 mm (25, 50)					BH terminated at 3.00m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
14-12-21	16.00	3.00	3.00	203	0.80
15-12-21	09.00	3.00			0.80

Chiselling

From	To	Hours
0.7	1	1:00
3	3	1:00

Water Added

From	To

GENERAL REMARKS

Rising head test expedited in BH. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-54810**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-12-21 15-12-21	97.02	E 608,877.8 N 699,235.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			96.62		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				96.02		(0.60) 1.00	Firm greyish brown gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	SPT	50 for 60 mm (25, 50)		95.82		1.20	Very dense greyish brown very sandy very silty angular limestone GRAVEL as possible limestone boulder.	
1.00	D2						BH terminated at 1.20m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
15-12-21	16.00	1.20	1.20	203	dry	1	1.2	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-55410**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-12-21 16-12-21	87.26	E 609,015.0 N 699,815.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			86.86		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	SPT	N = 48 (14, 4, 5, 6, 16, 21)				(1.30)	Firm grey slightly sandy gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			85.56		1.70		
1.70	SPT	50 for 0 mm (25, 50)					BH terminated at 1.70m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
16-12-21	12.00	1.70	1.70	203	dry

Chiselling

From	To	Hours
0.8	1	1:00
1.7	1.7	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-55944**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-12-21 23-03-22	78.14	E 608,998.8 N 700,346.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.70m 2.40m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			77.74		(0.40) 0.40	TOPSOIL: Grass over plastic black amorphous silty PEAT.	
				77.14		(0.60) 1.00	Firm grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	SPT	N = 17 (2, 2, 3, 4, 4, 6)					Medium dense grey very silty fine to coarse SAND and sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 24 (3, 2, 4, 7, 6, 7)						
2.00-2.50	B7		▽ 1					
2.50	D8		▼ 1			(3.00)		
3.00	SPT	N = 45 (6, 6, 8, 1, 16, 20)					3.00m: becoming dense.	
3.00-3.50	B10							
3.50	D11							
				74.14		4.00		
4.00	SPT	50 for 0 mm (25, 50)					Very dense dark grey silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is fine and medium. *Borehole continued by coring*	
4.00-4.30	B13							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
16-12-21	16.00	1.00				3.4	3.6	1:00			BH backfilled with grout.
17-12-21	09.00	1.00				4.3	4.3	2:00			
17-12-21	14.00	1.00			3.00						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-55944**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-12-21 23-03-22	78.14	E 608,998.8 N 700,346.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
4.30 4.50	27 - -					4.30 - 6.00 m: overburden	Very dense dark grey silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is fine and medium. *(continued)*	
	40 - -				(2.00)			
6.00			72.14		6.00			
	100 (91) 47	12				6.00 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear. 6.50 - 6.75 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open. 6.80 - 6.95 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open. 6.95 - 7.15 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.	Very strong locally medium strong and strong massive grey 'marbled' brownish white slightly bioclastic fine to coarse grained LIMESTONE. Point Load Test - 6.00m to 6.20m: medium strong.	
7.50		7			(4.00)			
	100 (75) 45	7				7.50 - 7.60 Joint, vertical dip, stepped, rough, clean, open as drilling induced? 7.65 - 7.70 Joint, dipping 45°, stepped, rough, with 0.5 to 1mm thick light brown clay smear, open. 8.85 - 9.10 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.	Point Load Test - 8.20m to 8.30m: strong.	
9.00						9.00 - 10.00 No obvious area of core loss. No recovery as washout of fines during drilling. No record of cavity.	Point Load Test - 9.50m to 9.70m: very strong.	
	85 (83) 68							
23.03 10.00			68.14		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
23/03/22	16.00	10.00						4.3	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56060**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-12-21 24-03-22	77.24	E 608,997.2 N 700,463.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.00m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over plastic black amorphous silty PEAT with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
				76.64		0.60		
				76.24		(0.40) 1.00	Firm greyish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 22 (3, 4, 2, 5, 7, 8)					Medium dense very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5		▼1					
2.00	SPT	N = 59 (8, 8, 17, 14, 18, 10)				(2.20)	2.00m: becoming very dense.	
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 35 (4, 5, 9, 9, 8, 9)		74.04		3.20	3.00m: becoming dense.	
3.00-3.50	B10						Firm grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
3.50	D11					(1.20)		
4.00	SPT	50 for 225 mm (18, 7, 13, 18, 19)						
4.00-4.50	B13			72.84		4.40		
				72.74		4.50	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
20-12-21	15.00	4.50				2.4	2.6	1:00			BH backfilled with grout.
						3.7	4	1:00			
						4.4	4.5	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56060**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-12-21 24-03-22	77.24	E 608,997.2 N 700,463.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
20.12 4.50	47		72.74		4.50	4.50 - 10.00 m: overburden		Dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL and grey slightly silty fine to coarse SAND with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
5.00	-								
	27								
	-								
		6.00 (50/75mm)						6.00m: very dense.	
6.50									
	27				(5.50)				
	-								
		7.50 (50/75mm)							
8.00									
	13								
	-								
		9.00 (50/0mm)							
9.50									
	60								
	-								
24.03 10.00			67.24		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
20/12/21	15.00	4.50					
24/03/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.5	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56109**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-12-21 25-03-22	76.91	E 609,033.6 N 700,486.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.70m 4.00m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			76.41		(0.50) 0.50	TOPSOIL: Grass over plastic black amorphous clayey PEAT with low boulder content. Boulders are subrounded to rounded of grey limestone.	
				75.91		(0.50) 1.00	Firm grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 31 (2, 5, 8, 7, 7, 9)					Dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 18 (2, 3, 4, 4, 4, 6)					2.00m: becoming medium dense very silty.	
2.00-2.50	B7							
2.50	D8		1			(3.00)		
3.00	SPT	N = 37 (6, 7, 8, 8, 10, 11)	1				3.00m: becoming dense.	
3.00-3.50	B10							
3.50	D11			72.91		4.00		
4.00	SPT	N = 37 (4, 4, 8, 10, 9, 10)					Dense grey very sandy very silty grey sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
4.00-4.50	B13			72.41		(0.50) 4.50		
4.50	D14						Stiff grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
5.00	SPT	55 for 225 mm (10, 10, 18, 37)		71.61		(0.80) 5.30		
5.00-5.40	B16			71.51		5.40	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-12-21	16.00	5.40				3.6 5.3	3.9 5.4	1:00 1:00			50mm standpipe installed. Response zone 2.00m to 11.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56109**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-12-21 25-03-22	76.91	E 609,033.6 N 700,486.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main
21.12 5.40	40 - -		71.51		5.40	5.40 - 8.00 m: overburden	Very dense subrounded to subangular fine to coarse assorted grey limestone GRAVEL with some greenish brown slightly sandy gravelly silt. Sand is coarse. Gravel is subrounded to subangular fine to coarse of assorted grey limestone.
6.50		6.90 (50/0mm)			(2.60)		
	20 - -						
8.00			68.91		8.00		
	100 (95) 59	7				8.00 - 11.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 5mm thick light orangish brown clay smear. 8.50 - 8.60 Joint, dipping 60°, stepped, smooth, with 0.5 to 2mm thick light orangish brown clay smear, open.	Very strong massive grey 'marbled' white and light grey fine and coarse grained LIMESTONE.
9.50		7			(3.00)		
	100 (96) 81	6				10.25 - 10.35 Joint, vertical dip, planar, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.	
25.03 11.00			65.91		11.00		BH terminated at 11.00m bgl on REs instruction.

Instrument / Backfill

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
21/12/21	16.00	5.40					
25/03/22	16.00	11.00					

Rotary Flush			
From (m)	To (m)	Type	Return (%)
5.4	11	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 2.00m to 11.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56272**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-01-22 05-01-22	77.78	E 609,131.4 N 700,631.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Reeds over soft dark brownish black slightly sandy slightly gravelly organic SILT and PEAT. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone.	
				77.28		0.50		
							Firm grey sandy gravelly SILT with low cobble content. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 22 (10, 7, 3, 5, 6, 8)						
1.00	D2							
1.00-1.50	B4					(2.10)		
1.50	D5							
2.00	SPT	N = 33 (6, 7, 4, 5, 5, 19)						
2.00-2.50	B7							
2.50	D8			75.18		2.60		
							Stiff dry grey slightly gravelly sandy SILT with low cobble content. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
3.00	SPT	56 for 190 mm (8, 10, 19, 17, 20)				(0.80)		
3.00-3.50	B10			74.38		3.40		
				74.28		3.50	Obstruction as possible limestone BOULDER.	
3.50	D11						BH terminated at 3.50m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
05-01-22	14.00	3.50	3.00	203		0.8 2.45 3.4	1 2.7 3.5	1:00 1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56645**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-01-22 29-03-22	82.58	E 609,372.3 N 700,910.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			82.18		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	SPT	N = 47 (8, 10, 10, 8, 19, 10)				(1.40)	Brownish grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. 1.00m: dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			80.78		1.80		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
06-01-22	11.00	1.80			dry	1.4 1.8	1.6 1.8	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56645**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-01-22 29-03-22	82.58	E 609,372.3 N 700,910.5

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
06.01 1.80 2.00	40 -	1.80 (50/0mm)	80.78		1.80	1.80 - 10.00 m: overburden	Very dense grey slightly silty sandy subangular to subrounded fine and medium assorted grey limestone GRAVEL. Sand is fine and medium.	
3.50	33 -							
5.00	40 -				(7.30)			
6.50	33 -							
8.00	47 -							
9.50	27 -		73.48		9.10		Very stiff brown slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
	80 -				(0.90)			

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
06/01/22	11.00	1.80					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.8	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56645**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-01-22 29-03-22	82.58	E 609,372.3 N 700,910.5

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
29.03 10.00	-		72.58		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
29/03/22	16.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56857**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-01-22 28-03-22	73.56	E 609,479.7 N 701,081.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			73.16		(0.40) 0.40	TOPSOIL: Reeds over soft black very peaty SILT.	
				72.66		(0.50) 0.90	Firm dry grey sandy gravelly SILT. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 18 (3, 4, 4, 3, 5, 6)					Medium dense wet grey very silty very gravelly medium and coarse SAND. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(1.60)		
2.00	SPT	N = 38 (8, 8, 9, 8, 10, 11)						
2.00-2.50	B7			71.06		2.50		
2.50	D8			70.66		(0.40) 2.90	Dense grey silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
2.90	SPT	50 for 0 mm (25, 50)		70.56		3.00	Stiff dry grey sandy gravelly SILT with low cobble content. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To
07-01-22	12.00	3.00			dry	2.9	3	1:00		

GENERAL REMARKS

50mm standpipe installed. Response zone 5.00m to 8.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-56857**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-01-22 28-03-22	73.56	E 609,479.7 N 701,081.3

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS / STRATA

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
07.01 3.00	33 - -		70.56		3.00 (0.50)	3.00 - 10.00 m: overburden		Very dense light grey slightly silty sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL. Sand is fine and medium.	
3.50			70.06		3.50			Very stiff light brownish grey sandy gravelly SILT with low boulder content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of assorted grey limestone.	
	27 - -	4.50 (50/75mm)							
5.00									
	33 - -	6.00 (50/0mm)							
6.50					(6.50)				
	67 - -	7.50 (50/0mm)							
8.00								Core run - 8.00m to 9.50m: 1 No grey limestone boulder 590mm in length.	
	67 - -								
9.50									
	60 - -								
28.03 10.00			63.56		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/01/22	12.00	3.00					
28/03/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.00m to 8.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-57037**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-01-22 30-03-22	75.22	E 609,608.0 N 701,208.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm blackish brown SILT.	
				74.62		0.60		
						(0.40)	Firm grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
				74.22		1.00		
1.00	SPT	N = 43 (4, 3, 4, 8, 10, 21)					Dense very silty fine and medium SAND and subrounded to subangular fine to coarse assorted grey limestone GRAVEL.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(1.60)		
2.00	SPT	N = 69 (3, 4, 3, 3, 57, 6)					2.00m: becoming very dense.	
2.00-2.50	B7							
2.50	D8			72.62		2.60		
2.60	SPT	50 for 0 mm (25, 50)		72.52		2.70	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-01-22	16.30	2.70			dry	1.45 2.6	1.7 2.7	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-57037**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-01-22 30-03-22	75.22	E 609,608.0 N 701,208.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS			STRATA					
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
10.01 2.70	20 - -		72.52		2.70	2.70 - 10.00 m: overburden		Very dense subrounded to subangular fine to coarse assorted grey limestone GRAVEL and grey slightly silty fine and medium SAND.	
3.50									
	20 - -				(3.60)				
5.00									
	60 - -		68.92		6.30				
6.50								Stiff brownish green slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles of assorted grey limestone.	
	53 - -								
8.00					(3.70)				
	33 - -								
9.50									
	60 - -								
30.03 10.00			65.22		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
10/01/22	16.30	2.70						2.7	10	Water	100	BH backfilled with grout.
30/03/22	16.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-57428**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-01-22 31-03-22	75.44	E 609,881.8 N 701,486.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1			74.94		(0.50) 0.50	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
				74.44		(0.50) 1.00	Soft damp greyish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	SPT	N = 36 (4, 4, 5, 6, 8, 17)					Dense grey silty very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4					(1.10)		
1.50	D5							
				73.34		2.10		
2.00	SPT	N = 35 (6, 8, 8, 8, 10, 9)					Stiff dry brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
2.00-2.50	B7							
2.50	D8					(1.00)		
				72.34		3.10		
3.00	SPT	50 for 0 mm (25, 50)					*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-01-22	12.00	3.30				1.5 3.1	1.7 3.3	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-57428**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-01-22 31-03-22	75.44	E 609,881.8 N 701,486.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
11.01 3.10 11.01 3.50	20 -		72.34		3.10	3.10 - 10.00 m: overburden	Very dense grey slightly silty subangular to subrounded fine to coarse assorted grey limestone GRAVEL and grey fine and medium SAND with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
	20 -							
5.00		4.80 (50/0mm)						
	40 -							
6.50		6.30 (65/150mm)			(6.90)			
	20 -							
8.00		7.80 (71)						
	27 -							
9.50								
	100 -							
31.03 10.00			65.44		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
11/01/22 31/03/22	12.00 16.00	3.30 10.00						3.1	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-57599**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-01-22 12-01-22	72.75	E 609,900.3 N 701,660.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			72.40		0.35	TOPSOIL: Grass over firm blackish brown SILT.	
				71.75		(0.65) 1.00	Firm greyish brown sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	N = 20 (8, 10, 8, 4, 4, 4)					Medium dense grey very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 64 (5, 6, 5, 19, 34, 6)				(2.50)	2.00m: becoming very dense.	
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 51 (4, 9, 9, 10, 17, 15)						
3.00-3.50	B10			69.25		3.50		
3.50	D11			69.15		3.60	Obstruction as possible limestone BOULDER.	
3.60	SPT	50 for 0 mm (25, 50)					BH terminated at 3.60m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-01-22	12.00	3.60	3.50	203	dry	2.4 3.6	2.7 3.6	1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-58414**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-04-22 01-04-22	71.61	E 610,305.4 N 702,289.6

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
0.00	11 - -				(0.90)	0.00 - 0.90 m: overburden		Dark grey slightly silty fine and medium SAND. (0.10m recovered).	
0.90			70.71		0.90				
		NI	70.41		1.20	0.90 - 1.20 Non-intact as probable weathered rock.		Probable weathered LIMESTONE rock. Very strong and strong thinly bedded grey slightly bioclastic fine grained limestone recovered as angular fine to coarse gravel sized clasts.	
	100 (43) 12	28				1.20 - 10.00 Discontinuities, closely spaced, locally medium and very closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 2mm thick dark grey silt smear.		Strong locally medium strong thinly bedded grey slightly bioclastic fine grained LIMESTONE.	
2.00						2.00 - 2.25 Joint, subvertical dip, planar, smooth, with 0.5 to 1mm thick dark grey silt smear, open.		2.00m: becoming very strong locally medium strong.	
	100 (91) 9	26				2.30 - 2.47 Joint, subvertical dip, planar, smooth, with 0.5 to 1mm thick dark grey silt smear, open.			
						2.47 - 2.65 Joint, subvertical dip, planar, smooth, with 0.5 to 1mm thick dark grey silt smear, open.		2.90m to 3.00m: medium strong brownish grey.	
3.50		18				3.15 - 4.00 Joint, subvertical dip, planar, smooth, with 0.5 to 2mm thick dark grey silt smear, open.		Point Load Test - 3.50m to 3.60m: very strong.	
	100 (96) 32								
		10				4.30 - 4.50 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear and minor orange and orangish brown iron stain and powder, open.			
5.00								Point Load Test - 4.80m to 5.00m: very strong. 5.00m: thickly interbedded with 15 to 2mm thick 'anastomosing' white calcitic veinlets.	
	100 (91) 61	6			(8.80)				
6.50		9							
	100 (95) 61	8						7.15m to 7.20m: dark brown clay.	
8.00								7.75m to 8.00m: horizontal white calcitic	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
								0	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Rotary Core/Comacchio Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-58414**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-04-22 01-04-22	71.61	E 610,305.4 N 702,289.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	100 (91) 39	20				8.80 - 9.25 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick dark grey silt smear, open.		vein. Strong locally medium strong thinly bedded grey slightly bioclastic fine grained LIMESTONE. *(continued)* 8.30m to 8.35m: medium strong.	
9.50								9.05m to 9.15m: dark brown clay.	
	100 (82) 62	10				9.40 - 9.65 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick dark grey silt smear, open.			
01.04 10.00			61.61		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
01/04/22	15.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used Rotary Core/Comacchio Geo 602		Driller BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-58807**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-01-22 04-04-22	81.62	E 610,668.6 N 702,381.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(1.00)	TOPSOIL: Grass over firm brown SILT.	
				80.62		1.00		
1.00	SPT	N = 21 (3, 4, 4, 4, 6, 7)				(0.50)	Medium dense grey very silty fine to coarse SAND and subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL.	
1.00	D2							
1.00-1.50	B4			80.12		1.50		
1.50	D5						Firm grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are angular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	SPT	N = 29 (5, 3, 7, 8, 9, 5)						
2.00-2.50	B7					(1.90)		
2.50	D8							
3.00	SPT	N = 35 (10, 10, 5, 6, 11, 13)						
3.00-3.50	B10			78.22		3.40		
3.50	D11					(0.40)	Dense grey clayey angular to rounded limestone COBBLES and limestone BOULDERS.	
3.70	SPT	50 for 20 mm (25, 50)		77.82		3.80		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-01-22	16.00	3.80			dry	3.7	3.8	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-58807**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-01-22 04-04-22	81.62	E 610,668.6 N 702,381.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
12.01 3.80			77.82		3.80	3.80 - 5.00 m: overburden	Grey slightly sandy subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL. Sand is fine to medium.	
	93 -				(1.20)			
5.00	-		76.62		5.00	5.00 - 6.00 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Strong thinly bedded dark grey slightly bioclastic silty fine and medium grained limestone recovered as angular fine to coarse gravel cobble and boulder sized clasts.	
		5.30 (50/0mm) NI			(1.00)			
	100 (28) 22		75.62		6.00	6.00 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear.	Core run - 5.00m to 6.50m: 1 No dark grey limestone boulder 340mm in length.	
6.50		7					Strong thinly bedded dark grey slightly bioclastic silty fine and medium grained LIMESTONE with visible medium to coarse gravel sized dark grey fine grained chert nodules.	
	100 (87) 62							
		7						
8.00					(4.00)			
						8.00 - 9.50 No obvious area of core loss. No recovery as washout of fines during drilling. No record of cavity.		
	67 (60) 41					8.40 - 8.65 Joint, subvertical dip, undulating, smooth, with 0.5 to 1mm thick brown clay smear, open.		
9.50								
	100 (84) 46	4						
14.04 10.00			71.62		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
12/01/22	16.00	3.80					
14/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.8	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-59474**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-01-22 23-03-22	82.48	E 611,265.3 N 702,666.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			82.13		0.35	TOPSOIL: Grass over firm brown SILT.	
				81.48		(0.65) 1.00	Firm grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	52 for 0 mm (10, 13, 52)					Dense greyish brown very gravelly very silty fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00 1.00-1.50 1.50	D2 B4 D5					(1.20)		
2.00	SPT	50 for 0 mm (10, 15, 50)		80.28		2.20		
				80.18		2.30	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-01-22	11.00	2.30			dry	1.2 2.2	1.6 2.3	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-59474**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-01-22 23-03-22	82.48	E 611,265.3 N 702,666.3

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
13.01 2.30			80.18		2.30	2.30 - 10.00 m: overburden	Grey speckled black slightly silty fine and medium SAND.	
			79.98		2.50		(0.50m recovered).	
	47 -				(1.00)		Firm light brown organic SILT with rootlets.	
3.50	-		78.98		3.50		(0.20m recovered).	
		3.80 (45)					Dense light brown slightly gravelly fine SAND. Gravel is subangular to rounded fine to coarse of assorted grey limestone.	
	27 -						(0.90m recovered).	
5.00	-							
		5.30 (61)					5.30m: becoming very dense.	
	27 -							
6.50	-	6.50			(6.50)			
	27 -							
8.00	-	8.00 (50/0mm)						
	20 -							
9.50	-							
	80 -							
23.03 10.00	-		72.48		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
13/01/22	11.00	2.30						2.3	10	Water	100	BH backfilled with grout.
23/03/22	15.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-59932**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-01-22 06-04-22	76.88	E 611,682.6 N 702,854.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(0.60)	TOPSOIL: Reeds over soft dry dark brownish black very peaty SILT.	
				76.28		0.60		
				75.88		(0.40) 1.00	Firm grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	SPT	N = 13 (3, 2, 3, 3, 2, 5)					Medium dense grey very silty fine and medium SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 12 (2, 2, 2, 2, 3, 5)				(2.40)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	59 for 150 mm (4, 8, 20, 19, 20)						
				73.48		3.40		
				73.38		3.50	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To
17-01-22	13.00	3.50			dry	3.4	3.5	1:00		

GENERAL REMARKS

50mm standpipe installed. Response zone 2.50m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-59932**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-01-22 06-04-22	76.88	E 611,682.6 N 702,854.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
17.01 3.50			73.38		3.50	3.50 - 10.00 m: overburden		Very dense grey slightly silty fine and medium SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.	
	40 -								
		4.70 (50/75mm)							
5.00									
	40 -								
					(5.50)				
6.50		6.30 (50/0mm)							
	40 -								
8.00		7.80 (50/0mm)							
	33 -								
			67.88		9.00			Stiff greyish brown slightly gravelly SILT. Gravel is subangular fine and coarse of assorted grey limestone.	
9.50					(1.00)				
	100 -								
06.04 10.00			66.88		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
17/01/22	13.00	3.50					
06/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.5	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 2.50m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-60345**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-01-22 07-04-22	75.72	E 612,042.0 N 703,057.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			75.32		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 15 (3, 3, 4, 2, 4, 5)					Grey gravelly very silty fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. 1.00m: medium dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(2.40)		
2.00	SPT	N = 20 (13, 5, 5, 4, 6, 5)					Core run - 0.00m to 2.00m: greyish brown SILT. (0.10m recovered).	
2.00-2.50	B7							
2.50	D8			72.92		2.80		
3.00	SPT	56 for 115 mm (8, 11, 20, 36)				(0.60)	Medium dense grey silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
3.00-3.40	B10			72.32		3.40	*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
18-01-22	13.00	3.40			3.20	1.7 3.4	2 3.4	1:00 1:00			50mm standpipe installed. Response zone 2.50m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-60345**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-01-22 07-04-22	75.72	E 612,042.0 N 703,057.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
18.01 3.40	33		72.32		3.40	3.40 - 10.00 m: overburden	Light grey slightly silty fine and medium SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.	
3.50	- -							
	47 - -							
5.00		4.90 (60)					4.90m: very dense.	
	27 - -							
6.50		6.40 (50/150mm)			(6.60)			
	20 - -							
8.00		7.90 (50/75mm)						
	20 - -							
9.50								
	80 - -							
07.04 10.00			65.72		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
18/01/22	13.00	3.40					3.20
07/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.4	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 2.50m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-60641**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-01-22 11-04-22	74.19	E 612,309.3 N 703,189.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			73.84		0.35	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of brown dolomitised limestone and assorted grey limestone.	
1.00	SPT	N = 15 (4, 4, 3, 2, 4, 6)				(2.15)	Grey very silty fine to coarse SAND and subangular to rounded fine to coarse brown dolomitised limestone and assorted grey limestone GRAVEL with low cobble content. Cobbles are rounded of limestone. 1.00m: medium dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 13 (3, 2, 2, 3, 4, 4)						
2.00-2.50	B7			71.69		2.50		
2.50	D8						Dry subangular to subrounded fine to coarse brown dolomitised limestone and assorted grey limestone GRAVEL and dark grey slightly silty fine and medium SAND with low boulder content. Boulders are of grey limestone.	
2.70	SPT	50 for 0 mm (25, 50)		71.39 71.29		2.80 2.90	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
19-01-22	13.00	2.90				0.6 2.8	0.9 2.9	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-60641**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-01-22 11-04-22	74.19	E 612,309.3 N 703,189.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
19.01 2.90	27 - -		71.29		2.90	2.90 - 7.50 m: overburden	Very dense subangular to subrounded fine to coarse brown dolomitised limestone and assorted grey limestone GRAVEL and dark grey slightly silty fine and medium SAND.	
3.50								
	47 - -	4.40 (50/0mm)						
5.00					(4.60)			
	53 - -	5.90 (50/0mm)						
6.50								
	47 (31) 24	7.40 (50/0mm)	66.69		7.50	7.50 - 10.00 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Possible weathered LIMESTONE rock. Strong and very strong massive light brown crystalline with coarse grained sparite fine and coarse grained dolomitised limestone recovered as angular fine to coarse gravel and cobble sized clasts with some light orangish brown clay.	
8.00								
	27 (17) -	NI			(2.50)			
9.50								
	100 - -							
11.04 10.00			64.19		10.00		9.90m to 10.00m: angular fine gravel sized clasts of dark grey limestone and brown dolomitised limestone. BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
19/01/22	13.00	2.90					
11/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.9	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-60805**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-01-22 08-04-22	74.97	E 612,381.7 N 703,333.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			74.57		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				73.97		(0.60) 1.00	Soft grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	SPT	N = 9 (2, 1, 1, 2, 3, 3)		73.47		(0.50) 1.50	Loose brownish grey very sandy very silty subangular to subrounded fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL.	
1.00	D2							
1.00-1.50	B4							
1.50	D5						Very stiff dark grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	SPT	N = 20 (3, 4, 3, 5, 6, 6)						
2.00-2.50	B7							
2.50	D8					(2.00)		
3.00	SPT	N = 63 (5, 7, 10, 10, 18, 25)						
3.00-3.50	B10			71.47		3.50		
3.50	D11			71.37		3.60	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
20-01-22	13.00	3.60			dry	3.5	3.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-60805**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-01-22 08-04-22	74.97	E 612,381.7 N 703,333.8

Engineer: Mott MacDonald

Sheet 2 of 2

Status FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
20.01 3.60			71.37		3.60	3.60 - 6.10 m: overburden	Subangular to subrounded fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL and grey slightly silty fine and medium SAND.	
	33 -							
5.00	-				(2.50)			
	93 (19)							
	-		68.87		6.10			
6.50		6				6.10 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 6mm thick orangish brown clay smear. 6.11 - 7.90 Joint, subvertical dip, stepped, smooth, with 0.5 to 3mm thick grey silt smear, open to moderately wide.	Strong thinly bedded dark grey with coarse grained sparite fine and medium grained LIMESTONE.	
	100 (96) 9							
		7						
8.00					(3.90)	8.05 - 8.90 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.		
	100 (77) 43	10						
9.50								
	100 (90) 70	8				9.55 - 10.00 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open.		
08.04 10.00			64.97		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
20/01/22	13.00	3.60					
08/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.6	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61136**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-01-22 12-04-22	75.98	E 612,684.9 N 703,455.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.20m 2.50m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			75.58		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				74.98		(0.60) 1.00	Soft grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 16 (3, 3, 4, 3, 5, 4)					Medium dense greyish brown very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 22 (4, 5, 8, 5, 5, 4)						
2.00-2.50	B7		1			(2.90)		
2.50	D8							
3.00	SPT	N = 35 (3, 8, 8, 9, 8, 10)	1				3.00m: becoming dense silty sandy.	
3.00-3.50	B10							
3.50	D11							
3.80	SPT	50 for 0 mm (25, 50)		72.08		3.90		
				71.98		4.00	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-01-22	14.00	4.00			3.00	2.5 3.9	2.8 4	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61136**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-01-22 12-04-22	75.98	E 612,684.9 N 703,455.9

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
21.01 4.00	67 - -		71.98		4.00	4.00 - 8.00 m: overburden	Very dense light brown slightly silty fine and medium SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.	
5.00					(2.50)			
	53 - -							
6.50			69.48		6.50			
	53 - -				(1.50)		Subrounded to subangular fine to coarse assorted grey limestone GRAVEL with some brown slightly sandy clay. Sand is coarse.	
8.00			67.98		8.00			
	100 (94) 63	13				8.00 - 11.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, rough, with 0.5 to 5mm thick orangish brown clay smear. 8.25 - 8.35 Possible joint, Non-intact as angular fine to medium gravel sized clasts with a little orangish brown clay. 8.60 - 8.75 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open. 9.35 - 9.55 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open as drilling induced? 9.65 - 9.70 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open. 9.90 - 10.40 Joint, subvertical dip, stepped, rough, with 0.5 to 6mm thick orangish brown clay smear, open to moderately wide as drilling induced? 10.40 - 11.00 Non-intact as gravelly orangish brown clay. Gravel is angular coarse.	Very strong thinly bedded grey slightly bioclastic with coarse grained sparite fine and coarse grained LIMESTONE. 8.25m to 8.35m: non-intact as angular fine to medium gravel sized clasts with a little orangish brown clay.	
9.50		6			(3.00)			
	100 (34) 11	6						
		NI					10.40m to 11.00m: non-intact as gravelly orangish brown clay. Gravel is angular coarse of grey limestone.	
12.04 11.00			64.98		11.00		BH terminated at 11.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
21/01/22	14.00	4.00					3.00	4	11	Water	100	BH backfilled with grout.
12/04/22	16.00	11.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61515**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 13-04-22	71.73	E 613,038.6 N 703,625.6

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
0.00			71.53		0.20	0.00 - 10.00 m: overburden		TOPSOIL: Reeds over plastic dark brown amorphous PEAT with rootlets.	
	50 - -				(1.80)			Firm brown sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine and medium of assorted grey limestone. (0.60m recovered).	
2.00			69.73		2.00				
	33 - -	2.50 (62)			(1.50)			Very dense grey slightly silty rounded to subrounded fine to coarse assorted grey limestone GRAVEL. (0.30m recovered).	
3.50			68.23		3.50				
	33 - -	4.00 (63)						Very dense dark grey slightly silty fine and medium SAND. (0.10m recovered).	
5.00									
	53 - -	5.50 (53)							
6.50					(6.50)				
	47 - -	7.00 (55)							
8.00									

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61515**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 13-04-22	71.73	E 613,038.6 N 703,625.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	40 -	8.56 (50/0mm)						Very dense dark grey slightly silty fine and medium SAND. (0.10m recovered). *(continued)*	
9.50	60								
13.04 10.00	-		61.73		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
13/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61605**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-01-22 04-03-22	71.68	E 613,117.2 N 703,640.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.80m 3.70m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			71.28		(0.40) 0.40	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 19 (2, 2, 3, 4, 4, 8)					Grey silty very gravelly fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of limestone. 1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 35 (3, 5, 8, 8, 8, 11)				(3.50)	2.00m: becoming dense.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	60 for 265 mm (7, 11, 11, 12, 16, 21)						
3.00	D8							
3.00-3.90	B10		1	67.78		3.90		
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
19-01-22	16.30	3.90			

Chiselling

From	To	Hours
3	3.9	1:30
3.9	3.9	1:00

Water Added

From	To
	1.4

GENERAL REMARKS

Rising head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61605**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-01-22 04-03-22	71.68	E 613,117.2 N 703,640.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
19.01 3.90	13	3.90 (50/0mm)	67.78		3.90	3.90 - 10.00 m: overburden	Very dense greyish brown speckled black slightly silty slightly gravelly fine and medium SAND. Gravel is subangular to subrounded fine and medium of brown sandstone dark grey chert and assorted grey limestone.	
4.50	33							
5.10		5.10 (50/150mm)						
	13							
6.60		6.60 (50/150mm)			(6.10)			
	53							
8.10		8.10 (50/75mm)						
	27							
9.60	70							
04.03 10.00		10.00 (50/75mm)	61.68		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
19/01/22	16.30	3.90					
04/03/22	16.00	10.00					

Rotary Flush			
From (m)	To (m)	Type	Return (%)
3.9	10	Water	100

GENERAL REMARKS

Rising head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61805**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-01-22 03-03-22	71.64	E 613,298.5 N 703,726.9

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.50m 2.60m 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			71.14		(0.50) 0.50	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
				70.64		(0.50) 1.00	Grey slightly silty gravelly fine to coarse SAND with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded fine to coarse of sandstone and limestone.	
1.00	SPT	N = 38 (5, 6, 8, 9, 9, 12)					1.00m: dense.	
1.00	D2						Firm grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded fine to coarse of sandstone and limestone.	
1.00-2.00	B4					(1.60)		
2.00	SPT	N = 27 (3, 3, 6, 6, 8, 7)					2.00m: becoming stiff.	
2.00	D5							
2.00-3.00	B7		1	69.04		2.60		
3.00	SPT	N = 38 (7, 8, 8, 10, 10, 10)				(1.00)	Dense brown very gravelly very silty fine to coarse SAND with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded fine to coarse of sandstone and limestone.	
3.00	D8							
3.00-3.60	B10			68.04		3.60		
3.50-5.10	C						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
18-01-22	16.30	2.00			dry	1.6	1.8	0:30			BH backfilled with grout.
19-01-22	09.00	2.00				2.8	3	0:30			
19-01-22	12.00	3.90			2.40	3.5	3.6	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61805**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-01-22 03-03-22	71.64	E 613,298.5 N 703,726.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
3.60 19.01 19.01		3.60 (50/8mm)	68.04		3.60	3.60 - 4.50 m: overburden	Very dense subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low boulder content.	
	88 (34) 27		67.14		(0.90) 4.50			
5.10		5				4.50 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear.	Very strong thinly bedded dark grey with coarse grained sparite bioclastic fine to coarse grained LIMESTONE.	
		6						
	100 (98) 83					5.85 - 6.00 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick bright orange iron stain and powder, open.		
6.60		3				6.00 - 6.05 Joint, dipping 45°, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open with 30mm wide aperture.		
	100 (95) 93				(5.50)			
		3						
8.10						8.10 - 9.00 Probable joint, subvertical dip, stepped, smooth, with 0.5 to 60mm thick light brown silty fine sand smear, open to very wide, non-intact.		
	100 (59) 38	NI					8.90m to 9.00m: orangish brown clay.	
9.60		3						
03.03 10.00	100 (75) 75		61.64		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
19/01/22	12.00	3.90					2.40	3.6	5.5	Water	100	BH backfilled with grout.
03/03/22	16.00	10.00						5.5	10		0	

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61869**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-01-22 10-03-22	72.17	E 613,355.7 N 703,754.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm brown SILT.	
				71.67		0.50		
							Grey very silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 46 (3, 8, 1, 10, 17, 18)					1.00m: dense.	
1.00-2.00	C							
1.00	D2							
1.00-2.00	B4					(2.50)		
2.00	SPT	50 for 135 mm (12, 13, 18, 32)						
2.00-2.60	C							
2.00	D5							
2.00-3.00	B7							
				69.17		3.00		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To
20-01-22	16.30	3.00			dry	2.3 2.9	2.4 3	0:30 1:00		

GENERAL REMARKS

Falling head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61869**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-01-22 10-03-22	72.17	E 613,355.7 N 703,754.7

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
20.01 3.00		3.00 (50/40mm)	69.17		3.00	3.00 - 3.20 m: overburden	Very dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low boulder content.	
			68.97		3.20			
	67 (24) 15	NI			(0.60)	3.20 - 3.80 Non-intact as probable weathered rock.	Probable weathered LIMESTONE rock. Strong and very strong thinly bedded dark grey and grey with coarse grained sparite bioclastic fine grained limestone recovered as angular fine to coarse gravel and cobble sized clasts.	
			68.37		3.80			
4.10		0 4.10 (50/0mm)				3.80 - 16.20 Discontinuities, medium spaced, locally very closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick dark grey silt smear.		
	100 (97) 85	5					Very strong thinly bedded dark grey and grey with coarse grained sparite bioclastic fine to coarse grained LIMESTONE.	
5.60		1						
	100 (97) 91	4				6.60 - 6.67 Joint, dipping 40o, stepped, rough, with 0.5 to 4mm thick brown clay smear, open to moderately wide.	6.60m to 6.67m: strong.	
7.10		2				7.25 - 7.30 Joint, dipping 45°, undulating, smooth, with 0.5 to 45mm wide aperture.		
	100 (96) 84							
8.60		4						
	100 (97) 81	5				9.20 - 9.40 Joint, vertical dip, undulating, smooth, with 0.5mm thick brown clay smear, open.		
10.03 10.10 11.03					(12.40)			
	100 (97)	3						

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
20/01/22	16.30	3.00					
10/03/22	17.00	10.10					
11/03/22	08.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3	16.2	Water	0

GENERAL REMARKS

Falling head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-61869**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-01-22 10-03-22	72.17	E 613,355.7 N 703,754.7

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	96							Very strong thinly bedded dark grey and grey with coarse grained sparite bioclastic fine to coarse grained LIMESTONE. *(continued)*	
11.60		4							
	100 (97) 96	3							
13.10									
	100 (97) 96	3							
14.60		3							
	100 (97) 96	3							
T1.03 16.20			55.97		16.20				
								BH terminated at 16.20m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
11/03/22	13.00	16.20										Falling head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/LD Rig		Driller CR/PMcG	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62325**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-01-22 14-03-22	70.71	E 613,784.6 N 703,909.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			70.31		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 6 (1, 2, 2, 1, 1, 2)				(1.60)	Firm brown slightly sandy SILT. Sand is fine to coarse.	
1.00	D2							
1.00-2.00	B4			68.71		2.00		
2.00	SPT	N = 8 (2, 2, 1, 2, 2, 3)					Brown silty fine to medium SAND.	
2.00	D5							
2.00-3.00	B7					(1.20)		
3.00	SPT	N = 24 (3, 4, 4, 6, 6, 8)		67.51		3.20	3.00m: becoming medium dense.	
3.00-4.50	CORE1						Medium dense grey very silty coarse SAND and sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded fine to coarse of sandstone and limestone.	
3.00	D8							
3.00-4.00	B10					(1.40)		
4.00	SPT	50 for 265 mm (8, 10, 10, 14, 16, 10)						
4.00	D11							
4.00-4.60	B13			66.11		4.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
20-01-22	13.00	4.60			dry	4.4	4.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62325**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-01-22 14-03-22	70.71	E 613,784.6 N 703,909.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
20.01 4.60		4.60 (50/0mm)	66.11		4.60	4.60 - 10.50 m: overburden		Very dense light brown slightly silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of cream sandstone and assorted grey limestone.	
	18 -								
5.60	-								
	33 -								
6.50	-	6.50 (42)							
	33 -								
	-				(5.90)				
8.00		8.00 (40)							
	27 -								
	-								
9.50									
	30 -								
	-								
14.03 10.50		10.50 (39)	60.21		10.50			BH terminated at 10.50m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
20/01/22	13.00	4.60						4.6	10.5	Water	100	BH backfilled with grout.
14/03/22	14.00	10.50										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62456**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-01-22 15-03-22	71.74	E 613,889.7 N 703,987.2

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: 1st: 2.20m; Rose to (@ 20 min.): 1.90m; Sealed at: 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			71.34		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
							Brown sandy SILT. Sand is fine to medium.	
1.00	SPT	N = 3 (1, 0, 1, 1, 0, 1)					1.00m: very loose.	
1.00	D2					(1.80)		
1.00-2.00	B4		1					
2.00	SPT	N = 15 (2, 2, 2, 3, 4, 6)	1	69.54		2.20	2.00m: becoming medium dense.	
2.00	D5						Medium dense grey sandy angular to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of sandstone and limestone.	
2.00-3.00	B7							
3.00	SPT	N = 38 (4, 6, 8, 8, 10, 12)					3.00m: becoming dense.	
3.00-4.10	C							
3.00-4.10	CORE1							
3.00	D8					(3.00)		
3.00-3.90	B10							
4.00	SPT	N = 48 (6, 9, 9, 11, 14, 14)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	50 for 70 mm (7, 18, 50)		66.54		5.20		
5.00	D14						*Borehole continued by coring*	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
21-01-22	14.00	5.20			
14-03-22	17.30	5.60			
15-03-22	08.00	5.60			

Chiselling

From	To	Hours
5.1	5.2	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62456**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-01-22 15-03-22	71.74	E 613,889.7 N 703,987.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
21.01 5.20	33 - -	5.20 (50/0mm)	66.54		5.20	5.20 - 10.10 m: overburden	Very dense light greyish brown gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of cream sandstone and assorted grey limestone.	
14.03 5.60 15.03								
	27 - -							
7.10		7.10 (42)					7.10m: becoming dense.	
	33 - -				(4.90)			
8.60		8.60 (38)						
	20 - -							
15.03 10.10		10.10 (41)	61.64		10.10		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
21/01/22	14.00	5.20					
14/03/22	17.30	5.60					
15/03/22	08.00	5.60					
15/03/22	12.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.2	10.1	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62606**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-01-22 15-03-22	71.89	E 614,003.0 N 704,084.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 1.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			71.49		(0.40) 0.40	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
				70.89		(0.60) 1.00	Firm brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 7 (1, 1, 2, 2, 1, 2)	1				Loose greyish brown very silty very gravelly fine to coarse SAND. Gravel is subrounded fine to medium of purple sandstone and assorted grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 11 (2, 2, 3, 2, 3, 3)				(2.40)	2.00m: becoming medium dense.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 11 (2, 3, 3, 2, 3, 3)	1	68.49		3.40		
3.00	D8							
3.00-3.90	B10						Medium dense greyish brown slightly silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
4.00	SPT	N = 25 (3, 3, 4, 4, 6, 11)				(2.00)		
4.00	D11							
4.00-5.00	B13							
4.50-5.70	CORE1							
5.00	SPT	50 for 75 mm (7, 18, 39, 11)		66.49		5.40		
5.00	D14							
5.20		50 for 0 mm (25, 50)					*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
25-01-22	14.00	5.40				5	5.4	1:30			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller CR/PMcG	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62606**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-01-22 15-03-22	71.89	E 614,003.0 N 704,084.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
25.01 5.40	42		66.49		5.40	5.40 - 10.50 m: overburden	Dense subrounded fine to medium purple sandstone and assorted grey limestone GRAVEL.	
5.70	-							
	22				(1.40)			
	-							
6.60		6.60 (42)	65.09		6.80			
			64.89		7.00		Dense greyish brown slightly gravelly fine to coarse SAND. Gravel is subrounded fine to medium of purple sandstone and assorted grey limestone.	
	44						Dense subrounded fine to medium purple sandstone and assorted grey limestone GRAVEL.	
	-							
8.20		8.20 (50/0mm)						
	17				(3.50)			
	-							
9.40								
	27							
	-							
15.03 10.50		10.50 (50/150mm)	61.39		10.50		BH terminated at 10.50m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
25/01/22	14.00	5.40						5.4	10.5	Water	100	BH backfilled with grout.
15/03/22	17.30	10.50										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62741**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-01-22 26-01-22	71.50	E 614,100.9 N 704,177.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.30m 1.90m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			71.20		0.30	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 8 (1, 1, 2, 2, 2, 2)				(1.80)	Firm brown slightly sandy SILT. Sand is fine to coarse.	
1.00	D2							
1.00-2.00	B4		▽1					
2.00	SPT	N = 8 (1, 2, 2, 1, 2, 3)		69.40		2.10		
2.00	D5						Firm grey slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and limestone.	
2.00-3.00	B7					(1.20)		
3.00	SPT	N = 15 (2, 3, 3, 3, 4, 5)	▼1	68.20		3.30		
3.00	D8						Medium dense brownish grey slightly silty very sandy angular to subrounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone.	
3.00-3.90	B10							
4.00	SPT	N = 21 (3, 4, 4, 5, 6, 6)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 23 (4, 6, 4, 5, 7, 7)						
5.00	D14							
5.00-6.00	B16					(4.50)		
6.00	SPT	N = 14 (2, 3, 4, 4, 3, 3)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 21 (2, 3, 3, 4, 6, 8)						
7.00	D20							
7.00-7.80	B22							
	SPT			63.70		7.80		
							BH terminated at 7.80m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
25-01-22	16.30	3.00	7.80	203	dry
26-01-22	09.00	3.60			
26-01-22	15.00	7.80			

Chiselling

From	To	Hours
7.5	7.8	1:30

Water Added

From	To

GENERAL REMARKS

Rising head test expedited in BH. 50mm standpipe installed. Response zone 3.00m to 7.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62741**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-01-22 26-01-22	71.50	E 614,100.9 N 704,177.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.30m 1.90m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
7.80		50 for 0 mm (25, 50)						
7.80	D23							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	Rising head test expedited in BH. 50mm standpipe installed. Response zone 3.00m to 7.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62806**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-02-22 08-02-22	71.43	E 614,168.3 N 704,207.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.20m 3.00m 6.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			71.03		(0.40) 0.40	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 3 (1, 0, 1, 1, 0, 1)					Soft greyish brown sandy SILT. Sand is fine.	
1.00	D2							
1.00-2.00	B4					(2.10)		
2.00	SPT	N = 8 (2, 2, 1, 2, 2, 3)						
2.00	D5							
2.00-3.00	B7			68.93		2.50		
3.00	SPT	N = 24 (3, 4, 5, 5, 6, 8)	1				Grey slightly silty sandy subangular to subrounded fine to coarse sandstone and limestone GRAVEL with high cobble content. Cobbles are subangular to rounded of sandstone and limestone. 3.00m: medium dense.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 38 (5, 6, 7, 7, 7, 17)					4.00m: becoming dense.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 36 (4, 6, 8, 8, 10, 10)						
5.00	D14							
5.00-6.00	B16					(5.90)		
5.00	D17							
6.00	SPT	N = 29 (3, 4, 4, 8, 8, 9)						
6.00-7.00	B19							
7.00	SPT	N = 31 (6, 6, 7, 9, 8, 7)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
						4.4 5.6	4.6 5.9	0:30 0:45			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-62806**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-02-22 08-02-22	71.43	E 614,168.3 N 704,207.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.20m 3.00m 6.50m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
8.00	SPT	50 for 75 mm (6, 11, 21, 29)		63.03		8.40		
8.00	D23							
8.40	SPT	50 for 0 mm (25, 50)					BH terminated at 8.40m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
08-02-22	16.00	8.40	8.40	203	3.20	8.3	8.4	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-63008**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-02-22 02-03-22	70.71	E 614,289.6 N 704,363.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			70.31		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 12 (2, 1, 2, 3, 4, 3)				(1.60)	Grey slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. 1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4			68.71		2.00		
2.00	SPT	N = 24 (5, 6, 4, 6, 7, 7)				(1.00)	Firm grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are of sandstone and limestone.	
2.00	D5							
2.00-3.00	B7			67.71		3.00		
3.00	SPT	N = 38 (3, 7, 7, 9, 11, 11)					3.00m: becoming stiff. Very dense grey very silty very sandy subangular to subrounded fine to coarse brown sandstone brown dolomitised limestone and assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are of brown sandstone and assorted grey limestone	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 35 (4, 8, 8, 7, 10, 10)						
4.00	D11							
4.00-5.00	B13							
4.50-5.10	C							
5.00	SPT	50 for 10 mm (25, 50)					*Borehole continued by coring*	
5.00	D14							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
07-02-22	16.00	5.10			dry	3.4 5	3.7 5.1	0:45 1:00			Variable head tests expedited in BH. 50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller: CR/IP	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-63008**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-02-22 02-03-22	70.71	E 614,289.6 N 704,363.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail / Main	Instrument / Backfill
07.02 5.10		5.10 (50/0mm)				5.10 - 10.00 m: overburden	
	33 - -					Very dense grey very silty very sandy subangular to subrounded fine to coarse brown sandstone brown dolomitised limestone and assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are of brown sandstone and assorted grey limestone *(continued)*	
6.60		6.60 (50/10mm)			(7.00)		
	53 - -						
8.10		8.10 (50/30mm)					
	13 - -						
9.60							
	25 - -						
02.03 10.00		10.00 (50/10mm)	60.71		10.00	BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/02/22	16.00	5.10					
02/03/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.1	10	Water	100

GENERAL REMARKS

Variable head tests expedited in BH. 50mm standpipe installed. Response zone 5.50m to 9.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller CR/IP	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-64085**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-02-22 10-02-22	66.75	E 614,430.3 N 705,415.2

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1						TOPSOIL: Grass over soft brown SILT.	
1.00	SPT	N = 2 (1, 0, 0, 1, 1, 0)				(2.00)		
1.00	D2							
1.00-2.00	B4							
				64.75		2.00		
2.00	SPT	N = 1 (1, 1, 0, 0, 1, 0)					Soft grey sandy SILT. Sand is fine to coarse.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 1 (0, 0, 1, 0, 0, 0)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 2 (0, 0, 1, 0, 0, 1)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 1 (0, 1, 0, 0, 0, 1)						
5.00	D14							
5.00-6.00	B16							
5.00	D17							
6.00	SPT	N = 6 (2, 2, 1, 2, 1, 2)				(8.50)		
6.00-7.00	B19							
7.00	SPT	N = 8 (2, 1, 1, 2, 2, 3)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
										0	Falling head test expedited in BH. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-64085**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-02-22 10-02-22	66.75	E 614,430.3 N 705,415.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 10 (1, 2, 3, 2, 2, 3)					Soft grey sandy SILT. Sand is fine to coarse. *(continued)*	
8.00	D23						8.00m: becoming firm.	
8.00-9.00	B25							
9.00	SPT	N = 8 (1, 2, 2, 2, 2, 2)						
9.00	D26							
9.00-10.00	B28							
10.00	SPT	N = 10 (2, 2, 3, 2, 2, 3)						
10.00	D29			56.25		10.50		
							BH terminated at 10.50m bgl on RE instruction.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-02-22	16.00	10.50									Falling head test expedited in BH. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-65612**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-02-22 25-02-22	87.37	E 614,952.8 N 706,795.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.80)	TOPSOIL: Grass over firm brown SILT with low boulder content. Boulders are subrounded to rounded of grey limestone.	
				86.57		0.80		
1.00	SPT	N = 28 (4, 4, 5, 7, 8, 8)				(1.10)	Firm grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Cobbles are angular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
				85.47		1.90		
2.00	SPT	N = 60 (8, 7, 8, 10, 17, 25)				(0.80)	Very dense silty very sandy subangular to subrounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
2.00-2.50	B7							
2.50	D8			84.67		2.70		
2.70	SPT	50 for 0 mm (25, 50)		84.57		2.80	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
08-02-22	12.00	2.80			dry	0.6 2.7	0.9 2.8	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-65612**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-02-22 25-02-22	87.37	E 614,952.8 N 706,795.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail / Main	Instrument/ Backfill
08.02 2.80			84.57		2.80	2.80 - 10.00 m: overburden	Very dense subangular to subrounded fine to coarse rare quartz and assorted grey limestone GRAVEL with low cobble content and low boulder content. Cobbles are subrounded to rounded of grey limestone.	
	47 - -							
4.30		4.30 (64)						
	57 - -							
5.00								
	53 - -	5.80 (50/150mm)						
6.50					(7.20)			
	33 - -							
8.00		8.00 (50/0mm)					Core run - 8.00m to 9.50m: 1 No dark grey bioclastic limestone boulder 210mm in length.	
	27 - -							
9.50		9.50 (50/75mm)						
	60 - -							
25.02 10.00			77.37		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
08/02/22	12.00	2.80					
25/02/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.8	10	Polymer	50

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-66007**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-02-22 28-02-22	84.29	E 615,217.7 N 707,065.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 1.50m 1.20m 2.80m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			83.99		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 44 (4, 5, 10, 10, 11, 13)	▽1			(2.20)	Soft grey slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. 0.60m: becoming firm.	
1.00	D2		▼1					
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 51 (5, 9, 17, 16, 10, 8)						
2.00-2.50	B7			81.79		2.50		
2.50	D8					(1.00)	Dense brownish grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
3.00	SPT	60 for 265 mm (8, 7, 7, 9, 10, 34)						
3.00-3.50	B10			80.79		3.50		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
08-02-22	16.00	3.60			3.00	3.5	3.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: BT/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-66007**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-02-22 28-02-22	84.29	E 615,217.7 N 707,065.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION Discontinuities / Detail / Main	Instrument/ Backfill
08.02 3.50 08.02			80.79		3.50	3.50 - 10.00 m: overburden Very dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are of dark grey limestone.	
	40						
5.00		5.00 (68)				5.00m: very dense.	
	20						
6.50		6.50 (50/75mm)			(6.20)		
	20						
8.00		8.00 (60/150mm)					
	13						
9.50		9.50 (50/75mm)	74.59		9.70		
	80					Very stiff light orangish brown SILT.	
28.02 10.00			74.29		10.00		
						BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
08/02/22	16.00	3.60					3.00
28/02/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.5	10	Polymer	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: BT/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-67338**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	09-02-22 09-02-22	103.92	E 616,056.9 N 708,092.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: 1st: dry 2nd: 3rd: Rose to (@ 20 min.): Sealed at:	Sheet 1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			103.62		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 23 (4, 3, 4, 6, 6, 7)				(1.30)	Firm brown gravelly SILT with low cobble content. Gravel is subangular to subrounded of limestone. Cobbles are subangular to rounded of limestone.	
1.00	D2							
1.00-1.50	B4			102.32		1.60		
1.50	D5						Medium dense damp brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	SPT	N = 37 (3, 5, 8, 8, 10, 11)				(0.90)		
2.00-2.50	B7			101.42		2.50		
2.50	D8			101.32		2.60	Stiff brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.70	SPT	50 for 0 mm (25, 50)		101.22		2.70	Obstruction as probable limestone BOULDER.	
							BH terminated at 2.70m bgl. Obstruction probable limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
09-02-22	16.00	2.60			basal seepage						BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-67630**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-02-22 10-02-22	104.98	E 615,992.9 N 708,378.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 5.00m 4.70m 5.60m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
				104.38		0.60		
1.00	SPT	N = 22 (4, 4, 5, 4, 6, 7)					Stiff grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 23 (3, 2, 5, 6, 5, 7)						
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 28 (2, 3, 3, 4, 10, 11)						
3.00-3.50	B10							
3.50	D11					(5.85)		
4.00	SPT	N = 23 (3, 5, 7, 6, 4, 6)					4.00m: becoming firm.	
4.00-4.50	B13							
4.50	D14		1					
5.00	SPT	N = 31 (2, 6, 8, 7, 8, 8)					5.00m: becoming wet.	
5.00-5.50	B16							
5.50	D17							
6.00	SPT	60 for 285 mm (7, 8, 8, 11, 12, 29)						
6.00-6.50	B19			98.53		6.45		
6.50	D20			98.48		6.50	Obstruction as probable limestone BOULDER.	
							BH terminated at 6.50m bgl. Obstruction probable limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-02-22	15.00	6.50			5.10	3.5 6.45	3.7 6.5	1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-68009**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-02-22 14-04-22	99.39	E 616,154.5 N 708,720.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			98.99		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				98.39		(0.60) 1.00	Firm grey sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 20 (3, 3, 4, 6, 5, 5)					Medium dense dry very silty very sandy gravelly subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 29 (3, 5, 4, 7, 8, 10)				(2.00)		
2.00-2.50	B7							
2.50	D8							
				96.39		3.00		
3.00	SPT	N = 32 (4, 5, 8, 7, 8, 9)					Dense greyish brown very silty very gravelly fine to coarse SAND with low cobble content. Gravel us subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
3.00-3.50	B10							
3.50	SPT	N = 73 (6, 11, 14, 18, 21, 20)						
3.50	D11					(1.90)		
4.00	SPT	N = 44 (8, 7, 6, 8, 12, 18)					4.00m: becoming very dense.	
4.00-4.50	B13							
4.50	D14							
				94.49		4.90		
4.90	SPT	50 for 0 mm (25, 50)		94.39		5.00	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-02-22	14.00	5.00			dry	2.6 4.9	2.9 5	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller BT/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-68009**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-02-22 14-04-22	99.39	E 616,154.5 N 708,720.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
11.02 5.00	47 - -	5.00 (43)	94.39		5.00	5.00 - 10.00 m: overburden	Very stiff light brown SILT.	
6.50	87 - -	6.50 (67)	91.79		(2.60) 7.60			
8.00		8.00 (25/0mm)	91.19		(0.60) 8.20		Very stiff light orangish brown slightly sandy SILT. Sand is coarse.	
9.50	73 - -				(1.80)		Very dense subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone	
14.04 10.00	100 - -		89.39		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
11/02/22 14/04/22	14.00 16.00	5.00 10.00						5	10	Water	0	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-68306**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-02-22 19-04-22	96.10	E 616,257.4 N 709,004.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			95.80		0.30	TOPSOIL: Grass over firm brown SILT.	
						(1.30)	Firm brown SILT.	
1.00	SPT	N = 20 (2, 3, 3, 4, 7, 6)					1.00m: becoming stiff.	
1.00	D2							
1.00-1.50	B4			94.50		1.60		
1.50	D5					(0.40)	Stiff orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of dolomitised limestone. Cobbles are angular to subangular of dolomitised limestone.	
				94.10		2.00	*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
14-02-22	12.00	2.00			dry	2	2	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-68306**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-02-22 19-04-22	96.10	E 616,257.4 N 709,004.7

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
14.02 2.00		2.00 (50/0mm)	94.10		2.00	2.00 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 20 to 22°, planar, smooth, with 0.5 to 10mm thick light orangish brown clay smear. 2.70 - 2.90 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick light orangish brown clay smear, open as drilling induced?	Very strong locally medium strong and strong thinly bedded grey crystalline fine to coarse grained DOLOMITISED LIMESTONE with anastomosing white and brownish white calcitic veinlets and a little orangish brown clay.	
	100 (77) 29	18						
3.50		11						
	100 (82) 48	6						
5.00							5.10m to 5.20m: medium strong.	
	100 (86) 65	8			(8.00)			
6.50		6				6.50 - 10.00 No obvious area of core loss. No recovery as washout of fines during drilling. No record of cavity. 7.20 - 7.40 Possible joint, apparently subvertical dip, stepped, smooth, with 0.5 to 40mm thick orangish brown clay smear, open to very wide.		
	93 (54) 19							
8.00		NI						
	93 (81) 71							
9.50								
	80 (56) -							
19.04 10.00			86.10		10.00			

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
14/02/22 19/04/22	12.00 16.00	2.00 10.00						2	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-68306**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-02-22 19-04-22	96.10	E 616,257.4 N 709,004.7

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-68804**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 20-04-22	89.72	E 616,688.0 N 709,253.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown SILT.	
				89.12		0.60		
							Firm light brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 30 (3, 4, 8, 7, 7, 8)				(0.90)	1.00m: becoming very stiff.	
1.00	D2							
1.00-1.50	B4			88.22		1.50		
1.50	D5						Stiff greyish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
				87.72		(0.50) 2.00		
2.00	SPT	N = 33 (6, 5, 6, 8, 9, 10)					Dense brown silty very sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL. Sand is fine to coarse.	
2.00-2.50	B7			87.22		(0.50) 2.50		
2.50	D8						Stiff greyish brown sandy SILT. Sand is fine to coarse.	
3.00	SPT	N = 20 (3, 4, 4, 4, 5, 7)				(1.10)	3.00m: becoming stiff.	
3.00-3.50	B10							
3.50	D11			86.12		3.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
15-02-22	12.00	3.60			dry	1.7 3.6	1.9 3.6	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-68804**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 20-04-22	89.72	E 616,688.0 N 709,253.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
15.02 3.60		3.60 (50/0mm)	86.12		3.60	3.60 - 4.40 m: overburden	Very dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL.	
					(0.50)			
			85.62		4.10			
	80 (60) 42	7				4.10 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear. 4.11 - 4.20 Joint, dipping 60°, planar, smooth, with 0.5 to 3mm thick orangish brown clay smear, open to moderately wide.	Very strong massive grey 'marbled' light grey and white fine and coarse grained LIMESTONE.	
5.00								
	100 (91) 56	7				4.65 - 4.80 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light orangish brown clay smear, open. 5.20 - 5.45 2 No perpendicular joints, subvertical dip, stepped, smooth, with 0.5 to 2mm thick greyish brown clay smear, open.		
6.50		6				6.10 - 6.25 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick greyish brown clay smear, open to moderately wide.		
	100 (96) 84	3			(5.90)			
8.00								
	100 (96) 88	2						
9.50						9.30 - 9.35 Joint, dipping 45°, stepped, smooth, with 0.5 to 3mm thick light orangish brown clay smear, open.		
	100 (96) 94	4						
20.04 10.00			79.72		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
15/02/22	12.00	3.60					
20/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.6	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69405**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-02-22 14-02-22	80.54	E 617,164.6 N 709,613.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 0.90m 0.90m 4.00m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(0.90)	TOPSOIL: Grass over soft brown SILT.	
				79.64		0.90		
1.00	SPT	N = 36 (4, 6, 8, 8, 10, 10)				(1.10)	Dense grey silty very gravelly coarse SAND with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
				78.54		2.00		
2.00	SPT	N = 39 (6, 8, 7, 9, 11, 12)				(3.00)	Dense grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 28 (4, 5, 6, 6, 8, 8)					3.00m: becoming medium dense.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 18 (3, 5, 4, 4, 5, 5)						
4.00	D11							
4.00-5.00	B13							
				75.54		5.00		
5.00	SPT	N = 26 (3, 4, 4, 5, 6, 11)				(3.20)	Soft grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
5.00	D14							
5.00-6.00	B16							
5.00	D17							
6.00	SPT	N = 33 (4, 4, 6, 8, 8, 11)						
6.00-7.00	B19							
7.00	SPT	N = 36 (4, 5, 8, 8, 10, 10)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
1.4	1.6	0:30		
8	8.2	1:00		

GENERAL REMARKS

Rising head test expedited in BH. 50mm standpipe installed. Response zone 3.50m to 6.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69405**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-02-22 14-02-22	80.54	E 617,164.6 N 709,613.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 0.90m 0.90m 4.00m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	50 for 95 mm (25, 31, 19)		72.34		8.20		
8.00	SPT D23						BH terminated at 8.20m bgl. Obstruction as possible limestone boulder.	
8.20		50 for 0 mm (25, 50)						

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
11-02-22	17.00	8.20			
14-02-22	08.00	8.20			
14-02-22	12.00	8.20			

Chiselling

From	To	Hours

Water Added

From	To

GENERAL REMARKS

Rising head test expedited in BH. 50mm standpipe installed. Response zone 3.50m to 6.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69561**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-02-22 21-03-22	81.77	E 617,294.4 N 709,706.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.70m 2.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			81.47		0.30	TOPSOIL: Grass over firm brown SILT.	
				80.77		(0.70) 1.00	Firm brown SILT.	
1.00	SPT	N = 16 (2, 2, 3, 4, 3, 6)					Medium dense brownish grey slightly silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 33 (4, 6, 8, 8, 7, 10)					2.00m: becoming dense.	
2.00	D5		1					
2.00-3.00	B7							
3.00	SPT	N = 39 (5, 6, 9, 9, 10, 11)				(4.60)		
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 23 (3, 5, 4, 4, 6, 9)					4.00m: becoming medium dense.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	50 for 200 mm (8, 11, 14, 18, 18)					5.00m: becoming very dense.	
5.00	D14							
				76.17		5.60	*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
14-02-22	17.00	5.60			2.50	3.7 5.5	3.9 5.6	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69561**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-02-22 21-03-22	81.77	E 617,294.4 N 709,706.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
14.02 5.60 5.80	31 -	5.60 (50/0mm)	76.17		5.60	5.60 - 10.30 m: overburden	Very dense grey slightly silty very sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to medium. Cobbles are of dark grey limestone.	
	27 -							
7.30		7.30 (50/0mm)						
	27 -				(4.70)			
8.80								
	27 -							
21.03 10.30		10.30 (50/75mm)	71.47		10.30		BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
14/02/22	17.00	5.60					2.50
21/03/22	14.00	10.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.6	10.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller CR/PMcG	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69646**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 21-03-22	82.06	E 617,393.0 N 709,700.9

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 0.70m 0.60m 2nd: 3rd:	Sheet 1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			81.66		(0.40) 0.40	TOPSOIL: Grass over soft dark brown peaty SILT.	
			1	81.36		0.70	Medium dense grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	N = 54 (6, 8, 8, 10, 18, 18)					Dense brownish grey fine SAND. 1.00m: becoming very dense.	
1.00	D2					(1.40)		
1.00-2.00	B4							
2.00	SPT	50 for 0 mm (25, 50)		79.96		2.10	*Borehole continued by coring*	
2.00	D5							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
15-02-22	12.00	2.10				1.4	2	2:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69646**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 21-03-22	82.06	E 617,393.0 N 709,700.9

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
15.02 2.10	76 - -		79.96		2.10	2.10 - 10.30 m: overburden	Very dense light brown fine and medium SAND with subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content and low boulder content. Cobbles are subrounded to rounded of grey limestone. Core run - 2.80m to 4.30m: 1 No dark grey limestone boulder 290mm in length.	
2.80		2.80 (50/75mm)						
	40 - -							
4.30		4.30 (50/0mm)						
	27 - -							
5.80	60 - -	5.80 (50/0mm)						
6.30		6.30 (53/225mm)			(8.20)			
	12 - -							
8.80		8.80 (50/150mm)						
	27 - -							

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
15/02/22	12.00	2.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.1	10.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69646**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 21-03-22	82.06	E 617,393.0 N 709,700.9

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
21.03 10.30		10.30 (50/0mm)	71.76		10.30			BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
21/03/22	14.00	10.30										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69703**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 22-03-22	82.56	E 617,413.6 N 709,769.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.70m 0.10m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1		1	82.26		0.30	TOPSOIL: Grass over soft dark brown peaty SILT.	
				81.66		(0.60) 0.90	Medium dense grey fine SAND.	
1.00	SPT	N = 27 (3, 4, 6, 6, 8, 7)					Medium dense grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 36 (4, 5, 7, 9, 10, 10)					2.00m: becoming dense.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	50 for 225 mm (7, 7, 11, 14, 25)						
3.00	D8							
3.00-4.00	B10					(6.00)		
4.00	SPT	N = 34 (3, 8, 7, 8, 9, 10)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 32 (4, 4, 6, 8, 8, 10)						
5.00	D14							
5.00-6.00	B16							
5.00	D17							
6.00	SPT	N = 34 (4, 5, 5, 8, 8, 13)						
6.00-6.90	B19							
				75.66		6.90		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
15-02-22	17.00	5.00			0.10	2.7	2.9	0:30			Rising head test expedited in BH. 50mm standpipe installed. Response zone 8.50m to 15.00m bgl.
16-02-22	08.00	5.00			g/l	3.3	3.6	0:45			
16-02-22	12.00	6.90			0.10	6.9	6.9	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69703**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 22-03-22	82.56	E 617,413.6 N 709,769.7

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
16.02 6.90	20 - -	6.90 (50/50mm)	75.66		6.90	6.90 - 15.00 m: overburden	Very dense greyish brown slightly silty subrounded to subangular fine to coarse assorted grey limestone GRAVEL and fine to coarse SAND with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
7.30	27 - -							
8.80		8.80 (55)					8.80m: becoming very dense.	
	19 - -							
22.03 10.40 23.03		10.40 (53)			(8.10)			
	25 - -							
12.00								
	27 - -							
13.50		13.50 (50)						
	47 - -							

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
16/02/22	12.00	6.90					0.10
22/03/22	17.30	10.40					
23/03/22	08.00	10.40					

Rotary Flush

From (m)	To (m)	Type	Return (%)
6.9	15	Water	100

GENERAL REMARKS

Rising head test expedited in BH. 50mm standpipe installed. Response zone 8.50m to 15.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-69703**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 22-03-22	82.56	E 617,413.6 N 709,769.7

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
23.03 15.00		15.00 (50/150mm)	67.56		15.00			BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
23/03/22	12.00	15.00					

Rotary Flush			
From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

Rising head test expedited in BH. 50mm standpipe installed. Response zone 8.50m to 15.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/LD Rig		Driller CR/PMcG	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-70205**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-02-22 21-04-22	88.29	E 617,829.5 N 710,039.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			87.89		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 17 (2, 2, 3, 3, 4, 7)					Greyish brown silty very gravelly fine to coarse SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. 1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 22 (3, 4, 5, 5, 6, 6)						
2.00	D5							
2.00-3.00	B7					(4.70)		
3.00	SPT	N = 25 (3, 4, 4, 5, 8, 8)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 44 (5, 6, 10, 9, 11, 14)					4.00m: becoming dense.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	50 for 75 mm (25, 50)		83.19		5.10		
5.00	D14						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
16-02-22	17.00	5.10			dry	3.6 5.1	3.9 5.1	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-70205**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-02-22 21-04-22	88.29	E 617,829.5 N 710,039.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
16.02 5.10			83.19		5.10	5.10 - 10.00 m: overburden	Very dense brown slightly silty fine and medium SAND.	
	20 -							
6.50		6.50 (50/225mm)						
	33 -				(4.90)			
8.00		8.00 (64)						
	40 -							
9.50								
	100 -							
21.04 10.00			78.29		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
16/02/22	17.00	5.10					
21/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.1	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-70701**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-02-22 24-03-22	88.31	E 618,253.3 N 710,253.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: 1st: 2.80m Rose to (@ 20 min.): 2.50m Sealed at: 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00 0.00-1.50	B1 CORE1			87.81		(0.50) 0.50	TOPSOIL: Grass over firm brown SILT.	
1.00 1.00 1.00-2.00	SPT D2 B4	N = 10 (1, 2, 2, 2, 3, 3)		86.51		(1.30) 1.80	Grey slightly silty fine to coarse SAND. 1.00m: loose.	
2.00 2.00 2.00-3.00	SPT D5 B7	N = 23 (4, 5, 4, 6, 6, 7)	▽1 ▼1				Medium dense grey silty sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
3.00 3.00 3.00-4.00	SPT D8 B10	N = 30 (2, 3, 5, 7, 9, 9)				(3.70)		
4.00 4.00 4.00-5.00	SPT D11 B13	N = 26 (4, 4, 5, 7, 7, 7)						
5.00 5.00	SPT D14	50 for 295 mm (8, 10, 11, 11, 12, 16)		82.81		5.50		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
17-02-22	13.00	5.50			2.30	2.7 5.3	2.9 5.5	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-70701**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-02-22 24-03-22	88.31	E 618,253.3 N 710,253.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
17.02 5.50 5.80	33 -	5.50 (50/50mm)	82.81		5.50	5.50 - 10.30 m: overburden	Very dense light greyish brown slightly silty fine and medium SAND with subrounded to subangular fine to coarse assorted grey limestone GRAVEL.	
	20 -							
7.30		7.30 (49)			(3.30)		7.30m: becoming dense.	
	27 -							
8.80		8.80 (44)	79.51		8.80		Very stiff light orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles of assorted grey limestone.	
	40 -				(1.50)			
24.03 10.30		10.30 (50/225mm)	78.01		10.30		BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
17/02/22	13.00	5.50					2.30
24/03/22	17.30	10.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.5	10.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-71124**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-02-22 23-03-22	87.98	E 618,731.0 N 710,494.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: 1st: 5.50m 2nd: 3rd: Rose to (@ 20 min.): 4.80m Sealed at: 4.80m	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(1.20)	Grass over black PEAT with grey sandy subrounded to rounded limestone COBBLES. Sand is fine to coarse.	
1.00	SPT	N = 5 (2, 1, 0, 1, 2, 2)		86.78		1.20		
1.00	D2						Soft damp grey very sandy SILT. Sand is fine.	
1.00-1.50	B4							
1.50	D5					(0.80)		
				85.98		2.00		
2.00	SPT	N = 9 (1, 0, 2, 2, 3, 2)				(0.50)	Loose grey very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subangular to subrounded of limestone.	
2.00-2.50	B7			85.48		2.50		
2.50	D8						Firm grey slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
3.00	SPT	N = 44 (3, 2, 8, 9, 10, 17)					3.00m: becoming very stiff.	
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 22 (4, 7, 7, 5, 4, 6)				(3.00)	4.00m: becoming stiff.	
4.00-4.50	B13							
4.50	D14		1					
5.00	SPT	N = 36 (6, 5, 8, 9, 9, 10)						
5.00-5.50	B16		1	82.48		5.50		
5.50	D17						Dense subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subangular to subrounded of limestone.	
6.00	SPT	55 for 170 mm (10, 10, 17, 20, 18)				(0.90)		
6.00-6.50	B19			81.58		6.40		
				81.48		6.50	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
17-02-22	15.00	6.50			5.00	3.4	3.6	1:00			BH backfilled with grout.
23-03-22	17.30	5.80				6.4	6.5	1:00			
24-03-22	08.00	5.80									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-71124**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-02-22 23-03-22	87.98	E 618,731.0 N 710,494.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
17.02 6.50	- - -		81.48		6.50	6.50 - 10.30 m: overburden		Very dense light grey slightly sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is fine and medium.	
7.30	- - -				(3.80)				
8.80	- - -								
24.03 10.30			77.68		10.30			BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
17/02/22	15.00	6.50					5.00	6.5	10.3	Water	100	BH backfilled with grout.
24/03/22	12.00	10.30										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-71397**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	15-02-22 16-02-22	87.50	E 618,868.2 N 710,608.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 5.50m 4.90m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(1.20)	Reeds over firm black fibrous PEAT.	
1.00	D2			86.30		1.20		
1.00-1.45	U1003	9 blows					Firm grey sandy SILT with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
1.50	D4							
2.00	SPT	N = 21 (2, 3, 5, 7, 4, 5)				(1.80)		
2.00-2.50	B6							
2.50	D7							
				84.50		3.00		
3.00	SPT	N = 25 (3, 3, 6, 6, 7, 6)				(0.50)	Medium dense grey very sandy very silty angular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
3.00-3.50	B9			84.00		3.50		
3.50	D10						Firm grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. 3.50m to 4.60m: damp.	
4.00	SPT	N = 53 (3, 5, 16, 17, 6, 14)						
4.00-4.50	B12							
4.50	D13		1			(2.00)		
5.00	SPT	N = 32 (3, 2, 7, 6, 4, 15)						
5.00-5.50	B15		1	82.00		5.50		
5.50	D16						Dense grey silty very sandy angular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
6.00		52 for 245 mm (11, 12, 15, 12, 12, 13)				(1.60)		
6.50-7.00	B18							
7.00	D19			80.40		7.10		
7.10	SPT	50 for 0 mm (25, 50)					BH terminated at 7.10m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
15-02-22	17.00	4.50			dry	4.3	4.6	1:00			50mm standpipe installed. Response zone 5.90m to 6.50m bgl.
16-02-22	08.00	4.50				5.45	5.6	1:00			
16-02-22	12.00	7.10			5.00	7.1	7.1	1:00			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-71656**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-04-22 22-04-22	87.95	E 619,105.8 N 710,706.2

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
0.00	35 - -				(2.00)	0.00 - 10.00 m: overburden	Grass over plastic black amorphous PEAT. (0.70m recovered).	
2.00			85.95		2.00			
	40 - -	2.50 (32)			(1.50)		Dark grey slightly silty fine and medium SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL. 2.50m: dense.	
3.50			84.45		3.50			
	100 - -	4.00 (46)			(3.00)		Stiff greyish green sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular fine to coarse of occasional brown sandstone and assorted grey limestone.	
5.00								
	87 - -	5.50 (47)						
6.50			81.45		6.50			
	20 - -	7.00 (55)					Dense greenish brown sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. 7.00m: becoming very dense.	
8.00								

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
								0	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-71656**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-04-22 22-04-22	87.95	E 619,105.8 N 710,706.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	33 -				(3.00)			Dense greenish brown sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. *(continued)*	
9.50	-		78.45		9.50				
	80 -				(0.50)			Greyish green slightly silty fine and medium SAND.	
22.04 10.00	-		77.95		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
22/04/22	16.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-72207**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-02-22 25-04-22	94.55	E 619,373.2 N 711,192.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			94.15		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
				93.55		(0.60) 1.00	Medium dense grey sandy subangular to subrounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1.00	SPT	N = 14 (2, 2, 3, 3, 4, 4)					Stiff grey slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	D2							
1.00-2.00	B4					(1.70)		
2.00	SPT	N = 25 (3, 4, 5, 5, 7, 8)						
2.00	D5							
2.00-3.00	B7			91.85		2.70		
3.00	SPT	50 for 75 mm (7, 18, 50)		91.35		(0.50) 3.20	Very stiff grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
3.00	D8						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
17-02-22	17.30	3.20			dry	3	3.2	1:30			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-72207**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-02-22 25-04-22	94.55	E 619,373.2 N 711,192.0

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
17.02 3.20		3.20 (50/0mm)	91.35		3.20	3.20 - 15.00 m: overburden		Very dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL.	
			91.05		3.50				
	60 -							Very stiff greyish brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to medium of rare brown sandstone and assorted grey limestone. Cobbles are subrounded to rounded of grey limestone	
	-	4.70 (50/75mm)							
5.00									
	100 -				(4.50)				
	-	6.20 (50/150mm)							
6.50									
	87 -								
	-	7.70 (88)							
8.00			86.55		8.00				
								Very dense brown slightly silty gravelly fine to coarse SAND. Gravel is subrounded to angular fine to medium of rare brown sandstone and assorted grey limestone.	
	33 -								
	-								
9.50									
	80 -								
10.00	-								
	47 -								
	-								

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
17/02/22	17.30	3.20						3.2	15	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-72207**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	17-02-22 25-04-22	94.55	E 619,373.2 N 711,192.0

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
11.50					(7.00)			Very dense brown slightly silty gravelly fine to coarse SAND. Gravel is subrounded to angular fine to medium of rare brown sandstone and assorted grey limestone. *(continued)*	
	47 -								
13.00									
	40 -								
14.00									
	40 -								
25.04 15.00			79.55		15.00				
								BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
25/04/22	17.00	15.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-72683**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-02-22 25-03-22	93.93	E 619,831.3 N 711,319.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 4.00m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1						TOPSOIL: Grass over firm brown sandy SILT. Sand is fine to coarse.	
0.00-1.50	CORE1					(0.60)		
				93.33		0.60		
							Firm grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to subrounded of limestone.	
1.00	SPT	N = 19 (3, 4, 4, 5, 4, 6)						
1.00	D2							
1.00-1.50	B4							
1.50-3.00	C							
1.50	D5							
2.00	SPT	N = 42 (2, 6, 5, 10, 11, 16)				(3.10)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 27 (5, 5, 6, 5, 8, 8)						
3.00-3.50	B10							
3.50	D11							
				90.23		3.70		
			1				Dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone	
4.00	SPT	N = 31 (6, 7, 8, 8, 6, 9)				(1.10)		
4.00-4.50	B13		1					
4.50	D14							
				89.13		4.80		
				89.03		4.90	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-02-22	16.00	4.90			3.80	2.4 4.9	2.6 4.9	1:00 1:00			50mm standpipe installed. Response zone 5.50m to 10.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-72683**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-02-22 25-03-22	93.93	E 619,831.3 N 711,319.4

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail / Main	Instrument / Backfill
21.02 4.90	27 - -	4.90 (50/0mm)	89.03		4.90	4.90 - 10.30 m: overburden	Very dense light grey silty fine to coarse SAND with subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are of light grey limestone.
5.80	13 - -						
7.30		7.30 (50/75mm)			(5.40)		
	27 - -						
8.80		8.80 (51)					
	47 - -						
25.03 10.30		10.30 (50/75mm)	83.63		10.30		BH terminated at 10.30m bgl on REs instruction.

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
21/02/22	16.00	4.90					3.80
25/03/22	15.00	10.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.9	10.3	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 10.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-73135**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-02-22 28-03-22	96.03	E 620,269.9 N 711,383.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.80m 2.30m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm brown SILT.	
				95.53		0.50		
1.00	SPT	N = 11 (2, 2, 2, 3, 3, 3)					Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4					(2.30)		
2.00	SPT	N = 13 (1, 2, 2, 3, 4, 4)	1					
2.00	D5							
2.00-3.00	B7		1					
				93.23		2.80		
3.00	SPT	N = 31 (5, 8, 8, 7, 7, 9)					Dense grey slightly silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 45 (6, 9, 10, 10, 11, 14)				(2.40)		
4.00	D11							
4.00-5.00	B13							
5.00	SPT	46 for 85 mm (25, 31, 15)						
				90.83		5.20		
5.00	D14						*Borehole continued by coring*	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
21-02-22	15.00	5.20			2.00

Chiselling

From	To	Hours
4.4	4.6	0:30
5	5.2	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller CR/IP	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-73135**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-02-22 28-03-22	96.03	E 620,269.9 N 711,383.4

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main
21.02 5.20	100 - -	5.20 (50/0mm)	90.83		5.20	5.20 - 7.00 m: overburden	Very dense grey slightly silty subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone
5.60					(1.80)		
	85 - -						
7.00			89.03		7.00		
	100 (85) 61	7				7.00 - 10.10 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear. 7.20 - 7.45 Joint, subvertical dip, stepped, smooth, with 0.5 to 5mm thick greenish brown silt smear, open.	Very strong thinly bedded grey 'marbled' grey and white fine and coarse grained LIMESTONE.
8.50		5			(3.10)		
	100 (96) 73	8				9.25 - 9.50 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.	
28.03 10.10			85.93		10.10		BH terminated at 10.10m bgl on REs instruction.

Instrument / Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
21/02/22	15.00	5.20					2.00
28/03/22	14.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.2	10.1	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller CR/IP	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-73604**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-03-22 29-03-22	95.10	E 620,718.2 N 711,469.5

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
0.00						0.00 - 6.60 m: overburden	Open hole drilling. No recovery.	
	- - -				(1.50)			
1.50			93.60		1.50			
	55 - -						Subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with some brown slightly sandy gravelly silt. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone.	
2.60		2.50 (50/225mm)			(2.60)			
	27 - -							
4.10		4.10 (50/75mm)	91.00		4.10		Grey slightly sandy subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL. Sand is fine.	
	33 - -				(2.50)			
5.60		5.60 (50/10mm)						
	93 (17) -		88.50		6.60			
7.10		NI				6.60 - 7.40 Joint, apparently subvertical dip, undulating, smooth, with 0.5 to 8mm thick light brown clay smear, non-intact.	Very strong thinly bedded grey 'marbled' grey and white slightly bioclastic fine to coarse grained LIMESTONE.	
	100 (89)	2				7.40 - 10.10 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 8mm thick light brown clay smear.		

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
								0	10.1	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: CS-14		Driller: IP	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-73604**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-03-22 29-03-22	95.10	E 620,718.2 N 711,469.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	84							Very strong thinly bedded grey 'marbled' grey and white slightly bioclastic fine to coarse grained LIMESTONE. *(continued)*	
8.60		5			(3.50)				
	100 (96) 84	6							
29.03 10.10			85.00		10.10				
								BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
29/03/22	17.00	10.10										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used CS-14		Driller IP	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-73966**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-02-22 29-03-22	91.33	E 621,073.6 N 711,521.7

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.90m 3.70m 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-3.00	C						TOPSOIL: Grass and reeds over firm dark blackish brown peaty SILT.	
0.00-1.00	B1			91.03		0.30		
						(0.50)	Soft grey sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of limestone.	
				90.53		0.80		
1.00	SPT	N = 11 (8, 6, 3, 2, 3, 3)					Medium dense damp greyish brown silty very sandy angular to subrounded fine to coarse of limestone GRAVEL. Sand is fine to coarse.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 19 (3, 2, 4, 5, 6, 4)				(2.80)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 26 (3, 3, 4, 5, 8, 9)						
3.00-4.50	C							
3.00-3.50	B10		1	87.73		3.60		
3.50	D11		1			(0.40)	Very stiff grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
				87.33		4.00	*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
24-02-22	17.30	4.00			3.50	4	4	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller: BT/IP	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-73966**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-02-22 29-03-22	91.33	E 621,073.6 N 711,521.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
24.02 4.00	33 - -	4.00 (50/0mm)	87.33		4.00	4.00 - 6.40 m: overburden	Very dense brownish grey slightly clayey subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL.	
4.50			86.73		(0.60) 4.60		Grey slightly silty fine SAND.	
	100 - -		86.43		4.90		Possible weathered LIMESTONE rock. Strong and very strong massive grey 'marbled' white and grey cherty fine and coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts.	
5.60		5.60 (50/30mm)			(1.50)			
	53 (17) -		84.93		6.40	6.40 - 7.10 Non-intact as possible weathered rock.	Very strong massive grey 'marbled' white cherty fine and coarse grained LIMESTONE.	
		NI						
7.10						7.10 - 10.10 Discontinuities, closely spaced, locally medium spaced to 8.30m, then medium spaced, dipping 10 to 12°, stepped, rough, with 0.5 to 6mm thick grey silt smear.		
	100 (89) 45	7						
					(3.70)	8.05 - 8.25 Joint, vertical dip, stepped, smooth, with 0.5 to 2mm thick orangish grey silt smear, open.		
8.60		7				8.55 - 8.70 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick brownish grey clay smear, open.		
	100 (97) 87	5						
29.03 10.10			81.23		10.10		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
24/02/22	17.30	4.00					3.50
29/03/22	13.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4	7	Water	100
7	10.1	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller: BT/IP	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74100**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-02-22 30-03-22	92.29	E 621,206.2 N 711,517.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.80)	Grass over brownish grey silty subangular to subrounded limestone COBBLES and limestone BOULDERS.	
				91.49		0.80		
1.00	SPT	N = 19 (10, 8, 4, 4, 5, 6)					Firm grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 17 (2, 3, 3, 4, 5, 5)						
2.00-2.50	B7					(3.10)		
2.50	D8							
3.00	SPT	N = 20 (4, 5, 3, 4, 6, 7)						
3.00-3.50	B10							
3.50	D11							
				88.39		3.90		
4.00	SPT	N = 45 (8, 9, 9, 10, 11, 15)				(0.60)	Very stiff greyish black SILT.	
4.00-4.50	B13			87.79		4.50		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
23-02-22	16.00	4.60			dry	0.7 4.5	1 4.5	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller: BT/IP	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74100**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-02-22 30-03-22	92.29	E 621,206.2 N 711,517.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
23.02 4.50 23.02		4.60 (50/0mm)	87.79 87.69		4.50 4.60	4.50 - 10.10 m: overburden		Limestone boulder.	
	54 -							Very dense greyish brown slightly gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
5.60	-	5.60 (50/45mm)							
	40 -								
	-								
7.10		7.10 (50/35mm)			(5.50)				
	53 -								
	-								
8.60		8.60 (50/10mm)							
	53 -								
	-								
30.03 10.10		10.10 (50/15mm)	82.19		10.10			BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
23/02/22	16.00	4.60						4.5	10.1	Water	100	BH backfilled with grout.
30/03/22	14.00	10.10										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/CS-14		Driller BT/IP	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74205**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-02-22 31-03-22	91.03	E 621,312.8 N 711,522.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			90.73		0.30	TOPSOIL: Grass over soft black silty PEAT.	
				90.13		(0.60) 0.90	Firm grey sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 26 (4, 5, 5, 6, 8, 7)					Medium dense wet greyish brown silty very sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 29 (5, 9, 10, 6, 6, 7)				(2.60)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	50 for 75 mm (8, 10, 10, 40)						
3.00-3.50	B10			87.53		3.50		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
24-02-22	13.00	3.50			3.00	3.4	3.5	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller: BT/IP	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74205**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-02-22 31-03-22	91.03	E 621,312.8 N 711,522.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
24.02 3.50	72 - -		87.53		3.50	3.50 - 8.00 m: overburden	Grey slightly sandy subrounded to subangular fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL. Sand is fine to coarse.	
4.10	53 - -				(2.10)			
5.60		5.60 (50/20mm)	85.43		5.60		Stiff greenish grey slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular fine to medium of assorted dark grey and grey limestone. Cobbles are of assorted dark grey and grey limestone.	
	73 - -				(1.50)			
7.10		7.10 (50/15mm)	83.93		7.10		Subangular to subrounded fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL.	
	80 (23) 8				(0.90)			
		3	83.03		8.00	8.00 - 11.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, stepped, rough, with 0.5 to 3mm thick orangish brown clay smear. 8.30 - 8.70 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, non-intact.	Very strong thinly bedded grey 'marbled' grey white and brownish white with coarse grained sparite fine and coarse grained LIMESTONE.	
8.60		NI						
		3						
	100 (95) 77				(3.00)			
		6						
10.10								
	100 (90) 79	4						
31.03 11.00			80.03		11.00			
							BH terminated at 11.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
24/02/22	13.00	3.50					3.00
31/03/22	16.00	11.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.5	11	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/CS-14		Driller: BT/IP	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74403**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-04-22 01-04-22	91.64	E 621,508.2 N 711,577.9

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
0.00						0.00 - 8.10 m: overburden	Open hole drilling. No recovery.	
	- - -				(1.50)			
1.50			90.14		1.50			
	27 - -						Grey slightly sandy subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL. Sand is fine to coarse.	
2.60								
	27 - -							
4.10								
	40 - -				(6.60)			
5.60								
	47 - -							
7.10								
	47 (30)							

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
								0	11.6	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used CS-14		Driller IP	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74403**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-04-22 01-04-22	91.64	E 621,508.2 N 711,577.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
	17		83.54		8.10	8.10 - 11.60 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, rough, with 0.5 to 5mm thick light orangish brown clay smear.	Very strong thinly bedded grey 'marbled' white and brownish white with coarse grained sparite fine and coarse grained LIMESTONE.	
8.60		7						
	100 (75) 61	NI				9.10 - 9.20 Non-intact as subangular and angular medium limestone gravel sized clasts with a little brown silt.	9.10m to 9.20m: non-intact as subangular and angular medium limestone gravel sized clasts with a little brown silt.	
		5			(3.50)			
10.10						10.00 - 10.10 Joint, dipping 60°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open.		
		3						
	100 (95) 82							
		2						
01.04 11.60			80.04		11.60		BH terminated at 11.60m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
01/04/22	16.00	11.60										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used CS-14		Driller IP	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74851**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-04-22 04-04-22	90.43	E 621,951.4 N 711,629.4

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
0.00						0.00 - 10.30 m: overburden	Open hole drilling. No recovery.	
	- - -							
1.50					(3.00)			
	20 - -							
3.00			87.43		3.00			
		3.00 (51)					Very dense grey slightly silty slightly gravelly fine and medium SAND. Gravel is subangular fine to medium of assorted grey limestone.	
	23 - -							
4.30		4.30 (51)						
	27 - -							
5.80		5.80 (60)			(5.40)			
	20 - -							
7.30		7.30 (50/150mm)						
	47							

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	10.3	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 4.00m to 10.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: LD Rig		Driller: PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74851**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-04-22 04-04-22	90.43	E 621,951.4 N 711,629.4

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	-		82.03		8.40				
8.80	-	8.80 (50/150mm)			(1.90)			Very stiff greenish brown slightly sandy gravelly SILT. Sand is medium to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
	27								
	-								
20.04 10.30	-	10.30 (50/0mm)	80.13		10.30			BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
20/04/22	16.00	10.30										50mm standpipe installed. Response zone 4.00m to 10.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: LD Rig		Driller: PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74995**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-04-22 05-04-22	89.43	E 622,093.7 N 711,649.8

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
0.00						0.00 - 10.00 m: overburden		Brown slightly silty fine and medium SAND.	
	17 - -				(2.40)				
2.40		2.40 (41)	87.03		2.40			Dense brown slightly silty slightly gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone.	
	33 - -								
3.90		3.90 (50)						3.90m: becoming very dense.	
	20 - -								
5.40		5.40 (57)							
	27 - -				(7.60)				
6.90		6.90 (52)							
	19 - -								

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: LD Rig		Driller: PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-74995**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-04-22 05-04-22	89.43	E 622,093.7 N 711,649.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
8.50	27 -	8.50 (57)	79.43		10.00			Dense brown slightly silty slightly gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone. *(continued)*	
05.04 10.00	-	10.00 (61)						BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
05/04/22	16.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used LD Rig		Driller PMcG	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-75490**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-04-22 06-04-22	93.18	E 622,522.3 N 711,898.9

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
0.00						0.00 - 10.30 m: overburden	Open hole drilling. No recovery.	
	- - -				(1.50)			
1.50		1.50 (45)	91.68		1.50		Dense grey slightly silty sandy subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
	27 - -							
3.00		3.00 (50)					3.00m: becoming very dense.	
	46 - -							
4.30		4.30 (50/75mm)						
	27 - -							
5.80		5.80 (51)			(8.80)			
	20 - -							
7.30		7.30 (50/0mm)						
	47							

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	10.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: LD Rig		Driller: PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-75490**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-04-22 06-04-22	93.18	E 622,522.3 N 711,898.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
8.80	- - 27 - -	8.80 (52)						Dense grey slightly silty sandy subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. *(continued)*	
06.04 10.30		10.30 (50/150mm)	82.88		10.30			BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
06/04/22	16.00	10.30										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: LD Rig		Driller: PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-75808**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-02-22 07-04-22	90.17	E 622,642.8 N 712,193.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.70m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.50 0.00-1.00	C B1			89.77		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 21 (4, 3, 4, 5, 6, 6)					Firm greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine of rare brown sandstone and assorted grey limestone. Cobbles are subrounded to rounded of grey limestone. 1.00m: becoming stiff.	
1.00 1.00-1.50 1.50-3.00 1.50	D2 B4 C D5					(2.60)		
2.00	SPT	N = 33 (2, 3, 2, 7, 10, 14)					2.00m: becoming very stiff.	
2.00-2.50 2.50	B7 D8		1					
			1	87.17		3.00		
3.00	SPT	N = 33 (4, 5, 5, 6, 9, 13)					Dense brownish grey slightly silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
3.00-4.30 3.00-3.50 3.50 3.60	C B10 D11 SPT	50 for 0 mm (25, 50)		86.57 86.47		(0.60) 3.60 3.70	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
25-02-22	13.00	3.70			1.60	2.4 3.6	2.6 3.7	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-75808**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-02-22 07-04-22	90.17	E 622,642.8 N 712,193.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
25.02 3.70	30		86.47		3.70	3.70 - 10.30 m: overburden		Very dense grey slightly silty fine and medium SAND and subangular to subrounded fine to coarse occasional brown sandstone and assorted dark grey and grey limestone GRAVEL.	
4.30									
	20								
5.80		5.80 (50/150mm)							
	20								
					(6.50)				
7.30		7.30 (50/0mm)							
	27								
8.80		8.80 (50/0mm)							
	33								
07.04 07.04			79.97		10.20				
10.30		10.30 (50/225mm)	79.87		10.30			Very stiff greenish grey slightly sandy slightly gravelly SILT. Sand is coarse. Gravel is subangular fine of rare brown sandstone and assorted grey limestone. BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
25/02/22	13.00	3.70					1.60	3.7	10.3	Water	100	BH backfilled with grout.
07/04/22	16.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-76085**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	28-02-22 28-02-22	97.18	E 622,753.0 N 712,458.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			96.78		(0.40) 0.40	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 15 (3, 3, 2, 4, 5, 4)					Firm greyish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 15 (2, 3, 3, 4, 3, 5)				(3.50)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 19 (3, 4, 4, 4, 5, 6)						
3.00-3.50	B10							
3.50	D11							
3.90	SPT	50 for 0 mm (25, 50)		93.28 93.18		3.90 4.00	Obstruction as limestone BOULDER. BH terminated at 4.00m bgl. Obstruction as probable limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
28-02-22	13.00	4.00			dry	2.5 3.9	2.7 4	1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-76545**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-02-22 08-04-22	92.72	E 622,897.1 N 712,877.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			92.32		(0.40) 0.40	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 5 (1, 2, 1, 1, 1, 2)					Soft grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 9 (1, 2, 2, 2, 3, 2)					2.00m: becoming firm.	
2.00	D5							
2.00-3.00	B7					(4.70)		
3.00	SPT	N = 11 (2, 3, 3, 2, 3, 3)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 14 (2, 3, 3, 3, 4, 4)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	50 for 255 mm (5, 3, 11, 11, 18, 10)		87.62		5.10		
5.00	D14						Stiff brown gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
5.00-6.00	B16					(1.20)		
6.00	SPT	50 for 135 mm (18, 27, 23)		86.42		6.30		
6.00	D17						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
22-02-22	15.00	6.30			dry	5.4 6	5.6 6.3	0:30 1:00			Falling head test expedited in BH. 50mm standpipe installed. Response zone 4.00m to 15.10m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-76545**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-02-22 08-04-22	92.72	E 622,897.1 N 712,877.0

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
22.02 6.30	27 - -	6.30 (50/0mm)	86.42		6.30	6.30 - 15.10 m: overburden	Very stiff grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
7.30	40 - -	7.30 (50/0mm)						
8.80	20 - -	8.80 (59)						
10.30	27 - -	10.30 (50/0mm)			(8.80)			
11.80	40 - -							
13.30	27 - -	13.30 (50/0mm)						

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
22/02/22	15.00	6.30						6.3	15.1	Water	100	Falling head test expedited in BH. 50mm standpipe installed. Response zone 4.00m to 15.10m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-76545**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-02-22 08-04-22	92.72	E 622,897.1 N 712,877.0

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
14.80 08.04 15.10	67 - -	15.10 (50/75mm)	77.62		15.10			BH terminated at 15.10m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
08/04/22	16.00	15.10										Falling head test expedited in BH. 50mm standpipe installed. Response zone 4.00m to 15.10m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/LD Rig		Driller CR/PMcG	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-76601**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-04-22 13-04-22	92.49	E 622,919.9 N 712,928.9

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
0.00						0.00 - 15.00 m: overburden	Open hole drilling. No recovery.	
	- - -				(1.50)			
1.50			90.99		1.50		Dense greyish brown slightly silty fine and medium SAND.	
	27 - -							
3.00		3.00 (49)						
	13 - -							
4.50		4.50 (44)						
	20 - -							
6.00		6.00 (45)						
	33 - -				(10.50)			
7.50		7.50 (46)						

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	15	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: LD Rig		Driller: PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-76601**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-04-22 13-04-22	92.49	E 622,919.9 N 712,928.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	27 -							Dense greyish brown slightly silty fine and medium SAND. *(continued)*	
9.00	-	9.00 (53)						9.00m: becoming very dense.	
	33 -								
10.50	-	10.50 (54)							
	27 -								
12.04 12.00	-		80.49		12.00				
13.04		12.00 (50/150mm)						Very dense dark orangish brown slightly clayey subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
	20 -								
13.50	-	13.50 (50/150mm)			(3.00)				
	27 -								
13.04 15.00	-		77.49		15.00				
		15.00 (50/150mm)						BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
12/04/22	17.00	12.00										BH backfilled with grout.
13/04/22	08.30	12.00										
13/04/22	12.00	15.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: LD Rig		Driller: PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-76718**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-02-22 23-02-22	87.84	E 622,974.0 N 713,034.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				87.34		0.50		
1.00	SPT	N = 9 (2, 3, 3, 2, 2, 2)					Firm brownish grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 8 (2, 3, 2, 1, 2, 3)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 12 (2, 3, 3, 2, 3, 4)						
3.00	D8							
3.00-4.00	B10							
						(6.60)		
4.00	SPT	N = 14 (2, 4, 3, 3, 4, 4)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	50 for 75 mm (5, 19, 50)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 17 (2, 4, 3, 5, 4, 5)						
6.00	D17							
6.00-7.00	B19							
				80.74		7.10		
7.00	SPT	50 for 0 mm (25, 50)					BH terminated at 7.10m bgl. Obstruction as possible limestone boulder.	
7.00	D20							
7.10		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
23-02-22	16.00	7.10			dry	5.2 6.9	5.5 7.1	0:45 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-77176**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-02-22 24-02-22	82.40	E 623,246.1 N 713,400.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
0.00-1.00	B1			82.10		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
						(0.60)	Brown slightly silty fine to coarse SAND.	
				81.50		0.90		
1.00	SPT	N = 27 (4, 4, 6, 6, 7, 8)					Firm brownish grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 29 (4, 5, 7, 7, 6, 9)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 35 (5, 7, 7, 7, 10, 11)						
3.00	D8							
3.00-4.00	B10					(5.10)		
4.00	SPT	N = 41 (4, 6, 8, 11, 11, 11)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 37 (4, 8, 7, 7, 9, 14)						
5.00	D14							
5.00-6.00	B16							
				76.40		6.00		
6.00	SPT	50 for 0 mm (25, 50)					BH terminated at 6.00m bgl. Obstruction as possible limestone boulder.	
6.00	D17							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
24-02-22	16.00	6.00			dry	3.4 5.5 5.9	3.6 5.7 6	0:30 1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-77404**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-02-22 25-02-22	81.49	E 623,460.3 N 713,480.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			81.09		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 25 (3, 3, 6, 6, 6, 7)					Firm greyish brown slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 40 (4, 8, 9, 9, 11, 11)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 48 (6, 8, 11, 11, 12, 14)				(5.60)		
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 35 (5, 5, 6, 7, 11, 11)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 41 (8, 8, 9, 10, 10, 12)						
5.00	D14							
5.00-6.00	B16							
				75.49		6.00		
6.00	SPT	50 for 0 mm (25, 50)					BH terminated at 6.00m bgl. Obstruction as possible limestone boulder.	
6.00	D17							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
25-02-22	16.00	6.00			dry	3.6 6	3.9 6	0:30 1:00			Falling head test expedited in BH. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-77477**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	28-02-22 28-02-22	79.38	E 623,533.4 N 713,499.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			78.98		(0.40) 0.40	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine.	
				78.38		(0.60) 1.00	Brown sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	49 for 145 mm (11, 12, 18, 31)					Stiff brownish grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 42 (4, 8, 8, 11, 11, 12)						
2.00	D5							
2.00-3.00	B7					(3.00)		
3.00	SPT	N = 46 (9, 10, 10, 11, 11, 14)						
3.00	D8							
3.00-4.00	B10							
				75.38		4.00		
4.00	SPT	N = 48 (8, 10, 10, 12, 12, 14)					Dense brown silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
4.00	D11							
4.00-5.00	B13					(1.00)		
				74.38		5.00		
5.00	SPT	N = 33 (5, 6, 7, 7, 9, 10)					Stiff brownish grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
5.00	D14							
5.00-6.00	B16							
6.00	SPT	50 for 265 mm (8, 8, 9, 14, 16, 11)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 39 (7, 9, 9, 10, 10, 10)				(4.30)		
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
						1.3 4.5	1.8 4.7	1:00 0:30			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-77477**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	28-02-22 28-02-22	79.38	E 623,533.4 N 713,499.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 51 (8, 9, 9, 11, 14, 17)					Stiff brownish grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. *(continued)*	
8.00	D23							
8.00-9.00	B25							
9.00	SPT	50 for 100 mm (25, 31, 19)		70.08		9.30		
9.00	~~D26~~						BH terminated at 9.30m bgl. Obstruction as possible limestone boulder.	
9.30	~~SPT~~	50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
28-02-22	17.00	9.30			dry	9.1	9.3	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-77631**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-03-22 13-04-22	82.69	E 623,676.6 N 713,555.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine.	
				82.09		0.60		
1.00	SPT	N = 30 (4, 4, 6, 8, 8, 8)					Firm grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of grey limestone. 1.00m: becoming very stiff.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 38 (3, 7, 9, 9, 10, 10)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 39 (6, 6, 8, 10, 10, 11)				(5.30)		
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 28 (4, 4, 5, 7, 7, 9)					4.00m: becoming stiff.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 31 (3, 7, 6, 6, 8, 11)					5.00m: becoming very stiff.	
5.00	D14							
5.00-5.90	B16							
				76.79		5.90		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
01-03-22	17.30	5.90			damp	5.7	5.9	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-77631**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-03-22 13-04-22	82.69	E 623,676.6 N 713,555.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail / Main	Instrument/ Backfill
01.03 5.90		5.90 (50/0mm)	76.79		5.90	5.90 - 10.30 m: overburden Very dense light brown silty fine and medium SAND.	
	20 - -				(1.40)		
7.30		7.30 (48)	75.39		7.30	Dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL.	
	20 - -						
8.80		8.80 (65)			(3.00)	8.80m: becoming very dense.	
	33 - -						
13.04 10.30		10.30 (54)	72.39		10.30	BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
01/03/22	17.30	5.90						5.9	10.3	Water	100	BH backfilled with grout.
13/04/22	17.00	10.30										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78204**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-03-22 19-04-22	82.02	E 624,195.6 N 713,784.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 1.10m 0.90m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			81.82		0.20	TOPSOIL: Grass over soft brown peaty SILT.	
						(0.90)	Stiff grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone.	
1.00	SPT	N = 27 (3, 4, 5, 7, 7, 8)	1	80.92		1.10		
1.00	D2						Medium dense grey silty very sandy subangular to rounded fine to coarse of limestone GRAVEL with low cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone.	
1.00-2.00	B4							
2.00	SPT	50 for 125 mm (5, 12, 18, 32)						
2.00	D5							
2.00-3.00	B7					(2.70)		
3.00	SPT	50 for 180 mm (11, 14, 18, 21, 11)					3.00m: becoming very dense.	
3.00	D8							
				78.22		3.80		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
01-03-22	12.00	3.80			0.80	2.3 3.6	2.5 3.8	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller CR/PMcG	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78204**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-03-22 19-04-22	82.02	E 624,195.6 N 713,784.5

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
01.03 3.80	30 - -	3.80 (50/0mm)	78.22		3.80	3.80 - 10.30 m: overburden		Very dense grey slightly silty gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
4.30	20 - -								
5.80		5.80 (147)			(5.00)			5.80m: becoming dense.	
	27 - -								
7.30		7.30 (51)						7.30m: becoming very dense. 7.30m to 7.60m: stiff light grey silt. (0.30m recovered).	
	27 - -								
8.80		8.80 (50/150mm)	73.22		8.80			Subangular to subrounded fine and medium assorted grey limestone GRAVEL.	
	20 - -				(1.50)				
19.04 19.04 10.30		10.30 (75/225mm)	71.72		10.30			BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
01/03/22	12.00	3.80					0.80	3.8	10.3	Water	100	BH backfilled with grout.
19/04/22	15.00	10.10										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78412**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-03-22 14-04-22	82.38	E 624,389.2 N 713,847.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.70m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1						TOPSOIL: Grass over soft brown peaty SILT.	
						(1.50)		
1.00	SPT	N = 1 (0, 1, 0, 0, 0, 1)						
1.00	D2							
1.00-2.00	B4			80.88		1.50		
							Firm grey slightly sandy SILT. Sand is fine.	
2.00	SPT	N = 8 (1, 1, 2, 2, 2, 2)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 15 (2, 3, 4, 3, 4, 4)				(3.20)		
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 21 (3, 3, 3, 4, 8, 6)					4.00m: becoming stiff.	
4.00	D11							
4.00-5.00	B13		▼1	77.68		4.70		
							Medium dense grey sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
5.00	SPT	50 for 95 mm (7, 17, 28, 22)				(0.70)		
5.00	D14			76.98		5.40		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
02-03-22	16.00	5.40			3.60	5.4	5.4	1:00			50mm standpipe installed. Response zone 4.30m to 10.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78412**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-03-22 14-04-22	82.38	E 624,389.2 N 713,847.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
02.03 5.40	47 - -	5.40 (50/0mm)	76.98		5.40	5.40 - 10.30 m: overburden	Very dense subrounded and rounded fine and medium assorted grey limestone GRAVEL.	
5.80			76.88 76.58		5.50 5.80		Very stiff light grey slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of assorted grey limestone.	
	27 - -				(1.50)		Grey slightly silty fine SAND. (0.30m recovered).	
7.30		7.30 (40)	75.08		7.30		Very stiff light grey SILT.	
			74.68		(0.40) 7.70		Rounded to subrounded fine to coarse assorted grey limestone GRAVEL.	
	33 - -							
8.80		8.80 (50/0mm)			(2.60)		8.80m: becoming very dense.	
	33 - -							
14.04 10.30		10.30 (50/150mm)	72.08		10.30		BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
02/03/22	16.00	5.40					3.60
14/04/22	14.00	10.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.4	10.3	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 4.30m to 10.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: CR/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78579**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-03-22 21-04-22	85.05	E 624,503.7 N 713,973.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: 1st: 2.00m Rose to (@ 20 min.): 1.80m Sealed at: 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			84.65		(0.40) 0.40	TOPSOIL: Grass over firm dry brownish black peaty SILT.	
1.00	SPT	N = 58 (5, 8, 10, 10, 17, 21)				(1.40)	Dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content.Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of limestone. 1.00m: becoming very dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5		1	83.25		1.80		
2.00	SPT	58 for 175 mm (8, 9, 14, 29, 15)	1				Dense wet grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. 2.00m: becoming very dense.	
2.00-2.50	B7							
2.50	D8							
3.00	SPT	N = 19 (4, 5, 3, 4, 6, 6)					3.00m: becoming medium dense.	
3.00-4.30	C							
3.00-3.50	B10					(3.30)		
3.50	D11							
4.00	SPT	N = 32 (5, 3, 7, 8, 8, 9)					4.00m: becoming dense.	
4.00-4.50	B13							
4.50	D14							
5.00	SPT	50 for 0 mm (18, 7, 50)		79.95		5.10		
				79.85		5.20	Obstruction as limestone boulder. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
03-03-22	14.00	5.20			1.80	1.4 2.45 5.1	1.7 2.8 5.2	1:00 1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78579**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-03-22 21-04-22	85.05	E 624,503.7 N 713,973.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
03.03 5.20	20		79.85		5.20	5.20 - 10.30 m: overburden	Dense dark grey slightly silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone.	
5.80	-							
	20							
	-							
	-				(3.60)			
7.30		7.30 (50)						
	33							
	-							
	-							
8.80		8.80 (60)	76.25		8.80		Dense dark grey slightly silty slightly sandy subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
	20				(1.40)			
	-							
	-		74.85		10.20			
21.04 10.30		10.30 (46)	74.75		10.30		Stiff brown slightly sandy gravelly SILT. Sand is coarse. Gravel is subangular fine of assorted dark grey siltstone.	
							BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
03/03/22	14.00	5.20					1.80
21/04/22	15.00	10.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.2	10.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78694**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-03-22 22-04-22	87.67	E 624,571.4 N 714,067.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over soft blackish brown peaty SILT.	
				87.17		0.50		
							Dense grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1.00	SPT	N = 65 (6, 8, 11, 17, 20, 17)				(1.00)	1.00m: becoming very dense.	
1.00	D2							
1.00-1.50	B4			86.17		1.50		
1.50	D5						Dense brownish grey slightly silty fine to coarse SAND.	
2.00	SPT	N = 39 (5, 9, 9, 8, 10, 12)				(1.50)		
2.00-2.50	B7							
2.50	D8							
				84.67		3.00		
3.00	SPT	N = 27 (4, 7, 6, 8, 5, 8)					Medium dense brown silty very gravelly fine to coarse SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 32 (5, 4, 6, 8, 8, 10)					4.00m: becoming dense.	
4.00-4.50	B13					(2.70)		
4.50	D14							
5.00	SPT	N = 49 (6, 7, 10, 11, 14, 14)						
5.00-5.45	B16							
5.50	D17			81.97		5.70		
5.70	SPT	50 for 10 mm (25, 50)		81.87		5.80	Obstruction as limestone boulder.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
02-03-22	15.00	5.80			dry	1.45 5.7	1.7 5.8	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78694**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-03-22 22-04-22	87.67	E 624,571.4 N 714,067.3

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
02.03 5.80			81.87		5.80	5.80 - 10.30 m: overburden	Dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
	20 -							
7.30	-	7.30 (50/150mm)			(3.00)			
	27 -							
8.80	-	8.80 (50/0mm)	78.87		8.80		Firm dark orangish brown slightly sandy slightly gravelly SILT. Sand is coarse. Gravel is subangular fine of assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone.	
	40 -				(1.50)			
22.04 10.30	-	10.30 (50/150mm)	77.37		10.30		BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
02/03/22	15.00	5.80						5.8	10.3	Water	100	BH backfilled with grout.
22/04/22	15.00	10.30										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78790**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-03-22 01-03-22	87.39	E 624,633.3 N 714,147.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			86.99		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of assorted grey limestone.	
1.00	SPT	69 for 150 mm (8, 8, 27, 42)				(1.20)	Dense brown silty very sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			85.79		1.60		
1.60	SPT	50 for 0 mm (25, 50)					BH terminated at 1.60m bgl. Obstruction as probable limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
01-03-22	17.00	1.60			dry	1.6	1.6	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT	Logged By: BT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78790A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-03-22 20-04-22	87.49	E 624,630.7 N 714,144.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			87.19		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of assorted grey limestone.	
1.00	SPT	N = 44 (8, 10, 10, 11, 9, 14)				(1.70)	Medium dense greyish brown sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse. 1.00m: becoming dense.	
1.00	D2							
1.00-1.50	B4							
1.50	D5			85.49		2.00		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
02-03-22	11.00	2.00			dry	2	2	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78790A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-03-22 20-04-22	87.49	E 624,630.7 N 714,144.8

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
02.03 2.00		2.00 (50/0mm)	85.49		2.00	2.00 - 10.30 m: overburden		Very dense pinkish brown slightly silty medium to coarse SAND.	
	27 - -				(1.00)				
3.00			84.49		3.00			Dense pinkish brown slightly silty gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone.	
	15 - -								
4.30		4.30 (46)			(3.00)				
	20 - -								
5.80		5.80 (45)	81.49		6.00			Dense subrounded to rounded fine to coarse brown sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
	27 - -								
7.30		7.30 (50/0mm)						7.30m: becoming very dense.	
	13 - -				(4.30)				
8.80		8.80 (53)							
	27 - -								

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
02/03/22	11.00	2.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2	10.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78790A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	02-03-22 20-04-22	87.49	E 624,630.7 N 714,144.8

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
20.04 10.30		10.30 (48)	77.19		10.30			BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
20/04/22	17.00	10.30										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78862**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-03-22 20-04-22	85.69	E 624,672.8 N 714,208.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			85.19		(0.50) 0.50	TOPSOIL: Grass over firm black slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 16 (2, 3, 2, 4, 5, 5)		84.49		(0.70) 1.20	Medium dense grey silty gravelly fine SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	D2						Medium dense damp greyish brown sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 11 (4, 2, 3, 2, 2, 4)						
2.00-2.50	B7		▽ 1					
2.50	D8							
3.00	SPT	N = 17 (2, 2, 3, 4, 4, 6)	▼ 1			(3.60)		
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 22 (3, 2, 4, 7, 5, 6)						
4.00-4.50	B13							
4.50	D14			80.89		4.80		
5.00	SPT	N = 64 (6, 5, 8, 10, 10, 36)				(0.80)	Dense greyish brown sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. 5.00m: becoming very dense.	
5.00-5.50	B16							
5.50	D17			80.09		5.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
01-03-22	15.00	5.60			4.80	5.5	5.6	1:00			50mm standpipe installed. Response zone 1.20m to 5.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-78862**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-03-22 20-04-22	85.69	E 624,672.8 N 714,208.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
01.03 5.60 5.80	20 -		80.09		5.60	5.60 - 10.30 m: overburden	Dense greyish brown slightly silty slightly gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone.	
	27 -							
7.30		7.30 (45)			(3.20)			
	20 -							
8.80		8.80 (53)	76.89		8.80		Very dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content and low boulder content. Cobbles are subrounded to rounded of grey limestone. Core run - 8.80m to 10.30m: 1 No grey limestone boulder 210mm in length.	
	27 -				(1.50)			
20.04 10.30		10.30 (53)	75.39		10.30		BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
01/03/22	15.00	5.60					4.80	5.6	10.3	Water	100	50mm standpipe installed. Response zone 1.20m to 5.50m bgl.
20/04/22	13.00	10.30										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79026**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-03-22 25-04-22	84.98	E 624,675.5 N 714,372.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.10m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.70)	TOPSOIL: Grass over soft black peaty SILT.	
				84.28		0.70		
				83.98		1.00	Firm greyish brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 12 (1, 0, 1, 4, 3, 4)				(0.50)	Medium dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2			83.48		1.50		
1.00-1.50	B4						Firm grey sandy SILT. Sand is fine to coarse.	
1.50	D5							
2.00	SPT	N = 11 (2, 3, 2, 2, 4, 3)	1			(1.40)		
2.00-2.50	B7							
2.50	D8			82.08		2.90		
3.00	SPT	N = 24 (3, 4, 6, 5, 4, 9)	1				Medium dense grey silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
3.00-3.50	B10							
3.50	D11					(1.30)		
4.00	SPT	N = 55 (5, 6, 8, 1, 17, 29)		80.78		4.20	4.00m: becoming very dense.	
4.00-4.50	B13					(0.40)	Very dense angular grey limestone COBBLES.	
4.50	D14			80.38		4.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
04-03-22	13.00	4.60			1.30	4.6	4.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79026**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-03-22 25-04-22	84.98	E 624,675.5 N 714,372.5

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
04.03 4.60		4.60	80.38		4.60	4.60 - 5.40 m: overburden		Very dense grey slightly silty fine to coarse SAND and subangular fine to coarse assorted grey limestone GRAVEL.	
	18 -				(0.80)				
5.40	-		79.58		5.40				
		4				5.40 - 15.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear.		Strong massive light grey 'marbled' grey and white with coarse grained sparite fine and coarse grained LIMESTONE.	
	100 (97) 85								
		5							
7.00						6.70 - 6.80 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open.			
		4				7.50 - 7.65 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear, open.			
	100 (96) 85								
8.60		4				8.65 - 8.95 Joint, vertical dip, stepped, smooth, with 0.5 to 30mm wide aperture.			
	100 (95) 63							9.20m to 15.00m: becoming very strong.	
		4							
10.20					(9.60)				
		6							
	100 (93) 80					10.70 - 10.85 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open.			
		5							
11.80									
	100								

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
04/03/22	13.00	4.60					1.30	4.6	15	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79026**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-03-22 25-04-22	84.98	E 624,675.5 N 714,372.5

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	(96) 65	5						Strong massive light grey 'marbled' grey and white with coarse grained sparite fine and coarse grained LIMESTONE. *(continued)*	
13.40		5				13.70 - 13.85 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear and orangish brown iron stain and powder, open.		13.70m to 13.75m: vuggy.	
	100 (96) 90								
		3							
25.04 15.00			69.98		15.00				
								BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
25/04/22	16.00	15.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79209**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 26-04-22	89.85	E 624,663.1 N 714,555.6

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.90)	TOPSOIL: Grass over firm brown SILT.	
				88.95		0.90		
1.00	SPT	N = 18 (3, 2, 4, 4, 5, 5)					Firm greyish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 25 (4, 5, 3, 8, 10, 4)				(2.40)		
2.00-2.50	B7							
2.50	D8							
3.00	SPT	62 for 75 mm (5, 8, 8, 54)						
				86.55		3.30		
3.00-3.40	B10			86.45		3.40	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
07-03-22	13.00	3.40			dry
26-04-22	17.00	5.60			
27-04-22	08.00	5.60			

Chiselling

From	To	Hours
2.4	2.6	1:00
3.3	3.4	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79209**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 26-04-22	89.85	E 624,663.1 N 714,555.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main
07.03 3.40	23 - -		86.45		3.40	3.40 - 4.50 m: overburden	Dense grey slightly silty gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium of assorted grey limestone.
4.30			85.55		4.30		
			85.35		4.50		Stiff brown slightly sandy gravelly SILT. Sand is coarse. Gravel is subangular fine to coarse of assorted grey limestone. (0.20m recovered).
	38 (10) -				(0.90)	4.50 - 8.50 Non-intact as possible weathered rock. No obvious area of core loss. No recovery as washout of fines during drilling. No record of cavity.	Possible weathered LIMESTONE rock. Very strong and strong massive grey fine and coarse grained limestone recovered as subangular fine to coarse gravel and cobble sized clasts.
26.04 27.04 5.60		5.60 (50/0mm)					
	45 (12) -	NI			(4.00)		
7.80							
	75 (39) 19		81.35		8.50		
9.00		5				8.50 - 10.50 Discontinuities, medium spaced, dipping 14 to 16°, stepped, rough, with 0.5 to 4mm thick light orangish brown clay smear. 8.60 - 8.85 Joint, vertical dip, stepped, smooth, with minor orangish brown iron stain, open as drilling induced?	Very strong massive grey 'marbled' white fine and coarse grained LIMESTONE.
	100 (95) 83	4			(2.00)		
		2					
27.04 10.50			79.35		10.50		
							BH terminated at 10.50m bgl on REs instruction.

Instrument / Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/03/22	13.00	3.40					
26/04/22	17.00	5.60					
27/04/22	08.00	5.60					
27/04/22	12.00	10.50					

Rotary Flush

From (m)	To (m)	Type	Return (%)
3.4	10.5	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79273**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 27-04-22	90.29	E 624,686.9 N 714,616.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.80)	TOPSOIL: Grass over firm brown SILT.	
				89.49		0.80		
1.00	SPT	N = 22 (2, 2, 4, 3, 9, 6)					Soft greyish brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2						1.00m: becoming stiff.	
1.00-1.50	B4							
1.50	D5					(2.20)		
2.00	SPT	N = 23 (3, 7, 7, 4, 5, 7)						
2.00-2.50	B7							
2.50	D8							
				87.29		3.00		
3.00	SPT	N = 32 (5, 7, 9, 8, 8, 7)					Stiff brownish grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
3.00-3.50	B10							
3.50	D11					(1.45)		
4.00	SPT	N = 63 (4, 8, 9, 10, 8, 36)					4.00m: becoming very stiff.	
4.00-4.50	B13			85.84		4.45		
				85.79		4.50	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
07-03-22	17.00	4.50			dry	4.45	4.5	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79273**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 27-04-22	90.29	E 624,686.9 N 714,616.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
07.03 4.50	30 -		85.79		4.50	4.50 - 6.60 m: overburden	Dense subrounded to subangular fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
5.60		5.60 (50/0mm)			(2.10)			
	50 (38)		83.69		6.60			
	30	2				6.60 - 10.40 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 6mm thick orangish brown clay smear. 7.00 - 7.15 Joint, subvertical dip, stepped, rough, with 0.5 to 4mm thick orangish brown clay smear, open to moderately wide.	Very strong massive grey 'marbled' white slightly bioclastic fine and coarse grained LIMESTONE.	
7.40		8						
	100 (72) 49							
		6			(3.80)			
8.80						9.00 - 9.40 Non-intact as orangish brown mottled grey clay.	9.00m to 9.40m: non-intact as orangish brown mottled grey clay.	
		NI				9.40 - 9.50 Joint, dipping 60°, stepped, rough, with 0.5 to 55mm thick orangish brown clay smear, open to very wide.		
	100 (72) 51							
		4						
27.04 10.40			79.89		10.40			
							BH terminated at 10.40m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
07/03/22	17.00	4.50						4.5	10.4	Water	100	BH backfilled with grout.
27/04/22	17.00	10.40										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/LD Rig		Driller: BT/PMcG	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79441**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	09-03-22 09-05-22	89.32	E 624,699.6 N 714,784.9

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown SILT.	
				88.72		0.60		
1.00	SPT	N = 15 (3, 2, 2, 4, 5, 4)					Soft grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5					(2.60)		
2.00	SPT	N = 50 (3, 2, 15, 14, 14, 7)						
2.00-2.50	B7							
2.50	D8							
3.00	SPT	50 for 10 mm (10, 15, 50)		86.12		3.20		
3.00-3.30	B10			86.02		3.30	Obstruction as limestone BOULDER. *Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
09-03-22	12.00	3.30				0.6 2.2 3.2	0.9 2.5 3.3	1:00 1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79441**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	09-03-22 09-05-22	89.32	E 624,699.6 N 714,784.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
09.03 3.30	40		86.02		3.30	3.30 - 10.00 m: overburden		Dense light brown slightly silty fine to coarse SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
3.50	-								
	40								
	-								
5.00									
	33								
	-								
6.50					(6.70)				
	40								
	-								
8.00									
	33								
	-								
9.50									
	100								
09.05 10.00	-		79.32		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
09/03/22	12.00	3.30						3.3	10	Water	100	BH backfilled with grout.
09/05/22	16.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79595**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-03-22 10-05-22	90.03	E 624,809.3 N 714,894.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm blackish brown peaty SILT.	
				89.43		0.60		
1.00	SPT	N = 14 (3, 5, 4, 2, 4, 4)					Firm grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
1.50	D5							
2.00	SPT	N = 18 (5, 7, 6, 3, 4, 5)						
2.00-2.50	B7							
2.50	D8					(4.20)		
3.00	SPT	N = 26 (4, 5, 9, 5, 4, 8)						
3.00-3.50	B10							
3.50	D11							
4.00	SPT	N = 28 (3, 6, 6, 8, 7, 7)						
4.00-4.50	B13							
4.50	D14							
				85.23		4.80		
4.80	SPT	50 for 0 mm (25, 50)		85.13		4.90	Obstruction as limestone BOULDER.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-03-22	14.00	4.90			dry	4.8	4.9	1:00			50mm standpipe installed. Response zone 9.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-79595**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-03-22 10-05-22	90.03	E 624,809.3 N 714,894.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
10.03 4.90 5.00	27 -		85.13		4.90	4.90 - 10.00 m: overburden		Dense light grey slightly silty fine to coarse SAND and subrounded to subangular fine to coarse rare light brown sandstone and assorted dark grey and grey limestone GRAVEL.	
	40 -								
6.50								6.40m to 6.50m: stiff greyish brown clay.	
	47 -				(5.10)				
8.00									
	47 -								
9.50									
	80 -								
10.05 10.00			80.03		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
10/03/22	14.00	4.90					
10/05/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.9	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 9.00m to 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: BT/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80024**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-03-22 04-03-22	90.25	E 625,128.2 N 715,192.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.80)	TOPSOIL: Grass over soft blackish brown peaty SILT.	
				89.45		0.80		
1.00	SPT	N = 7 (1, 2, 2, 1, 2, 2)				(1.20)	Loose grey silty very sandy subrounded to subangular fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
				88.25		2.00		
2.00	SPT	N = 7 (2, 1, 2, 1, 2, 2)				(1.20)	Firm damp grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 8 (1, 2, 1, 2, 3, 2)		87.05		3.20		
3.00	D8					(5.10)	Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
3.00-4.00	B10							
4.00	SPT	N = 16 (2, 3, 3, 4, 4, 5)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 18 (3, 3, 4, 5, 4, 5)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 16 (2, 4, 4, 4, 4, 4)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 30 (4, 5, 6, 8, 8, 8)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80024**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-03-22 04-03-22	90.25	E 625,128.2 N 715,192.2

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	Sheet 2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	50 for 10 mm (11, 11, 50)		81.95		8.30		
8.00 8.30	~~SPT~~	50 for 0 mm (25, 50)					BH terminated at 8.30m bgl. Obstruction as possible limestone rock.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
04-03-22	16.00	8.30			damp	8.1	8.3	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80338**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 26-04-22	93.25	E 625,372.4 N 715,376.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 5.90m 3.10m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			92.85		(0.40) 0.40	TOPSOIL: Grass over firm blackish brown peaty SILT.	
1.00	SPT	N = 10 (2, 2, 3, 2, 3, 2)					Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 9 (1, 2, 2, 3, 2, 2)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 12 (2, 2, 3, 3, 3, 3)	1			(5.50)		
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 11 (1, 2, 3, 2, 3, 3)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 14 (2, 3, 3, 3, 4, 4)						
5.00	D14							
5.00-6.00	B16							
				87.35		5.90		
6.00	SPT	47 for 265 mm (6, 8, 11, 11, 11, 14)					Dense grey slightly clayey sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
6.00	D17							
6.00-7.00	B19					(1.10)		
				86.25		7.00		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
07-03-22	14.00	7.00			2.80	6.6 7	6.7 7	0:45 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80338**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 26-04-22	93.25	E 625,372.4 N 715,376.5

Engineer: Mott MacDonald

Sheet 2 of 2

Status FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
07.03 7.00		7.00 (50/0mm)	86.25		7.00	7.00 - 8.00 Non-intact as probable weathered rock.	Probable weathered LIMESTONE rock. Very strong and strong thinly bedded grey 'marbled' brownish white fine and coarse grained limestone recovered as angular medium to coarse gravel and cobble sized clasts.	
	93 (9) -	NI			(1.00)			
8.00			85.25		8.00	8.00 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick light grey silt smear.	Very strong thinly bedded grey 'marbled' brownish white fine and coarse grained LIMESTONE. 8.20m to 8.23m: light grey silt.	
	100 (96) 82	5			(2.00)	8.90 - 9.20 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick grey silt smear, open.		
9.50								
	100 (96) 64	5						
26.04 10.00			83.25		10.00	9.85 - 10.00 Joint, subvertical dip, undulating, smooth, with 0.5 to 1mm thick brown clay smear, open.	BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/03/22	14.00	7.00					2.80
26/04/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
7	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80439**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 27-04-22	96.34	E 625,399.2 N 715,477.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			95.94		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 10 (2, 3, 3, 3, 2, 2)					Firm grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 13 (2, 3, 3, 3, 3, 4)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 13 (2, 3, 4, 3, 3, 3)						
3.00	D8							
3.00-4.00	B10					(6.00)		
4.00	SPT	N = 24 (2, 4, 4, 5, 7, 8)					4.00m: becoming stiff.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 40 (5, 7, 7, 8, 11, 14)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	50 for 105 mm (11, 18, 31, 19)		89.94		6.40		
6.00	D17							
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
07-03-22	17.30	2.00			dry
08-03-22	08.00	2.00			dry
08-03-22	14.00	6.40			dry

Chiselling

From	To	Hours
1.8	2	0:30
5.6	5.7	0:45
6.4	6.4	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80439**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-03-22 27-04-22	96.34	E 625,399.2 N 715,477.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
08.03 6.50	47 - -	6.40 (50/0mm)	89.94		6.40	6.40 - 7.70 m: overburden		Very dense light brown slightly clayey subrounded to subangular fine to coarse assorted grey limestone GRAVEL.	
	87 (25) 12				(1.30)				
			88.64		7.70				
8.00		4				7.70 - 10.00 Discontinuities, closely and very closely spaced, locally medium spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick light orangish brown clay smear.		Very strong massive grey 'marbled' white and orangish white fine and coarse grained LIMESTONE.	
	100 (71) 21	24			(2.30)	8.00 - 8.70 Probable joint, apparently subvertical dip, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear, non-intact as drilling induced?			
9.50						8.80 - 9.10 Joint, vertical dip, stepped, rough, with 0.5 to 2mm thick light orangish brown clay smear and minor orangish brown iron stain and powder, open.			
	100 (88) 56	8							
27.04 10.00			86.34		10.00	9.50 - 9.70 2 No perpendicular joints, subvertical dip, stepped, smooth, with 0.5 to 1mm thick light orangish brown clay smear and minor orangish brown iron stain and powder, open.		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
08/03/22	14.00	6.40					
27/04/22	15.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
6.4	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80546**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	28-04-22 28-04-22	99.42	E 625,446.2 N 715,575.1

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
0.00			99.22		0.20	0.00 - 10.00 m: overburden		TOPSOIL: Grass over firm brown slightly sandy SILT. (0.20m recovered).	
	15 - -							Brown slightly silty fine and medium SAND. (0.40m recovered).	
2.00					(3.30)				
	27 - -								
3.50			95.92		3.50			Very stiff greenish grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine and coarse of assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone.	
	40 - -								
5.00					(3.70)				
	40 - -								
6.50									
	53 - -		92.22		7.20			Subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
8.00									

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80546**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	28-04-22 28-04-22	99.42	E 625,446.2 N 715,575.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	27 -				(2.80)			Subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone. *(continued)*	
9.50	100							Core run - 9.50m to 10.00m: with light brown slightly silty fine and medium SAND. (0.20m recovered).	
28.04 10.00	-		89.42		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
28/04/22	15.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80960**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-03-22 09-03-22	106.24	E 625,820.9 N 715,755.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			105.84		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 16 (2, 2, 3, 3, 4, 6)					Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	50 for 160 mm (3, 4, 4, 11, 35)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 12 (2, 3, 3, 3, 3, 3)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 14 (3, 2, 3, 4, 3, 4)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 17 (3, 3, 4, 4, 5, 4)				(9.40)		
5.00	D14							
5.00-6.00	B16							
6.00	SPT	50 for 105 mm (5, 19, 31)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 38 (3, 4, 4, 7, 9, 18)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
08-03-22	17.30	3.00			dry
09-03-22	08.00	3.00			dry

Chiselling

From	To	Hours
2.3	2.6	1:00
6.1	6.5	0:30
7.4	7.6	0:30

Water Added

From	To

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-80960**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-03-22 09-03-22	106.24	E 625,820.9 N 715,755.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 16 (3, 4, 4, 4, 3, 5)					Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. *(continued)*	
8.00	D23							
8.00-9.00	B25							
9.00	SPT	N = 25 (4, 5, 5, 6, 6, 8)						
9.00	D26							
9.00-9.80	B28							
				96.44		9.80		
9.80	SPT	50 for 0 mm (25, 50)					BH terminated at 9.80m bgl. Obstruction as possible limestone boulder.	
9.80	D29							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
09-03-22	12.00	9.80			dry	9.8	9.8	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-81459**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-04-22 29-04-22	98.71	E 626,313.7 N 715,649.9

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
0.00			98.41		0.30	0.00 - 10.00 m: overburden		TOPSOIL: Grass over firm light orangish brown slightly sandy SILT. Sand is medium to coarse.	
	20 -							Dense grey slightly silty fine to coarse SAND and subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low boulder content and a little orangish brown clay.	
2.00									
	53 -	2.50 (50/0mm)							
3.50									
	33 -	4.00 (50/150mm)							
5.00					(9.70)				
	60 -	5.50 (71)						5.50m: becoming very dense.	
6.50								Core run - 6.50m to 8.00m: 1 No light grey limestone boulder 350mm in length.	
	40 -	7.00 (50/0mm)							
8.00									

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-81459**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-04-22 29-04-22	98.71	E 626,313.7 N 715,649.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	40 -							Dense grey slightly silty fine to coarse SAND and subrounded to subangular fine to coarse assorted grey limestone GRAVEL with low boulder content and a little orangish brown clay. *(continued)*	
9.50	80 -								
29.04 10.00	-		88.71		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
29/04/22	15.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-81864**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-05-22 03-05-22	105.81	E 626,714.9 N 715,602.7

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)
0.00			105.76		0.05
			105.71		0.10
	20 - -				
2.00					
	47 - -	2.50 (50/75mm)			(4.90)
3.50					
	33 - -	4.00 (50/150mm)			
5.00			100.81		5.00
	47 - -	5.50 (50/0mm)			(1.60)
6.50			99.21		6.60
	40 - -	7.00 (50/0mm)			
8.00					

STRATA

Discontinuities	Detail	Main
0.00 - 10.00 m: overburden		TOPSOIL: Grass over firm brown slightly sandy SILT. Sand is fine and medium.
		Firm orangish brown slightly sandy slightly gravelly SILT. Sand is coarse. Gravel is subrounded fine of assorted grey limestone.
		Light grey slightly silty fine to coarse SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.
		Stiff light brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of assorted grey limestone. Cobbles are subrounded to rounded of grey limestone.
		Light grey slightly silty fine to coarse SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL with low boulder content.

Instrument/Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 2.50m to 6.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-81864**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-05-22 03-05-22	105.81	E 626,714.9 N 715,602.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	33 -				(3.40)			Light grey slightly silty fine to coarse SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL with low boulder content. *(continued)* Core run - 8.00m to 9.50m: 1 No grey limestone boulder 260mm in length.	
9.50	80 -								
03.05 10.00	-		95.81		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
03/05/22	16.00	10.00										50mm standpipe installed. Response zone 2.50m to 6.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-82198**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-05-22 04-05-22	103.53	E 627,048.1 N 715,627.7

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
0.00			103.13		(0.40) 0.40	0.00 - 10.00 m: overburden	TOPSOIL: Grass over firm reddish brown slightly sandy slightly gravelly SILT. Sand is coarse. Gravel is subangular fine of assorted grey limestone.	
	25 -						Greenish brown slightly silty fine and medium SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL.	
2.00								
	40 -							
3.50								
	27 -							
5.00					(9.60)			
	27 -							
6.50								
	40 -							
8.00								

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	10	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-82198**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-05-22 04-05-22	103.53	E 627,048.1 N 715,627.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	40 -							Greenish brown slightly silty fine and medium SAND and subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL. *(continued)*	
9.50	100								
04.05 10.00	-		93.53		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
04/05/22	16.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-82621**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-05-22 05-05-22	103.53	E 627,463.2 N 715,664.9

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
0.00						0.00 - 7.60 m: overburden		Subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL and brown slightly silty fine and medium SAND with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
	15 -								
2.00	-								
	27 -	2.50 (50/75mm)							
3.50	-				(7.60)				
	20 -	4.00 (50/0mm)							
5.00	-							5.00m to 5.10m: brown clay.	
	40 -	5.50 (50/75mm)							
6.50	-								
	67 (28) 26		95.93		7.60				
8.00						7.60 - 9.00 Non-intact as weathered rock. No recovery as washout of fines			

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush			
From (m)	To (m)	Type	Return (%)
0	6.4	Water	100
6.4	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-82621**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-05-22 05-05-22	103.53	E 627,463.2 N 715,664.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
	80 (56) 33	NI			(1.50)	during drilling. No record of cavity.	Weathered LIMESTONE rock. Very strong and strong massive grey 'marbled' brownish white fine and coarse grained limestone recovered as angular fine to coarse gravel and cobble sized clasts with a little brown clay. *(continued)*	
		NI	94.43		9.10	9.00 - 9.10 Non-intact as brown slightly sandy clay.	9.00m to 9.10m: brown slightly sandy clay. Sand is coarse.	
9.50	100 (86) 70	3			(0.90)	9.10 - 10.00 Discontinuities, medium spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear.	Very strong massive grey 'marbled' brownish white and grey fine and coarse grained LIMESTONE.	
05.05 10.00			93.53		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
05/05/22	16.00	10.00										BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Geo 602		Driller: BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-82974**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-03-22 11-05-22	101.89	E 627,821.6 N 715,678.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.70)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
				101.19		0.70		
1.00	SPT	N = 28 (3, 4, 5, 7, 8, 8)					Medium dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. 1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 38 (4, 6, 8, 8, 11, 11)					2.00m: becoming dense.	
2.00	D5					(3.10)		
2.00-3.00	B7							
3.00	SPT	N = 40 (6, 6, 7, 9, 12, 12)						
3.00	D8							
3.00-4.00	B10							
				98.09		3.80		
4.00	SPT	N = 14 (2, 3, 4, 3, 2, 5)					Firm grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 17 (2, 3, 3, 4, 4, 6)						
5.00	D14					(3.10)		
5.00-6.00	B16							
6.00	SPT	N = 31 (4, 4, 6, 6, 8, 11)						
6.00	D17							
6.00-6.90	B19							
				94.99		6.90		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-03-22	15.30	6.90			dry	3.5 6.9	3.7 6.9	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-82974**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-03-22 11-05-22	101.89	E 627,821.6 N 715,678.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
10.03 6.90		6.90 (50/0mm)	94.99		6.90	6.90 - 10.00 m: overburden	Very dense grey slightly silty fine to coarse SAND and subangular to subrounded fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone	
	33 -							
8.00	-							
		8.40 (50/75mm)			(3.10)			
	33 -							
	-							
9.50								
	100 -							
11.05 10.00	-		91.89		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
10/03/22	15.30	6.90					
11/05/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
6.9	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-83591**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-03-22 06-05-22	98.27	E 628,433.0 N 715,706.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			97.97		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 15 (2, 3, 4, 3, 4, 4)					Medium dense grey sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4					(2.70)		
2.00	SPT	N = 19 (2, 4, 4, 5, 5, 5)						
2.00	D5							
2.00-3.00	B7			95.27		3.00		
3.00	SPT	N = 24 (3, 4, 5, 6, 6, 7)					Firm brownish grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
3.00	D8							
3.00-4.00	B10					(1.00)		
4.00	SPT	N = 24 (3, 3, 5, 6, 6, 7)		94.27		4.00		
4.00	D11						Very dense brown slightly silty fine to coarse SAND and subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of light grey limestone.	
4.00-5.00	B13							
5.00	SPT	50 for 0 mm (11, 18, 50)					5.00m: becoming very dense.	
5.00	D14						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-03-22	13.00	5.30			damp	5	5.3	1:00			50mm standpipe installed. Response zone 1.00m to 5.30m bgl.
21-03-22	08.00	5.30			0.60						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-83591**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-03-22 06-05-22	98.27	E 628,433.0 N 715,706.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
21.03 5.30	53 -	5.30 (50/0mm)				5.30 - 9.40 m: overburden	Very dense brown slightly silty fine to coarse SAND and subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of light grey limestone. *(continued)*	
6.50	-				(5.40)			
	33 -	6.80 (74)						
8.00	-							
	33 (7) 7	8.30 (50/75mm)						
9.50			88.87		9.40			
	60 (40) 37	NI			(1.30)	9.40 - 10.70 Non-intact as possible weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Possible weathered LIMESTONE rock. 1 No strong thinly bedded grey limestone boulder and stiff orangish brown sandy gravelly clay. Sand is coarse. Gravel angular fine and medium of grey limestone. 9.40m to 9.85m: 1 No thinly bedded grey bioclastic limestone boulder.	
		NI	87.57		10.70			
11.00		1				10.70 - 15.00 Discontinuities, closely spaced, locally medium and very closely spaced, dipping 12 to 14°, planar, smooth, with 0.5 to 2mm thick dark grey silt smear. 11.35 - 11.45 Joint, dipping 60°, planar, smooth, with 0.5 to 1mm thick orangish brown clay smear and orangish brown iron stain, open. 11.70 - 12.30 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear, open. 12.40 - 12.45 Joint, vertical dip, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear, open.	Strong locally very strong and medium strong thinly bedded grey with coarse grained sparite bioclastic fine to coarse grained LIMESTONE. 11.40m to 11.42m: medium strong thinly laminated black and blackish brown siltstone. 11.43m to 11.45m: medium strong thinly laminated black and blackish brown siltstone. 11.45m to 11.48m: brown silt. 12.40m to 12.45m: medium strong thinly laminated black and blackish brown siltstone. 12.55m to 12.60m: medium strong thinly laminated black and blackish brown	
	100 (85) 34	15						
12.50		18			(4.30)			
	100 (93)							

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/03/22	13.00	5.30					
21/03/22	08.00	5.30					0.60

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.3	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 1.00m to 5.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-83591**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-03-22 06-05-22	98.27	E 628,433.0 N 715,706.6

Engineer	Sheet	Status
Mott MacDonald	3 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
	67	8						siltstone. 12.80m to 12.90m: medium strong thinly laminated black and blackish brown siltstone. Strong locally very strong and medium strong thinly bedded grey with coarse grained sparite bioclastic fine to coarse grained LIMESTONE. *(continued)* 13.50m to 13.60m: medium strong thinly laminated black and blackish brown siltstone. 14.00m to 14.02m: medium strong thinly laminated black and blackish brown siltstone. 14.50m to 14.70m: medium strong thinly laminated black and blackish brown siltstone.	
14.00									
	100 (91) 65	4							
06.05 15.00			83.27		15.00			BH terminated at 15.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
06/05/22	17.00	15.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone 1.00m to 5.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-84203**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-03-22 22-03-22	96.70	E 629,026.6 N 715,835.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			96.30		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 15 (2, 3, 3, 4, 4, 4)					Medium dense grey sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone. 1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4					(2.60)		
2.00	SPT	N = 5 (1, 2, 2, 1, 1, 1)					2.00m: becoming loose.	
2.00	D5							
2.00-3.00	B7						2.50m to 3.50m: becoming damp.	
3.00	SPT	N = 11 (2, 2, 3, 3, 2, 3)		93.70		3.00	Firm grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
3.00	D8							
3.00-4.00	B10					(1.00)		
4.00	SPT	N = 12 (2, 2, 3, 3, 3, 3)		92.70		4.00	Medium dense grey sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 15 (2, 3, 3, 4, 4, 4)						
5.00	D14							
5.00-6.00	B16					(3.60)		
6.00	SPT	N = 14 (3, 4, 3, 3, 4, 4)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 36 (7, 8, 7, 9, 10, 10)					7.00m: becoming dense.	
7.00	D20			89.10		7.60		
7.60	SPT	50 for 0 mm (25, 50)					BH terminated at 7.60m bgl. Refusal.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-03-22	11.00	7.60				7.6	7.6	1:00			50mm standpipe installed. Response zone 2.50m to 7.60m bgl.
21-03-22	14.00	7.60									
21-03-22	17.00	7.60									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-84800**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	16-03-22 21-03-22	94.41	E 629,609.6 N 715,700.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 1.00m 1.00m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm dark brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				93.91		0.50		
						(0.40)	Loose dark grey fine to medium SAND.	
			11	93.51		0.90		
1.00	SPT	N = 7 (1, 2, 2, 2, 1, 2)					Firm grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00	D2							
1.00-1.50	B4							
						(2.10)		
2.00	SPT	N = 13 (3, 4, 3, 2, 5, 3)						
2.00	D5							
2.00-2.50	B7							
				91.41		3.00		
3.00	SPT	N = 28 (4, 4, 6, 3, 9, 10)					Medium dense grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
3.00	D8					(0.50)		
3.00-3.50	B10			90.91		3.50		
							Firm grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
4.00	SPT	N = 32 (4, 7, 11, 6, 8, 7)						
4.00	D11							
4.00-4.50	B13					(1.80)		
5.00	SPT							
	D14			89.11		5.30		
5.30		50 for 150 mm (12, 10, 11, 25, 14)					BH terminated at 5.30m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
16-03-22	17.30	5.30			2.00
21-03-22	08.30	5.30			2.10
21-03-22	10.00	5.30			2.00

Chiselling

From	To	Hours
3.3	3.5	0:30
5	5.2	0:30
5.3	5.3	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: DK	Logged By: DK

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-85383**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-03-22 21-03-22	94.69	E 630,183.9 N 715,608.7

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
				94.19		0.50		
						(0.60)	Medium dense black gravelly fine to coarse SAND with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 21 (4, 3, 5, 5, 6, 5)		93.59		1.10	1.00m: medium dense.	
1.00	D2						Firm grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1.00-1.50	B4							
2.00	SPT	N = 23 (3, 4, 4, 4, 6, 9)				(2.10)		
2.00	D5							
2.00-2.50	B7							
3.00	SPT	50 for 0 mm (10, 12, 50)		91.49		3.20		
3.00	SPT D8						BH terminated at 3.20m bgl. Obstruction as possible limestone rock.	
3.20		50 for 75 mm (17, 8, 25, 25)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-03-22	16.30	3.20				1.6 3.2	1.9 3.2	1:00 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: DK	Logged By: DK

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-85791**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-03-22 12-05-22	92.46	E 630,589.6 N 715,587.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 0.80m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
				91.86		0.60		
			▼1				Firm greyish brown sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 11 (2, 2, 3, 2, 3, 3)						
1.00	D2					(1.40)		
1.00-1.50	B4							
				90.46		2.00		
2.00	SPT	N = 15 (3, 3, 3, 3, 4, 5)					Medium dense silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular of limestone.	
2.00	D5					(0.50)		
2.00-2.50	B7			89.96		2.50		
							Firm greyish brown sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
3.00	SPT	N = 13 (4, 3, 3, 4, 3, 3)						
3.00	D8							
3.00-3.50	B10					(2.90)		
4.00	SPT	N = 21 (5, 6, 4, 5, 5, 7)					4.00m: becoming stiff.	
4.00	D11							
4.00-4.50	B13							
5.00	SPT	N = 22 (6, 4, 5, 6, 6, 5)						
5.00	D14			87.06		5.40		
5.00-5.50	B16			86.76		5.70	Medium dense silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are angular of limestone.	
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
22-03-22	17.30	5.70			1.90
31-03-22	08.30	5.70			2.00
31-03-22	11.00	5.70			2.20

Chiselling

From	To	Hours
4.8	5	0:30
5.7	5.7	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller DK/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-85791**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-03-22 12-05-22	92.46	E 630,589.6 N 715,587.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main
22.03 5.70		5.70 (50/75mm)	86.76		5.70	5.70 - 5.90 m: overburden	Very dense light pinkish grey slightly silty fine to coarse SAND and subangular to subrounded fine to coarse assorted brown dolomitised limestone and dark grey and grey limestone GRAVEL.
	100 (37) 12		86.56		5.90	5.90 - 10.00 Discontinuities, closely spaced, locally medium spaced, dipping 10 to 12°, stepped, rough, with 0.5 to 2mm thick light brown clay smear.	
6.50		9					Very strong locally strong massive light brown crystalline vuggy fine to coarse grained DOLOMITISED LIMESTONE.
	100 (97) 61						
		10					
8.00					(4.10)		
	100 (83) 55	7					
9.50						9.20 - 9.50 Joint, vertical dip, stepped, rough, with 0.5 to 2mm thick orangish brown clay smear and orange and orangish brown iron stain and powder, open.	
	100 (92) 68	12					
12.05 10.00			82.46		10.00		BH terminated at 10.00m bgl on REs instruction.

Instrument / Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
22/03/22	17.30	5.70					1.90
31/03/22	08.30	5.70					2.00
31/03/22	11.00	5.70					2.20
12/05/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.7	6	Water	100
6	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: DK/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-86203**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	31-03-22 01-04-22	89.18	E 630,998.9 N 715,586.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.80m 2.50m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			88.88		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 11 (2, 2, 3, 2, 3, 3)				(1.90)	Firm grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4							
2.00	SPT	N = 5 (2, 3, 2, 1, 1, 1)		86.98		2.20		
2.00	D5		1				Soft brown sandy SILT. Sand is fine to medium.	
2.00-2.50	B7					(0.80)		
3.00	SPT	N = 8 (2, 2, 2, 2, 2, 2)		86.18		3.00		
3.00	D8						Medium dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular of limestone.	
3.00-3.50	B10					(1.80)		
4.00	SPT	N = 14 (2, 3, 3, 5, 3, 3)						
4.00	D11							
4.00-4.50	B13							
			1	84.38		4.80		
4.80	SPT	50 for 75 mm (5, 10, 25, 25)					BH terminated at 4.80m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
31-03-22	17.30	4.50				4.5	4.7	0:30			BH backfilled with arisings.
01-04-22	08.30	4.50				4.8	4.8	1:00			
01-04-22	12.00	4.80			2.50						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: DK	Logged By: DK

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-86592**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-04-22 05-04-22	83.92	E 631,390.7 N 715,614.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.00m 2.00m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			83.52		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
				82.92		(0.60) 1.00	Firm grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 13 (3, 4, 3, 3, 4, 3)					Medium dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular of limestone.	
1.00	D2							
1.00-1.50	B4					(1.50)		
2.00	SPT	N = 8 (3, 2, 2, 2, 2, 2)					2.00m: becoming loose.	
2.00	D5			81.42		2.50		
2.00-2.50	B7						Firm wet grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
3.00	SPT	N = 14 (4, 6, 3, 5, 3, 3)						
3.00	D8							
3.00-3.50	B10					(2.10)		
4.00	SPT	N = 19 (3, 4, 4, 4, 7, 4)					4.00m: becoming stiff.	
4.00	D11							
4.00-4.50	B13			79.32		4.60		
				79.22		4.70	Angular limestone COBBLES.	
4.70	SPT	50 for 75 mm (25, 25, 25)					BH terminated at 4.70m bgl. Obstruction as possible boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
01-04-22	17.00	4.70				4.5	4.7	0:30			BH backfilled with arisings.
05-04-22	08.30	4.70			2.00	4.7	4.7	1:00			
05-04-22	12.00	4.70			2.00						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: DK	Logged By: DK

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-87006**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-05-22 19-05-22	87.17	E 631,800.1 N 715,594.0

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
0.00			87.02		0.15	0.00 - 10.00 m: overburden	TOPSOIL: Grass over firm dark brown slightly sandy organic SILT with rootlets.	
	55 - -				(1.85)		Firm grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine and coarse of assorted dark grey and grey limestone.	
2.00		2.00 (22)	85.17		2.00		Medium dense grey slightly silty gravelly fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone.	
	47 - -				(1.50)			
3.50		3.50 (32)	83.67		3.50		Stiff light green slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of assorted grey limestone.	
			83.27		(0.40) 3.90			
	33 - -						Dense grey slightly silty gravelly fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone.	
18.05 19.05 5.00		5.00 (50/75mm)						
	27 - -				(4.10)			
6.50		6.50 (50/150mm)						
	27 - -							
8.00			79.17		8.00			

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
18/05/22	17.00	5.00					
19/05/22	08.00	5.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	10	Polymer	100

GENERAL REMARKS

5 litres polydrill used. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DB-Boart		Driller: DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-87006**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-05-22 19-05-22	87.17	E 631,800.1 N 715,594.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	100	8.00 (50/75mm)						Very stiff brownish green sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular fine to medium of assorted brown sandstone and assorted dark grey and grey limestone. Cobbles are subrounded to rounded of brown sandstone. Core run - 8.00m to 9.50m: 1 No brown sandstone boulder 400mm in length.	
9.50	40	9.50 (50/75mm)			(2.00)				
19.05 10.00			77.17		10.00			BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
19/05/22	14.00	10.00										5 litres polydrill used. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DB-Boart		Driller: DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-87455**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-03-22 13-05-22	86.38	E 632,202.7 N 715,800.3

Engineer	GROUNDWATER STRIKES	Sheet / Status
Mott MacDonald	Water strikes: 1st: 0.60m; Rose to (@ 20 min.): 0.60m; Sealed at: 2nd: 3rd:	Sheet 1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			85.98		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			▽ 1.1				Dense grey sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
1.00	SPT	N = 35 (3, 4, 8, 8, 8, 11)					1.00m: dense.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 52 (4, 6, 11, 11, 14, 16)					2.00m: becoming very dense.	
2.00	D5							
2.00-3.00	B7					(4.10)		
3.00	SPT	N = 33 (6, 6, 8, 8, 8, 9)					3.00m: becoming dense.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 41 (6, 9, 9, 10, 11, 11)						
4.00	D11							
4.00-4.50	B13			81.88		4.50		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
22-03-22	16.00	4.50			0.60	2.4 3.6 4.5	2.7 4 4.5	0:30 0:45 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-87455**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-03-22 13-05-22	86.38	E 632,202.7 N 715,800.3

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail / Main	Instrument/ Backfill
22.03 4.50	20 - -	4.50 (50/0mm)	81.88		4.50	4.50 - 10.00 m: overburden	Very dense subangular fine to coarse rare brown sandstone and assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are of assorted grey and dark grey limestone.	
5.00								
	20 - -	6.00 (50/0mm)						
6.50								
	80 - -	7.50 (50/0mm)			(5.50)			
8.00								
	80 - -	9.00 (50/0mm)						
9.50								
	80 - -							
13.05 10.00			76.38		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
22/03/22	16.00	4.50					0.60
13/05/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.5	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-87806**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-03-22 24-03-22	86.48	E 632,430.8 N 716,023.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.00m 1.50m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			86.18		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
				85.68		(0.50) 0.80	Loose brown silty fine SAND.	
1.00	SPT	N = 9 (1, 2, 2, 2, 2, 3)					Firm grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2		1					
1.00-2.00	B4					(1.20)		
				84.48		2.00		
2.00	SPT	N = 11 (2, 2, 2, 3, 3, 3)					Medium dense grey slightly silty sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 28 (4, 4, 6, 8, 7, 7)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 32 (5, 6, 8, 8, 8, 8)				(4.20)	4.00m: becoming dense.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 37 (4, 7, 8, 9, 9, 11)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	50 for 85 mm (11, 18, 32)		80.28		6.20		
6.00	SPT D17						BH terminated at 6.20m bgl. Obstruction as possible limestone boulder.	
6.20		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
23-03-22	17.00	2.00			1.50	6.2	6.2	1:00			BH backfilled with arisings.
24-03-22	08.00	2.00									
24-03-22	13.00	6.20			1.20						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-87999**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	23-03-22 23-03-22	85.24	E 632,609.8 N 716,162.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: 1st: 1.80m Rose to (@ 20 min.): 1.20m Sealed at: 4.60m 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			84.94		0.30	TOPSOIL: Grass over firm dark brown peaty SILT.	
						(0.90)	Medium dense brown silty fine and medium SAND.	
1.00	SPT	N = 13 (1, 2, 3, 3, 3, 4)	1	84.04		1.20		
1.00	D2						Medium dense grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00-2.00	B4							
			1					
2.00	SPT	N = 28 (4, 4, 6, 6, 8, 8)						
2.00	D5							
2.00-3.00	B7					(3.30)		
3.00	SPT	N = 34 (3, 6, 9, 9, 8, 8)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 21 (2, 3, 4, 5, 5, 7)						
4.00	D11							
4.00-5.00	B13			80.74		4.50		
							Stiff grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
5.00	SPT	N = 38 (6, 8, 8, 8, 11, 11)						
5.00	D14							
5.00-6.00	B16					(2.00)		
6.00	SPT	N = 51 (8, 8, 9, 12, 12, 18)					6.00m: becoming very stiff.	
6.00	D17							
6.20	SPT	50 for 40 mm (25, 50)		78.74		6.50		
							BH terminated at 6.50m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
23-03-22	16.00	6.50			dry	3.8 6.5	4 3.4	0:45 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-88759**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-03-22 16-05-22	83.57	E 633,336.8 N 716,361.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			83.27		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 27 (3, 4, 5, 6, 8, 8)					Stiff grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 22 (3, 3, 4, 4, 6, 8)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 38 (7, 8, 7, 8, 9, 14)				(5.50)		
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 44 (6, 8, 8, 11, 11, 14)					4.00m: becoming very stiff.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 40 (8, 8, 9, 9, 11, 11)						
5.00	D14							
5.00-5.80	B16			77.77		5.80		
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
24-03-22	17.00	5.00			dry
25-03-22	08.00	5.00			
25-03-22	12.00	5.40			dry

Chiselling

From	To	Hours
4.4	4.7	0:45
5	5.4	1:30

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-88759**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	24-03-22 16-05-22	83.57	E 633,336.8 N 716,361.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
5.80	33 - -	5.80 (50/10mm)	77.77		5.80	5.80 - 10.00 m: overburden	Very dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content and a little grey silt. Cobbles are subrounded to rounded of grey limestone	
6.50								
	33 - -							
8.00					(4.20)			
	33 - -							
9.50								
	60 - -							
16.05 10.00			73.57		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
16/05/22	16.00	10.00						5.8	10	Water	100	BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89092**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-04-22 01-04-22	85.28	E 633,662.5 N 716,458.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			84.98		0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
							Dense grey silty very gravelly fine to coarse SAND with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 35 (4, 8, 8, 9, 9, 9)						
1.00	D2							
1.00-2.00	B4							
2.00	SPT	50 for 95 mm (11, 14, 18, 32)				(3.90)	2.00m: becoming very dense.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	50 for 245 mm (9, 10, 10, 14, 17, 9)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	50 for 85 mm (8, 41, 9)		81.08		4.20		
4.00	SPT D11						BH terminated at 4.20m bgl. Obstruction as possible limestone boulder.	
4.20		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
01-04-22	13.00	4.20			dry	1.7 2.3 4	1.7 2.6 4.2	0:30 0:45 1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89604**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	30-03-22 30-03-22	80.56	E 634,149.1 N 716,590.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.60m 3.20m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				79.96		0.60		
							Dense grey slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 36 (3, 4, 4, 5, 8, 19)					1.00m: dense.	
1.00	D2							
1.00-2.00	B4					(1.70)		
2.00	SPT	N = 20 (3, 4, 4, 5, 5, 6)						
				78.26		2.30		
2.00	D5						Medium dense grey slightly silty gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
2.00-3.00	B7							
3.00	SPT	N = 12 (2, 2, 3, 3, 3, 3)	1					
3.00	D8							
3.00-4.00	B10					(3.00)		
4.00	SPT	N = 12 (2, 3, 3, 3, 3, 3)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 14 (3, 3, 3, 4, 3, 4)						
				75.26		5.30		
5.00	D14						Firm grey slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
5.00-6.00	B16							
6.00	SPT	N = 14 (2, 2, 3, 3, 4, 4)						
6.00	D17							
6.00-7.00	B19					(3.30)		
7.00	SPT	N = 15 (2, 3, 3, 4, 4, 4)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
1.6	1.8	0:30		

GENERAL REMARKS

Rising head test expedited in BH. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89604**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	30-03-22 30-03-22	80.56	E 634,149.1 N 716,590.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.60m 3.20m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 19 (3, 3, 5, 6, 4, 4)					Firm grey slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. *(continued)*	
8.00	D23						8.00m: becoming stiff.	
8.00-9.00	B25			71.96		8.60		
9.00	SPT	N = 33 (11, 12, 14, 6, 6, 7)					Medium dense grey silty sandy angular limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are angular to subangular of limestone.	
9.00	D26						9.00m: becoming dense.	
9.00-10.00	B28					(1.85)		
10.00	SPT	N = 30 (6, 8, 8, 7, 7, 8)						
10.00	D29			70.11		10.45		
							BH terminated at 10.45m bgl. Obstruction as possible limestone rock.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
30-03-22	17.00	10.45			3.10	8.9	9.1	0:45			Rising head test expedited in BH. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89662**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	31-03-22 31-03-22	80.24	E 634,204.9 N 716,605.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			79.74		(0.50) 0.50	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 28 (4, 4, 6, 6, 8, 8)					Medium dense greyish brown very sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse. 1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4					(2.00)		
2.00	SPT	N = 9 (3, 4, 3, 2, 2, 2)						
2.00	D5			77.74		2.50		
2.00-3.00	B7						Medium dense brown gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
3.00	SPT	N = 11 (2, 3, 3, 2, 3, 3)		77.04		(0.70) 3.20		
3.00	D8						Firm grey SILT.	
3.00-4.00	B10			76.24		(0.80) 4.00		
4.00	SPT	N = 13 (2, 2, 3, 3, 3, 4)					Dense grey silty very sandy subrounded to rounded limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 30 (4, 3, 6, 6, 8, 10)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 44 (7, 9, 9, 11, 12, 12)				(4.20)		
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 49 (7, 11, 11, 12, 12, 14)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
7.4	7.7	0:30	2.5	1

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89662**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	31-03-22 31-03-22	80.24	E 634,204.9 N 716,605.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	21 for 20 mm (17, 19, 21)		72.04		8.20		
8.00	D23					(0.40)	Obstruction as possible limestone rock.	
8.30	SPT	50 for 0 mm (25, 50)		71.64		8.60		
							BH terminated at 8.60m bgl. Refusal.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
31-03-22	16.00	8.60			3.50	8.2	8.6	2:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89690**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-04-22 04-04-22	79.97	E 634,239.4 N 716,613.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				79.47		0.50		
							Medium dense brown slightly silty very gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 14 (2, 2, 3, 3, 4, 4)					1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4					(2.10)		
2.00	SPT	N = 13 (2, 3, 4, 3, 3, 3)						
2.00	D5							
2.00-3.00	B7			77.37		2.60		
							Soft grey SILT.	
						(0.60)		
3.00	SPT	N = 4 (1, 0, 1, 1, 0, 2)		76.77		3.20		
3.00	D8						Loose grey silty very sandy subangular to rounded limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
3.00-4.00	B10							
4.00	SPT	N = 34 (5, 6, 8, 8, 8, 10)				(2.00)	4.00m: becoming dense.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	50 for 75 mm (19, 31, 19)		74.77		5.20		
5.00	SPT D14						BH terminated at 5.20m bgl. Refusal.	
5.20		50 for 30 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
04-04-22	14.00	5.20				4.1	5.2	2:30		0.5	BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89747**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-04-22 05-04-22	81.41	E 634,289.8 N 716,630.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			81.11		0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 23 (4, 4, 5, 5, 6, 7)				(2.90)	Medium dense grey slightly silty very gravelly fine to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 16 (3, 3, 4, 4, 4, 4)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 2 (2, 1, 1, 0, 1, 0)		78.21		3.20		
3.00	D8						Soft grey SILT.	
3.00-4.00	B10					(1.20)		
4.00	SPT	N = 4 (1, 0, 1, 0, 2, 1)						
4.00	D11			77.01		4.40		
4.00-5.00	B13						Loose grey slightly silty very sandy subangular to rounded limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
5.00	SPT	50 for 85 mm (5, 8, 11, 39)					5.00m: drillers comment - boulder.	
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 29 (3, 6, 6, 7, 7, 9)				(3.70)	6.00m: becoming medium dense.	
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 33 (4, 4, 5, 8, 9, 11)					7.00m: becoming dense.	
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
04-04-22	17.30	3.00				0.5	0.5	0:45		0.7	BH backfilled with arisings.
05-04-22	08.00	3.00				5.3	5.6	0:45			
						7.7	8.1	1:30			

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-89747**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-04-22 05-04-22	81.41	E 634,289.8 N 716,630.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	50 for 60 mm (25, 50)		73.31		8.10	BH terminated at 8.10m bgl. Refusal.	
8.00	SPT							
8.00	D23							
8.10		50 for 20 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
05-04-22	13.00	8.10									BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-90003**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-04-22 05-04-22	80.34	E 634,534.6 N 716,694.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			79.94		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly peaty SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				79.54		(0.40) 0.80	Medium dense grey gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse of limestone.	
1.00 1.00 1.00-2.00	SPT D2 B4	N = 10 (2, 3, 3, 3, 2, 2)				(1.30)	Firm grey slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
2.00 2.00 2.00-3.00	SPT D5 B7	N = 12 (2, 3, 3, 2, 3, 4)		78.24		2.10 (0.80)	Medium dense grey slightly silty slightly sandy subangular to rounded fine to coarse limestone. GRAVEL. Sand is fine to coarse.	
3.00 3.00 3.00-4.00	SPT D8 B10	N = 3 (1, 2, 1, 0, 1, 1)		77.44		2.90 (0.90)	Very soft grey SILT.	
4.00 4.00 4.00-5.00	SPT D11 B13	N = 42 (4, 5, 6, 11, 11, 14)		76.54		3.80 (2.40)	Dense grey sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
5.00 5.00 5.00-6.00	SPT D14 B16	N = 37 (5, 5, 6, 10, 10, 11)						
6.00 6.00 6.20	SPT SPT D17	50 for 85 mm (25, 41, 9) 50 for 30 mm (25, 50)		74.14		6.20	BH terminated at 6.20m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
05-04-22	17.30	6.20				5.9	6.2	1:00		0.6	BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-90402**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-04-22 20-05-22	82.31	E 634,938.2 N 716,700.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 2.90m 2.10m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			82.01		0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 6 (1, 2, 2, 1, 2, 1)				(1.20)	Firm brown slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	D2			80.81		1.50		
1.00-2.00	B4						Loose grey sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
2.00	SPT	N = 13 (3, 4, 3, 3, 4, 3)	1			(1.40)	2.00m: becoming medium dense.	
2.00	D5							
2.00-3.00	B7		1	79.41		2.90		
3.00	SPT	N = 9 (2, 2, 2, 3, 2, 2)				(1.10)	Soft wet sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
3.00	D8							
3.00-4.00	B10			78.31		4.00		
4.00	SPT	N = 28 (4, 5, 7, 6, 6, 9)				(1.60)	Dense grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 32 (6, 6, 6, 8, 10, 8)						
5.00	D14							
5.00-5.50	B16			76.71		5.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
05-04-22	16.00	5.60			2.00	5.3 5.6	5.5 5.6	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller DK/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-90402**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	05-04-22 20-05-22	82.31	E 634,938.2 N 716,700.4

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
05.04 5.60	40 -	5.60 (50/150mm)	76.71		5.60	5.60 - 7.80 m: overburden	Dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL.	
6.50	-				(2.20)			
	47 -	7.00 (50/150mm)						
	-		74.51		7.80			
8.00						7.80 - 10.00 Non-intact as probable weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Probable weathered LIMESTONE rock. Strong and very strong dark grey slightly silty slightly bioclastic fine grained limestone recovered as angular fine to coarse gravel and cobble sized clasts.	
	80 (34) -							
9.00		NI			(2.20)			
	80 (37) -						9.50m to 9.80m: grey silt.	
20.05 10.00			72.31		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
05/04/22	16.00	5.60					2.00
20/05/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.6	10	Polymer	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-91011**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-04-22 23-05-22	86.46	E 635,516.4 N 716,873.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.60m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			86.06		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 12 (2, 2, 3, 3, 3, 3)					Firm brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4					(2.60)		
2.00	SPT	N = 13 (1, 2, 3, 3, 4, 3)						
2.00	D5							
2.00-3.00	B7		▽1					
			▼1	83.46		3.00		
3.00	SPT	N = 27 (4, 6, 6, 6, 7, 8)					Medium dense grey slightly silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse Cobbles are subrounded to rounded of grey limestone.	
3.00	D8							
3.00-4.00	B10					(1.60)		
4.00	SPT	50 for 225 mm (7, 11, 14, 16, 16, 4)						
4.00	D11			81.86		4.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
06-04-22	12.00	4.60				4	4.6	1:30			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller CR/BD	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-91011**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-04-22 23-05-22	86.46	E 635,516.4 N 716,873.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
06.04 4.60	27 - -	4.60 (50/40mm)	81.86		4.60	4.60 - 8.30 m: overburden	Grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone	
5.00								
	67 - -							
6.50		6.50 (50/150mm)			(3.70)		Core run - 6.50m to 8.00m: 1 No dark grey bioclastic limestone boulder 220mm in length.	
	53 - -							
8.00								
	88 (59) 39		78.16		8.30	8.30 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and minor orangish brown iron stain. 8.95 - 9.05 Joint, dipping 60°, stepped, rough, with 0.5 to 1mm thick orangish brown clay smear and minor orangish brown iron stain, open. 9.40 - 9.50 Joint, dipping 60°, stepped, rough, with 0.5 to 1mm thick brown clay smear and minor orangish brown iron stain, open.	Very strong thinly bedded dark grey and grey bioclastic fine and medium grained LIMESTONE with medium and coarse gravel sized clasts of dark grey fine grained chert nodules.	
8.80		9						
	100 (90) 70				(1.70)			
		4						
25.05 10.00			76.46		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
06/04/22	12.00	4.60						4.6	10	Water	100	BH backfilled with grout.
25/05/22	15.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/Geo 602		Driller: CR/BD	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-91604**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-04-22 07-04-22	97.58	E 636,022.0 N 717,173.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			97.18		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	SPT	N = 14 (1, 2, 3, 4, 4, 3)				(1.60)	Firm brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4			95.58		2.00		
2.00	SPT	50 for 0 mm (7, 14, 50)		95.38		2.20	Obstruction as possible limestone BOULDER.	
2.00	SPT D5						BH terminated at 2.20m bgl. Obstruction as possible limestone boulder.	
2.20		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
06-04-22	17.30	2.00			dry	2	2.2	1:00			BH backfilled with arisings.
07-04-22	08.00	2.00									
07-04-22	10.00	2.20			dry						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-92206**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-04-22 07-04-22	115.49	E 636,490.5 N 717,541.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			115.19		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	SPT	N = 8 (1, 2, 2, 2, 2, 2)					Firm greyish brown slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4					(2.70)		
2.00	SPT	N = 13 (2, 3, 3, 3, 3, 4)						
2.00	D5							
2.00-3.00	B7							
				112.49		3.00		
3.00	SPT	50 for 10 mm (24, 50)		112.39		3.10	Obstruction as possible limestone BOULDER.	
3.00	SPT						BH terminated at 3.10m bgl. Obstruction as possible limestone boulder.	
3.00	D8							
3.10		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
07-04-22	17.00	3.10			dry	2.9	3.1	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-92626**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-05-22 26-05-22	107.99	E 636,804.3 N 717,818.0

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
0.00			107.89		0.10	0.00 - 5.70 m: overburden		TOPSOIL: Grass over firm dark brown slightly sandy SILT. Sand is fine.	
	65 - -				(3.10)			Firm dark brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine and coarse of assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone	
2.00		2.00 (38)						2.00m: becoming very stiff.	
	53 - -		104.79		3.20				
3.50		3.50 (50/150mm)						Very dense grey slightly sandy silty subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL. Sand is fine to coarse.	
	27 - -				(2.50)				
5.00		5.00 (50/75mm)							
	53 (51) 48	5.50 (50/150mm)	102.29		5.70				
		2				5.70 - 15.10 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick grey silt smear.		Very strong thinly bedded dark grey slightly bioclastic silty fine grained LIMESTONE.	
25.05 6.50 26.05		5							
	93 (90) 74								
		5							
8.00									

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
25/05/22	17.00	6.50					
26/05/22	08.00	6.50					

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	15.1	Polymer	100

GENERAL REMARKS

5 litres polydrill used. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DB-Boart		Driller: DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-92626**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-05-22 26-05-22	107.99	E 636,804.3 N 717,818.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
								Very strong thinly bedded dark grey slightly bioclastic silty fine grained LIMESTONE. *(continued)*	
	100 (93) 81	4							
9.50		15						9.45m to 9.50m: grey silt.	
	100 (67) 23	10			(9.40)	9.85 - 9.95 Joint, dipping 60°, planar, smooth, with 0.5 to 1mm thick grey silt smear, open. 10.25 - 10.60 2 No parallel joints, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.			
11.10									
	100 (91) 80	8							
12.20									
	100 (81) 31	14				12.40 - 12.45 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.			
13.70		12							
	100 (93) 72	5				14.35 - 14.55 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick grey silt smear, open.			
26.05 15.10			92.89		15.10			BH terminated at 15.10m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
26/05/22	15.00	15.10										5 litres polydrill used. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used DB-Boart		Driller DK	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-92680**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-04-22 24-05-22	107.67	E 636,841.4 N 717,858.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.60m 3.30m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
				107.07		0.60		
1.00	SPT	N = 12 (2, 3, 2, 3, 3, 4)					Firm greyish brown slightly gravelly sandy organic SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 11 (2, 3, 2, 3, 3, 3)					2.00m: becoming slightly sandy. Organic material absent.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 12 (1, 2, 2, 3, 3, 4)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 15 (2, 2, 4, 3, 4, 4)				(7.00)		
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 11 (2, 2, 2, 3, 3, 3)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 15 (3, 3, 4, 3, 4, 4)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 39 (4, 15, 7, 9, 11, 12)					7.00m: becoming very stiff.	
7.00	D20							
				100.07		7.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To
08-04-22	17.00	7.60			3.20	7.5	7.6	1:00		

GENERAL REMARKS

Rising head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller CR/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-92680**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-04-22 24-05-22	107.67	E 636,841.4 N 717,858.9

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
08.04 7.60	27 (21) 9	7.60 (50/0mm) 5	100.07		7.60	7.60 - 15.10 Discontinuities, closely spaced, locally medium spaced, dipping 10 to 12°, planar, smooth, with 0.5 to 2mm thick dark grey silt smear.	Very strong thinly bedded grey and dark grey slightly bioclastic with coarse grained sparite fine and medium grained LIMESTONE.	
8.00								
	100 (97) 84	7						
9.60		6						
	100 (96) 87	7					10.70m to 10.85m: subvertical white calcitic vein.	
11.00					(7.50)	11.35 - 11.55 Joint, subvertical dip, planar, smooth, with 0.5 to 1mm thick grey silt smear over 2mm thick white calcitic vein, open.		
	100 (90) 69	6						
12.50		4						
	100 (98) 92	4						
14.00								
	100 (84) 60	6						
24.05 15.10 25.05			92.57		15.10		BH terminated at 15.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
08/04/22	17.00	7.60				7.6	3.20
24/05/22	17.00	15.10					
25/05/22	08.00	15.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
7.6	15.1	Water	100

GENERAL REMARKS

Rising head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-93391**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	06-04-22 06-04-22	105.82	E 637,407.9 N 718,269.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			105.52		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	SPT	N = 3 (1, 1, 1, 0, 1, 1)				(1.40)	Soft orangish brown sandy SILT with low cobble content. Sand is fine to medium. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-1.50	B4			104.12		1.70		
2.00	SPT	N = 15 (2, 3, 4, 3, 5, 3)				(2.40)	Firm dry grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
2.00	D5							
2.00-2.50	B7							
3.00	SPT	N = 23 (4, 6, 5, 5, 5, 8)						
3.00	D8							
3.00-3.50	B10							
4.00	SPT	50 for 75 mm (19, 6, 25, 25)		101.72		4.10		
4.00	D11						BH terminated at 4.10m bgl. Obstruction as probable limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
06-04-22	13.00	4.10				4.1	4.1	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: DK	Logged By: DK

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-93803**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-04-22 05-05-22	105.45	E 637,747.8 N 718,381.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 3.00m 2.30m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			105.15		0.30	TOPSOIL: Grass over firm brown SILT.	
							Medium dense grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 23 (3, 4, 4, 6, 6, 7)					1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4					(2.90)		
2.00	SPT	50 for 135 mm (7, 18, 27, 23)	1				2.00m: becoming very dense.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	50 for 10 mm (16, 50)	1	102.25		3.20	*Borehole continued by coring*	
3.00	D8							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-04-22	16.00	3.20			2.30	2.3 3	2.6 3.2	0:45 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-93803**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-04-22 05-05-22	105.45	E 637,747.8 N 718,381.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
11.04 3.20		3.20 (50/75mm)	102.25		3.20	3.20 - 10.00 m: overburden	Very stiff grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of rare brown sandstone and assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone	
	22 -							
5.00		5.00 (25)						
	20 -							
6.50		6.50 (29)			(6.80)			
	13 -							
8.00		8.00 (41)						
	20 -							
9.50		9.50 (30)						
	40 -							
05.05 10.00			95.45		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/04/22	16.00	3.20					2.30
05/05/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-94016**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-04-22 06-05-22	103.96	E 638,033.6 N 718,412.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 1.70m 1.60m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1					(1.50)	TOPSOIL: Grass over soft brown SILT.	
1.00	SPT	N = 2 (1, 0, 0, 1, 0, 1)					1.00m: becoming very soft.	
1.00	D2		1	102.46		1.50		
1.00-2.00	B4						Medium dense grey silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
2.00	SPT	N = 19 (2, 3, 4, 4, 5, 6)					2.00m: medium dense.	
2.00	D5							
2.00-3.00	B7					(2.80)		
3.00	SPT	N = 23 (3, 4, 4, 5, 7, 7)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	50 for 65 mm (11, 11, 50)		99.66		4.30		
4.00	D11						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-04-22	13.00	4.30			1.60	4	4.3	1:00			50mm standpipe installed. Response zone 0.50m to 5.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-94016**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-04-22 06-05-22	103.96	E 638,033.6 N 718,412.1

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)
12.04 4.30	33 - -	4.30 (50/10mm)	99.66		4.30
5.00	40 - -				(3.20)
6.50	100 (27) 17		96.46		7.50
8.00	100 (95) 40	6 18			(2.60)
9.40	100 (95) 48	15			
06.05 10.10 09.05			93.86		10.10

STRATA DESCRIPTION

Discontinuities	Detail	Main
4.30 - 7.50 m: overburden		Very dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with boulder and a little grey sandy silt. Sand is fine to coarse.
7.50 - 10.10 Discontinuities, medium spaced, very closely spaced from 8.35m to 8.45m and 9.80m to 10.00m , dipping 10 to 12°, stepped, smooth, with 0.5 to 1mm thick grey silt smear.		Very strong locally medium strong thinly bedded dark grey slightly silty fine and medium grained LIMESTONE. 8.35m to 8.45m: medium strong thinly laminated fissile with visible finely disseminated pyrite. 9.80m to 10.00m: medium strong thinly laminated fissile with visible finely disseminated pyrite.
		BH terminated at 10.10m bgl on REs instruction.

Instrument/ Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
12/04/22	13.00	4.30					1.60
06/05/22	16.00	10.10					
09/05/22	10.00	10.10					
09/05/22	11.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)
4.3	10.1	Polymer	100

GENERAL REMARKS

50mm standpipe installed. Response zone 0.50m to 5.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-94403**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-04-22 13-04-22	110.89	E 638,378.4 N 718,463.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			110.49		(0.40) 0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
				109.89		(0.60) 1.00	Medium dense grey silty fine to medium SAND.	
1.00	SPT	N = 16 (2, 3, 3, 4, 4, 5)					Firm grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 33 (4, 6, 7, 7, 8, 11)				(2.00)		
2.00	D5							
2.00-3.00	B7			107.89		3.00		
3.00	SPT	N = 28 (3, 4, 6, 7, 7, 8)					Medium dense grey silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
3.00	D8							
3.00-4.00	B10					(1.00)		
				106.89		4.00		
4.00	SPT	N = 37 (4, 6, 8, 9, 9, 11)					Firm grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
4.00	D11							
4.00-5.00	B13					(1.70)		
5.00	SPT	N = 42 (5, 8, 8, 11, 11, 12)						
5.00	D14							
5.00-5.70	B16			105.19		5.70		
5.70	SPT	50 for 0 mm (25, 50)					BH terminated at 5.70m bgl. Obstruction as probable limestone boulder.	
5.70	D17							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-04-22	17.30	4.00			dry	2.7	3	0:30			BH backfilled with arisings.
13-04-22	08.30	4.00				5.7	5.7	1:00			
13-04-22	12.00	5.70			dry						

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: DK	Logged By: DK

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-95064**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-04-22 04-05-22	113.14	E 638,973.8 N 718,765.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			112.84		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
				112.44		(0.40) 0.70	Medium dense dark brown silty fine SAND.	
				112.14		1.00	Firm brown sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
1.00	SPT	N = 57 (10, 9, 6, 13, 17, 21)					Dense greyish brown silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is fine to coarse.	
1.00 1.00-1.50	D2 B4					(0.90)		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
07-04-22	11.00	1.70				1 1.7	1.3 1.7	0:30 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-95064**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-04-22 04-05-22	113.14	E 638,973.8 N 718,765.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
07.04 1.70		1.70 (50/75mm)	111.24		1.90	1.70 - 1.90 m: overburden	Dense greyish brown silty very sandy subrounded to subangular fine to coarse assorted grey limestone GRAVEL. Sand is fine to coarse. *(continued)*	
	100 (67) 31					1.90 - 8.30 Discontinuities, very closely spaced, locally medium and closely spaced, dipping 12 to 14°, planar, smooth, with 0.5 to 3mm thick grey silt smear.		
2.60		14					Very strong locally medium strong thinly bedded dark grey and grey silty fine grained LIMESTONE.	
	100 (77) 15					3.20 - 3.40 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick brown clay smear and minor orangish brown iron stain, open.		
3.60		17					3.80m to 3.90m: medium strong fissile.	
	100 (77) 34							
		12					4.50m to 4.75m: 10mm wide subvertical white calcitic vein.	
5.10					(6.40)			
		12						
	100 (96) 49							
6.60		7						
	100 (96) 55							
		12						
8.00								
	100 (87)							
04.05 8.30	83	1	104.84		8.30	8.10 - 8.20 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and minor orangish brown iron stain, open.	BH terminated at 8.30m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/04/22	11.00	1.70					
04/05/22	16.00	8.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.7	8.3	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-95595**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-04-22 03-05-22	113.93	E 639,454.4 N 718,996.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			113.73		0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
				113.33		(0.40) 0.60	Firm brown SILT with low cobble content. Cobbles are angular to subangular of limestone.	
1.00	~~B2~~			112.83		(0.50) 1.10	Probable weathered LIMESTONE rock. Medium strong and strong dark grey slightly bioclastic fine grained limestone recovered as angular fine to coarse gravel sized clasts with some blackish grey fine to coarse sand.	
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
07-04-22	16.00	1.10				0.6 1.1	1 1.1	1:00 1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-95595**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-04-22 03-05-22	113.93	E 639,454.4 N 718,996.3

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
07.04 1.10	100 (17) -	1.10 (50/75mm)	112.83		1.10	1.10 - 2.70 Discontinuities, very closely spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 5mm thick light brown clay smear.	Strong locally medium strong thinly bedded dark grey slightly bioclastic silty fine grained LIMESTONE with a little light brown clay.	
2.00		NI			(1.60)			
	100 (63) 21	3	111.23		2.70	2.70 - 8.40 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick orangish brown clay smear. 3.10 - 3.20 Joint, dipping 60°, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear, open. 3.60 - 3.80 Joint, subvertical dip, planar, smooth, with 0.5 to 6mm thick light orangish brown clay smear, open to moderately wide. 4.35 - 4.50 Joint, subvertical dip, stepped, smooth, with 0.5 to 3mm thick orangish brown clay smear, open to moderately wide.	Extremely strong locally very strong thinly bedded dark grey slightly bioclastic silty fine grained LIMESTONE.	
3.60		14						
	100 (94) 43	10						
5.00		NI				5.20 - 5.50 Probable joint, subvertical dip, stepped, smooth, with 0.5 to 20mm thick greyish brown clay smear, open to wide.		
	100 (76) 69	1			(5.70)			
6.50		4						
	100 (88) 74	7						
8.00							7.80m to 7.90m: 10mm wide subvertical white calcitic vein.	
	100 (98)							
03.05 8.40	97	0	105.53		8.40		BH terminated at 8.40m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07/04/22	16.00	1.10					
03/05/22	16.00	8.40					

Rotary Flush

From (m)	To (m)	Type	Return (%)
1.1	2	Water	100
2	8.4	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-96005**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-04-22 29-04-22	107.68	E 639,741.3 N 719,188.1

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			107.48		0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is angular and subangular fine to coarse of shale and limestone.	
						(0.80)	Firm brown SILT.	
				106.68		1.00		
1.00	SPT	N = 21 (2, 3, 4, 5, 5, 7)				(0.50)	Medium dense greyish brown silty very sandy subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL. Sand is medium to coarse.	
1.00	D2			106.18		1.50		
1.00-1.50	B4						Firm grey sandy gravelly SILT. Sand is fine to coarse. Gravel is angular to subangular of limestone.	
						(0.70)		
2.00	D5			105.48		2.20		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
08-04-22	12.00	2.20				2.2	2.2	1:00	2.5	1	50mm standpipe installed. Response zone 3.50m to 6.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller DK/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-96005**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-04-22 29-04-22	107.68	E 639,741.3 N 719,188.1

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS

Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)
08.04 2.20	83	2.20 (50/75mm)	105.48		2.20
2.60	- - 100 (25)				(0.70)
			104.78		2.90
3.00	-				
	100 (81) 7	14			
4.50		7			
	100 (96) 65	8			
6.00					(7.10)
	100 (96) 79	8			
7.50		8			
	100 (96) 77	6			
9.10					
	100 (96) 95	4			
29.04 10.00			97.68		10.00

STRATA DESCRIPTION

Discontinuities / Detail	Main
2.20 - 2.90 m: overburden	Very dense brown slightly sandy slightly silty subrounded to subangular fine to coarse assorted dark grey and grey limestone GRAVEL. Sand is medium to coarse.
2.90 - 10.00 Discontinuities, very closely and closely spaced, locally medium spaced, dipping 45 to 47 and 10 to 12°, stepped, smooth, with 0.5 to 3mm thick light brown clay smear. 2.91 - 3.35 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open. 3.65 - 3.80 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open. 4.20 - 4.32 Joint, subvertical dip, stepped, smooth, with 0.5 to 2mm thick light brown clay smear, open.	Strong thinly bedded dark grey fine grained LIMESTONE.
	BH terminated at 10.00m bgl on REs

Instrument / Backfill

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
08/04/22	12.00	2.20					
29/04/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
2.2	10	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 3.50m to 6.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-96005**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	08-04-22 29-04-22	107.68	E 639,741.3 N 719,188.1

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
								instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	50mm standpipe installed. Response zone 3.50m to 6.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-96364**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-04-22 28-04-22	95.19	E 640,117.9 N 719,422.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			94.99		0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				94.69		0.50	Firm brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 14 (4, 3, 4, 3, 3, 4)				(1.50)	Firm moist grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	D2							
1.00-1.50	B4			93.19		2.00		
2.00	SPT	N = 9 (3, 2, 2, 2, 2, 3)				(0.50)	Loose dark grey very silty very sandy subangular fine to coarse dark grey limestone GRAVEL. Sand is fine to coarse.	
2.00	D5			92.69		2.50		
2.00-2.50	B7						Firm moist grey sandy gravelly SILT. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone.	
3.00	SPT	N = 12 (2, 2, 3, 2, 3, 4)				(2.60)		
3.00	D8							
3.00-3.50	B10							
4.00	SPT	N = 20 (4, 5, 3, 5, 6, 6)					4.00m: becoming stiff.	
4.00	D11							
4.00-4.50	B13							
5.00	SPT	50 for 75 mm (10, 25, 25)		90.09		5.10		
5.00	D14						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-04-22	15.00	5.10				5.1	5.1	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller DK/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-96364**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-04-22 28-04-22	95.19	E 640,117.9 N 719,422.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
11.04 5.10			90.09		5.10	5.10 - 5.20 m: overburden	Dense subangular fine to coarse dark grey limestone GRAVEL.	
			89.99		5.20	5.20 - 10.20 Discontinuities, very closely and closely spaced, locally medium spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 1mm thick dark grey silt smear.	Strong thinly bedded dark grey silty fine grained LIMESTONE.	
	100 (70) 30	15						
6.50		11				5.60 - 5.80 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown silt smear and dark orangish brown iron stain and powder, open.		
	100 (90) 37							
		7			(5.00)			
8.00						8.00 - 8.15 Joint, vertical dip, stepped, rough, with 0.5 to 1mm thick grey silt smear, open.		
	100 (94) 61	6						
9.50								
	100 (97) 74	8						
28.04 10.20			84.99		10.20		BH terminated at 10.20m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/04/22	15.00	5.10					
28/04/22	12.00	10.20					

Rotary Flush

From (m)	To (m)	Type	Return (%)
5.1	10	Water	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-96858**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-04-22 19-04-22	97.31	E 640,506.5 N 719,642.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			97.21		0.10	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
							Firm grey slightly sandy slightly gravelly SILT with high cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 14 (2, 3, 4, 3, 3, 4)						
1.00	D2							
1.00-1.50	B4					(3.50)		
2.00	SPT	N = 12 (3, 3, 3, 3, 3, 3)						
2.00	D5							
2.00-2.50	B7							
3.00	SPT	N = 39 (5, 7, 8, 10, 8, 13)					3.00m: becoming very stiff.	
3.00	D8							
3.00-3.50	B10			93.71		3.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
12-04-22	13.00	3.60				3.6	3.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller DK/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-96858**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-04-22 19-04-22	97.31	E 640,506.5 N 719,642.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
12.04 3.60		3.60 (50/75mm)	93.71		3.60	3.60 - 6.30 m: overburden	Very dense brown slightly silty subrounded to subangular fine to coarse assorted light grey dark grey and grey limestone GRAVEL.	
	53 - -							
5.00					(2.70)			
	93 (8) -							
			91.01		6.30			
6.50						6.30 - 7.60 Non-intact as possible weathered rock. No recovery as probable washout of fines during drilling. No record of cavity.	Possible weathered LIMESTONE rock. Medium strong and strong thinly bedded dark grey slightly bioclastic silty fine and medium grained limestone recovered as subangular to angular fine to coarse gravel and cobble sized clasts with a little grey silt.	
	100 (26) 9	NI			(1.30)			
			89.71		7.60			
8.00		1				7.60 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick light grey silt smear. 7.85 - 7.95 Joint, dipping 60°, undulating, rough, clean, open as drilling induced?	Strong thinly bedded dark grey slightly bioclastic silty fine and medium grained LIMESTONE.	
	100 (93) 75	4			(2.40)	8.70 - 8.75 Joint, dipping 45°, stepped, smooth, with 0.5 to 1mm thick grey silt smear and orangish brown iron stain and powder, open.	9.10m to 9.20m: subvertical white 1 to 5mm wide calcitic vein.	
9.50		2					9.50m to 9.70m: extremely strong light grey bioclastic fine to coarse grained limestone.	
	100 (90) 76							
19.04 10.00			87.31		10.00			
							BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
12/04/22	13.00	3.60						3.6	10	Water	100	BH backfilled with grout.
19/04/22	14.00	10.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97104**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 14-04-22	93.70	E 640,694.3 N 719,780.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-0.70	B1			93.60		0.10	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
						(0.60)	Grey sandy gravelly angular limestone COBBLES and limestone BOULDERS.	
				93.00		0.70		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-04-22	10.00	0.70				0.7	0.7	1:00			BH backfilled with grout.
14-04-22	13.00	8.00									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97104**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 14-04-22	93.70	E 640,694.3 N 719,780.2

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
13.04 0.70	72	0.70 (50/0mm)	93.00		0.70	0.70 - 2.40 Non-intact as weathered rock.	Weathered LIMESTONE rock. Strong and very strong thinly bedded dark grey fine grained limestone recovered as angular fine to coarse gravel sized clasts.	
1.10	-							
	100				(1.70)			
	-	NI						
2.00	-					2.00 - 2.40 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.		
			91.30		2.40	2.40 - 8.00 Discontinuities, closely spaced to 2.90m, then medium spaced, locally closely spaced, dipping 12 to 14 and 18 to 20°, stepped, smooth, with 0.5 to 1mm thick grey silt smear.	Very strong thinly bedded dark bluish grey silty fine grained LIMESTONE.	
	100 (67) 33	8						
3.50		5				3.35 - 3.50 Joint, subvertical dip, undulating, rough, with 0.5 to 2mm thick orangish brown clay smear, open.		
	100 (97) 82							
		4						
5.00					(5.60)		4.80m to 5.10m: vertical 0.5 to 50mm wide white calcitic vein.	
	100 (96) 93	4					5.50m to 5.58m: horizontal white calcitic veinlet.	
6.50		5						
	100 (96) 88							
		6					7.58m to 7.60m: horizontal white calcitic veinlet.	
14.04 8.00			85.70		8.00		BH terminated at 8.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
13/04/22	10.00	0.70					
14/04/22	13.00	8.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
0.7	8	Water	100

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: DK/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97104A**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 13-04-22	93.71	E 640,696.6 N 719,781.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.60)	TOPSOIL: Grass over firm grey sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone.	
				93.11		0.60		
						(0.50)	Obstruction as probable weathered limestone rock.	
1.00	SPT	50 for 75 mm (6, 25, 25, 25)		92.61		1.10		
1.00	D2						BH terminated at 1.10m bgl. Obstruction as probable weathered limestone rock.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-04-22	13.00	1.10				1.1	1.1	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: DK	Logged By: DK

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97423**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	26-04-22 27-04-22	90.08	E 640,811.4 N 720,059.0

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
0.00			89.93		0.15	0.00 - 5.00 m: overburden	TOPSOIL: Grass over firm brown slightly sandy SILT with rootlets. Sand is fine to coarse.	
	20 -						Medium dense grey slightly silty subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
1.00	-							
	20 -							
2.50	-	2.50 (17)			(5.35)		2.50m: medium dense.	
	27 -							
4.00	-	4.00 (20)						
	20 -							
5.50	-	5.50 (24)	84.58		5.50	5.00 - 7.00 No recovery as probable washout of fines during drilling. No record of cavity.	No recovery. No record of cavity.	
	-				(1.50)			
7.00	-	NR	83.08		7.00			
26.04 27.04			82.88		7.20	7.00 - 7.20 m: overburden	Subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content and a little grey silt. Cobbles are subrounded to rounded of grey limestone	
	80 (71) 51					7.20 - 10.50 Discontinuities, medium spaced, locally closely spaced, dipping 14 to 16°, stepped, rough, with 0.5 to 2mm thick grey silt smear.		
8.00		1						

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
26/04/22	17.00	7.00						0	10.5	Polymer	100	10 litres polydrill used. BH backfilled with grout.
27/04/22	08.00	7.00										

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used DB-Boart		Driller DK	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97423**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	26-04-22 27-04-22	90.08	E 640,811.4 N 720,059.0

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
		NI				8.00 - 8.25 Joint, subvertical dip, planar, smooth, with 0.5 to 20mm thick black gravelly silt smear, open to wide. 8.10 - 8.30 Non-intact as black gravelly silt. Gravel is subangular fine and medium. Possible joint infill.	Very strong thinly bedded dark grey silty fine grained LIMESTONE. *(continued)* 8.10m to 8.30m: black gravelly silt. Gravel is subangular fine and medium of dark grey limestone.	
	100 (96) 63	6			(3.30)			
9.50		6						
	100 (96) 70							
27.04 10.50		3	79.58		10.50			
							BH terminated at 10.50m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
27/04/22	11.00	10.50										10 litres polydrill used. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DB-Boart		Driller: DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97788**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 20-04-22	83.73	E 641,143.6 N 720,250.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			83.43		0.30	TOPSOIL: Grass over firm brown gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
						(1.20)	Medium dense grey sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1.00	SPT	N = 17 (2, 3, 3, 4, 5, 5)					1.00m: medium dense.	
1.00	D2			82.23		1.50		
1.00-2.00	B4						Firm grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	SPT	N = 21 (3, 4, 4, 5, 6, 6)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 27 (4, 4, 5, 6, 8, 8)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 28 (4, 4, 6, 7, 8, 7)				(5.30)		
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 34 (5, 6, 7, 7, 9, 11)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	25 for 60 mm (11, 12, 25)						
6.00	D17							
6.00-6.80	B19							
				76.93		6.80		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
13-04-22	17.00	6.80			dry	6.1 6.8	6.3 6.8	0:30 1:00			Falling head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller CR/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97788**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 20-04-22	83.73	E 641,143.6 N 720,250.4

Engineer	Sheet	Status
Mott MacDonald	2 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	Main	Instrument/ Backfill
13.04 6.80		6.80 (50/0mm)	76.93		6.80	6.80 - 8.00 m: overburden	Very stiff light brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to subangular fine to coarse of assorted dark grey and grey limestone. Sand is fine to coarse. Cobbles are subrounded to rounded of grey limestone.	
	67 -				(1.20)			
8.00	-		75.73		8.00	8.00 - 9.00 Non-intact as weathered rock.	Core run - 6.80m to 8.00m: 1 No light grey sandstone boulder 320mm in length.	
	100	8.30 (50/75mm)			(1.00)		Weathered LIMESTONE rock. Very strong thinly bedded dark grey silty fine grained limestone recovered as angular fine to coarse gravel sized clasts.	
9.00	-	NI	74.73		9.00	9.00 - 15.10 Discontinuities, medium spaced, locally closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 1mm thick dark grey silt smear.	Very strong thinly bedded dark grey silty fine and medium grained LIMESTONE with vertical and subvertical white calcitic veinlets.	
	100 (96) 61	8						
9.90								
	100 (88) 53	8						
11.00								
		4						
	100 (96) 89				(6.10)			
12.60		5						
	100 (96) 92							
		3						
14.00								
	100 (98) 91	3						

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
13/04/22	17.00	6.80						6.8	15.1	Water	100	Falling head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97788**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	13-04-22 20-04-22	83.73	E 641,143.6 N 720,250.4

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
20.04 15.10			68.63		15.10			BH terminated at 15.10m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
20/04/22	16.00	15.10										Falling head test expedited in BH. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used	Dando 2000/DB-Boart		Driller CR/DK	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97837**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-04-22 21-04-22	84.50	E 641,192.2 N 720,275.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 4 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over firm brown gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
				84.00		0.50		
1.00	SPT	N = 18 (3, 3, 4, 4, 5, 5)					Firm brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	50 for 0 mm (25, 50)				(3.10)		
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 18 (3, 4, 4, 4, 5, 5)					3.00m: becoming stiff.	
3.00	D8							
3.00-4.00	B10			80.90		3.60		
4.00	SPT	N = 27 (4, 4, 5, 7, 8, 7)					Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. 4.00m: becoming very stiff.	
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 27 (3, 4, 6, 7, 7, 7)					5.00m: becoming stiff.	
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 14 (2, 3, 3, 3, 4, 4)					6.00m: becoming firm.	
6.00	D17							
6.00-7.00	B19					(6.20)		
7.00	SPT	N = 26 (5, 5, 6, 6, 7, 7)					7.00m: becoming stiff.	
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
1.6	2.2	1:30		

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 9.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97837**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-04-22 21-04-22	84.50	E 641,192.2 N 720,275.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 4 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00 8.00 8.00-9.00	SPT D23 B25	N = 26 (3, 4, 5, 7, 7, 7)					Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. *(continued)*	
9.00 9.00 9.00-9.80	SPT D26 B28	N = 43 (4, 5, 8, 11, 12, 12)					9.00m: becoming very stiff.	
				74.70		9.80		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
14-04-22	17.00	9.80			dry	9.8	9.8	1:00			50mm standpipe installed. Response zone 5.50m to 9.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97837**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-04-22 21-04-22	84.50	E 641,192.2 N 720,275.8

Engineer	Sheet	Status
Mott MacDonald	3 of 4	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
14.04 9.80		9.80 (50/0mm)	74.70		9.80	9.80 - 11.50 m: overburden	Very dense grey slightly silty subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL.	
	100 - -				(1.70)			
11.00								
	100 (10) -		73.00		11.50	11.50 - 12.10 Non-intact as possible weathered rock.	Possible weathered LIMESTONE rock. Very strong thinly bedded dark grey silty fine grained limestone recovered as angular fine to coarse gravel sized clasts with some grey silt.	
		NI			(0.60)			
12.10			72.40		12.10	12.10 - 18.70 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 12 to 14°, planar, smooth, with 0.5 to 1mm thick grey silt smear.	Very strong thinly bedded dark grey slightly bioclastic silty fine and medium grained LIMESTONE.	
		8						
	100 (96) 46							
13.60		14						
	100 (94) 82					13.80 - 13.90 Joint, dipping 60°, stepped, rough, with 0.5 to 1mm thick grey silt smear, open.		
14.10								
		8						
	100 (97) 64							
					(6.60)			
15.70		6				15.40 - 15.70 Joint, subvertical dip, undulating, smooth, with 0.5 to 2mm wide aperture over 1mm thick white calcitic veinlet, open.		
	100 (89) 63	7						
17.20								
		9						

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
14/04/22	17.00	9.80					

Rotary Flush

From (m)	To (m)	Type	Return (%)
9.8	18.7	Water	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 9.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97837**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-04-22 21-04-22	84.50	E 641,192.2 N 720,275.8

Engineer	Sheet	Status
Mott MacDonald	4 of 4	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	100 (95) 70	7						Very strong thinly bedded dark grey slightly bioclastic silty fine and medium grained LIMESTONE. *(continued)*	
21.04 18.70			65.80		18.70				
								BH terminated at 18.70m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
21/04/22	15.00	18.70										50mm standpipe installed. Response zone 5.50m to 9.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97881**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-04-22 22-04-22	84.81	E 641,225.8 N 720,290.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 10.00m 6.20m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over soft brown gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
				84.31		0.50		
							Firm brown slightly sandy SILT. Sand is fine.	
1.00	SPT	N = 14 (2, 2, 3, 3, 4, 4)						
1.00	D2							
1.00-2.00	B4					(2.00)		
2.00	SPT	N = 15 (3, 3, 4, 4, 3, 4)						
2.00	D5							
2.00-3.00	B7			82.31		2.50		
							Firm grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. 3.00m: becoming stiff.	
3.00	SPT	N = 21 (3, 4, 5, 5, 5, 6)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 26 (3, 3, 5, 7, 7, 7)				(3.10)		
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 27 (2, 4, 6, 6, 7, 8)						
5.00	D14							
5.00-6.00	B16			79.21		5.60		
							Soft damp grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. 6.00m: becoming firm.	
6.00	SPT	N = 12 (2, 2, 3, 3, 3, 3)	1					
6.00	D17							
6.00-7.00	B19							
							7.00m: Driller observation: boulder.	
7.00	SPT	50 for 150 mm (3, 4, 4, 6, 40)						
7.00	D20							
7.00-8.00	B22					(4.60)		

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
7.3	7.3	0:45		

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 8.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97881**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-04-22 22-04-22	84.81	E 641,225.8 N 720,290.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 10.00m 6.20m 2nd: 3rd:	2 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
8.00	SPT	N = 25 (4, 4, 6, 6, 7, 6)					Soft damp grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. *(continued)*	
8.00	D23						8.00m: becoming stiff.	
8.00-9.00	B25							
9.00	SPT	N = 27 (4, 5, 5, 7, 7, 8)						
9.00	D26							
9.00-10.00	B28							
10.00	SPT	50 for 10 mm (18, 50)		74.61		10.20		
10.00	D29						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
19-04-22	16.00	10.20				9.8	10.2	1:30			50mm standpipe installed. Response zone 5.50m to 8.50m bgl.
22-04-22	13.00	15.60									

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97881**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	19-04-22 22-04-22	84.81	E 641,225.8 N 720,290.3

Engineer	Sheet	Status
Mott MacDonald	3 of 3	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Instrument/ Backfill
19.04 10.20	100 (20) -	10.20 (50/0mm)	74.61		10.20 (0.50)	10.20 - 10.70 m: overburden	Very dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content. Cobbles are of light grey limestone.	
			74.11		10.70			
11.00		5				10.70 - 15.60 Discontinuities, medium spaced, locally very closely and closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 2mm thick grey silt smear.	Very strong locally medium strong thinly bedded dark grey silty fine grained LIMESTONE.	
	100 (74) 45	11				10.95 - 11.10 Joint, subvertical dip, planar, smooth, with 0.5 to 1mm thick brown clay smear, open. 11.45 - 11.65 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.		
12.60		5						
	100 (97) 80	6			(4.90)			
14.00						14.20 - 15.20 Joint, subvertical dip, undulating, smooth, with 0.5 to 1mm thick dark grey silt smear, open.	14.20m to 14.30m: medium strong thinly laminated silty with a little grey silt.	
	100 (87) 43	12						
		8						
22.04 15.60			69.21		15.60		BH terminated at 15.60m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
19/04/22	16.00	10.20					
22/04/22	13.00	15.60					

Rotary Flush

From (m)	To (m)	Type	Return (%)
10.2	15.6	Polymer	100

GENERAL REMARKS

50mm standpipe installed. Response zone 5.50m to 8.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97914**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-04-22 25-04-22	85.25	E 641,255.6 N 720,311.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 9.30m 4.20m 2nd: 3rd:	1 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			84.85		(0.40) 0.40	TOPSOIL: Grass over firm brown gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 18 (2, 3, 4, 4, 5, 5)					Firm brown slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 16 (2, 2, 3, 4, 5, 4)						
2.00	D5					(3.80)		
2.00-3.00	B7							
3.00	SPT	N = 14 (1, 2, 3, 3, 4, 4)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 18 (3, 3, 4, 4, 5, 5)	1	81.05		4.20	4.00m: becoming stiff.	
4.00	D11						Stiff grey SILT.	
4.00-5.00	B13							
5.00	SPT	N = 16 (2, 3, 3, 3, 4, 6)						
5.00	D14					(1.60)		
5.00-6.00	B16							
				79.45		5.80		
6.00	SPT	N = 22 (2, 4, 4, 5, 6, 7)					Stiff damp grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
6.00	D17							
6.00-7.00	B19							
7.00	SPT	50 for 0 mm (25, 50)						
7.00	D20							
7.00-8.00	B22					(3.70)		

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
6.8	7.1	0:45		

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97914**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-04-22 25-04-22	85.25	E 641,255.6 N 720,311.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 9.30m 4.20m 2nd: 3rd:	2 of 3 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00 8.00 8.00-9.00	SPT D23 B25	N = 35 (6, 6, 8, 8, 9, 10)					Stiff damp grey sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. *(continued)*	
9.00 9.00	SPT D26	50 for 255 mm (6, 11, 12, 12, 17, 9)	▼	75.75		9.50		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
20-04-22	16.00	9.50			4.10	9	9.5	1:30			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller CR/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-97914**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	20-04-22 25-04-22	85.25	E 641,255.6 N 720,311.0

Engineer: Mott MacDonald

Sheet 3 of 3

Status FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
20.04 9.50		9.50 (50/0mm)	75.75		9.50	9.50 - 11.80 m: overburden	Very dense subangular to subrounded fine to coarse assorted dark grey light grey and grey limestone GRAVEL with some grey sandy silty clay. Sand is fine to coarse.	
	78 -							
	-				(2.30)			
11.00								
	100 -							
	-							
11.80			73.45		11.80			
	100 (92) -					11.80 - 16.20 Discontinuities, medium spaced, locally closely and very closely spaced, dipping 10 to 12°, stepped, smooth, with 0.5 to 2mm thick grey silt smear, 13.40m to 13.42m with visible surficial finely disseminated pyrite. 11.90 - 12.50 Joint, subvertical dip, stepped, rough, with 0.5 to 1mm thick grey silt smear, open.	Very strong thinly bedded dark grey slightly bioclastic silty fine and medium grained LIMESTONE. 12.30m to 12.40m: subvertical white 5 to 10mm wide calcitic vein.	
12.40		15						
	100 (95) 69						13.20m to 13.42m: visible finely disseminated pyrite 13.25m to 13.30m: thinly laminated white calcitic veinlet. 13.42m to 13.45m: medium strong thinly laminated dark grey.	
		5						
14.00					(4.40)	13.90 - 14.00 Joint, vertical dip, undulating, smooth, with 1 to 2mm thick grey silt smear, open.		
	100 (95) 87	3						
15.50								
	100 (94) 57	3						
25.04 16.20			69.05		16.20	15.90 - 16.20 Joint, subvertical dip, planar, locally stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.	15.90m to 16.10m: bioclastic.	
							BH terminated at 16.20m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
20/04/22	16.00	9.50					4.10
25/04/22	17.00	16.20					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-98002**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-04-22 22-04-22	83.99	E 641,333.0 N 720,356.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 2.20m 5.20m 2nd: 8.50m 2.90m 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			83.79		0.20	TOPSOIL: Grass over firm brown gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
							Medium dense grey slightly gravelly silty fine to coarse SAND. Gravel is subangular to rounded fine to coarse of limestone.	
						(1.30)		
1.00	SPT	N = 15 (2, 3, 3, 4, 4, 4)					1.00m: medium dense.	
1.00	D2							
1.00-2.00	B4			82.49		1.50		
							Firm brown SILT.	
						(0.70)		
2.00	SPT	N = 20 (3, 4, 4, 5, 5, 6)	1	81.79		2.20	2.00m: becoming stiff.	
2.00	D5						Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00-3.00	B7		2					
3.00	SPT	N = 15 (3, 4, 4, 3, 4, 4)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 20 (4, 4, 5, 5, 5, 5)					4.00m: becoming stiff.	
4.00	D11							
4.00-5.00	B13		1					
5.00	SPT	N = 27 (2, 4, 6, 6, 7, 8)						
5.00	D14					(6.40)		
5.00-6.00	B16							
6.00	SPT	N = 37 (6, 7, 6, 8, 12, 11)					6.00m: becoming very stiff.	
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 44 (4, 8, 8, 8, 12, 16)						
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
						4.4	4.7	0:45			Rising head test expedited.
						5	5.4	1:30			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-98002**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-04-22 22-04-22	83.99	E 641,333.0 N 720,356.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 4.50m 2.20m 5.20m 2nd: 8.50m 2.90m 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
8.00	SPT	50 for 200 mm (12, 16, 16, 17, 17)					Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. *(continued)*	
8.00	D23			75.39		8.60		
8.60	SPT	50 for 0 mm (25, 50)					BH terminated at 8.60m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
22-04-22	17.00	8.60									Rising head test expedited. BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-98314**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-04-22 25-04-22	84.56	E 641,588.8 N 720,532.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.80m 1.30m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			84.26		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
							Firm brown SILT.	
1.00	SPT	N = 11 (1, 1, 3, 3, 3, 2)	1					
1.00	D2							
1.00-2.00	B4					(2.50)		
2.00	SPT	N = 13 (2, 2, 3, 3, 3, 4)						
2.00	D5							
2.00-3.00	B7			81.76		2.80		
							Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
3.00	SPT	N = 20 (4, 5, 5, 4, 5, 6)					3.00m: becoming stiff.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 25 (4, 4, 5, 6, 6, 8)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 22 (3, 3, 4, 5, 6, 7)						
5.00	D14					(5.00)		
5.00-6.00	B16							
6.00	SPT	N = 19 (4, 4, 4, 5, 5, 5)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 21 (3, 4, 4, 5, 6, 6)						
7.00	D20							
7.00-7.80	B22							
			1	76.76		7.80		
	SPT						BH terminated at 7.80m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
25-04-22	15.00	7.80				7.7	7.8	1:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-98314**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	25-04-22 25-04-22	84.56	E 641,588.8 N 720,532.9

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.80m 1.30m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
7.80		50 for 0 mm (25, 50)						
7.80	D23							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-98602**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	26-04-22 26-04-22	83.03	E 641,950.5 N 720,520.2

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 1 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			82.53		(0.50) 0.50	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
				82.23		0.80	Limestone BOULDERS.	
1.00	SPT	N = 14 (2, 2, 3, 3, 4, 4)				(0.70)	Firm brown sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4			81.53		1.50		
				81.03		(0.50) 2.00	Loose brownish grey silty gravelly medium to coarse SAND. Gravel is subangular to rounded fine to coarse of limestone.	
2.00	SPT	N = 8 (1, 2, 2, 1, 2, 3)					2.00m: loose. Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 9 (1, 2, 3, 1, 2, 3)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 19 (3, 3, 4, 5, 5, 5)					4.00m: becoming stiff.	
4.00	D11							
4.00-5.00	B13					(5.30)		
5.00	SPT	N = 21 (2, 4, 5, 5, 6, 5)					5.00m: becoming slightly sandy slightly gravelly.	
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 28 (4, 5, 6, 6, 8, 8)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	25 for 75 mm (19, 6, 25)		75.73		7.30		
7.00	D20							
7.30	B21	50 for 0 mm (25, 50)					BH terminated at 7.30m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
26-04-22	15.00	7.30			dry	0.5 7	0.8 7.3	1:00 1:30			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-99204**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-04-22 27-04-22	92.75	E 642,436.8 N 720,761.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			92.45		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
1.00	SPT	N = 27 (4, 4, 5, 6, 8, 8)					Stiff brownish grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 38 (5, 5, 6, 10, 10, 12)					2.00m: becoming very stiff.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 25 (4, 4, 6, 6, 6, 7)					3.00m: becoming stiff.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 20 (3, 4, 4, 5, 5, 6)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 23 (4, 6, 6, 5, 5, 7)						
5.00	D14					(10.20)		
5.00-6.00	B16							
6.00	SPT	25 for 60 mm (25, 27, 25)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 19 (3, 3, 4, 5, 5, 5)					7.00m: becoming slightly sandy slightly gravelly.	
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
2.4	2.4	0:45		
5.9	6.3	1:00		

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-99204**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-04-22 27-04-22	92.75	E 642,436.8 N 720,761.4

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	N = 25 (4, 4, 5, 6, 7, 7)					Stiff brownish grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone. *(continued)*	
8.00	D23							
8.00-9.00	B25							
9.00	SPT	27 for 255 mm (3, 6, 5, 7, 7, 8)						
9.00	D26							
9.00-10.00	B28							
10.00	SPT	N = 34 (6, 6, 7, 7, 10, 10)					10.00m: becoming very stiff.	
10.00	D29			82.25		10.50		
10.00-10.80	B31			81.95		10.80	Obstruction as possible limestone rock.	
10.80	SPT	50 for 0 mm (25, 50)					BH terminated at 10.80m bgl. Obstruction as possible limestone rock.	
10.80	D32							

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
27-04-22	17.30	10.80			dry

Chiselling

From	To	Hours
10.7	10.8	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-99777**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	28-04-22 28-04-22	91.88	E 642,894.4 N 721,044.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 8.10m 4.50m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			91.58		0.30	TOPSOIL: Grass over firm brown SILT.	
1.00	SPT	N = 6 (2, 2, 1, 1, 2, 2)					Soft brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 9 (1, 2, 2, 3, 2, 2)					2.00m: becoming firm.	
2.00	D5					(4.20)		
2.00-3.00	B7							
3.00	SPT	N = 11 (2, 2, 3, 3, 2, 3)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 12 (2, 3, 2, 3, 3, 4)						
4.00	D11		1					
4.00-5.00	B13			87.38		4.50		
5.00	SPT	N = 24 (4, 5, 5, 6, 6, 7)					Stiff greyish black slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 53 (8, 11, 12, 16, 14, 11)					6.00m: becoming very stiff.	
6.00	D17					(3.70)		
6.00-7.00	B19							
7.00	SPT	N = 20 (3, 5, 6, 6, 4, 4)					7.00m: becoming stiff.	
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations					
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m

Chiselling			Water Added	
From	To	Hours	From	To
6.3	6.5	0:30		
7.9	8.2	1:30		

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-99777**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	28-04-22 28-04-22	91.88	E 642,894.4 N 721,044.3

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 8.10m 4.50m 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	50 for 85 mm (10, 25, 39, 11)	▼	83.68		8.20		
8.00	SPT D23						BH terminated at 8.20m bgl. Obstruction as possible limestone boulder.	
8.20		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
28-04-22	15.00	8.20			4.50						BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-100012**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-04-22 29-04-22	90.18	E 643,105.0 N 721,114.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1					(0.50)	TOPSOIL: Grass over soft dark blackish brown peaty SILT.	
				89.68		0.50		
							Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	SPT	N = 13 (2, 3, 3, 3, 4, 3)						
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 15 (3, 3, 3, 4, 4, 4)					2.00m: becoming stiff.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 21 (3, 4, 5, 5, 5, 6)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 23 (4, 3, 4, 6, 6, 7)						
4.00	D11					(7.70)		
4.00-5.00	B13							
5.00	SPT	N = 18 (3, 3, 4, 6, 4, 4)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 27 (4, 6, 6, 7, 7, 7)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 34 (5, 5, 8, 7, 9, 10)					7.00m: becoming very stiff.	
7.00	D20							
7.00-8.00	B22							

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
						7.8	8.2	2:00			BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-100012**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	29-04-22 29-04-22	90.18	E 643,105.0 N 721,114.0

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
8.00	SPT	50 for 30 mm (11, 18, 50)		81.98		8.20		
8.00	SPT D23						BH terminated at 8.20m bgl. Obstruction as possible limestone boulder.	
8.20		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
29-04-22	15.00	8.20			dry						BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-100203**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-05-22 09-05-22	90.50	E 643,338.4 N 721,160.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 6.50m 4.70m 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			90.10		(0.40) 0.40	TOPSOIL: Grass over firm brown SILT.	
				89.50		(0.60) 1.00	Very loose grey silty fine to medium SAND.	
1.00	SPT	N = 1 (0, 0, 0, 1, 0, 0)					Soft grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 8 (1, 1, 2, 2, 2, 2)						
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 8 (1, 2, 1, 2, 2, 3)					3.00m: becoming firm.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 15 (2, 2, 3, 4, 4, 4)				(5.90)		
4.00	D11							
4.00-5.00	B13		1					
5.00	SPT	N = 14 (3, 3, 4, 3, 3, 4)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 24 (4, 4, 5, 5, 6, 8)					6.00m: becoming stiff.	
6.00	D17							
6.00-6.90	B19		1					
				83.60		6.90		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
03-05-22	15.00	6.90				6.7	6.9	1:00			50mm standpipe installed. Response zone 2.50m to 6.90m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-100203**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	03-05-22 09-05-22	90.50	E 643,338.4 N 721,160.8

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS				STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities / Detail	DESCRIPTION Main	Instrument/ Backfill
03.05 6.90		6.90 (50/0mm)	83.60		6.90	6.90 - 10.00 m: overburden	Very dense subangular to subrounded fine to coarse assorted dark grey and grey limestone GRAVEL with low cobble content and some grey slightly sandy silt. Sand is coarse. Cobbles are subrounded to rounded of grey limestone.	
	100							
8.00		8.00 (50)			(3.10)			
	40							
9.50								
	80							
09.05 10.00			80.50		10.00		BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
03/05/22	15.00	6.90					
09/05/22	17.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
6.9	10	Polymer	100

GENERAL REMARKS

50mm standpipe installed. Response zone 2.50m to 6.90m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-101404**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-05-22 04-05-22	80.55	E 644,410.3 N 721,680.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			80.25		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
						(1.20)	Firm brown sandy SILT. Sand is fine to coarse.	
1.00	SPT	N = 11 (2, 3, 2, 3, 3, 3)						
1.00	D2			79.05		1.50		
1.00-2.00	B4						Soft grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of grey limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	SPT	N = 14 (2, 3, 3, 3, 4, 4)					2.00m: becoming firm.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 20 (2, 2, 4, 4, 6, 6)					3.00m: becoming stiff.	
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 16 (14, 12, 6, 4, 3, 3)						
4.00	D11							
4.00-5.00	B13					(6.20)		
5.00	SPT	N = 22 (4, 4, 5, 5, 6, 6)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	N = 24 (3, 4, 5, 6, 6, 7)						
6.00	D17							
6.00-7.00	B19							
7.00	SPT	N = 22 (5, 4, 4, 5, 6, 7)						
7.00	D20							
				72.85		7.70		
	SPT						BH terminated at 7.70m bgl. Obstruction as possible limestone boulder.	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
04-05-22	14.00	7.70			dry

Chiselling

From	To	Hours
3.9	4.2	1:00
7.5	7.7	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-101404**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	04-05-22 04-05-22	80.55	E 644,410.3 N 721,680.5

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	2 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	**DESCRIPTION**	
7.70		50 for 0 mm (25, 50)						

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	BH backfilled with arisings.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000		Driller: CR	Logged By: CR

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-101953**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-05-22 12-05-22	68.00	E 644,863.8 N 721,912.7

Engineer	Sheet	Status
Mott MacDonald	1 of 2	FINAL / REVFINAL

RUN DETAILS						STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Instrument/ Backfill
0.00						0.00 - 5.50 m: overburden		Reeds over plastic dark blackish brown amorphous PEAT with rootlets.	
	65 - -				(1.60)				
			66.40		1.60				
			66.10		1.90			Firm dark orangish brown organic SILT with randomly orientated plant fibres and rootlets.	
2.00		2.00 (12)						Medium dense grey gravelly silty fine to coarse SAND. Gravel is subangular fine to coarse of assorted dark grey and grey limestone.	
	33 - -				(1.30)				
			64.80		3.20				
			64.50		3.50			Greenish grey sandy SILT. Sand is fine.	
3.50		3.50 (15)						Medium dense greenish grey silty fine SAND.	
	67 - -				(1.50)				
5.00			63.00		5.00				
		5.00 (50/75mm)			(0.50)			Very dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone.	
			62.50		5.50				
	100 (65) 39	3				5.50 - 10.00 Discontinuities, medium spaced, locally closely spaced, dipping 10 to 12°, planar, smooth, with 0.5 to 2mm thick dark grey silt smear.		Very strong thinly bedded dark grey silty fine and medium grained LIMESTONE.	
6.50		12				5.51 - 5.75 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and orange and orangish brown iron stain and smear, open.			
	100 (92) 61	1				6.60 - 6.95 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick orangish brown clay smear and orange and dark orangish brown iron stain, open.		7.00m to 7.05m: medium strong thinly laminated fine grained with orangish brown iron stain and powder.	
8.00					(4.50)				

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing

Rotary Flush

From (m)	To (m)	Type	Return (%)
0	10	Polymer	100

GENERAL REMARKS

5 litres polydrill used. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DB-Boart		Driller: DK	Logged By: EAT

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-101953**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	12-05-22 12-05-22	68.00	E 644,863.8 N 721,912.7

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Instrument/ Backfill
	100 (81) 80	1						Very strong thinly bedded dark grey silty fine and medium grained LIMESTONE. *(continued)*	
9.50	100 (64) 32	3							
T2.05 10.00			58.00		10.00				
								BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing	From (m)	To (m)	Type	Return (%)	
12/05/22	16.00	10.00										5 litres polydrill used. BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used DB-Boart		Driller DK	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-102037**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-05-22 13-05-22	73.90	E 644,960.3 N 721,989.8

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument/ Backfill
0.00-1.00	B1			73.60		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	SPT	N = 14 (2, 3, 3, 3, 4, 4)				(1.80)	Firm grey slightly sandy gravelly slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2							
1.00-2.00	B4							
2.00	SPT	N = 32 (4, 5, 7, 7, 9, 9)		71.80		2.10		
2.00	D5						Dense silty sandy subangular to subrounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
2.00-3.00	B7							
3.00	SPT	N = 32 (6, 6, 7, 7, 8, 10)						
3.00	D8							
3.00-4.00	B10					(3.10)		
4.00	SPT	N = 38 (5, 6, 9, 9, 10, 10)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	50 for 0 mm (25, 50)		68.70		5.20		
5.00	D14						*Borehole continued by coring*	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
10-05-22	13.00	5.20				4.9	5.2	1:30			50mm standpipe installed. Response zone 2.50m to 6.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-102037**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-05-22 13-05-22	73.90	E 644,960.3 N 721,989.8

Engineer: Mott MacDonald

Sheet 2 of 2

Status FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
10.05 5.20		5.20 (50/0mm)	68.70		5.20	5.20 - 7.20 m: overburden	Very dense subangular to subrounded fine to coarse assorted grey limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of grey limestone	
	33 -				(2.00)			
6.50	-							
	87 (9)	7.00 (50/150mm)	66.70		7.20	7.20 - 9.40 Non-intact as possible weathered rock.	Weathered LIMESTONE rock. Strong dark grey silty fine grained limestone recovered as angular fine to coarse gravel sized clasts with some dark grey sandy silt. Sand is fine and medium.	
	-							
8.00		NI			(2.20)			
	100 (26)							
	10		64.50		9.40			
9.50						9.40 - 10.10 Discontinuities, closely and very closely spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick dark greyish brown clay smear.	Very strong thinly bedded dark grey silty fine grained LIMESTONE.	
	100 (73)	13			(0.70)			
13.05 10.10	20		63.80		10.10		BH terminated at 10.10m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
10/05/22	13.00	5.20					
13/05/22	16.00	10.10					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

50mm standpipe installed. Response zone 2.50m to 6.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-102528**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-05-22 16-05-22	75.85	E 645,366.1 N 722,135.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			75.55		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	SPT	N = 11 (2, 3, 2, 3, 3, 3)				(1.20)	Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
1.00	D2			74.35		1.50		
1.00-2.00	B4					(0.70)	Medium dense brown sandy subangular to subrounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
2.00	SPT	N = 7 (3, 3, 2, 1, 2, 2)		73.65		2.20	2.00m: becoming loose.	
2.00	D5						Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
2.00-3.00	B7							
3.00	SPT	N = 9 (2, 2, 1, 2, 3, 3)						
3.00	D8							
3.00-4.00	B10							
4.00	SPT	N = 18 (3, 3, 4, 4, 5, 5)						
4.00	D11							
4.00-5.00	B13					(4.50)		
5.00	SPT	N = 36 (4, 6, 8, 8, 10, 10)						
5.00	D14							
5.00-6.00	B16							
6.00	SPT	50 for 220 mm (11, 11, 14, 16, 20)						
6.00	D17							
				69.15		6.70		
							Borehole continued by coring	

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
10-05-22	17.00	2.00			
11-05-22	08.00	2.00			
11-05-22	12.00	6.70			dry

Chiselling

From	To	Hours
4.5	4.7	0:30
6.5	6.7	1:00

Water Added

From	To

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-102528**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-05-22 16-05-22	75.85	E 645,366.1 N 722,135.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument / Backfill
11.05 6.70		6.70 (50/0mm)	69.15		6.70	6.70 - 8.10 m: overburden	Stiff light brown sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded fine to coarse of assorted dark grey and grey limestone. Cobbles are subrounded to rounded of grey limestone	
	40 -				(1.40)			
8.00	-		67.75		8.10		Core run - 8.00m to 9.00m: 1 No light brownish grey bioclastic limestone boulder 330mm in length.	
	100 (56) 33	NI			(0.90)	8.10 - 9.00 Non-intact as possible weathered rock.	Weathered LIMESTONE rock. Strong thinly bedded dark grey bioclastic fine to coarse grained limestone recovered as angular fine to coarse gravel cobble and boulder sized clasts with a little grey silt.	
9.00			66.85		9.00			
	100 (71) 23	15			(1.00)	9.00 - 10.00 Discontinuities, closely and very closely spaced, locally medium spaced, dipping 12 to 14°, stepped, smooth, with 0.5 to 2mm thick grey silt smear.	Strong locally medium strong thinly laminated brownish grey and grey silty fine grained LIMESTONE.	
16.05 10.00			65.85		10.00	9.01 - 9.15 Joint, subvertical dip, stepped, rough, with 0.5 to 2mm thick brownish grey silt smear, open.	BH terminated at 10.00m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/05/22	12.00	6.70					
16/05/22	16.00	10.00					

Rotary Flush

From (m)	To (m)	Type	Return (%)
6.7	8	Polymer	100
8	10	Polymer	0

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller: CR/DK	Logged By: EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

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BOREHOLE LOG

Project	Location	BOREHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-103234**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-05-22 17-05-22	80.11	E 645,988.4 N 722,512.6

Engineer	GROUNDWATER STRIKES	Sheet
Mott MacDonald	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 2 Status FINAL / REVFINAL

SAMPLES & TESTS			Water	STRATA				Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
0.00-1.00	B1			79.81		0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	SPT	N = 17 (3, 4, 4, 5, 4, 4)				(1.70)	Medium dense grey very silty very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of limestone.	
1.00	D2							
1.00-2.00	B4			78.11		2.00		
2.00	SPT	N = 18 (3, 3, 3, 4, 5, 6)					Firm grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of grey limestone.	
2.00	D5							
2.00-3.00	B7							
3.00	SPT	N = 13 (2, 2, 2, 3, 4, 4)						
3.00	D8							
3.00-4.00	B10					(3.60)		
4.00	SPT	N = 16 (3, 4, 3, 4, 4, 5)						
4.00	D11							
4.00-5.00	B13							
5.00	SPT	N = 25 (3, 6, 5, 6, 6, 8)						
5.00	D14							
				74.51		5.60		
							Borehole continued by coring	

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
11-05-22	13.00	5.60			dry	5.6	5.6	1:00			BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller CR/DK	Logged By EAT

IDL AGS4 UK BH WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**BH-103234**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-05-22 17-05-22	80.11	E 645,988.4 N 722,512.6

Engineer	Sheet	Status
Mott MacDonald	2 of 2	FINAL / REVFINAL

RUN DETAILS					STRATA			
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Index	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Instrument/ Backfill
11.05 5.60	63 (31) 8	5.60 (50/0mm) 9	74.51		5.60	5.60 - 10.30 Discontinuities, very closely and closely spaced, locally medium spaced, dipping 10 to 12 and 56 to 58°, planar, smooth, with 0.5 to 1mm thick grey silt smear.	Strong thinly bedded dark grey slightly bioclastic silty fine grained LIMESTONE.	
6.10								
	100 (85) 18	10						
7.60		10			(4.70)			
	100 (81) 37	9						
9.10							9.10m to 9.40m: very strong.	
	100 (95) 57	10						
17.05 10.30		2	69.81		10.30		10.20m to 10.25m: weak thinly laminated grey silt as probable residual rock.	
							BH terminated at 10.30m bgl on REs instruction.	

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
11/05/22	13.00	5.60					
17/05/22	16.00	10.30					

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

BH backfilled with grout.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: Dando 2000/DB-Boart		Driller CR/DK	Logged By EAT

IDL AGS4 UK DH (SPTS) WSP LOT2 AGS 4 PIPE RK CPNRC TO FINAL MARCH 23 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Appendix 6B
Dynamic Sampling Records
Part 1: Dynamic Probes

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DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-40095**

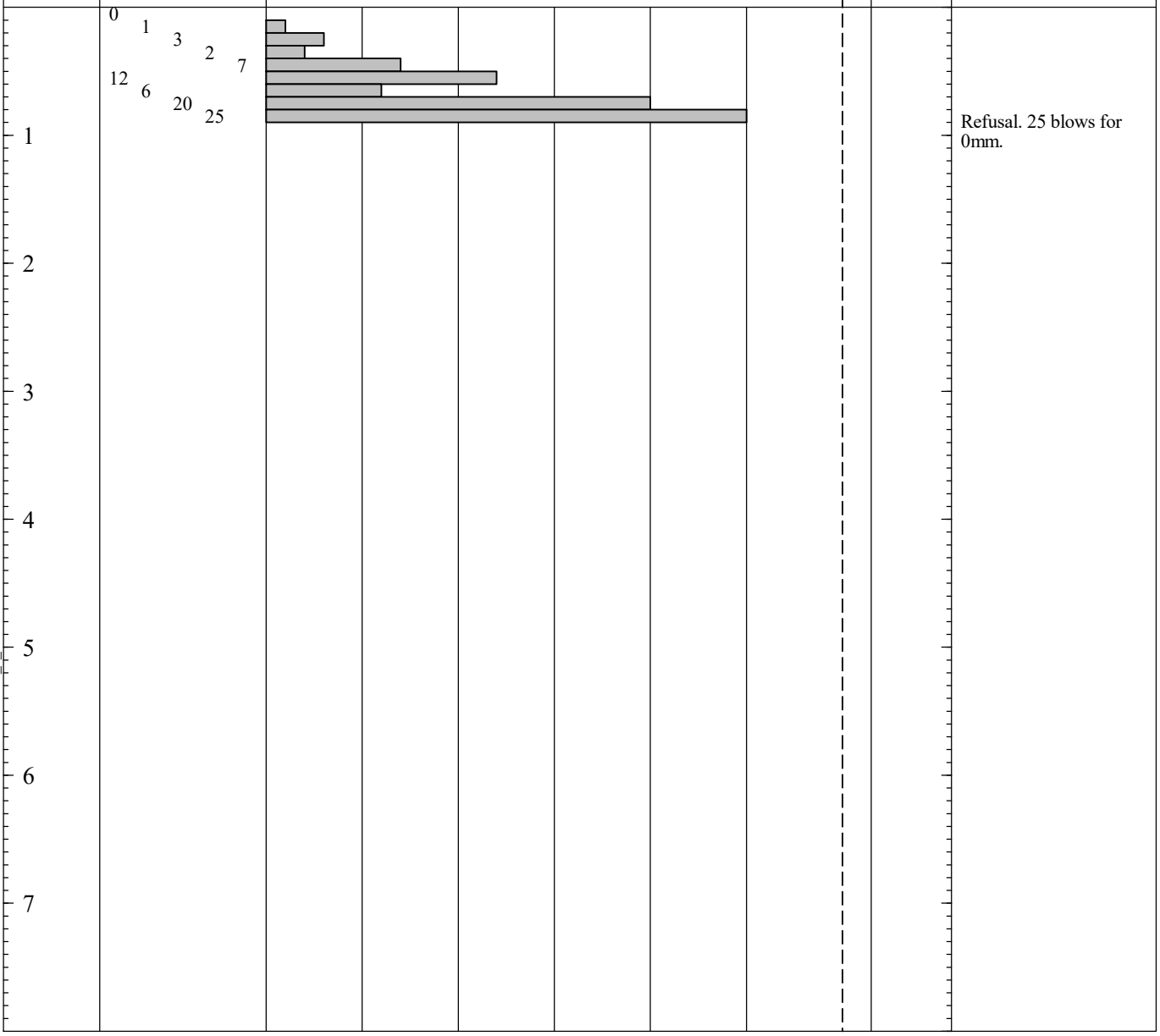
Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-10-21 21-10-21	88.03	E 600,232.9 N 690,284.0

Engineer: Mott MacDonald

Sheet 1 of 1

Status FINAL / REV1

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
0	1			
	3			
	2			
	7			
	12			
	6			
	20			
	25			Refusal. 25 blows for 0mm.



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 0.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

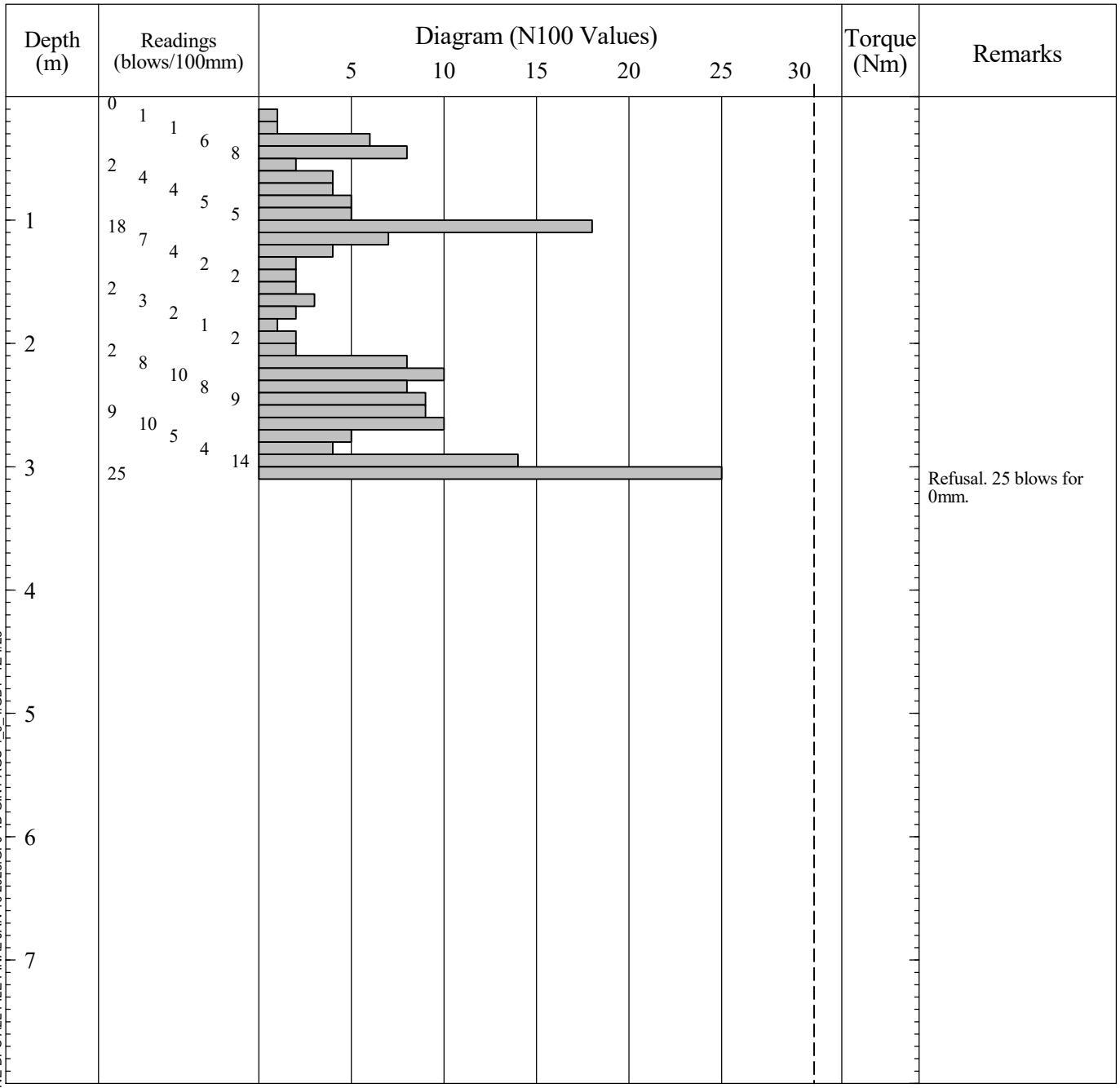
Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-40341**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	21-10-21 21-10-21	87.20	E 600,423.9 N 690,440.2

Engineer: Mott MacDonald

Sheet 1 of 1

Status FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 3.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-40997**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	22-10-21 22-10-21	82.90	E 600,836.3 N 690,931.2

Engineer	Sheet	Status
Mott MacDonald	1 of 1	FINAL / REV1

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
0	1 1 2 2			
1	6 4 3 4 3			
2	5 2 3 6 7			
3	4 4 7 8 6			
4	9 9 5 5 2			
5	2 3 4 10 14			
6	25			Refusal. 25 blows for 50mm.
7				

Diagram (N100 Values) axis: 5, 10, 15, 20, 25, 30

Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 3.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

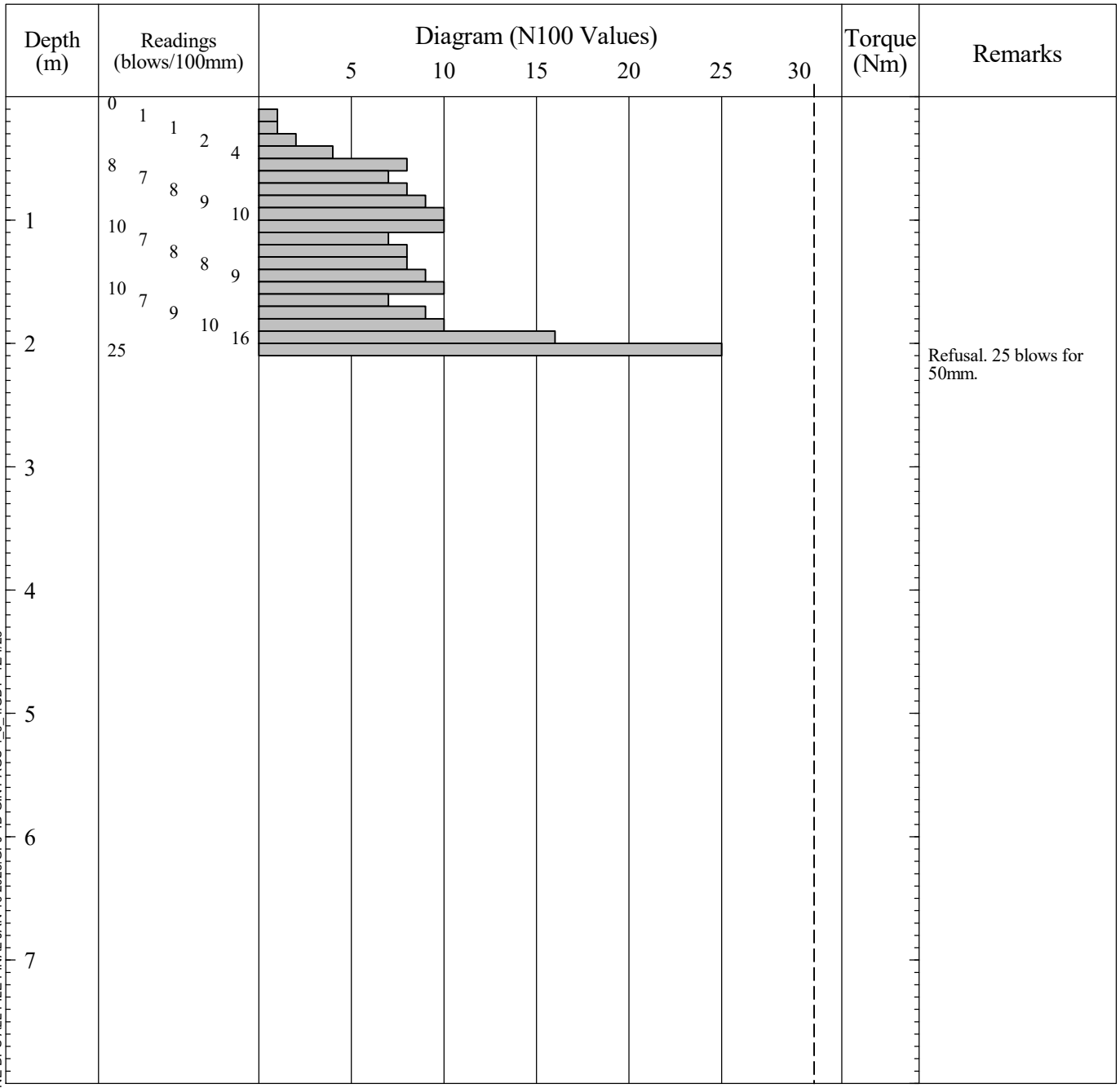
Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-42600**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	11-11-21 11-11-21	73.57	E 601,313.8 N 692,195.9

Engineer: Mott MacDonald

Sheet 1 of 1

Status FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

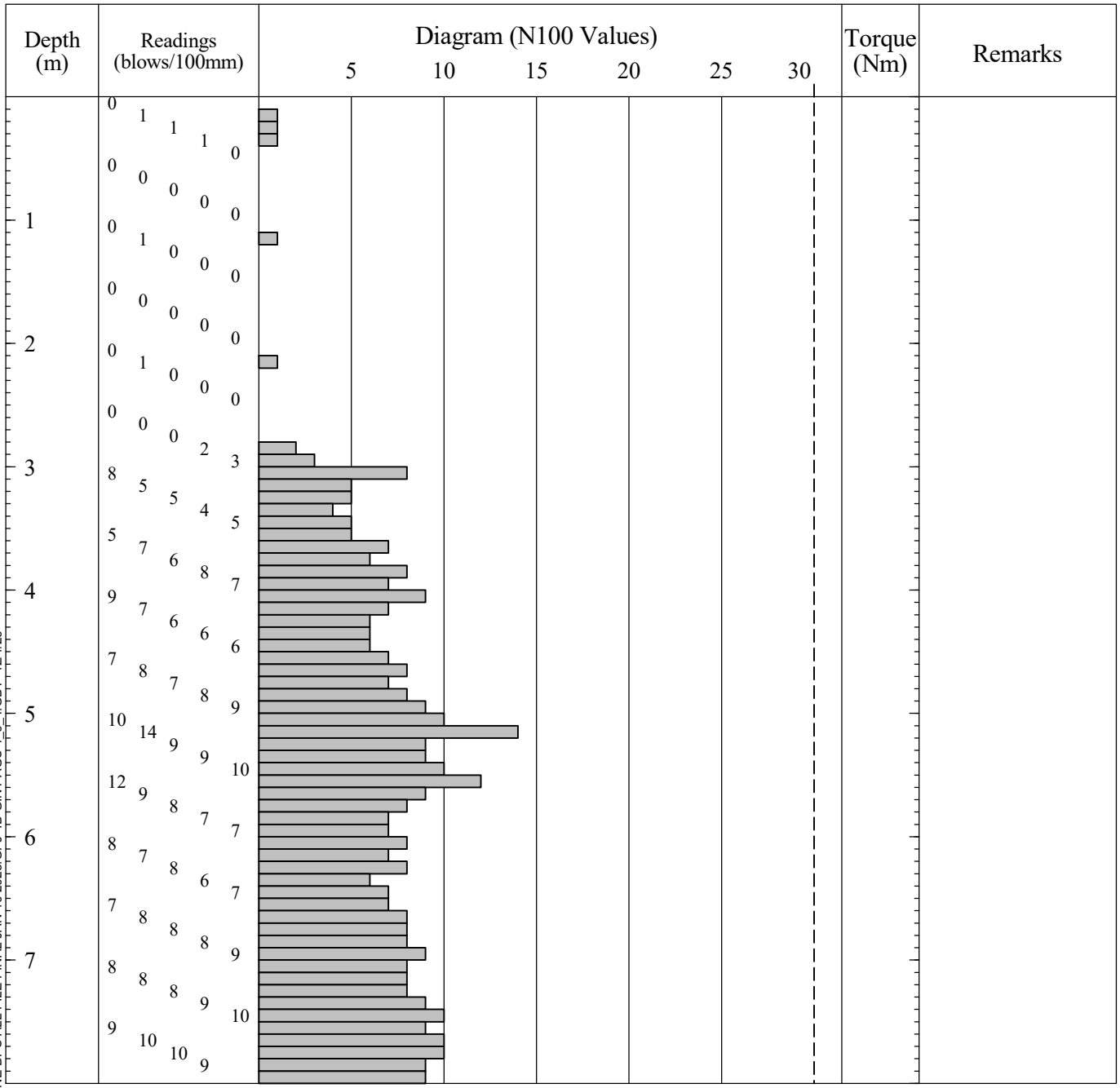
Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-49634**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-12-21 01-12-21	65.54	E 614,407.0 N 705,342.4

Engineer: Mott MacDonald

Sheet 1 of 2

Status FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 8.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-49634**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	01-12-21 01-12-21	65.54	E 614,407.0 N 705,342.4

Engineer: Mott MacDonald

Sheet 2 of 2

Status FINAL / REV1

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
9	11, 13, 15, 18, 25 / 9, 18	5 10 15 20 25 30		Refusal. 25 blows for 100mm.
10				
11				
12				
13				
14				
15				

Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 8.50m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

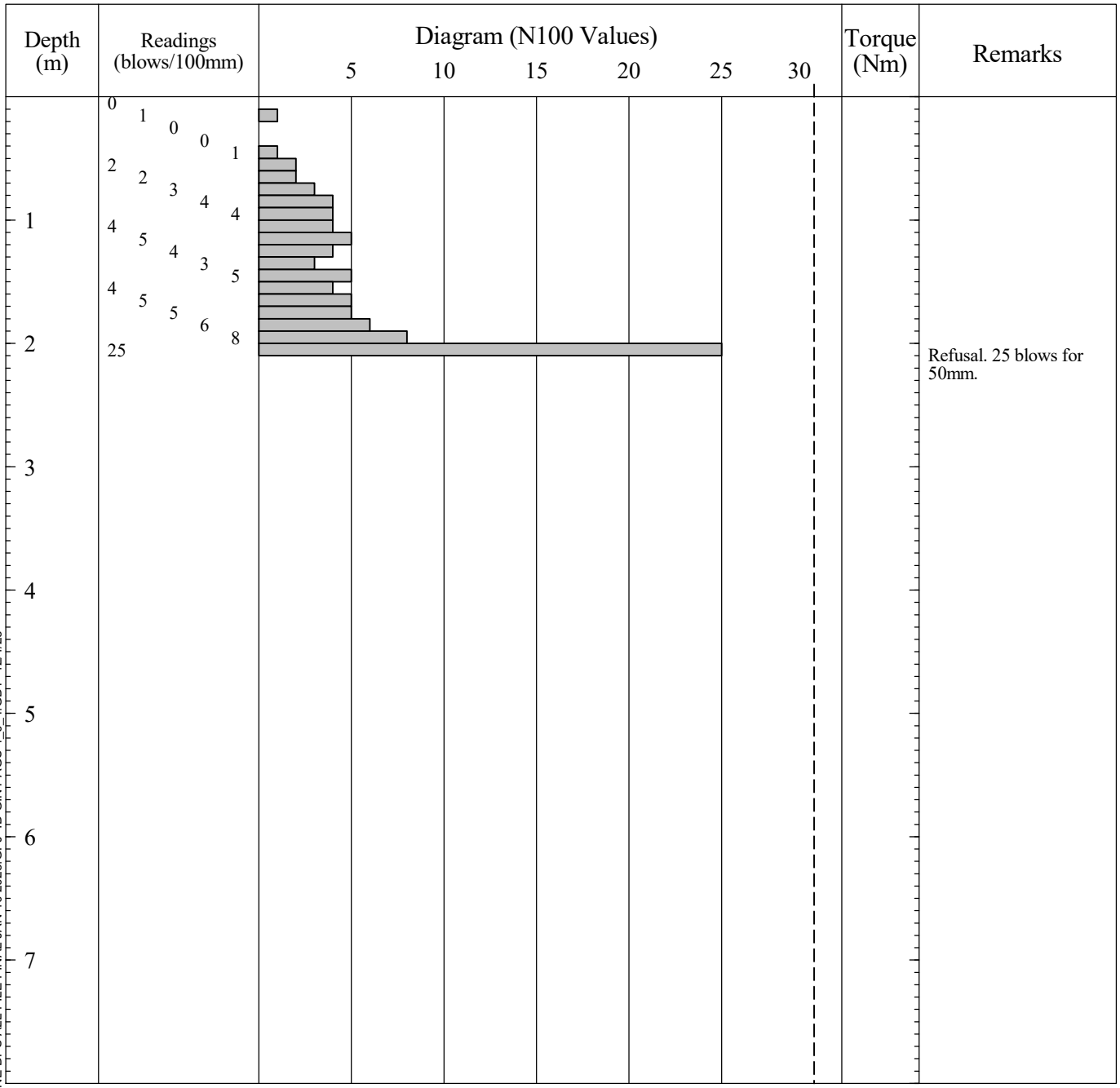
Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-54163**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-12-21 14-12-21	80.27	E 608,780.5 N 698,599.5

Engineer	Sheet	Status
Mott MacDonald	1 of 1	FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

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DYNAMIC PROBE LOG

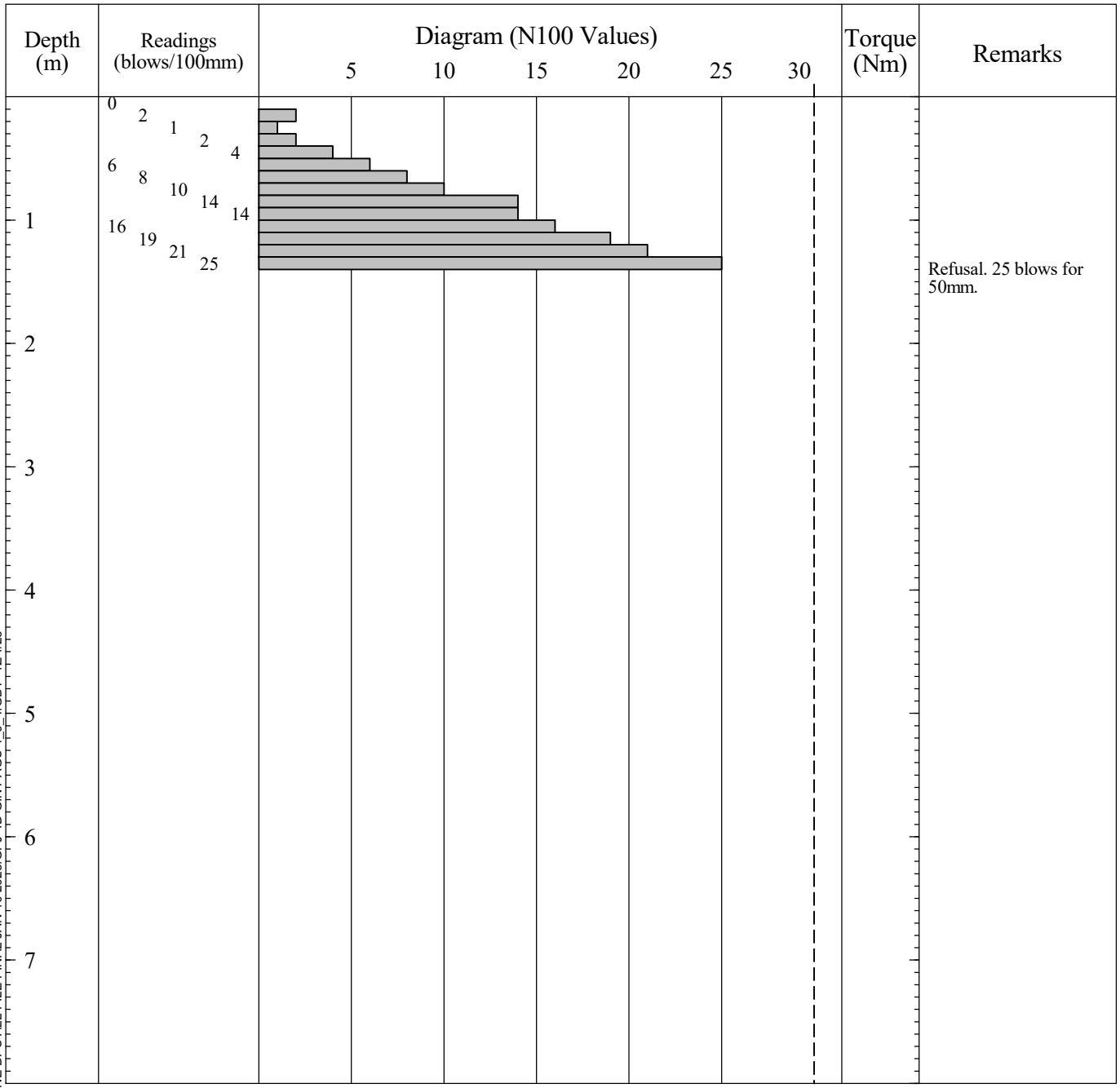
Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-54214**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-12-21 14-12-21	80.48	E 608,833.2 N 698,639.7

Engineer: Mott MacDonald

Sheet 1 of 1

Status FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 1.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

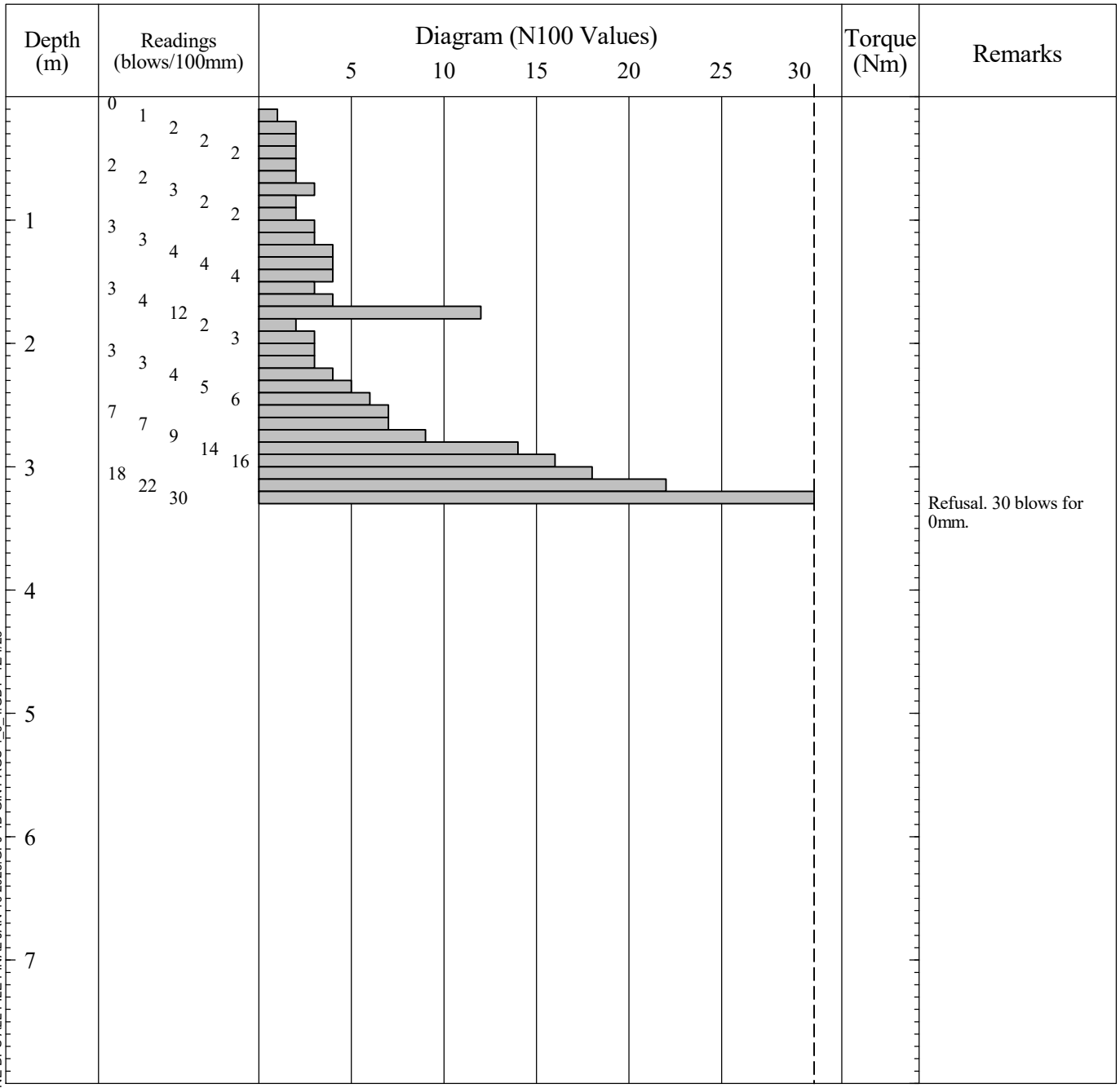
Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-61602**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-01-22 18-01-22	71.58	E 613,106.1 N 703,660.1

Engineer: Mott MacDonald

Sheet 1 of 1

Status FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 3.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: CR	Logged By: CR

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

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DYNAMIC PROBE LOG

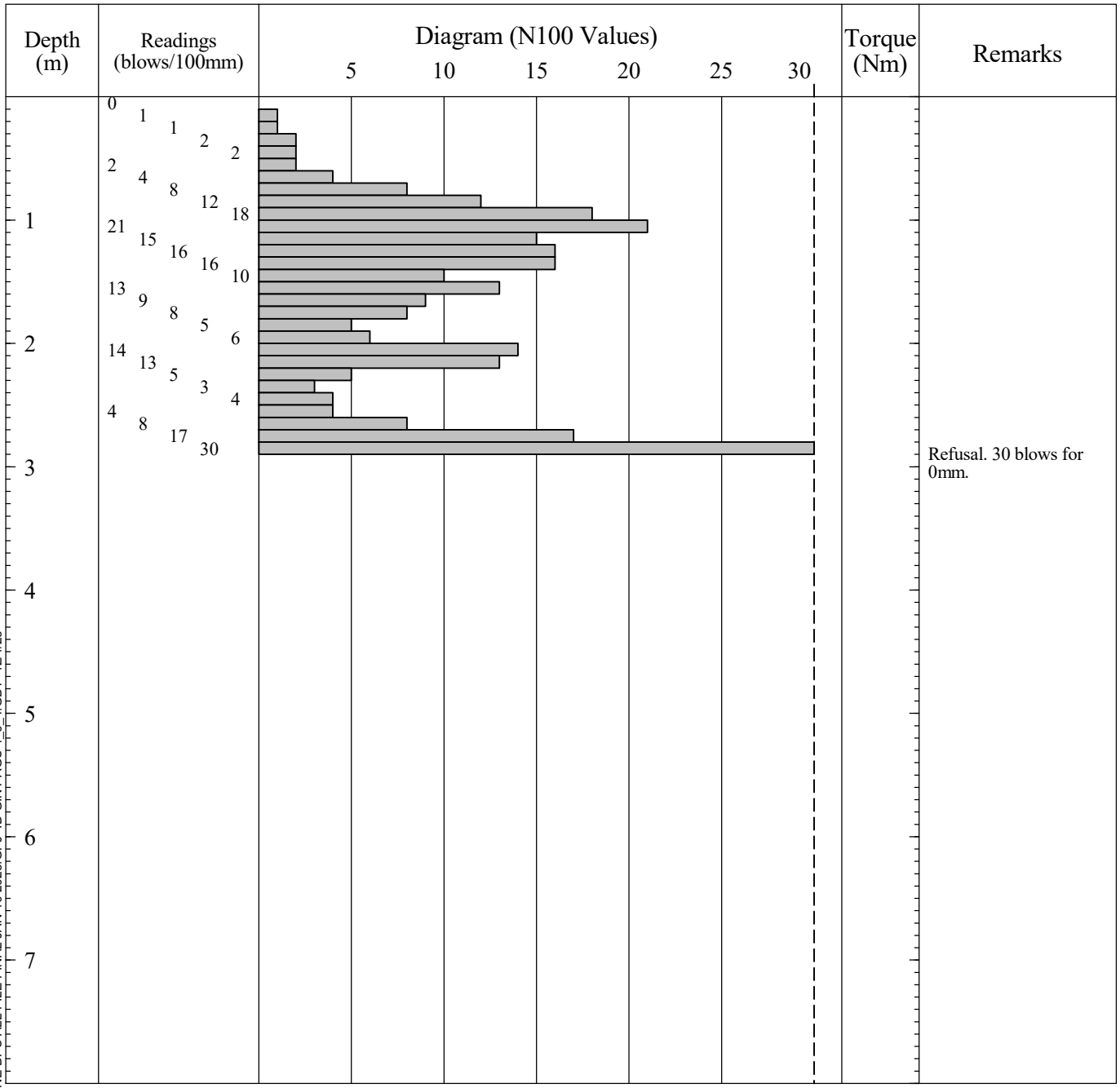
Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-61804**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	18-01-22 18-01-22	71.82	E 613,305.8 N 703,708.6

Engineer: Mott MacDonald

Sheet 1 of 1

Status FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 2.80m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: CR	Logged By: CR

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

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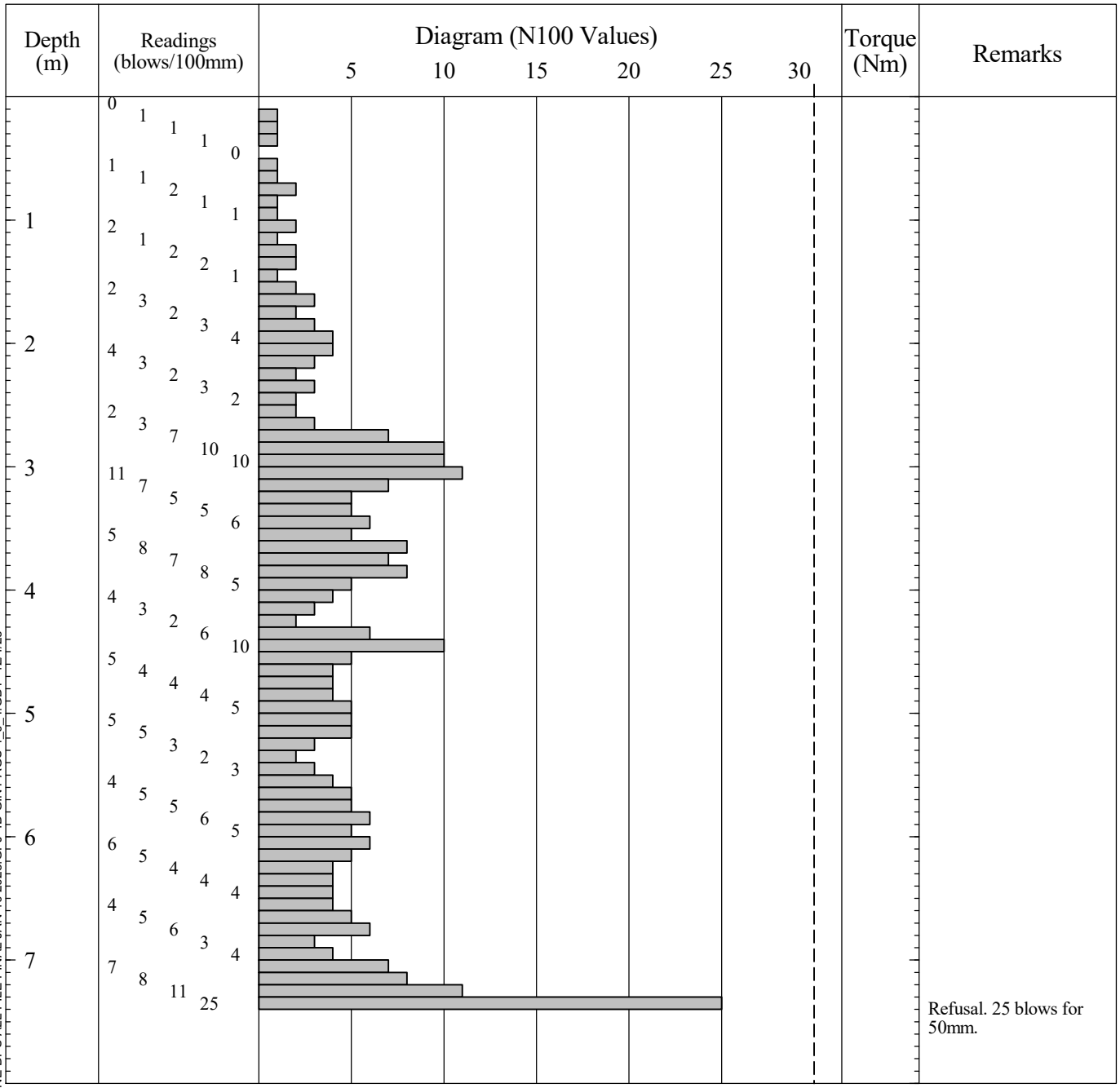
DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-62812**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-01-22 27-01-22	71.39	E 614,180.2 N 704,247.7

Engineer	Sheet	Status
Mott MacDonald	1 of 1	FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 7.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: CR	Logged By: CR

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

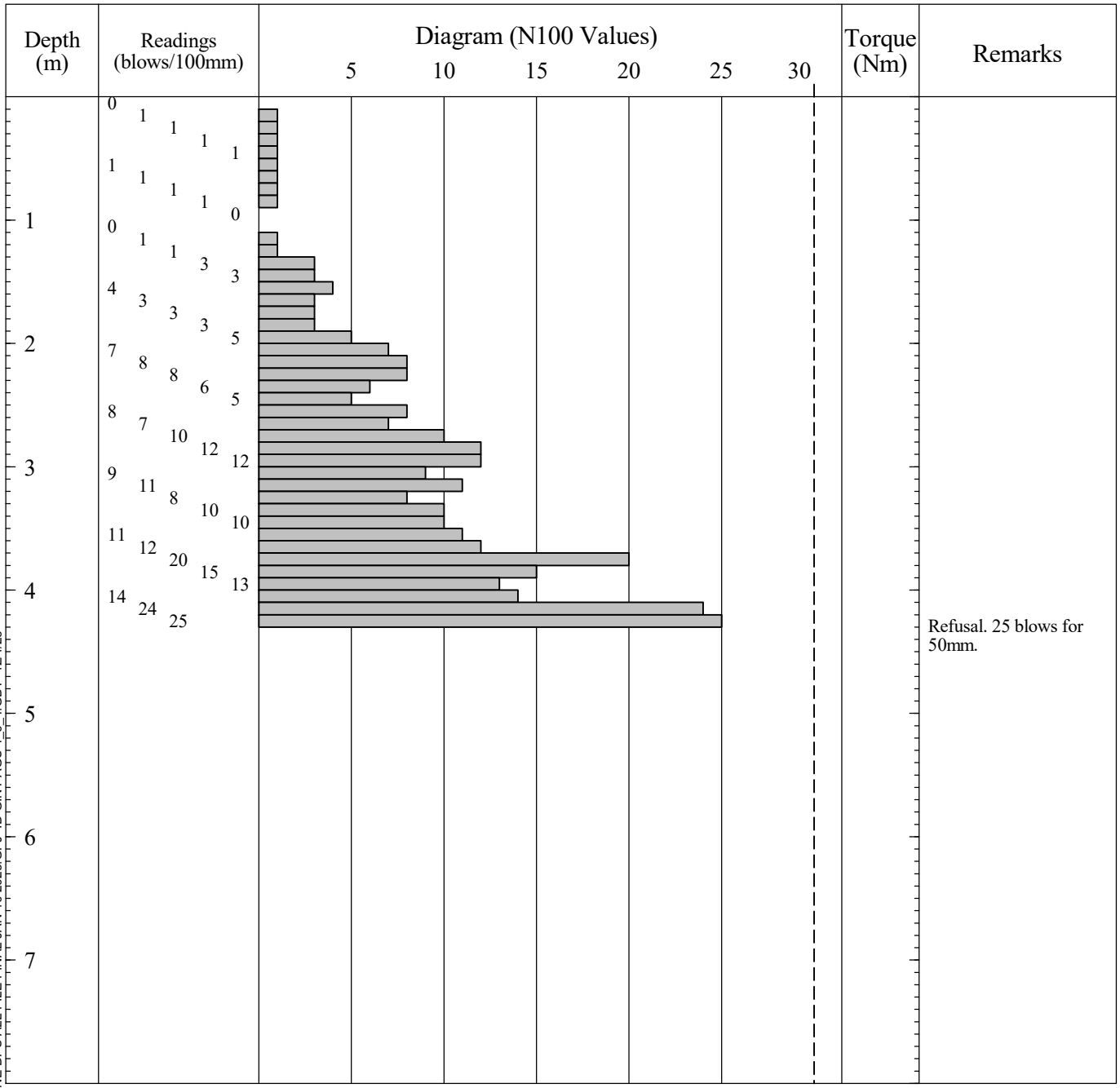
Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-63008**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	27-01-22 27-01-22	70.66	E 614,305.3 N 704,351.3

Engineer	Sheet	Status
Mott MacDonald	1 of 1	FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 4.20m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: CR	Logged By: CR

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

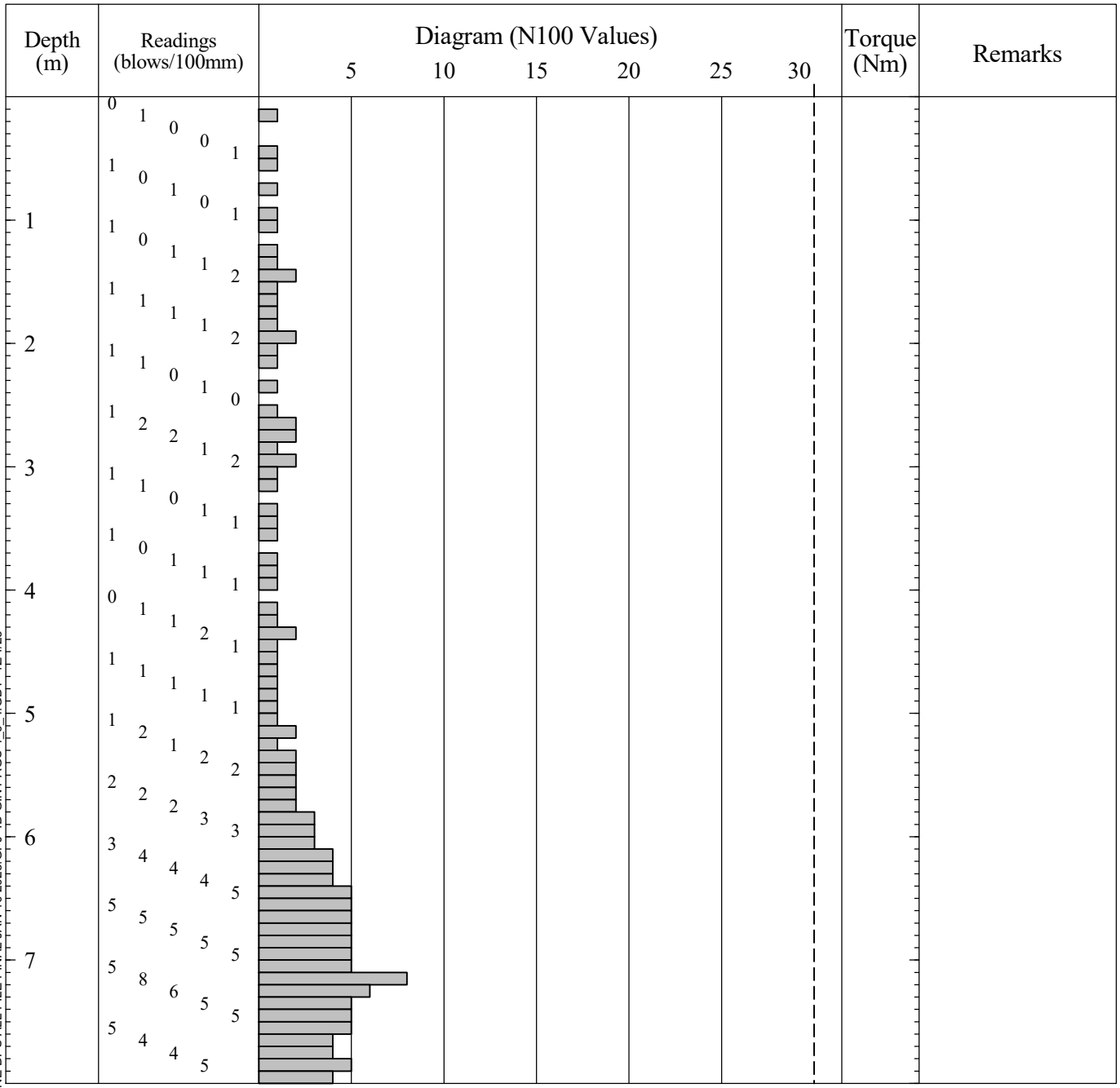
Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-64012**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-02-22 10-02-22	65.54	E 614,407.0 N 705,342.4

Engineer: Mott MacDonald

Sheet 1 of 2

Status FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: CR	Logged By: CR

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-64012**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	10-02-22 10-02-22	65.54	E 614,407.0 N 705,342.4

Engineer: Mott MacDonald

Sheet 2 of 2

Status FINAL / REV1

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)	Torque (Nm)	Remarks
9	5 7 6 7 6 7 5 5 6 5 5 7 7 5 5 6 4 5 6 5 6	5 10 15 20 25 30		
10				Terminated at 10.00m bgl.
11				
12				
13				
14				
15				

Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 10.00m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: CR	Logged By: CR

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

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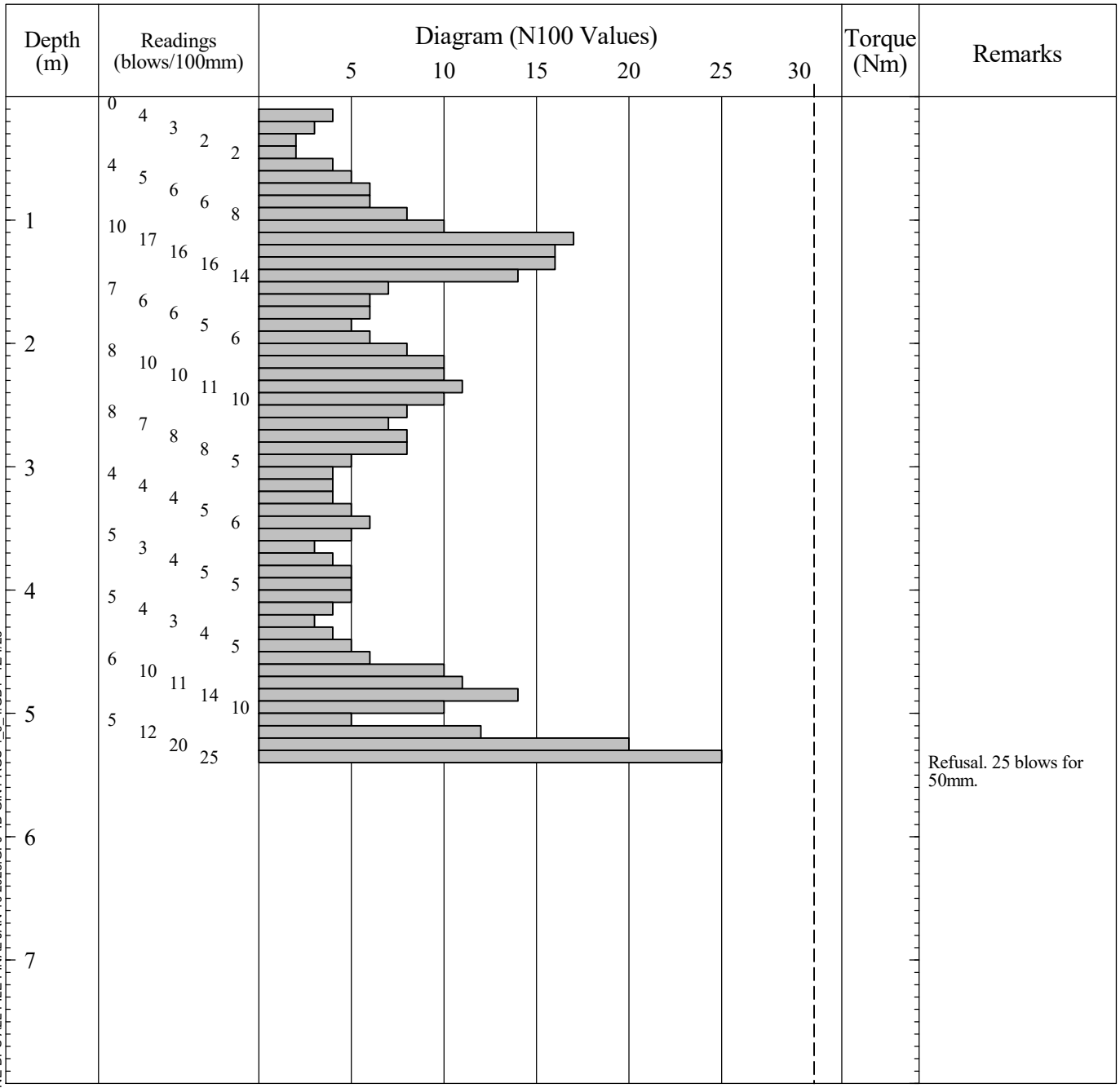
DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-65906**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	07-02-22 07-02-22	83.51	E 615,166.1 N 706,975.1

Engineer	Sheet	Status
Mott MacDonald	1 of 1	FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

DP terminated at 5.30m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: BT	Logged By: BT

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

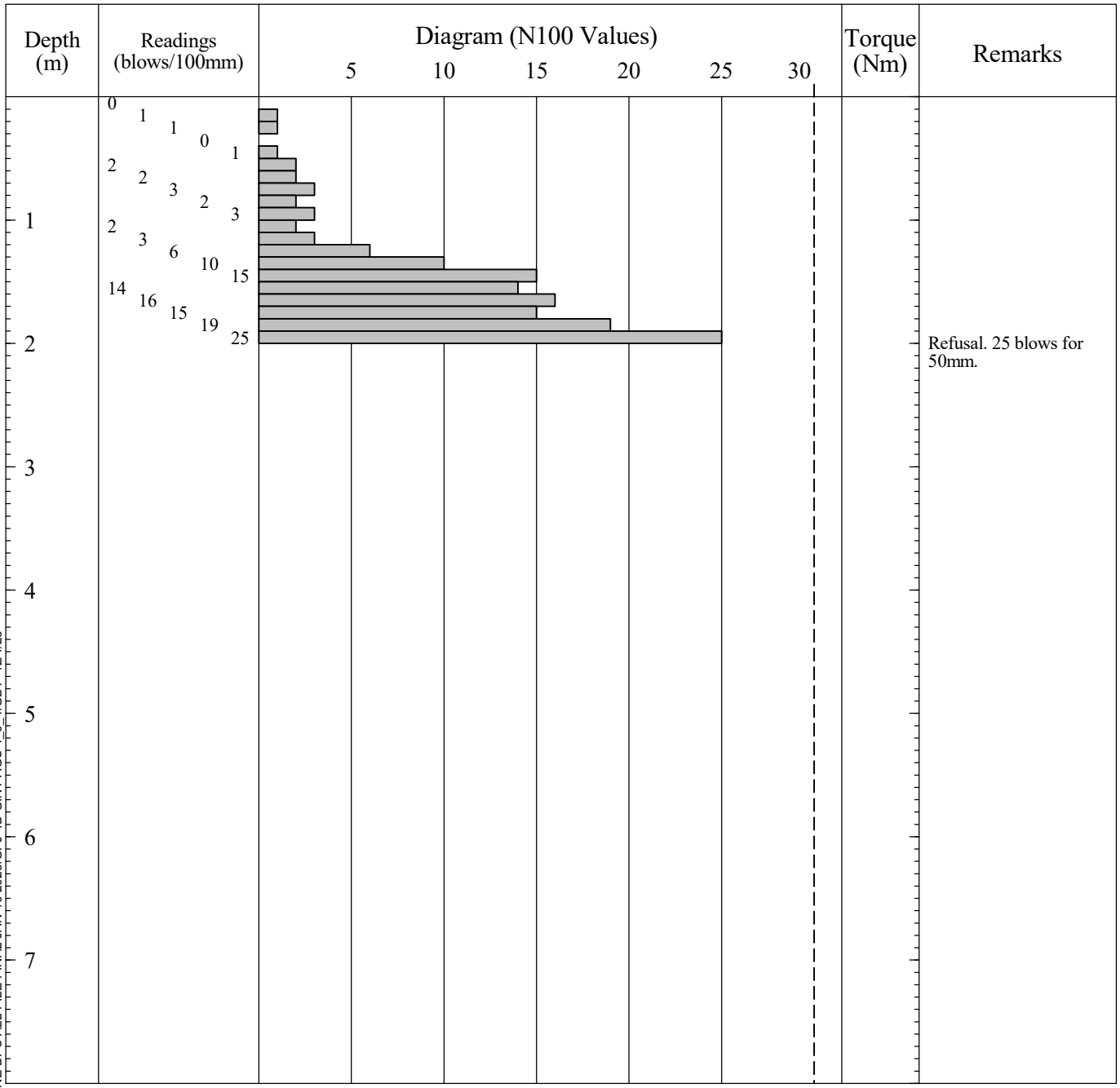
Irish drilling LTD

DYNAMIC PROBE LOG

Project	Location	PROBE No
WSP Eastern & Midlands Region-Pipeline	Lot 2, County Offaly	**DS-DP-69559**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2021OY102	14-02-22 14-02-22	82.14	E 617,306.0 N 709,678.5

Engineer	Sheet	Status
Mott MacDonald	1 of 1	FINAL / REV1



Hammer Wt (kg)	50
Hammer Drop (mm)	500
Cone Dia (mm)	40
Cone Type	DPH
Damper	

GENERAL REMARKS

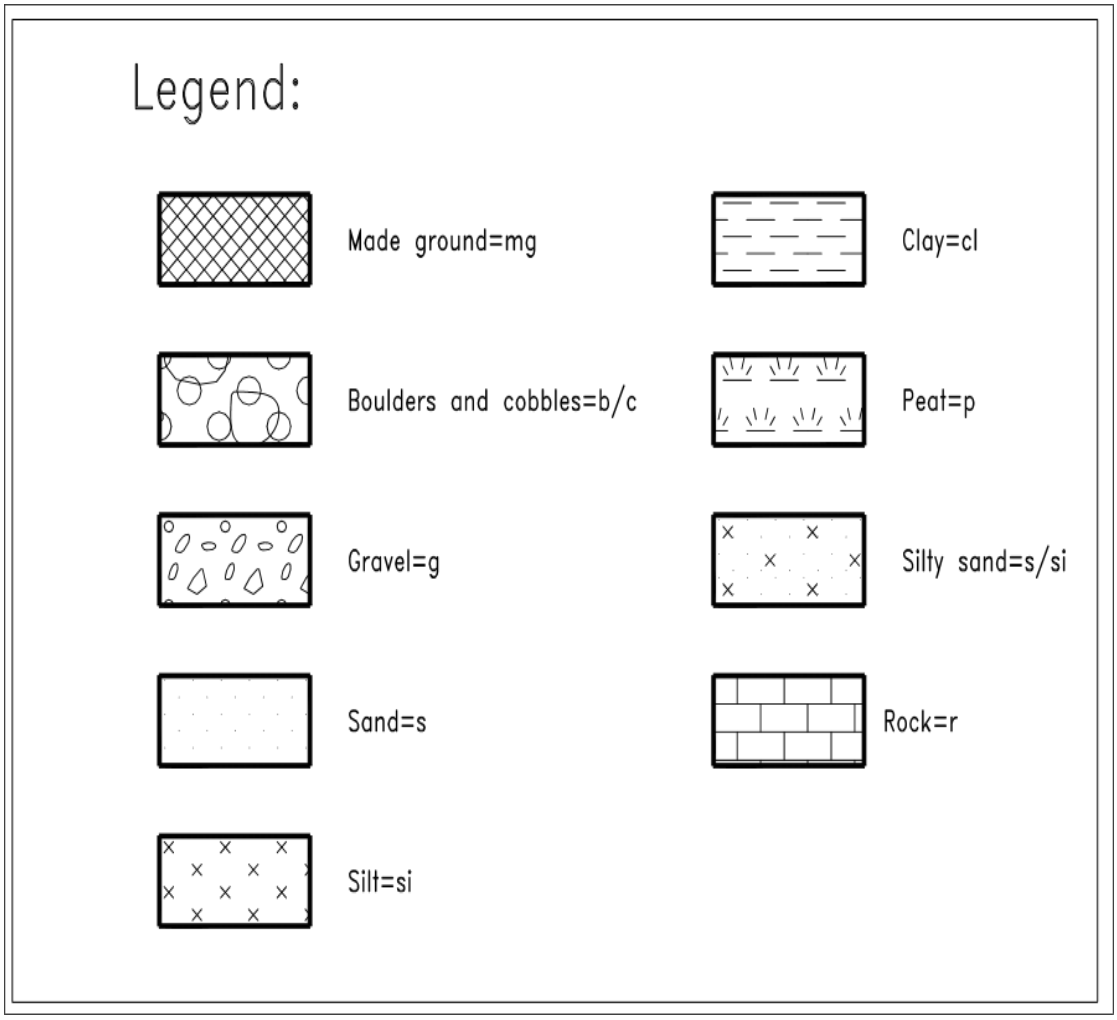
DP terminated at 1.90m bgl.

All dimensions in metres Scale 1:50	Client: Irish Water	Method/ Plant Used: DPH Rig		Driller: CR	Logged By: CR

AGS4 DYNAMIC PROBE WSP LOT2 AGS 4 PIPELINE DPS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 12/1/23

Appendix 6B
Dynamic Sampling Records
Part 2: Window Samples

The following Key Legend Table details the symbology used in general on the engineering logs to describe ground conditions encountered:



PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH:DS-WS-40095**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 600,232.9 N 690,284.0**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 88.03m O.D.	**DATE: 21.10.21**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: BT

SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-0.55				87.73	0.30	TOPSOIL.
							87.48	0.55	Soft grey slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of assorted grey limestone.
							87.23	0.80	No recovery.
						END			Refusal.
1									
2									
3									
4									

Remarks: WS terminated at 0.80m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH DS-WS-40341**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 600,423.9 N 690,440.2**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 87.20m O.D.	**DATE: 21.10.21**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: BT
SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.20						Grass over firm blackish brown gravelly CLAY. Gravel is subangular to rounded fine to coarse of assorted grey limestone.
1							86.00	1.20	
									No recovery. Driller observation: grey silty gravelly clay.
2									
3							84.20	3.00	
						END			Refusal.
4									

Remarks: WS terminated at 3.00m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH:DS-WS-40997**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 600,836.3 N 690,931.2**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 82.90m O.D.	**DATE: 22.10.21**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: BT
SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00						Grass over soft blackish brown PEAT.
							81.90	1.00	
1		WS	1.00-2.00						Soft wet greyish brown silty gravelly CLAY. Gravel is subangular to rounded fine to coarse of assorted grey limestone.
							80.90	2.00	
2						**END**			Refusal.
3									
4									

Remarks: WS terminated at 2.00m bgl.

Scale: 1:20

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Ph.
Fax

WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH: DS-WS-42600**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 601,313.8 N 692,195.9**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 73.57m O.D.	**DATE: 11.11.21**
GROUNDWATER Water strikes: 1st: dry 2nd: 3rd:	**LOGGED BY: BT** SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-0.80				72.77	0.80	Grass over soft blackish brown PEAT.
						END			Refusal.
1									
2									
3									
4									

Remarks: WS terminated at 0.80m bgl.

Scale: 1:20

Irish drilling LTD

Ph.
Fax

WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH:DS-WS-49634**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 606,587.7 N 694,987.4**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 45.67m O.D.	**DATE: 1.12.21**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: BT
SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00						Grass over soft blackish brown PEAT.
1		WS	1.00-2.00						
2		WS	2.00-3.00				43.67	2.00	
							42.67	3.00	Soft brown PEAT over soft grey slightly sandy organic SILT and brown fine SAND.
3						END			Refusal in sand.
4									

Remarks: WS terminated at 3.00m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH: DS-WS-54163**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 608,780.5 N 698,599.5**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 80.27m O.D.	**DATE: 14.12.21**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: BT
SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00				79.77	0.50	Grass over soft black PEAT .
							79.27	1.00	Soft grey silty CLAY.
1						END			Refusal as possible limestone boulder.
2									
3									
4									

Remarks: WS terminated at 1.00m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline		**WINDOW BH:DS-WS-54214**
LOCATION: Lot 2, County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: DPH Rig**
ENGINEER: Mott MacDonald	**E 608,833.2 N 698,639.7**	
Ground level: 80.48m O.D.		**DATE: 14.12.21**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: BT
SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-0.60				80.18	0.30	Grass over soft black PEAT.
							79.88	0.60	Soft grey silty sandy CLAY. Sand is fine to coarse.
						END			Refusal as possible limestone boulder.
1									
2									
3									
4									

Remarks: WS terminated at 0.60m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH DS-WS-61602**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 613,106.1 N 703,660.1**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 71.58m O.D.	**DATE: 18.1.22**
GROUNDWATER Water strikes: 1st: dry 2nd: 3rd:	**LOGGED BY: CR** SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00				71.28	0.30	TOPSOIL.
									Grey fine SAND.
1		WS	1.00-1.90				70.58	1.00	Greyish brown silty gravelly fine SAND. Gravel is subrounded fine to medium of assorted grey limestone.
							69.68	1.90	
2						END			Refusal.
3									
4									

Remarks: WS terminated at 1.90m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH: DS-WS-61804**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 613,305.8 N 703,708.6**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 71.82m O.D.	**DATE: 18.1.22**
GROUNDWATER Water strikes: 1st: dry 2nd: 3rd:	**LOGGED BY: CR** SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-0.90				71.62	0.20	TOPSOIL.
							70.92	0.90	Brown fine to coarse SAND and subrounded fine to coarse assorted grey limestone GRAVEL.
1						END			Refusal.
2									
3									
4									

Remarks: WS terminated at 0.90m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH:DS-WS-62812**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 614,180.2 N 704,247.7**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 71.39m O.D.	**DATE: 27.1.22**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: CR
SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00						Firm brown silty CLAY.
							70.39	1.00	
1		WS	1.00-2.00						Brown fine to coarse SAND and subrounded fine to coarse assorted grey limestone GRAVEL.
2		WS	2.00-2.70						
							68.69	2.70	
						END			Refusal.
3									
4									

Remarks: WS terminated at 2.70m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH:DS-WS-63008**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 614,305.3 N 704,351.3**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 70.66m O.D.	**DATE: 27.1.22**
GROUNDWATER Water strikes: 1st: dry 2nd: 3rd:	**LOGGED BY: CR** SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00						Soft brown silty CLAY.
							69.66	1.00	
1		WS	1.00-2.00						Brown silty subrounded fine to coarse assorted grey limestone GRAVEL.
							68.66	2.00	
2									No recovery. Driller observation: COBBLE.
							68.46	2.20	
						END			Refusal.
3									
4									

Remarks: WS terminated at 2.20m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH:DS-WS-64012**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 614,407.0 N 705,342.4**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 65.54m O.D.	**DATE: 10.2.22**
GROUNDWATER **Water strikes:** **1st: dry** **2nd:** **3rd:**	**LOGGED BY: CR** **SAMPLE DIA.:**

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00						Soft grey silty CLAY.
							64.54	1.00	
1		WS	1.00-2.00						Wet brown fine SAND.
							63.54	2.00	
2		WS	2.00-3.00						No recovery. No recovery. Driller observation: water in hole sample slipped out of tube.
							62.54	3.00	
3						**END**			Terminated.
4									

Remarks: WS terminated at 3.00m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH: DS-WS-65906**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 615,166.1 N 706,975.1**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 83.51m O.D.	**DATE: 7.2.22**
GROUNDWATER **Water strikes:** **1st: dry** **2nd:** **3rd:**	**LOGGED BY: BT** **SAMPLE DIA.:**

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-0.80				82.71	0.80	Soft black SILT.
						END			Refusal.
1									
2									
3									
4									

Remarks: WS terminated at 0.80m bgl.

Scale: 1:20

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WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: WSP Eastern & Midlands Region-Pipeline	**WINDOW BH: DS-WS-69559**
LOCATION: Lot 2, County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 617,306.0 N 709,678.5**
ENGINEER: Mott MacDonald	**Rig: DPH Rig**
Ground level: 82.14m O.D.	**DATE: 14.2.22**

GROUNDWATER
Water strikes:
1st: dry
2nd:
3rd:

LOGGED BY: CR
SAMPLE DIA.:

Depth (m)	Date	Samples	Depth (m)	Instrument/Backfill	Recovery	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0		WS	0.00-1.00						Brownish grey silty sandy subangular to subrounded fine to coarse assorted grey limestone GRAVEL. Sand is fine to coarse.
1		WS	1.00-1.30				80.84	1.30	
						END			Refusal.
2									
3									
4									

Remarks: WS terminated at 1.30m bgl.

Scale: 1:20

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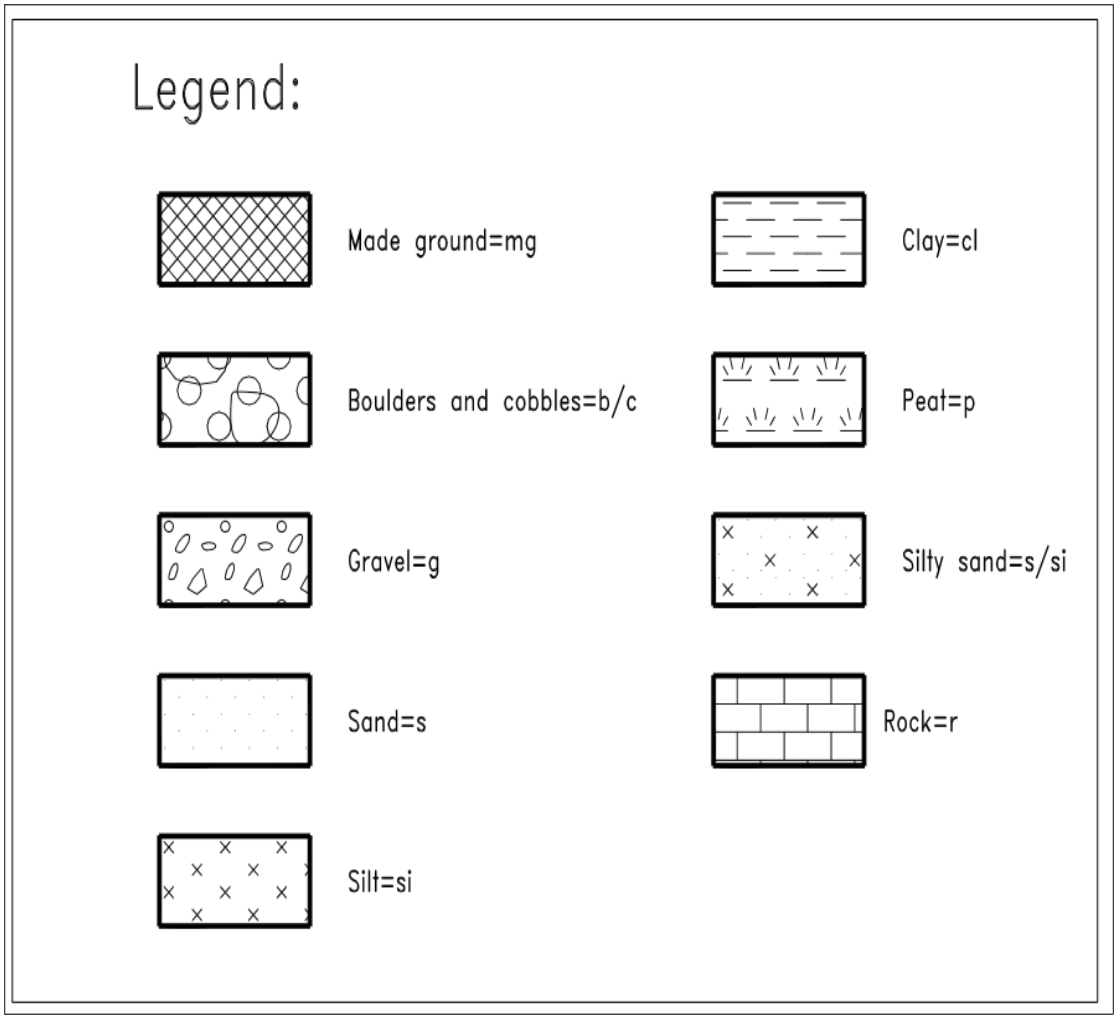
WINDOW SAMPLER WSP LOT2 AGS 4 PIPELINE WS ALL FILE FINAL JAN 10 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Appendix 6C
Trial Pit Records

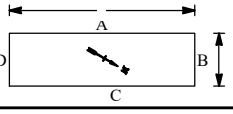
The following Key Legend Table details the symbology used in general on the engineering logs to describe ground conditions encountered:



PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-36504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 596,968.5 N 689,934.2** **Rev: FINAL**
Ground level: 130.87m O.D.	**DATE: 23.5.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 3.00m * 0.60
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							130.67	0.20	TOPSOIL: Grass over firm brown gravelly SILT with some tree roots. Gravel is subangular to rounded fine to coarse of limestone. Tree roots are up to 10mm thick.	
							129.87	1.00	Bluish grey slightly sandy gravelly silty angular to subangular limestone COBBLES with high boulder content. Sand is coarse. Gravel is angular to subangular fine to coarse of limestone. Boulders are angular to subangular of limestone. Boulders are up to 350mm in length.	
1			B 1 D 2	1.00-1.30 1.30			128.97	1.90	Soft damp light brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2						**END**			TP terminated at 1.90m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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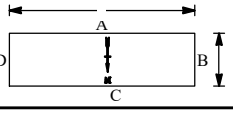
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-36595**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 597,090.4 N 689,975.0** **Rev: FINAL**
Ground level: 131.90m O.D.	**DATE: 23.5.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 3.00m * 0.60
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							131.70	0.20	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 1	0.20-0.50					Firm orangish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 2	0.50			131.30	0.60		
1									Soft damp light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.20-1.50						
			D 4	1.50			130.40	1.50		
2						END			TP terminated at 1.50m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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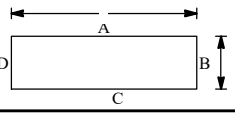
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-36679**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig:**
ENGINEER: Mott MacDonald	**E 597,147.2 N 690,007.2**	**Rev: FINAL**
Ground level: 135.69m O.D.		**DATE: 11.5.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: °
PIT DIMENSION: m *
LOGGED BY:



Shoring/Support:
Stability:

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0									
			B 1	0.30-0.60			135.39	0.30	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.
			D 2	0.60			135.09	0.60	Firm brownish grey mottled orange slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 500mm in length.
							134.69	1.00	Greyish orangish brown silty gravelly angular to subangular limestone BOULDERS with high cobble content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are angular to subangular of limestone. Boulders are up to 550mm in length.
1						END			TP terminated at 1.00m bgl. Obstruction as boulders.
2									
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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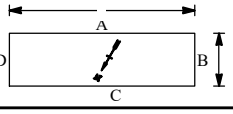
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-36861**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 597,281.3 N 690,072.6** **Rev: FINAL**
Ground level: 146.74m O.D.	**DATE: 19.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							146.59	0.15	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded fine to coarse of sandstone and limestone.	
			B 1	0.20-0.40	17 kN/m² 19mm vane				Firm light orangish brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			VANE	0.30						
			D 2	0.30			146.34	0.40		
			B 3	0.50-0.80					Firm damp light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is angular to subangular fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 350mm in length.	
			D 4	0.80			145.84	0.90		
1									Light brown slightly sandy silty angular to subangular fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine. Cobbles are angular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
			B 5	1.60-1.90						
			D 6	1.90			144.84	1.90		
						END			TP terminated at 1.90m bgl. Obstruction as possible boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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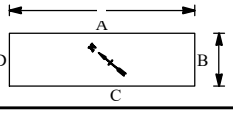
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-37001**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 597,427.9 N 690,079.3**
	Rig: Hitachi Zaxis 130 LCN
	Rev: FINAL
Ground level: 131.43m O.D.	**DATE: 19.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							131.03	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to subrounded medium to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 1	0.40-0.70					Firm damp light brown gravelly SILT with medium cobble content and low boulder content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.70			130.53	0.90		
1			B 3	0.90-1.20			130.23	1.20	Firm light brown very gravelly SILT with high cobble content and medium boulder content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.20		**END**			TP terminated at 1.20m bgl. Obstruction.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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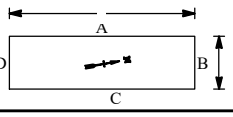
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-37102**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 597,527.0 N 690,078.4**
	Rig: Hitachi Zaxis 130 LCN
	Rev: FINAL
Ground level: 125.70m O.D.	**DATE: 19.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 10°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							125.30	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm light brown gravelly SILT with medium cobble content and low boulder content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.70			124.80	0.90		
1									Firm light greyish brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is coarse. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.40-1.70						
			D 4	1.70		END	124.00	1.70	TP terminated at 1.70m bgl. Obstruction as probable rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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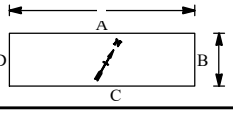
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-37201**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 597,634.4 N 690,138.4** **Rev: FINAL**
Ground level: 113.45m O.D.	**DATE: 19.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							113.25	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			VANE	0.40	16 kN/m² 19mm vane				Firm damp orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.50			112.85	0.60		
			B 3	0.60-0.90					Firm damp light brown very gravelly SILT with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	0.90			112.55	0.90		
1						END			TP terminated at 0.90m bgl. Obstruction as probable rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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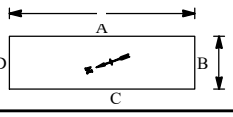
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-37302**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 597,707.0 N 690,128.6** **Rev: FINAL**
Ground level: 107.47m O.D.	**DATE: 19.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							107.27	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.20-0.40 0.30			107.07	0.40	Firm damp light brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 350mm in length.	
							106.67	0.80	Light brown slightly gravelly angular to subangular limestone COBBLES with high boulder content. Gravel is angular to subangular fine to coarse of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 0.80m bgl. Obstruction as probable rock.	
1										
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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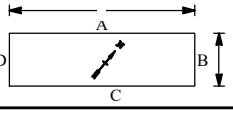
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-37698**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 598,055.8 N 689,961.0** **Rev: FINAL**
Ground level: 102.77m O.D.	**DATE: 27.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.50m * 1.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							102.52	0.25	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.30-0.50 0.30			102.27	0.50	Firm damp orangish brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1			B 3 D 4	1.20-1.50 1.50			100.87	1.90	Firm light brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5 D 6	2.00-2.30 2.30			100.47 **END**	2.30	Very stiff light greyish brown gravelly SILT with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length. TP terminated at 2.30m bgl. Obstruction as very stiff strata.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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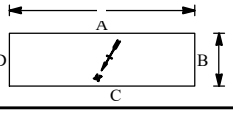
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-37778**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 598,111.8 N 689,895.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 105.62m O.D.	**DATE: 15.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							105.42	0.20	TOPSOIL: Stubble over firm dark brown slightly gravelly SILT with low cobble content and some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.20-0.40						
			D 2	0.30			105.22	0.40	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.50-0.80					Stiff light brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 4	0.80			104.72	0.90		
1									Very stiff light brown slightly gravelly sandy SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.10-2.40						
			D 6	2.40			103.02	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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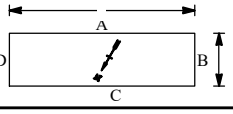
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-37903**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 598,162.0 N 689,932.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 101.36m O.D.	**DATE: 15.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							101.06	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.30-0.50	22 kN/m² 19mm vane					
			VANE	0.40						
			D 2	0.40			100.86	0.50	Stiff orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 3	0.90-1.20					Firm damp light brown slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
1			D 4	1.20						
							99.76	1.60		
									Stiff light brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
2			B 5	2.30-2.60						
							98.76	2.60		
			D 6	2.60		END			TP terminated at 2.60m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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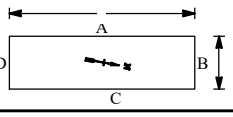
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-38100**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 598,441.8 N 690,016.7** **Rev: FINAL**
Ground level: 97.17m O.D.	**DATE: 15.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							96.87	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.40-0.70					Firm damp light brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1							96.07	1.10		
									Light brown silty very sandy subangular to rounded medium limestone GRAVEL with high cobble content and high boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 800mm in length.	
			B 3	1.70-2.00						
2			D 4	2.00		END	95.17	2.00	TP terminated at 2.00m bgl. Obstruction as probable boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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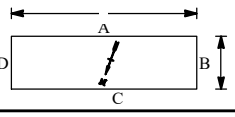
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-38205**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 598,535.2 N 690,009.4** **Rev: FINAL**
Ground level: 99.61m O.D.	**DATE: 15.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							99.41	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			VANE	0.40	21 kN/m² 19mm vane		99.11	0.50	Firm orangish brown slightly gravelly slightly sandy SILT with low cobble content and some rootlets. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.40						
			B 3	0.80-1.10					Firm light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1			D 4	1.10			98.51	1.10		
							97.61	2.00	Firm light brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.00-2.30			97.31	2.30	Light brown very sandy very silty subangular to rounded medium limestone GRAVEL with high cobble content and high boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 800mm in length.	
			D 6	2.30		**END**			TP terminated at 2.30m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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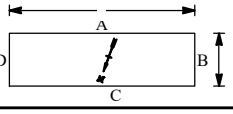
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-38313**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 598,629.6 N 690,042.5** **Rev: FINAL**
Ground level: 102.31m O.D.	**DATE: 18.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							102.01	0.30	TOPSOIL: Grass over stiff brown gravelly SILT with low cobble content and some roots and rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone.	
			B 1	0.30-0.60					Very stiff light brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
			D 2	0.60						
1										
			B 3	1.70-2.00						
2							100.31	2.00		
			D 4	2.00		END			TP terminated at 2.00m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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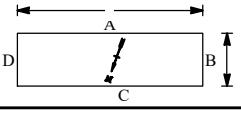
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-38500**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 598,817.6 N 690,026.3** **Rev: FINAL**
Ground level: 105.45m O.D.	**DATE: 18.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							105.25	0.20	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70					Firm damp light brownish grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1										
									1.30m to 2.40m: with medium large boulder content. Boulders are subrounded to rounded of limestone. Boulders are up to 900mm in length.	
2			B 3	2.10-2.40						
			D 4	2.40			103.05	2.40		
						END			TP terminated at 2.40m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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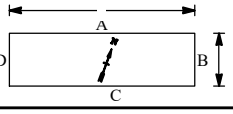
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-38604**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 598,915.5 N 689,983.4**		**Rev: FINAL**
Ground level: 105.72m O.D.			**DATE: 18.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.50	19 kN/m² 19mm vane		105.42	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			VANE	0.40						
			D 2	0.40			105.22	0.50	Firm damp orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 3	0.80-1.10					Firm light greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			D 4	1.10			104.42	1.30		
									Soft damp light grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
2			B 5	2.00-2.30						
			D 6	2.30			103.22	2.50		
						END			TP terminated at 2.50m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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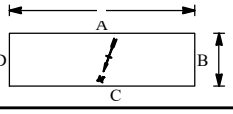
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-38700**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 599,016.6 N 689,983.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 105.51m O.D.	**DATE: 18.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							105.26	0.25	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			VANE	0.40	19 kN/m² 19mm vane		105.01	0.50	Firm damp orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.50-0.80					Firm light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			D 2	0.80			104.31	1.20		
			B 3	1.30-1.60					Soft damp grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.60						
2							103.21	2.30		
			B 5	2.70-3.00					Stiff grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			D 6	3.00		END	102.51	3.00	TP terminated at 3.00m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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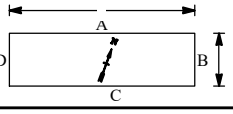
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-38777**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,095.5 N 689,999.4** **Rev: FINAL**
Ground level: 104.12m O.D.	**DATE: 18.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.82	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of sandstone and limestone.	
			B 1	0.30-0.60						
			D 2	0.60			103.32	0.80	Firm damp light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
1							102.32	1.80	Soft damp grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							101.32	2.80	Stiff grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 5	2.50-2.80						
			D 6	2.80		END			TP terminated at 2.80m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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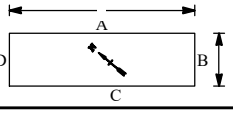
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-38901**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 599,169.5 N 689,937.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 103.74m O.D.	**DATE: 28.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.44	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			103.14	0.60	Firm light brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.00-1.30					Firm damp light brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30						
2							101.54	2.20		
			B 5	2.50-2.80					Firm damp light greyish brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 6	2.80		END	100.94	2.80	TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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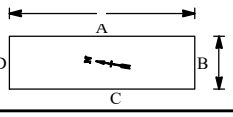
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39006**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,300.0 N 689,917.7** **Rev: FINAL**
Ground level: 99.19m O.D.	**DATE: 28.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							98.99	0.20	TOPSOIL: Grass over firm brown gravelly SILT with many rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			D 1	0.30			98.79	0.40	Firm damp orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 2	0.40-0.70					Light brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 3	0.70			98.19	1.00		
1			B 4	1.10-1.30					Light brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 600mm in length.	
			D 5	1.30			97.79	1.40		
						END			TP terminated at 1.40m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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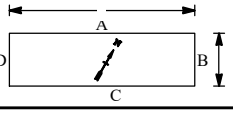
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39101**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,406.9 N 689,910.0** **Rev: FINAL**
Ground level: 99.10m O.D.	**DATE: 27.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 4.50m * 1.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							98.80	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.30-0.50					Firm bluish grey sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 500mm in length.	
			D 2	0.50						
1										
									1.20m to 1.60m: with high boulder content.	
			B 3	1.30-1.60						
							97.50	1.60		
			D 4	1.60					TP terminated at 1.40m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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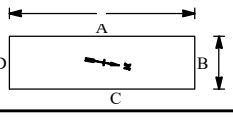
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39218**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,525.0 N 689,901.0** **Rev: FINAL**
Ground level: 100.18m O.D.	**DATE: 27.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							99.88	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.40-0.70			99.78	0.40	Firm orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.70			99.33	0.85	Bluish grey gravelly silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 0.85m bgl. Obstruction as probable rock.	
1										
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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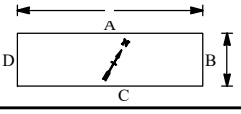
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39300**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,603.0 N 689,871.0** **Rev: FINAL**
Ground level: 101.68m O.D.	**DATE: 29.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 2.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							101.48	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm light brown sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70			100.78	0.90		
1						END			TP terminated at 0.90m bgl. Obstruction as probable boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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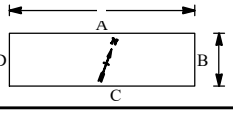
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39403**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,707.2 N 689,854.9** **Rev: FINAL**
Ground level: 104.30m O.D.	**DATE: 29.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 2.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							104.00	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is medium to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60						
1			B 3	0.90-1.20						
							103.10	1.20		
			D 4	1.20		**END**			TP terminated at 1.20m bgl. Obstruction as probable boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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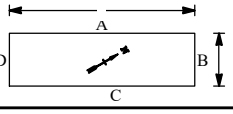
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-39503**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,841.4 N 689,874.9**		**Rev: FINAL**
Ground level: 108.82m O.D.			**DATE: 28.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							108.52	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70					Firm damp light grey slightly sandy slightly gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1										
			B 3	1.70-2.00			107.12	1.70	Brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 4	2.00			106.82	2.00		
						END			TP terminated at 2.00m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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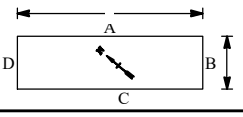
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39601**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,871.4 N 689,970.7** **Rev: FINAL**
Ground level: 104.81m O.D.	**DATE: 29.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 2.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							104.61	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.50-0.80					Firm light brown slightly sandy gravelly SILT with high cobble content and high boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 500mm in length.	
			D 2	0.80					0.80m to 1.10m: with large boulders. Boulders are up to 700mm in length.	
1							103.71	1.10		
						END			TP terminated at 1.10m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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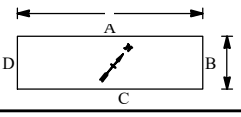
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39706**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 599,969.7 N 689,969.2** **Rev: FINAL**
Ground level: 102.35m O.D.	**DATE: 29.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							102.05	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content and many roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.60-0.90					Firm light greyish brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			D 2	0.90			101.15	1.20		
						END			TP terminated at 1.20m bgl. Obstruction.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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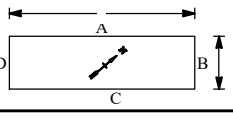
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39805**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 600,025.0 N 690,086.0** **Rev: FINAL**
Ground level: 92.71m O.D.	**DATE: 28.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 2.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							92.41	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.40-0.70					Firm light brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
			D 2	0.70			91.91	0.80		
						END			TP terminated at 0.80m bgl. Obstruction as probable rock.	
1										
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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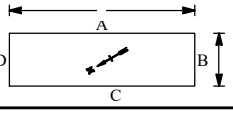
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-39906**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 600,077.0 N 690,174.9 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 88.53m O.D.	**DATE: 28.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.23	0.30	TOPSOIL: Grass over firm dark brown slightly gravelly organic SILT with low boulder content and many rootlets. Gravel is subangular to rounded fine to coarse of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 1	0.30-0.50						
			D 2	0.40			88.03	0.50	Light greyish brown silty gravelly fine SAND with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			B 3	0.90-1.20					Firm light greyish brown slightly silty sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 4	1.20		**END**	87.33	1.20	TP terminated at 1.20m bgl. Obstruction as probable boulder.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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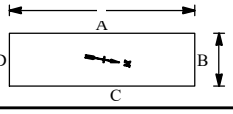
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-40001**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 600,137.0 N 690,252.0** **Rev: FINAL**
Ground level: 88.62m O.D.	**DATE: 29.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.32	0.30	TOPSOIL: Grass over firm dark brown slightly gravelly SILT with low boulder content and many rootlets. Gravel is subangular to rounded fine to coarse of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 1	0.30-0.60						
			D 2	0.60			87.82	0.80	Firm grey mottled orange sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			B 3	1.20-1.50					Soft grey mottled orange slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.40			87.12	1.50		
2							86.42	2.20	Very soft grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.20-2.50						
			D 6	2.50			86.12	2.50	Grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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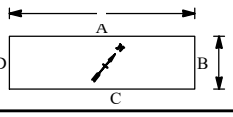
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-40205**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 600,323.4 N 690,347.7**		**Rev: FINAL**
Ground level: 87.73m O.D.			**DATE: 30.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							87.53	0.20	TOPSOIL: Grass over firm dark brown slightly peaty gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.
			B 1 D 2	0.20-0.50 0.30			87.23	0.50	Stiff light brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.
1			B 3 D 4	0.70-1.00 1.00			86.63	1.10	Firm damp grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.
						END			TP terminated at 1.10m bgl. Obstruction as probable rock.
2									
3									
4									
5									

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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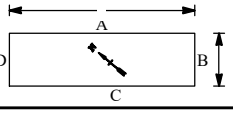
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-40305**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 600,382.1 N 690,432.9** **Rev: FINAL**
Ground level: 87.02m O.D.	**DATE: 30.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			D 1	0.40			86.52	0.50	CUT OVER RAISED PEAT: Grass over spongy dark blackish brown silty pseudo fibrous PEAT. H6 B1 F1 R0 W1 TV2 TH2 A0.	
			B 2	0.80-1.10					Moist light brownish grey silty sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			D 3	1.10			85.72	1.30		
			B 4	1.70-2.00					Soft moist light grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 5	2.00			84.82	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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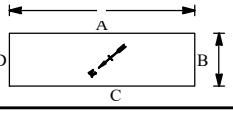
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-40404**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 600,446.1 N 690,511.0** **Rev: FINAL**
Ground level: 88.91m O.D.	**DATE: 30.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.71	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and many rootlets. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1 D 2	0.30-0.60 0.40			88.31	0.60	Firm grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length. Organic odour.	
1			B 3 D 4	0.80-1.10 1.10			86.71	2.20	Firm damp grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2			B 5	2.50-2.80			86.11	2.80	Soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
3			D 6	2.80		END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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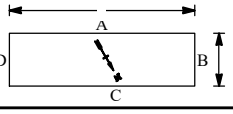
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-40505**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 600,536.1 N 690,560.0** **Rev: FINAL**
Ground level: 87.56m O.D.	**DATE: 30.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.36	0.20	TOPSOIL: Grass over firm dark brown slightly gravelly organic SILT with some rootlets. Gravel is subrounded to rounded medium to coarse of limestone.	
			B 1	0.20-0.50					Stiff grey gravelly SILT with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.50			86.96	0.60		
			B 3	0.70-1.00					Firm damp grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			D 4	1.00			86.16	1.40		
									Soft damp grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.10-2.40						
			D 6	2.40			85.16	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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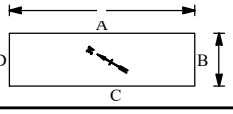
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-40605**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 600,632.3 N 690,601.7** **Rev: FINAL**
Ground level: 87.57m O.D.	**DATE: 30.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.37	0.20	TOPSOIL: Grass over firm brown SILT with many rootlets.	
			B 1	0.30-0.60					Stiff grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 550mm in length.	
			D 2	0.60			86.67	0.90		
1									Firm damp grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			85.57	2.00		
2									Soft damp bluish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60			84.57	3.00		
3							**END**		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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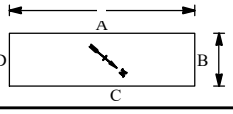
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43108**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 601,664.8 N 692,479.5** **Rev: FINAL**
Ground level: 94.87m O.D.	**DATE: 30.9.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.67	0.20	TOPSOIL: Grass over firm brown slightly gravelly organic SILT with some tree roots. Gravel is subangular to rounded fine to coarse of limestone. Roots are up to 20mm thick.	
			B 1 D 2	0.30-0.60 0.40			94.27	0.60	Stiff light orangish brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3 D 4	0.80-1.10 1.10			93.67	1.20	Firm light brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2			B 5	1.80-2.20			92.67	2.20	Firm damp light brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 6	2.20		END			TP terminated at 2.20m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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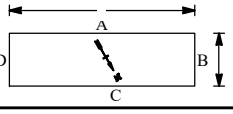
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43207**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 601,706.9 N 692,579.8** **Rev: FINAL**
Ground level: 98.26m O.D.	**DATE: 1.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							98.06	0.20	TOPSOIL: Grass over firm orangish brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded medium to coarse of limestone.	
			B 1	0.30-0.60					Stiff light brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60			97.56	0.70		
1			B 3	1.20-1.50					Firm light greyish brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 500mm in length.	
			D 4	1.50			96.76	1.50		
							96.66	1.60	Dark grey very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 500mm in length.	
2							**END**		TP terminated at 1.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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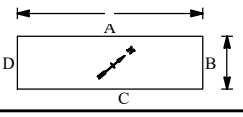
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43308**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 601,760.0 N 692,664.9** **Rev: FINAL**
Ground level: 102.19m O.D.	**DATE: 1.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							101.99	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			D 2	0.40			101.69	0.50	Firm damp orangish brown slightly sandy gravelly SILT with low cobble content and some rootlets. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.10-1.40					Firm damp light brown slightly sandy gravelly SILT with medium boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 4	1.40			100.49	1.70		
			B 5	1.70-2.00					Brown very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 500mm in length.	
2			D 6	1.80			100.19	2.00		
						END			TP terminated at 2.00m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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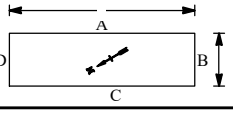
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43406**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 601,825.9 N 692,743.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 104.41m O.D.	**DATE: 1.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.50	9 kN/m² 19mm vane		104.11	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.40						
			D 2	0.40			103.91	0.50	Firm damp orangish brown slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1			B 3	1.00-1.30					Firm damp light greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30						
							102.51	1.90		
2									Stiff light brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.70-3.00						
3							101.41	3.00		
			D 6	3.00			**END**		TP terminated at 3.00m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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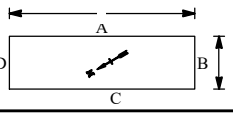
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43507**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 601,846.0 N 692,845.0
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 107.72m O.D.	**Rev: FINAL**
	DATE: 1.10.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							107.42	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.50	8 kN/m² 19mm vane				Firm damp orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.40			107.22	0.50		
			D 2	0.40					Firm damp light greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 350mm in length.	
1			B 3	1.10-1.40						
			D 4	1.40						
							106.02	1.70		
									Stiff light greyish brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
2										
			B 5	2.70-3.00						
							104.72	3.00		
3			D 6	3.00		END			TP terminated at 3.00m bgl. Obstruction.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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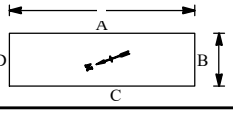
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43607**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 601,877.6 N 692,938.6** **Rev: FINAL**
Ground level: 105.35m O.D.	**DATE: 1.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							105.05	0.30	TOPSOIL: Grass and nettles over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			104.65	0.70	Firm damp light greyish brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
1			B 3	1.20-1.50					Firm damp light brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 450mm in length.	
			D 4	1.50						
2							103.25	2.10		
			B 5	2.50-2.80					Stiff light brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.80						
3							102.25	3.10		
						END			TP terminated at 3.10m bgl. Obstruction as probable boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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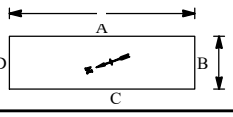
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43708**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 601,932.9 N 693,026.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 99.29m O.D.	**DATE: 4.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							98.99	0.30	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			VANE	0.40	8 kN/m² 19mm vane				Firm damp reddish brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 1	0.40-0.70						
			D 2	0.70			98.49	0.80		
1			B 3	1.20-1.50					Firm damp brownish grey gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 800mm in length.	
			D 4	1.50					LAB DESCRIPTION @ 1.50m: small disturbed sample - brown very silty SAND and GRAVEL.	
2							97.29	2.00		
						END			TP terminated at 2.00m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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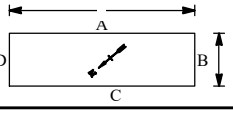
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43815**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 602,000.7 N 693,112.3** **Rev: FINAL**
Ground level: 87.44m O.D.	**DATE: 4.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.14	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	9 kN/m² 19mm vane					
			D 2	0.50			86.84	0.60	Firm damp orangish brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	0.70-1.00						
1			D 4	1.00			86.44	1.00	Firm damp brownish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 1.00m bgl. Obstruction as probable rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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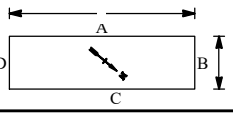
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-43905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 602,041.3 N 693,172.9** **Rev: FINAL**
Ground level: 87.99m O.D.	**DATE: 4.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.79	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded medium to coarse of limestone.	
			B 1	0.20-0.50						
			D 2	0.40			87.49	0.50	Stiff orangish brown gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 300mm in length.	
1									Firm damp brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 600mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							85.79	2.20		
			B 5	2.30-2.60					Stiff brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 700mm in length.	
			D 6	2.60			85.39	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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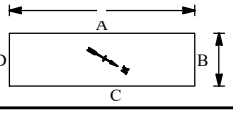
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-44003**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 602,121.9 N 693,259.2** **Rev: FINAL**
Ground level: 87.62m O.D.	**DATE: 4.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.42	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are rounded of limestone. Boulders are up to 400mm in length.	
							87.22	0.40	Firm orangish brown slightly gravelly slightly sandy SILT with low cobble content and some rootlets. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1 D 2	0.40-0.70 0.50					Firm damp brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
1			B 3 D 4	1.20-1.50 1.50						
2							85.52	2.10		
			B 5 D 6	2.50-2.80 2.80					Stiff brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3						END	84.62	3.00	TP terminated at 3.00m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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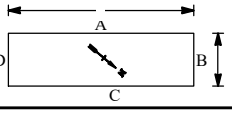
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-44104**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 602,212.5 N 693,289.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 84.22m O.D.	**DATE: 5.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 3.00m **20min** **2.70m**
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			83.92	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subrounded coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60			83.42	0.80	Firm damp greyish brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are rounded of limestone. Boulders are up to 400mm in length.	
1			B 3	1.30-1.60					Greyish brown silty very gravelly fine SAND with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.60						
2							81.62	2.60		
		1							Light brown silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
3		1	B 5	2.90-3.20			81.02	3.20		
			D 6	3.20		END			TP terminated at 3.20m bgl. Unable to progress TP due to ingress of water.	
4										
5										

Remarks: Ingress of water at 3.00m bgl. TP backfilled with arisings.

Scale: 1:25

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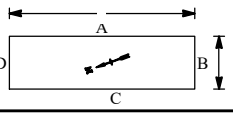
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-44211**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 602,298.5 N 693,354.0**
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 81.52m O.D.	**Rev: FINAL**
	DATE: 5.10.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 1.60m
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			D 1	0.30	17 kN/m² 33mm vane		81.22	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subrounded to rounded fine coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.40			81.02	0.50	Firm damp light grey organic laminated SILT with shells. Organic odour.	
			B 2	0.50-0.80					Firm damp brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 3	0.70			80.72	0.80		
1									Dark grey silty very gravelly fine to coarse SAND with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			B 4	1.50-1.80						
			D 5	1.80						
2							79.42	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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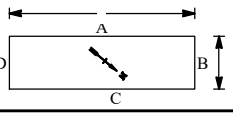
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-44309**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 602,289.2 N 693,453.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 80.28m O.D.	**DATE: 5.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.50m 20min 2.20m
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			79.98	0.30	TOPSOIL: Grass over firm dark brown slightly gravelly peaty SILT. Gravel is subrounded to rounded fine coarse of sandstone and limestone. Organic odour.	
			VANE	0.50	16 kN/m² 33mm vane				Light grey mottled orange laminated organic SILT with some plant material and some shell fragments.	
			D 2	0.60			79.58	0.70		
1			B 3	1.00-1.30					Firm damp brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 4	1.30			78.68	1.60		
2		1							Light bluish grey sandy silty subangular to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and medium boulder content. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
		1	B 5	2.30-2.60						
			D 6	2.60		END	77.68	2.60	TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.

Scale: 1:25

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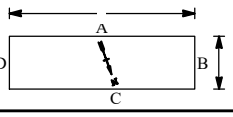
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-44408**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 602,276.3 N 693,538.1** **Rev: FINAL**
Ground level: 80.04m O.D.	**DATE: 5.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							79.74	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some roots and rootlets. Gravel is subrounded coarse of limestone. Cobbles are rounded of limestone.	
			B 1	0.40-0.70					Very stiff light grey slightly gravelly slightly sandy SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 2	0.70			79.04	1.00		
1									Firm grey slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			78.44	1.60		
						END			TP terminated at 1.60m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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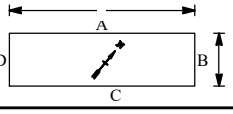
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-44508**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 602,323.3 N 693,652.2**	**Rev: FINAL**
Ground level: 77.53m O.D.		**DATE: 5.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.50m 20min 2.40m
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							77.23	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded medium to coarse of limestone.	
			B 1	0.30-0.60					Firm damp orange mottled bluish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone. Cobbles are subrounded to rounded of sandstone. Boulders are subrounded to rounded of sandstone. Boulders are up to 400mm in length.	
			D 2	0.60						
1							76.53	1.00		
			B 3	1.20-1.50					Soft damp reddish grey slightly sandy slightly gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 4	1.50						
							75.63	1.90		
2									Orangish greyish brown very silty very sandy subrounded to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			B 5	2.20-2.50						
		1					75.03	2.50		
			D 6	2.50		**END**			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.

Scale: 1:25

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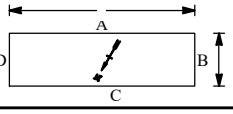
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-44611**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 602,370.6 N 693,705.1** **Rev: FINAL**
Ground level: 75.50m O.D.	**DATE: 6.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							75.20	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded medium to coarse of sandstone and limestone.	
			B 1	0.40-0.70					Reddish bluish grey silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 2	0.70			74.50	1.00		
1									Soft moist bluish grey slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
2			B 3	2.00-2.30						
			D 4	2.30			73.10	2.40		
									Very soft moist light slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
			B 5	2.70-3.00						
3			D 6	3.00			72.50	3.00		
							END		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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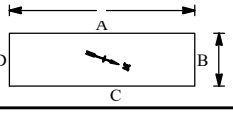
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-46303**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 603,521.3 N 694,915.5** **Rev: FINAL**
Ground level: 74.23m O.D.	**DATE: 6.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							74.03	0.20	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.20-0.40	13 kN/m² 19mm vane				Firm damp light orangish brown gravelly SILT with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.30						
			D 2	0.30			73.83	0.40		
									Firm brownish grey slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	0.70-1.00			73.53	0.70	Brown very silty very sandy medium GRAVEL.	
1			D 4	1.00			73.23	1.00	Firm brownish grey slightly gravelly slightly sandy SILT with high cobble content and high boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 5	1.50-1.80						
			D 6	1.80			72.43	1.80		
						END			TP terminated at 1.80m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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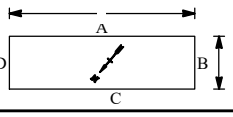
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-46502**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 603,730.3 N 694,910.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 82.63m O.D.	**DATE: 6.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.43	0.20	TOPSOIL: Grass over firm dark brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded medium to coarse of sandstone and limestone.	
			B 1	0.30-0.60					Stiff orangish brown slightly gravelly slightly sandy SILT with low cobble content. Gravel is subrounded to rounded medium to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			D 2	0.60			81.83	0.80		
1									Stiff brownish grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded medium to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 500mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							80.33	2.30		
									Firm damp grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			B 5	2.90-3.20						
			D 6	3.20			79.43	3.20		
						END			TP terminated at 3.20m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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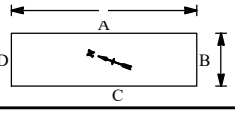
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-46603**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 603,850.2 N 694,894.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 84.00m O.D.	**DATE: 6.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.70	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			VANE	0.40	14 kN/m² 19mm vane				Firm damp brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 1	0.70-1.00						
1			D 2	1.00						
			B 3	1.80-2.10						
2			D 4	2.10			81.60	2.40		
			B 5	2.80-3.10					Firm damp brownish grey slightly gravelly slightly sandy SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone.	
3			D 6	3.10		END	80.90	3.10	TP terminated at 3.10m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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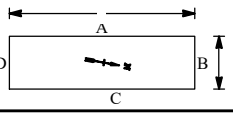
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-46717**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 603,933.4 N 694,887.4** **Rev: FINAL**
Ground level: 87.03m O.D.	**DATE: 7.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							86.73	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of sandstone and limestone.	
			B 1	0.30-0.60					Firm damp orangish brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			D 2	0.60					0.60m: becoming slightly gravelly slightly sandy clayey SILT.	
							86.23	0.80		
1									Greyish brown silty sandy subrounded to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and high boulder content. Sand is fine. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2										
							84.13	2.90		
			B 5	2.90-3.20					Greyish brown sandy very silty subangular to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and high boulder content. Sand is fine. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
3							83.83	3.20		
			D 6	3.20		END			TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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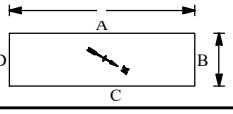
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-46801**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 604,027.6 N 694,942.3** **Rev: FINAL**
Ground level: 88.43m O.D.	**DATE: 7.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.13	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.30-0.60 0.40			87.83	0.60	Stiff orangish brown slightly gravelly SILT with low cobble content. Gravel is angular to subrounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1							86.83	1.60	Firm damp brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			85.93	2.50	Greyish brown sandy very silty subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
2			B 5	2.50-2.80						
			D 6	2.80			85.43	3.00	Light brown very silty fine to coarse SAND and subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
3						END			TP terminated at 3.00m bgl. Obstruction.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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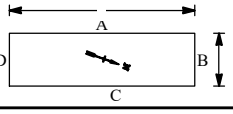
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-46901**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 604,111.2 N 694,905.8** **Rev: FINAL**
Ground level: 85.68m O.D.	**DATE: 7.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							85.28	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.40-0.70					Firm damp greyish brown slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1										
							83.78	1.90		
			B 3	1.90-2.20					Greyish brown very silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
2							83.48	2.20		
			D 4	2.20		END			TP terminated at 2.20m bgl. Obstruction as large boulders. Boulders are up to 1000mm in length.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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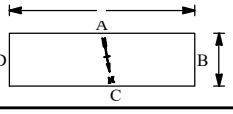
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47003**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 604,215.6 N 694,861.7 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 82.53m O.D.	**DATE: 7.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.23	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.40-0.70					Firm damp orangish brown slightly sandy slightly gravelly SILT with medium cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.70			81.73	0.80		
1									Firm damp brownish grey slightly sandy gravelly clayey SILT with high cobble content and medium boulder content. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.40-1.70						
			D 4	1.70			80.83	1.70		
2									Greyish brown slightly sandy very clayey subangular to rounded medium sandstone and limestone GRAVEL with high cobble content and low high content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.50					2.30m to 2.50m: becoming very silty very sandy.	
			D 6	2.50			80.03	2.50		
						END			TP terminated at 2.50m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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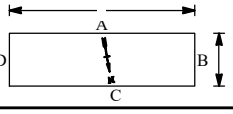
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47102**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 604,315.7 N 694,888.7** **Rev: FINAL**
Ground level: 78.07m O.D.	**DATE: 7.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							77.77	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			B 1	0.30-0.60						
			D 2	0.60			77.17	0.90	Firm orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
1			B 3	1.30-1.60					Firm damp light greyish brown very gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			D 4	1.60						
2			B 5	2.50-2.80						
			D 6	2.60			75.27	2.80		
3									Soft damp light brownish grey sandy very gravelly SILT with high cobble content and medium boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			B 7	3.70-4.00			74.07	4.00		
4			D 8	4.00		END			TP terminated at 4.00m bgl. Unable to progress TP - sidewall collapse.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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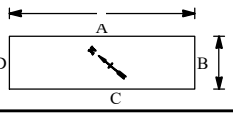
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47202**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 604,418.8 N 694,872.6** **Rev: FINAL**
Ground level: 76.28m O.D.	**DATE: 8.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			75.98	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			D 2	0.60			75.38	0.90	Firm damp orangish brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone.	
1			B 3	1.00-1.30						
			D 4	1.30			74.88	1.40	Brownish grey silty very gravelly fine SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			B 5	1.70-2.00						
2			D 6	2.00			73.98	2.30	Firm damp orangish brown mottled grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 7	2.40-2.70			73.58	2.70	Stiff greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 8	2.70		**END**			TP terminated at 2.70m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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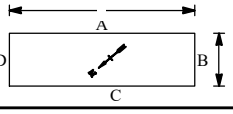
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47308**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 604,497.0 N 694,948.7** **Rev: FINAL**
Ground level: 75.08m O.D.	**DATE: 8.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			74.78	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			D 2	0.60			74.38	0.70	Firm damp orangish brown gravelly SILT with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 300mm in length.	
1									Firm damp light greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.70-2.00						
2			D 4	2.00			72.78	2.30		
			B 5	2.70-3.00					Stiff light brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			D 6	3.00			71.98	3.10		
						END			TP terminated at 3.10m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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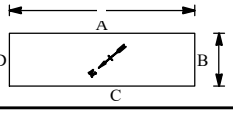
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47392**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 604,565.8 N 695,008.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 74.56m O.D.	**DATE: 8.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.80m **20min** **2.65m**
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							74.26	0.30	TOPSOIL: Grass over firm damp brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded medium to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.30-0.60			73.96	0.60	Firm damp orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60			73.16	1.40	Stiff light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1			B 3	1.00-1.30						
			D 4	1.30			71.76	2.80	Soft moist greyish brown slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
2			B 5	2.00-2.30						
			D 6	2.30			71.16	3.40	Soft moist light greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
3			B 7	3.10-3.40						
			D 8	3.40		END			TP terminated at 3.40m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 2.80m bgl. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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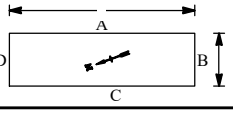
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47507**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 604,613.4 N 695,109.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 75.52m O.D.	**DATE: 11.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							75.22	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			VANE B 1 D 2	0.40 0.40-0.70 0.50	22 kN/m² 19mm vane		74.82	0.70	Stiff brown slightly gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
1			B 3 D 4	1.00-1.30 1.30					Light greyish brown slightly silty very gravelly fine to coarse SAND with high cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
2							73.02	2.50		
			B 5 D 6	2.50-2.80 2.80					Stiff light greyish brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
3							72.42	3.10		
						END			TP terminated at 3.10m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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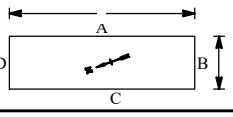
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47615**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 604,695.2 N 695,185.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 74.64m O.D.	**DATE: 11.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.40-0.70	20 kN/m² 19mm vane				TOPSOIL: Grass over firm damp brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			VANE	0.50			74.24	0.40		
			D 2	0.70					Stiff orangish brown gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 300mm in length.	
							73.84	0.80		
1									Firm light greyish brown gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.20-1.50						
			D 4	1.50						
							72.74	1.90		
2									Stiff light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
							71.94	2.70		
						END			TP terminated at 2.70m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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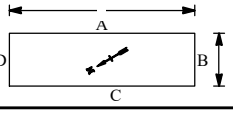
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47705**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 604,784.2 N 695,211.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 70.27m O.D.	**DATE: 13.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			VANE	0.40	19 kN/m² 19mm vane		69.87	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded medium to coarse of limestone.	
			B 1	0.40-0.70					Firm damp orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.70						
1							68.87	1.40		
			B 3	1.40-1.70					Firm light greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 4	1.70						
2									2.00m: with medium large boulder content. Boulders are of sandstone and limestone. Boulders are up to 800mm in length.	
			B 5	2.20-2.50						
			D 6	2.50			67.77	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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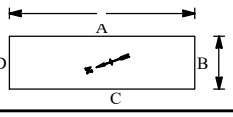
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47801**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 604,895.3 N 695,227.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 66.03m O.D.	**DATE: 14.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							65.73	0.30	TOPSOIL: Grass over firm orangish brown SILT with some roots and rootlets.	
			B 1	0.30-0.50	11 kN/m² 19mm vane				Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone.	
			VANE	0.40						
			D 2	0.40			65.53	0.50		
			B 3	0.50-0.80					Bluish grey slightly silty very sandy subrounded to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 250mm in length.	
			D 4	0.80			65.13	0.90		
1									Light brown very gravelly very silty fine to coarse SAND with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			B 5	1.50-1.80						
			D 6	1.80						
2										
			B 7	2.50-2.80						
			D 8	2.80						
3							62.33	3.70		
						END			TP terminated at 3.70m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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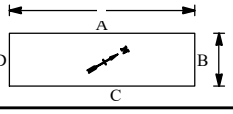
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-47902**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 604,972.6 N 695,242.4
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 63.68m O.D.	**Rev: FINAL**
	DATE: 11.10.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							63.38	0.30	TOPSOIL: Stubble over firm dark brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			VANE	0.40	20 kN/m² 19mm vane		63.18	0.50	Firm damp orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.50-0.80					Firm damp light brown slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
1			D 2	0.80			62.48	1.20		
			B 3	1.30-1.60					Light greyish brown gravelly silty fine SAND with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			D 4	1.60						
2			B 5	2.40-2.70						
			D 6	2.70			60.98	2.70		
						END			TP terminated at 2.70m bgl. Obstruction as possible boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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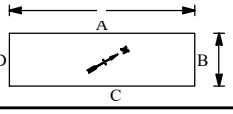
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48001**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,054.9 N 695,240.4** **Rev: FINAL**
Ground level: 62.83m O.D.	**DATE: 11.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							62.53	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded medium to coarse of sandstone and limestone.	
			B 1 D 2	0.70-1.00 0.80			61.83	1.00	Soft damp light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
1			B 3	1.30-1.60			61.23	1.60	Firm damp light brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 4	1.60		END			TP terminated at 1.60m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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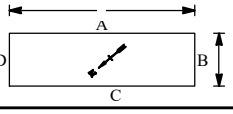
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48102**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,171.3 N 695,198.8** **Rev: FINAL**
Ground level: 60.65m O.D.	**DATE: 11.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							60.35	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1							59.05	1.60		
			B 3	2.10-2.40					Firm light greyish brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 500mm in length.	
2							58.25	2.40		
			D 4	2.40		**END**			TP terminated at 2.40m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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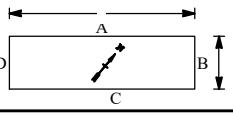
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48302**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,365.1 N 695,157.2** **Rev: FINAL**
Ground level: 58.33m O.D.	**DATE: 12.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							58.13	0.20	TOPSOIL: Grass over firm orangish brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded medium to coarse of sandstone and limestone.	
			B 1	0.20-0.40	24 kN/m² 19mm vane				Stiff orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			VANE	0.30			57.93	0.40		
			D 2	0.30					Light brown very gravelly very silty fine to coarse SAND with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
1										
			B 3	1.30-1.60						
			D 4	1.60		END	56.73	1.60	TP terminated at 1.60m bgl. Obstruction as probable rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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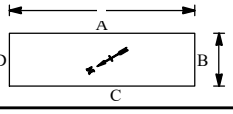
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48401**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,470.2 N 695,126.0** **Rev: FINAL**
Ground level: 58.60m O.D.	**DATE: 12.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							58.30	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			B 1	0.50-0.80					Firm light brown slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			D 2	0.80						
1							57.40	1.20		
			B 3	1.60-1.90					Firm light brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 4	1.90			56.70	1.90		
2						END			TP terminated at 1.90m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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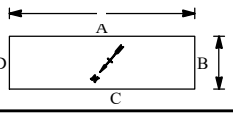
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48500**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 605,542.2 N 695,073.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 58.39m O.D.	**DATE: 12.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							58.09	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.30-0.50	14 kN/m² 19mm vane					
			VANE	0.40						
			D 2	0.40			57.89	0.50	Firm damp orangish brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 3	0.60-0.90					Firm light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			D 4	0.80			57.49	0.90		
1							57.19	1.20	Light brown gravelly silty fine to coarse SAND with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			B 5	1.50-1.80					Firm light brown sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	1.80						
2							56.39	2.00		
			B 7	2.20-2.50					Stiff light brown very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
							55.89	2.50		
			D 8	2.50		END			TP terminated at 2.50m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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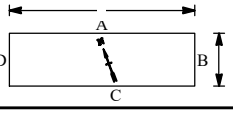
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48596**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,613.9 N 695,005.8** **Rev: FINAL**
Ground level: 57.65m O.D.	**DATE: 12.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 110°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							57.25	0.40	TOPSOIL: Grass over stiff light orangish brown gravelly SILT with low cobble content and low boulder content and some roots and rootlets. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are angular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
			B 1	0.40-0.70					Stiff light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1										
2			B 3	1.70-2.00						
			D 4	2.00						
			B 5	2.70-3.00			54.65	3.00		
3			D 6	3.00		END			TP terminated at 3.00m bgl.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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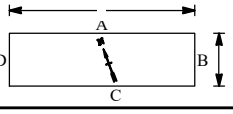
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-48701**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,720.8 N 694,981.7**		**Rev: FINAL**
Ground level: 54.68m O.D.			**DATE: 12.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 110°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							54.48	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded of limestone.	
							54.28	0.40	Firm damp orangish brown slightly gravelly SILT with medium cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70						
			D 2	0.70			53.88	0.80	Firm damp light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.00-1.30						
			D 4	1.30			53.28	1.40	Light brown silty very gravelly fine SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	1.70-2.00						
2			D 6	2.00			52.28	2.40	Stiff light brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.	
						END			TP terminated at 2.40m bgl. Obstruction as large boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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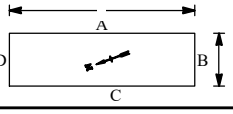
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48800**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,816.4 N 694,951.8** **Rev: FINAL**
Ground level: 53.65m O.D.	**DATE: 12.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.40	12 kN/m² 19mm vane		53.45	0.20	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			VANE	0.30					Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			D 2	0.30			53.25	0.40	Firm light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			B 3	0.70-1.00						
1			D 4	1.00						
							51.75	1.90		
2									Light brown slightly silty very gravelly fine to coarse SAND with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			B 5	2.10-2.40						
							51.25	2.40		
			D 6	2.40		END			TP terminated at 2.40m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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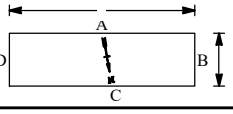
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-48900**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,902.2 N 694,899.0** **Rev: FINAL**
Ground level: 53.75m O.D.	**DATE: 13.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			53.45	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	16 kN/m² 19mm vane				Firm damp orangish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 2	0.60			53.05	0.70		
1			B 3	1.00-1.30					Stiff light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.30			52.25	1.50		
			B 5	1.70-2.00					Firm damp light brownish grey slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2			D 6	2.00			51.65	2.10		
									Soft damp light brownish grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length. Organic odour.	
3			B 7	3.20-3.50						
			D 8	3.50			50.15	3.60		
						END			TP terminated at 3.60m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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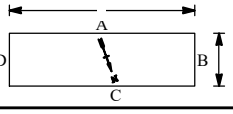
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-49000**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 605,994.6 N 694,854.4** **Rev: FINAL**
Ground level: 54.36m O.D.	**DATE: 13.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							54.16	0.20	TOPSOIL: Grass over firm light orangish brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded medium to coarse of limestone.	
			B 1	0.20-0.40	13 kN/m² 19mm vane				Firm damp orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.30			53.96	0.40		
			D 2	0.30					Light brownish grey silty very gravelly fine to coarse SAND with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
1			B 3	1.20-1.50						
			D 4	1.50						
2			B 5	2.00-2.30						
			D 6	2.30			52.06	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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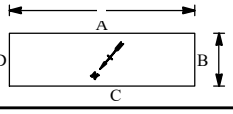
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-49102**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 606,097.2 N 694,858.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 53.39m O.D.	**DATE: 14.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			B 1	0.20-0.50			53.19	0.20	TOPSOIL: Grass over mottled orange blackish brown slightly gravelly SILT with some charcoal and wood. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE D 2	0.40 0.40	16 kN/m² 19mm vane		52.89	0.50	Firm damp orangish brown gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 3	0.60-0.90					Firm light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
1			D 4	0.90			52.19	1.20		
			B 5	1.80-2.10					Firm light brown very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
2			D 6	2.10			51.09	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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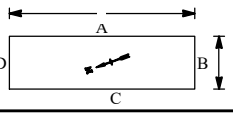
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-49215**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 606,209.0 N 694,879.9** **Rev: FINAL**
Ground level: 50.29m O.D.	**DATE: 14.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							49.99	0.30	TOPSOIL: Grass over firm orangish brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			B 1	0.30-0.60	12 kN/m² 19mm vane				Firm light brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
			VANE	0.40						
			D 2	0.60						
1			B 3	1.20-1.50						
			D 4	1.50		END	48.79	1.50	TP terminated at 1.50m bgl. Obstruction as probable boulder.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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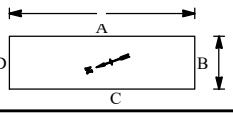
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-49303**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 606,296.9 N 694,868.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 49.51m O.D.	**DATE: 14.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							49.21	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			VANE	0.40	12 kN/m² 19mm vane				Light orangish brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			B 1	0.50-0.80						
			D 2	0.80					0.80m: with high boulder content.	
1							48.51	1.00		
						END			TP terminated at 1.00m bgl. Obstruction as probable rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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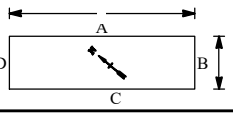
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-49408**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 606,402.0 N 694,862.1** **Rev: FINAL**
Ground level: 48.77m O.D.	**DATE: 14.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							48.47	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			VANE	0.40	13 kN/m² 19mm vane				Light orangish brown slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			B 1	0.60-0.90						
			D 2	0.90			47.77	1.00		
1						END			TP terminated at 1.00m bgl. Obstruction as possible rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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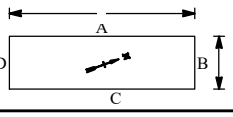
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50309**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 606,955.5 N 695,529.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 52.34m O.D.	**DATE: 26.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m to 2.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			VANE	0.30	14 kN/m² 19mm vane		52.04	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light greyish brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.60			51.64	0.70		
1			B 3	1.00-1.30					Soft damp light greyish brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30			50.54	1.80		
2									Firm damp light greyish brown slightly gravelly sandy SILT with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 1000mm in length.	
			B 5	2.70-3.00						
3			D 6	3.00			49.24	3.10		
									END TP terminated at 3.10m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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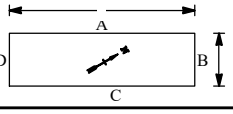
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50409**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 606,969.9 N 695,630.0** **Rev: FINAL**
Ground level: 58.36m O.D.	**DATE: 26.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							58.06	0.30	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 350mm in length.	
			B 1	0.30-0.60					Firm damp light grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60						
1										
			B 3	1.50-1.80			56.56	1.80		
			D 4	1.80		**END**			TP terminated at 1.80m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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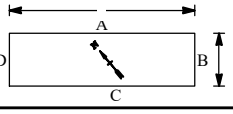
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50508**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,020.0 N 695,719.1** **Rev: FINAL**
Ground level: 60.35m O.D.	**DATE: 26.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							60.05	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE	0.35	14 kN/m² 19mm vane		59.95	0.40	Firm orangish brown gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70					Firm damp light grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length. Slight organic odour.	
			D 2	0.70						
1										
			B 3	1.40-1.70						
			D 4	1.70			58.65	1.70		
						END			TP terminated at 1.70m bgl. Obstruction as possible large boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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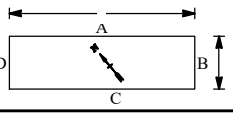
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50608**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,090.4 N 695,796.5** **Rev: FINAL**
Ground level: 63.90m O.D.	**DATE: 22.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							63.60	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70			63.20	0.70	Bluish grey silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine. Cobbles are subrounded to rounded of limestone.	
			D 2	0.70			62.90	1.00	Firm light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
1						**END**			TP terminated at 1.00m bgl. Obstruction as possible large boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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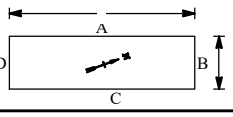
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-50707**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,114.8 N 695,892.8**	**Rev: FINAL**
Ground level: 68.59m O.D.		**DATE: 22.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							68.39	0.20	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.20-0.50					Firm damp light grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 550mm in length.	
			D 2	0.50			67.79	0.80		
1							67.49	1.10	Very soft damp light grey gravelly SILT medium cobble content and medium boulder content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 500mm in length.	
			B 3	1.10-1.40					Bluish grey very sandy very silty subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and medium boulder content. . Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Gravel is subangular to rounded fine to coarse of limestone. Boulders are up to 600mm in length.	
			D 4	1.40						
2										
			B 5	2.30-2.60			65.99	2.60		
			D 6	2.60		END			TP terminated at 2.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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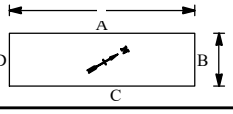
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50809**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 607,170.2 N 695,983.1**
	Rig: Hitachi Zaxis 130 LCN
	Rev: FINAL
Ground level: 69.65m O.D.	**DATE: 26.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							69.45	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.40	17 kN/m² 19mm vane				Stiff orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.30						
			D 2	0.30			69.25	0.40		
			B 3	0.50-0.80					Brown very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 4	0.80			68.65	1.00		
1									Soft damp light grey gravelly SILT with medium cobble content and medium boulder and large boulder content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 1000mm in length.	
			B 5	1.50-1.80						
			D 6	1.80			67.65	2.00		
2						END			TP terminated at 2.00m bgl. Obstruction as possible rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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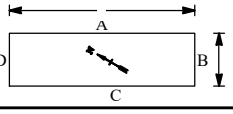
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50921**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,265.6 N 696,046.5** **Rev: FINAL**
Ground level: 73.09m O.D.	**DATE: 20.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							72.69	0.40	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70					Firm light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.70						
1							71.99	1.10		
									Soft light brownish grey slightly sandy very gravelly SILT with high cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.70-2.00			71.39	1.70		
									Brownish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
2			D 4	2.00		END	71.09	2.00	TP terminated at 2.00m bgl. Obstruction as large boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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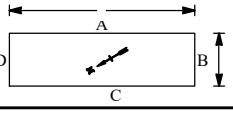
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-50959**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,334.0 N 696,005.0**	**Rev: FINAL**
Ground level: 71.05m O.D.		**DATE: 20.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							70.75	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			70.35	0.70	Firm damp light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1							69.25	1.80	Soft damp light grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							69.05	2.00	Brownish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60					Stiff light orangish brown slightly sandy slightly gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 6	2.60						
3							68.05	3.00		
							END		TP terminated at 3.00m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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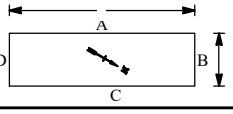
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50964**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,288.0 N 696,099.0** **Rev: FINAL**
Ground level: 76.35m O.D.	**DATE: 20.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			76.10	0.25	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and many rootlets. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60			75.25	1.10	Firm light brownish grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1							74.85	1.50	Firm damp light brownish grey slightly sandy very gravelly SILT with high cobble content and high boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.50-1.80			74.55	1.80	Brownish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
2			D 4	1.80		**END**			TP terminated at 1.80m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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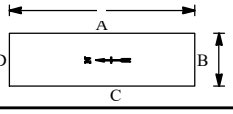
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50987**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 607,399.2 N 695,942.4**
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 71.11m O.D.	**Rev: FINAL**
	DATE: 21.12.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							70.81	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	23 kN/m² 19mm vane					
			D 2	0.60			70.41	0.70		
			B 3	0.80-1.10					Soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			D 4	1.10			69.91	1.20		
									Very soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone with large boulders at base. Boulders are up to 700mm in length.	
2			B 5	2.00-2.30						
			D 6	2.30			68.81	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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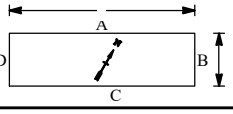
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-50998**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 607,299.0 N 696,150.9 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 75.04m O.D.	**DATE: 20.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							74.84	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded medium to coarse of limestone.	
			VANE	0.40	17 kN/m² 19mm vane		74.54	0.50	Firm orangish brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded of limestone.	
			B 1	0.50-0.80			74.24	0.80	Brown silty sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.80			73.94	1.10	Firm light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1										
			B 3	1.50-1.80					Soft damp light grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 4	1.80						
2							72.64	2.40		
							72.04	3.00	Firm damp light grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
3			B 5	3.00-3.30					Brownish grey silty sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 6	3.30			71.54	3.50		
						END			TP terminated at 3.50m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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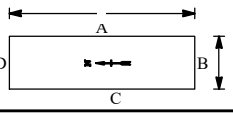
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51019**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,404.3 N 696,000.5** **Rev: FINAL**
Ground level: 71.37m O.D.	**DATE: 21.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.50	25 kN/m² 19mm vane		71.07	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.40						
			D 2	0.40			70.87	0.50	Firm orangish brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.60-0.90					Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
							70.47	0.90		
			D 4	0.90					Very soft light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
1										
			B 5	1.70-2.00						
			D 6	2.00					2.00m: with medium boulder content.	
2							68.87	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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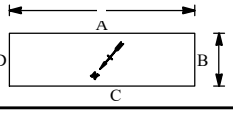
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-51052**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,363.0 N 696,146.0**	**Rev: FINAL**
Ground level: 73.73m O.D.		**DATE: 21.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							73.53	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.20-0.50						
			D 2	0.30					Firm orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.40	14 kN/m² 19mm vane		73.23	0.50		
									Firm damp light brownish grey gravelly SILT with medium cobble content and medium boulder and large boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 900mm in length.	
1							72.73	1.00		
			B 3	1.00-1.30					Brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.30						
2										
			B 5	2.50-2.80						
							70.93	2.80		
			D 6	2.80		END			TP terminated at 2.80m bgl. Obstruction as possible boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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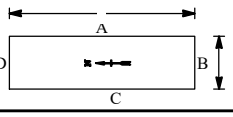
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51059**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,416.1 N 696,062.1** **Rev: FINAL**
Ground level: 71.81m O.D.	**DATE: 21.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							71.51	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.30					Firm orangish brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	11 kN/m² 19mm vane		71.21	0.60		
1									Soft damp light orangish brown gravelly sandy SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			69.91	1.90		
2									Firm brownish orange gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
3										
			B 7	3.20-3.50			68.31	3.50		
			D 8	3.50		END			TP terminated at 3.50m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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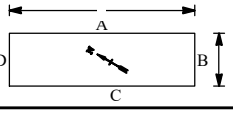
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51061**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 607,338.1 N 696,208.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 73.59m O.D.	**DATE: 20.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m **20min** **2.00m**
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m to 2.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							73.29	0.30	TOPSOIL: Grass over firm brown gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.60			72.79	0.80		
1							72.09	1.50	Soft damp light grey gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length. Slight organic odour.	
			B 3	1.50-1.80					Brown sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 4	1.80						
			B 5	2.70-3.00			70.59	3.00		
3			D 6	3.00		END			TP terminated at 3.00m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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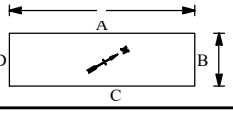
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51107**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 607,483.0 N 696,041.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 72.76m O.D.	**DATE: 22.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			72.46	0.30	TOPSOIL: Crops over firm brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			VANE	0.50	13 kN/m² 19mm vane				Firm orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.60			72.06	0.70		
1									Firm grey very sandy very gravelly SILT with medium cobble content and high boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1300mm in length.	
			B 3	1.30-1.60						
			D 4	1.60		END	71.16	1.60	TP terminated at 1.60m bgl. Obstruction as possible rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

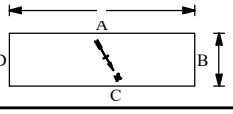
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51116**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,442.1 N 696,144.0** **Rev: FINAL**
Ground level: 73.70m O.D.	**DATE: 21.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							73.40	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Firm brown slightly gravelly sandy SILT with medium cobble content and low boulder content.Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50	16 kN/m² 19mm vane					
			D 2	0.60						
							72.90	0.80		
1			B 3	1.00-1.30					Firm light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30						
							72.20	1.50		
									Firm orangish brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5	1.80-2.10						
			D 6	2.10						
							71.50	2.20		
							71.30	2.40	Firm orangish brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 7	2.40-2.70					Brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 8	2.70		END	71.00	2.70	TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

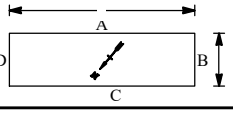
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51138**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,484.4 N 696,099.1** **Rev: FINAL**
Ground level: 74.35m O.D.	**DATE: 22.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							74.05	0.30	TOPSOIL: Crops over firm brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.40-0.70	25 kN/m² 19mm vane				Firm light grey sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50						
			D 2	0.70			73.65	0.70		
1									Soft damp light grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 600mm in length.	
2			B 3	2.00-2.30						
			D 4	2.30		END	72.05	2.30	TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

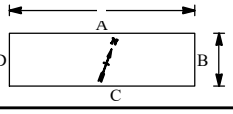
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51201**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 607,504.9 N 696,197.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 74.98m O.D.	**DATE: 21.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							74.78	0.20	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.30	13 kN/m² 19mm vane		74.58	0.40	Firm damp orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70					Firm light grey slightly sandy gravelly SILT with medium cobble content and low boulder and large boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.	
			D 2	0.70			74.08	0.90		
1			B 3	1.00-1.30					Stiff light orangish brown sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30			73.38	1.60		
2							72.58	2.40	Brown sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.40-2.70					Very soft damp light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 450mm in length.	
			D 6	2.70		END	72.28	2.70	TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

Ph.
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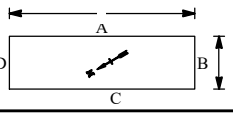
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51305**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 607,606.0 N 696,229.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 78.21m O.D.	**DATE: 21.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1 D 2 VANE	0.30-0.60 0.40 0.50	14 kN/m² 19mm vane		77.91	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
							77.61	0.60	Firm damp orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1							77.01	1.20	Soft damp light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3 D 4	1.20-1.50 1.50			76.41	1.80	Brown very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2							75.61	2.60	Firm light brownish grey slightly sandy gravelly SILT with high cobble content and high boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 5	2.30-2.60						
			D 6	2.60		END			TP terminated at 2.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

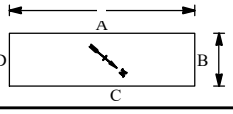
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51385**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,690.3 N 696,241.8** **Rev: FINAL**
Ground level: 79.87m O.D.	**DATE: 21.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							79.57	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and low boulder content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 1	0.70-1.00					Firm light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			D 2	1.00			78.87	1.00		
									Brown silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
									1.80m: with low large boulder content. Boulders are up to 1000mm in length.	
2			B 3	2.00-2.30						
			D 4	2.30			77.57	2.30		
							77.37	2.50	Firm light grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 2.50m bgl. Obstruction as possible boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

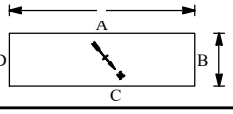
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51603**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 607,815.6 N 696,383.2** **Rev: FINAL**
Ground level: 78.42m O.D.	**DATE: 22.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 310°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							78.12	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1 D 2	0.30-0.60 0.40			77.82	0.60	Stiff light bluish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3 D 4	0.70-1.00 1.00					Very soft moist light grey slightly sandy gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1										
2			B 5 D 6	1.80-2.10 2.10			76.32	2.10		
							76.02	2.40	Brown sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 2.40m bgl. Obstruction as possible boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

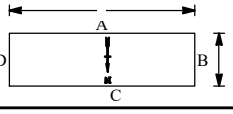
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51705**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 607,882.3 N 696,404.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 80.98m O.D.	**DATE: 22.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 3.00m **20min** **2.98m**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							80.68	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light bluish grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.60			79.98	1.00		
1									Very soft moist grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2										
3		1	B 5	3.00-3.30			77.98	3.00		
			D 6	3.30			77.68	3.30	Brown very silty very gravelly fine to coarse SAND with high cobble content and medium boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 3.30m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 3.00m bgl. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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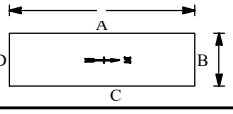
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51801**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,023.8 N 696,471.2** **Rev: FINAL**
Ground level: 86.50m O.D.	**DATE: 27.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							86.30	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50					Stiff light greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.50			85.90	0.60		
1			B 3	1.00-1.30					Greyish brown very silty very gravelly fine SAND with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 4	1.30			85.10	1.40		
2									Soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.40-2.70						
			D 6	2.70		**END**	83.80	2.70	TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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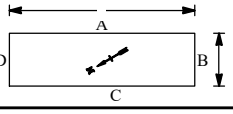
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-51906**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,082.1 N 696,562.1** **Rev: FINAL**
Ground level: 88.21m O.D.	**DATE: 27.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.01	0.20	TOPSOIL: Grass over firm dark brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			D 2	0.50			87.61	0.60	Firm bluish grey gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
1			B 3	1.20-1.50			86.71	1.50	Brownish bluish grey very gravelly fine to coarse SAND with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			D 4	1.50						
2			B 5	2.20-2.50			85.71	2.50	Soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length. 2.20m: becoming slightly sandy.	
			D 6	2.50		**END**			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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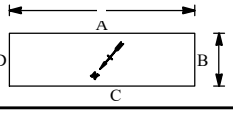
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52050**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 608,198.5 N 696,656.9
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
	Rev: FINAL
Ground level: 87.04m O.D.	**DATE: 27.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							86.74	0.30	TOPSOIL: Grass over plastic black silty amorphous PEAT. H8 B1 F1 R0 TV2 TH2 A1.	
			B 1	0.30-0.60					Bluish grey silty sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is fine. Cobbles are subrounded to rounded of sandstone and limestone.	
			D 2	0.60						
							86.24	0.80		
			B 3	0.80-1.10					Bluish grey silty very sandy subrounded to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 250mm in length.	
1			D 4	1.00			85.94	1.10		
									Very soft moist light bluish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	1.30-1.60						
							85.44	1.60		
			D 6	1.60			**END**		TP terminated at 1.60m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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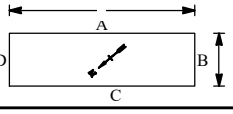
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52108**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,218.5 N 696,718.5** **Rev: FINAL**
Ground level: 88.52m O.D.	**DATE: 27.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			88.22	0.30	TOPSOIL: Grass over firm black slightly gravelly peaty SILT with low boulder content and some roots and rootlets. Gravel is subrounded to rounded fine coarse of limestone. Boulders are rounded of limestone. Boulders are up to 400mm in length.	
			VANE	0.50	7 kN/m² 19mm vane				CUT OVER RAISED PEAT: Plastic black amorphous PEAT with low large boulder content. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.H8 B2 F1 R0 TV1 TH1 A1.	
			D 2	0.60			87.72	0.80		
1									Firm damp grey slightly gravelly sandy SILT with medium cobble content and medium boulder and large boulder content and some plant material. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1200mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			86.82	1.70		
						END			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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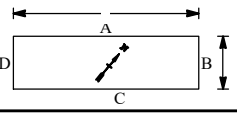
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52207**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 608,297.6 N 696,795.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 91.56m O.D.	**DATE: 28.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.26	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			90.56	1.00	Firm damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1										
			B 3	1.30-1.60					Firm damp light orangish brown slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
			D 4	1.60						
2										
3							88.36	3.20		
			B 5	3.30-3.60					Firm damp light orangish brown slightly gravelly sandy SILT. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone.	
			D 6	3.60		END	87.96	3.60	TP terminated at 3.60m bgl. Unable to progress TP - unstable ground conditions.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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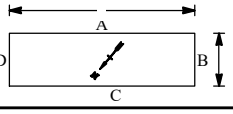
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-52308**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,322.9 N 696,880.4**		**Rev: FINAL**
Ground level: 94.07m O.D.			**DATE: 28.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							93.77	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60	16 kN/m² 19mm vane				Firm orangish brown slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			VANE	0.40						
			D 2	0.60			93.37	0.70		
1									Firm light greyish brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			92.17	1.90		
2									Stiff light greyish brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60			91.37	2.70		
						END			TP terminated at 2.70m bgl. Obstruction as very stiff strata.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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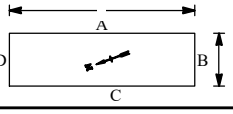
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52400**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,362.8 N 696,968.3** **Rev: FINAL**
Ground level: 99.32m O.D.	**DATE: 28.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							99.02	0.30	TOPSOIL: Grass over firm brown gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp light grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 2	0.60						
1							98.22	1.10		
			B 3	1.30-1.60					Very soft moist light grey slightly sandy gravelly SILT with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.	
			D 4	1.60			97.72	1.60		
						END			TP terminated at 1.60m bgl. Unable to progress TP - sidewall collapse and boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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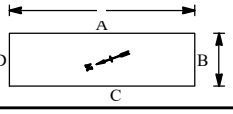
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52507**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 608,453.2 N 697,031.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 97.39m O.D.	**DATE: 28.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							96.99	0.40	TOPSOIL: Grass over firm brown gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.50-0.80					Firm damp light grey slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.80						
1							95.89	1.50		
			B 3	1.80-2.10					Light greyish brown gravelly very silty fine to medium SAND. Gravel is subangular to rounded fine to coarse of limestone.	
2			D 4	2.10						
3			B 5	3.30-3.60						
			D 6	3.60			93.59	3.80		
						END			TP terminated at 3.80m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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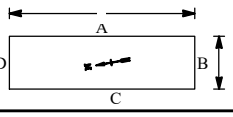
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52609**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,540.8 N 697,088.3** **Rev: FINAL**
Ground level: 96.76m O.D.	**DATE: 28.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 190°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							96.46	0.30	TOPSOIL: Grass over firm brown gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.30-0.60 0.40			96.16	0.60	Light greyish brown slightly gravelly silty fine SAND with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3 D 4	0.90-1.20 1.10			95.56	1.20	Light greyish brown very silty fine SAND.	
2							94.06	2.70	Light greyish brown slightly gravelly silty fine to medium SAND with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
3			B 5 D 6	2.80-3.10 3.10			93.06	3.70	Brownish grey slightly gravelly silty fine to coarse SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
4						END			TP terminated at 3.70m bgl. Unable to progress TP - sidewall collapse.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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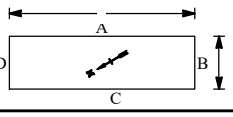
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52709**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 608,577.7 N 697,142.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 94.58m O.D.	**DATE: 29.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.70m **20min** **1.68m**
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.43	0.15	TOPSOIL: Grass over firm brown SILT with some roots and rootlets.	
			B 1	0.30-0.60			94.28	0.30	Firm light brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	17 kN/m² 19mm vane				Firm dark brown peaty SILT with some rootlets and tree roots. Roots are up to 20mm thick.	
			D 2	0.60			93.88	0.70		
			B 3	0.80-1.10					Stiff bluish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			D 4	1.00			93.48	1.10		
			B 5	1.30-1.60					Very soft moist light bluish grey slightly sandy slightly gravelly SILT with high cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
		1	D 6	1.60			92.88	1.70		
2									Orangish brown silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			B 7	2.20-2.50						
			D 8	2.50		END	92.08	2.50	TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 1.70m bgl. TP backfilled with arisings.

Scale: 1:25

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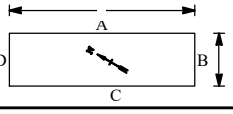
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-52910**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,644.9 N 697,359.4** **Rev: FINAL**
Ground level: 97.28m O.D.	**DATE: 1.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							96.88	0.40	TOPSOIL: Saplings tree litter and moss over firm brown gravelly SILT with many tree roots. Gravel is subangular to rounded fine to coarse of limestone. Tree roots are up to 30mm thick.	
			B 1	0.50-0.80			96.48	0.80	Grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			D 2	0.80			95.48	1.80	Firm light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse.Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1										
2			B 3	1.90-2.20					Soft light greyish brown slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	2.20						
3			B 5	3.10-3.40			93.88	3.40		
			D 6	3.40		END			TP terminated at 3.40m bgl. Unable to progress TP - unstable ground conditions.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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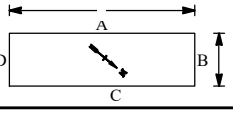
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-53110**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 608,683.1 N 697,567.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 95.08m O.D.	**DATE: 29.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.88	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.20-0.50					Firm orangish brown SILT with rootlets.	
			VANE	0.50	16 kN/m² 19mm vane					
			D 2	0.50			94.48	0.60		
			B 3	0.80-1.10					Orangish brown very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
1			D 4	1.10			93.98	1.10		
									Firm light grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 600mm in length.	
2			B 5	2.30-2.60						
			D 6	2.60			92.28	2.80		
						END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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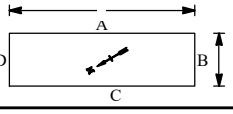
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-53211**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,663.7 N 697,658.3** **Rev: FINAL**
Ground level: 94.16m O.D.	**DATE: 29.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							93.86	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1										
							92.36	1.80		
			B 3	1.80-2.10					Brown very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
2			D 4	2.10			92.06	2.10		
									Stiff light grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
							91.56	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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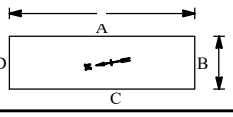
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-53310**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,693.9 N 697,755.8** **Rev: FINAL**
Ground level: 90.29m O.D.	**DATE: 29.10.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 190°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							89.99	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60			89.59	0.70		
1									Brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to Boulders are up to 1500mm in length.	
			B 3	1.50-1.80						
			D 4	1.80		**END**	88.49	1.80	TP terminated at 1.80m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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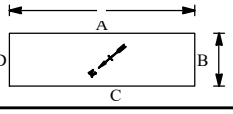
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-53371**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 608,724.1 N 697,814.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 88.13m O.D.	**DATE: 1.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.10m 20min 2.02m
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.83	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and many roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			87.53	0.60	Firm greyish brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
1			B 3	0.90-1.20					Greyish brown slightly silty very gravelly fine to coarse SAND with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
			D 4	1.20			86.73	1.40		
			B 5	1.80-2.10					Greyish brown silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 6	2.10			85.93	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 2.10m bgl. TP backfilled with arisings.

Scale: 1:25

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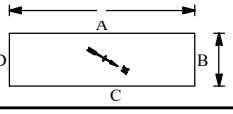
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-53510**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,701.0 N 697,953.2**	**Rev: FINAL**
Ground level: 88.77m O.D.		**DATE: 1.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.47	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Greyish brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60						
1										
			B 3	1.40-1.70			87.07	1.70		
			D 4	1.70					Firm light grey slightly gravelly sandy SILT with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.	
2							86.47	2.30		
			B 5	2.50-2.80					Light grey very gravelly silty fine to coarse SAND with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.80			85.97	2.80		
						END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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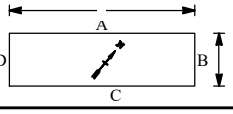
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-53609**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,683.5 N 698,081.6** **Rev: FINAL**
Ground level: 86.22m O.D.	**DATE: 1.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.92	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			85.42	0.80	Firm light grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1			B 3	1.10-1.40					Light grey very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 900mm in length.	
			D 4	1.40						
2			B 5	2.30-2.60			83.62	2.60		
			D 6	2.60		END			TP terminated at 2.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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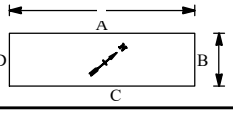
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-53692**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,699.9 N 698,135.6** **Rev: FINAL**
Ground level: 84.44m O.D.	**DATE: 2.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.14	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp light greyish brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60						
1										
			B 3	1.70-2.00			82.74	1.70	Light brown silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 4	2.00		END	82.44	2.00	TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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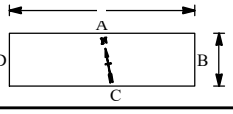
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-53810**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,745.1 N 698,221.0** **Rev: FINAL**
Ground level: 84.59m O.D.	**DATE: 2.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 100°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.39	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.30	21 kN/m² 19mm vane		84.19	0.40	Firm brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Soft light brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			VANE	0.50	18 kN/m² 19mm vane					
			D 2	0.70						
			B 3	1.80-2.10			82.79	1.80	Damp light grey very gravelly very silty fine to coarse SAND with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 4	2.10			82.39	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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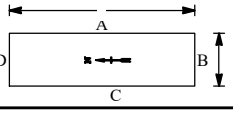
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54012**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,794.6 N 698,473.6** **Rev: FINAL**
Ground level: 89.30m O.D.	**DATE: 2.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.90	0.40	TOPSOIL: Grass and briars over firm brown gravelly SILT with low cobble content and many roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Roots are up to 20mm thick.	
			B 1	0.50-0.80					Firm brownish grey slightly sandy very gravelly SILT with high cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
			D 2	0.80						
1							87.90	1.40		
			B 3	1.40-1.70					Light brown silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.70		END	87.60	1.70	TP terminated at 1.70m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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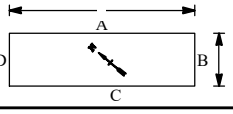
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54109**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 608,766.4 N 698,549.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 85.22m O.D.	**DATE: 2.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.02	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Light brown very sandy very silty subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60			84.62	0.60	Soft light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and high boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 800mm in length.	
1							84.12	1.10	Very soft light grey slightly sandy very gravelly SILT with medium cobble content and high boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 3	1.20-1.50			83.72	1.50		
			D 4	1.50		END			TP terminated at 1.50m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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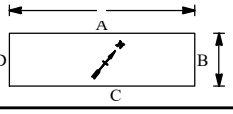
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54309**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,827.4 N 698,739.2** **Rev: FINAL**
Ground level: 83.19m O.D.	**DATE: 2.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.79	0.40	TOPSOIL: Grass over firm brown gravelly SILT with medium cobble content and medium boulder content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 1	0.40-0.70					Soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.70						
1							81.49	1.70		
							81.09	2.10	Firm damp light grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 3	2.10-2.40					Grey very silty fine to coarse SAND and subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	2.40			80.79	2.40		
						END			TP terminated at 2.40m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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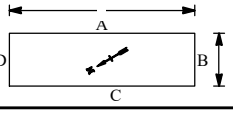
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54411**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,817.5 N 698,840.1** **Rev: FINAL**
Ground level: 83.52m O.D.	**DATE: 3.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.22	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.60						
1							81.92	1.60		
			B 3	1.60-1.90					Light grey very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 4	1.90		END	81.62	1.90	TP terminated at 1.90m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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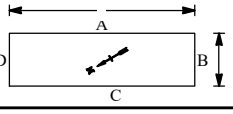
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54511**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,840.8 N 698,938.9** **Rev: FINAL**
Ground level: 86.31m O.D.	**DATE: 3.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 3.50m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							86.01	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 2	0.60						
1										
			B 3	1.40-1.70						
							84.61	1.70		
			D 4	1.70		END			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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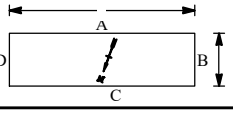
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54611**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 608,864.7 N 699,040.9**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 92.02m O.D.	**DATE: 3.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.72	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and many rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1 D 2	0.30-0.50 0.40			91.52	0.50	Firm light greyish brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
			B 3 D 4	0.70-1.00 1.00			90.82	1.20	Brownish grey very silty very gravelly fine to coarse SAND with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
1							90.12	1.90	Firm greyish brown slightly sandy very gravelly SILT with medium cobble content and high boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 600mm in length.	
			B 5	1.90-2.20			89.82	2.20	Light brown very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 6	2.20		END			TP terminated at 2.20m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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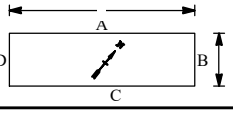
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54710**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,854.1 N 699,138.1** **Rev: FINAL**
Ground level: 96.99m O.D.	**DATE: 10.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							96.79	0.20	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 1 D 2	0.50-0.80 0.60			95.49	1.50	Firm grey slightly gravelly sandy SILT with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.	
1										
									END TP terminated at 1.50m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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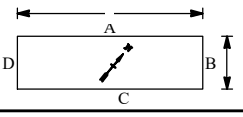
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54809**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,861.3 N 699,239.7** **Rev: FINAL**
Ground level: 96.44m O.D.	**DATE: 10.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							96.14	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm grey slightly gravelly sandy SILT with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 900mm in length.	
			D 2	0.60					0.60m: becoming slightly sandy.	
1										
			B 3	1.30-1.60						
			D 4	1.60			94.84	1.60		
						END			TP terminated at 1.60m bgl. Obstruction as possible boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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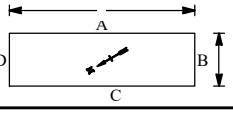
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-54922**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,886.3 N 699,349.8** **Rev: FINAL**
Ground level: 97.17m O.D.	**DATE: 10.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							96.87	0.30	TOPSOIL: Grass over firm orangish brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Firm grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60						
1							96.17	1.00		
			B 3	1.20-1.50			95.97	1.20	Firm grey slightly sandy very gravelly SILT with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.50		END	95.67	1.50	Light brown very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder and large boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1500mm in length.	
2									TP terminated at 1.50m bgl. Obstruction as large boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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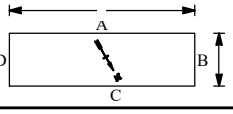
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55008**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,951.1 N 699,429.6** **Rev: FINAL**
Ground level: 96.96m O.D.	**DATE: 5.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							96.56	0.40	TOPSOIL: Grass over firm orangish brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.50-0.80					Grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high large boulder and boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 1000mm in length.	
			D 2	0.80						
1										
			B 3	1.70-2.00						
2			D 4	2.00			94.96	2.00		
						END			TP terminated at 2.00m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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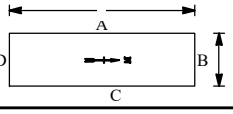
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55109**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,957.5 N 699,522.5** **Rev: FINAL**
Ground level: 92.23m O.D.	**DATE: 5.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.03	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.40	16 kN/m² 19mm vane				Firm damp orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.30						
			D 2	0.30			91.83	0.40		
			B 3	0.50-0.80					Grey silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high large boulder and boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	0.80			91.43	0.80		
1									Firm damp light grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	1.30-1.60			90.93	1.30		
			D 6	1.60					Grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high large boulder and boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
							90.43	1.80		
2						END			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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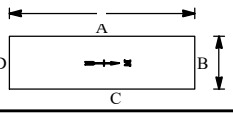
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55207**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 608,967.5 N 699,622.6** **Rev: FINAL**
Ground level: 92.72m O.D.	**DATE: 4.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.42	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			92.02	0.70	Stiff light grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.20-1.50					Soft damp light greyish brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 4	1.50						
2			B 5	2.30-2.60			90.42	2.30		
							90.12	2.60	Grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high large boulder and boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.60		END			TP terminated at 2.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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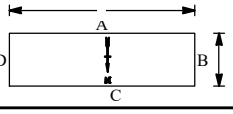
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55310**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 609,011.7 N 699,716.4**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 90.45m O.D.	**DATE: 4.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							90.15	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			VANE	0.40	16 kN/m² 19mm vane		89.95	0.50	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.50-0.80					Greyish brown very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
1			D 2	0.80						
2			B 3	1.90-2.20						
			D 4	2.20			88.25	2.20		
							87.85	2.60	Soft damp light brownish grey slightly sandy very gravelly SILT with high cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3						END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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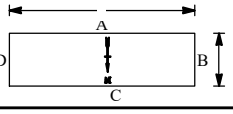
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55409**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,042.1 N 699,813.4** **Rev: FINAL**
Ground level: 87.05m O.D.	**DATE: 4.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							86.75	0.30	TOPSOIL: Stubble over firm brown gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.40-0.70					Grey very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1										
			B 3	1.70-2.00						
2			D 4	2.00			85.05	2.00		
						END			TP terminated at 2.00m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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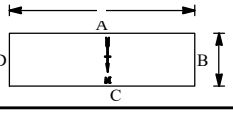
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55510**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,019.3 N 699,917.1** **Rev: FINAL**
Ground level: 84.70m O.D.	**DATE: 4.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							84.30	0.40	TOPSOIL: Stubble over firm brown gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.50-0.80					Light brown silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 550mm in length.	
			D 2	0.80						
1							83.60	1.10		
						END			TP terminated at 1.10m bgl. Obstruction as possible rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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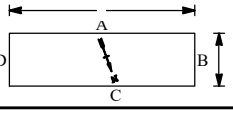
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55612**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,015.5 N 699,972.5** **Rev: FINAL**
Ground level: 83.60m O.D.	**DATE: 4.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.40-0.70			83.20	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some roots and rootlets. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.70			82.80	0.80	Stiff orangish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
1			B 3	1.10-1.40			82.20	1.40	Light brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.40		END			TP terminated at 1.40m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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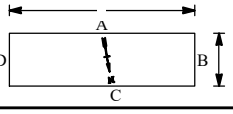
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55711**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,008.2 N 700,115.6** **Rev: FINAL**
Ground level: 80.20m O.D.	**DATE: 4.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							80.00	0.20	TOPSOIL: Grass over firm dark brown peaty SILT.	
			B 1	0.30-0.60					Damp light brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 2	0.60						
1										
			B 3	1.40-1.70			78.50	1.70		
			D 4	1.70		END			TP terminated at 1.70m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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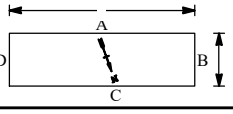
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55806**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 609,024.3 N 700,211.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 78.29m O.D.	**DATE: 3.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.70m 20min 1.20m
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 3.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			B 1	0.10-0.40						
			VANE	0.30	31 kN/m² 33mm vane					
			D 2	0.30			77.89	0.40	TOPSOIL: Grass over plastic dark brownish black silty amorphous PEAT. H8 B1 F1 R1 TV3 TH3 A1.	
							77.59	0.70	Firm damp greyish brown slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	0.70-1.00						
1			D 4	1.00					Grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
		1					76.89	1.40		
			B 5	1.40-1.70					Grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
		1					76.59	1.70		
			D 6	1.70		END			TP terminated at 1.70m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.70m bgl. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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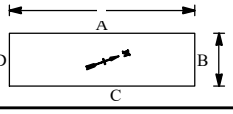
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-55897**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 608,985.4 N 700,300.4**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 79.01m O.D.	**DATE: 3.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			VANE	0.20	13 kN/m² 33mm vane		78.81	0.20	TOPSOIL: Grass over plastic dark brownish black silty amorphous PEAT. H8 B1 F2 R2 W0 TV2 TH2 A1.	
			B 1	0.30-0.60					Firm damp bluish grey slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60			78.21	0.80		
1							77.81	1.20	Soft damp bluish grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.20-1.50					Light brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.50						
2			B 5	2.10-2.40			76.61	2.40		
			D 6	2.40		**END**			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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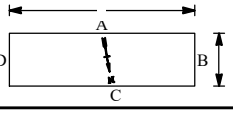
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-56114**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 609,019.5 N 700,515.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 77.03m O.D.	**DATE: 8.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 0.90m **20min** **0.40m**
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m to 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.73	0.30	TOPSOIL: Grass and rushes over soft damp dark brownish black slightly gravelly very peaty SILT with some woody material. Gravel is subrounded to rounded fine to coarse of limestone. Wood is up to 350mm in length.	
		1	B 1	0.30-0.60			76.13	0.90	Bluish grey slightly silty slightly sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm on length.	
1		1	B 2	1.00-1.30					Bluish grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
			D 3	1.30			75.63	1.40		
						END			TP terminated at 1.40m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.90m bgl. TP backfilled with arisings.

Scale: 1:25

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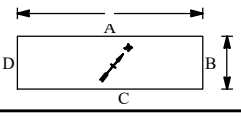
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-56220**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,108.5 N 700,583.5** **Rev: FINAL**
Ground level: 77.26m O.D.	**DATE: 8.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			B 1	0.10-0.40					TOPSOIL: Grass over soft dark brownish black gravelly very peaty SILT with some woody material. Gravel is subrounded to rounded fine to coarse of limestone. Wood is up to 300mm in length.	
			D 2	0.40			76.76	0.50		
							76.66	0.60	Bluish grey silty sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is coarse.	
									END TP terminated at 0.60m bgl. Unable to progress TP due to ingress of water.	
1										
2										
3										
4										
5										

Remarks: Ingress of water at 0.50m bgl. TP backfilled with arisings.

Scale: 1:25

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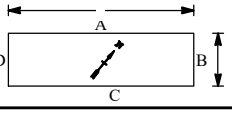
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-56308**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 609,135.6 N 700,670.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 78.60m O.D.	**DATE: 8.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 0.70m **20min** **0.40m**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							78.40	0.20	TOPSOIL: Grass oversoft dark brown slightly gravelly peaty SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
		1	D 2	0.50			77.90	0.70	Firm grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1		1	B 3	0.90-1.20			77.40	1.20	Grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 4	1.20		END			TP terminated at 1.20m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.70m bgl. TP backfilled with arisings.

Scale: 1:25

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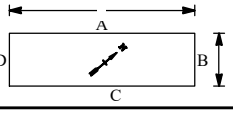
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-56408**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,184.4 N 700,757.4** **Rev: FINAL**
Ground level: 80.45m O.D.	**DATE: 5.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							80.15	0.30	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content and some roots and rootlets. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Orangish greyish brown very silty fine SAND and subangular to rounded fine to coarse of limestone GRAVEL with medium cobble content and medium boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60						
1										
			B 3	1.30-1.60						
			D 4	1.60						
2			B 5	2.00-2.30			78.15	2.30		
			D 6	2.30		END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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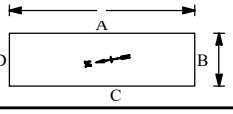
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-56485**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 609,241.5 N 700,811.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 82.46m O.D.	**DATE: 5.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 190°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.16	0.30	TOPSOIL: Grass over firm brown gravelly SILT with some roots and rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			81.56	0.90	Firm bluish brownish grey very gravelly very silty fine to coarse SAND with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.30-1.60					Firm damp brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 4	1.60						
2			B 5	2.30-2.60						
			D 6	2.60			79.56	2.90		
3						END			TP terminated at 2.90m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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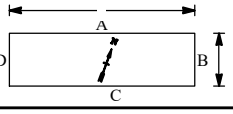
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-56627**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,338.9 N 700,899.6** **Rev: FINAL**
Ground level: 83.08m O.D.	**DATE: 8.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.78	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some roots and rootlets. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Brownish grey very silty very gravelly fine to coarse SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60						
			B 3	0.90-1.20						
1							81.88	1.20		
			D 4	1.20					Brownish grey very gravelly silty fine to medium SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2							80.98	2.10		
			B 5	2.30-2.60					Firm brownish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.60			80.48	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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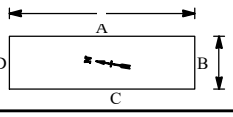
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-56709**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,376.0 N 700,973.2**		**Rev: FINAL**
Ground level: 81.67m O.D.			**DATE: 8.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.90m
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							81.37	0.30	TOPSOIL: Grass over firm dark brown gravelly SILT with low cobble content and some roots and rootlets. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Light greyish brown silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.60						
1			B 3	1.20-1.50						
			D 4	1.50			79.77	1.90		
		▼1							Brownish grey silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.40-2.70						
			D 6	2.70		END	78.97	2.70	TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.90m bgl. TP backfilled with arisings.

Scale: 1:25

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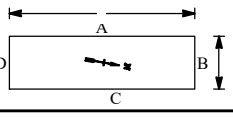
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-57107**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,644.8 N 701,270.4** **Rev: FINAL**
Ground level: 76.49m O.D.	**DATE: 8.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.29	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm brownish bluish grey slightly gravelly sandy SILT with high cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60			75.59	0.90		
1							74.99	1.50	Very soft damp light bluish grey slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.50-1.80			74.69	1.80	Light greyish brown very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.80		**END**			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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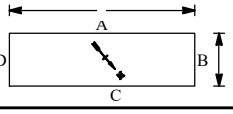
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-57203**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,703.8 N 701,347.8** **Rev: FINAL**
Ground level: 78.68m O.D.	**DATE: 8.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 310°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							78.38	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content and some rootlets. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			78.08	0.60	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	0.90-1.20					Brownish orangish grey very gravelly very silty fine SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.20			77.28	1.40		
2									Firm damp brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
3			B 5	3.20-3.50						
			D 6	3.50			75.08	3.60		
						END			TP terminated at 3.60m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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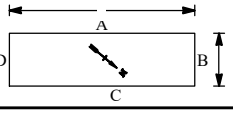
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-57307**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,786.6 N 701,410.7**	**Rev: FINAL**
Ground level: 81.71m O.D.		**DATE: 9.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							81.51	0.20	TOPSOIL: Grass over firm brown very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 300mm in length.	
			B 1	0.50-0.80					Soft damp grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 2	0.80						
1										
			B 3	1.80-2.10						
2			D 4	2.10			79.31	2.40		
			B 5	2.60-2.90					Stiff greyish brown slightly gravelly sandy SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 300mm in length.	
			D 6	2.90			78.71	3.00		
3						END			TP terminated at 3.00m bgl. Obstruction as very stiff strata.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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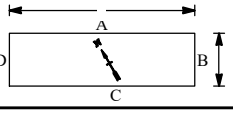
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-57417**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,883.2 N 701,465.4** **Rev: FINAL**
Ground level: 76.80m O.D.	**DATE: 9.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.50	0.30	TOPSOIL: Grass over firm brown slightly sandy gravelly SILT with low cobble content and some tree roots. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of granite and limestone. Roots are up to 80mm thick.	
			B 1	0.40-0.70					Light greyish brown silty very sandy subangular to rounded fine to coarse granite and limestone GRAVEL with high cobble content and high boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of granite and limestone. Boulders are subangular to rounded of granite and limestone. Boulders are up to 500mm in length.	
			D 2	0.70						
1							75.30	1.50		
			B 3	1.50-1.80					Soft damp light brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.80		**END**	75.00	1.80	TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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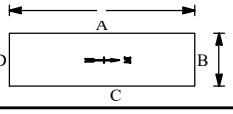
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-57510**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 609,886.0 N 701,574.3**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 74.26m O.D.	**DATE: 9.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							74.06	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.40	18 kN/m² 19mm vane					
			D 2	0.30			73.86	0.40	Firm light orangish brown gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 3	0.40-0.70						
			D 4	0.60			73.56	0.70	Soft damp grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1									Very soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	1.70-2.00						
2			D 6	2.00		**END**	72.26	2.00	TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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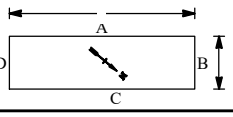
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-57602**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 609,880.0 N 701,668.2** **Rev: FINAL**
Ground level: 72.66m O.D.	**DATE: 9.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			B 1 D 2	0.20-0.30 0.20			72.36	0.30	TOPSOIL: Firm dark brown slightly gravelly peaty SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3 D 4	0.40-0.70 0.50			71.96	0.70	Soft damp bluish grey slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 5	1.60-1.90			70.76	1.90	Very soft damp light bluish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 6	1.90		**END**			TP terminated at 1.90m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-57708
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 609,941.2 N 701,763.2

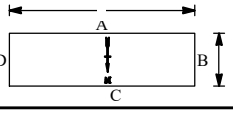
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 69.47m O.D.

DATE: 9.11.21

GROUNDWATER
Water strikes:
1st: 1.50m **Rose to after:** 20min 1.30m
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			B 1	0.00-0.20						
			D 2	0.10			69.27	0.20	TOPSOIL: Grass over firm dark brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
			B 3	0.40-0.70					Stiff grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 250mm in length.	
			D 4	0.70			68.57	0.90		
1		1							Dark grey silty gravelly fine to coarse SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length. Organic odour.	
		1	B 5	1.50-1.80						
			D 6	1.80		END	67.67	1.80	TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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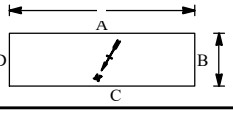
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-58419**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 610,331.0 N 702,267.6** **Rev: FINAL**
Ground level: 72.50m O.D.	**DATE: 10.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							72.30	0.20	TOPSOIL: Stubble over firm brown gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are angular to subrounded of limestone.	
			B 1	0.60-0.90			71.20	1.30	Bluish grey silty very sandy gravelly angular to subangular fine to coarse dark bluish grey limestone GRAVEL with high cobble content and high boulder content. Cobbles are angular to subangular of dark bluish grey limestone. Boulders are angular to subangular of dark bluish grey limestone. Boulders are up to 400mm in length.	
1										
									END TP terminated at 1.30m bgl. Obstruction as possible rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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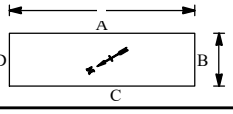
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-58505**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 610,383.7 N 702,336.5** **Rev: FINAL**
Ground level: 75.61m O.D.	**DATE: 10.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							75.31	0.30	TOPSOIL: Firm brown gravelly SILT with medium cobble content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 1	0.30-0.60					Firm light greyish brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60						
1							74.51	1.10		
									Dark bluish grey silty very sandy subangular to subrounded fine and coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2										
			B 5	2.30-2.60						
							73.01	2.60		
			D 6	2.60		**END**			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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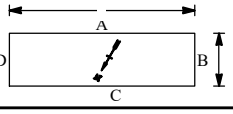
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-58606**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 610,476.6 N 702,364.9** **Rev: FINAL**
Ground level: 77.75m O.D.	**DATE: 11.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							77.45	0.30	TOPSOIL: Firm brown slightly gravelly SILT with low cobble content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular of limestone.	
			VANE D 1	0.40 0.40	16 kN/m² 19mm vane		77.15	0.60	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 2 D 3	0.70-1.00 0.80			76.75	1.00	Firm light brown very gravelly SILT with medium cobble content and medium boulder content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are angular to subrounded of limestone. Boulders are angular to subrounded of limestone. Boulders are up to 350mm in length.	
1							75.95	1.80	Dark bluish grey silty very gravelly angular to subangular limestone COBBLES with high boulder content. Gravel is angular to subangular fine to coarse of limestone. Boulders are angular to subangular of limestone. Boulders are up to 500mm in length.	
						END			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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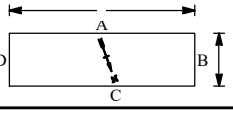
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-58702**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 610,565.3 N 702,401.8** **Rev: FINAL**
Ground level: 79.77m O.D.	**DATE: 11.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							79.57	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.50					Firm light bluish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.50			78.87	0.90		
1									Dark bluish grey slightly sandy silty angular to subangular fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 450mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2							77.67	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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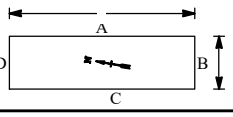
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-58814**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 610,679.3 N 702,407.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 81.42m O.D.	**DATE: 11.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit Stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							81.02	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Soft damp light brownish grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.70						
1							80.32	1.10		
									Very soft damp light grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are angular to rounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.70-2.00						
2			D 4	2.00						
							79.12	2.30		
							END		TP terminated at 2.30m bgl. Obstruction as probable boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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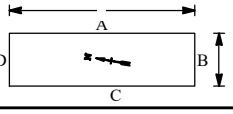
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-58904**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 610,763.7 N 702,415.3** **Rev: FINAL**
Ground level: 81.65m O.D.	**DATE: 11.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							81.25	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Light bluish brownish grey very sandy silty angular to subrounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 350mm in length.	
1			D 2	0.70						
									1.40m to 1.70m: with high boulder content.	
							79.95	1.70		
						END			TP terminated at 1.70m bgl. Obstruction as probable boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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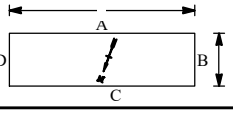
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-59203**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 611,014.3 N 702,587.9**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 81.76m O.D.	**DATE: 11.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.30	17 kN/m²		81.56	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.25	19mm vane		81.46	0.30	Firm orangish brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded of limestone.	
			D 2	0.25					Firm bluish grey very gravelly very sandy SILT with medium cobble content and medium boulder content. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	0.60-0.90						
			D 4	0.90			80.76	1.00		
1									Dark grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	1.70-2.00						
2							79.26	2.50		
						END			TP terminated at 2.50m bgl. Obstruction as possible rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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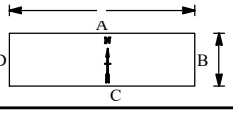
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-59305**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 611,104.1 N 702,617.6** **Rev: FINAL**
Ground level: 82.07m O.D.	**DATE: 12.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit slightly unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							81.67	0.40	TOPSOIL: Soft dark brown gravelly SILT.	
			B 1 D 2	0.50-1.00 0.50-1.00			80.57	1.50	Light brown silty very sandy subangular to subrounded limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
1							80.37	1.70	Firm light brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
			B 3 D 4	1.70-2.20 1.70-2.20			79.87	2.20	Dark grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2										
							77.87	4.20	Firm light brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
3										
			B 5 D 6	3.50-4.00 3.50-4.00						
4										
						END			TP terminated at 4.20m bgl. Unable to progress TP - sidewall collapse.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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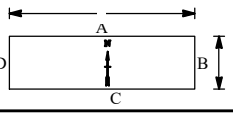
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-59407**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 611,206.0 N 702,638.0**		**Rev: FINAL**
Ground level: 82.18m O.D.			**DATE: 12.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **4.10m**
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit slightly unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							81.68	0.50	TOPSOIL: Soft dark brown gravelly SILT.	
			B 1 D 2	0.70-1.20 0.70-1.20			80.48	1.70	Light brown very silty fine to coarse SAND and subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content. Cobbles are subangular to subrounded of limestone.	
			B 3 D 4	1.70-2.20 1.70-2.20			78.68	3.50	Soft light brown slightly gravelly sandy SILT with medium cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone Cobbles are subangular to subrounded of limestone.	
			B 5 D 6	3.50-4.00 3.50-4.00			77.68	4.50	Light brown sandy very silty subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
						END			TP terminated at 4.50m bgl. Maximum reach of excavator.	

Remarks: Ingress of water at 4.10m bgl. TP backfilled with arisings.

Scale: 1:25

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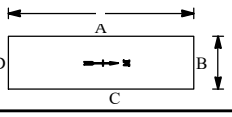
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-59504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 611,290.3 N 702,690.1** **Rev: FINAL**
Ground level: 82.39m O.D.	**DATE: 12.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 4.00m
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit slightly unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							81.89	0.50	TOPSOIL: Soft dark brown gravelly SILT.	
1			B 1 D 2	0.70-1.20 0.70-1.20					Light brown very sandy very silty subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and and low boulder content. Sand is fine to coarse. Cobbles are subangular to subrounded of limestone.	
2			B 3 D 4	2.20-2.70 2.20-2.70			79.69	2.70		
3									Soft light brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
			B 5 D 6	3.50-4.00 3.50-4.00						
4		▼1					77.89	4.50		
						END			TP terminated at 4.50m bgl. Maximum reach of excavator.	
5										

Remarks: Ingress of water at 4.00m bgl. TP backfilled with arisings.

Scale: 1:25

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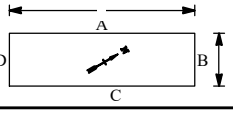
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60003**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 611,733.0 N 702,910.4**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 79.99m O.D.	**DATE: 15.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							79.59	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			B 1 D 2	0.40-0.60 0.50			79.39	0.60	Firm orangish grey very gravelly very silty fine SAND with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1			B 3 D 4	0.90-1.20 1.20			78.39	1.60	Bluish grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
2			B 5	2.00-2.30			77.19	2.80	Orangish grey very gravelly very silty fine SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			B 6	2.90-3.20			76.79	3.20	Grey sandy silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
							END		TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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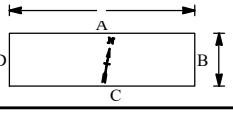
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60106**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 611,828.8 N 702,948.6** **Rev: FINAL**
Ground level: 78.53m O.D.	**DATE: 15.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 80°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							78.33	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone.	
			B 1	0.30-0.60					Bluish grey very silty very gravelly fine to medium SAND with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60			77.73	0.80		
			B 3	0.90-1.20					Orangish bluish grey gravelly very silty fine SAND with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			D 4	1.20			77.13	1.40		
			B 5	1.90-2.20					Bluish grey gravelly very silty subangular to rounded fine to coarse limestone GRAVEL and fine to medium SAND with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 6	2.20		END	76.33	2.20	TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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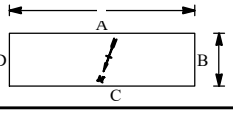
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60212**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 611,933.6 N 702,971.8** **Rev: FINAL**
Ground level: 76.77m O.D.	**DATE: 15.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.20m 20min 2.15m
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.67	0.10	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.10-0.40					Firm light bluish grey silty very gravelly fine to coarse SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.40			76.27	0.50		
			B 3	0.80-1.10					Orangish grey gravelly very silty fine SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1			D 4	1.10			75.47	1.30		
			B 5	1.80-2.10					Damp orangish bluish grey very silty very gravelly fine to coarse SAND with medium cobble content and medium boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
2		1	D 6	2.10			74.57	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.20m bgl. TP backfilled with arisings.

Scale: 1:25

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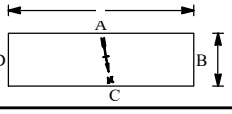
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60269**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 611,971.8 N 703,027.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 76.25m O.D.	**DATE: 15.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.80m **20min** **1.72m**
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.05	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Grey very gravelly very silty medium to coarse SAND with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.60			75.55	0.70		
1			B 3	1.30-1.60					Soft damp bluish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content with some wood fragments. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length. Wood fragments are up to 10mm thick. Slight organic odour.	
		1	D 4	1.60			74.45	1.80		
2						END			TP terminated at 1.80m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: Ingress of water at 1.80m bgl. TP backfilled with arisings.

Scale: 1:25

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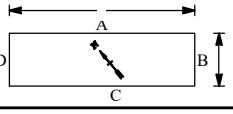
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60312**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 612,001.6 N 703,064.2**
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 75.89m O.D.	**Rev: FINAL**
	DATE: 15.11.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							75.59	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			75.29	0.60	Grey silty gravelly fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1									Very soft grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2							73.79	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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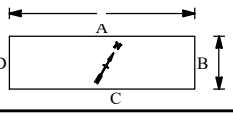
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60709**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 612,313.6 N 703,265.7** **Rev: FINAL**
Ground level: 74.56m O.D.	**DATE: 16.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.40			74.36	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			D 2	0.30			74.16	0.40	Stiff bluish grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 3	0.70-1.00					Damp bluish grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1			D 4	1.00			73.36	1.20	0.90m: 2" land drain.	
						END			TP terminated at 1.20m bgl. Unable to progress TP due to broken 2" land drain at 0.90m bgl.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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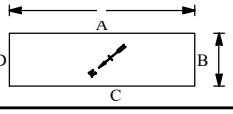
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60805**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 612,371.6 N 703,346.8** **Rev: FINAL**
Ground level: 74.88m O.D.	**DATE: 16.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							74.68	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.20-0.50 0.30			74.38	0.50	Firm orangish bluish grey slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3 D 4	0.60-0.90 0.90			73.38	1.50	Firm bluish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5 D 6	1.50-1.80 1.80			73.08	1.80	Grey very gravelly very silty medium to coarse SAND with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2							72.48	2.40	Very soft damp bluish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length. 2.20m to 2.40m: with medium boulder content.	
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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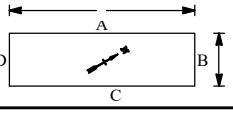
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-60905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 612,468.0 N 703,384.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 75.44m O.D.	**DATE: 16.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							75.14	0.30	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.30-0.60	13 kN/m² 19mm vane				Firm light orangish brown slightly sandy SILT. Sand is fine.	
			VANE	0.40						
			D 2	0.40			74.84	0.60		
			B 3	0.80-0.90					Soft damp orangish greyish brown slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
1			D 4	1.10			74.24	1.20		
									Soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 350mm in length.	
			B 5	1.70-2.00						
2			D 6	2.00						
			B 7	2.30-2.50					2.30m: with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 8	2.50			72.94	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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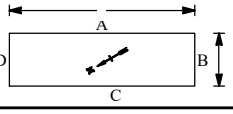
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-61007**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 612,574.3 N 703,387.8** **Rev: FINAL**
Ground level: 76.64m O.D.	**DATE: 16.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.44	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.40	18 kN/m² 19mm vane					
			D 2	0.30			76.24	0.40	Firm orangish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 3	0.60-0.90					Soft damp brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	0.90						
1							75.14	1.50		
			B 5	1.50-1.80					Damp grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
			D 6	1.80			74.84	1.80		
						END			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-61133
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 612,691.0 N 703,435.1

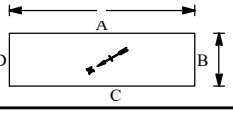
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 76.42m O.D.

DATE: 16.11.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.12	0.30	TOPSOIL: Firm dark brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			75.82	0.60	Firm light orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.90-1.20					Soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			D 4	1.20						
2										
			B 5	2.50-2.80			73.62	2.80		
			D 6	2.80		END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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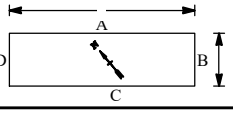
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-61201**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 612,743.0 N 703,496.8** **Rev: FINAL**
Ground level: 75.19m O.D.	**DATE: 16.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							74.89	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			74.29	0.90	Firm brownish grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content. Cobbles are subangular to rounded of limestone.	
1			B 3	1.00-1.30						
			D 4	1.30			73.69	1.50	Soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2			B 5	1.90-2.20			72.99	2.20	Very soft damp grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.20		**END**			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-61521
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 613,070.7 N 703,603.2

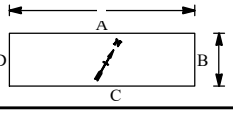
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 71.92m O.D.

DATE: 17.11.21

GROUNDWATER
Water strikes:
1st: 1.20m **Rose to after:** 20min 0.80m
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							71.72	0.20	TOPSOIL: Grass and reeds over soft damp dark brown very peaty SILT with some rootlets.	
			B 1	0.20-0.50					Soft damp bluish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.50						
1		▽1								
		▼1	B 3	1.20-1.50						
							70.42	1.50		
			D 4	1.50		END			TP terminated at 1.50m bgl. Unable to progress TP due to ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.20m bgl. TP backfilled with arisings.

Scale: 1:25

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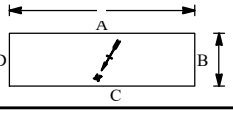
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-61706**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 613,207.7 N 703,684.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 71.67m O.D.	**DATE: 17.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.30m 20min 2.30m
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							71.47	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT.	
			B 1	0.20-0.40					Grey very gravelly very silty fine to medium SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.30			71.27	0.40	Firm bluish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	0.70-1.00						
1			D 4	1.00			70.57	1.10	Very soft damp bluish grey very gravelly very sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
							69.67	2.00		
2			B 5	2.00-2.30					Damp bluish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
		11					69.37	2.30		
			D 6	2.30		END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.30m bgl. TP backfilled with arisings.

Scale: 1:25

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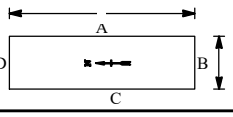
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-61904**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 613,388.9 N 703,767.1** **Rev: FINAL**
Ground level: 72.60m O.D.	**DATE: 17.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							72.30	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.50	10 kN/m² 19mm vane					
			VANE	0.40						
			D 2	0.40			72.10	0.50	Firm orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 3	0.50-0.80					Soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	0.80			71.70	0.90		
1									Brownish grey very silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 500mm in length.	
			B 5	1.70-2.00						
2			D 6	2.00			70.60	2.00		
						END			TP terminated at 2.00m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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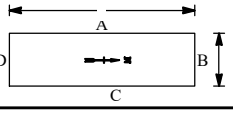
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-62004**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 613,474.0 N 703,821.9** **Rev: FINAL**
Ground level: 72.82m O.D.	**DATE: 17.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							72.52	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.30-0.50 0.40			72.22	0.60	Orangish brown very silty fine SAND and subangular to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content and low boulder content. Gravel is . Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 1200mm in length.	
1							71.42	1.40	Soft damp orangish greyish brown slightly sandy very gravelly SILT with medium cobble content and high boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 1200mm in length.	
			B 3	1.40-1.70			71.12	1.70	Damp orangish brown very silty fine SAND and subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and high boulder content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 1200mm in length.	
2			D 4	1.70		END			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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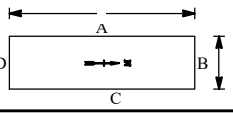
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-62205**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 613,677.2 N 703,855.5**		**Rev: FINAL**
Ground level: 72.37m O.D.			**DATE: 17.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							72.07	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			71.67	0.70	Orangish brown gravelly very silty fine to medium SAND with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.10-1.40					Bluish grey very silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
			D 4	1.40			70.87	1.50		
			B 5	1.60-1.90					Soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 6	1.90		**END**	70.47	1.90	TP terminated at 1.90m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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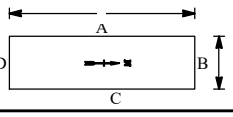
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-62305**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 613,761.3 N 703,915.3
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 70.66m O.D.	**Rev: FINAL**
	DATE: 17.11.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.50m 20min 1.35m
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							70.36	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Bluish grey slightly silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and low boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 350mm in length.	
			D 2	0.70						
1							69.46	1.20		
		1	B 3	1.20-1.50					Greyish orangish brown slightly silty sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and low boulder content. Sand is coarse. Cobbles are subrounded to rounded of sandstone and limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 250mm in length.	
		1	D 4	1.50			69.06	1.60		
						END			TP terminated at 1.60m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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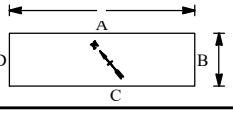
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-62417**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 613,850.3 N 703,973.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 71.88m O.D.	**DATE: 18.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							71.68	0.20	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.30-0.60					Firm brown very silty fine and medium SAND.	
			D 2	0.60			71.18	0.70		
1			B 3	1.30-1.60					Orangish greyish brown very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subangular to rounded of sandstone and limestone.	
			D 4	1.60			70.18	1.70		
						END			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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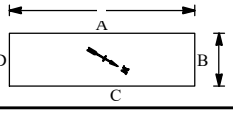
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-62506**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 613,929.5 N 704,018.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 71.73m O.D.	**DATE: 18.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.80m **20min** **1.40m**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							71.43	0.30	TOPSOIL: Grass over firm brown gravelly SILT with some roots and rootlets. Gravel is subangular to subrounded fine to coarse.	
			B 1	0.40-0.70	11 kN/m² 19mm vane				Soft damp orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	
			VANE	0.50						
			D 2	0.70			70.93	0.80		
1									Soft damp light orange mottled grey slightly sandy silty CLAY with thin lenses of fine sand.	
			B 3	1.20-1.50						
		▽1								
			D 4	1.50						
		▼1					69.93	1.80		
			B 5	1.80-1.90			69.83	1.90	Orangish greyish brown slightly silty sandy angular to subrounded fine to coarse sandstone and limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subangular to subrounded of sandstone and limestone.	
2			D 6	1.90		END			TP terminated at 1.90m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.80m bgl. TP backfilled with arisings.

Scale: 1:25

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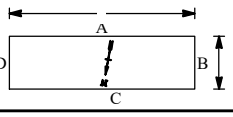
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-62608**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 614,021.5 N 704,067.7 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 71.87m O.D.	**DATE: 18.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.20m **20min** **1.80m**
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							71.57	0.30	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			VANE B 1	0.40 0.40-0.70	11 kN/m² 19mm vane				Soft orange brown mottled grey slightly gravelly slightly sandy SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of limestone.	
			VANE D 2	0.70 0.70	11 kN/m² 19mm vane		70.87	1.00		
1			B 3	1.40-1.70					Very soft damp bluish grey organic SILT with some wood. Wood is up to 20mm thick and 50mm in length.	
		1	D 4	1.70					1.60m to 1.90m: with much wood.	
			B 5	1.90-2.20			69.97	1.90		
2		1							Very soft damp light bluish grey slightly gravelly sandy SILT with some wood. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of limestone. Wood is up to 20mm thick and 50mm in length.	
			D 6	2.20			69.67	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP due to ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 2.20m bgl. TP backfilled with arisings.

Scale: 1:25

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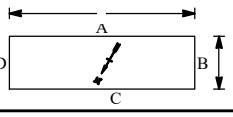
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-62706**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 614,078.0 N 704,151.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 71.77m O.D.	**DATE: 18.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 1.60m
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							71.37	0.40	TOPSOIL: Grass over firm brown SILT with some rootlets and 2mm thick laminae of fine sand.	
			B 1	0.40-0.70	15 kN/m² 19mm vane					
			VANE	0.50					Soft damp light orange mottled grey slightly sandy SILT. Sand is fine.	
			D 2	0.70						
							70.77	1.00		
1									Very soft damp orange mottled grey slightly organic SILT with some wood and some plant material. Wood is up to 10mm in length.	
		▽	B 3	1.50-1.80						
			D 4	1.80						
		▼					69.77	2.00		
2									Dark greenish bluish grey silty very sandy angular to subrounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 250mm in length.	
			B 5	2.20-2.50						
							69.27	2.50		
			D 6	2.50					TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
						END				
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-62907
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 614,229.1 N 704,283.4

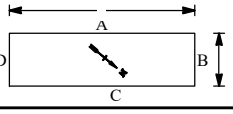
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 71.46m O.D.

DATE: 18.1.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.50m **20min** 2.30m
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							71.26	0.20	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.30-0.60					Firm orange mottled grey slightly sandy SILT. Sand is fine.	
			VANE	0.50	14 kN/m² 19mm vane					
			D 2	0.60			70.76	0.70		
1									Soft orangish blue mottled bluish grey slightly gravelly slightly sandy SILT with some wood. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone and limestone. Wood is up to 50mm in length.	
			B 3	1.40-1.70						
			D 4	1.70						
2		1					69.36	2.10		
		1	B 5	2.40-2.70					Bluish grey silty very sandy subangular to subrounded fine to coarse sandstone and limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone.	
			D 6	2.70			68.76	2.70		
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.

Scale: 1:25

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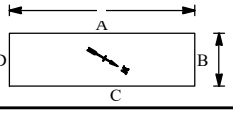
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-63205**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 614,353.3 N 704,548.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 70.56m O.D.	**DATE: 19.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							70.26	0.30	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.30-0.60					Firm light orange mottled grey slightly gravelly sandy SILT. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of sandstone and limestone.	
			VANE	0.50	14 kN/m² 19mm vane					
			D 2	0.60			69.76	0.80		
			B 3	0.90-1.20					Bluish grey slightly silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 300mm in length.	
1			D 4	1.20			69.26	1.30		
									Very soft brownish grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand si fine to coarse. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
2			B 5	2.00-2.30						
			D 6	2.30		END	68.26	2.30	TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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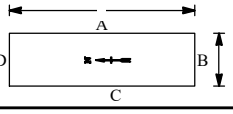
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-63510**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 614,416.2 N 704,839.3** **Rev: FINAL**
Ground level: 69.29m O.D.	**DATE: 19.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							69.09	0.20	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1 D 2	0.20-0.50 0.30			68.79	0.50	Firm light orange mottled grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone and limestone. Cobbles are subangular to subrounded of sandstone and limestone.	
			B 3	0.70-1.00					Soft damp orangish brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			D 4	1.00			68.19	1.10		
			B 5	1.70-2.00					Very soft grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
2			D 6	2.00			67.19	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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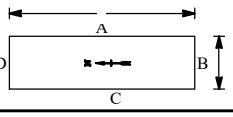
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-63610**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 614,400.0 N 704,939.4** **Rev: FINAL**
Ground level: 67.47m O.D.	**DATE: 19.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							67.27	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.20-0.50						
			D 2	0.50			66.87	0.60	Soft damp light orange mottled grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.20-1.50					Soft damp brownish grey sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.50			65.87	1.60		
2			B 5	2.10-2.40					Very soft damp light grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.40			65.07	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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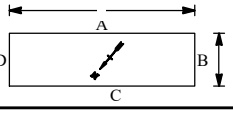
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT:** TP-63711
LOCATION: County Offaly	**Sheet** 1 of 1
CLIENT: Irish Water	**Co-ordinates:** E 614,421.5 N 705,039.2
ENGINEER: Mott MacDonald	**Rig:** Hitachi Zaxis 130 LCN
	Rev: FINAL
Ground level: 67.28m O.D.	**DATE:** 22.11.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.30m 20min 1.30m
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							67.08	0.20	TOPSOIL: Grass over firm brown SILT with many rootlets.	
			B 1	0.30-0.60					Firm light orangish grey slightly gravelly very silty medium to coarse SAND. Gravel is subangular to rounded fine to coarse of sandstone and limestone Slight organic odour.	
			VANE	0.50	15 kN/m² 19mm vane					
			D 2	0.60			66.38	0.90		
1			B 3	1.00-1.30					Grey slightly silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Sand is coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 200mm in length.	
		11					65.98	1.30		
									Soft damp grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
							65.38	1.90		
2			B 4	1.90-2.20					Grey very silty coarse SAND and subangular to rounded fine to coarse sandstone and limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 200mm in length.	
			D 5	2.20			65.08	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.30m bgl. TP backfilled with arisings.

Scale: 1:25

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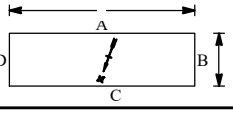
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-63812**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 614,451.2 N 705,139.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 66.61m O.D.	**DATE: 22.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							66.31	0.30	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.30-0.60						
			VANE	0.50	15 kN/m² 19mm vane					
			D 2	0.60			65.81	0.80	Firm light brownish grey SILT with some wood. Wood is up to 50mm in length.	
			B 3	0.80-1.10						
1			D 4	1.10			65.31	1.30	Very soft damp brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 5	1.70-2.00			64.61	2.00	Soft damp brownish grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
2						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-63911**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 614,425.5 N 705,238.9 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 65.37m O.D.	**DATE: 22.11.21**

GROUNDWATER

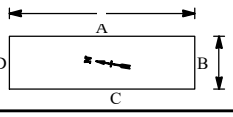
Water strikes: **Rose to after:**

1st:	**0.50m**	**20min**	**0.50m**
2nd:	**1.40m**	**20min**	**1.35m**
3rd:			

PIT DIRECTION: 170°

PIT DIMENSION: 4.00m * 0.50

LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							65.17	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50			64.87	0.50	Greyish brown gravelly silty medium to coarse SAND. Gravel is subangular to rounded fine to coarse of limestone.	
		1	B 2	0.50-0.80			64.47	0.90	Grey silty fine SAND.	
1			B 3	1.20-1.50			63.17	2.20	Spongy brownish black pseudo fibrous PEAT. H5 B3 F2 R2 W2 TV1 TH1 A1.	
		2	D 4	1.50						
2			B 5	2.30-2.60			62.77	2.60	Damp grey sandy very silty subangular to rounded fine to coarse limestone GRAVEL. Sand is fine. Organic odour.	
			D 6	2.60		END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 0.50m bgl. Ingress of water at 1.40m bgl. TP backfilled with arisings.

Scale: 1:25

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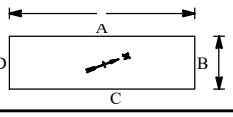
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-65707**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 615,016.9 N 706,842.7**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 86.91m O.D.	**DATE: 22.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			VANE	0.40	11 kN/m² 19mm vane		86.41	0.50	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.50-0.80					Soft damp brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is angular to rounded fine to coarse of limestone. Cobbles are angular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.80						
1										
2			B 3	2.10-2.40						
			D 4	2.40			84.21	2.70		
							83.81	3.10	Soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			B 5	3.30-3.60			83.31	3.60	Brownish grey very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 3.60m bgl. Unable to progress TP due to sloping ground.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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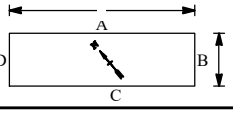
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-65805**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 615,095.0 N 706,902.5** **Rev: FINAL**
Ground level: 84.62m O.D.	**DATE: 22.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable due to extrusion of boulders.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							84.32	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.60						
1							83.32	1.30		
			B 3	1.30-1.60					Soft damp brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 4	1.60						
2										
			B 5	2.20-2.50						
			D 6	2.50			82.12	2.50		
						END			TP terminated at 2.50m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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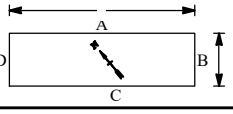
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-65906**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 615,149.3 N 706,989.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.79m O.D.	**DATE: 23.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.59	0.20	TOPSOIL: Grass over firm brown very gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.20-0.50						
			D 2	0.50					Bluish grey sandy very silty subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1							82.59	1.20		
			B 3	1.30-1.60					Brownish grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.60						
2							81.79	2.00		
			B 5	2.50-2.80					Soft damp brownish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.80						
3							80.59	3.20		
							END		TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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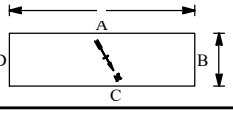
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-66005**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 615,199.9 N 707,077.4** **Rev: FINAL**
Ground level: 84.48m O.D.	**DATE: 23.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 0.50
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			84.18	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE D 2	0.50 0.50	16 kN/m² 19mm vane		83.88	0.60	Firm range mottled greyish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 3	0.80-1.10					Firm orangish brownish grey SILT.	
1			D 4	1.10			83.28	1.20		
							82.78	1.70	Soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	1.70-2.00			82.48	2.00	Brownish grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 6	2.00		END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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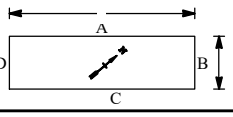
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-67410**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,056.9 N 708,163.6** **Rev: FINAL**
Ground level: 104.09m O.D.	**DATE: 29.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.79	0.30	TOPSOIL: Stubble over firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of sandstone and limestone. Cobbles are subrounded to rounded of sandstone and limestone.	
			B 1	0.30-0.60						
			D 2	0.60			103.29	0.80	Firm brownish grey slightly gravelly sandy SILT with medium cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1									Soft grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2							101.29	2.80		
			B 5	2.90-3.20					Stiff grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
3							100.89	3.20		
			D 6	3.20		END			TP terminated at 3.20m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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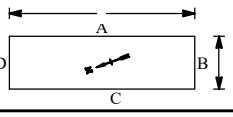
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-67511**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,026.8 N 708,260.9** **Rev: FINAL**
Ground level: 103.90m O.D.	**DATE: 29.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.80m 20min 1.75m
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.60	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.40			103.50	0.40	Soft orangish greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.40						
			B 3	0.70-1.00					Soft brownish grey very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
1			D 4	1.00			102.70	1.20		
		1							Very soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 500mm in length.	
2			B 5	2.10-2.40			101.50	2.40		
			D 6	2.40		**END**			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.80m bgl. TP backfilled with arisings.

Scale: 1:25

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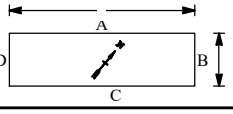
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-67630**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 615,975.2 N 708,376.3** **Rev: FINAL**
Ground level: 104.60m O.D.	**DATE: 29.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							104.20	0.40	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Soft damp brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1							103.40	1.20	Very soft brownish grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 550mm in length.	
			B 3	1.80-2.10						
2			D 4	2.10		END	102.50	2.10	TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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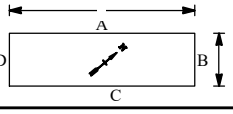
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-67708**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,030.0 N 708,446.3** **Rev: FINAL**
Ground level: 104.62m O.D.	**DATE: 29.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							104.32	0.30	TOPSOIL: Stubble over firm orangish brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Soft damp brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70			103.72	0.90		
1									Very soft damp brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 1400mm in length.	
			B 3	1.80-2.10						
2			D 4	2.10			102.32	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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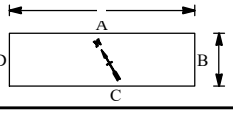
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-67809**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 616,097.3 N 708,526.9 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 103.77m O.D.	**DATE: 29.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.37	0.40	TOPSOIL: Stubble over firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.50-0.80			102.97	0.80	Damp brownish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
			D 2	0.80					Very soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
1							101.87	1.90		
			B 3	1.90-2.20					Damp brownish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
2			D 4	2.20					2.50m to 2.80m: with high boulder content.	
							100.97	2.80		
							END		TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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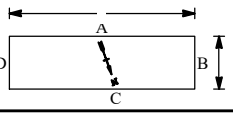
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-67908**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 616,123.7 N 708,631.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 103.63m O.D.	**DATE: 1.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.43	0.20	TOPSOIL: Grass over firm brown SILT with some tree roots. Roots are up to 20mm thick.	
			B 1 D 2	0.20-0.40 0.30			103.23	0.40	Stiff orangish brown slightly gravelly SILT with some tree roots. Gravel is subangular to rounded fine to medium of limestone. Roots are up to 20mm thick.	
							102.63	1.00	Very stiff light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3 D 8	1.00-1.30 1.00			102.33	1.30	Damp brownish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
			D 4	1.30						
2							100.83	2.80	Firm brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse .Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
3							99.63	4.00	Stiff brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 7	3.70-4.00						
4						END			TP terminated at 4.00m bgl. Obstruction as very stiff strata and boulders.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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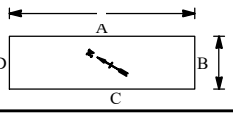
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-68007**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,138.4 N 708,723.9**	**Rev: FINAL**
Ground level: 99.22m O.D.		**DATE: 2.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							99.02	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp orangish brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	12 kN/m² 19mm vane					
			D 2	0.60			98.52	0.70		
1									Soft damp light brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							97.22	2.00		
			B 5	2.00-2.30					Light brown very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.30						
3							96.02	3.20		
			B 7	3.20-3.50					Light brown very silty fine SAND and subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 8	3.50			95.52	3.70		
									Stiff orangish brown slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
4			B 9	4.00-4.30						
			D 10	4.30			94.92	4.30		
						END			TP terminated at 4.30m bgl. Unable to progress TP - unstable ground conditions.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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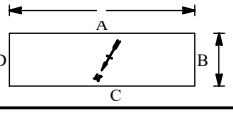
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-68108**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,188.7 N 708,815.6** **Rev: FINAL**
Ground level: 98.07m O.D.	**DATE: 2.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.77	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	8 kN/m² 19mm vane		97.47	0.60	Soft orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of dolomitised limestone and limestone. Cobbles are subrounded to rounded of dolomitised limestone and limestone.	
			D 2	0.60					Light brown silty very sandy subangular to rounded fine to coarse dolomitised limestone and limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of dolomitised limestone and limestone. Boulders are subangular to rounded of dolomitised limestone and limestone. Boulders are up to 400mm in length.	
1			B 3	1.00-1.30						
			D 4	1.30						
			B 5	1.90-2.20						
2							95.87	2.20		
			D 6	2.20		END			TP terminated at 2.20m bgl. Obstruction as possible rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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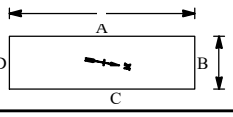
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-68210**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,243.0 N 708,902.6** **Rev: FINAL**
Ground level: 98.82m O.D.	**DATE: 2.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							98.62	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of dolomitised limestone and limestone.	
			B 1	0.20-0.50						
			D 2	0.50			98.22	0.60	Soft orangish brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to subrounded of dolomitised limestone and limestone. Boulders are subangular to subrounded of dolomitised limestone and limestone. Boulders are up to 350mm in length.	
1							97.62	1.20	Orangish brown silty gravelly angular to subangular dolomitised limestone COBBLES with high boulder content. Gravel is angular to subangular fine to coarse of dolomitised limestone. Boulders are angular to subangular of dolomitised limestone. Boulders are up to 600mm in length.	
						END			TP terminated at 1.20m bgl. Obstruction as possible rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

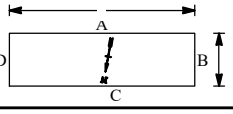
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-68405**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 616,336.3 N 709,068.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 97.69m O.D.	**DATE: 2.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.39	0.30	TOPSOIL: Stubble over firm brown gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.50						
			VANE	0.40	14 kN/m² 19mm vane					
			D 2	0.40			97.19	0.50	Firm orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
									Soft damp grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			B 3	1.00-1.30			96.69	1.00	Grey very sandy very silty subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30						
2			B 5	2.20-2.50					2.20m: becoming silty.	
			D 6	2.50						
							94.99	2.70		
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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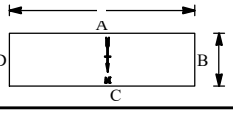
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-68505**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 616,432.3 N 709,102.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 97.95m O.D.	**DATE: 2.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							97.65	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	9 kN/m² 19mm vane					
			D 2	0.50			97.35	0.60	Soft damp orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 3	0.80-1.10					Firm grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
							96.95	1.00		
1			D 4	1.10					Soft damp grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
2			B 5	2.00-2.30						
							95.65	2.30		
			D 6	2.30		END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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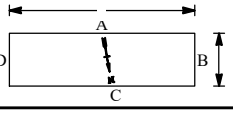
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-68607**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,534.5 N 709,131.0**	**Rev: FINAL**
Ground level: 97.63m O.D.		**DATE: 2.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.23	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	12 kN/m² 19mm vane				Soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse.Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			VANE	0.50						
1			D 2	0.70			96.23	1.40		
							95.73	1.90	Firm light brown gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 3	1.90-2.20						
			D 4	2.20			95.43	2.20	Light brown silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length. 2.00m: with high boulder content. Boulders are angular to subangular of limestone.	
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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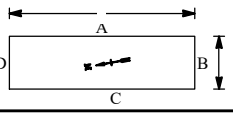
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-68705**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 616,605.7 N 709,203.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 93.96m O.D.	**DATE: 3.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 190°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m to 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							93.66	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 1	0.40-0.70					Soft damp grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.70						
1							92.66	1.30		
			B 3	1.30-1.60					Grey very sandy very silty subangular to rounded medium limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
2										
			B 4	2.20-2.50						
			D 5	2.50			91.46	2.50		
									Stiff grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
3							90.96	3.00		
						END			TP terminated at 3.00m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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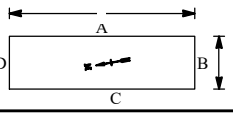
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-68806**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,682.5 N 709,269.7** **Rev: FINAL**
Ground level: 88.54m O.D.	**DATE: 3.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 190°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m to 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.24	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.40	12 kN/m² 19mm vane		88.04	0.50	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			D 1	0.40						
			B 2	0.50-0.80					Light orangish brown silty very gravelly fine to coarse SAND with medium cobble content and low boulder content. Gravel is sandy subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.10-1.40			87.14	1.40		
			D 4	1.40					Light orangish brown sandy very silty subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	1.80-2.10						
2			D 6	2.10						
							85.54	3.00		
3			B 7	3.00-3.30					Very stiff orangish brown slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 8	3.30			85.24	3.30		
						END			TP terminated at 3.30m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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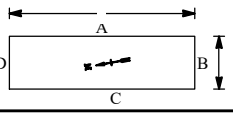
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-68905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 616,777.9 N 709,304.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 88.36m O.D.	**DATE: 30.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 190°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.06	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70			87.96	0.40	Firm orangish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			D 2	0.70			87.66	0.70	Firm grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1									Brownish grey very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			B 3	1.40-1.70						
			D 4	1.70						
2										
			B 5	2.40-2.70			85.66	2.70		
3							85.16	3.20	Brownish grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
									END TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

Ph.
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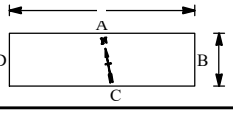
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-69006**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 616,878.5 N 709,338.8**
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 86.53m O.D.	**Rev: FINAL**
	DATE: 30.11.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 100°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							86.23	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60						
							85.53	1.00		
1			B 3	1.00-1.30					Grey very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30-2.80						
2										
			B 5	2.50-2.70					2.50m: becoming silty.	
							83.53	3.00		
3										
						END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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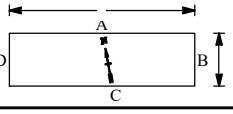
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-69106**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 616,938.0 N 709,422.3**		**Rev: FINAL**
Ground level: 84.55m O.D.			**DATE: 30.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 100°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.25	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			83.95	0.60	Firm light orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1							83.25	1.30	Soft damp brownish grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							82.25	2.30	Brownish grey very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
							81.65	2.90	Brownish grey very silty fine SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3						END			TP terminated at 2.90m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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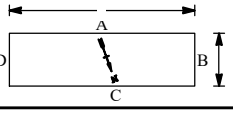
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-69203**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 617,000.9 N 709,496.5** **Rev: FINAL**
Ground level: 83.11m O.D.	**DATE: 30.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.91	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.20-0.40			82.81	0.30	Firm orangish brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone.	
			D 2	0.30					Mottled bluish grey silty very gravelly medium to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 3	0.40-0.70			82.41	0.70		
1									Brownish blue mottled grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
			B 4	1.30-1.60						
2							81.11	2.00		
						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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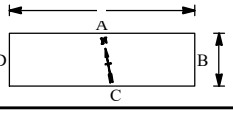
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-69306**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 617,091.6 N 709,549.3** **Rev: FINAL**
Ground level: 81.75m O.D.	**DATE: 30.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 100°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							81.45	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			81.15	0.60	Soft orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.30-1.60			79.85	1.90	Brownish blue mottled grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
2			B 4	2.10-2.40			79.25	2.50	Soft damp grey slightly sandy slightly gravelly SILT with low cobble content. Sand is coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 5	2.40						
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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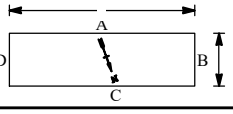
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-69407**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 617,186.3 N 709,595.5** **Rev: FINAL**
Ground level: 80.91m O.D.	**DATE: 30.11.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			80.61	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			D 2	0.60			80.21	0.70	Orangish brown silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.20-1.50					Very soft light brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.50			79.31	1.60		
2			B 5	2.00-2.30					Soft bluish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 6	2.30		**END**	78.61	2.30	TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-69505
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 617,249.0 N 709,672.4

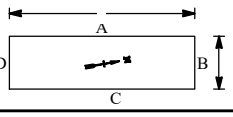
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 81.79m O.D.

DATE: 1.12.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.30m 20min 0.90m
2nd:
3rd:

PIT DIRECTION: 10°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							81.49	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			80.89	0.90	Bluish grey sIlty very sandy silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1		1								
		1	B 2	1.20-1.50			80.29	1.50	Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
						END			TP terminated at 1.50m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.30m bgl. TP backfilled with arisings.

Scale: 1:25

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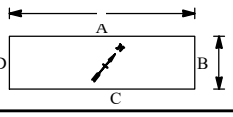
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-69703**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 617,438.5 N 709,737.9** **Rev: FINAL**
Ground level: 82.52m O.D.	**DATE: 1.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.20m **20min** **0.70m**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							82.32	0.20	TOPSOIL: Grass over firm dark blackish brown peaty SILT with some rootlets.	
			B 1	0.20-0.50					Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
		1								
1			B 3	0.90-1.20						
		1					81.32	1.20		
						END			TP terminated at 1.20m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.20m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-69806
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 617,507.5 N 709,816.3

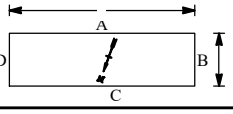
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 84.52m O.D.

DATE: 1.12.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.50m 20min 2.00m
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							84.22	0.30	TOPSOIL: Grass over soft dark brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Dark orangish bluish grey slightly sandy silty subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60						
1							83.42	1.10		
									Blue mottled grey sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone.	
			B 3	1.50-1.80						
2		1					82.22	2.30		
		1							Dark bluish grey gravelly medium to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 4	2.50-2.80						
							81.72	2.80		
3						END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
4										
5										

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.

Scale: 1:25

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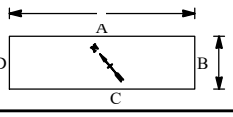
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-69905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 617,566.2 N 709,895.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 88.18m O.D.	**DATE: 1.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.88	0.30	TOPSOIL: Grass over firm dark brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70			86.88	1.30	Bluish grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
1										
			B 2	1.50-1.80			86.08	2.10	Bluish grey sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
2										
			B 3	2.50-2.80			85.38	2.80	Orangish greyish brown silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
3							END		TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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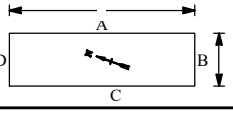
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-70005**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 617,647.7 N 709,953.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 88.76m O.D.	**DATE: 3.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							88.46	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1 D 2	0.30-0.50 0.40			88.26	0.50	Firm light brownish grey very gravelly very silty fine and medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.70-1.00					Bluish grey lightly silty very sandy subrounded to rounded medium to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1										
			B 4	1.70-2.00						
2							86.26	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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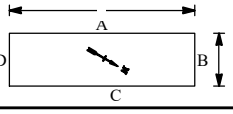
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-70104**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 617,741.5 N 709,991.1** **Rev: FINAL**
Ground level: 88.56m O.D.	**DATE: 3.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							88.26	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			87.96	0.60	Dark grey silty very gravelly medium to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
1			B 2	1.00-1.30			86.76	1.80	Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
						END			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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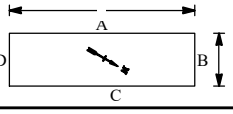
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-70204**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 617,841.1 N 710,011.8
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 88.34m O.D.	**Rev: FINAL**
	DATE: 6.12.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							88.04	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.50			87.84	0.50	Brownish grey silty very gravelly fine to medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
									Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subrounded to rounded of limestone.	
1			B 2	0.90-1.20						
							86.54	1.80		
						END			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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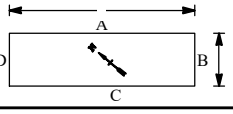
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-70304**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 617,917.8 N 710,085.9**	**Rev: FINAL**
Ground level: 88.44m O.D.		**DATE: 6.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.24	0.20	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50					Stiff light brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 2	0.50			87.84	0.60		
1			B 3	1.00-1.30					Soft damp grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30						
2			B 5	2.00-2.30			86.44	2.00		
			D 6	2.30			86.14	2.30	Damp grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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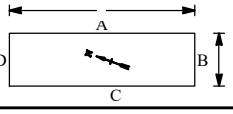
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-70393**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 617,986.4 N 710,143.9** **Rev: FINAL**
Ground level: 90.99m O.D.	**DATE: 6.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			90.69	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE	0.50	13 kN/m² 19mm vane				Firm orangish brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.50			90.39	0.60		
			B 3	0.70-1.00					Damp grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			D 4	1.00			89.89	1.10		
									Very soft damp grey slightly sandy slightly gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 5	1.80-2.10						
2			D 6	2.10		END	88.89	2.10	TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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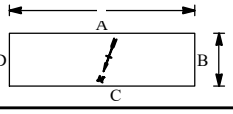
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-70504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 618,097.3 N 710,175.9** **Rev: FINAL**
Ground level: 89.43m O.D.	**DATE: 6.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							89.23	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.40						
			D 2	0.30			89.03	0.40	Stiff light orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	7 kN/m² 19mm vane				Soft damp light grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	0.50-0.80						
			D 4	0.80						
1										
							87.63	1.80		
			B 5	1.80-2.10					Damp light grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2							87.33	2.10		
			D 6	2.10		END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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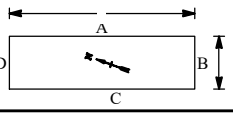
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-70608**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 618,199.1 N 710,197.1**	**Rev: FINAL**
Ground level: 88.19m O.D.		**DATE: 6.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **2.00m**
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.99	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Damp light grey very sandy very silty subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50	9 kN/m² 19mm vane					
			D 2	0.60			87.39	0.80		
1			B 3	1.00-1.30					Very soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30						
2		▼1					86.19	2.00		
			B 5	2.20-2.50					Very soft wet light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	2.50			85.49	2.70		
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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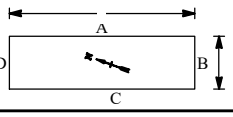
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-70716**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 618,264.6 N 710,235.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 88.12m O.D.	**DATE: 6.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.60m **20min** **1.59m**
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							87.72	0.40	POSSIBLE MADE GROUND: Grass over firm brown slightly gravelly SILT with patches of peat. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	16 kN/m² 19mm vane				Dark bluish grey very gravelly very silty fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.50						
			D 2	0.70						
1										
			B 3	1.20-1.50					1.20m: becoming gravelly.	
		11								
							86.12	2.00		
2			B 4	2.00-2.30					Very soft damp grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded fine to coarse of limestone.	
							85.82	2.30		
			D 5	2.30		END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.60m bgl. TP backfilled with arisings.

Scale: 1:25

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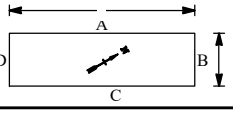
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-71808**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,200.4 N 710,833.1** **Rev: FINAL**
Ground level: 90.86m O.D.	**DATE: 9.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							90.56	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	10 kN/m² 19mm vane					
			D 2	0.50			90.26	0.60	Soft damp orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1									Firm light brownish grey slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.20-1.50						
			D 4	1.40			89.36	1.50		
2									Very soft damp light brownish grey slightly sandy gravelly SILT with medium cobble content and high boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 5	2.20-2.50						
			D 6	2.50			88.36	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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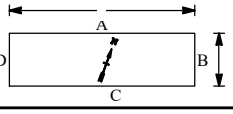
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-71907**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,228.2 N 710,931.9** **Rev: FINAL**
Ground level: 92.03m O.D.	**DATE: 9.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 0.50m 20min 0.40m
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.83	0.20	TOPSOIL: Grass over firm brown slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
		1	B 1	0.30-0.60					Firm light grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length. 0.50m: stone drain.	
			D 2	0.60			91.33	0.70		
						END			TP terminated at 0.70m bgl. Unable to progress TP - stone drain.	
1										
2										
3										
4										
5										

Remarks: Ingress of water at 0.50m bgl. TP backfilled with arisings.

Scale: 1:25

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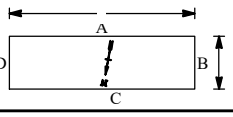
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72009**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,257.4 N 711,031.7** **Rev: FINAL**
Ground level: 94.40m O.D.	**DATE: 9.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.40m 20min 1.20m
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			94.10	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	19 kN/m² 19mm vane				Firm light orangish brown slightly gravelly slightly sandy SILT with low cobble content and some rootlets. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded of limestone.	
			D 2	0.50			93.80	0.60		
1		1	B 3	1.10-1.40					Damp light grey very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 350mm in length.	
		1	D 4	1.40			93.00	1.40		
						END			TP terminated at 1.40m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.40m bgl. TP backfilled with arisings.

Scale: 1:25

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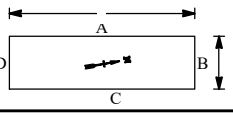
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72108**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 619,325.9 N 711,106.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 94.43m O.D.	**DATE: 8.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 10°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.23	0.20	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			VANE	0.50	17 kN/m² 19mm vane					
			D 2	0.60			93.63	0.80		
1							92.93	1.50	Very soft damp light grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.50-1.80					Damp light grey very sandy very silty subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
2			D 4	1.80			92.33	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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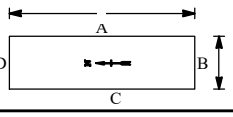
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72160**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,378.8 N 711,137.2** **Rev: FINAL**
Ground level: 94.31m O.D.	**DATE: 8.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							94.01	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60					Firm light orangish grey slightly gravelly sandy SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	14 kN/m² 19mm vane					
			D 2	0.60						
							93.51	0.80		
1									Very soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2										
							91.81	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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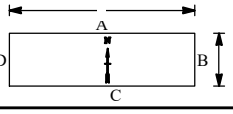
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-72289**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,436.8 N 711,250.6**	**Rev: FINAL**
Ground level: 94.64m O.D.		**DATE: 8.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.10m
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.44	0.20	TOPSOIL: Grass over firm brown SILT with some tree roots. Roots are up to 20mm thick.	
			B 1	0.20-0.40						
			D 2	0.30			94.24	0.40	Damp light orangish grey very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
			B 3	0.70-1.00					Soft damp light orangish brown slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1		▼	D 4	1.00			93.54	1.10		
									Very soft damp light orangish greyish brown slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2			B 5	2.00-2.30			92.34	2.30		
			D 6	2.30		**END**			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.10m bgl. TP backfilled with arisings.

Scale: 1:25

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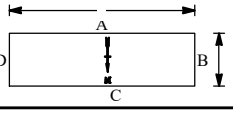
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72403**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,549.2 N 711,274.5** **Rev: FINAL**
Ground level: 93.89m O.D.	**DATE: 8.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.00m 20min 1.00m
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m to 1.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							93.59	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some tree roots. Gravel is subangular to rounded fine to coarse of limestone. Roots are up to 20mm thick.	
			B 1	0.30-0.60						
			D 2	0.60			93.19	0.70	Firm light orangish bluish grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse.Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1			B 3	1.00-1.30					Very soft damp orangish brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse.Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 4	1.30			92.09	1.80		
2			B 5	2.20-2.50			91.39	2.50	Firm light grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse.Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	2.50		**END**			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.00m bgl. TP backfilled with arisings.

Scale: 1:25

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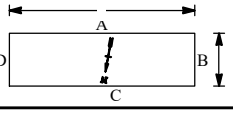
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72503**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,650.8 N 711,276.4** **Rev: FINAL**
Ground level: 94.41m O.D.	**DATE: 8.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.21	0.20	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60					Firm light orangish grey slightly sandy slightly gravelly SILT. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.50	20 kN/m² 19mm vane					
			D 2	0.60			93.61	0.80		
							93.31	1.10	Soft damp orangish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.10-1.40					Damp grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.40						
2			B 5	2.30-2.60			91.81	2.60		
			D 6	2.60		END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72603**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 619,740.9 N 711,263.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 93.23m O.D.	**DATE: 9.12.21**

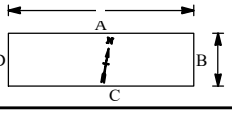
GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.40m	20min	0.38m
2nd:	1.00m	20min	0.97m
3rd:			

PIT DIRECTION: 80°

PIT DIMENSION: 4.00m * 1.00

LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							93.03	0.20	POSSIBLE MADE GROUND: Grass over firm dark brown gravelly peaty SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
		1	D 1	0.30			92.83	0.40	Spongy dark brownish black pseudo fibrous PEAT. H6 B3 F2 R0 W1 TV1 TH1 A1.	
			VANE	0.50	7 kN/m² 19mm vane				Very soft dark grey slightly gravelly sandy organic SILT with some rootlets and wood. Sand is fine to coarse. Gravel is angular fine and medium of limestone. Wood is up to 20mm thick.	
			B 2	0.50-0.80						
			D 3	0.80			92.23	1.00		
1		2							Grey very silty fine to medium SAND.	
			B 4	1.30-1.60						
			D 5	1.60			91.63	1.60		
						END			TP terminated at 1.60m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.40m bgl. Ingress of water at 1.00m bgl. TP backfilled with arisings.

Scale: 1:25

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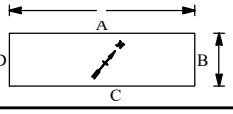
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72703**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,846.1 N 711,313.0** **Rev: FINAL**
Ground level: 93.93m O.D.	**DATE: 10.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							93.73	0.20	TOPSOIL: Grass over dark blackish brown slightly gravelly peaty SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Light grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60			93.33	0.60		
1									Very soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			92.13	1.80		
2									Very soft damp bluish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60			91.33	2.60		
						END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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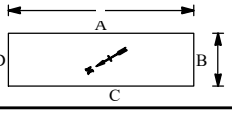
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72801**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 619,939.7 N 711,349.9** **Rev: FINAL**
Ground level: 94.29m O.D.	**DATE: 9.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.09	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some roots and rootlets. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm damp light grey slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60						
1							92.89	1.40		
			B 3	1.40-1.70					Damp grey very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.70			92.59	1.70		
2		1							Very soft damp bluish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 5	2.40-2.70						
			D 6	2.70		END	91.59	2.70	TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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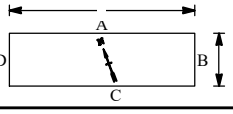
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-72903**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,043.1 N 711,350.6** **Rev: FINAL**
Ground level: 94.49m O.D.	**DATE: 10.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 110°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.29	0.20	TOPSOIL: Grass over firm dark brown slightly gravelly SILT with some rootlets. Gravel is angular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light bluish grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60			93.79	0.70		
1									Very soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2							92.39	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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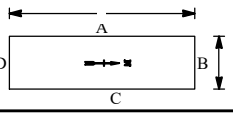
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-73001**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,144.4 N 711,344.1**	**Rev: FINAL**
Ground level: 94.41m O.D.		**DATE: 10.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.21	0.20	TOPSOIL: Grass over firm dark blackish brown slightly gravelly peaty SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.20-0.50					Grey very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with low cobble content. Sand is fie to coarse. Cobbles are subangular to rounded of limestone.	
			D 2	0.50			93.81	0.60		
			B 3	0.70-1.00					Soft damp grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 250mm in length.	
1			D 4	1.00						
							92.71	1.70		
			B 5	1.70-2.00					Damp grey very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
2			D 6	2.00			92.31	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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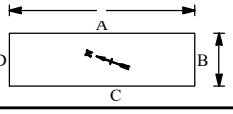
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-73103**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,240.4 N 711,386.4**	**Rev: FINAL**
Ground level: 95.73m O.D.		**DATE: 10.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.20m 20min 1.00m
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							95.53	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Damp grey very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60			94.93	0.80		
1		1							Very soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.70-2.00			94.03	1.70		
2			D 4	2.00			93.73	2.00	Damp grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.20m bgl. TP backfilled with arisings.

Scale: 1:25

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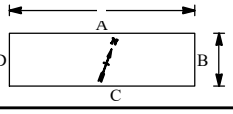
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-73202**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,342.7 N 711,388.9** **Rev: FINAL**
Ground level: 96.98m O.D.	**DATE: 13.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							96.68	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	14 kN/m² 19mm vane					
			D 2	0.50			96.38	0.60	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.60-0.90						
			D 4	0.80			96.08	0.90	Soft light greyish brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1									Very soft light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 5	1.80-2.10						
2			D 6	2.10			94.68	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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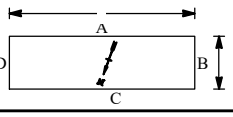
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-73303**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,439.6 N 711,375.9** **Rev: FINAL**
Ground level: 96.03m O.D.	**DATE: 13.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 0.70m 20min 0.30m
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
		1					95.73	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone and mudstone.	
							95.53	0.50	Very soft damp light orangish greyish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
		1	B 1	0.50-0.80					Damp grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.80			95.03	1.00		
1						END			TP terminated at 1.00m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.70m bgl. TP backfilled with arisings.

Scale: 1:25

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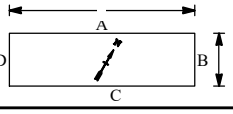
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-73403**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,548.6 N 711,364.6**		**Rev: FINAL**
Ground level: 96.35m O.D.			**DATE: 7.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			96.05	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE D 2	0.50 0.50	23 kN/m² 19mm vane		95.75	0.60	Firm orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.00-1.30					Soft damp light grey slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300m in length.	
			D 4	1.30			94.95	1.40		
2			B 5	2.00-2.30					Very soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.30			93.65	2.70		
						END			TP terminated at 2.70m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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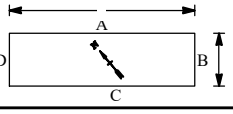
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-73504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,634.5 N 711,445.9** **Rev: FINAL**
Ground level: 97.76m O.D.	**DATE: 7.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.46	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm light greyish brown gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.70			96.96	0.80		
1									Soft damp light brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.40-1.70						
			D 4	1.70						
2										
			B 5	2.40-2.70						
			D 6	2.70						
3							94.46	3.30		
						END			TP terminated at 3.30m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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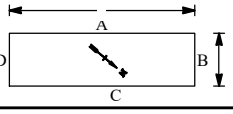
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-73602**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 620,713.2 N 711,488.0** **Rev: FINAL**
Ground level: 95.74m O.D.	**DATE: 13.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m to 2.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							95.54	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone and mudstone. Cobbles are subangular to rounded of limestone and mudstone.	
			VANE	0.50	16 kN/m² 19mm vane					
			D 2	0.60			95.04	0.70		
1									Soft light brownish grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.10-1.40						
			D 4	1.40						
2							93.64	2.10		
			B 5	2.20-2.50					Stiff light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 500mm in length.	
			D 6	2.50			93.04	2.70		
						END			TP terminated at 2.70m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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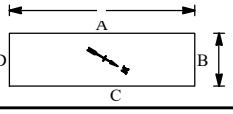
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-73704**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 620,816.5 N 711,498.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 93.48m O.D.	**DATE: 13.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.70m 20min 1.30m
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							92.88	0.60	TOPSOIL: Grass over firm dark blackish brown gravelly peaty SILT with low cobble content. Gravel is angular to subrounded fine to coarse of sandstone and limestone. Cobbles are angular to subrounded of sandstone and limestone.	
			B 1	0.60-0.90						
			D 2	0.90			92.48	1.00	Light brownish grey very silty very sandy angular to subrounded fine to coarse siltstone and limestone GRAVEL with low cobble content. Sand is fine. Cobbles are subangular to subrounded of siltstone and limestone.	
1		1							Soft damp light brownish grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of siltstone and limestone. Cobbles are subangular to subrounded of siltstone and limestone. Boulders are subrounded to rounded of siltstone and limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2										
			B 5	2.50-2.70						
		1	D 6	2.70			90.78	2.70		
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 2.70m bgl. TP backfilled with arisings.

Scale: 1:25

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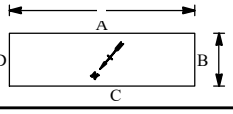
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74102**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 621,210.3 N 711,539.2** **Rev: FINAL**
Ground level: 92.08m O.D.	**DATE: 20.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.88	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			D 2	0.50			91.48	0.60	Firm damp grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.90-1.20					Soft damp grey slightly gravelly sandy SILT with medium cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			D 4	1.20			90.78	1.30		
							90.18	1.90	Very soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	1.90-2.20						
2			D 6	2.20			89.88	2.20	Damp grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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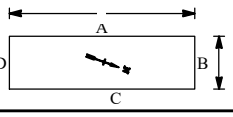
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74170**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 621,280.4 N 711,510.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.57m O.D.	**DATE: 20.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.00m **20min** **0.85m**
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							90.37	0.20	TOPSOIL: Grass over firm dark brown peaty SILT with some tree roots. Roots are up to 10mm thick.	
			B 1	0.20-0.50					Grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
			D 2	0.40			90.07	0.50		
		1	B 3	0.70-1.00					Bluish grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
1										
			B 4	1.20-1.50					1.20m: becoming very silty.	
			D 5	1.50			89.07	1.50		
						END			TP terminated at 1.50m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.00m bgl. TP backfilled with arisings.

Scale: 1:25

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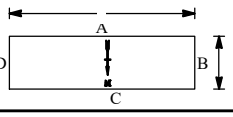
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74416**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 621,484.1 N 711,585.4** **Rev: FINAL**
Ground level: 91.71m O.D.	**DATE: 20.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.40m 20min 1.20m
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.40	8 kN/m² 19mm vane		91.51	0.20	TOPSOIL: Grass over firm brown slightly sandy slightly gravelly SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.30					Bluish grey very gravelly very silty fine to medium SAND with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.30						
			B 3	0.60-0.90						
			D 4	0.90						
1		1					90.51	1.20		
			B 5	1.20-1.50					Bluish grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subrounded to rounded of limestone.	
		1					90.21	1.50		
						END			TP terminated at 1.50m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.40m bgl. TP backfilled with arisings.

Scale: 1:25

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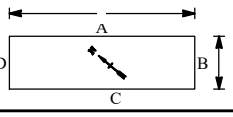
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74503**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 621,595.5 N 711,589.3** **Rev: FINAL**
Ground level: 92.72m O.D.	**DATE: 14.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.52	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light brownish grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50	21 kN/m² 19mm vane					
			D 2	0.60			92.02	0.70		
1									Very soft damp light brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60			91.42	1.30		
			D 4	1.60					Damp grey very silty fine to coarse SAND and subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2							90.32	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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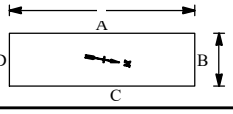
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74601**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 621,748.2 N 711,608.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 92.25m O.D.	**DATE: 15.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0								
					91.95	0.30	TOPSOIL: Grass and nettles over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
	B 1	0.30-0.50						
	VANE	0.40	15 kN/m² 19mm vane				Firm light orangish brown gravelly very silty fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
	D 2	0.40			91.75	0.50		
	B 3	0.60-0.90					Soft damp light grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
	D 4	0.80			91.35	0.90		
1							Very soft damp light grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2	B 5	2.00-2.30						
	D 6	2.30			89.45	2.80		
				END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
3								
4								
5								

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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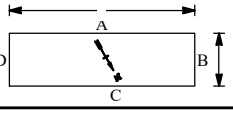
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74702**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 621,803.1 N 711,628.5** **Rev: FINAL**
Ground level: 91.66m O.D.	**DATE: 14.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 1.95m
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.36	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			91.06	0.60	Orange mottled bluish grey gravelly very silty fine to coarse SAND with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1			B 3	1.00-1.30					Very soft damp light grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 4	1.30			89.86	1.80		
2		1	B 5	2.00-2.30					Light grey very silty fine to coarse SAND and angular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	2.30		END	89.36	2.30	TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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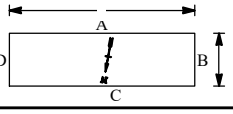
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74804**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 621,901.8 N 711,656.8** **Rev: FINAL**
Ground level: 91.13m O.D.	**DATE: 14.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							90.93	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light orangish bluish grey slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			D 2	0.60			90.23	0.90		
1									Soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			89.23	1.90		
2									Very soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	2.10-2.40						
			D 6	2.40		**END**	88.73	2.40	TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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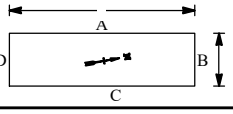
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74902**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 622,002.2 N 711,649.3** **Rev: FINAL**
Ground level: 90.24m O.D.	**DATE: 14.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 10°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							89.94	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60					Light bluish grey very silty fine to coarse SAND and subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60			89.54	0.70		
			B 3	0.90-1.20					Light grey very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 250mm in length.	
1			D 4	1.20						
			B 5	1.70-2.00					1.70m: becoming silty.	
2			D 6	2.00			88.24	2.00		
						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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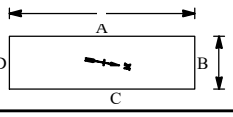
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-74969**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,071.2 N 711,628.9
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 89.51m O.D.	**Rev: FINAL**
	DATE: 14.12.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.20m **20min** **1.20m**
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							89.21	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	19 kN/m² 19mm vane		88.91	0.60	Firm light orangish greyish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.50						
1		1							Firm light orange mottle bluish grey slightly gravelly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			87.71	1.80		
			B 5	1.80-2.10					Very soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2		1	D 6	2.10			87.31	2.20		
			B 7	2.20-2.50					Grey very silty fine to coarse SAND and angular to subrounded fine to coarse limestone GRAVEL with medium cobble content. Cobbles subangular to rounded fine to coarse of limestone.	
							87.01	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.20m bgl. TP backfilled with arisings.

Scale: 1:25

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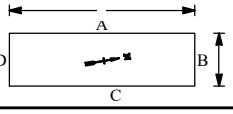
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-75104**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,191.7 N 711,705.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.27m O.D.	**DATE: 15.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 10°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.50			90.07	0.20	TOPSOIL: Stubble over firm brown SILT.	
			VANE	0.50	8 kN/m² 19mm vane				Soft orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.50			89.67	0.60		
			B 3	0.80-1.10					Soft damp light brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1			D 4	1.10			88.77	1.50		
									Very soft damp light brownish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
2			B 5	2.00-2.30			87.97	2.30		
			D 6	2.30		END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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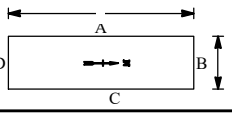
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT:** TP-75197
LOCATION: County Offaly	**Sheet** 1 of 1
CLIENT: Irish Water	**Co-ordinates:** E 622,270.4 N 711,754.8
ENGINEER: Mott MacDonald	**Rig:** Hitachi Zaxis 130 LCN
Ground level: 91.52m O.D.	**Rev:** FINAL
GROUNDWATER Water strikes: 1st: 2.10m Rose to after: 20min 1.90m 2nd: 3rd:	**DATE:** 15.12.21
PIT DIRECTION: 0° **PIT DIMENSION:** 4.00m * 1.00 **LOGGED BY:** PC	Shoring/Support: N/A Stability: Pit unstable. Sidewall collapse from 0.80m bgl.



Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.22	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.50	13 kN/m² 19mm vane					
			VANE	0.40						
			D 2	0.40			91.02	0.50	Firm orangish brown slightly gravelly sandy SILT. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 3	0.50-0.80					Brownish grey silty fine to medium SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content. Cobbles are subrounded to rounded of limestone.	
			D 4	0.70			90.72	0.80		
1									Light brownish grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to medium. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	1.30-1.60						
			D 6	1.60			89.72	1.80		
		1							Light brownish grey sandy silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2		1					89.02	2.50		
			B 7	2.50-2.80					Stiff light brownish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 8	2.80			88.72	2.80		
3						END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 2.10m bgl. TP backfilled with arisings.

Scale: 1:25

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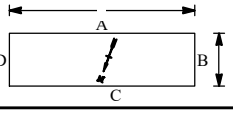
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-75305**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 622,368.0 N 711,796.4** **Rev: FINAL**
Ground level: 91.50m O.D.	**DATE: 15.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.20	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70	10 kN/m² 19mm vane				Soft damp light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 400mm in length.	
			VANE	0.50						
			D 2	0.70						
1							90.20	1.30		
			B 3	1.40-1.70					Greyish brown gravelly silty fine to coarse SAND with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
2							89.30	2.20		
			B 4	2.50-2.80					Light brownish grey very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to medium. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 5	2.80		END	88.70	2.80	TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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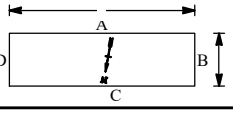
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-75404**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,463.4 N 711,833.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.60m O.D.	**DATE: 16.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 1.95m
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							90.30	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.60	14 kN/m² 19mm vane					
			D 2	0.60			89.90	0.70	Firm orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.00-1.30					Soft damp light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30			89.30	1.30		
		1							Light brownish grey very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and high boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 800mm in length.	
2			B 5	2.00-2.30						
							88.30	2.30		
							END		TP terminated at 2.30m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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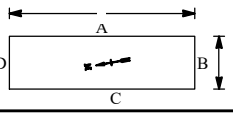
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-75508**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 622,522.9 N 711,919.8** **Rev: FINAL**
Ground level: 93.77m O.D.	**DATE: 15.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 190°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							93.37	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70					Soft light brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.70						
1										
			B 3	1.40-1.70						
			D 4	1.70						
2										
							91.37	2.40		
							91.07	2.70	Soft light brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 5	2.70-3.00					Light brownish grey very sandy very silty subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
							90.77	3.00		
3			D 6	3.00			**END**		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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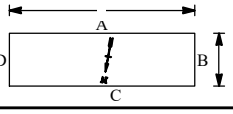
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-75605**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,545.6 N 712,017.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 91.11m O.D.	**DATE: 16.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.50m **20min** **1.45m**
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							90.81	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60					Firm orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.50			90.51	0.60		
			VANE	0.60	14 kN/m² 19mm vane				Soft damp light brownish grey slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1		1	B 3	1.30-1.60						
			D 4	1.60						
							89.11	2.00		
2			B 5	2.00-2.30					Very soft damp light brownish grey slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.30		END	88.81	2.30	TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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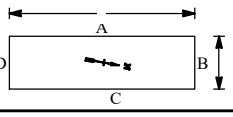
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-75908**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 622,684.2 N 712,286.6** **Rev: FINAL**
Ground level: 92.18m O.D.	**DATE: 20.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.88	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Light brownish grey very silty very sandy subangular to rounded fine to coarse sandstone and limestone GRAVEL with high cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of sandstone and limestone. Boulders are subangular to rounded of sandstone and limestone. Boulders are up to 450mm in length.	
			D 2	0.70			91.28	0.90		
1									Very soft damp light brownish grey slightly sandy sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.80-2.10						
2			D 4	2.10			89.78	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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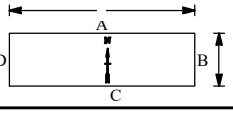
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-76006**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 622,712.5 N 712,381.2**		**Rev: FINAL**
Ground level: 94.10m O.D.			**DATE: 20.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 2.00m
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			93.80	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	13 kN/m² 19mm vane				Soft damp brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.60						
1							93.10	1.00		
									Very soft damp brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.70-2.00						
2		▽	D 4	2.00						
							91.60	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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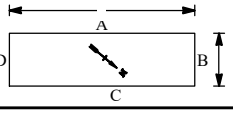
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76087**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 622,782.1 N 712,439.0** **Rev: FINAL**
Ground level: 96.40m O.D.	**DATE: 17.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							96.10	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Damp greyish brown very sandy very silty subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	20 kN/m² 19mm vane		95.80	0.60		
			D 2	0.60					Soft damp brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1										
2			B 3	2.00-2.30						
			D 4	2.30			94.10	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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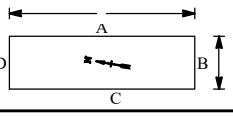
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76212**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,811.6 N 712,566.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 95.09m O.D.	**DATE: 16.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.79	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	15 kN/m² 19mm vane		94.49	0.60	Firm light orangish brownish grey slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.50						
1									Soft damp light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							92.79	2.30		
			B 5	2.30-2.60					Soft damp light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.60						
3										
			B 7	3.30-3.60						
			D 8	3.60						
							91.29	3.80		
4						END			TP terminated at 3.80m bgl. Unable to progress TP - sidewall collapse.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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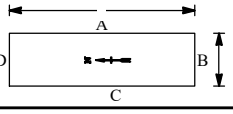
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76309**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,800.9 N 712,664.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 94.58m O.D.	**DATE: 16.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.28	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			93.98	0.60	Stiff light brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 250mm in length.	
1									Soft damp light brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2										
			B 5	2.30-2.60						
			D 6	2.60			91.88	2.70		
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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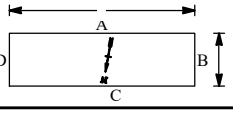
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76440**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,822.0 N 712,798.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 94.12m O.D.	**DATE: 16.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							93.72	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	18 kN/m² 19mm vane				Firm light orangish brown slightly gravelly slightly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.60			93.42	0.70		
1									Soft light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.40-1.70						
			D 4	1.70			92.32	1.80		
2									Soft damp light grey slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 5	2.40-2.70						
			D 6	2.70			91.32	2.80		
						END			TP terminated at 2.80m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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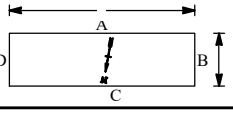
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76508**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 622,870.0 N 712,851.8**
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 92.96m O.D.	**Rev: FINAL**
	DATE: 16.12.21

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.56	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1							91.66	1.30		
			B 3	1.40-1.70					Very soft damp light brownish grey slightly sandy slightly gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.70			91.16	1.80		
2									Very soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 5	2.40-2.70						
			D 6	2.70						
3							89.76	3.20		
						END			TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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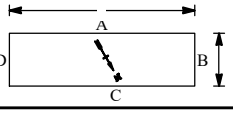
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76641**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 622,939.3 N 712,964.5** **Rev: FINAL**
Ground level: 90.46m O.D.	**DATE: 17.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							90.26	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			D 2	0.50			89.86	0.60	Firm light brownish grey slightly sandy gravelly SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1			B 3	1.20-1.50					Soft damp light brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 4	1.50			88.56	1.90		
2			B 5	2.20-2.50					Soft damp light brownish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.50			87.46	3.00		
3							**END**		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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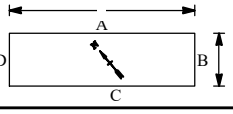
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76707**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 622,949.8 N 713,020.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 88.46m O.D.	**DATE: 17.12.21**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.40-0.70	21 kN/m² 19mm vane		88.06	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50						
			D 2	0.60			87.76	0.70	Firm orangish brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone.	
1			B 3	1.30-1.50			86.66	1.80	Soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 4	1.50						
2							85.46	3.00	Very soft damp light brownish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.70-3.00						
3			D 6	3.00		END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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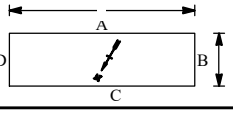
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76805**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 623,000.4 N 713,121.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 86.28m O.D.	**DATE: 4.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 240°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.98	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60	18 kN/m² 19mm vane				Firm damp brownish grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			VANE	0.40						
			D 2	0.50			85.68	0.60		
1									Soft light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			84.38	1.90		
2									Soft light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60			83.28	3.00		
3						END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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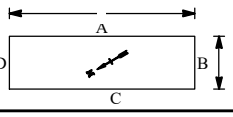
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-76907**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 623,078.9 N 713,190.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.39m O.D.	**DATE: 4.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.30m **20min** **2.30m**
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.70m to 2.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							83.09	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	13 kN/m² 19mm vane					
			D 2	0.60					Soft damp orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
							82.59	0.80		
1									Soft damp greyish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 3	1.30-1.60						
			D 4	1.60			81.69	1.70		
			B 5	1.90-2.20					Brownish grey very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2		▽ 11					81.09	2.30		
									Soft damp brownish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
3			B 6	3.10-3.40						
							79.99	3.40		
			D 7	3.40		END			TP terminated at 3.40m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 2.30m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

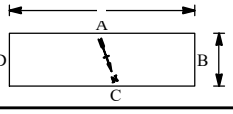
PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly
TRIALPIT: TP-77008
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald
Co-ordinates: E 623,159.6 N 713,255.3
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 85.52m O.D.
DATE: 4.1.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.22	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60					Orangish brown gravelly very silty fine SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
			D 2	0.60						
1										
			B 3	1.30-1.60						
			D 4	1.60			83.92	1.60		
							83.52	2.00	Greyish brown silty fine to medium SAND.	
2						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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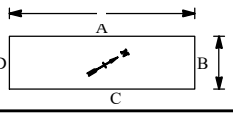
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-77107**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 623,203.3 N 713,346.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 84.27m O.D.	**DATE: 4.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.07	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			D 2	0.40			83.77	0.50	Damp orangish brown slightly gravelly very silty fine and medium SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 3	0.60-0.90			83.27	1.00	Bluish brownish grey very silty very gravelly fine and medium SAND with medium cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1							82.47	1.80	Brownish grey silty very gravelly fine to medium SAND with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 4	1.40-1.70						
2							80.87	3.40	Brownish grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
3			B 5	3.10-3.40						
						END			TP terminated at 3.40m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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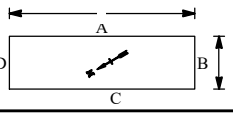
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-77175**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 623,232.0 N 713,409.5**	**Rev: FINAL**
Ground level: 82.49m O.D.		**DATE: 4.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							82.19	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	16 kN/m² 19mm vane					
			D 2	0.60						
							81.69	0.80	Soft orangish brownish grey slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.00-1.30					Grey very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.30			81.09	1.40		
									Soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.10-2.40						
			D 6	2.40			79.99	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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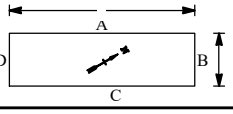
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-77304**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 623,366.4 N 713,447.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 82.13m O.D.	**DATE: 5.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m to 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							81.73	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.40-0.70	24 kN/m² 19mm vane				Firm grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			VANE	0.50						
			D 2	0.70			81.23	0.90		
1									Soft damp grey slightly sandy slightly gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.70-2.00						
2			D 4	2.00						
							79.63	2.50		
						END			TP terminated at 2.50m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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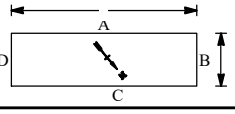
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-77416**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 623,482.2 N 713,456.5
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 81.48m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 4.1.22**
Water strikes: **Rose to after:**	**PIT DIRECTION: 310°**
1st: dry	**PIT DIMENSION: 4.00m * 1.00**
2nd:	**LOGGED BY: PC**
3rd:	Shoring/Support: N/A
	Stability: Pit stable.



Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							81.08	0.40	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	25 kN/m² 19mm vane				Orangish brownish grey very silty fine SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50						
			D 2	0.70			80.58	0.90		
1									Soft damp brownish grey slightly gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.80-2.10						
2			D 4	2.10			79.28	2.20		
						END			TP terminated at 2.20m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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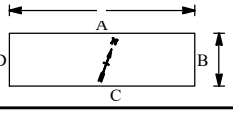
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-77504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 623,555.8 N 713,514.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 80.08m O.D.	**DATE: 5.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							79.68	0.40	TOPSOIL: Grass over firm orangish brown sandy SILT. Sand is fine.	
			B 1	0.40-0.70					Grey silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.70						
1							78.98	1.10		
									Grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			B 3	1.80-2.10						
2							77.68	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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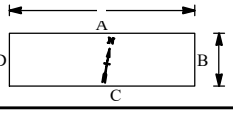
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-77705**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 623,734.8 N 713,602.1** **Rev: FINAL**
Ground level: 82.26m O.D.	**DATE: 5.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 80°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			81.96	0.30	TOPSOIL: Firm brown sandy SILT. Sand is fine.	
			VANE	0.50	25 kN/m² 19mm vane				Light orangish grey very silty very gravelly fine to coarse SAND with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.60			81.56	0.70		
			B 3	0.90-1.20			80.96	1.30	Bluish grey silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1										
			B 4	1.50-1.80			80.46	1.80	Orange silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of sandstone and limestone. Boulders are up to 400mm in length.	
						END			TP terminated at 1.80m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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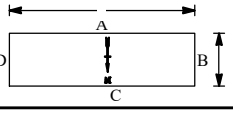
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-77808**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 623,839.8 N 713,626.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 82.38m O.D.	**DATE: 5.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 1.85m
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.08	0.30	TOPSOIL: Grass over firm brown sandy SILT. Sand is fine.	
			B 1	0.30-0.60			81.68	0.70	Light grey silty fine to medium SAND.	
1			B 2	1.20-1.50			80.78	1.60	Bluish grey gravelly very silty fine to coarse SAND. Gravel is subangular to rounded fine to coarse of limestone.	
		1	B 3	1.70-2.00			80.38	2.00	Bluish grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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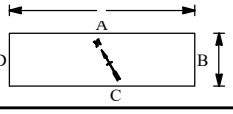
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-77903**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 623,914.5 N 713,687.6** **Rev: FINAL**
Ground level: 83.13m O.D.	**DATE: 5.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.40m 20min 2.40m
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							82.73	0.40	TOPSOIL: Grass over firm brown slightly gravelly sandy SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.50-0.80					Stiff light orangish greyish brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 2	0.80						
1							81.83	1.30		
			B 3	1.30-1.60					Soft damp grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.60						
2							80.73	2.40		
			B 5	2.40-2.70					Grey very silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine to medium. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	2.70			80.43	2.70		
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.40m bgl. TP backfilled with arisings.

Scale: 1:25

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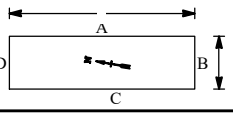
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-78507**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 624,449.1 N 713,932.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.40m O.D.	**DATE: 6.1.22**

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.70m	20min	0.70m
2nd:	1.50m	20min	1.30m
3rd:			

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.20	0.20	TOPSOIL: Grass and rushes over dark brownish black peaty SILT with some rootlets.	
		1	B 1	0.30-0.60			82.70	0.70	Dark bluish grey slightly silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content. Cobbles are subrounded to rounded of limestone.	
1		2	B 2	1.10-1.40			81.90	1.50	Bluish grey slightly silty fine to medium SAND and subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of limestone.	
						END			TP terminated at 1.50m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.30m bgl. Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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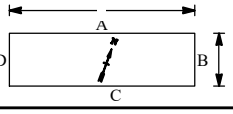
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-78697**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 624,548.5 N 714,096.6**	**Rev: FINAL**
Ground level: 88.02m O.D.		**DATE: 7.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.82	0.20	TOPSOIL: Grass over firm brown slightly sandy gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.20-0.50						
			D 2	0.40			87.52	0.50	Orangish brown very silty very gravelly fine SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
1			B 3	1.20-1.50					Light greyish brown silty gravelly fine to medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 4	1.50			86.32	1.70		
2							85.82	2.20	Light greyish brown very gravelly silty fine to medium SAND with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	2.20-2.50			85.52	2.50	Light greyish brown silty fine to medium SAND and subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	2.50		**END**			TP terminated at 2.50m bgl. Obstruction as possible rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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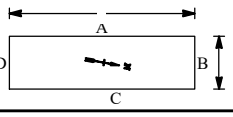
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-78784**
LOCATION: County Offaly	**Sheet 1 of 2**
CLIENT: Irish Water	**Co-ordinates:** E 624,604.1 N 714,161.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 86.34m O.D.	**DATE: 7.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.50			86.14	0.20	TOPSOIL: Grass over firm dark brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE D 2	0.50 0.50	28 kN/m² 19mm vane		85.74	0.60	Light orangish brown gravelly very silty very gravelly fine SAND. Gravel is subangular to rounded fine to coarse of limestone	
1			B 3	1.20-1.50			84.84	1.50	Firm light orangish brown sandy SILT. Sand is fine.	
							84.34	2.00	Light grey slightly gravelly silty fine to medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
2			B 4	2.20-2.50			83.54	2.80	Grey gravelly silty fine to coarse SAND with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3						END			TP terminated at 2.80m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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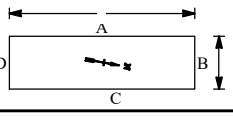
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-78784**
LOCATION: County Offaly	**Sheet 2 of 2**
CLIENT: Irish Water	**Co-ordinates:** E 624,604.1 N 714,161.5
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
	Rev: FINAL
Ground level: 86.34m O.D.	**DATE: 7.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
5										
									Light orangish brown gravelly very silty very gravelly fine SAND. Gravel is subangular to rounded fine to coarse of limestone	
6										
									Light orangish brown gravelly very silty very gravelly fine SAND. Gravel is subangular to rounded fine to coarse of limestone	
7										
8										
9										
10										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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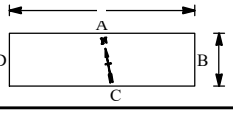
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-79208**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 624,642.5 N 714,560.2** **Rev: FINAL**
Ground level: 89.46m O.D.	**DATE: 6.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 100°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							89.16	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	17 kN/m² 19mm vane					
			D 2	0.60			88.76	0.70		
			VANE	0.80	12 kN/m² 19mm vane				Soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1										
			B 3	1.30-1.60						
			D 4	1.60						
							87.46	2.00		
2									Soft grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
3							86.26	3.20		
						END			TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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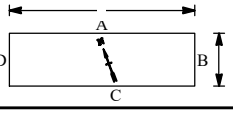
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-79309**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 624,678.8 N 714,656.6** **Rev: FINAL**
Ground level: 90.66m O.D.	**DATE: 6.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 110°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							90.26	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.70						
1										
			B 3	1.40-1.70						
			D 4	1.70			88.86	1.80		
									Soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2										
			B 5	2.40-2.70						
			D 6	2.70						
							87.66	3.00		
3							**END**		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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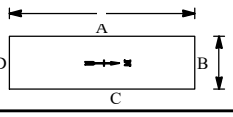
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-79425**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 624,727.8 N 714,768.9
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 89.50m O.D.	**Rev: FINAL**
	DATE: 6.1.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.20m 20min 1.15m
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							89.20	0.30	TOPSOIL: Crops over firm brown slightly sandy gravelly SILT with some tree roots. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	25 kN/m² 19mm vane		88.90	0.60	Firm light grey sandy SILT. Sand is fine.	
			B 1	0.60-0.90					Soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1			D 2	0.90			88.30	1.20		
		1							Very soft damp grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 3	1.90-2.20						
			D 4	2.20			87.00	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.20m bgl. TP backfilled with arisings.

Scale: 1:25

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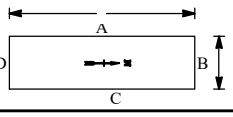
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-79507**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 624,743.9 N 714,838.9 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 89.47m O.D.	**DATE: 6.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							89.17	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.50	25 kN/m² 19mm vane		88.87	0.60	Firm grey slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1									Very soft damp light grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
									1.80m: with medium boulder content.	
2							87.47	2.00		
						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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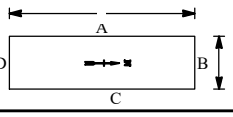
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-80306**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 625,342.4 N 715,366.7**	**Rev: FINAL**
Ground level: 92.81m O.D.		**DATE: 7.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.51	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.30-0.50 0.40			92.31	0.50	Firm light greyish brown slightly gravelly sandy SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			B 3 D 4	0.80-1.10 1.10			91.51	1.30	Soft damp light greyish brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
1										
			B 5 D 6	1.80-2.10 2.10			90.31	2.50	Light greyish brown very silty fine to coarse SAND and subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2										
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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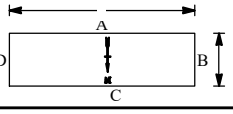
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-80442**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 625,385.6 N 715,483.0** **Rev: FINAL**
Ground level: 96.52m O.D.	**DATE: 6.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							96.12	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	13 kN/m² 19mm vane				Soft damp light brown slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50						
1			D 2	0.70			95.32	1.20		
			B 3	1.40-1.70					Very soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 4	1.70						
2			B 5	2.40-2.70						
			D 6	2.70						
3							93.42	3.10		
						END			TP terminated at 3.10m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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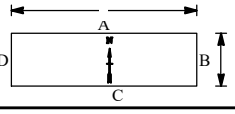
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-80508**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 625,432.1 N 715,541.3** **Rev: FINAL**
Ground level: 98.72m O.D.	**DATE: 10.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit slightly unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0									TOPSOIL: Soft dark brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
							98.12	0.60		
1			B 1 D 2	1.00-1.50 1.00-1.50					Firm grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone.Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
2									2.60m: becoming stiff.	
3			B 3 D 4	3.00-3.50 3.00-3.50			95.02	3.70		
									END TP terminated at 3.70m bgl. Obstruction as possible boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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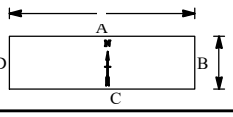
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-80634**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 625,532.3 N 715,608.7** **Rev: FINAL**
Ground level: 101.04m O.D.	**DATE: 10.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							100.84	0.20	TOPSOIL: Soft dark brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1 D 2	0.50-1.00 0.50-1.00					Firm brown slightly gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
1							99.94	1.10		
									Firm grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
2			B 3 D 4	2.00-2.50 2.00-2.50					2.70m: becoming stiff.	
3			B 5 D 6	3.00-3.50 3.00-3.50			97.24	3.80		
						END			TP terminated at 3.80m bgl. Obstruction as possible boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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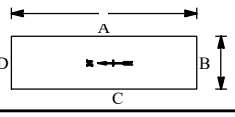
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-80718**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 625,592.2 N 715,671.6
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 97.48m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 11.1.22**
Water strikes: **Rose to after:**	**PIT DIRECTION: 180°**
1st: dry	**PIT DIMENSION: 3.80m * 0.70**
2nd:	**LOGGED BY: DK**
3rd:	Shoring/Support: N/A
	Stability: Pit unstable.



Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.30			97.18	0.30	TOPSOIL: Soft light brown sandy SILT. Sand is fine.	
			B 2	0.50-1.00			96.48	1.00	Soft brown slightly gravelly very sandy SILT with low cobble content. Sand is fine. Gravel is subrounded to subangular medium. Cobbles are rounded to subrounded of limestone.	
1			B 3	1.00-1.50					Light grey gravelly very silty medium SAND with medium cobble content. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone.	
			D 4	1.50-1.90			95.58	1.90		
2			B 5	1.90-2.40			95.08	2.40	Light grey silty very sandy subrounded to subangular coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are rounded to subrounded of limestone.	
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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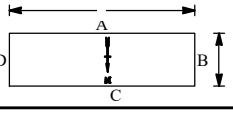
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-80800**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 625,664.3 N 715,718.8** **Rev: FINAL**
Ground level: 98.31m O.D.	**DATE: 11.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 3.70m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.30			98.01	0.30	TOPSOIL: Soft light brown very sandy SILT. Sand is fine.	
			B 2	0.50-1.00					Firm light grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is coarse. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone. Boulders are up to 350mm in length.	
1			D 3	1.00-1.40						
2			B 4	2.00-2.50						
			B 5	2.20-3.00						
3							95.31	3.00		
						END			TP terminated at 3.00m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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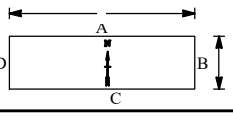
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-80903**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 625,768.2 N 715,731.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 101.06m O.D.	**DATE: 11.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.30			100.76	0.30	TOPSOIL: Soft brown sandy SILT. Sand is fine.	
			B 2	0.50-1.00			99.86	1.20	Brown very gravelly very silty fine to coarse SAND. Gravel is subrounded to subangular medium of limestone.	
1										
			B 3	1.50-2.00					Soft light grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone. Boulders are up to 350mm in length.	
2			D 4	2.00-2.40						
			B 5	2.50-3.00						
3			B 6	3.00-3.50						
			D 7	3.50-3.70			97.36	3.70		
						END			TP terminated at 3.70m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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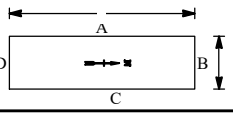
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-80972**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 625,832.9 N 715,716.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 104.14m O.D.	**DATE: 11.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.20m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.30					TOPSOIL: Soft brown sandy SILT. Sand is fine.	
							103.84	0.30		
			B 2	0.30-0.70					Soft brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to subangular fine of limestone.	
							103.44	0.70		
1			B 3	1.00-1.50					Soft light grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.50-2.00						
2										
			B 5	2.50-3.00						
3			D 6	3.00-3.50						
							100.54	3.60		
			B 7	3.60-3.80					Grey slightly silty very sandy subrounded to subangular coarse limestone GRAVEL. Sand is coarse.	
							100.34	3.80		
						END			TP terminated at 3.80m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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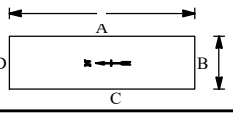
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-81064**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 625,921.5 N 715,698.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 107.23m O.D.	**DATE: 11.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 3.60m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							107.03	0.20	TOPSOIL: Firm brown slightly sandy gravelly SILT. Gravel is subrounded to subangular fine of limestone.	
			D 1	0.20-0.50			106.73	0.50	Firm brown slightly sandy slightly gravelly SILT. Sand is fine. Gravel is subrounded to subangular medium of limestone.	
1			B 2	1.00-1.50					Light grey silty very gravelly medium SAND with high cobble content and low boulder content. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone. Boulders are up to 400mm in length.	
2			D 3	2.00-2.40						
			B 4	2.50-3.00			104.23	3.00		
3							END		TP terminated at 3.00m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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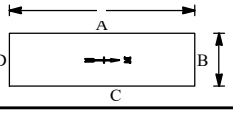
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-81202**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 626,067.4 N 715,718.8**	**Rev: FINAL**
Ground level: 102.79m O.D.		**DATE: 12.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit slightly unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							102.29	0.50	TOPSOIL: Soft dark brown gravelly SILT.	
			B 1 D 2	0.50-1.00 0.50-1.00			101.49	1.30	Soft brown slightly sandy gravelly sandy SILT with low cobble content. Sand is fine to coarse. Gravel is subrounded to subangular coarse of limestone. Cobbles are subangular to subrounded of limestone.	
1										
			B 3 D 4	1.50-2.00 1.50-2.00			100.79	2.00	Firm brown slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to subangular coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
2									**END** TP terminated at 2.00m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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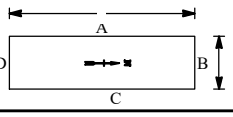
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-81300**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 626,160.3 N 715,684.3** **Rev: FINAL**
Ground level: 101.77m O.D.	**DATE: 13.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.50m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.25					TOPSOIL: Firm brown sandy gravelly SILT. Sand is medium. Gravel subrounded to subangular coarse of limestone.	
							101.52	0.25		
									Soft light grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone. Boulders are up to 300mm in length.	
1			B 2	1.00-1.50						
2			B 3	2.00-2.50						
3			B 4	3.00-3.50						
							98.07	3.70		
							END		TP terminated at 3.70m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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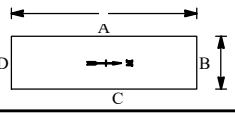
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-81404**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 626,253.9 N 715,636.6** **Rev: FINAL**
Ground level: 99.27m O.D.	**DATE: 13.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.80m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit moderately stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.40			98.87	0.40	TOPSOIL: Firm brown sandy gravelly SILT. Sand is medium. Gravel subrounded to subangular medium of limestone.	
1			B 2	1.00-1.50					Soft light grey slightly gravelly sandy SILT with high cobble content and medium boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone. Boulders are up to 350mm in length.	
2			B 3	2.00-2.50						
3			B 4	3.00-3.50			95.47	3.80		
						END			TP terminated at 3.80m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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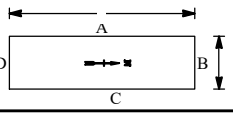
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-81501**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 626,354.6 N 715,644.2**	**Rev: FINAL**
Ground level: 99.94m O.D.		**DATE: 13.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.80m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.40					TOPSOIL: Firm brown gravelly SILT. Gravel subrounded to subangular medium of limestone.	
							99.64	0.30		
			B 2	0.50-1.00					Soft light grey slightly gravelly sandy SILT with high cobble content and medium boulder content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone. Boulders are rounded to subrounded of limestone. Boulders are up to 350mm in length.	
1										
			B 3	1.50-2.00						
2			B 4	2.00-2.40						
							97.54	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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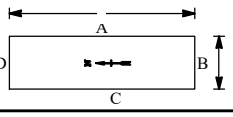
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-81601**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 626,455.2 N 715,654.6**		**Rev: FINAL**
Ground level: 100.16m O.D.			**DATE: 13.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 0.70
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			D 1	0.00-0.34			99.82	0.34	TOPSOIL: Firm brown gravelly SILT. Gravel subrounded to subangular medium of limestone.	
			B 2	0.50-1.00			98.66	1.50	Grey silty very sandy subrounded to subangular coarse limestone GRAVEL with high cobble content. Sand is medium. Cobbles are rounded to subrounded of limestone.	
1			B 3	1.50-1.80			98.36	1.80	Soft light brown slightly gravelly slightly sandy SILT with high cobble content. Sand is medium. Gravel is subrounded to subangular coarse of limestone. Cobbles are rounded to subrounded of limestone.	
			B 4	2.00-2.50			97.66	2.50	Soft grey very sandy SILT. Sand is medium.	
2			B 5	2.50-3.00			97.16	3.00	Grey silty very gravelly medium SAND. Gravel is subrounded to subangular coarse of limestone.	
3							**END**		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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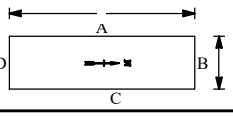
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-81702**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 626,556.9 N 715,627.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 100.64m O.D.	**DATE: 14.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							100.44	0.20	TOPSOIL: Soft dark brown gravelly SILT. Gravel subangular to subrounded fine to coarse of limestone.	
			B 1 D 2	0.40-0.80 0.40-0.80			99.14	1.50	Firm brown slightly gravelly sandy SILT. Sand is fine to coarse. Gravel subangular to subrounded fine to coarse of limestone.	
1							98.64	2.00	Greyish brown very silty very sandy subangular to subrounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
2			B 3 D 4	1.50-2.00 1.50-2.00			96.14	4.50	Firm grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel subangular to subrounded fine to coarse of limestone.Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. 2.30m: becoming stiff.	
3										
4			B 5 D 6	3.50-4.00 3.50-4.00						
5						END			TP terminated at 4.50m bgl. Maximum reach of excavator.	

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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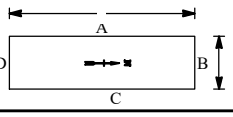
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-81802**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 626,652.4 N 715,592.2** **Rev: FINAL**
Ground level: 100.84m O.D.	**DATE: 14.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 3.00m * 1.00
LOGGED BY: DOR



Shoring/Support: N/A
Stability: Pit silghtly unstable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							100.64	0.20	TOPSOIL: Soft dark brown gravelly SILT. Gravel subangular to subrounded fine to coarse of limestone.	
			B 1 D 2	0.40-0.70 0.40-0.70			100.14	0.70	Brown very gravelly very silty very sandy fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of limestone.	
1							98.84	2.00	Stiff grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
2			B 3 D 4	1.50-2.00 1.50-2.00			97.34	3.50	Brown very silty fine to coarse SAND and subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. and is fine to coarse. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
3			B 5 D 6	3.50-4.00 3.50-4.00			96.34	4.50	Soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of siltstone. Boulders are subangular to subrounded of siltstone.	
4									**END** TP terminated at 4.50m bgl. Maximum reach of excavator.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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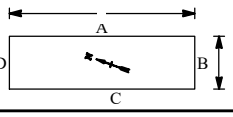
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-81902**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 626,753.7 N 715,611.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 106.54m O.D.	**DATE: 17.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							106.04	0.50	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.50-0.80	18 kN/m² 19mm vane				Firm damp grey slightly gravelly slightly sandy SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			VANE	0.60						
			D 2	0.80						
1							105.24	1.30		
			B 3	1.50-1.80					Soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.80						
2							103.84	2.70		
			B 5	3.10-3.40					Very soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
3			D 6	3.40						
							102.54	4.00		
4						END			TP terminated at 4.00m bgl. Maximum reach of excavator.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

Ph.
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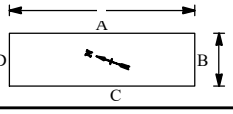
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82001**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 626,851.1 N 715,626.2**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 105.87m O.D.	**DATE: 17.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							105.37	0.50	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.60	16 kN/m² 19mm vane				Soft damp light grey slightly sandy slightly gravelly SILT with low cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1			B 1	0.60-0.90						
			D 2	0.90						
							104.27	1.60		
2									Soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone.	
			B 3	2.60-2.90						
3			D 4	2.90						
							102.67	3.20		
							END		TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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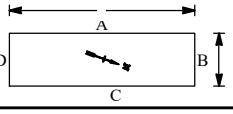
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82102**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 626,952.3 N 715,617.6** **Rev: FINAL**
Ground level: 104.64m O.D.	**DATE: 17.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							104.24	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	14 kN/m² 19mm vane				Damp light brownish grey very silty fine to coarse SAND and subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50			103.94	0.70		
			D 2	0.70					Soft light brownish grey slightly gravelly slightly sandy SILT with high cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1										
			B 3	1.40-1.70						
			D 4	1.70						
							102.64	2.00		
2									Very soft light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			B 5	2.40-2.70						
			D 6	2.70						
3										
			B 7	3.40-3.70						
			D 8	3.70						
							100.64	4.00		
4						END			TP terminated at 4.00m bgl. Unable to progress TP - sidewall collapse.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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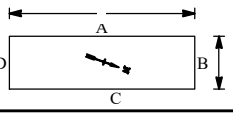
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82207**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 627,059.6 N 715,596.4**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 102.57m O.D.	**DATE: 17.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.40-0.70	14 kN/m² 19mm vane				TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded of limestone.	
			VANE	0.50			102.17	0.40		
			D 2	0.70					Damp light brownish grey very silty fine to coarse SAND and subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
							101.77	0.80		
1									Soft damp light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.40-1.70						
			D 4	1.70			100.77	1.80		
2									Very soft damp light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.40-2.70						
			D 6	2.70			99.67	2.90		
3						END			TP terminated at 2.90m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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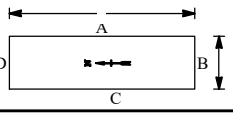
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82303**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 627,154.1 N 715,633.2** **Rev: FINAL**
Ground level: 102.25m O.D.	**DATE: 17.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							101.95	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	18 kN/m² 19mm vane		101.65	0.60	Firm light greyish brown slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.50						
1									Soft damp light brownish grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			100.35	1.90		
2									Dark grey slightly silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	2.20-2.50			99.75	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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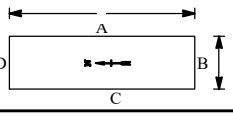
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82400**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 627,247.5 N 715,657.2** **Rev: FINAL**
Ground level: 102.21m O.D.	**DATE: 17.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							102.01	0.20	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded of limestone.	
			B 1	0.30-0.60					Firm light greyish brown slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50	21 kN/m² 19mm vane					
			D 2	0.60			101.51	0.70		
1									Soft damp light brownish grey slightly gravelly slightly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2			B 3	1.80-2.10						
			D 4	2.10			99.81	2.40		
3									Soft damp brownish grey slightly sandy slightly gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	3.20-3.50						
			D 6	3.50			98.41	3.80		
4						END			TP terminated at 3.80m bgl. Obstruction as boulders.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

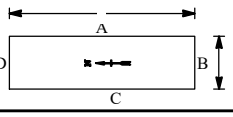
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82502**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 627,350.6 N 715,650.1** **Rev: FINAL**
Ground level: 101.64m O.D.	**DATE: 18.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							101.24	0.40	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	26 kN/m² 19mm vane				Firm light greyish brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1							100.64	1.00		
									Soft damp light brownish grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 3	2.10-2.40						
			D 4	2.40						
3									2.90m: with medium boulder content.	
			B 5	3.30-3.60						
			D 6	3.60						
							97.74	3.90		
4						END			TP terminated at 3.90m bgl. Obstruction as boulders.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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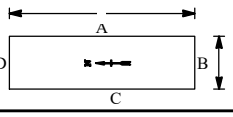
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82590**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 627,442.1 N 715,631.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 102.38m O.D.	**DATE: 18.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.40-0.70			101.98	0.40	TOPSOIL: Stubble over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded of limestone.	
			D 2	0.60						
			B 3	0.70-1.00			101.68	0.70	Firm orangish brown slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1							101.38	1.00	Grey very silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
									Soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 4	1.70-2.00						
2			D 5	2.00						
							100.08	2.30		
									Very soft damp light grey slightly gravelly slightly sandy SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3										
			B 6	3.30-3.60						
			D 7	3.60						
							98.58	3.80		
						END			TP terminated at 3.80m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

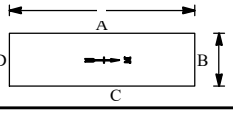
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82702**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 627,550.6 N 715,670.1
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 104.57m O.D.	**Rev: FINAL**
	DATE: 18.1.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m to 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							104.27	0.30	TOPSOIL: Stubble over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.40	17 kN/m² 19mm vane		104.07	0.50	Firm orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 1	0.50-0.80			102.97	1.60	Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2			B 2	1.80-2.10			102.27	2.30	Firm grey slightly gravelly sandy SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

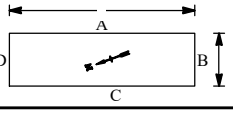
Ph.
Fax

TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82812**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 627,660.7 N 715,697.3** **Rev: FINAL**
Ground level: 104.32m O.D.	**DATE: 19.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.10m to 3.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.92	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70						
			D 2	0.70			103.52	0.80	Firm light brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.Cobbles are subrounded to rounded of limestone.	
1									Soft light brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.40-1.70						
			D 4	1.70						
2							102.22	2.10		
									Dark bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and high boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.70-3.00						
3							101.22	3.10		
							END		TP terminated at 3.10m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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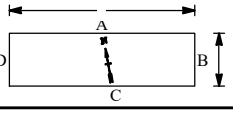
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82902**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 627,750.3 N 715,676.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 103.94m O.D.	**DATE: 19.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 100°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							103.54	0.40	TOPSOIL: Grass over firm brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm damp light greyish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 2	0.70						
1							102.44	1.50		
									Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2			B 3	1.80-2.10						
			D 4	2.10						
3										
			B 5	3.40-3.70			100.24	3.70		
			D 6	3.70		END			TP terminated at 3.70m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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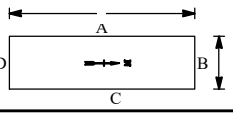
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-82979**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 627,828.2 N 715,648.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 101.11m O.D.	**DATE: 19.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							100.71	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	19 kN/m² 19mm vane		100.41	0.70	Firm orangish brown slightly sandy slightly gravelly SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
1			B 1 D 2	0.70-1.00 0.90			99.71	1.40	Firm light brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
2			B 3 D 4	1.70-2.00 2.00			98.21	2.90	Soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
3						END			TP terminated at 2.90m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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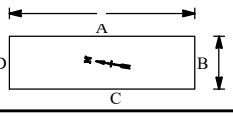
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-83101**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 627,944.4 N 715,664.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 101.94m O.D.	**DATE: 19.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m to 3.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							101.54	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	25 kN/m² 19mm vane				Firm grey slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
							101.04	0.90		
1									Soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.40-1.70						
			D 4	1.70						
2										
							98.94	3.00		
3									Firm grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	3.10-3.40						
			D 6	3.40						
							98.44	3.50		
						END			TP terminated at 3.50m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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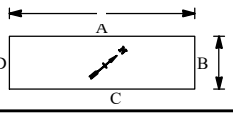
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-83303**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 628,152.5 N 715,659.0**	**Rev: FINAL**
Ground level: 99.60m O.D.		**DATE: 19.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.20m 20min 2.10m
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							99.30	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	20 kN/m² 19mm vane		98.90	0.70	Firm orangish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
1			B 1	0.70-1.00					Firm grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 2	1.00						
			B 3	1.00-1.30						
			D 4	1.30			98.10	1.50		
2		1					97.40	2.20	Soft damp grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	2.30-2.60			96.90	2.70	Dark bluish grey very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
									END TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.20m bgl. TP backfilled with arisings.

Scale: 1:25

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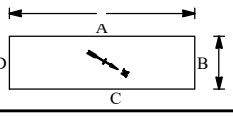
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-84901**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 629,709.1 N 715,685.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 95.11m O.D.	**DATE: 20.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 2.00m
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.71	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm grey very gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.70						
1			B 3	1.10-1.70						
			D 4	1.70			93.41	1.70		
							93.11	2.00	Soft damp grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2									Very soft damp grey slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.40-2.70						
			D 6	2.70		END	92.41	2.70	TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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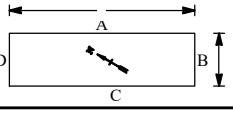
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-85005**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 629,808.7 N 715,646.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 95.38m O.D.	**DATE: 20.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							94.98	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	24 kN/m² 19mm vane				Firm grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			VANE	0.50						
			D 2	0.70						
1							94.38	1.00		
									Soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.40-1.70						
			D 4	1.70						
2							93.28	2.10		
									Stiff grey gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.40-2.70						
			D 6	2.70			92.68	2.70		
						END			TP terminated at 2.70m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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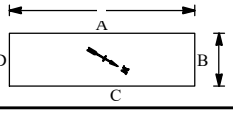
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-85102**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 629,907.2 N 715,657.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 94.58m O.D.	**DATE: 20.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							94.38	0.20	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
							94.18	0.40	Firm orangish brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70						
			D 2	0.70			93.78	0.80	Firm grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.20-1.50					Soft damp grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.50			92.98	1.60		
2									Very soft damp grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.60-2.90						
			D 6	2.90			91.58	3.00		
3						END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

Irish drilling LTD

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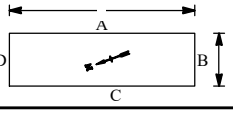
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-85302**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 630,105.2 N 715,627.6** **Rev: FINAL**
Ground level: 94.33m O.D.	**DATE: 20.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.50			94.13	0.20	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE	0.50	23 kN/m² 19mm vane				Firm orangish grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.50			93.73	0.60	Soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.20-1.50						
			D 4	1.40			92.83	1.50	Very soft damp grey slightly sandy gravelly SILT with medium cobble content and high boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 650mm in length.	
2			B 5	2.20-2.50						
			D 6	2.50			91.83	2.50		
						END			TP terminated at 2.50m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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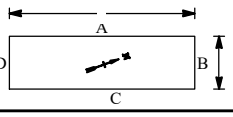
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-85383**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 630,180.8 N 715,589.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 94.61m O.D.	**DATE: 20.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							94.21	0.40	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	25 kN/m² 19mm vane				Firm grey gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70			93.71	0.90		
1									Soft damp grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.40-1.70						
			D 4	1.70			92.71	1.90		
2									Very soft damp light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.40-2.70						
			D 6	2.70		END	91.91	2.70	TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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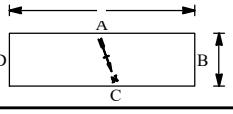
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-86302**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 631,100.9 N 715,596.7
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
	Rev: FINAL
Ground level: 89.07m O.D.	**DATE: 21.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.30m **20min** **1.25m**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							88.77	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			87.77	1.30	Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is coarse.	
1		1	B 2	1.30-1.60			87.37	1.70	Grey silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
						END			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.30m bgl. TP backfilled with arisings.

Scale: 1:25

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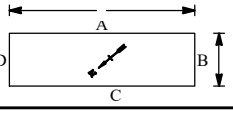
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-87206**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 631,979.1 N 715,694.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 87.73m O.D.	**DATE: 21.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.58	0.15	TOPSOIL: Crops over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
							87.43	0.30	Stiff grey gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	20 kN/m² 19mm vane				Soft damp grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			VANE	0.50						
1			D 2	0.70						
							86.13	1.60		
			B 3	1.70-2.00					Dark bluish grey gravelly coarse SAND. Gravel is subrounded to rounded medium to coarse of limestone.	
2							85.43	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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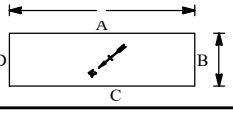
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-87304**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 632,073.0 N 715,729.0** **Rev: FINAL**
Ground level: 87.75m O.D.	**DATE: 21.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.40			87.55	0.20	TOPSOIL: Grass over firm brown SILT with rootlets.	
			D 2	0.30			87.35	0.40	Stiff light grey gravelly SILT. Gravel is subangular to subrounded fine to medium of limestone.	
			VANE	0.50	16 kN/m² 19mm vane				Soft damp grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 3	1.20-1.50						
			D 4	1.50			86.05	1.70		
									Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone.	
2			B 5	2.10-2.40			85.35	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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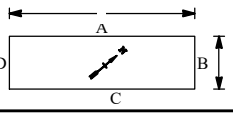
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-87706**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 632,397.5 N 715,963.9** **Rev: FINAL**
Ground level: 86.20m O.D.	**DATE: 24.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.70m 20min 1.55m
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							86.00	0.20	TOPSOIL: Grass over firm brown SILT with some tree roots. Roots are up to 20mm thick.	
			B 1	0.30-0.60	25 kN/m² 19mm vane				Stiff light grey gravelly SILT. Gravel is subangular to subrounded fine to medium of limestone.	
			VANE	0.40						
			D 2	0.60			85.50	0.70		
1									Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse.	
		1	B 3	1.30-1.60			84.50	1.70		
2									Bluish grey slightly silty sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content. Sand is coarse. Cobbles are subrounded to rounded of limestone.	
			B 4	2.00-2.30			83.80	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.70m bgl. TP backfilled with arisings.

Scale: 1:25

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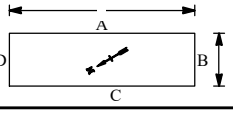
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-87803**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 632,483.7 N 716,010.5** **Rev: FINAL**
Ground level: 85.95m O.D.	**DATE: 24.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.40			85.75	0.20	TOPSOIL: Grass over firm dark brown SILT with some rootlets.	
			D 2	0.30			85.55	0.40	Stiff light grey slightly sandy slightly gravelly SILT. Sand is fine. Gravel is subangular to rounded fine of limestone.	
			B 3	0.50-0.80	15 kN/m² 19mm vane				Soft damp brownish grey slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE	0.60						
			D 4	0.80			85.05	0.90		
1									Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
			B 5	1.70-2.00						
2							83.95	2.00		
						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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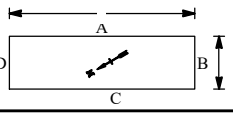
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-87905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 632,540.3 N 716,099.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 85.27m O.D.	**DATE: 24.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.00m **20min** **0.95m**
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							84.97	0.30	TOPSOIL: Grass over firm dark blackish brown peaty SILT with some rootlets.	
			B 1 D 2	0.30-0.50 0.40			84.77	0.50	Firm light brownish grey slightly gravelly very sandy SILT with low cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
		1	B 3	0.80-1.10					Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
1							83.97	1.30		
						END			TP terminated at 1.30m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.00m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

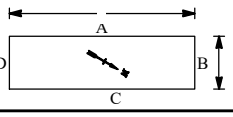
PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly
TRIALPIT: TP-88303
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald
Co-ordinates: E 632,905.0 N 716,245.2
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 85.63m O.D.
DATE: 1.2.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.43	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm brownish grey slightly sandy gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			VANE	0.50	25 kN/m² 19mm vane					
			D 2	0.60			84.93	0.70		
			B 3	0.80-1.10					Soft damp brownish grey slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone.	
1			D 4	1.10			84.33	1.30		
									Soft damp grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
2			B 5	2.00-2.30						
			D 6	2.30			83.03	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as possible boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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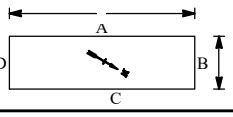
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-88402**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 632,995.9 N 716,289.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 85.13m O.D.	**DATE: 1.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.20m **20min** **2.20m**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.83	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			84.53	0.60	Dark grey silty sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is fine to medium.	
			VANE	0.70	17 kN/m² 19mm vane				Very soft damp grey slightly sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			B 2	1.20-1.50						
			D 3	1.50						
2		11					82.83	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.20m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

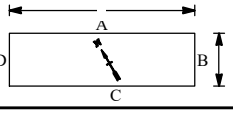
PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly
TRIALPIT: TP-88503
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald
Co-ordinates: E 633,092.0 N 716,297.0
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 84.60m O.D.
DATE: 25.1.22

GROUNDWATER
Water strikes:
1st: 1.10m Rose to after: 20min 1.05m
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.30	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			83.50	1.10	Bluish grey slightly silty sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is coarse. Cobbles are subrounded to rounded of limestone.	
1		1	B 2	1.20-1.50			82.80	1.80	Very soft damp grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 3	1.50						
						END			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.10m bgl. TP backfilled with arisings.

Scale: 1:25

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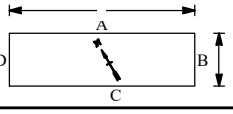
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-88601**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 633,201.6 N 716,294.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 84.27m O.D.	**DATE: 25.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.30m 20min 1.30m
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			83.97	0.30	TOPSOIL: Grass over firm brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone.	
			D 2	0.50			83.67	0.60	Firm brownish grey gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1		1.1	B 3	1.30-1.60			82.57	1.70	Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subrounded to rounded of limestone.	
						END			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.90m bgl. TP backfilled with arisings.

Scale: 1:25

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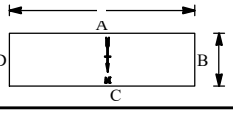
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-88703**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 633,290.7 N 716,350.7** **Rev: FINAL**
Ground level: 84.19m O.D.	**DATE: 25.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.89	0.30	TOPSOIL: Grass over firm brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone.	
							83.69	0.50	Firm orangish brown slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.50-0.80	20 kN/m² 19mm vane					
			VANE	0.60					Soft grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 2	0.80						
1							83.09	1.10		
									Very soft damp grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2							81.99	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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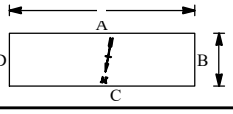
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-88802**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 633,384.6 N 716,385.3** **Rev: FINAL**
Ground level: 84.45m O.D.	**DATE: 24.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.15	0.30	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			D 2	0.50			83.85	0.60	Light orangish brown slightly gravelly silty fine SAND. Gravel is subangular to rounded fine to coarse of limestone.	
			B 3	0.60-0.90						
			D 4	0.90			83.45	1.00	Firm light bluish grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1										
			B 5	1.30-1.60					Soft damp brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	1.60						
2							82.25	2.20		
									Very soft damp brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 7	2.70-3.00						
3			D 8	3.00			81.45	3.00		
						END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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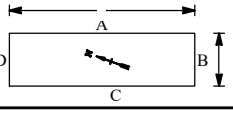
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-88904**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 633,481.6 N 716,396.3** **Rev: FINAL**
Ground level: 83.97m O.D.	**DATE: 24.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.67	0.30	TOPSOIL: Grass over firm brown gravelly SILT with some tree roots. Roots are up to 30mm thick.	
			B 1	0.30-0.60			83.27	0.70	Orangish brown silty sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine. Cobbles are subrounded to rounded of limestone.	
1			B 2	0.90-1.20			81.47	2.50	Light bluish grey slightly gravelly SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
2							80.97	3.00	Light grey slightly silty slightly gravelly SAND with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up 300mm in length.	
3			B 3	2.70-3.00						
						END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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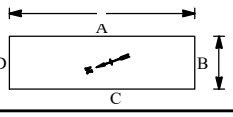
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-89003**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 633,589.1 N 716,410.4** **Rev: FINAL**
Ground level: 84.36m O.D.	**DATE: 25.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 200°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.06	0.30	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 1	0.30-0.60			83.06	1.30	Orangish brown sandy silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and high boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
1			B 2	1.30-1.60			82.26	2.10	Soft damp light bluish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.60						
2			D 4	2.30-2.60			81.66	2.70	Grey slightly silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content. Cobbles are subrounded to rounded of limestone.	
									END TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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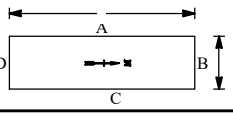
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-89104**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 633,669.2 N 716,475.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 84.55m O.D.	**DATE: 25.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.50-0.80	23 kN/m² 19mm vane		84.05	0.50	TOPSOIL: Grass over firm brown gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.60						
			D 2	0.80						
1							83.45	1.10	Firm light grey mottled orange gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	1.20-1.50						
							82.95	1.60	Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subrounded to rounded of limestone.	
						END			TP terminated at 1.60m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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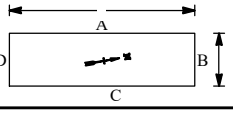
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-89205**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 633,767.2 N 716,506.7** **Rev: FINAL**
Ground level: 84.16m O.D.	**DATE: 25.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 10°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m to 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.76	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.50-0.80			82.76	1.40	Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
1			B 2	1.40-1.70			82.46	1.70	Firm light grey gravelly SILT with medium cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 3	1.70		**END**			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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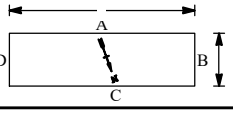
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-89303**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 633,865.2 N 716,511.3** **Rev: FINAL**
Ground level: 83.22m O.D.	**DATE: 26.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			82.92	0.30	TOPSOIL: Grass over firm brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone.	
							82.52	0.70	Firm light grey mottled orange gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1							82.12	1.10	Bluish grey slightly silty gravelly fine to medium SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
			D 2	1.10						
			B 3	1.30-1.40			81.82	1.40	Stiff light grey gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 4	1.80					Soft damp grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
2			B 5	1.80-2.10						
			D 6	2.10			81.02	2.20		
						END			TP terminated at 2.20m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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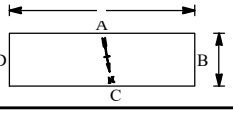
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-89405**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 633,972.1 N 716,510.9** **Rev: FINAL**
Ground level: 82.71m O.D.	**DATE: 26.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							82.31	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70						
			D 2	0.70					Stiff light bluish grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1							81.31	1.40		
			B 3	1.60-1.90					Bluish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
2							80.31	2.40		
									END TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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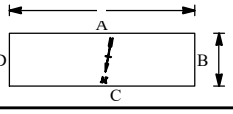
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-89504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 634,056.9 N 716,565.5** **Rev: FINAL**
Ground level: 81.45m O.D.	**DATE: 26.1.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							81.05	0.40	TOPSOIL: Grass over firm dark brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70			80.55	0.90	Bluish grey gravelly silty fine SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
1							79.75	1.70	Brownish grey fine to medium SAND.	
			B 2	1.20-1.50			79.15	2.30	Bluish grey slightly silty very gravelly medium to coarse SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
2			B 3	1.90-2.20						
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-89555
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 634,100.0 N 716,599.0

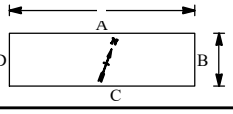
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 81.23m O.D.

DATE: 1.2.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 70°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							80.83	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70			80.53	0.70	Grey silty very gravelly fine SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 2	0.80-1.10					Firm damp bluish grey gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			D 3	1.10			79.93	1.30		
			B 4	1.50-1.80			79.33	1.90	Brownish grey slightly silty slightly gravelly fine to medium SAND. Gravel is subangular to rounded fine to coarse of limestone.	
2			B 5	2.20-2.50			78.63	2.60	Dark grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone.	
						END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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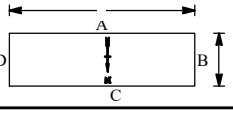
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-90401**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 634,935.7 N 716,726.6** **Rev: FINAL**
Ground level: 85.19m O.D.	**DATE: 2.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.99	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			84.89	0.30	Firm light greyish orangish brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			D 2	0.60			84.29	0.90	Firm light bluish grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.20-1.50					Soft damp light orangish greyish brown gravelly SILT with medium cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 4	1.50						
			B 5	1.80-2.10						
2			D 6	2.10			83.09	2.10		
							82.49	2.70	Very soft damp light orangish greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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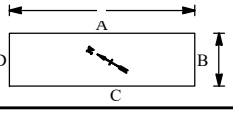
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-90503**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 635,035.4 N 716,717.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.00m O.D.	**DATE: 2.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							82.60	0.40	TOPSOIL: Grass over firm dark blackish brown peaty SILT.	
			B 1	0.40-0.70	19 kN/m² 19mm vane				Soft light orangish brown slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50						
			D 2	0.70			82.20	0.80		
1									Very soft damp grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	1.40-1.70						
			D 4	1.70						
2							80.60	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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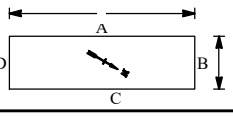
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-90604**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 635,140.7 N 716,720.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.23m O.D.	**DATE: 2.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.20m **20min** **1.15m**
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.50			83.03	0.20	TOPSOIL: Grass over firm dark brown slightly peaty SILT.	
			VANE	0.40	23 kN/m² 19mm vane				Firm light orangish brown slightly sandy gravelly SILT. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone.	
			D 2	0.40			82.73	0.50		
			B 3	0.60-0.90			82.33	0.90	Dark grey slightly silty very sandy subangular to rounded fine to coarse limestone GRAVEL. Sand is medium to coarse.	
1		1							Very soft damp light grey slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			B 4	1.50-1.80						
			D 5	1.80						
2							81.13	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.20m bgl. TP backfilled with arisings.

Scale: 1:25

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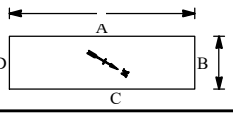
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-90704**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 635,226.1 N 716,775.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 85.79m O.D.	**DATE: 1.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m to 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.59	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			D 2	0.40			85.29	0.50	Light orangish brown very silty fine SAND.	
			B 3	0.60-0.90			84.79	1.00	Dark grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to medium. Cobbles are subrounded to rounded of limestone.	
1									Firm greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 4	1.60-1.90						
			D 5	1.90			83.79	2.00		
2						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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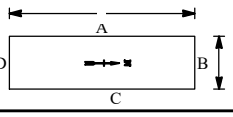
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-90800**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 635,312.5 N 716,822.2**	**Rev: FINAL**
Ground level: 89.78m O.D.		**DATE: 2.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							89.48	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light greyish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			VANE	0.50	26 kN/m² 19mm vane					
			D 2	0.60						
1							88.78	1.00		
			B 3	1.30-1.60					Firm damp light greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.60						
2							87.48	2.30		
									Soft damp light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
3			B 5	3.00-3.30						
							86.28	3.50		
						END			TP terminated at 3.50m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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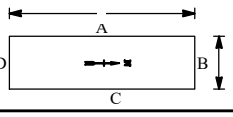
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-90894**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 635,403.9 N 716,844.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 89.04m O.D.	**DATE: 2.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							88.64	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with many tree roots. Gravel is subangular to rounded fine to coarse of limestone. Tree roots are up to 20mm thick.	
			B 1	0.40-0.70						
			D 2	0.70			88.24	0.80	Stiff light brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1									Soft damp light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.50-1.80						
2							86.44	2.60		
									Very soft damp light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			B 4	3.10-3.40						
			D 5	3.40			85.24	3.80		
						END			TP terminated at 3.80m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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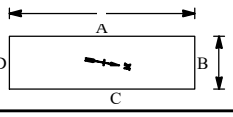
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91012**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 635,528.2 N 716,846.8** **Rev: FINAL**
Ground level: 87.23m O.D.	**DATE: 3.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.03	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
							86.83	0.40	Soft damp orangish brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	19 kN/m² 19mm vane				Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50						
			D 2	0.70						
1										
							85.53	1.70		
			B 3	1.70-2.00					Very soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1100mm in length.	
2			D 4	2.00						
3										
4			B 5	3.90-4.20			83.03	4.20		
			D 6	4.20		**END**			TP terminated at 4.20m bgl. Unable to progress TP - sidewall collapse.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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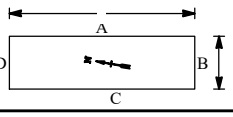
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-91104**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 635,605.4 N 716,904.4**	**Rev: FINAL**
Ground level: 85.11m O.D.		**DATE: 3.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							84.81	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.50-0.80			84.61	0.50	Firm orangish brown gravelly sandy SILT with high cobble content and high boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.80					Soft damp grey sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone.	
1							84.01	1.10	Very soft damp light grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2							82.61	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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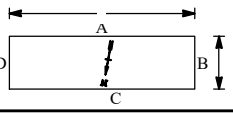
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91193**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 635,679.9 N 716,944.5** **Rev: FINAL**
Ground level: 88.09m O.D.	**DATE: 3.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							87.79	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some rootlets. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.50	28 kN/m² 19mm vane		87.59	0.50	Firm orangish brown gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.40						
			D 2	0.40						
1			B 3	1.30-1.50					Soft damp light grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 4	1.50						
2							86.09	2.00		
									Soft damp light greyish brown very gravelly SILT with high cobble content and medium boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.70-3.00						
3			D 6	3.00			84.59	3.50		
						END			TP terminated at 3.50m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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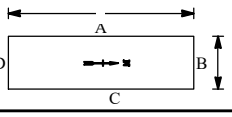
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91305**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 635,775.5 N 717,003.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 91.85m O.D.	**DATE: 3.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.55	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some tree roots. Gravel is subangular to rounded fine to coarse of limestone. Roots are up to 30mm thick.	
			B 1	0.30-0.60			91.05	0.80	Brownish grey very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to medium. Cobbles are subrounded to rounded of limestone.	
1			B 2	1.00-1.30			90.25	1.60	Firm brownish grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 800mm in length.	
			D 3	1.30						
2			B 4	2.30-2.60			88.75	3.10	Soft damp light brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 450mm in length.	
			D 5	2.60						
3			B 6	3.20-3.50			88.35	3.50	Dark grey slightly silty slightly sandy angular to subangular fine to coarse limestone GRAVEL with high cobble content. Sand is coarse. Cobbles are angular to subangular of limestone.	
						END			TP terminated at 3.50m bgl. Unable to progress TP - unstable ground conditions.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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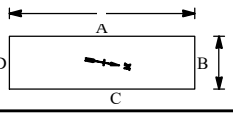
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91406**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 635,870.5 N 717,048.0** **Rev: FINAL**
Ground level: 95.34m O.D.	**DATE: 3.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							95.14	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			VANE	0.50	20 kN/m² 19mm vane		94.74	0.60	Firm orangish brown gravelly SILT with medium cobble content and high boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.	
			D 2	0.50						
1									Soft damp grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 8000mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2							92.84	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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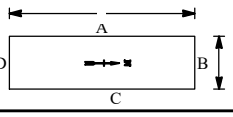
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 635,935.4 N 717,122.4** **Rev: FINAL**
Ground level: 95.42m O.D.	**DATE: 4.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							95.12	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded medium to coarse of limestone.	
			B 1	0.40-0.70	22 kN/m² 19mm vane				Firm orangish brown slightly gravelly slightly sandy SILT with low cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 600mm in length.	
			VANE	0.50						
			D 2	0.70			94.52	0.90		
1									Firm light grey gravelly sandy SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.10-1.40						
			D 4	1.40			93.72	1.70		
2									Bluish grey sandy silty angular to subangular fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is fine. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone. Boulders are up to 450mm in length.	
			B 5	2.00-2.30						
							93.12	2.30		
						END			TP terminated at 2.30m bgl. Obstruction as probable rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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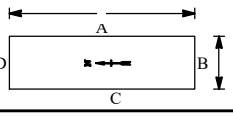
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91603**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,014.3 N 717,184.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 98.25m O.D.	**DATE: 4.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.95	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.40	18 kN/m² 19mm vane		97.65	0.60	Firm orangish brown slightly gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 1	0.60-0.90					Grey very gravelly fine SAND with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 500mm in length.	
1			D 2	0.90						
			B 3	1.60-1.90			96.65	1.60		
2							96.25	2.00	Dark grey silty sandy angular to subangular fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is fine. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone. Boulders are up to 350mm in length.	
						END			TP terminated at 2.00m bgl. Obstruction as probable boulder.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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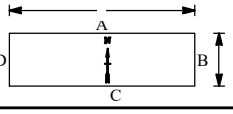
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91705**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,108.8 N 717,224.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 103.21m O.D.	**DATE: 4.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.01	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.40	21 kN/m² 19mm vane		102.71	0.50	Firm orangish brown slightly gravelly SILT with low cobble content and low boulder content. Gravel is angular to subrounded of limestone. Cobbles are angular to subrounded of limestone. Boulders are subrounded of limestone. Boulders are up to 250mm in length.	
			B 1	0.50-0.80					Firm light greyish brown gravelly sandy SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone.	
			D 2	0.80						
1							102.11	1.10		
			B 3	1.10-1.30					Dark bluish grey silty angular to subangular fine to coarse limestone GRAVEL with high cobble content and low boulder content. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone. Boulders are up to 250mm in length.	
							101.91	1.30	**END**	
									TP terminated at 1.30m bgl. Obstruction as possible rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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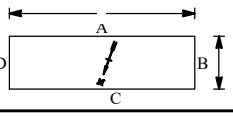
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91805**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 636,209.7 N 717,257.4** **Rev: FINAL**
Ground level: 107.27m O.D.	**DATE: 4.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							106.97	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			D 1	0.40			106.77	0.50	Firm damp orangish brown slightly gravelly SILT with low cobble content and low boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular of limestone. Boulders are up to 300mm in length.	
			B 2	0.50-0.80						
1			D 3	0.80			106.07	1.20	Soft damp light greyish brown slightly sandy gravelly SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 350mm in length.	
2			B 4	2.30-2.60			104.67	2.60	Soft damp light greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 350mm in length.	
			D 5	2.60		END			TP terminated at 2.60m bgl. Obstruction as possible rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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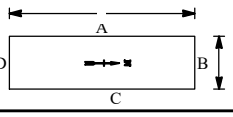
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-91905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 636,265.6 N 717,345.2** **Rev: FINAL**
Ground level: 111.23m O.D.	**DATE: 9.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							110.83	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with some tree roots. Gravel is subrounded to rounded fine to coarse of limestone. Roots are up to 10mm thick.	
			B 1	0.40-0.70					Light brown gravelly very silty fine SAND with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up 300mm in length.	
			D 2	0.70						
1							110.13	1.10		
									Firm light brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 3	1.70-2.00						
2			D 4	2.00						
							108.43	2.80		
						END			TP terminated at 2.80m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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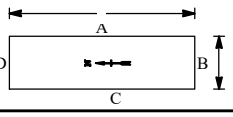
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-92029**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 636,346.3 N 717,442.3**		**Rev: FINAL**
Ground level: 117.33m O.D.			**DATE: 9.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			117.03	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			VANE	0.50	14 kN/m² 19mm vane					
			D 2	0.60			116.63	0.70	Soft orangish brown slightly gravelly SILT with low cobble content. Gravel is angular to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
1									Soft damp light brown gravelly SILT with medium cobble content and low boulder content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			115.63	1.70		
						END			TP terminated at 1.70m bgl. Obstruction as rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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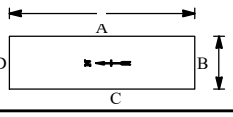
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92106**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,416.0 N 717,478.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 116.87m O.D.	**DATE: 9.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			116.57	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded medium to coarse of limestone.	
			VANE	0.50	19 kN/m² 19mm vane				Firm orangish brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			D 2	0.60			116.07	0.80		
1									Soft damp light greyish brown slightly sandy very gravelly SILT with high cobble content and medium boulder content. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2										
			B 5	2.30-2.60						
			D 6	2.60						
3							113.77	3.10		
						END			TP terminated at 3.10m bgl. Obstruction as rock.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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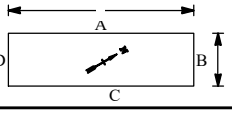
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92209**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 636,508.6 N 717,529.3** **Rev: FINAL**
Ground level: 116.48m O.D.	**DATE: 9.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							116.18	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded medium to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	11 kN/m² 19mm vane					
			D 2	0.60			115.78	0.70	Soft damp light orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.90-1.20						
1			D 4	1.20			114.98	1.50	Soft damp light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2			B 5	2.40-2.70					Very soft damp light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			D 6	2.70						
3							113.18	3.30		
							END		TP terminated at 3.30m bgl. Obstruction as probable rock.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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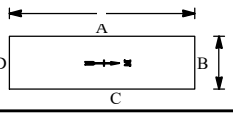
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92306**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,571.0 N 717,611.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 117.00m O.D.	**DATE: 8.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							116.80	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT with some tree roots. Gravel is subangular to rounded fine to coarse of limestone. Tree roots are up to 20mm thick.	
			B 1	0.20-0.50					Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	18 kN/m² 19mm vane					
			D 2	0.50			116.20	0.80		
1									Firm light greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 3	1.20-1.50						
			D 4	1.50						
2							114.90	2.10		
			B 5	2.20-2.50					Soft light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.50						
3							113.80	3.20		
						END			TP terminated at 3.20m bgl. Obstruction as possible rock.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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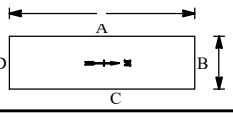
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-92407**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 636,629.1 N 717,696.7**	**Rev: FINAL**
Ground level: 114.11m O.D.		**DATE: 8.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							113.81	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with some tree roots. Gravel is subangular to rounded fine to coarse of limestone. Tree roots are up to 100mm thick.	
			B 1	0.30-0.60					Firm light orangish brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE	0.50	17 kN/m² 19mm vane					
			D 2	0.60			113.31	0.80		
1									Firm light greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							111.71	2.40		
									Soft light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			B 5	3.00-3.30						
			D 6	3.30			110.71	3.40		
						END			TP terminated at 3.40m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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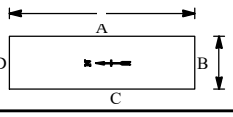
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92506**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,711.9 N 717,747.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 112.42m O.D.	**DATE: 8.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							112.02	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is angular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	13 kN/m² 19mm vane				Soft damp brownish grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1							110.92	1.50		
									Firm brownish grey sandy gravelly SILT with medium cobble content and medium boulder content. Sand is medium. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 3	2.00-2.30						
			D 4	2.30						
							109.82	2.60		
									Soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
3			B 5	3.00-3.30						
							109.12	3.30		
			D 6	3.30		END			TP terminated at 3.30m bgl. Unable to progress TP - unstable ground conditions.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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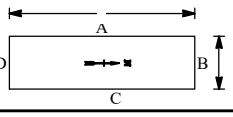
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92587**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,789.1 N 717,784.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 109.72m O.D.	**DATE: 8.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							109.52	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm orangish brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	16 kN/m² 19mm vane					
			D 2	0.60			109.02	0.70		
1									Very soft damp brownish grey slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 3	1.30-1.60						
			D 4	1.60						
2							107.42	2.30		
			B 5	2.30-2.60					Soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.60						
3							106.12	3.60		
						END			TP terminated at 3.60m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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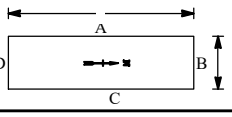
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92706**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,855.2 N 717,887.7 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 106.31m O.D.	**DATE: 8.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m to 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							106.01	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	12 kN/m² 19mm vane					
			D 2	0.60						
							105.51	0.80	Soft damp orangish brown slightly gravelly slightly sandy SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
1									Firm light brownish grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
							104.31	2.00		
2									Soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
							103.31	3.00		
3							END		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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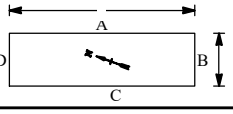
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92804**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 636,912.4 N 717,968.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 101.98m O.D.	**DATE: 7.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							101.58	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	12 kN/m² 19mm vane				Soft orangish brown slightly gravelly SILT with medium cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70			101.18	0.80		
			B 3	0.80-1.10					Firm light brownish grey slightly sandy gravelly SILT with medium cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 4	0.90			100.88	1.10		
1									Light brownish grey gravelly silty fine to medium SAND. Gravel is subrounded to rounded medium to coarse of limestone.	
			B 5	1.30-1.60			100.28	1.70		
									Soft damp light brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2										
3			B 6	3.00-3.30						
			D 7	3.30		END	98.68	3.30	TP terminated at 3.30m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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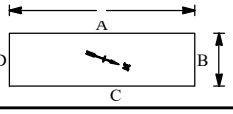
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-92904**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 637,006.4 N 718,013.8** **Rev: FINAL**
Ground level: 104.64m O.D.	**DATE: 7.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m to 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							104.34	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm orangish brown slightly gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 350mm in length.	
			VANE	0.50	19 kN/m² 19mm vane					
			D 2	0.60			103.84	0.80		
									Brownish grey silty fine to medium SAND.	
1			B 3	1.00-1.30			103.24	1.40		
									Soft damp brownish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 4	2.30-2.60						
			D 5	2.60						
3							101.14	3.50		
						END			TP terminated at 3.50m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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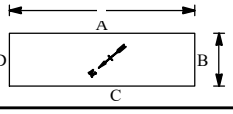
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-93003**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 637,105.1 N 718,035.7** **Rev: FINAL**
Ground level: 107.19m O.D.	**DATE: 7.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							106.89	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	17 kN/m² 19mm vane					
			D 2	0.60						
							106.39	0.80		
1									Firm light brownish grey slightly sandy very gravelly SILT with medium cobble content. Sand is fine to medium. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	1.30-1.60						
			D 4	1.60						
							105.39	1.80		
2									Soft damp light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			B 5	3.30-3.60						
			D 6	3.30						
4							102.99	4.20		
						END			TP terminated at 4.20m bgl. Unable to progress TP - sidewall collapse.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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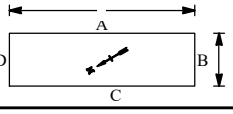
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-93106**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 637,180.4 N 718,113.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 107.36m O.D.	**DATE: 7.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 3.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							106.96	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	15 kN/m² 19mm vane				Soft damp light brownish grey gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1							106.06	1.30		
									Firm light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			B 3	1.70-2.00						
2			D 4	2.00						
							104.36	3.00		
3									Soft damp light brownish grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 5	3.80-4.10						
4			D 6	4.10						
							102.86	4.50		
						END			TP terminated at 4.50m bgl.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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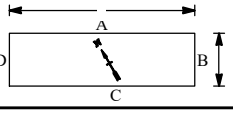
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-93174**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 637,202.9 N 718,142.7 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 107.02m O.D.	**DATE: 7.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							106.62	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70						
			VANE	0.60	12 kN/m² 19mm vane				Soft damp orangish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			D 2	0.70						
							106.02	1.00		
1									Soft damp light brownish grey slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	1.30-1.60						
			D 4	1.60			105.32	1.70		
2									Firm light brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
3			B 5	2.80-3.10						
			D 6	3.10						
4							103.02	4.00		
						END			TP terminated at 4.00m bgl. Obstruction as boulders.	
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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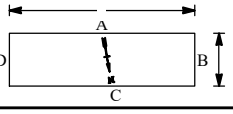
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-93352**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 637,419.3 N 718,271.0**		**Rev: FINAL**
Ground level: 106.19m O.D.			**DATE: 9.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m to 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							105.89	0.30	Firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	11 kN/m² 19mm vane				Soft orangish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60						
							105.29	0.90		
1			B 3	1.00-1.30					Light greyish brown slightly silty gravelly fine to medium SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
							104.69	1.50		
			B 4	1.60-1.90					Light brownish grey slightly silty very sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone. Boulder are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
							104.19	2.00		
2									Soft damp light brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 5	2.70-3.00						
							103.19	3.00		
3			D 6	3.00		**END**			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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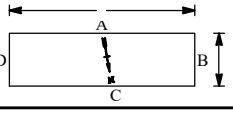
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-93505**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 637,506.0 N 718,341.9 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 106.06m O.D.	**DATE: 10.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m to 3.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							105.66	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.60	12 kN/m² 19mm vane				Soft light brownish grey gravelly SILT with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			B 1	0.60-0.90						
1			D 2	0.90						
			B 3	1.60-1.90						
			D 4	1.90						
2							103.86	2.20		
			B 5	2.50-2.80					Soft light brownish grey slightly sandy very gravelly SILT with high cobble content and medium boulder content. Sand is medium to coarse. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 6	2.80						
3							102.86	3.20		
							END		TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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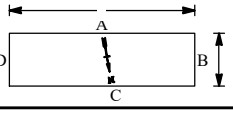
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-93602**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 637,595.8 N 718,391.2** **Rev: FINAL**
Ground level: 103.93m O.D.	**DATE: 10.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.63	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60					Soft damp light brownish grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.50	12 kN/m² 19mm vane					
			D 2	0.60						
1										
			B 3	1.30-1.60						
			D 4	1.60						
2									2.00m: with medium boulder content. Boulders becoming subangular to rounded. Boulders are up to 350mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
3							100.93	3.00		
						END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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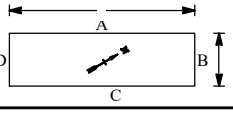
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-93703**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 637,677.2 N 718,384.8**	**Rev: FINAL**
Ground level: 104.30m O.D.		**DATE: 10.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 30°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							104.00	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	20 kN/m² 19mm vane					
			D 2	0.60						
							103.50	0.80	Firm light brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 3	0.90-1.20						
1							103.00	1.30	Light brown sandy silty subangular to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is fine to medium. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
									Very soft damp light greyish brown gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2										
			B 4	2.30-2.60						
			D 5	2.60						
3							101.20	3.10		
						END			TP terminated at 3.10m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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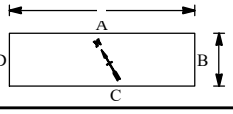
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-93803**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 637,800.9 N 718,379.0** **Rev: FINAL**
Ground level: 105.73m O.D.	**DATE: 11.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.00m 20min 1.90m
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							105.43	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60						
			D 2	0.50			105.13	0.60	Firm grey mottled orangish brown gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
1									Soft damp light brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
		1					103.73	2.00		
2						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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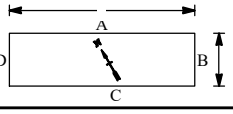
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-93902**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 637,888.7 N 718,417.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 105.57m O.D.	**DATE: 11.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 120°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							105.27	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.40-0.70	19 kN/m² 19mm vane		104.27	1.30	Grey sandy very silty subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1										
			B 2	1.70-2.00					Very soft damp light brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 3	2.00			102.97	2.60		
						END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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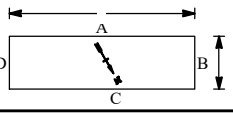
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94015**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 638,009.6 N 718,452.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 103.84m O.D.	**DATE: 10.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.80m 20min 1.70m
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.64	0.20	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.20-0.50						
			VANE	0.40	9 kN/m² 19mm vane		103.34	0.50	Soft white slightly sandy SILT. Sand is fine.	
			D 2	0.40						
			VANE	0.70	10 kN/m² 19mm vane				Spongy dark brownish black pseudo fibrous PEAT. H6 B1 F1 R1 W0 TV2 TH2 A0.	
			B 3	0.80-1.10						
1			D 4	1.10			102.34	1.50		
			B 5	1.50-1.80			102.04	1.80	Bluish grey slightly silty slightly sandy subangular to angular fine to coarse limestone GRAVEL. Sand is fine.	
		1								
2			B 6	2.10-2.40			101.44	2.40	Soft damp white slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone.	
			D 7	2.40		END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.80m bgl. TP backfilled with arisings.

Scale: 1:25

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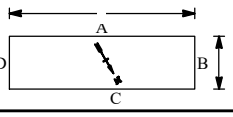
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94103**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 638,095.4 N 718,443.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 105.06m O.D.	**DATE: 10.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.90m **20min** **1.80m**
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							104.86	0.20	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.20-0.50						
			VANE	0.50	12 kN/m² 19mm vane					
			D 2	0.50			104.46	0.60	Soft white slightly sandy SILT. Sand is fine.	
			VANE	0.70	9 kN/m² 19mm vane				Spongy dark brownish black pseudo fibrous PEAT. H6 B1 F1 R1 W1 TV1 TH1 A1.	
1			B 3	1.20-1.50						
			D 4	1.50						
		1					103.16	1.90		
2			B 5	2.00-2.30					Dark bluish grey gravelly very silty fine SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 6	2.30			102.76	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.90m bgl. TP backfilled with arisings.

Scale: 1:25

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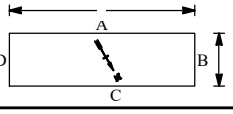
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94198**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 638,192.3 N 718,426.7
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 105.89m O.D.	**Rev: FINAL**
	DATE: 10.2.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.20m 20min 1.00m
2nd:
3rd:

PIT DIRECTION: 300°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							105.69	0.20	TOPSOIL: Grass over firm brown peaty SILT with some tree roots. Roots are up to 20mm thick.	
			B 1	0.30-0.60					Firm damp light orangish grey slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
			D 2	0.60			105.19	0.70		
1		1							Soft damp whitish grey slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 3	1.30-1.60						
			D 4	1.60						
2		1					103.69	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.20m bgl. TP backfilled with arisings.

Scale: 1:25

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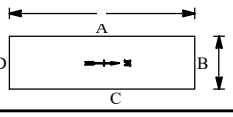
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94401**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 638,389.2 N 718,494.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 110.84m O.D.	**DATE: 11.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.40-0.70	12 kN/m² 19mm vane				TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			D 2	0.70			110.44	0.40		
1									Soft damp brownish grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
							109.64	1.20		
			B 3	1.40-1.70					Soft damp light brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 600mm in length.	
			D 4	1.70						
2							108.34	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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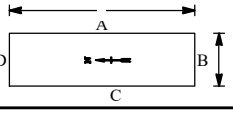
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates: E 638,488.3 N 718,506.6**
ENGINEER: Mott MacDonald	**Rig: Hitachi Zaxis 130 LCN**
Ground level: 111.37m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 11.2.22**
Water strikes: **Rose to after:** **1st: 2.40m 20min 2.10m** **2nd:** **3rd:**	**PIT DIRECTION: 180°** **PIT DIMENSION: 4.00m * 1.00** **LOGGED BY: PC**



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							111.17	0.20	TOPSOIL: Grass over firm brown SILT.	
			VANE	0.40	14 kN/m² 19mm vane		110.87	0.50	Firm orangish brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.50-0.80					Firm grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 2	0.80			110.37	1.00		
1									Very soft light bluish grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.50-1.80						
			D 4	1.80						
2		1								
			B 5	2.40-2.60			108.97	2.40		
							108.77	2.60	Brownish grey very silty subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
						END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.40m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94608**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 638,589.5 N 718,504.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 110.55m O.D.	**DATE: 14.2.22**

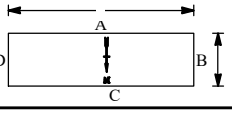
GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.90m	20min	0.90m
2nd:	1.90m	20min	1.85m
3rd:			

PIT DIRECTION: 270°

PIT DIMENSION: 4.00m * 1.00

LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							110.35	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50					Light bluish orangish grey gravelly very silty fine SAND with low cobble content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
		11					109.65	0.90		
1			B 2	1.20-1.50					Very soft damp light orangish brownish grey gravelly SILT with low cobble content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 3	1.50						
		2								
2							108.05	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 0.90m bgl. Ingress of water at 1.90m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly

TRIALPIT: TP-94704
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald

Co-ordinates: E 638,674.1 N 718,568.0

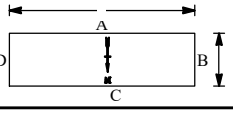
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 110.84m O.D.

DATE: 14.2.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.50m **20min** 1.10m
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							110.64	0.20	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.20-0.50						
			VANE	0.50	19 kN/m² 19mm vane					
			D 2	0.50			110.14	0.70	Firm damp light orangish bluish grey slightly gravelly very sandy SILT with low cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1		1								
			B 3	1.10-1.40						
		1	D 4	1.40			109.34	1.50	Soft damp light orangish blue mottled grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 5	1.50-1.80						
							109.04	1.80	Dark grey coarse SAND.	
2						END			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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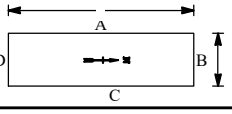
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94809**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 638,755.0 N 718,634.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 111.05m O.D.	**DATE: 14.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.10m **20min** **0.70m**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.50			110.85	0.20	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			D 2	0.50			110.45	0.60	Firm bluish grey slightly gravelly very sandy SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
		1	B 3	0.70-1.00						
1		1	D 4	1.00			109.95	1.10	Firm light orangish bluish grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 5	1.30-1.60			109.35	1.70	Dark grey slightly silty very sandy subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Sand is medium to coarse. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded. Boulders are up to 350mm in length.	
						END			TP terminated at 1.70m bgl. Unable to progress TP - sidewall collapse.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.10m bgl. TP backfilled with arisings.

Scale: 1:25

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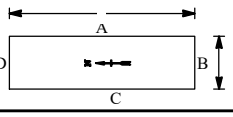
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-94905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 638,849.2 N 718,672.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 112.35m O.D.	**DATE: 14.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							112.05	0.30	Soft damp brown gravelly SILT with low cobble content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70	20 kN/m² 19mm vane				Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1							111.15	1.20		
			B 3	1.50-1.80					Dark brownish grey sandy silty angular to subangular fine to coarse limestone and calcareous mudstone GRAVEL with high cobble content and medium boulder content. Cobbles are angular to subangular of limestone and calcareous mudstone. Boulders are angular to subangular of limestone and calcareous mudstone. Boulders are up to 400mm in length.	
2							110.35	2.00		
						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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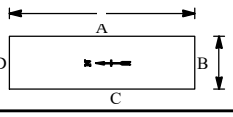
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline		**TRIALPIT: TP-95003**
LOCATION: County Offaly		**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**	**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 638,941.9 N 718,696.4**	**Rev: FINAL**
Ground level: 112.47m O.D.		**DATE: 14.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.30m 20min 2.30m
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							112.27	0.20	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm orangish brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.50	20 kN/m² 19mm vane					
			D 2	0.60						
1							111.47	1.00		
			B 3	1.10-1.40					Soft light bluish grey gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 4	1.40			110.97	1.50		
									Soft damp light bluish grey sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.00-2.30						
		11	D 6	2.30		END	110.17	2.30	TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 2.30m bgl. TP backfilled with arisings.

Scale: 1:25

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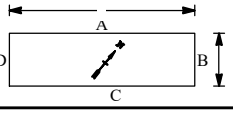
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-95408**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 639,291.2 N 718,885.7** **Rev: FINAL**
Ground level: 112.49m O.D.	**DATE: 15.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 50°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							112.19	0.30	TOPSOIL: Crops over firm brown SILT.	
			VANE	0.50	14 kN/m² 19mm vane		111.89	0.60	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 1	0.60-0.90						
1			D 2	0.90			111.49	1.00	Firm brownish grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	1.60-1.90					Soft damp grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			D 4	1.90			110.09	2.40		
			B 5	3.00-3.30					Very soft grey very gravelly SILT with high cobble content and medium boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 450mm in length.	
3			D 6	3.30			109.09	3.40		
						END			TP terminated at 3.40m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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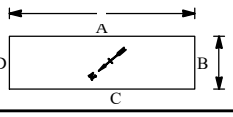
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-95504**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 639,366.5 N 718,967.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 111.08m O.D.	**DATE: 15.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.70m 20min 1.65m
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							110.78	0.30	TOPSOIL: Crops over firm brown SILT.	
			VANE	0.50	16 kN/m² 19mm vane		110.48	0.60	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 1	0.60-0.90			110.18	0.90	Bluish grey slightly sandy silty angular to subrounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine. Cobbles are angular to subrounded of limestone. Boulders are subangular to rounded of limestone. Boulders are up to 300mm in length.	
1			B 2	1.30-1.60			109.38	1.70	Bluish grey slightly silty very gravelly angular to subangular limestone COBBLES with high boulder content. Gravel is angular to subangular fine to coarse of limestone. Boulders are angular to subangular of limestone. Boulders are up to 450mm in length.	
		1								
						END			TP terminated at 1.70m bgl. Obstruction as possible rock.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.70m bgl. TP backfilled with arisings.

Scale: 1:25

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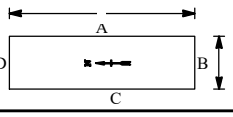
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-95600**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 639,428.7 N 719,023.3** **Rev: FINAL**
Ground level: 112.74m O.D.	**DATE: 15.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable..

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.60			112.54	0.20	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE D 2	0.30 0.30	16 kN/m² 19mm vane		112.34	0.40	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			B 3	0.50-0.80					Brownish grey silty angular to subangular fine to coarse limestone GRAVEL with high cobble content and high boulder content. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone. Boulders are up to 650mm in length.	
1							111.74	1.00		
						END			TP terminated at 1.00m bgl. Obstruction as rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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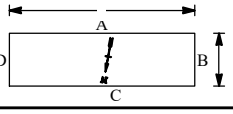
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-95705**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 639,532.2 N 719,064.5**
	Rig: Hitachi Zaxis 130 LCN
	Rev: FINAL
Ground level: 112.28m O.D.	**DATE: 15.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							111.88	0.40	TOPSOIL: Crops over firm brown slightly gravelly SILT with low cobble content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are angular to subangular of limestone.	
			B 1	0.50-0.80					Brownish bluish grey slightly silty gravelly angular to subangular limestone/calcareous mudstone COBBLES with high boulder content. Gravel is angular to subangular fine to coarse of limestone/calcareous mudstone. Boulders are angular to subangular of limestone/calcareous mudstone. Boulders are up to 1000mm in length.	
1							111.08	1.20		
									END TP terminated at 1.20m bgl. Obstruction as boulders over possible rock.	
2										
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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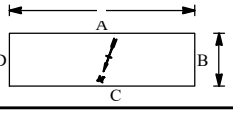
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-95806**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 639,631.7 N 719,095.6** **Rev: FINAL**
Ground level: 110.68m O.D.	**DATE: 15.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 250°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							110.48	0.20	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			VANE	0.50	17 kN/m² 19mm vane					
			D 2	0.60			109.98	0.70		
1									Firm brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.30-1.60						
			D 4	1.60			108.98	1.70		
2									Soft brownish grey slightly sandy very gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 500mm in length.	
			B 5	2.10-2.40						
			D 6	2.40			108.28	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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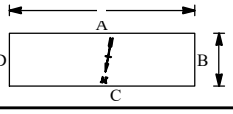
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-95905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 639,705.5 N 719,165.5** **Rev: FINAL**
Ground level: 108.49m O.D.	**DATE: 15.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							108.19	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.50	17 kN/m² 19mm vane		107.89	0.60	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
			VANE	0.70					Soft damp grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 500mm in length.	
1										
			B 3	1.30-1.60						
			D 4	1.60						
2							106.29	2.20		
						END			TP terminated at 2.20m bgl. Obstruction as probable rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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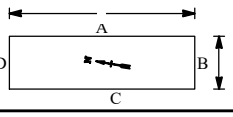
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-95999**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 639,774.6 N 719,230.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 105.55m O.D.	**DATE: 16.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							105.25	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is angular to subangular fine to coarse of limestone and shale.	
			B 1	0.30-0.60						
			VANE D 2	0.50 0.50	9 kN/m² 19mm vane				Soft damp brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is angular to subangular fine to coarse of limestone and shale. Cobbles are angular to subangular of limestone and shale. Boulders are is angular to subangular of limestone and shale. Boulders are up to 400mm in length.	
1							104.55	1.00		
			B 3	1.30-1.60					Brownish grey silty angular to subangular fine to coarse limestone GRAVEL with high cobble content and high boulder content. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone. Boulders are up to 650mm in length.	
2							103.55	2.00		
						END			TP terminated at 2.00m bgl. Obstruction as probable rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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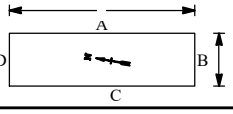
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96105**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 639,872.8 N 719,273.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 103.75m O.D.	**DATE: 16.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							103.45	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	17 kN/m² 19mm vane					
			D 2	0.60			103.05	0.70	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone.	
1			B 3	1.00-1.30					Soft damp light grey gravelly SILT with low cobble content and medium boulder content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are angular to subrounded of limestone. Boulders are angular to subrounded of limestone. Boulders are up to 400mm in length.	
			D 4	1.30			102.35	1.40		
			B 5	1.70-2.00					Light grey slightly sandy very silty angular to subangular fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Cobbles are angular to subangular of limestone. Boulders are angular to subrounded of limestone. Boulders are up to 450mm in length.	
2			D 6	2.00			101.55	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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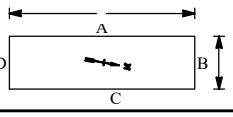
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96204**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 639,967.8 N 719,311.1** **Rev: FINAL**
Ground level: 101.45m O.D.	**DATE: 16.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.80m 20min 1.75m
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							101.15	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is angular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp orangish brown slightly sandy gravelly SILT with medium cobble content and low boulder content. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are angular to subrounded of limestone. Boulders are angular to subrounded of limestone. Boulders are up to 400mm in length.	
			VANE	0.50	13 kN/m² 19mm vane					
			D 2	0.60			100.65	0.80		
1									Soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are angular to subangular of limestone. Boulders are angular to subangular of limestone. Boulders are up to 500mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
		1					99.65	1.80		
						END			TP terminated at 1.80m bgl. Obstruction as probable rock.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.80m bgl. TP backfilled with arisings.

Scale: 1:25

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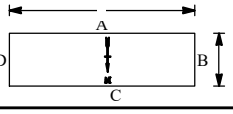
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96304**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 640,045.0 N 719,375.9 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 99.68m O.D.	**DATE: 16.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.30m **20min** **0.90m**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							99.28	0.40	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70			98.88	0.80	Bluish grey sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
1		1	B 2	0.90-1.20			98.38	1.30	Firm brown gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
		1	D 3	1.20						
			B 4	1.40-1.70			97.68	2.00	Brownish grey slightly silty subangular to rounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.30m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

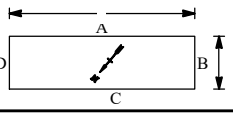
PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly
TRIALPIT: TP-96387
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald
Co-ordinates: E 640,110.1 N 719,429.7
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 98.92m O.D.
DATE: 16.2.22

GROUNDWATER
Water strikes:
1st: 1.30m **Rose to after:** 20min 1.10m
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							98.62	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	24 kN/m² 19mm vane					
			D 2	0.60			98.12	0.80	Firm grey mottled orangish brown gravelly SILT with medium cobble content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1		1							Bluish grey slightly silty sandy subrounded to rounded fine to coarse limestone GRAVEL with high cobble content and low boulder content. Sand is coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
		1	B 3	1.30-1.60						
2							96.92	2.00		
						END			TP terminated at 2.00m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.30m bgl. TP backfilled with arisings.

Scale: 1:25

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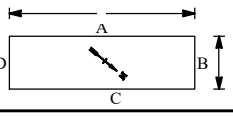
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96505**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 640,225.0 N 719,464.0** **Rev: FINAL**
Ground level: 97.85m O.D.	**DATE: 17.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 320°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.65	0.20	TOPSOIL: Grass over soft damp blackish brown peaty CLAY.	
			B 1	0.30-0.60			97.25	0.60	Bluish grey silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine. Cobbles are subrounded to rounded of limestone.	
			B 2 D 3	0.60-0.90 0.70			96.95	0.90	Soft damp light grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 4	1.10-1.40			96.45	1.40	Orangish grey slightly silty slightly sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is coarse. Cobbles are subrounded to rounded of limestone.	
						END			TP terminated at 1.40m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.90m bgl. TP backfilled with arisings.

Scale: 1:25

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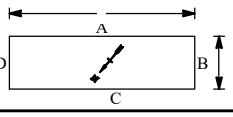
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96608**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 640,329.6 N 719,489.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 97.72m O.D.	**DATE: 17.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.50m 20min 1.45m
2nd:
3rd:

PIT DIRECTION: 230°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.42	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Stiff light grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone and shale. Cobbles are subangular to rounded of limestone and shale.	
			D 2	0.60			96.72	1.00		
1			B 3	1.00-1.30					Orangish grey slightly silty very gravelly angular to subangular limestone and shale COBBLES with high boulder content. Gravel is angular to subangular fine to coarse of limestone and shale. Boulders are angular to subangular of limestone and shale. Boulders are up to 450mm in length.	
		1					96.22	1.50		
						END			TP terminated at 1.50m bgl. Obstruction as rock.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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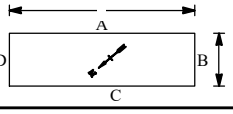
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96705**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 640,398.2 N 719,562.4** **Rev: FINAL**
Ground level: 96.10m O.D.	**DATE: 17.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							95.80	0.30	TOPSOIL: Grass and rushes over soft damp brown gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Soft damp dark grey gravelly sandy SILT with medium cobble content and medium boulder content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 400mm in length.	
			VANE	0.50	12 kN/m² 19mm vane					
			D 2	0.60						
1							95.10	1.00		
			B 3	1.30-1.60					Dark brownish grey sandy silty angular to subangular fine to coarse limestone and calcareous mudstone GRAVEL with high cobble content and medium boulder content. Cobbles are angular to subangular of limestone and calcareous mudstone. Boulders are angular to subangular of limestone and calcareous mudstone. Boulders are up to 400mm in length.	
							94.20	1.90		
2						**END**			TP terminated at 1.90m bgl. Obstruction.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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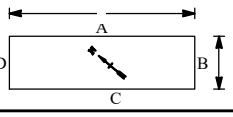
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96831**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**
ENGINEER: Mott MacDonald	**E 640,479.9 N 719,653.7**
Rig: Hitachi Zaxis 130 LCN	
Rev: FINAL	
Ground level: 97.08m O.D.	**DATE: 17.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							96.78	0.30	TOPSOIL: Crops over firm brown slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	19 kN/m² 19mm vane					
			D 2	0.60						
							96.18	0.90	Firm damp light brownish orange slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.00-1.30						
			D 4	1.30			95.68	1.40	Soft damp light grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
2									Very soft damp light grey very gravelly SILT with high cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 5	2.80-3.10						
3			D 6	3.10			93.58	3.50		
						END			TP terminated at 3.50m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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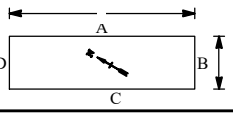
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-96905**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 640,553.6 N 719,686.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 96.32m O.D.	**DATE: 21.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 0.90m 20min 0.89m
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							95.92	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Very soft light bluish brownish grey slightly sandy very gravelly SILT with low cobble content and low boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 2	0.70						
		11					95.42	0.90		
1									Very soft damp brownish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 3	1.80-2.10						
2			D 4	2.10						
							93.42	2.90		
3						END			TP terminated at 2.90m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 0.90m bgl. TP backfilled with arisings.

Scale: 1:25

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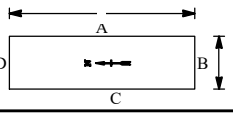
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-97009**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 640,655.9 N 719,719.9** **Rev: FINAL**
Ground level: 95.69m O.D.	**DATE: 21.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.60m 20min 1.20m
2nd:
3rd:

PIT DIRECTION: 180°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							95.49	0.20	TOPSOIL: Grass over soft damp brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			94.99	0.70	Light bluish grey slightly sandy silty subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1		1	B 2	0.90-1.20					Very soft damp grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 3	1.20						
		1	B 4	1.60-1.90			94.09	1.60	Dark grey slightly silty sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Cobbles are subrounded to rounded of limestone.	
2							93.79	1.90	**END** TP terminated at 1.90m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 1.60m bgl. TP backfilled with arisings.

Scale: 1:25

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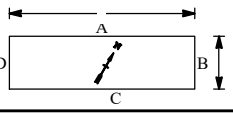
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-97108**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 640,725.4 N 719,791.2** **Rev: FINAL**
Ground level: 94.31m O.D.	**DATE: 17.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.30m 20min 1.00m
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			94.01	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60					Firm orangish brown slightly sandy very gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
1		1					93.21	1.10		
		1	B 3	1.20-1.50					Grey slightly silty very gravelly angular to subangular limestone COBBLES with high boulder content. Gravel is angular to subangular fine to coarse of limestone. Boulders are angular to subangular of limestone. Boulders are up to 350mm in length.	
							92.71	1.60		
							END		TP terminated at 1.60m bgl. Obstruction as rock.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.30m bgl. TP backfilled with arisings.

Scale: 1:25

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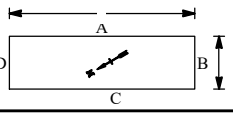
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-97206**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 640,746.3 N 719,890.5**		**Rev: FINAL**
Ground level: 92.97m O.D.			**DATE: 21.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.70m 20min 1.50m
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.67	0.30	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70					Brownish grey slightly silty sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is fine to medium. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1		1					91.27	1.70		
			B 2	1.70-2.00					Bluish brownish grey slightly silty sandy gravelly subrounded to rounded limestone COBBLES with medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Boulders are subrounded to rounded of limestone.	
2							90.77	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.70m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-97309**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 640,798.5 N 719,976.5** **Rev: FINAL**
Ground level: 90.28m O.D.	**DATE: 21.2.22**

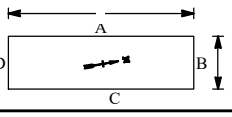
GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.70m	20min	0.69m
2nd:	2.20m	20min	1.70m
3rd:			

PIT DIRECTION: 10°

PIT DIMENSION: 4.00m * 1.00

LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m to 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							89.98	0.30	TOPSOIL: Grass over firm brown SILT.	
		1	B 1	0.30-0.60			89.58	0.70	Bluish brownish grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
1			B 2 D 3	0.80-1.10 0.80			88.78	1.50	Stiff light greyish brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
		2					87.58	2.70	Stiff light orange mottled greyish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
2		3	B 4 D 5	2.00-2.30 2.30			86.98	3.30	Stiff dark grey SILT.	
3			B 6 D 7	3.00-3.30 3.30		END			TP terminated at 3.30m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 0.70m bgl. Ingress of water at 2.20m bgl. TP backfilled with arisings.

Scale: 1:25

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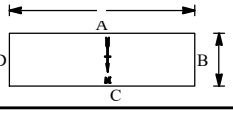
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-97383**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 640,829.3 N 720,047.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.89m O.D.	**DATE: 21.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.40m **20min** **1.40m**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0			B 1	0.30-0.50	20 kN/m² 19mm vane				TOPSOIL: Grass over firm orangish brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.40						
			D 2	0.40			90.39	0.50		
			VANE	0.60	14 kN/m² 19mm vane				Soft damp light grey very gravelly SILT with medium cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.80-1.10						
1			D 4	1.10						
		▼1.40					89.49	1.40		
									Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2			B 5	2.50-2.80						
			D 6	2.80						
3							87.79	3.10		
						END			TP terminated at 3.10m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 1.40m bgl. TP backfilled with arisings.

Scale: 1:25

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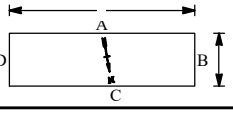
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-97505**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 640,883.6 N 720,134.6** **Rev: FINAL**
Ground level: 86.43m O.D.	**DATE: 22.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 280°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							86.03	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70					Firm light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 2	0.70						
1										
			B 3	1.40-1.70						
			D 4	1.70						
2										
							84.13	2.30		
			B 5	2.30-2.60					Firm light greyish brown very gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			D 6	2.60			83.83	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as boulders.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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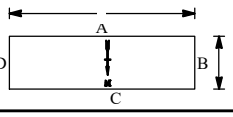
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-97602**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 640,962.2 N 720,200.7 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 86.97m O.D.	**DATE: 22.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 4.30m **20min** **4.10m**
2nd:
3rd:

PIT DIRECTION: 270°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							86.77	0.20	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.30-0.60					Firm orangish brown SILT.	
			VANE	0.50	17 kN/m² 19mm vane					
			D 2	0.60			86.27	0.70		
			VANE	0.80	21 kN/m² 19mm vane				Firm greyish brown SILT.	
			B 3	0.90-1.20						
1			D 4	1.20			85.57	1.40		
									Stiff light greyish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subangular to rounded of limestone.	
2			B 5	2.50-2.80						
			D 6	2.80						
3										
4		▽1								
		▼	B 7	4.30-4.50			82.67	4.30		
							82.47	4.50	Dark grey slightly silty sandy subangular to subrounded fine to coarse limestone GRAVEL. Sand is fine to coarse.	
						END			TP terminated at 4.50m bgl.	
5										

Remarks: Ingress of water at 4.30m bgl. TP backfilled with arisings.

Scale: 1:25

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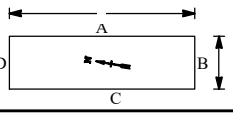
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT:** TP-97704
LOCATION: County Offaly	**Sheet** 1 of 1
CLIENT: Irish Water	**Co-ordinates:** E 641,059.9 N 720,227.8
ENGINEER: Mott MacDonald	**Rig:** Hitachi Zaxis 130 LCN
	Rev: FINAL
Ground level: 85.67m O.D.	**DATE:** 22.2.22

GROUNDWATER
Water strikes: **Rose to after:**
1st: 3.80m **20min** 3.40m
2nd:
3rd:

PIT DIRECTION: 170°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.37	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.40-0.70	17 kN/m² 19mm vane				Firm light orangish mottled bluish grey SILT with low cobble content. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70			84.67	1.00		
1									Stiff orange mottled bluish grey slightly gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
2			B 3	2.00-2.30						
			D 4	2.30			82.67	3.00		
3			B 5	3.00-3.30					Stiff dark grey SILT.	
		1	D 6	3.30						
		1					81.87	3.80		
			B 7	3.80-4.00			81.67	4.00	Dark brownish grey slightly silty very gravelly fine to medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
4						END			TP terminated at 4.00m bgl. Unable to progress TP - ingress of water.	
5										

Remarks: Ingress of water at 3.80m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

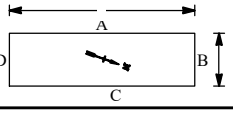
PROJECT: Eastern & Midlands WSP Lot 2, Pipeline
LOCATION: County Offaly
TRIALPIT: TP-97777
Sheet 1 of 1

CLIENT: Irish Water
ENGINEER: Mott MacDonald
Co-ordinates: E 641,141.4 N 720,234.4
Rig: Hitachi Zaxis 130 LCN
Rev: FINAL

Ground level: 84.19m O.D.
DATE: 22.2.22

GROUNDWATER
Water strikes:
1st: 0.80m Rose to after: 20min 0.40m
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.89	0.30	TOPSOIL: Grass over firm brownish black gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
		1	B 1	0.30-0.60			83.39	0.80	Bluish grey very gravelly very silty fine to medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1									Soft damp grey SILT.	
			B 2	1.30-1.60						
			D 3	1.60			81.89	2.30		
2						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 0.80m bgl. TP backfilled with arisings.

Scale: 1:25

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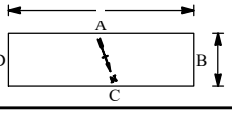
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-97998**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 641,336.8 N 720,373.4** **Rev: FINAL**
Ground level: 83.45m O.D.	**DATE: 22.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.10m **20min** **0.70m**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.60m to 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			83.15	0.30	TOPSOIL: Grass over soft brownish black gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			D 2	0.50			82.85	0.60	Stiff whitish grey slightly sandy gravelly SILT. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone.	
		1	B 3	0.70-1.00			82.35	1.10	Bluish grey slightly silty subrounded to rounded fine to coarse limestone GRAVEL.	
1										
			B 4	1.50-1.80			81.65	1.80	Firm damp grey gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 5	1.80		**END**			TP terminated at 1.80m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.10m bgl. TP backfilled with arisings.

Scale: 1:25

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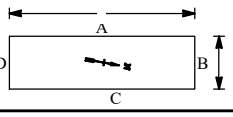
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98105**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 641,420.3 N 720,409.0** **Rev: FINAL**
Ground level: 83.62m O.D.	**DATE: 22.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.42	0.20	TOPSOIL: Grass over firm blackish brown gravelly peaty SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm light bluish grey slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	20 kN/m² 19mm vane					
			D 2	0.60			82.72	0.90		
1									Soft damp grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2							81.52	2.10		
			B 5	2.30-2.60					Very soft damp bluish grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded medium to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.60						
3							80.12	3.50		
						END			TP terminated at 3.50m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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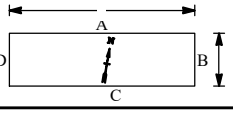
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98205**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 641,515.4 N 720,448.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 85.07m O.D.	**DATE: 23.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 0.70m **20min** **0.40m**
2nd:
3rd:

PIT DIRECTION: 80°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.40-0.70			84.67	0.40	TOPSOIL: Grass over firm brown SILT.	
							84.37	0.70	Bluish grey silty sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine. Cobbles are subrounded to rounded of limestone.	
1			VANE B 2	0.80 0.80-1.10	9 kN/m² 19mm vane				Soft light bluish brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 3	1.10			83.77	1.30		
									Very soft damp light bluish brownish grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2			B 4	2.00-2.30						
			D 5	2.30			82.57	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 0.70m bgl. TP backfilled with arisings.

Scale: 1:25

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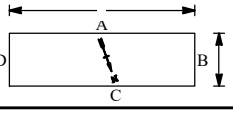
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-98271**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 641,550.5 N 720,511.5**		**Rev: FINAL**
Ground level: 83.92m O.D.			**DATE: 23.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.20m **20min** **1.00m**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.72	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.20-0.50			83.32	0.60	Orangish bluish grey gravelly very silty fine SAND. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE	0.70	22 kN/m² 19mm vane				Firm bluish grey slightly sandy gravelly SILT with low cobble content and some plant material. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 2	0.70-1.00						
1		1	D 3	1.00			82.72	1.20		
									Soft damp bluish grey gravelly sandy SILT with medium cobble content and low boulder content. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
2			B 4	2.20-2.50						
			D 5	2.50						
3							80.92	3.00		
						END			TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 1.20m bgl. TP backfilled with arisings.

Scale: 1:25

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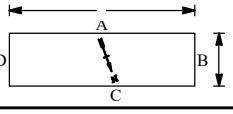
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98403**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 641,670.8 N 720,500.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.93m O.D.	**DATE: 23.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 3.00m **20min** **2.40m**
2nd:
3rd:

PIT DIRECTION: 290°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 3.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							83.63	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	24 kN/m² 19mm vane					
							83.13	0.80	Firm light orangish bluish grey gravelly SILT with some plant material. Gravel is subangular to rounded fine to coarse of limestone.	
1									Soft damp light bluish grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 2	1.30-1.60						
			D 3	1.60			82.23	1.70		
2									Very soft damp bluish grey gravelly sandy SILT with low cobble content and low boulder content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
		1	B 4	2.30-2.60						
			D 5	2.60						
							80.93	3.00		
3			B 6	3.00-3.20					Bluish grey very silty fine to medium SAND.	
							80.73	3.20		
									END TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
4										
5										

Remarks: Ingress of water at 3.00m bgl. TP backfilled with arisings.

Scale: 1:25

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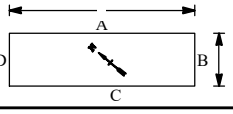
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98502**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 641,760.7 N 720,529.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 86.06m O.D.	**DATE: 23.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							85.76	0.30	TOPSOIL: Crops over firm brown gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.40-0.70					Soft orangish brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			VANE	0.60	11 kN/m² 19mm vane					
			D 2	0.70						
1							84.86	1.20		
			B 3	1.50-1.80					Very soft damp orangish brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.80						
2							83.66	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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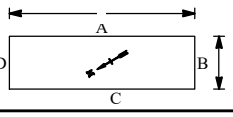
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98602**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 641,839.3 N 720,511.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 84.24m O.D.	**DATE: 23.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.70m 20min 1.30m
2nd:
3rd:

PIT DIRECTION: 210°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							83.94	0.30	TOPSOIL: Crops over firm orangish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.50	22 kN/m² 19mm vane				Firm light orangish brown mottled grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1			B 1	0.60-0.90						
			D 2	0.90						
		1								
		1					82.54	1.70		
			B 3	1.80-2.10					Bluish grey slightly silty gravelly medium to coarse SAND. Sand is subangular to subrounded fine to coarse of limestone.	
2							82.14	2.10		
						END			TP terminated at 2.10m bgl. Unable to progress TP - sidewall collapse and ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 1.70m bgl. TP backfilled with arisings.

Scale: 1:25

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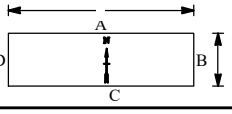
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98702**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 641,983.3 N 720,516.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.72m O.D.	**DATE: 3.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.90m **20min** **1.50m**
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.90m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							83.42	0.30	TOPSOIL: Crops over soft brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			82.62	1.10	Stiff light bluish grey gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.30-1.60						
			D 4	1.60			81.82	1.90	Brownish grey gravelly very silty fine SAND with low cobble content. Gravel is subangular to rounded fine of limestone. Cobbles are subrounded to rounded of limestone.	
			B 5	1.90-2.20			81.52	2.20	Dark grey silty very sandy subangular to rounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subangular to rounded of limestone.	
2						END			TP terminated at 2.20m bgl. Unable to progress TP - ingress of water.	
3										
4										
5										

Remarks: Ingress of water at 1.90m bgl. TP backfilled with arisings.

Scale: 1:25

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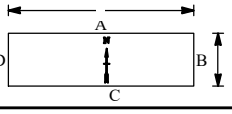
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98805**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 642,077.0 N 720,541.2** **Rev: FINAL**
Ground level: 85.72m O.D.	**DATE: 3.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.60m 20min 1.55m
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							85.42	0.30	TOPSOIL: Crops over soft brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			85.02	0.70	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1							84.12	1.60	Soft damp light grey slightly sandy gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			B 3	1.20-1.50						
		1	D 4	1.50						
2							83.32	2.40	Firm light brownish grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 5	2.00-2.30						
			D 6	2.30						
						END			TP terminated at 2.40m bgl. Unable to progress TP - excavated in crop field with minimal damage.	
3										
4										
5										

Remarks: Ingress of water at 1.60m bgl. TP backfilled with arisings.

Scale: 1:25

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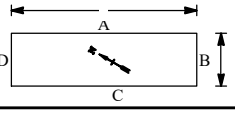
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-98904**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 642,189.8 N 720,586.3** **Rev: FINAL**
Ground level: 87.29m O.D.	**DATE: 2.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							86.99	0.30	TOPSOIL: Crops over soft orangish brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.50	9 kN/m² 19mm vane				Soft damp light brownish grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			B 1	0.50-0.80						
			D 2	0.80						
1										
			B 3	1.50-1.80						
			D 4	1.80						
2									2.00m: with medium boulder content.	
							84.69	2.60		
						END			TP terminated at 2.60m bgl. Unable to progress TP - excavated in crop field with minimal damage.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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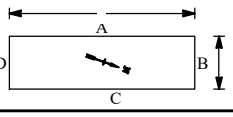
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99004**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 642,273.6 N 720,635.5** **Rev: FINAL**
Ground level: 87.07m O.D.	**DATE: 2.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.60			86.77	0.30	TOPSOIL: Crops over soft brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.60	16 kN/m² 19mm vane				Firm orangish brown SILT.	
			D 2	0.60			86.07	1.00		
1			B 3	1.20-1.50					Firm grey slightly gravelly very sandy SILT with low cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 4	1.50			85.47	1.60		
									Soft damp grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
2			B 5	2.00-2.30						
			D 6	2.30			84.57	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - excavated in crop field with minimal damage.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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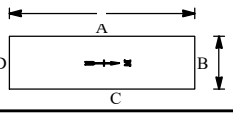
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99105**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 642,323.7 N 720,694.3** **Rev: FINAL**
Ground level: 88.26m O.D.	**DATE: 4.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 0°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							87.96	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	12 kN/m² 19mm vane					
			D 2	0.50			87.66	0.60	Soft damp orangish brown slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.00-1.30					Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.30			86.66	1.60		
2									Very soft damp light grey very gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 500mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
							85.26	3.00		
3							**END**		TP terminated at 3.00m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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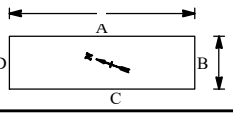
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99206**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 642,412.7 N 720,773.4** **Rev: FINAL**
Ground level: 92.13m O.D.	**DATE: 4.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 160°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 3.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.83	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	9 kN/m² 19mm vane				Soft orangish brown slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70			91.33	0.80		
1									Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			B 3	1.40-1.70						
			D 4	1.70			90.13	2.00		
2									Soft damp light grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 5	2.40-2.70						
			D 6	2.70			88.63	3.50		
3						END			TP terminated at 3.50m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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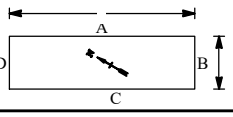
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99304**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 642,510.2 N 720,801.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.50m O.D.	**DATE: 3.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 150°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m to 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							90.20	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60					Firm orangish greyish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50	20 kN/m² 19mm vane					
			D 2	0.60						
1							89.40	1.10		
			B 3	1.30-1.60					Soft damp light grey gravelly sandy SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.60						
2							88.50	2.00		
			B 5	2.30-2.60					Stiff light grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
			D 6	2.60						
3							87.50	3.00		
						END			TP terminated at 3.00m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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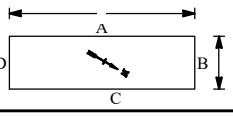
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99400**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 642,599.1 N 720,839.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.70m O.D.	**DATE: 3.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.50m 20min 2.50m
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							90.40	0.30	TOPSOIL: Stubble over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.40-0.70	20 kN/m² 19mm vane				Firm light orangish brown slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1							89.50	1.20		
			B 3	1.40-1.70					Firm light greyish brown slightly gravelly SILT with low cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			D 4	1.70						
2		11					88.20	2.50		
			B 5	2.70-3.00					Stiff light greyish brown gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3			D 6	3.00			87.60	3.10		
						END			TP terminated at 3.10m bgl. Obstruction as very stiff strata and boulders.	
4										
5										

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.

Scale: 1:25

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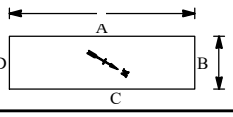
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99505**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 642,669.2 N 720,920.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.92m O.D.	**DATE: 3.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 2.50m 20min 2.50m
2nd:
3rd:

PIT DIRECTION: 330°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							90.62	0.30	TOPSOIL: Soft brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	19 kN/m² 19mm vane					
			D 2	0.60			90.12	0.80	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.20-1.50						
			D 4	1.50			89.32	1.60	Firm light brownish grey slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
2			B 5	2.30-2.60						
		▽	D 6	2.60			87.72	3.20	Soft damp light grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
3										
									END TP terminated at 3.20m bgl. Obstruction as boulders.	
4										
5										

Remarks: Ingress of water at 2.50m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99599**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 642,727.2 N 720,979.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 91.76m O.D.	**DATE: 4.3.22**

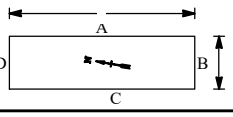
GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.20m	20min	1.20m
2nd:	1.60m	20min	1.55m
3rd:			

PIT DIRECTION: 170°

PIT DIMENSION: 4.00m * 1.00

LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m to 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							91.46	0.30	TOPSOIL: Stubble over firm brown SILT.	
			B 1	0.40-0.70	8 kN/m² 19mm vane				Soft light brownish grey slightly sandy gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1		1					90.56	1.20		
			B 3	1.20-1.50					Grey gravelly silty fine to medium SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
		2					90.16	1.60		
2									Stiff light grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 4	2.20-2.50						
			D 5	2.50			89.06	2.70		
						END			TP terminated at 2.70m bgl. Obstruction as very stiff strata and boulders.	
3										
4										
5										

Remarks: Ingress of water at 1.20m bgl. Ingress of water at 1.60m bgl. TP backfilled with arisings.

Scale: 1:25

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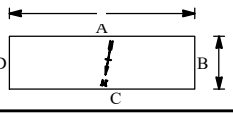
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-99701**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 642,840.1 N 720,998.9** **Rev: FINAL**
Ground level: 91.45m O.D.	**DATE: 4.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.40m 20min 1.35m
2nd:
3rd:

PIT DIRECTION: 260°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.50			91.25	0.20	TOPSOIL: Grass over firm brown SILT.	
			VANE	0.50	13 kN/m² 19mm vane				Firm light orangish grey sandy laminated SILT. Sand is fine.	
			D 2	0.50			90.85	0.60		
			B 3	0.70-1.00					Grey silty fine to medium SAND.	
1		1					90.05	1.40		
									Very soft damp grey sandy SILT. Sand is fine.	
2										
			B 4	2.80-3.10						
3			D 5	3.10			87.95	3.50		
						END			TP terminated at 3.50m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 1.40m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-100304**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 643,409.5 N 721,207.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 90.80m O.D.	**DATE: 25.2.22**

GROUNDWATER

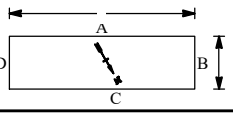
Water strikes: **Rose to after:**

1st:	**1.20m**	**20min**	**1.15m**
2nd:	**2.00m**	**20min**	**1.70m**
3rd:			

PIT DIRECTION: 300°

PIT DIMENSION: 4.00m * 1.00

LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							90.50	0.30	TOPSOIL: Grass over soft damp dark blackish brown peaty CLAY.	
			B 1	0.30-0.60						
			VANE	0.50	9 kN/m² 19mm vane				Soft damp grey thinly laminated sandy SILT. Sand is fine.	
			D 2	0.60						
1		1					89.60	1.20		
			B 3	1.30-1.60					Soft damp dark grey slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
		2	D 4	1.60						
		2					88.80	2.00		
2									Very soft damp grey slightly gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 5	2.30-2.60						
			D 6	2.60						
3							87.30	3.50		
						END			TP terminated at 3.50m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 1.20m bgl. Ingress of water at 2.00m bgl. TP backfilled with arisings.

Scale: 1:25

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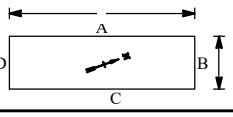
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-100407**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 643,504.8 N 721,271.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 93.64m O.D.	**DATE: 28.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.70m **20min** **1.50m**
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							93.24	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.50-0.80					Firm light grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			D 2	0.80			92.54	1.10		
		1	B 3	1.50-1.80					Soft damp light grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
		1	D 4	1.80						
2							91.24	2.40		
						END			TP terminated at 2.40m bgl. Obstruction as probable boulders.	
3										
4										
5										

Remarks: Ingress of water at 1.70m bgl. TP backfilled with arisings.

Scale: 1:25

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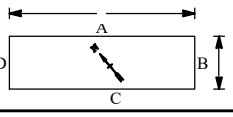
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-100449**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 643,554.8 N 721,244.2 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 92.89m O.D.	**DATE: 25.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.59	0.30	TOPSOIL: Grass over firm brown SILT with some rootlets.	
			B 1	0.40-0.70	20 kN/m² 19mm vane				Firm light orangish greyish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70			92.09	0.80		
1									Very soft damp light greyish brown slightly sandy slightly gravelly SILT with low cobble content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	1.40-1.70						
			D 4	1.70						
2							90.39	2.50		
			B 5	2.80-3.10					Very soft damp dark grey gravelly SILT with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
3			D 6	3.10			89.39	3.50		
						END			TP terminated at 3.50m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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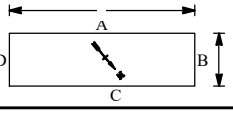
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-100485**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 643,619.6 N 721,167.5 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 92.77m O.D.	**DATE: 25.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.90m **20min** **0.50m**
2nd:
3rd:

PIT DIRECTION: 310°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.47	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60			92.07	0.70	Firm light brownish grey slightly gravelly very sandy SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1									Very soft damp light brown slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone	
			B 3	1.30-1.60						
			D 4	1.30-2.30						
2							90.47	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.90m bgl. TP backfilled with arisings.

Scale: 1:25

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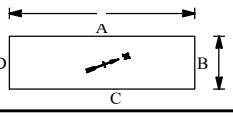
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-100503**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 643,586.3 N 721,299.8 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 97.65m O.D.	**DATE: 24.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							97.45	0.20	TOPSOIL: Grass over firm brown gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	16 kN/m² 19mm vane				Firm light greyish brown gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1							96.55	1.10		
									Soft damp light greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
2			B 3	1.80-2.10						
			D 4	2.10						
3			B 5	3.40-3.70						
			D 6	3.70			93.85	3.80		
						END			TP terminated at 3.80m bgl. Unable to progress TP - unstable ground conditions.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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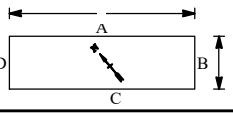
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-100517**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 643,683.3 N 721,094.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 92.81m O.D.	**DATE: 25.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 3.00m **20min** **2.20m**
2nd:
3rd:

PIT DIRECTION: 130°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							92.51	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60	22 kN/m² 19mm vane				Firm light grey slightly gravelly very sandy SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			VANE	0.50						
			D 2	0.50			92.21	0.60		
			VANE	0.70	10 kN/m² 19mm vane				Soft damp light greyish brown gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 3	0.70-1.00						
1			D 4	1.00			91.51	1.30		
									Soft damp light brown gravelly CLAY with medium cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 5	1.70-2.00						
2			D 6	2.00						
		1					90.51	2.30		
									Very soft wet light grey gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 7	2.80-3.10						
3							89.71	3.10		
			D 8	3.10		END			TP terminated at 3.10m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: Ingress of water at 3.00m bgl. TP backfilled with arisings.

Scale: 1:25

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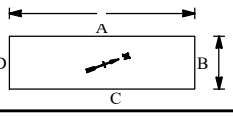
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-100605**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 643,690.8 N 721,313.1**		**Rev: FINAL**
Ground level: 98.18m O.D.			**DATE: 24.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							97.78	0.40	TOPSOIL: Crops over firm orangish brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70			97.38	0.80	Dark grey very sandy subangular to rounded fine to coarse limestone GRAVEL with low cobble content. Sand is fine to medium. Cobbles are subrounded to rounded of limestone.	
1			B 2	1.10-1.40					Soft damp light greyish brown gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to subrounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 300mm in length.	
			D 3	1.40						
							96.18	2.00		
2			B 4	2.00-2.30					Dark greyish brown silty very sandy subangular to subrounded fine to coarse limestone GRAVEL with high cobble content and medium boulder content. Cobbles are subrounded to rounded of limestone.	
							95.88	2.30		
						END			TP terminated at 2.30m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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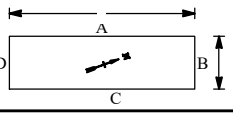
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-101206**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 644,193.0 N 721,623.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 83.76m O.D.	**DATE: 24.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 20°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.20-0.50			83.56	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			VANE	0.40	19 kN/m² 19mm vane				Firm orangish brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			D 2	0.40			83.26	0.50		
			B 3	0.60-0.90					Soft damp light brownish grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
			VANE	0.70	10 kN/m² 19mm vane					
			D 4	0.90			82.76	1.00		
1			B 5	1.00-1.20			82.56	1.20	Dark grey gravelly fine to medium SAND. Gravel is subangular to rounded fine to coarse of limestone.	
			B 6	1.30-1.60					Very soft damp light brownish grey gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 7	1.60			82.06	1.70		
2									Dark brownish grey silty very sandy angular to subrounded fine to coarse limestone GRAVEL with medium cobble content and medium boulder content. Sand is fine. Cobbles are angular to subrounded of limestone. Boulders are angular to subrounded of limestone. Boulders are up to 350mm in length.	
			B 8	2.20-2.50			81.26	2.50		
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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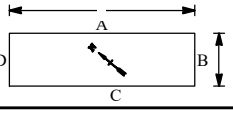
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-101304**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 644,287.1 N 721,655.1** **Rev: FINAL**
Ground level: 81.76m O.D.	**DATE: 24.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.50m 20min 1.10m
2nd:
3rd:

PIT DIRECTION: 140°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							81.36	0.40	TOPSOIL: Grass over firm brown slightly gravelly SILT with some tree roots. Gravel is subangular to rounded fine to coarse of limestone. Tree roots are up to 10mm thick.	
			VANE 1	0.50 0.50-0.80	10 kN/m² 19mm vane				Soft damp light greyish brown gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
			D 2	0.80						
1		▽1								
		▼1	B 3	1.50-1.80			80.26	1.50		
							79.96	1.80	Dark grey gravelly medium to coarse SAND. Gravel is subangular to subrounded fine of limestone.	
									END TP terminated at 1.80m bgl. Obstruction as boulders.	
2										
3										
4										
5										

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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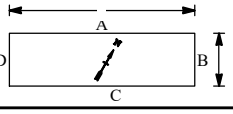
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-101407**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 644,389.4 N 721,674.5** **Rev: FINAL**
Ground level: 80.54m O.D.	**DATE: 28.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.50m 20min 1.40m
2nd:
3rd:

PIT DIRECTION: 60°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							80.24	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			D 2	0.60					Soft damp light brownish grey sandy very gravelly SILT with medium cobble content and low boulder content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
1		1					79.04	1.50		
			B 3	1.60-1.90					Soft damp light brownish grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 250mm in length.	
2			D 4	1.90			78.34	2.20		
						END			TP terminated at 2.20m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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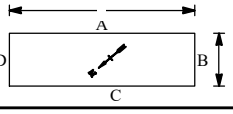
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-101503**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 644,471.8 N 721,730.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 80.02m O.D.	**DATE: 28.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							79.82	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to rounded fine to coarse of limestone.	
			B 1	0.20-0.50						
			VANE	0.40	22 kN/m² 19mm vane		79.52	0.50	Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.40						
			VANE	0.70	13 kN/m² 19mm vane				Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
			B 3	0.80-1.10						
1			D 4	1.10						
							78.22	1.80		
2									Soft light brownish grey gravelly CLAY with medium cobble content and medium boulder content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 700mm in length.	
			B 5	2.70-3.00						
3			D 6	3.00			76.82	3.20		
						END			TP terminated at 3.20m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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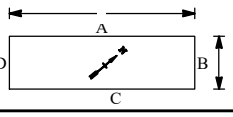
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-101600**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 644,559.9 N 721,772.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 78.22m O.D.	**DATE: 28.2.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 40°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 3.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							77.92	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60						
			VANE	0.50	24 kN/m² 19mm vane				Firm orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			D 2	0.60			77.52	0.70		
1									Stiff light brownish grey slightly gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 1000mm in length.	
			B 3	1.30-1.60						
			D 4	1.60						
2										
							75.42	2.80		
			B 5	2.80-3.10					Soft damp light grey slightly sandy gravelly SILT with medium cobble content and medium boulder content. Sand is fine. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length.	
3			D 6	3.10			75.02	3.20		
									Dark grey slightly sandy subrounded to rounded fine to coarse limestone GRAVEL. Sand is fine.	
			B 7	3.40-3.70						
							74.52	3.70		
						END			TP terminated at 3.70m bgl. Unable to progress TP - sidewall collapse.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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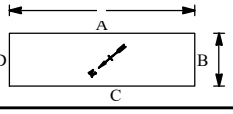
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-101704**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 644,658.0 N 721,796.8** **Rev: FINAL**
Ground level: 76.88m O.D.	**DATE: 1.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.10m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							76.58	0.30	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.30-0.60						
			VANE	0.50	12 kN/m² 19mm vane				Soft light orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			D 2	0.60			76.18	0.70		
			B 3	0.70-1.00					Firm light grey slightly gravelly sandy SILT with low cobble content. Sand is fine. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			D 4	1.00			75.78	1.10		
									Dark grey very sandy subrounded to rounded fine to coarse limestone GRAVEL with medium cobble content and low boulder content. Sand is coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.00-2.30						
							74.48	2.40		
						END			TP terminated at 2.40m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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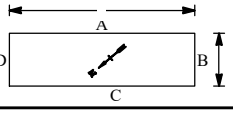
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-101804**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 644,744.6 N 721,823.1 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 69.39m O.D.	**DATE: 1.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 220°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							69.09	0.30	TOPSOIL: Grass over soft brown SILT.	
			B 1	0.30-0.60					Firm orangish bluish grey laminated sandy SILT with some wood. Sand is fine. Wood is up to 10mm thick.	
			VANE	0.50	12 kN/m² 19mm vane					
			D 2	0.60						
1										
							67.59	1.80		
									Soft damp bluish grey laminated sandy SILT. Sand is fine.	
2										
			B 3	2.30-2.60						
			D 4	2.60						
3										
			B 5	3.20-3.50						
							65.89	3.50		
			D 6	3.50		END			TP terminated at 3.50m bgl. Unable to progress TP - unstable ground conditions.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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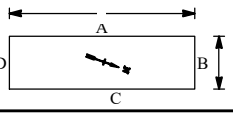
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-102105**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 644,993.8 N 722,003.0 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 73.14m O.D.	**DATE: 1.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 340°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							72.84	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.40-0.70	24 kN/m² 19mm vane				Firm light brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.50						
			D 2	0.70						
1							71.84	1.30		
			B 3	1.40-1.70					Dark brown silty very gravelly fine SAND with medium cobble content and medium boulder content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subangular to subrounded of limestone. Boulders are up to 500mm in length.	
2									2.00m: with high boulder content. Boulders becoming angular to subangular of limestone. Boulders are up to 600mm in length.	
							70.54	2.60		
						END			TP terminated at 2.60m bgl. Obstruction as possible rock.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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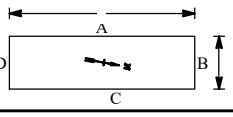
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-102204**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 645,094.0 N 722,031.4 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 78.09m O.D.	**DATE: 1.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: dry
2nd:
3rd:

PIT DIRECTION: 350°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							77.89	0.20	TOPSOIL: Grass over firm brown SILT.	
			B 1	0.20-0.40	19 kN/m² 19mm vane					
			VANE	0.30						
			D 2	0.30			77.69	0.40	Firm orangish brown slighty gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			VANE	0.60	25 kN/m² 19mm vane				Firm light brown slighty gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 3	0.60-0.90						
			D 4	0.90						
1							76.89	1.20		
									Dark brown very sandy subrounded to rounded fine to coarse limestone GRAVEL with low cobble content and low boulder content. Sand is medium to coarse. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 400mm in length.	
2			B 5	2.00-2.30						
							75.49	2.60		
						END			TP terminated at 2.60m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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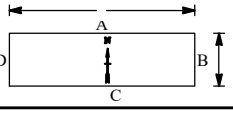
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-102303**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 645,190.2 N 722,073.4** **Rev: FINAL**
Ground level: 76.34m O.D.	**DATE: 2.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: **dry**
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
			B 1	0.30-0.50			76.04	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			D 2	0.40			75.84	0.50	Firm orangish brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			VANE	0.60	26 kN/m² 19mm vane				Firm light brownish grey slightly gravelly SILT with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1			B 3	1.20-1.50						
			D 4	1.50			74.74	1.60		
									Soft damp light grey gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
2										
									2.50m: with medium boulder content. Boulders are up to 350mm in length.	
			B 5	2.70-3.00						
3			D 6	3.00						
							72.84	3.50		
						END			TP terminated at 3.50m bgl. Obstruction as boulders.	
4										
5										

Remarks: TP dry on excavation. TP backfilled with arisings.

Scale: 1:25

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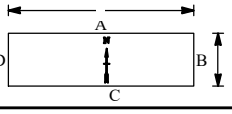
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-102405**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 645,285.2 N 722,124.6 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 76.82m O.D.	**DATE: 2.3.22**

GROUNDWATER
Water strikes:
1st: 0.70m **Rose to after: 20min** **0.20m**
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0		1					76.52	0.30	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
		1	B 1	0.70-1.00			75.82	1.00	Bluish grey silty sandy subangular to subrounded fine to coarse limestone GRAVEL with medium cobble content. Sand is fine to coarse. Cobbles are subrounded to rounded of limestone.	
1						END			TP terminated at 1.00m bgl. Unable to progress TP - ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.70m bgl. TP backfilled with arisings.

Scale: 1:25

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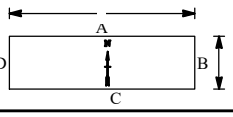
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-102488**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** E 645,357.4 N 722,130.3 — **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**Rev: FINAL**
Ground level: 77.72m O.D.	**DATE: 2.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 0.80m **20min** **0.30m**
2nd:
3rd:

PIT DIRECTION: 90°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							77.52	0.20	TOPSOIL: Grass over firm brown slighty gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
		1	VANE	0.40	15 kN/m² 19mm vane		77.22	0.50	Firm orangish brown gravelly SILT with low cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
			B 1	0.50-0.80					Soft orangish brownish grey sandy very gravelly SILT with medium cobble content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
		1	D 2	0.80			76.72	1.00		
1						END			TP terminated at 1.00m bgl. Unable to progress TP - ingress of water.	
2										
3										
4										
5										

Remarks: Ingress of water at 0.80m bgl. TP backfilled with arisings.

Scale: 1:25

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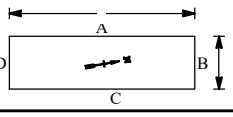
TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline			**TRIALPIT: TP-102617**
LOCATION: County Offaly			**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:**		**Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 645,450.8 N 722,208.5**		**Rev: FINAL**
Ground level: 78.78m O.D.			**DATE: 1.3.22**

GROUNDWATER
Water strikes: **Rose to after:**
1st: 1.80m 20min 1.60m
2nd:
3rd:

PIT DIRECTION: 10°
PIT DIMENSION: 4.00m * 1.00
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0										
							78.48	0.30	TOPSOIL: Grass over firm brown slighty gravelly SILT. Gravel is subangular to subrounded fine to coarse of limestone.	
			B 1	0.30-0.60						
			VANE	0.50	13 kN/m² 19mm vane					
			D 2	0.60			78.08	0.70	Firm damp light orangish brown slightly gravelly SILT with low cobble content. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone.	
			B 3	0.90-1.20						
1			D 4	1.20			77.48	1.30	Firm light grey very gravelly SILT with medium cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subangular to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
		▽1								
		▼								
			B 5	2.00-2.30						
2			D 6	2.30			76.28	2.50	Very soft damp light grey gravelly SILT with low cobble content and low boulder content. Gravel is subangular to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 300mm in length.	
						END			TP terminated at 2.50m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 1.80m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

PROJECT: Eastern & Midlands WSP Lot 2, Pipeline	**TRIALPIT: TP-102704**
LOCATION: County Offaly	**Sheet 1 of 1**
CLIENT: Irish Water	**Co-ordinates:** **Rig: Hitachi Zaxis 130 LCN**
ENGINEER: Mott MacDonald	**E 645,517.1 N 722,269.9** **Rev: FINAL**
Ground level: 76.53m O.D.	**DATE: 1.3.22**

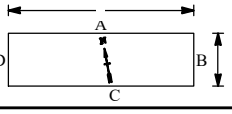
GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.80m	20min	0.80m
2nd:	1.50m	20min	1.45m
3rd:			

PIT DIRECTION: 100°

PIT DIMENSION: 4.00m * 1.00

LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	SPT (N) / In Situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION	Instrument/ Backfill
0							76.33	0.20	TOPSOIL: Grass over firm brown slightly gravelly SILT. Gravel is subrounded to rounded fine to coarse of limestone.	
			B 1	0.30-0.60			75.73	0.80	Light grey very gravelly very silty fine to coarse SAND with low cobble content. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone.	
1		1								
		2	B 2	1.50-1.80					Soft damp bluish grey gravelly SILT with medium cobble content and low boulder content and some wood fragments. Gravel is subrounded to rounded fine to coarse of limestone. Cobbles are subrounded to rounded of limestone. Boulders are subrounded to rounded of limestone. Boulders are up to 350mm in length. Wood fragments are up 50mm thick.	
2			D 3	1.80			73.83	2.70		
						END			TP terminated at 2.70m bgl. Unable to progress TP - sidewall collapse.	
3										
4										
5										

Remarks: Ingress of water at 0.80m bgl. Ingress of water at 1.50m bgl. TP backfilled with arisings.

Scale: 1:25

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TRIALPIT WSP LOT2 AGS 4 PIPE TPS ALL FILE TO FINAL MARCH 30 2023.GPJ ID GINT AGS 4_0_4.GDT 5/4/23

Appendix 6D
Part 1: Peat Probe Records

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
29.09.21	PP40068	Peat Probe	0.30m	600214.94	690263.404	88.059	RL
29.09.21	PP40096	Peat Probe	0.30m	600224.006	690296.916	88.082	RL
29.09.21	PP40131	Peat Probe	0.20m	600263.979	690301.929	88.628	RL
29.09.21	PP40323	Peat Probe	0.40m	600415.059	690422.092	86.84	RL
29.09.21	PP40325	Peat Probe	0.60m	600399.966	690441.972	87.02	RL
29.09.21	PP40327	Peat Probe	0.20m	600386.065	690462.923	87.319	RL
29.09.21	PP40652	Peat Probe	2.50m	600668.896	690631.109	85.852	RL
29.09.21	PP40656	Peat Probe	2.00m	600656.643	690653.504	85.812	RL
29.09.21	PP40662	Peat Probe	0.40m	600644.453	690675.405	86.219	RL
29.09.21	PP40766	Peat Probe	1.28m	600723.828	690742.503	84.362	RL
29.09.21	PP40770	Peat Probe	0.40m	600743.992	690725.056	84.485	RL
29.09.21	PP40772	Peat Probe	0.36m	600761.059	690707.023	84.95	RL
29.09.21	PP40847	Peat Probe	0.45m	600770.286	690797.5	84.164	RL
29.09.21	PP40857	Peat Probe	0.40m	600793.522	690796.033	84.214	RL
29.09.21	PP40857A	Peat Probe	0.27m	600796.001	690797.229	84.244	RL
29.09.21	PP40960	Peat Probe	0.25m	600781.946	690902.071	83.339	RL
29.09.21	PP40965	Peat Probe	0.26m	600808.087	690903.13	83.676	RL
29.09.21	PP40970	Peat Probe	0.28m	600833.108	690904.318	83.782	RL
28.10.21	PP41150	Peat Probe	0.60m	600879.504	691070.36	82.632	BT
28.10.21	PP41240	Peat Probe	0.45m	600868.262	691172.5	81.366	BT
28.10.21	PP41244	Peat Probe	0.35m	600846.658	691170.845	81.644	BT
28.10.21	PP41345	Peat Probe	0.70m	600839.974	691273.764	80.845	BT
28.10.21	PP41348	Peat Probe	0.80m	600816.813	691270.408	80.969	BT
28.10.21	PP41357	Peat Probe	1.00m	600790.068	691270.898	81.129	BT
28.10.21	PP41441	Peat Probe	0.15m	600751.818	691381.952	80.293	BT
28.10.21	PP41449	Peat Probe	0.35m	600774.282	691360.082	80.563	BT
28.10.21	PP41462	Peat Probe	0.25m	600744.758	691360.376	81.398	BT
28.10.21	PP41548	Peat Probe	0.90m	600758.236	691464.631	79.838	BT
28.10.21	PP41549	Peat Probe	0.35m	600732.076	691461.436	79.86	BT

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
28.10.21	PP41552	Peat Probe	0.45m	600712.515	691446.73	80.29	BT
28.10.21	PP41627	Peat Probe	0.35m	600762.492	691529.28	80.402	BT
28.10.21	PP41641	Peat Probe	0.70m	600735.983	691544.801	80.296	BT
28.10.21	PP41649	Peat Probe	0.40m	600710.838	691552.922	79.964	BT
28.10.21	PP41649A	Peat Probe	0.60m	600698.639	691555.92	79.888	BT
29.10.21	PP42015	Peat Probe	0.15m	600858.106	691898.474	77.033	BT
29.10.21	PP42016	Peat Probe	0.10m	600877.923	691890.592	77.541	BT
29.10.21	PP42017	Peat Probe	0.10m	600903.01	691879.443	77.922	BT
29.10.21	PP42056	Peat Probe	0.45m	600895.1	691926.66	73.89	BT
29.10.21	PP42056A	Peat Probe	0.50m	600880.262	691932.843	73.813	BT
29.10.21	PP42060	Peat Probe	0.30m	600919.006	691919.847	74	BT
29.10.21	PP42159	Peat Probe	0.70m	600936.338	692019.068	72.796	BT
29.10.21	PP42160	Peat Probe	1.50m	600958.737	692009.339	72.707	BT
29.10.21	PP42161	Peat Probe	0.50m	600915.008	692029.012	73.151	BT
29.10.21	PP42246	Peat Probe	0.50m	600977.516	692100.819	72.369	BT
29.10.21	PP42257	Peat Probe	2.10m	601002.896	692093.292	72.334	BT
29.10.21	PP42269	Peat Probe	2.70m	601028.093	692083.791	72.39	BT
01.10.21	PP42330	Peat Probe	0.80m	601033.932	692162.617	72.456	RL
01.10.21	PP42342	Peat Probe	1.00m	601059.562	692154.261	72.491	RL
01.10.21	PP42368	Peat Probe	1.50m	601090.435	692137.672	72.363	RL
01.10.21	PP42413	Peat Probe	2.90m	601144.76	692104.946	72.219	RL
01.10.21	PP42416	Peat Probe	0.80m	601125.675	692198.062	72.541	RL
01.10.21	PP42418	Peat Probe	1.10m	601127.038	692171.403	72.61	RL
01.09.21	PP42420	Peat Probe	1.20m	601141.179	692150.222	72.248	RL
01.09.21	PP42454	Peat Probe	3.50m	601193.01	692080.942	72.215	RL
01.09.21	PP42456	Peat Probe	1.60m	601183.802	692126.306	72.373	RL
29.09.21	PP42499	Peat Probe	1.45m	601227.194	692131.94	72.385	RL
29.09.21	PP42516	Peat Probe	0.25m	601221.425	692221.611	72.724	RL

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
29.09.21	PP42518	Peat Probe	0.25m	601230.167	692198.572	72.433	RL
29.09.21	PP42519	Peat Probe	1.10m	601236.933	692173.71	72.429	RL
29.09.21	PP42578	Peat Probe	0.10m	601294.353	692188.066	72.384	RL
29.09.21	PP42583	Peat Probe	0.30m	601288.136	692236.797	74.273	RL
29.09.21	PP42584	Peat Probe	0.20m	601294.499	692212.95	73.779	RL
29.09.21	PP42653	Peat Probe	0.60m	601362.124	692225.931	74.778	RL
29.09.21	PP42686	Peat Probe	0.40m	601398.692	692205.805	74.93	RL
11.11.21	PP45464	Peat Probe	0.40m	602814.158	694460.782	74.138	BT
11.11.21	PP45465	Peat Probe	0.30m	602800.64	694478.174	74.588	BT
11.11.21	PP45469	Peat Probe	0.40m	602833.117	694445.105	72.832	BT
11.11.21	PP45570	Peat Probe	0.90m	602908.404	694511.077	71.484	BT
11.11.21	PP45598	Peat Probe	0.40m	602930.229	694530.688	73.668	BT
12.11.21	PP46062	Peat Probe	0.50m	603301.399	694804.707	72.919	BT
12.11.21	PP46062A	Peat Probe	0.40m	603327.596	694769.72	72.016	BT
12.11.21	PP46066	Peat Probe	0.40m	603318.471	694784.77	72.284	BT
12.11.21	PP46124	Peat Probe	0.40m	603340.365	694833.254	72.056	BT
12.11.21	PP46124A	Peat Probe	0.60m	603368.399	694796.343	71.685	BT
12.11.21	PP46146	Peat Probe	0.90m	603355.08	694813.736	71.846	BT
12.11.21	PP46192	Peat Probe	0.90m	603412.219	694874.429	71.832	BT
12.11.21	PP46193	Peat Probe	0.60m	603424.395	694855.68	71.527	BT
12.11.21	PP46194	Peat Probe	0.45m	603437.036	694835.968	71.517	BT
12.11.21	PP46286	Peat Probe	0.45m	603513.102	694872.855	73.056	BT
12.11.21	PP46288	Peat Probe	0.35m	603503.871	694910.843	73.661	BT
12.11.21	PP46288A	Peat Probe	0.40m	603506.809	694896.618	73.435	BT
30.11.21	PP49433	Peat Probe	1.10m	606417.385	694915.942	46.003	BT
30.11.21	PP49439	Peat Probe	1.30m	606429.815	694895.679	46.215	BT
30.11.21	PP49455	Peat Probe	0.50m	606451.947	694871.626	46.697	BT
30.11.21	PP49524	Peat Probe	2.90m	606501.505	694943.017	45.881	BT

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
30.11.21	PP49527	Peat Probe	2.70m	606514.117	694920.752	45.958	BT
30.11.21	PP49529	Peat Probe	3.20m	606525.001	694895.978	46.023	BT
30.11.21	PP49593	Peat Probe	2.60m	606574.183	694945.419	45.698	BT
30.11.21	PP49596	Peat Probe	1.70m	606592.253	694928.361	45.788	BT
30.11.21	PP49598	Peat Probe	2.60m	606561.183	694966.573	45.596	BT
09.12.21	PP49906	Peat Probe	2.90m	606812.974	695151.608	45.94	BT
09.12.21	PP49910	Peat Probe	3.20m	606795.109	695171.74	46.107	BT
09.12.21	PP49911	Peat Probe	2.80m	606780.359	695187.842	45.979	BT
08.12.21	PP49999	Peat Probe	1.60m	606849.784	695241.844	46.143	BT
08.12.21	PP4999A	Peat Probe	1.80m	606871.401	695222.83	45.935	BT
08.12.21	PP50005	Peat Probe	3.20m	606831.298	695261.178	46.329	BT
08.12.21	PP50091	Peat Probe	1.70m	606896.361	695319.898	46.285	BT
08.12.21	PP50091A	Peat Probe	1.40m	606911.816	695305.478	46.176	BT
08.12.21	PP50099	Peat Probe	1.40m	606877.745	695336.402	46.187	BT
08.12.21	PP50191	Peat Probe	0.20m	606946.897	695407.94	47.082	BT
08.12.21	PP50197	Peat Probe	0.30m	606928.176	695420.818	47.356	BT
08.12.21	PP50207	Peat Probe	0.40m	606907.734	695438.113	47.085	BT
22.12.21	PP55941	Peat Probe	0.60m	609012.143	700348.535	77.964	BT
22.12.21	PP55981	Peat Probe	0.80m	608989.967	700384.561	77.894	BT
22.12.21	PP56060	Peat Probe	0.30m	609001.999	700462.87	77.225	BT
22.12.21	PP56065	Peat Probe	0.50m	609024.156	700451.544	77.348	BT
22.12.21	PP56069	Peat Probe	0.40m	608983.203	700476.319	77.017	BT
04.01.22	PP56257	Peat Probe	0.45m	609133.101	700611.772	77.613	BT
04.01.22	PP56266	Peat Probe	0.60m	609116.978	700633.227	77.731	BT
04.01.22	PP56284	Peat Probe	0.90m	609107.201	700657.029	77.95	BT
06.01.22	PP56752	Peat Probe	0.40m	609423.772	701006.612	73.938	BT
06.01.22	PP56784	Peat Probe	0.35m	609418.353	701039.769	73.953	BT
06.01.22	PP56800	Peat Probe	0.60m	609415.839	701065.869	73.975	BT

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
07.01.22	PP56864	Peat Probe	0.20m	609493.209	701078.879	73.554	BT
06.01.22	PP56871	Peat Probe	0.40m	609480.652	701102.659	73.58	BT
06.01.22	PP56883	Peat Probe	0.35m	609475.362	701124.128	73.474	BT
07.01.22	PP56964	Peat Probe	0.50m	609564.489	701149.316	73.764	BT
07.01.22	PP56970	Peat Probe	0.80m	609549.89	701170.876	73.57	BT
07.01.22	PP56981	Peat Probe	0.45m	609543.771	701192.544	73.474	BT
07.01.22	PP57021	Peat Probe	0.30m	609600.301	701186.052	75.21	BT
10.01.22	PP57039	Peat Probe	0.30m	609601.664	701218.571	74.504	BT
10.01.22	PP57055	Peat Probe	0.25m	609597.377	701245.156	73.714	BT
11.01.22	PP57701	Peat Probe	0.35m	609962.1	701744.369	69.52	BT
11.01.22	PP57721	Peat Probe	0.30m	609952.05	701771.889	69.222	BT
11.01.22	PP57743	Peat Probe	0.30m	609939.985	701803.735	69.325	BT
11.01.22	PP57813	Peat Probe	0.60m	609989.081	701858.928	68.138	BT
13.01.22	PP59520	Peat Probe	0.30m	611314.622	702667.688	82.32	BT
13.01.22	PP59542	Peat Probe	0.30m	611328.447	702695.659	82.275	BT
13.01.22	PP59545	Peat Probe	0.35m	611323.561	702721.954	82.144	BT
14.01.22	PP59610	Peat Probe	0.20m	611399.295	702693.68	81.754	BT
14.01.22	PP59617	Peat Probe	0.30m	611397.818	702718.755	81.527	BT
14.01.22	PP59623	Peat Probe	0.35m	611396.201	702744.939	81.647	BT
14.01.22	PP59688	Peat Probe	0.20m	611477.81	702721.729	80.872	BT
13.01.22	PP59700	Peat Probe	0.20m	611475.569	702746.259	80.817	BT
13.01.22	PP59710	Peat Probe	0.30m	611472.195	702773.671	81.156	BT
14.01.22	PP59771	Peat Probe	0.30m	611549.556	702760.34	80.03	BT
14.01.22	PP59778	Peat Probe	0.35m	611544.309	702786.121	80.158	BT
14.01.22	PP59841	Peat Probe	0.35m	611611.915	702795.263	78.908	BT
14.01.22	PP59892	Peat Probe	0.60m	611631.866	702862.953	76.572	BT
14.01.22	PP59901	Peat Probe	0.45m	611652.643	702847.08	76.662	BT
14.01.22	PP59908	Peat Probe	0.30m	611669.062	702825.792	77.412	BT

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
14.01.22	PP59955	Peat Probe	0.80m	611689.67	702889.318	77.838	BT
14.01.22	PP59976	Peat Probe	0.40m	611716.607	702879.555	77.661	BT
17.01.22	PP60008	Peat Probe	0.45m	611758.43	702875.841	78.378	BT
17.01.22	PP60175	Peat Probe	0.40m	611941.042	702882.52	77.199	BT
17.01.22	PP60300	Peat Probe	0.35m	612032.432	702980.314	76.199	BT
17.01.22	PP60341	Peat Probe	0.35m	612056.065	703023.513	76.012	BT
18.01.22	PP60349	Peat Probe	0.30m	612035.622	703078.777	75.779	BT
18.01.22	PP60468	Peat Probe	0.35m	612141.531	703135.689	75.247	BT
18.01.22	PP60470	Peat Probe	0.30m	612153.213	703115.542	75.218	BT
18.01.22	PP60471	Peat Probe	0.35m	612136.003	703095.569	75.211	BT
19.01.22	PP60569	Peat Probe	0.60m	612270.395	703165.194	74.106	BT
19.01.22	PP60572	Peat Probe	0.80m	612254.44	703141.741	74.498	BT
19.01.22	PP60681	Peat Probe	0.40m	612340.163	703225.169	74.612	BT
19.01.22	PP60683	Peat Probe	0.35m	612295.361	703242.083	74.369	BT
19.01.22	PP60684	Peat Probe	0.30m	612317.188	703234.131	74.577	BT
20.01.22	PP60766	Peat Probe	0.20m	612339.797	703326.835	74.381	BT
20.01.22	PP60771	Peat Probe	0.35m	612355.709	703310.577	74.686	BT
20.01.22	PP60784	Peat Probe	0.30m	612376.393	703303.852	74.838	BT
17.02.22	PP71199	Peat Probe	0.80m	618720.141	710480.391	87.876	BT
17.02.22	PP71199A	Peat Probe	1.20m	618732.961	710466.339	88.217	BT
17.02.22	PP71205	Peat Probe	0.50m	618713.487	710503.897	87.665	BT
16.02.22	PP71299	Peat Probe	0.80m	618793.828	710545.181	88.093	BT
16.02.22	PP71301	Peat Probe	0.90m	618781.7	710564.284	87.552	BT
16.02.22	PP71303	Peat Probe	0.90m	618811.544	710526.336	87.657	BT
16.02.22	PP71399	Peat Probe	1.10m	618856.253	710603.157	87.588	BT
16.02.22	PP71999A	Peat Probe	1.50m	618864.022	710590.441	87.642	BT
16.02.22	PP71400	Peat Probe	0.90m	618850.602	710616.006	87.52	BT
09.03.22	PP71497	Peat Probe	0.80m	618948.457	710664.143	87.65	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
09.03.22	PP71500	Peat Probe	1.05m	618961.989	710658.155	87.818	PC
09.03.22	PP71503	Peat Probe	1.30m	618981.825	710636.263	87.867	PC
09.03.22	PP71587	Peat Probe	0.77m	619033.762	710706.656	87.793	PC
09.03.22	PP71592	Peat Probe	0.80m	619049.441	710688.336	87.887	PC
09.03.22	PP71596	Peat Probe	0.50m	619058.921	710666.294	87.852	PC
09.03.22	PP71651	Peat Probe	0.17m	619092.172	710739.451	88.882	PC
09.03.22	PP71672	Peat Probe	0.75m	619113.436	710726.245	87.778	PC
09.03.22	PP71676	Peat Probe	0.60m	619138.253	710718.215	88.131	PC
09.03.22	PP71727	Peat Probe	0.25m	619161.859	710762.251	89.764	PC
09.03.22	PP71728	Peat Probe	0.37m	619140.331	710775.614	89.453	PC
09.03.22	PP71738	Peat Probe	0.35m	619126.317	710795.23	89.278	PC
10.03.22	PP73780	Peat Probe	0.21m	620897.719	711490.607	92.495	PC
10.03.22	PP73804	Peat Probe	0.48m	620914.523	711520.732	91.701	PC
10.03.22	PP73812	Peat Probe	0.35m	620916.474	711543.319	91.756	PC
10.03.22	PP73917	Peat Probe	0.69m	621027.043	711505.279	90.806	PC
10.03.22	PP73922	Peat Probe	0.50m	621031.231	711528.443	91.234	PC
10.03.22	PP73924	Peat Probe	0.29m	621033.16	711546.734	91.649	PC
10.03.22	PP74045	Peat Probe	0.25m	621154.767	711506.892	90.989	PC
10.03.22	PP74049	Peat Probe	0.34m	621158.482	711531.052	91.431	PC
10.03.22	PP74049A	Peat Probe	0.35m	621161.411	711558.41	91.522	PC
10.03.22	PP74235	Peat Probe	0.15m	621347.924	711517.798	90.723	PC
10.03.22	PP74264	Peat Probe	0.64m	621371.924	711547.964	90.515	PC
10.03.22	PP74285	Peat Probe	0.19m	621388.764	711572.694	90.755	PC
10.03.22	PP74336	Peat Probe	0.46m	621447.02	711536.774	91.187	PC
10.03.22	PP74351	Peat Probe	0.34m	621457.907	711562.865	91.375	PC
10.03.22	PP74351A	Peat Probe	0.33m	621467.913	711587.616	91.663	PC
11.03.22	PP75077	Peat Probe	0.25m	622180.002	711665.041	89.283	PC
11.03.22	PP76571	Peat Probe	0.30m	622612.956	712060.471	91.932	pc

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
11.03.22	PP75682	Peat Probe	0.41m	622596.685	712079.052	92.357	PC
11.03.22	PP75689	Peat Probe	0.38m	622578.282	712094.441	98.722	PC
11.03.22	PP75779	Peat Probe	0.67m	622661.46	712158.899	92.572	PC
11.03.22	PP75795	Peat Probe	0.34m	622643.326	712181.818	89.981	PC
11.03.22	PP75810	Peat Probe	0.33m	622626.884	712205.082	90.392	PC
14.03.22	PP77528	Peat Probe	0.25m	623572.886	713542.504	80.358	PC
14.03.22	PP77548	Peat Probe	0.70m	623600.937	713524.42	80.905	PC
14.03.22	PP77591	Peat Probe	0.40m	623650.204	713522.868	81.631	PC
14.03.22	PP77605	Peat Probe	0.29m	623637.527	713573.979	81.773	PC
14.03.22	PP77627	Peat Probe	0.28m	623652.474	713547.632	82.25	PC
14.03.22	PP78015	Peat Probe	0.47m	624008.324	713708.706	82.735	PC
14.03.22	PP78025	Peat Probe	0.32m	624032.849	713713.399	83.02	PC
14.03.22	PP78060	Peat Probe	0.49m	624074.082	713706.572	83.76	PC
14.03.22	PP78113	Peat Probe	0.40m	624107.34	713770.12	82.733	PC
14.03.22	PP78133	Peat Probe	0.33m	624141.245	713732.388	82.751	PC
11.03.22	PP78135	Peat Probe	0.56m	624131.98	713764.809	82.707	PC
11.03.22	PP78221	Peat Probe	0.92m	624206.111	713809.941	82.221	PC
11.03.22	PP78225	Peat Probe	0.74m	624219.007	713787.536	82.105	PC
11.03.22	PP78232	Peat Probe	0.53m	624234.335	713768.105	82.309	PC
11.03.22	PP78325	Peat Probe	1.14m	624311.866	713824.421	82.352	PC
11.03.22	PP78325A	Peat Probe	1.20m	624307.871	713849.72	82.258	PC
11.03.22	PP78329	Peat Probe	0.93m	624325.738	713802.794	82.347	PC
11.03.22	PP78414	Peat Probe	1.33m	624394.543	713859.03	82.241	PC
11.03.22	PP78416	Peat Probe	1.30m	624394.543	713859.03	82.241	PC
11.03.22	PP78426	Peat Probe	1.07m	624401.053	713871.744	82.064	PC
11.03.22	PP78490	Peat Probe	0.18m	624421.302	713931.724	83.247	PC
11.03.22	PP78494	Peat Probe	0.38m	624444.492	713917.769	82.85	PC
11.03.22	PP78508	Peat Probe	0.37m	624471.542	713915.154	83.063	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
15.03.22	PP78844	Peat Probe	0.23m	624640.655	714209.303	85.447	PC
15.03.22	PP78853	Peat Probe	0.43m	624664.283	714202.953	86.142	PC
15.03.22	PP78862	Peat Probe	0.33m	624689.876	714202.749	85.786	PC
15.03.22	PP78951	Peat Probe	0.81m	624647.458	714301.423	84.703	PC
15.03.22	PP78953	Peat Probe	0.89m	624672.485	714301.906	84.766	PC
15.03.22	PP78957	Peat Probe	0.21m	624692.523	714304.941	84.737	PC
15.03.22	PP79036	Peat Probe	0.38m	624645.375	714382.888	85.164	PC
15.03.22	PP79039	Peat Probe	0.28m	624688.504	714389.727	85.342	PC
15.03.22	PP79040	Peat Probe	0.45m	624668.631	714387.855	85.37	PC
15.03.22	PP79115	Peat Probe	0.26m	624662.484	714462.193	87.715	PC
15.03.22	PP79115A	Peat Probe	0.29m	624639.873	714456.561	87.737	PC
15.03.22	PP79120	Peat Probe	0.12m	624684.177	714468.772	87.864	PC
15.03.22	PP79599	Peat Probe	0.48m	624818.233	714949.183	89.719	PC
15.03.22	PP79606	Peat Probe	0.57m	624832.564	714928.702	89.598	PC
15.03.22	PP79611	Peat Probe	0.50m	624835.694	714905.999	89.849	PC
15.03.22	PP79714	Peat Probe	0.36m	624885.178	714991.169	88.242	PC
15.03.22	PP79714A	Peat Probe	0.49m	624897.652	714968.11	88.955	PC
15.03.22	PP79718	Peat Probe	0.42m	624874.048	715010.79	88.257	PC
15.03.22	PP79829	Peat Probe	0.73m	624959.472	715082.122	88.541	PC
15.03.22	PP79835	Peat Probe	0.85m	624978.528	715064.611	88.278	PC
15.03.22	PP79841	Peat Probe	1.10m	624998.268	715052.782	89.282	PC
15.03.22	PP79929	Peat Probe	0.85m	625051.66	715126.873	90.261	PC
15.03.22	PP79929A	Peat Probe	0.82m	625041.158	715146.728	89.892	PC
15.03.22	PP79930	Peat Probe	0.32m	625066.336	715107.675	90.493	PC
16.03.22	PP80029	Peat Probe	0.71m	625130.511	715187.586	90.156	PC
15.03.22	PP80030	Peat Probe	0.85m	625111.635	715208.376	90.063	PC
16.03.22	PP80035	Peat Probe	0.82m	625146.777	715175.716	89.918	PC
16.03.22	PP80129	Peat Probe	0.36m	625192.751	715270.933	91.591	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
16.03.22	PP80130	Peat Probe	0.42m	625209.345	715251.869	90.774	PC
16.03.22	PP80133	Peat Probe	0.84m	625227.94	715236.268	90.53	PC
16.03.22	PP80223	Peat Probe	0.23m	625296.401	715292.157	92.63	PC
16.03.22	PP80224	Peat Probe	0.29m	625281.814	715311.885	92.684	PC
16.03.22	PP80229	Peat Probe	0.26m	625269.794	715333.471	92.319	PC
16.03.22	PP80283	Peat Probe	0.31m	625326.286	715344.532	92.47	PC
16.03.22	PP80321	Peat Probe	0.35m	625370.167	715345.974	92.857	PC
16.03.22	PP83319	Peat Probe	0.49m	628147.635	715753.767	99.53	PC
16.03.22	PP83332	Peat Probe	0.41m	628172.143	715682.166	98.587	PC
16.03.22	PP83332A	Peat Probe	0.21m	628145.7	715839.953	103.44	PC
16.03.22	PP83333	Peat Probe	0.23m	628177.187	715660.922	98.677	PC
16.03.22	PP83343	Peat Probe	0.29m	628190.008	715638.986	98.464	PC
16.03.22	PP83420	Peat Probe	0.30m	628246.939	715773.164	100.354	PC
16.03.22	PP83423	Peat Probe	0.24m	628235.576	715852.997	102.946	PC
16.03.22	PP83431	Peat Probe	0.28m	628268.412	715700.957	98.203	PC
16.03.22	PP83439	Peat Probe	0.30m	628280.701	715678.249	97.871	PC
16.03.22	PP83442	Peat Probe	0.31m	628289.567	715656.175	98.018	PC
16.03.22	PP83521	Peat Probe	0.24m	628347.125	715792.87	99.95	PC
16.03.22	PP83533	Peat Probe	0.40m	628369.837	715717.613	98.323	PC
16.03.22	PP83538	Peat Probe	0.30m	628378.917	715693.518	97.994	PC
16.03.22	PP83543	Peat Probe	0.33m	628387.894	715669.859	97.756	PC
21.03.22	PP83596	Peat Probe	0.36m	628451.459	715609.466	96.97	PC
21.03.22	PP83616	Peat Probe	0.10m	628452.629	715731.673	98.125	PC
21.03.22	PP83621	Peat Probe	0.23m	628464.125	715682.273	97.46	PC
21.03.22	PP83656	Peat Probe	0.26m	628477.455	715794.976	99.269	PC
21.03.22	PP83697	Peat Probe	0.26m	628555.271	715622.975	96.667	PC
21.03.22	PP83723	Peat Probe	0.23m	628556.242	715750.952	97.982	PC
21.03.22	PP83727	Peat Probe	0.48m	628603.328	715536.441	95.933	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
21.03.22	PP83728	Peat Probe	0.35m	628565.409	715727.462	97.629	PC
21.03.22	PP83735	Peat Probe	0.30m	628577.951	715703.562	97.281	PC
21.03.22	PP83793	Peat Probe	0.52m	628648.378	715645.38	96.261	PC
21.03.22	PP83826	Peat Probe	0.40m	628700.998	715554.458	95.86	PC
21.03.22	PP83836	Peat Probe	0.05m	628668.539	715768.877	97.507	PC
21.03.22	PP83838	Peat Probe	0.19m	628673.979	715750.792	97.145	PC
21.03.22	PP83843	Peat Probe	0.28m	628683.782	715725.978	96.926	PC
21.03.22	PP83870	Peat Probe	0.37m	628764.091	715474.957	95.951	PC
21.03.22	PP83893	Peat Probe	0.41m	628746.56	715665.445	96.073	PC
21.03.22	PP83926	Peat Probe	0.30m	628799.427	715574.212	95.874	PC
21.03.22	PP83947	Peat Probe	0.32m	628775.832	715791.853	96.892	PC
21.03.22	PP83950	Peat Probe	0.22m	628782.697	715771.768	96.507	PC
21.03.22	PP83955	Peat Probe	0.22m	628793.092	715749.163	96.28	PC
21.03.22	PP83977	Peat Probe	0.52m	628838.596	715640.498	95.784	PC
21.03.22	PP84058	Peat Probe	0.29m	628886.946	715815.539	96.674	PC
21.03.22	PP84061	Peat Probe	0.22m	628892.44	715793.804	96.233	PC
21.03.22	PP84065	Peat Probe	0.53m	628897.015	715771.329	96.078	PC
21.03.22	PP84164	Peat Probe	0.37m	628988.272	715839.149	96.635	PC
21.03.22	PP84167	Peat Probe	0.37m	628995.742	715815.929	95.995	PC
21.03.22	PP84182	Peat Probe	0.62m	629015.369	715794.701	95.545	PC
21.03.22	PP84260	Peat Probe	0.33m	629089.616	715847.495	96.335	PC
21.03.22	PP84270	Peat Probe	0.27m	629097.33	715820.99	95.959	PC
21.03.22	PP84289	Peat Probe	0.61m	629115.548	715795.22	95.264	PC
21.03.22	PP84368	Peat Probe	0.24m	629197.039	715839.384	96.18	PC
21.03.22	PP84374	Peat Probe	0.28m	629200.068	715816.023	95.675	PC
21.03.22	PP84389	Peat Probe	0.38m	629215.205	715789.958	95.205	PC
22.03.22	PP84462	Peat Probe	0.20m	629296.333	715822.633	95.822	PC
22.03.22	PP84467	Peat Probe	0.19m	629291.936	715798.926	95.414	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
22.03.22	PP84469	Peat Probe	0.25m	629287.601	715785.336	95.09	PC
22.03.22	PP84564	Peat Probe	0.22m	629390.156	715786.67	95.043	PC
22.0.22	PP84567	Peat Probe	0.21m	629385.199	715764.101	94.521	PC
22.03.22	PP84573	Peat Probe	0.26m	629384.548	715742.35	94.226	PC
22.03.22	PP84671	Peat Probe	0.17m	629491.56	715757.492	94.692	PC
22.03.22	PP84672	Peat Probe	0.25m	629484.186	715734.185	91.314	PC
22.03.22	PP84673	Peat Probe	0.25m	629480.089	715709.654	94.689	PC
22.03.22	PP84781	Peat Probe	0.23m	629596.105	715723.542	94.172	PC
22.03.22	PP84784	Peat Probe	0.18m	629592.398	715702.029	94.307	PC
22.03.22	PP84795	Peat Probe	0.38m	629595.174	715675.049	94.528	PC
22.03.22	PP85141	Peat Probe	0.28m	629954.278	715668.708	94.165	PC
22.03.22	PP85149	Peat Probe	0.18m	629953.385	715644.645	94.114	PC
22.03.22	PP85250	Peat Probe	0.28m	630056.525	715652.348	94.084	PC
22.03.22	PP85253	Peat Probe	0.23m	630055.827	715629.653	94.326	PC
22.03.22	PP85357	Peat Probe	0.34m	630159.365	715613.412	94.771	PC
22.03.22	PP85361	Peat Probe	0.18m	630165.074	715635.682	94.778	PC
22.03.22	PP85448	Peat Probe	0.30m	630248.454	715601.694	94.524	PC
22.03.22	PP85455	Peat Probe	0.26m	630258.709	715622.933	94.299	PC
22.03.22	PP85554	Peat Probe	0.30m	630356.731	715607.899	94.12	PC
22.03.22	PP85558	Peat Probe	0.24m	630358.387	715585.825	93.831	PC
22.03.22	PP85561	Peat Probe	0.39m	630355.811	715560.722	93.065	PC
22.03.22	PP85657	Peat Probe	0.37m	630457.663	715582.744	93.188	PC
22.03.22	PP85657A	Peat Probe	0.24m	630459.446	715606.572	93.15	PC
22.03.22	PP85658	Peat Probe	0.46m	630456.391	715558.541	92.893	PC
22.03.22	PP85756	Peat Probe	0.17m	630556.06	715605.061	92.107	PC
22.03.22	PP85757	Peat Probe	0.31m	630558.218	715582.651	92.297	PC
22.03.22	PP85759	Peat Probe	0.51m	630560.281	715556.987	91.916	PC
28.03.22	PP85858	Peat Probe	0.31m	630657.858	715582.429	91.597	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
28.03.22	PP85858A	Peat Probe	0.17m	630662.522	715606.647	91.496	PC
28.03.22	PP85859	Peat Probe	0.27m	630658.839	715556.126	91.518	PC
28.03.22	PP85958	Peat Probe	0.44m	630759.098	715606.212	90.741	PC
28.03.22	PP85959	Peat Probe	0.26m	630759.475	715581.956	90.696	PC
28.03.22	PP85961	Peat Probe	0.32m	630762.32	715555.381	90.798	PC
28.03.22	PP86057	Peat Probe	0.10m	630856.836	715580.177	88.979	PC
28.03.22	PP86057A	Peat Probe	0.09m	630862.483	715603.408	88.648	PC
28.03.22	PP86058	Peat Probe	0.24m	630857.762	715557.515	89.524	PC
28.03.22	PP861335	Peat Probe	0.14m	630935.552	715605.453	87.444	PC
28.03.22	PP86157	Peat Probe	0.23m	630957.495	715580.517	89.056	PC
28.03.22	PP86161	Peat Probe	0.24m	630961.835	715558.831	86.055	PC
28.03.22	PP86256	Peat Probe	0.12m	631055.297	715587.196	86.215	PC
28.03.22	PP86258	Peat Probe	0.10m	631058.66	715565.535	89.135	PC
28.03.22	PP86360	Peat Probe	0.19m	631159.826	715595.884	85.215	PC
28.03.22	PP86360A	Peat Probe	0.12m	631155.705	715616.875	86.414	PC
28.03.22	PP86397	Peat Probe	0.10m	631195.192	715624.639	85.23	PC
28.03.22	PP86456	Peat Probe	0.19m	631254.879	715627.658	85.199	PC
28.03.22	PP86457	Peat Probe	0.19m	631255.68	715603.134	85.694	PC
28.03.22	PP86461	Peat Probe	0.17m	631259.892	715579.119	85.843	PC
29.03.22	PP86559	Peat Probe	0.10m	631357.652	715603.204	84.04	PC
29.03.22	PP86559A	Peat Probe	0.18m	631355.763	715584.345	84.326	PC
29.03.22	PP86559C	Peat Probe	0.19m	631369.469	715621.618	84.265	PC
29.03.22	PP86651	Peat Probe	0.17m	631449.515	715627.515	82.819	PC
29.03.22	PP86653	Peat Probe	0.30m	631451.273	715605.072	82.536	PC
29.03.22	PP86656	Peat Probe	0.17m	631454.242	715578.001	83.441	PC
29.03.22	PP86758	Peat Probe	0.19m	631557.643	715627.834	87.812	PC
29.03.22	PP86759	Peat Probe	0.10m	631558.02	715603.33	87.694	PC
29.03.22	PP86761	Peat Probe	0.30m	631559	715579.541	87.705	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
29.03.22	PP86858	Peat Probe	0.15m	631657.437	715604.688	87.345	PC
29.03.22	PP86859	Peat Probe	0.25m	631656.706	715628.73	87.525	PC
29.03.22	PP86860	Peat Probe	0.31m	631658.258	715580.346	87.088	PC
29.03.22	PP86958	Peat Probe	0.30m	631758.158	715629.499	87.749	PC
29.03.22	PP86959	Peat Probe	0.30m	631757.191	715604.657	87.378	PC
29.03.22	PP86960	Peat Probe	0.28m	631759.137	715579.581	86.958	PC
29.03.22	PP87062	Peat Probe	0.22m	631850.275	715643.128	87.419	PC
29.03.22	PP87064	Peat Probe	0.29m	631860.042	715624.018	87.336	PC
29.03.22	PP87066	Peat Probe	0.27m	631870.124	715597.016	86.991	PC
30.03.22	PP87161	Peat Probe	0.28m	631950.467	715652.511	87.416	PC
30.03.22	PP87165	Peat Probe	0.31m	631948.93	715676.824	87.538	PC
30.03.22	PP87167	Peat Probe	0.21m	631964.639	715628.726	87.1	PC
30.03.22	PP87326	Peat Probe	0.36m	632080.855	715758.367	87.576	PC
30.03.22	PP873240	Peat Probe	0.16m	632105.511	715743.057	87.693	PC
30.03.22	PP87353	Peat Probe	0.40m	632129.486	715729.538	87.071	PC
30.03.22	PP87453	Peat Probe	0.22m	632189.24	715822.891	86.483	PC
30.03.22	PP87457	Peat Probe	0.15m	632204.275	715805.359	86.37	PC
30.03.22	PP87462	Peat Probe	0.14m	632218.827	715787.566	86.213	PC
30.03.22	PP87539	Peat Probe	0.15m	632261.412	715869.328	86.318	PC
30.03.22	PP87542	Peat Probe	0.29m	632276.676	715849.939	86.533	PC
30.03.22	PP87542A	Peat Probe	0.16m	632292.089	715830.338	86.722	PC
30.03.22	PP87631	Peat Probe	0.25m	632343.386	715911.807	86.567	PC
30.03.2	PP87631A	Peat Probe	0.22m	632326.866	715924.482	86.656	PC
30.03.22	PP87877	Peat Probe	0.93m	632506.904	716095.558	85.226	PC
30.03.22	PP87889	Peat Probe	0.98m	632533.046	716084.242	84.983	PC
30.03.22	PP87899	Peat Probe	0.89m	632555.182	716073.506	84.786	PC
30.03.22	PP87959	Peat Probe	0.28m	632566.776	716151.902	85.492	PC
03.03.22	PP87963	Peat Probe	0.33m	632585.726	716137.813	85.271	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
30.03.22	PP87984	Peat Probe	0.46m	632619.133	716132.114	85.01	PC
30.03.22	PP88050	Peat Probe	0.22m	632656.275	716197.691	85.405	PC
31.03.22	PP88070	Peat Probe	0.16m	632681.847	716177.728	84.871	PC
31.03.22	PP88081	Peat Probe	0.36m	632698.478	716157.075	85.053	PC
31.03.22	PP88116	Peat Probe	0.37m	632720.148	716214.885	85.208	PC
31.03.2	PP88143	Peat Probe	0.30m	632752.229	716198.584	84.733	PC
31.03.22	PP88180	Peat Probe	0.03m	632798.954	716202.712	85.056	PC
31.03.22	PP89800	Peat Probe	0.20m	634330.985	716670.319	81.05	PC
31.03.22	PP89816	Peat Probe	0.22m	634356.637	716652.54	79.975	PC
31.03.22	PP89833	Peat Probe	0.36m	634378.32	716634.456	81.177	PC
31.03.22	PP89927	Peat Probe	0.37m	634471.367	716654.796	81.672	PC
31.03.22	PP89928	Peat Probe	0.34m	634467.615	716678.652	82.85	PC
31.03.22	PP89929	Peat Probe	0.27m	634460.179	716703.458	82.625	PC
31.03.22	PP90030	Peat Probe	0.12m	634565.91	716723.883	80.264	PC
31.03.22	PP90032	Peat Probe	0.87m	634567.11	716699.983	80.354	PC
31.03.22	PP90032A	Peat Probe	0.40m	634575.594	716675.016	80.813	PC
31.03.22	PP90131	Peat Probe	0.30m	634665.361	716727.819	81.182	PC
31.03.22	PP90132	Peat Probe	0.18m	634666.804	716707.625	80.435	PC
31.03.22	PP90133	Peat Probe	0.17m	634667.833	716683.802	79.559	PC
31.03.22	PP90237	Peat Probe	0.26m	634771.181	716728.85	82.84	PC
31.03.22	PP90238	Peat Probe	0.15m	634772.304	716705.107	81.372	PC
31.03.22	PP90238A	Peat Probe	0.29m	634775.239	716682.788	80.413	PC
31.03.22	PP90324	Peat Probe	0.38m	634858.184	716703.494	82.278	PC
31.03.22	PP90333	Peat Probe	0.20m	634866.833	716678.243	81.445	PC
31.03.22	PP90411	Peat Probe	0.19m	634944.903	716676.776	82.572	PC
31.03.22	PP90480	Peat Probe	0.36m	635019.851	716682.837	82.225	PC
31.03.22	PP91102	Peat Probe	0.40m	635611.583	716877.474	84.499	PC

WSP LOT 2 PEAT PROBES

Date	Location	Description	Depth	Eastings	Northings	RL	Driller
01.04.22	PP101814	Peat Probe	0.32m	644763.175	721835.437	68.603	PC
01.04.22	PP101819	Peat Probe	0.34m	644758.151	721852.977	68.47	PC
01.04.22	PP101824	Peat Probe	0.27m	644748.428	721874.564	68.46	PC
01.04.22	PP101897	Peat Probe	0.78m	644837.115	721872.481	68.152	PC
01.04.22	PP101899	Peat Probe	0.99m	644826.023	721895.62	68.257	PC
01.04.22	PP101899A	Peat Probe	1.17m	644814.615	721915.105	67.649	PC
01.04.22	PP101969	Peat Probe	0.37m	644872.65	721953.316	68.212	PC
01.04.22	PP101978	Peat Probe	0.38m	644892.939	721936.911	68.337	PC
01.04.22	PP101978A	Peat Probe	0.82m	644905.379	721916.065	68.121	PC
01.04.22	PP102769	Peat Probe	0.05m	645573.93	722308.78	77.551	PC
01.04.22	PP102801	Peat Probe	0.27m	645606.116	722308.573	78.085	PC
01.04.22	PP102835	Peat Probe	0.13m	645646.672	722304.089	77.81	PC
01.04.22	PP102879	Peat Probe	0.32m	645665.364	722366.086	78.274	PC
01.04.22	PP102884	Peat Probe	0.33m	645681.907	722344.766	77.812	PC
01.04.22	PP102890	Peat Probe	0.18m	645697.922	722324.932	77.31	PC
01.04.22	PP102962	Peat Probe	0.22m	645741.048	722398.547	79.122	PC
01.04.22	PP102971	Peat Probe	0.18m	645759.258	722381.767	78.962	PC
01.04.22	PP102978	Peat Probe	0.08m	645777.037	722362.823	78.755	PC
01.04.22	PP103053	Peat Probe	0.31m	645823.927	722436.865	79.078	PC
01.04.22	PP103064	Peat Probe	0.17m	645842.882	722421.377	78.696	PC
01.04.22	PP103077	Peat Probe	0.16m	645867.07	722403.976	78.92	PC
01.04.22	PP103163	Peat Probe	0.20m	645915.719	722490.805	79.214	PC
01.04.22	PP103168	Peat Probe	0.28m	645933.84	722473.175	79.081	PC
01.04.22	PP103174	Peat Probe	0.35m	645952.023	722456.367	79.617	PC

Appendix 6D
Part 2: Russian Core Records

WSP LOT 2 Russian Sampler

Date	Location	Depth	Description	Easting	Northing	RL	Driller
29.09.21	RK40713	0.0-0.40m	Brown Peat	600698.795	690676.794	85.031	RL
29.09.21	RK40814	0.0-0.20m	No Recovery	600768.01	690760.953	84.388	RL
29.09.21	RK40911	0.0-0.21m	No Recovery	600800.647	690850.41	84.362	RL
28.10.21	RK41296	0.0-0.25m	No Recovery	600832.546	691220.541	81.126	BT
28.10.21	RK41400	0.0-0.10m	No Recovery	600797.116	691316.986	81.575	BT
28.10.21	RK41498	0.0-0.20m	No Recovery	600750.121	691402.935	80.261	BT
28.10.21	RK41595	0.0-0.20m	No Recovery	600737.784	691497.237	79.692	BT
29.10.21	RK42107	0.0-0.30m	No Recovery				BT
29.10.21	RK42208	0.0-1.20m	Peat&Marl	600971.166	692053.885	72.473	BT
01.10.21	RK42381	0.0-0.50m	Peat&White Silt	601096.965	692163.782	72.398	RL
29.09.21	RK42468	00-0.30m	No Recovery	601182.225	692185.868	72.213	RL
29.09.21	RK42551	0.0-0.20m	No Recovery	601261.137	692204.799	72.432	RL
12.11.21	RK46240	0.0-.030m	No Recovery	603465.334	694876.67	72.305	BT
30.11.21	RK49484	00-0.5m	Peat	606473.014	694907.91	45.935	BT
30.11.21	RK49484	0.50-1.0m	Possible Timber	606473.014	694907.91	45.935	BT
30.11.21	RK49560	00-.05m	Peat	606543.176	694933.348	45.812	BT
30.11.21	RK49560	0.5-1.0m	Peat	606543.176	694933.348	45.812	BT
30.11.21	RK49560	1.0-1.5m	Peat	606543.176	694933.348	45.812	BT
30.11.21	RK49560	1.5-2.0m	Peat	606543.176	694933.348	45.812	BT
30.11.21	RK49560	2.0-2.5m	Peat-Grey Silt	606543.176	694933.348	45.812	BT
09.12.21	RK49954	0.0-0.5m	Peat	606823.502	695207.849	45.945	BT
09.12.21	RK49954	0.5-1.2m	Peat-Refusal	606823.502	695207.849	45.945	BT
09.12.21	RK50045	0.0-0.5m	Peat	606873.615	695282.622	46.205	BT
09.12.21	RK50045	0.5-1.0m	Peat-Refusal	606873.615	695282.622	46.205	BT
08.12.21	RK50144	0.0-0.20m	No Recovery	606913.609	695371.109	46.238	BT
06.01.22	RK56827	0.0-0.20m	No Recovery	609448.057	701070.21	73.68	BT
07.01.22	RK56921	0.0-0.20m	No Recovery	609520.376	701138.173	73.555	BT
11.01.22	RK57778	0.0-0.30m	No Recovery	609967.16	701824.945	68.409	BT

WSP LOT 2 Russian Sampler

Date	Location	Depth	Description	Easting	Northing	RL	Driller
13.01.22	RK59579	0.0-0.20m	No Recovery	611363.897	702709.448	81.967	BT
14.01.22	RK59658	0.0-0.30m	No Recovery	611436.805	702733.042	81.276	BT
14.01.22	RK59739	0.0-0.20m	No Recovery	611508.852	702766.246	80.593	BT
14.01.22	RK59939	0.0-0.40m	No Recovery	611685.526	702864.911	76.951	BT
18.01.22	RK60411	0.0-0.20m	No Recovery	612101.523	703087.018	74.893	BT
18.01.22	RK60519	0.0-0.20m	No Recovery	612197.792	703137.724	74.68	BT
19.01.22	RK60619	0.0-0.30m	No Recovery	612285.876	703184.342	74.189	BT
19.01.22	RK60726	0.0-0.20m	No Recovery	612330.926	703275.222	74.533	BT
17.02.22	RK71153	0.0-0.50m	Peat & Gravel	618678.177	710455.417	87.872	BT
17.02.22	RK71153	0.5-0.90m	No Recovery	618678.177	710455.417	87.872	BT
16.02.22	RK71249	0.0-0.20m	No Recovery	618755.26	710515.012	88.628	BT
16.02.22	RK71350	0.0-0.50m	Peat	618833.614	710576.16	87.853	BT
16.02.22	RK71350	0.5-1.00m	Peat Refusal	618833.614	710576.16	87.853	BT
09.03.22	RK71450	0.0-0.50M	Brown Peat	618918.413	710631.073	87.758	PC
09.03.22	RK71450	0.5-1.00m	Peat & Silt Refusal	618918.413	710631.073	87.758	PC
09.03.22	RK71546	0.0-0.50m	Brown Peat	619005.032	710671.276	87.512	PC
09.03.22	RK71546	0.5-0.80m	Peat & Silt Refusal	619005.032	710671.276	87.512	PC
09.03.22	RK71630	0.0-0.50m	Peat & Silt Refusal	619079.194	710708.715	87.898	PC
09.03.22	RK71700	0.0-0.20m	No Recovery	619127.629	710753.101	88.474	PC
10.03.22	RK73864	0.0-0.45m	Clayey Peat Refusal	620972.473	711525.769	91.244	PC
10.03.22	RK73986	0.0-0.50m	Clayey Peat Refusal	621095.199	711530.602	90.92	PC
10.03.22	RK74308	0.0-0.40m	Clayey Peat Refusal	621415.369	711555.509	90.37	PC
11.03.22	RK75738	0.0-0.20m	No Recovery	622621.991	712131.299	90.002	PC
14.03.22	RK77588	0.0-0.20m	No Recovery	623634.439	713543.221	81.97	PC
14.03.22	RK78075	0.0-0.20m	No Recovery	624079.141	713733.367	82.837	PC
14.03.22	RK78174	0.0-0.30m	Clayey Peat Refusal	624170.671	713765.17	82.062	PC
14.03.22	RK78274	0.0-0.30m	Clayey Peat Refusal	624265.291	713805.618	82.281	PC

WSP LOT 2 Russian Sampler

Date	Location	Depth	Description	Easting	Northing	RL	Driller
14.03.22	RK78369	0.0-0.50m	Black Peat	624352.361	713842.183	82.322	PC
14.03.22	RK78369	0.5-1.0m	Black Peat	624352.361	713842.183	82.322	PC
14.03.22	RK78369	1.0-1.4m	Clayey Peat Refusal	624352.361	713842.183	82.322	PC
14.03.22	RK78454	0.0-0.50m	Black Peat	624417.961	713887.282	82.447	PC
14.03.22	RK78454	0.5-1.0m	Black Peat	624417.961	713887.282	82.447	PC
14.03.22	RK78454	1.0-1.4m	Silty Clay Refuse	624417.961	713887.282	82.447	PC
15.03.22	RK78903	0.0-0.50m	Brown Peat	624670.879	714252.499	84.591	PC
15.03.22	RK78903	0.5-1.0m	Grey silty Sand	624670.879	714252.499	84.591	PC
15.03.22	RK78997	0.0-0.4m	Gravelly Peat	624670.151	714344.973	84.85	PC
15.03.22	RK79077	0.0-0.25m	Silty Clay Refused	624665.458	714425.512	86.361	PC
15.03.22	RK79659	0.0-0.25m	Gravelly Peat	624843.911	714954.484	89.642	PC
15.03.22	RK79775	0.0-0.20m	Gravelly Peat	624932.062	715028.233	88.046	PC
15.03.22	RK79882	0.0-0.50m	Gravelly Peat	625023.513	715094.559	89.141	PC
16.03.22	RK79979	0.0-0.50m	Brown Peat	625090.557	715156.962	89.964	PC
16.03.22	RK79979	0.5-1.0m	Silty Clay Refused	625090.557	715156.962	89.964	PC
16.03.22	RK80079	0.0-0.40m	Gravelly Peat	625169.773	715219.624	90.354	PC
16.03.22	RK80177	0.0-0.20m	Silty Clay Refused	625245.315	715280.949	91.104	PC
16.03.22	RK80254	0.0-0.50m	Silty Clay Refused	625306.204	715329.102	92.344	PC
16.03.22	RK83386	0.0-0.25m	Silty Clay Refused	628227.925	715667.57	97.821	PC
16.03.22	RK83488	0.0-0.20m	Silty Clay Refused	628330.718	715684.664	97.978	PC
21.03.22	RK83581	0.0-0.10m	Silty Clay Refused	628429.466	715695.225	98.006	PC
21.03.22	RK83674	0.0-0.20m	Silty Clay Refused	628512.619	715717.399	97.68	PC
21.03.22	RK83783	0.0-0.25m	Silty Clay Refused	628620.245	715739.699	97.527	PC
21.03.22	RK83894	0.0-0.20m	Clayey Peat Refused	628728.623	715761.322	96.557	PC
21.03.22	RK84005	0.0-0.20m	Silty Clay Refused	628837.126	715783.257	96.373	PC
21.03.22	RK84114	0.0-0.30m	Clayey Peat Refused	628944.201	715806.06	96.047	PC
21.03.22	RK84220	0.0-0.20m	Silty Clay Refused	629048.013	715824.871	96.1	PC
21.03.22	RK84322	0.0-0.15m	Silty clay Refused	629150.826	715819.994	95.733	PC

WSP LOT 2 Russian Sampler

Date	Location	Depth	Description	Easting	Northing	RL	Driller
21.03.22	RK84421	0.0-0.25m	Silty clay Refused	629247.656	715812.417	95.623	PC
22.03.22	RK84517	0.0-0.50m	Silty clay Refused	629336.921	715777.353	94.527	PC
22.03.22	RK84619	0.0-0.25m	Clayey Peat Refused	629435.417	715748.134	94.475	PC
22.03.22	RK84728	0.0-0.20m	Silty clay Refused	629539.524	715716.069	94.446	PC
22.03.22	RK85200	0.0-0.15m	Silty clay Refused	630003.747	715638.16	94.283	PC
22.03.22	RK85305	0.00m	Refused	630107.801	715622.732	94.272	PC
22.03.22	RK85403	0.00m	Refused	630204.68	715608.842	94.549	PC
22.03.22	RK85503	0.00m	Refused	630302.723	715593.439	94.017	PC
22.03.22	RK85607	0.0-0.10m	Silty clay Refused	630406.515	715584.88	93.493	PC
22.03.22	RK85707	0.0-0.20m	Silty clay Refused	630508.259	715583.149	92.678	PC
28.03.22	RK85808	0.0-0.20m	Silty clay Refused	630608.205	715581.42	91.815	PC
28.03.22	RK85909	0.0-0.20m	Clayey Peat Refused	630709.038	715581.625	91.188	PC
28.03.22	RK86008	0.0-0.30m	Clayey Peat Refused	630809.169	715579.422	90.167	PC
28.03.22	RK86207	0.00m	Refused	631004.981	715583.593	85.631	PC
28.03.22	RK86409	0.00m	Refused	631208.773	715598.761	85.656	PC
29.03.22	RK86508	0.00m	Refused	631307.057	715603.87	84.367	PC
29.03.22	RK86606	0.00m	Refused	631405.09	715602.698	84.453	PC
29.03.22	RK86706	0.00m	Refused	631504.368	715602.989	87.743	PC
29.03.22	RK86809	0.0-0.20m	Clayey Peat Refused	631607.303	715605.84	87.652	PC
29.03.22	RK86909	0.00m	Refused	631709.291	715605.149	87.397	PC
29.03.22	RK87013	0.00m	Refused	631812.879	715606.346	87.178	PC
29.03.22	RK87111	0.0-0.15m	Clayey Peat Refused	631905.089	715636.443	87.248	PC
30.03.22	RK87399	0.00m	Refused	632155.598	715773.665	86.554	PC
30.03.22	RK87499	0.00m	Refused	632240.271	715828.927	86.215	PC
30.03.22	RK87586	0.00m	Refused	632310.529	715880.761	86.432	PC
30.03.22	RK88021	0.0-0.40m	Clayey Peat Refused	632633.977	716165.472	84.87	PC
31.03.22	RK88106	0.0-0.20m	Clayey Peat Refused	632715.518	716184.1	84.847	PC
31.03.22	RK89979	0.0-0.20m	Clayey Peat Refused	634515.333	716688.976	81.6	PC

WSP LOT 2 Russian Sampler

Date	Location	Depth	Description	Easting	Northing	RL	Driller
31.03.22	RK90081	0.00m	Refusal	634615.964	716710.415	81.437	PC
31.03.22	RK90185	00-0.15m	Clayey Peat Refused	634719.202	716707.184	81.562	PC
31.03.22	RK90281	0.00m	Refusal	634814.991	716703.488	82.221	PC
01.04.22	RK101859	0.0-0.50m	Brown Psedeo Peat	644791.165	721874.134	67.948	PC
01.04.22	RK101859	0.5-1.0m	Grey Silty Clay Ref.	644791.165	721874.134	67.948	PC
01.04.22	RK101938	0.0-0.5m	Brown Psedeo Peat	644860.746	721916.998	67.968	PC
01.04.22	RK101938	0.5-1.0m	Grey Silty Clay Ref.	644860.746	721916.998	67.968	PC
01.04.22	RK102842	0.00m	Refusal	645643.429	722326.454	78.431	PC
01.04.22	RK102927	0.00m	Refusal	645719.335	722363.18	78.091	PC
01.04.22	RK103017	0.00m	Refusal	645801.645	722401.265	79.198	PC
01.04.22	RK103116	0.00m	Refusal	645890.812	722444.62	78.91	PC
01.04.22	RK103220	0.00m	Refusal	645976.771	722500.932	79.588	PC

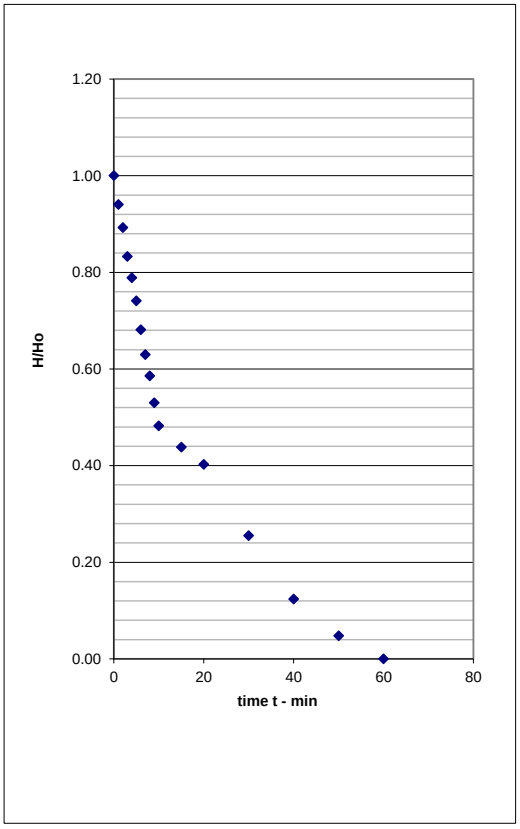
Appendix 6E
In-Situ Test Records
Part 1: Permeability

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 49513**
	Date:	30.11.2021	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		5.40m		Weather	Fair
Bottom of solid casing (below g.L.)		4.0m		Type of test	Rising Head
Top of filter material (m O.D.)		NA		Diameter of borehole	0.200m
Initial water level (m bgl)		-0.50m		Length of filter	1.40m
Ground level (m O.D.)		46.07		Diameter of filter	0.200m
Co-Ordinates	606503.2E	694908.3N		Type of piezometer	NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	4.000	2.510	1.00
1	3.850	2.360	0.94
2	3.730	2.240	0.89
3	3.580	2.090	0.83
4	3.470	1.980	0.79
5	3.350	1.860	0.74
6	3.200	1.710	0.68
7	3.070	1.580	0.63
8	2.960	1.470	0.59
9	2.820	1.330	0.53
10	2.700	1.210	0.48
15	2.590	1.100	0.44
20	2.500	1.010	0.40
30	2.130	0.640	0.25
40	1.800	0.310	0.12
50	1.610	0.120	0.05
60	1.490	0.000	0.00



L	1.40m	m
D	0.200	m
F	3.330	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 2.86E-06 m/sec

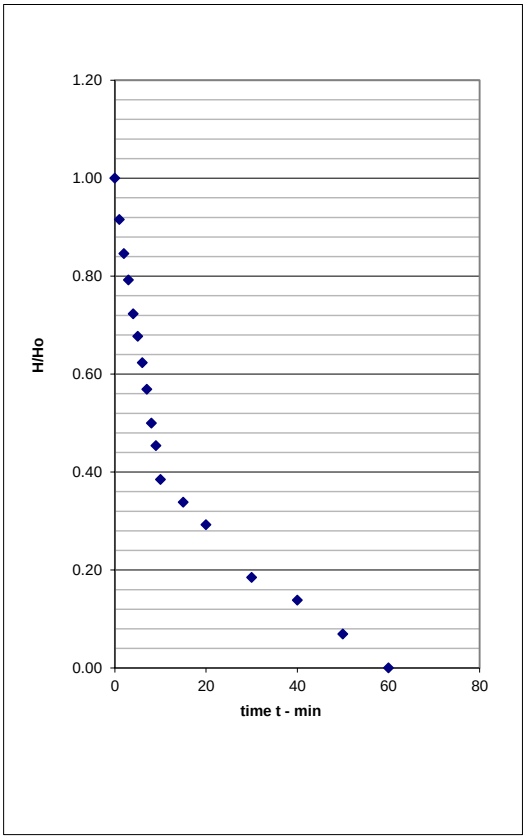
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
4.00-5.40m: Overburden (recovered as coarse sand and fine to coarse gravel).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 49880**
	Date:	30.11.2021	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		5.70m	Weather		Fair
Bottom of solid casing (below g.L.)		4.0m	Type of test		Rising Head
Top of filter material (m O.D.)		NA	Diameter of borehole		0.200m
Initial water level (m bgl)		-0.60m	Length of filter		1.70m
Ground level (m O.D.)		45.8	Diameter of filter		0.200m
Co-ordinates:	606784.7E	695142.5N	Type of piezometer		NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	4.000	1.300	1.00
1	3.890	1.190	0.92
2	3.800	1.100	0.85
3	3.730	1.030	0.79
4	3.640	0.940	0.72
5	3.580	0.880	0.68
6	3.510	0.810	0.62
7	3.440	0.740	0.57
8	3.350	0.650	0.50
9	3.290	0.590	0.45
10	3.200	0.500	0.38
15	3.140	0.440	0.34
20	3.080	0.380	0.29
30	2.940	0.240	0.18
40	2.880	0.180	0.14
50	2.790	0.090	0.07
60	2.700	0.000	0.00



L	1.700	m
D	0.200	m
F	3.810	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 8.78E-06 m/sec

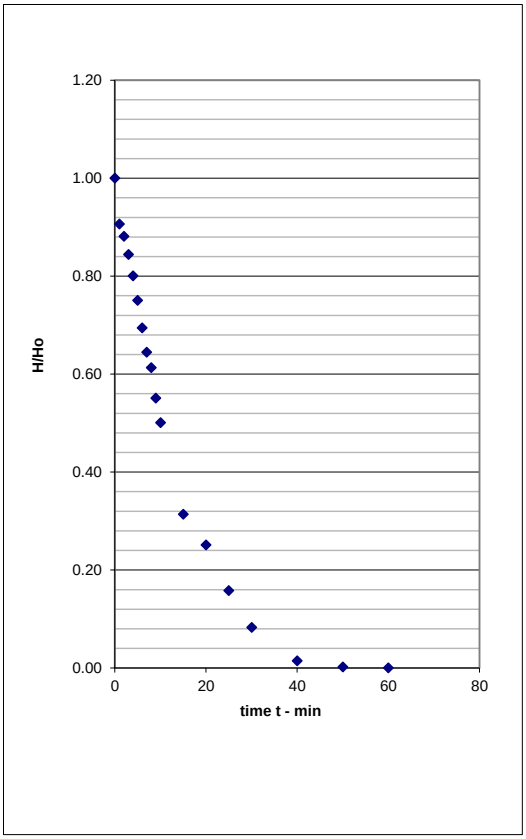
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
4.00-4.60m: Overburden (recovered as sandy SILT with cobbles).
4.60-5.70m: Overburden (recovered as sandy gravel).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 54278**
	Date:	15.12.2021	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		3.00m	Weather		Fair
Bottom of solid casing (below g.L.)		2.00m	Type of test		Rising Head
Top of filter material (m O.D.)		NA	Diameter of borehole		0.200m
Initial water level (m bgl)		-0.40m	Length of filter		1.00m
Ground level (m O.D.)		79.23m	Diameter of filter		0.200m
Co-ordinates:	608814.7E	698709.8N	Type of piezometer		NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	3.000	1.603	1.00
1	2.850	1.453	0.91
2	2.810	1.413	0.88
3	2.750	1.353	0.84
4	2.680	1.283	0.80
5	2.600	1.203	0.75
6	2.510	1.113	0.69
7	2.430	1.033	0.64
8	2.380	0.983	0.61
9	2.280	0.883	0.55
10	2.200	0.803	0.50
15	1.900	0.503	0.31
20	1.800	0.403	0.25
25	1.650	0.253	0.16
30	1.530	0.133	0.08
40	1.420	0.023	0.01
50	1.400	0.003	0.00
60	1.397	0.000	0.00



L	1.000	m
D	0.200	m
F	2.730	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 6.81E-06 m/sec

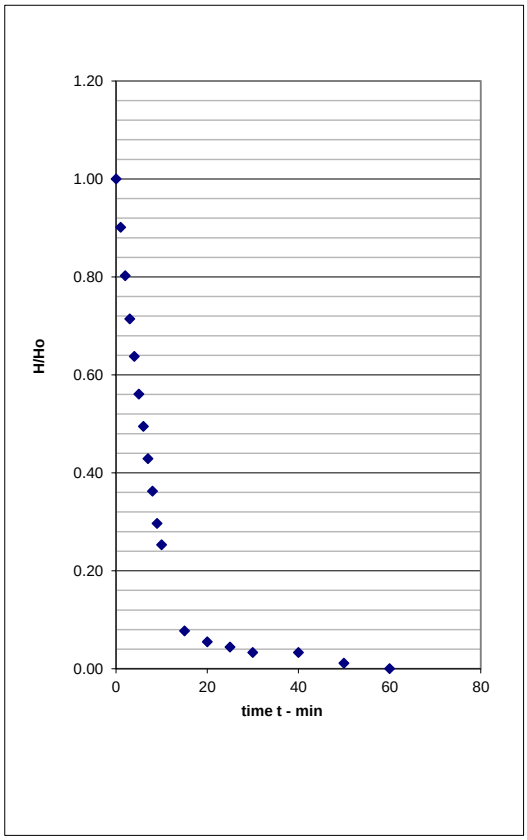
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
2.00-3.00m: Overburden (recovered as silty gravelly clay witth cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 61605**
	Date:	19.01.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)	3.90m	Weather	Fair
Bottom of solid casing (below g.L.)	3.00m	Type of test	Rising Head
Top of filter material (m O.D.)	NA	Diameter of borehole	0.200m
Initial water level (m bgl)	-2.70m	Length of filter	0.90m
Ground level (m O.D.)	71.68	Diameter of filter	0.200m
Co-ordinates: 613117.2E	703640.6N	Type of piezometer	NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	3.600	0.910	1.00
1	3.510	0.820	0.90
2	3.420	0.730	0.80
3	3.340	0.650	0.71
4	3.270	0.580	0.64
5	3.200	0.510	0.56
6	3.140	0.450	0.49
7	3.080	0.390	0.43
8	3.020	0.330	0.36
9	2.960	0.270	0.30
10	2.920	0.230	0.25
15	2.760	0.070	0.08
20	2.740	0.050	0.05
25	2.730	0.04	0.04
30	2.720	0.030	0.03
40	2.720	0.030	0.03
50	2.700	0.010	0.01
60	2.690	0.000	0.00



L	0.900	m
D	0.200	m
F	2.568	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 3.62E-05 m/sec

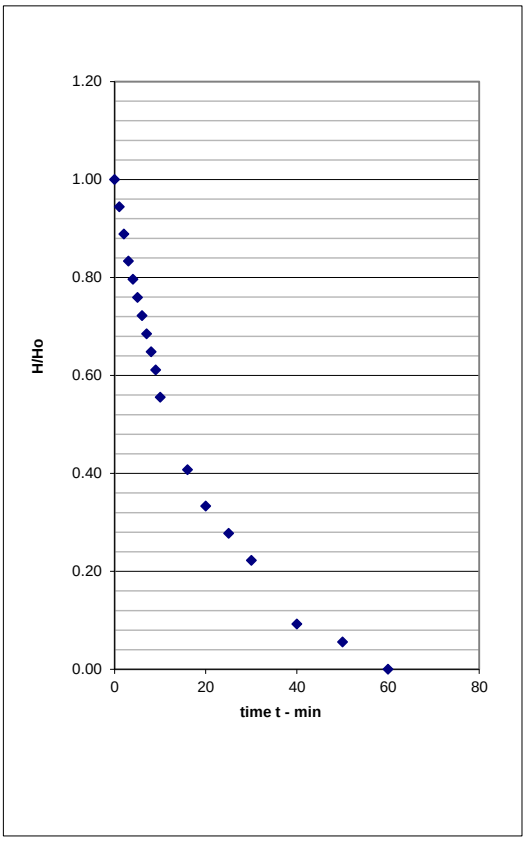
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
3.00-3.90m: Overburden (recovered as slightly silty gravelly sand with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 61869**
	Date:	20/01/2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		3.00m	Weather	Fair
Bottom of solid casing (below g.L.)		2.00m	Type of test	Falling Head
Top of filter material (m O.D.)		N/A	Diameter of borehole	0.200m
Initial water level (m bgl)		Dry	Length of filter	1.00m
Ground level (m O.D.)		72.17	Diameter of filter	0.200m
Co-ordinates	613355.7E	703754.7N	Type of piezometer	

Falling HEAD TEST

time min	water level m	H	H/Ho
0	0.000	0.540	1.00
1	0.030	0.510	0.94
2	0.060	0.480	0.89
3	0.090	0.450	0.83
4	0.110	0.430	0.80
5	0.130	0.410	0.76
6	0.150	0.390	0.72
7	0.170	0.370	0.69
8	0.190	0.350	0.65
9	0.210	0.330	0.61
10	0.240	0.300	0.56
16	0.320	0.220	0.41
20	0.360	0.180	0.33
25	0.390	0.150	0.28
30	0.420	0.120	0.22
40	0.490	0.050	0.09
50	0.510	0.030	0.06
60	0.540	0.000	0.00



L	1.000	m
D	0.200	m
F	2.700	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 5.28E-06 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.

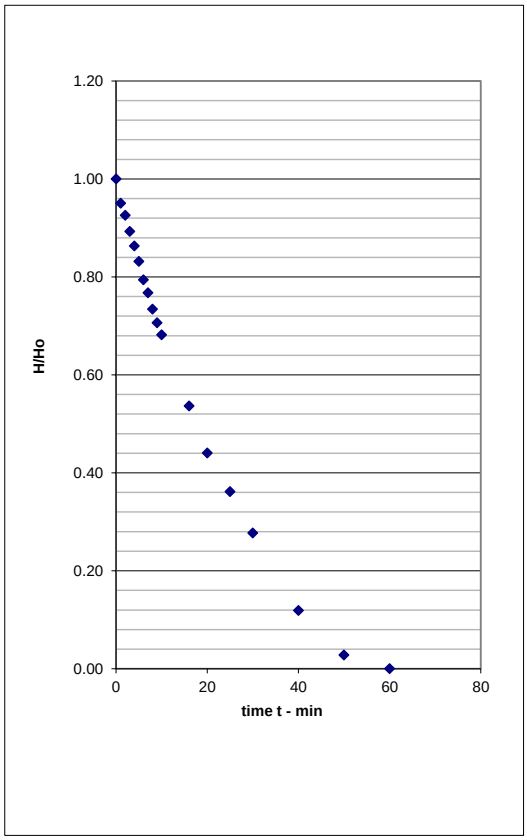
Response Zone Ground Conditions:
2.00-3.00m: Overburden (recovered as grey slightly clayey sandy gravel with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 62741**
	Date:	26.01.2021	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		7.80m	Weather		Fair
Bottom of solid casing (below g.L.)		6.50m	Type of test		Rising Head
Top of filter material (m O.D.)		NA	Diameter of borehole		0.200m
Initial water level (m bgl)		-1.90m	Length of filter		1.30m
Ground level (m O.D.)		71.5	Diameter of filter		0.200m
Co-ordinates:	614100.9E	704177.2N	Type of piezometer		NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	7.500	6.060	1.00
1	7.200	5.760	0.95
2	7.050	5.610	0.93
3	6.850	5.410	0.89
4	6.670	5.230	0.86
5	6.480	5.040	0.83
6	6.250	4.810	0.79
7	6.090	4.650	0.77
8	5.890	4.450	0.73
9	5.720	4.280	0.71
10	5.570	4.130	0.68
16	4.690	3.250	0.54
20	4.110	2.670	0.44
25	3.630	2.19	0.36
30	3.120	1.680	0.28
40	2.160	0.720	0.12
50	1.610	0.170	0.03
60	1.440	0.000	0.00



L	1.300	m
D	0.200	m
F	3.180	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 1.53E-06 m/sec

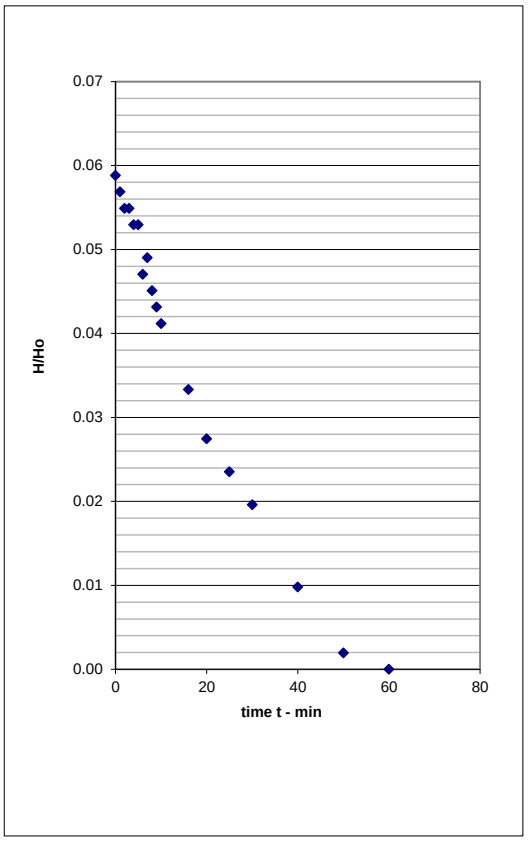
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
6.50-7.80m: Overburden (recovered as brownish grey slightly silty sandy gravel with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 63008**
	Date:	07.02.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		5.10m	Weather	Fair
Bottom of solid casing (below g.L.)		2.50m	Type of test	Falling Head
Top of filter material (m O.D.)		N/A	Diameter of borehole	0.200m
Initial water level (m bgl)		Dry	Length of filter	2.60m
Ground level (m O.D.)		70.71	Diameter of filter	0.200m
Co-ordinates	614289.6E	704363.5N	Type of piezometer	

Falling HEAD TEST

time min	water level m	H	H/Ho
0	0.000	0.300	0.06
1	0.010	0.290	0.06
2	0.020	0.280	0.05
3	0.020	0.280	0.05
4	0.030	0.270	0.05
5	0.030	0.270	0.05
6	0.060	0.240	0.05
7	0.050	0.250	0.05
8	0.070	0.230	0.05
9	0.080	0.220	0.04
10	0.090	0.210	0.04
16	0.130	0.170	0.03
20	0.160	0.140	0.03
25	0.180	0.120	0.02
30	0.200	0.100	0.02
40	0.250	0.050	0.01
50	0.290	0.010	0.00
60	0.300	0.000	0.00



L	2.600	m
D	0.200	m
F	5.010	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 1.46E-06 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.

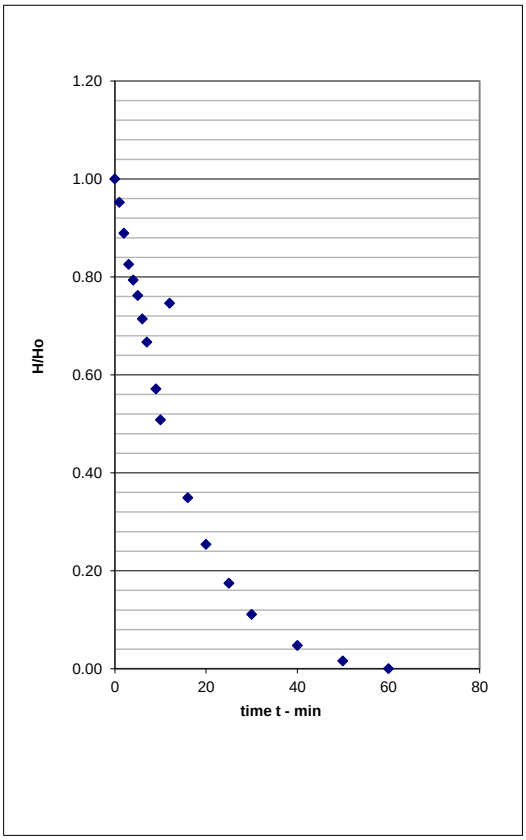
Response Zone Ground Conditions:
2.50-5.10m: Overburden (recovered as grey slightly sandy gravelly silty clay with cobbles and boulders).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 63008**
	Date:	12.07.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		10.00m	Weather		Fair
Bottom of solid casing (below g.L.)		N/A	Type of test		Rising Head
Top of filter material (m O.D.)		5.50m	Diameter of borehole		0.100m
Initial water level (m bgl)		-1.80m	Length of filter		4.00m
Ground level (m O.D.)		70.71	Diameter of filter		0.100m
Co-ordinates:	614289.6E	704363.5N	Type of piezometer		50mm

RISING HEAD TEST

time min	water level m	H	H/Ho
0	8.200	6.300	1.00
1	7.900	6.000	0.95
2	7.500	5.600	0.89
3	7.100	5.200	0.83
4	6.900	5.000	0.79
5	6.700	4.800	0.76
6	6.400	4.500	0.71
7	6.100	4.200	0.67
9	5.500	3.600	0.57
10	5.100	3.200	0.51
12	4.700	4.700	0.75
16	4.100	2.200	0.35
20	3.500	1.600	0.25
25	3.000	1.1	0.17
30	2.600	0.700	0.11
40	2.200	0.300	0.05
50	2.000	0.100	0.02
60	1.900	0.000	0.00



L	4.000	m
D	0.100	m
F	5.730	
A	0.0079	m^2
$t_2 - t_1$	60	min

k (permeability) = 2.08E-07 m/sec

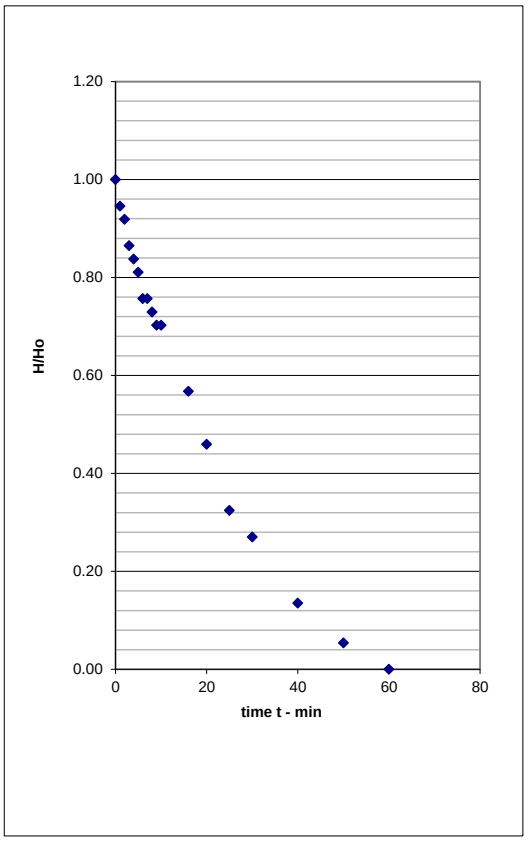
Remarks:
Test carried out in borehole standpipe.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
5.50-9.50m: Overburden (recovered as brown and grey gravel with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 69405**
	Date:	14.02.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		8.20m	Weather	Fair
Bottom of solid casing (below g.L.)		6.00m	Type of test	Falling Head
Top of filter material (m O.D.)		N/A	Diameter of borehole	0.200m
Initial water level (m bgl)		-0.90m	Length of filter	2.20m
Ground level (m O.D.)		80.54	Diameter of filter	0.200m
Co-ordinates	617164.6E	709613.4N	Type of piezometer	N/A

Falling HEAD TEST

time min	water level m	H	H/Ho
0	0.000	0.370	1.00
1	0.020	0.350	0.95
2	0.030	0.340	0.92
3	0.050	0.320	0.86
4	0.060	0.310	0.84
5	0.070	0.300	0.81
6	0.090	0.280	0.76
7	0.090	0.280	0.76
8	0.100	0.270	0.73
9	0.110	0.260	0.70
10	0.110	0.260	0.70
16	0.160	0.210	0.57
20	0.200	0.170	0.46
25	0.250	0.120	0.32
30	0.270	0.100	0.27
40	0.320	0.050	0.14
50	0.350	0.020	0.05
60	0.370	0.000	0.00



L	2.200	m
D	0.200	m
F	4.470	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 1.98E-06 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.

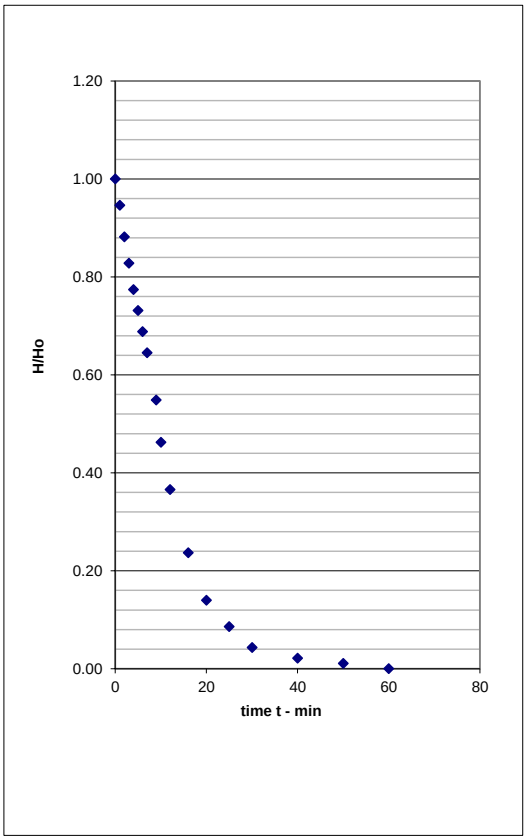
Response Zone Ground Conditions:
6.00-8.20m: Overburden (recovered as gravelly clay with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 69703**
	Date:	12.07.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)			15.00m	Weather	Fair
Bottom of solid casing (below g.L.)			N/A	Type of test	Rising Head
Top of filter material (m O.D.)			9.00m	Diameter of borehole	0.100m
Initial water level (m bgl)			-0.70m	Length of filter	6.00m
Ground level (m O.D.)			82.56	Diameter of filter	0.100m
Co-ordinates:	617413.6E	709769.7N		Type of piezometer	50mm

RISING HEAD TEST

time min	water level m	H	H/Ho
0	11.300	9.300	1.00
1	10.800	8.800	0.95
2	10.200	8.200	0.88
3	9.700	7.700	0.83
4	9.200	7.200	0.77
5	8.800	6.800	0.73
6	8.400	6.400	0.69
7	8.000	6.000	0.65
9	7.100	5.100	0.55
10	6.300	4.300	0.46
12	5.400	3.400	0.37
16	4.200	2.200	0.24
20	3.300	1.300	0.14
25	2.800	0.8	0.09
30	2.400	0.400	0.04
40	2.200	0.200	0.02
50	2.100	0.100	0.01
60	2.000	0.000	0.00



L	6.000	m
D	0.100	m
F	9.210	
A	0.0079	m^2
$t_2 - t_1$	60	min

k (permeability) = 1.07E-07 m/sec

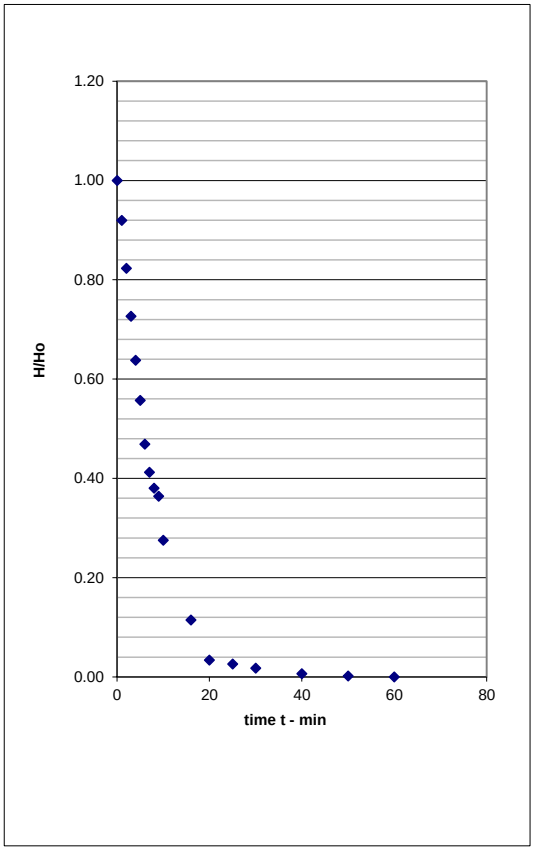
Remarks:
Test carried out in borehole standpipe.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
9.00-15.50m: Overburden (recovered as sandy gravel with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 69703**	
	Date:	16.02.2022	Revision:	
	Eng.:	Mott MacDonald	Operators: BT	

Bottom of borehole (below G.L.)		6.90m	Weather	Fair
Bottom of solid casing (below g.L.)		6.40m	Type of test	Rising Head
Top of filter material (m O.D.)		NA	Diameter of borehole	0.200m
Initial water level (m bgl)		-0.10m	Length of filter	0.50m
Ground level (m O.D.)		82.56	Diameter of filter	0.200m
Co-ordinates:	617413.6E	709769.7N	Type of piezometer	NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	6.300	6.210	1.00
1	5.800	5.710	0.92
2	5.200	5.110	0.82
3	4.600	4.510	0.73
4	4.050	3.960	0.64
5	3.550	3.460	0.56
6	3.000	2.910	0.47
7	2.650	2.560	0.41
8	2.450	2.360	0.38
9	2.350	2.260	0.36
10	1.800	1.710	0.28
16	0.800	0.710	0.11
20	0.300	0.210	0.03
25	0.250	0.16	0.03
30	0.200	0.110	0.02
40	0.130	0.040	0.01
50	0.100	0.010	0.00
60	0.090	0.000	0.00



L	0.500	m
D	0.200	m
F	1.950	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 2.46E-06 m/sec

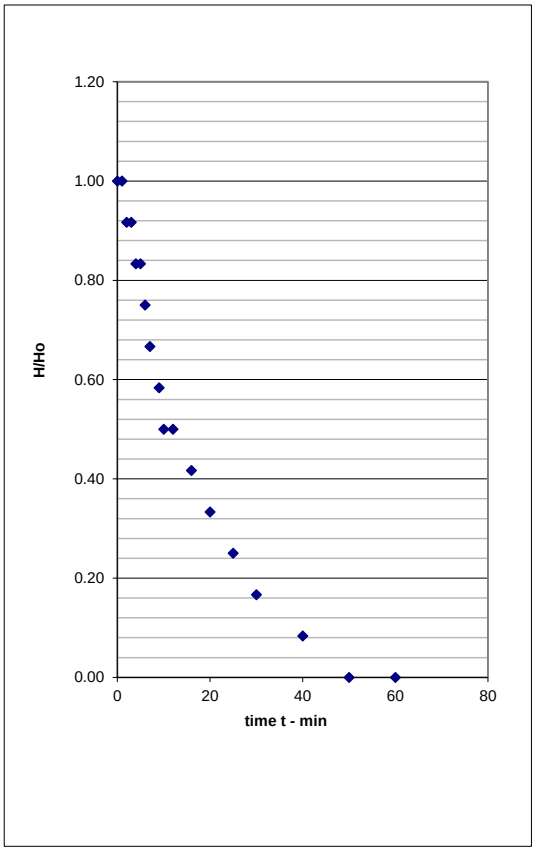
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
6.406.90m Overburden (recovered as silty sandy gravel witth cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	**WSP Lot 2 Pipeline**	**Borehole:** **BH 76545**
	Date:	12.07.2022	Revision:
	Eng.:	Mott MacDonald	Operators: DOR

Bottom of borehole (below G.L.)	15.10m	Weather	Fair
Bottom of solid casing (below g.L.)	4.00m	Type of test	Falling Head
Top of filter material (m O.D.)	4.00m	Diameter of borehole	0.10m
Initial water level (m bgl)	'-2.86m	Length of filter	11.00m
Ground level (m O.D.)	92.72m	Diameter of filter	0.10m
Co-Ordinates 622897.1E	712877N	Type of piezometer	50mm

Falling HEAD TEST

time min	water level m	H	H/Ho
0	0.000	0.120	1.00
1	0.000	0.120	1.00
2	0.010	0.110	0.92
3	0.010	0.110	0.92
4	0.020	0.100	0.83
5	0.020	0.100	0.83
6	0.030	0.090	0.75
7	0.040	0.080	0.67
9	0.050	0.070	0.58
10	0.060	0.060	0.50
12	0.060	0.060	0.50
16	0.070	0.050	0.42
20	0.080	0.040	0.33
25	0.090	0.030	0.25
30	0.100	0.020	0.17
40	0.110	0.010	0.08
50	0.120	0.000	0.00
60	0.120	0.000	0.00



L	11.000	m
D	0.100	m
F	12.820	
A	0.0079	m^2
$t_2 - t_1$	60	min

k (permeability) = 8.07E-08 m/sec

Remarks:
Test carried out in borehole standpipe.
Water readings recorded from ground level.

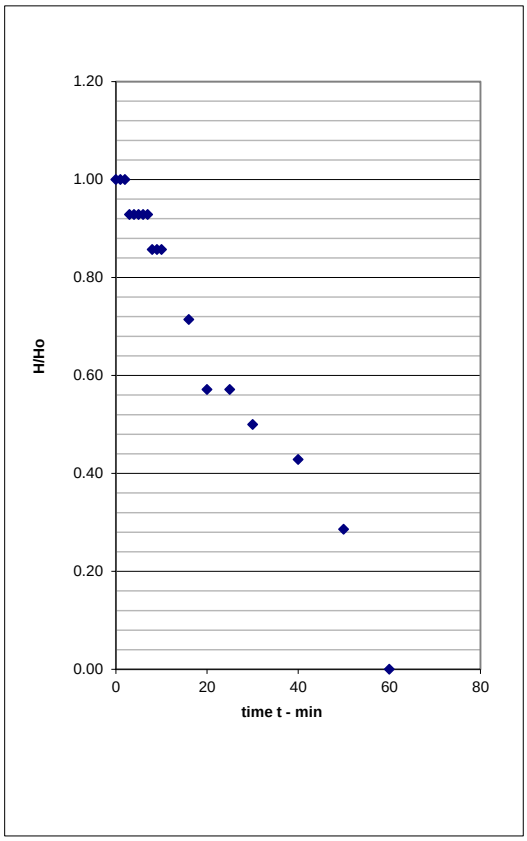
Response Zone Ground Conditions:
4.00-15.1(Overburden (recovered as silty sandy gravelly silt/clay with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 76545**
	Date:	22.02.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)	6.30m	Weather	Fair
Bottom of solid casing (below g.L.)	5.30m	Type of test	Falling Head
Top of filter material (m O.D.)	N/A	Diameter of borehole	0.200m
Initial water level (m bgl)	Dry	Length of filter	1.00m
Ground level (m O.D.)	92.72	Diameter of filter	0.200m
Co-ordinates 622897.1E	712877N	Type of piezometer	N/A

Falling HEAD TEST

time min	water level m	H	H/Ho
0	0.000	0.140	1.00
1	0.000	0.140	1.00
2	0.000	0.140	1.00
3	0.010	0.130	0.93
4	0.010	0.130	0.93
5	0.010	0.130	0.93
6	0.010	0.130	0.93
7	0.010	0.130	0.93
8	0.020	0.120	0.86
9	0.020	0.120	0.86
10	0.020	0.120	0.86
16	0.040	0.100	0.71
20	0.060	0.080	0.57
25	0.060	0.080	0.57
30	0.070	0.070	0.50
40	0.080	0.060	0.43
50	0.100	0.040	0.29
60	0.140	0.000	0.00



L	1.000	m
D	0.200	m
F	2.730	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 1.64E-06 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.

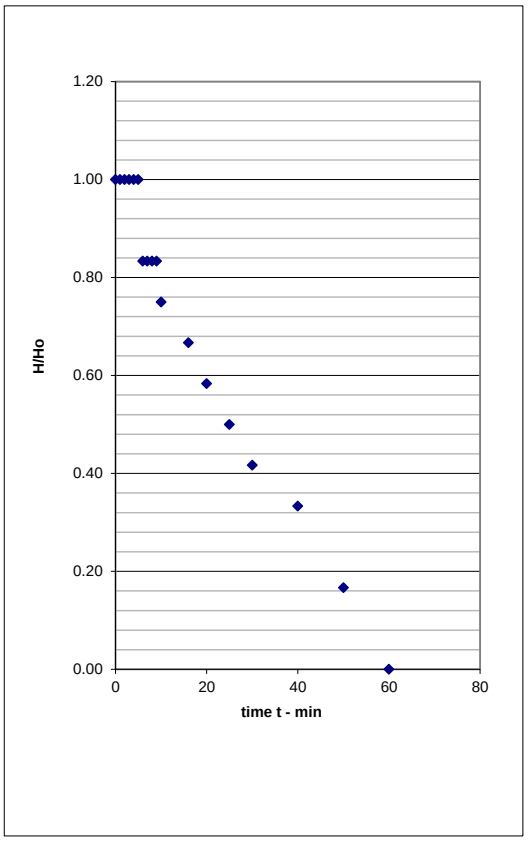
Response Zone Ground Conditions:
5.30-6.30m: Overburden (recovered as silty sandy gravelly clay with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 77404**
	Date:	25.02.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)		6.00m	Weather	Fair
Bottom of solid casing (below g.L.)		5.00m	Type of test	Falling Head
Top of filter material (m O.D.)		N/A	Diameter of borehole	0.200m
Initial water level (m bgl)		Dry	Length of filter	1.00m
Ground level (m O.D.)		81.49	Diameter of filter	0.200m
Co-ordinates	623460.3E	713480.2N	Type of piezometer	N/A

Falling HEAD TEST

time min	water level m	H	H/Ho
0	0.000	0.120	1.00
1	0.000	0.120	1.00
2	0.000	0.120	1.00
3	0.000	0.120	1.00
4	0.000	0.120	1.00
5	0.000	0.120	1.00
6	0.020	0.100	0.83
7	0.020	0.100	0.83
8	0.020	0.100	0.83
9	0.020	0.100	0.83
10	0.030	0.090	0.75
16	0.040	0.080	0.67
20	0.050	0.070	0.58
25	0.060	0.060	0.50
30	0.070	0.050	0.42
40	0.080	0.040	0.33
50	0.100	0.020	0.17
60	0.120	0.000	0.00



L	1.000	m
D	0.200	m
F	2.730	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 1.52E-06 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.

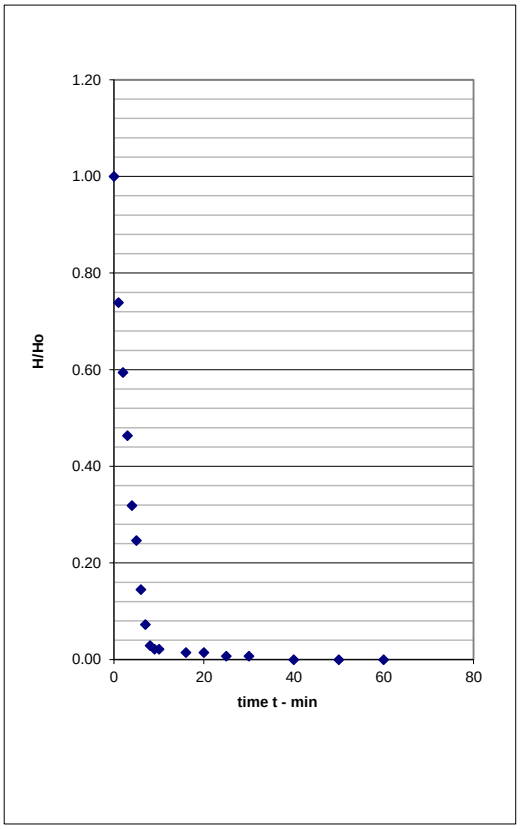
Response Zone Ground Conditions:
5.00-6.00m: Overburden (recovered as slightly sandy gravelly silt/clay with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 89604**
	Date:	30.03.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)	10.45m	Weather	Fair
Bottom of solid casing (below g.L.)	8.00m	Type of test	Rising Head
Top of filter material (m O.D.)	NA	Diameter of borehole	0.200m
Initial water level (m bgl)	-3.20m	Length of filter	2.45m
Ground level (m O.D.)	80.56	Diameter of filter	0.200m
Co-ordinates: 634149.1E	716590.5N	Type of piezometer	NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	10.000	6.900	1.00
1	8.200	5.100	0.74
2	7.200	4.100	0.59
3	6.300	3.200	0.46
4	5.300	2.200	0.32
5	4.800	1.700	0.25
6	4.100	1.000	0.14
7	3.600	0.500	0.07
8	3.300	0.200	0.03
9	3.250	0.150	0.02
10	3.250	0.150	0.02
16	3.200	0.100	0.01
20	3.200	0.100	0.01
25	3.150	0.05	0.01
30	3.150	0.050	0.01
40	3.100	0.000	0.00
50	3.100	0.000	0.00
60	3.100	0.000	0.00



L	2.450	m
D	0.200	m
F	4.800	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 9.47E-07 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
8.00-10.45m: Overburden (recovered as silty clay and sandy gravel with cobbles).

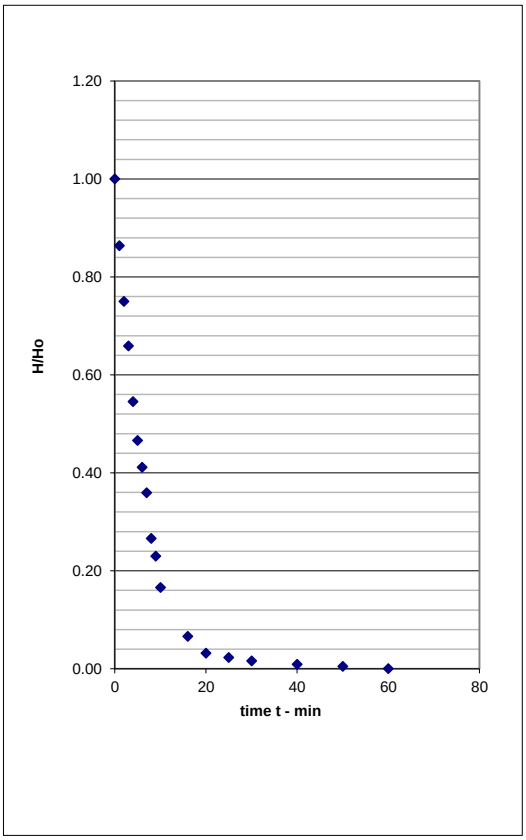
IRISH DRILLING LTD.
Loughrea Co. Galway
Tel: (091) 841274
Fax: (091) 680110

Contract:	WSP Lot 2 Pipeline	**Borehole:**	**BH 92680**
Date:	08.04.2022	Revision:	
Eng.:	Mott MacDonald	Operators:	BT

Bottom of borehole (below G.L.)	7.60m	Weather	Fair
Bottom of solid casing (below g.L.)	6.00m	Type of test	Rising Head
Top of filter material (m O.D.)	NA	Diameter of borehole	0.200m
Initial water level (m bgl)	-3.20m	Length of filter	1.60m
Ground level (m O.D.)	107.67	Diameter of filter	0.200m
Co-ordinates: 636841.4E	717858.9N	Type of piezometer	NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	7.600	4.400	1.00
1	7.000	3.800	0.86
2	6.500	3.300	0.75
3	6.100	2.900	0.66
4	5.600	2.400	0.55
5	5.250	2.050	0.47
6	5.010	1.810	0.41
7	4.780	1.580	0.36
8	4.370	1.170	0.27
9	4.210	1.010	0.23
10	3.930	0.730	0.17
16	3.490	0.290	0.07
20	3.340	0.140	0.03
25	3.300	0.1	0.02
30	3.270	0.070	0.02
40	3.240	0.040	0.01
50	3.220	0.020	0.00
60	3.200	0.000	0.00



L	1.600	m
D	0.200	m
F	3.620	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 1.64E-06 m/sec

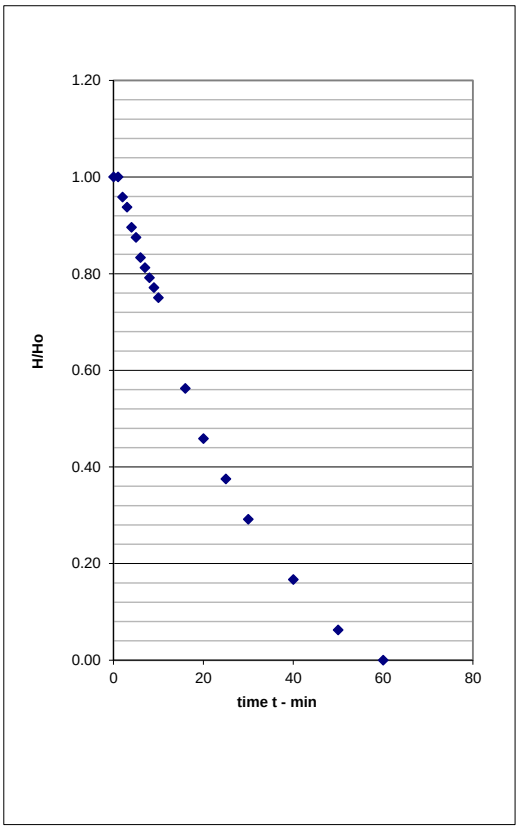
Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
6.00-7.60m: Overburden (recovered as grey brown slightly sandy gravelly silt/clay witth cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 97788**
	Date:	13.04.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)	6.80m	Weather	Fair
Bottom of solid casing (below g.L.)	5.00m	Type of test	Falling Head
Top of filter material (m O.D.)	N/A	Diameter of borehole	0.200m
Initial water level (m bgl)	Dry	Length of filter	1.80m
Ground level (m O.D.)	83.73	Diameter of filter	1.80m
Co-ordinates 641143.6E	720250.4N	Type of piezometer	N/A

Falling HEAD TEST

time min	water level m	H	H/Ho
0	0.000	0.480	1.00
1	0.000	0.480	1.00
2	0.020	0.460	0.96
3	0.030	0.450	0.94
4	0.050	0.430	0.90
5	0.060	0.420	0.88
6	0.080	0.400	0.83
7	0.090	0.390	0.81
8	0.100	0.380	0.79
9	0.110	0.370	0.77
10	0.120	0.360	0.75
16	0.210	0.270	0.56
20	0.260	0.220	0.46
25	0.300	0.180	0.38
30	0.340	0.140	0.29
40	0.400	0.080	0.17
50	0.450	0.030	0.06
60	0.480	0.000	0.00



L	1.800	m
D	0.200	m
F	3.900	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 3.07E-06 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.

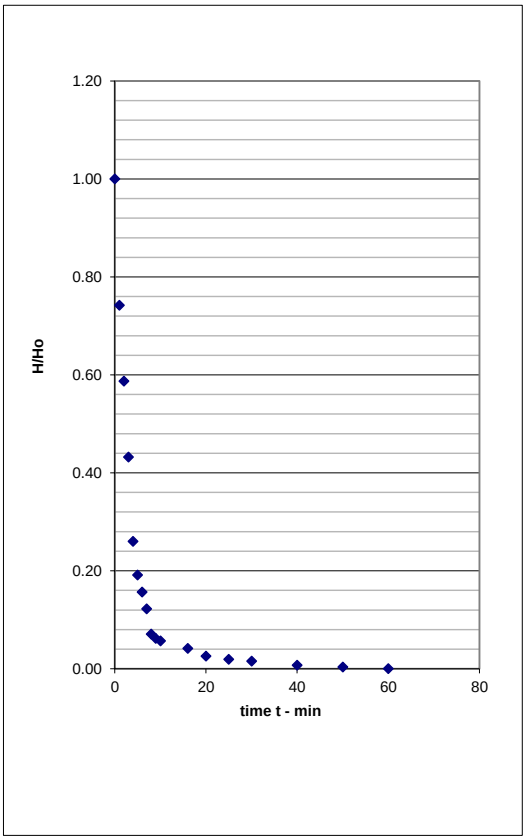
Response Zone Ground Conditions:
5.00-6.80m: Overburden (recovered as slightly sandy gravelly silt/clay with cobbles).

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 680110	**Contract:**	WSP Lot 2 Pipeline	**Borehole:** **BH 98002**
	Date:	22.04.2022	Revision:
	Eng.:	Mott MacDonald	Operators: BT

Bottom of borehole (below G.L.)			8.60m	Weather	Fair
Bottom of solid casing (below g.L.)			6.00m	Type of test	Rising Head
Top of filter material (m O.D.)			NA	Diameter of borehole	0.200m
Initial water level (m bgl)			-2.90m	Length of filter	2.60m
Ground level (m O.D.)			83.99	Diameter of filter	0.200m
Co-ordinates:	641333E	720356N		Type of piezometer	NA

RISING HEAD TEST

time min	water level m	H	H/Ho
0	8.600	5.810	1.00
1	7.100	4.310	0.74
2	6.200	3.410	0.59
3	5.300	2.510	0.43
4	4.300	1.510	0.26
5	3.900	1.110	0.19
6	3.700	0.910	0.16
7	3.500	0.710	0.12
8	3.200	0.410	0.07
9	3.150	0.360	0.06
10	3.120	0.330	0.06
16	3.030	0.240	0.04
20	2.940	0.150	0.03
25	2.900	0.11	0.02
30	2.880	0.090	0.02
40	2.830	0.040	0.01
50	2.810	0.020	0.00
60	2.790	0.000	0.00



L	2.600	m
D	0.200	m
F	5.000	
A	0.0316	m^2
$t_2 - t_1$	60	min

k (permeability) = 9.98E-07 m/sec

Remarks:
Test carried out in borehole.
Water readings recorded from ground level.
Water pumped out of borehole before test commencement.
Response Zone Ground Conditions:
6.00-8.60m: Overburden (recovered as grey brown slightly sandy gravelly silt/clay with cobbles).

Appendix 6E
In-Situ Test Records
Part 2: Shear Vane

WSP LOT 2 Shear Vanes H70 (55mm Diameter Vane)

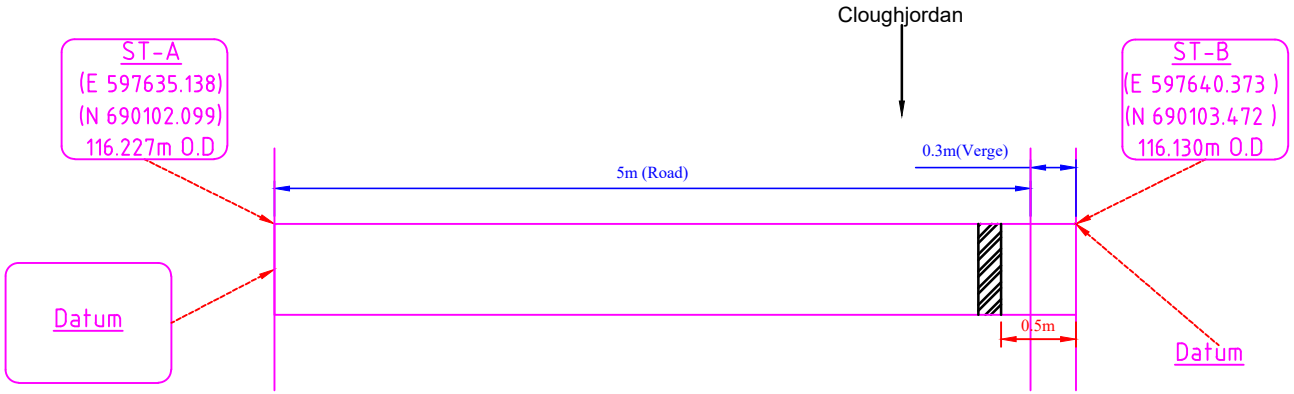
Date	Location	Depth	Shear (kPa)	Remould(kPa)	Eastings	Northings	RL	Driller
30.11.21	RK49484	0.50m	16	3	606473.014	694907.91	45.935	BT
30.11.21	RK49560	0.50m	21	6	606543.176	694933.348	45.812	BT
30.11.21	RK49560	1.00m	7	1	606543.176	694933.348	45.812	BT
30.11.21	RK49560	1.50m	3	0	606543.176	694933.348	45.812	BT
30.11.21	RK49560	2.00m	3	0	606543.176	694933.348	45.812	BT
09.12.21	RK49954	1.00m	7	1	606823.502	695207.849	45.945	BT
09.12.21	RK50045	0.80m	12	0	606873.615	695282.622	46.205	BT
17.02.22	PP71199A	0.50m	7	1	618732.961	710466.339	88.217	BT
16.02.22	PP71399	1.10m	6	1	618856.253	710603.157	87.588	BT
16.02.22	PP71399A	0.50m	7	2	618864.022	710590.441	87.642	BT
16.02.22	PP71399A	1.0m	5	0	618864.022	710590.441	87.642	BT
14.03.22	RK78369	0.90m	55	5	624352.361	713842.183	82.322	PC
14.03.22	RK78454	1.00m	69	4	624417.961	713887.282	82.447	PC

Appendix 6E
In-Situ Test Records
Part 3: Slit Trenches

Appendix 6E
In-Situ Test Records
Part 3: Slit Trenches

ST-37200 (WSP) 10/11/2022 Scale : 1:50
Irish Drilling Limited

Plan



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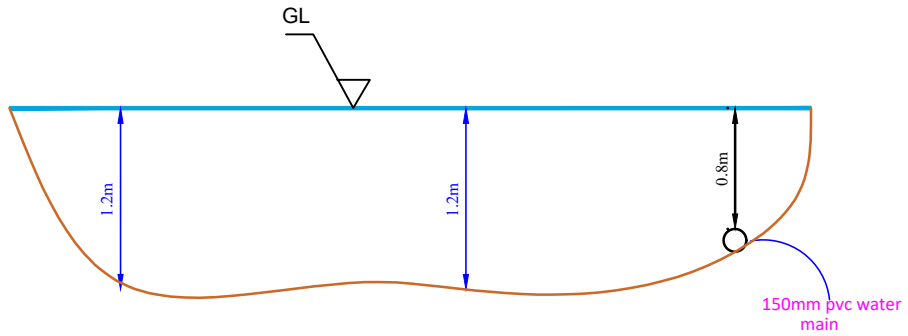
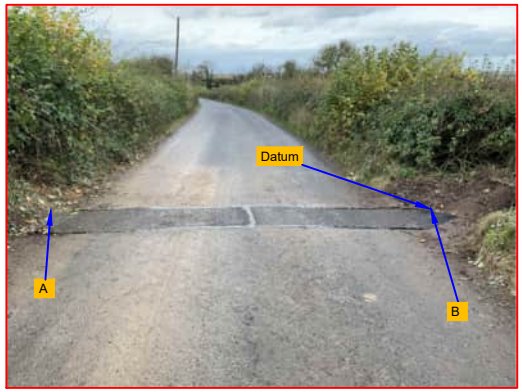




Trench Dimensions:

Length of Trench: 5.30m
Width of Trench: 0.80m
Depth of Trench: 1.20m

Logged by: DF

Bulk Sample @ 0.50m-1.00m

Notes:

Backfill : Leanmix and Bitumen

Remarks:

Trench Stable
Trench Dry

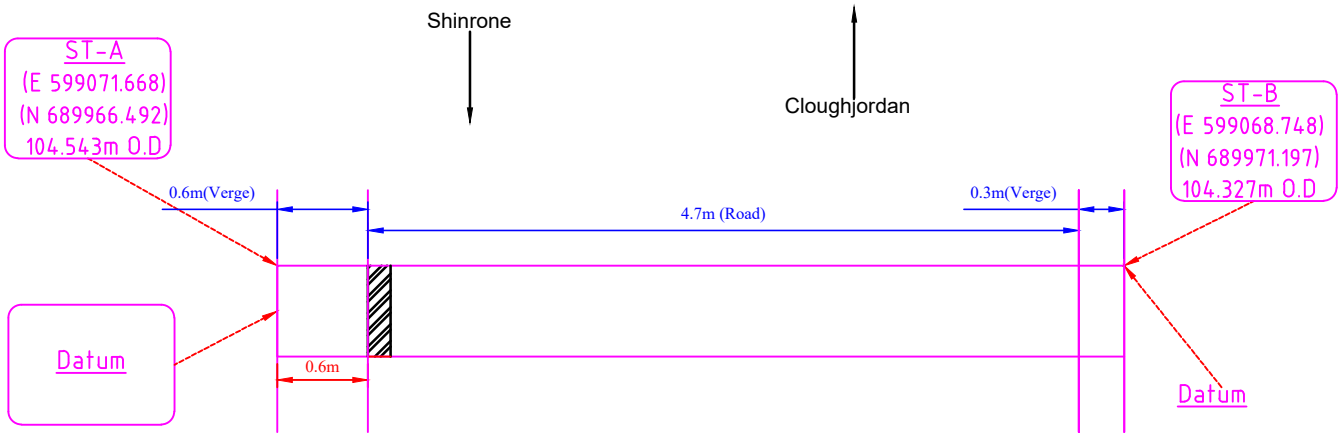
Ground Conditions:

GL-0.40 : (Topsoil) Bitumen over roadfill 804
0.40-1.20 : Firm brown gravelly sandy SILT with a medium content of cobbles and a low boulder content.
Boulders and Cobbles are sub-angular to sub-rounded of limestone

ST-38780 (WSP) 10/11/2022 Scale : 1:50

Irish Drilling Limited

Plan



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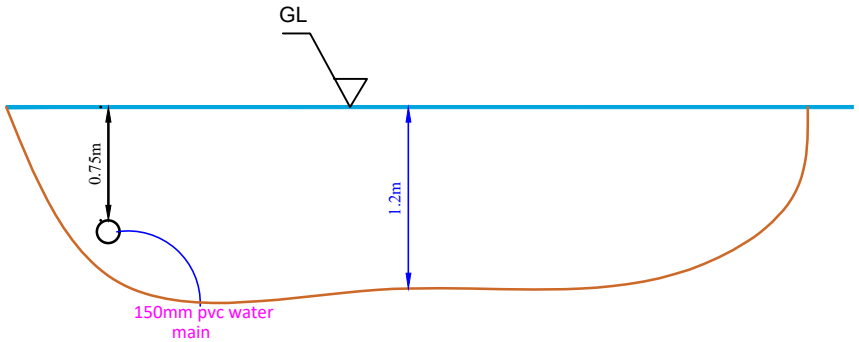


Trench Dimensions:

Length of Trench: 5.60m
Width of Trench: 0.90m
Depth of Trench: 1.20m

Logged by: DF

Bulk Sample @ 0.50m-1.20m

Notes:

Backfill : Leanmix and Bitumen

Remarks:

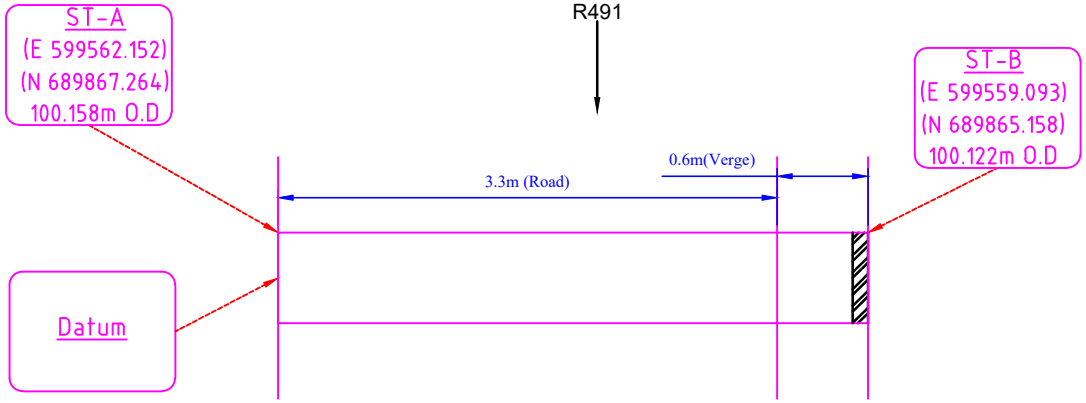
Trench Stable
Trench Dry

Ground Conditions:

GL-0.50 : (Topsoil) Bitumen over roadfill 804
0.50-1.20 : Firm brown gravelly sandy SILT with a medium content of cobbles
Cobbles are sub-angular to sub-rounded of limestone

ST-39250 (WSP) 09/11/2022 Scale : 1:50
Irish Drilling Limited

Plan



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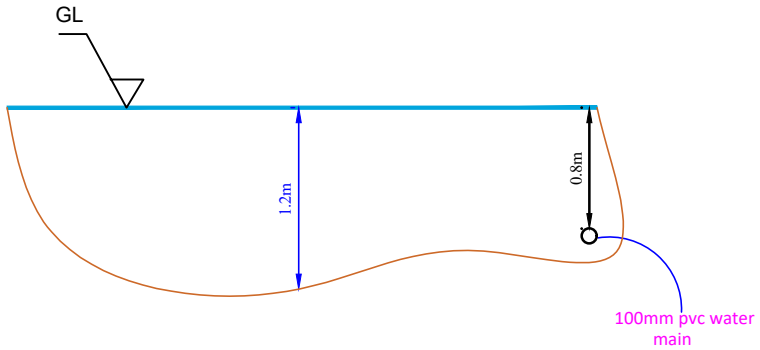
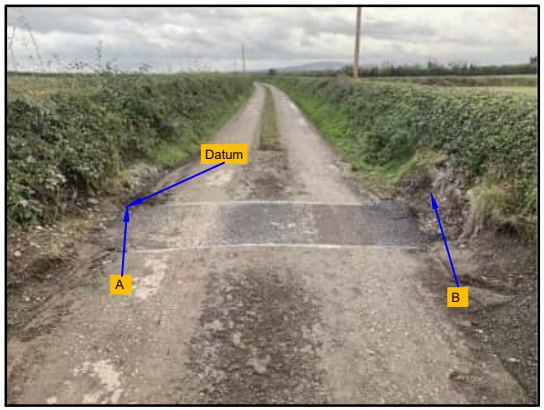




Trench Dimensions:

Length of Trench: 3.90m
Width of Trench: 0.90m
Depth of Trench: 1.20m

Logged by: DF

Bulk Sample @ 0.50m-1.00m

Notes:

Backfill : Leanmix and Bitumen

Remarks:

Trench Stable
Trench Dry

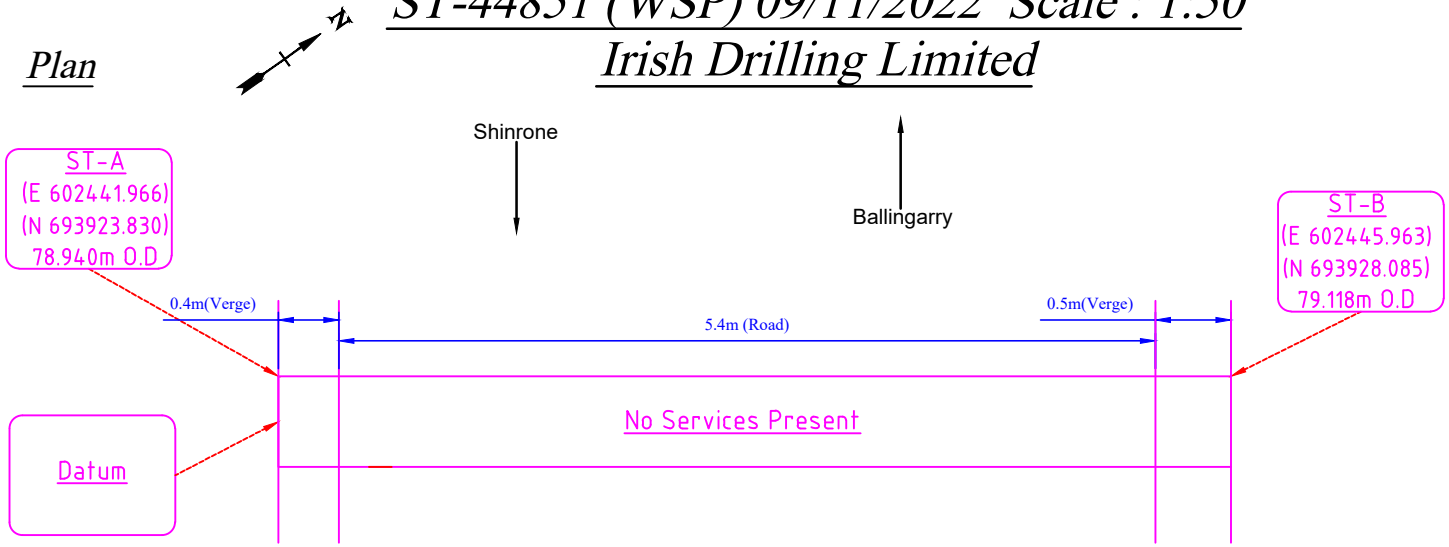
Ground Conditions:

GL-0.40 : (Topsoil) Bitumen over roadfill 804
0.50-1.20 : Firm brown gravelly sandy SILT with a medium content of cobbles and boulders
Cobbles and boulders are sub-angular to sub-rounded of limestone

ST-44851 (WSP) 09/11/2022 Scale : 1:50

Irish Drilling Limited

Plan



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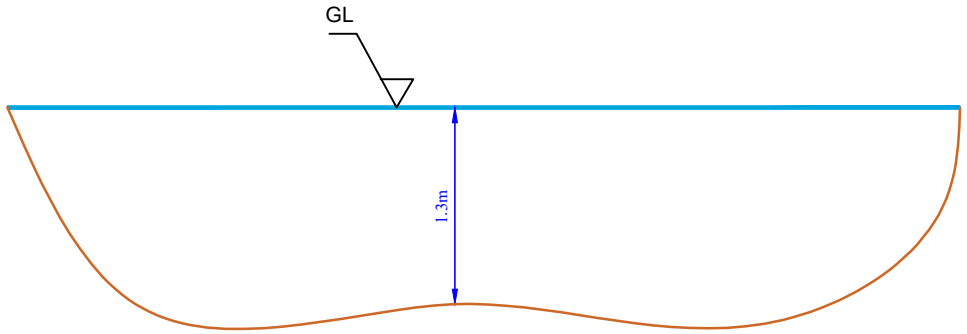

Trench Dimensions:

Length of Trench: 6.30m
Width of Trench: 0.90m
Depth of Trench: 1.30m

Logged by: DF

Bulk Sample @ 0.50m-1.20m

Notes:

Backfill : Leanmix and Bitumen

Remarks:

Trench Stable
Low ingress of water @1.00m

Ground Conditions:

GL-0.40 : (Topsoil) Bitumen over roadfill 804
0.50-1.20 : (Made Ground) Brown gravelly SILT with a high cobble and a medium boulder content.
Cobbles and boulders are sub-angular to sub-rounded of limestone.
1.20-1.30 :Dark brown soft PEAT

Appendix 6F
Specialist In-Situ Test Results
(N/A)

Appendix 6G
Geophysics Report
Part 1: Geophysical Survey

Water Supply Project – Contract 2

Eastern and Midlands Region

Geophysical Survey

Report Status: Draft

MGX Project Number: 6590

MGX File Ref: 6590d-005.doc

29th June 2022

Confidential Report To:

Irish Drilling Ltd.
Old Galway Road
Loughrea
Co. Galway

Mott MacDonald
South Block,
Rockfield
Dundrum
Dublin 16

Report submitted by:
Minerex Geophysics Limited

Unit F4, Maynooth Business Campus
Maynooth, Co. Kildare, W23X7Y5
Ireland
Tel.: 01-6510030
Email: info@mgx.ie

Issued by:

Author: John Connaughton (Geophysicist)

Reviewer: Hartmut Krahn (Senior Geophysicist)

Minerex Geophysics Limited

Subsurface Geophysical Investigations

EXECUTIVE SUMMARY

1. Minerex Geophysics Ltd. (MGX) carried out a geophysical survey consisting of 2D-Resistivity and seismic refraction (p-wave) surveying for the ground investigation for the Water Supply Project, Eastern and Midlands Region – Contract 2.
2. The main objectives of the survey were to determine ground conditions under the site; determine the depth to rock and the overburden thickness in order to estimate the strength or stiffness or compaction of overburden and the rock quality; establish the presence of faults and fracture zones, and to detect possible karstified rock.
3. The main objective of the survey in the first area (Ch36880 – 37080) was to determine the depth of rock and identify any karst features within the area while the other survey areas were mainly concentrated on areas of alluvium with the objective of determining the general subsurface conditions.
4. Most areas surveyed showed deep clay-rich overburden described primarily as sandy gravelly clay and silt with some clayey silty sand and gravel and clay and silt overburden in some places. There was some clean sand and gravel present at 89516-89618 (Map19).
5. There was soft material between Ch63018 – 63895 (Map 11 & 12) up to 3m deep and interpreted as alluvium silts but may also been peat.
6. The area between Ch63018 – 63895 (Map 11 & 12) shows soft material to depths of up to 3m underlain by deep stiff overburden. The soft layer is likely alluvium silts but may also by peat.
7. The shallowest rock encountered within the survey areas were at Ch36880 – 37080 (Map 1) where the top of the good limestone was interpreted between 2 and 4m bgl with weathered rock even shallower. Rock was interpreted at 3.5m bgl at Ch54130 – 54309 (Map 4 & 5) and between 2.5 – 4.5m at Ch61848 – 61868 (Map 7).
8. There was a likely fault zone noted at Ch61848 – 61868 (Map 7).
9. There was a karst feature interpreted between Ch36907 – 36941 (Map 1) within a shallow rock area. Two other areas where possible karst was noted was Between Ch54193 – 54260 (Map 4 & 5) and Ch97703 - Ch97775 (Map 21).
10. This report will be reviewed and finalised after the complete direct ground investigation data has been received.

CONTENTS

1. INTRODUCTION 1

1.1 Background 1
1.2 Objectives 1
1.3 Site Description 2
1.4 Geology 2
1.5 Report 2

2. GEOPHYSICAL SURVEY 3

2.1 Methodology 3
2.2 2D-Resistivity (ERT) 3
2.3 Seismic Refraction 3
2.4 Site Work 4

3. RESULTS AND INTERPRETATION 5

3.1 2D-Resistivity (ERT) 5
3.2 Seismic Refraction 6
3.3 Interpretation of Resistivity and Seismic Refraction 7

4. INTERPRETATION BY LOCATION 9

4.1 Ch36880 9
4.2 Ch49615 9
4.3 Ch54130 10
4.4 Ch61465 10
4.5 Ch62198 11
4.6 Ch62630 11
4.7 Ch63842 12
4.8 Ch65801 12
4.9 Ch69297 13

5. CONCLUSIONS 16

6. REFERENCES 17

List of Tables, Maps and Figures:

Title	Pages	Document Reference
Table 1: Geophysical Survey Locations and Background Information	1 x A4	6590d_Tab1.xls
Table 2: Summary of Interpretation	In text	In text
Map 1: Geophysical Survey Location Map Ch36880	1 x A3	6590d_Drawings.dwg
Figure 1a: Models of Geophysical Survey Ch36880	1 x A3	6590d_Drawings.dwg
Figure 1b: Interpretation of Geophysical Survey Ch36880	1 x A3	6590d_Drawings.dwg
Map 2: Geophysical Survey Location Map Ch49615	1 x A3	6590d_Drawings.dwg
Figure 2a: Models of Geophysical Survey Ch49615	1 x A3	6590d_Drawings.dwg
Figure 2b: Interpretation of Geophysical Survey Ch49615	1 x A3	6590d_Drawings.dwg
Map 3: Geophysical Survey Location Map Ch49710	1 x A3	6590d_Drawings.dwg
Figure 3a: Models of Geophysical Survey Ch49710	1 x A3	6590d_Drawings.dwg
Figure 3b: Interpretation of Geophysical Survey Ch49710	1 x A3	6590d_Drawings.dwg
Map 4: Geophysical Survey Location Map Ch54130	1 x A3	6590d_Drawings.dwg
Figure 4a: Models of Geophysical Survey Ch54130	1 x A3	6590d_Drawings.dwg
Figure 4b: Interpretation of Geophysical Survey Ch54130	1 x A3	6590d_Drawings.dwg
Map 5: Geophysical Survey Location Map Ch54250	1 x A3	6590d_Drawings.dwg
Figure 5a: Models of Geophysical Survey Ch54250	1 x A3	6590d_Drawings.dwg
Figure 5b: Interpretation of Geophysical Survey Ch54250	1 x A3	6590d_Drawings.dwg
Map 6: Geophysical Survey Location Map Ch61465	1 x A3	6590d_Drawings.dwg
Figure 6a: Models of Geophysical Survey Ch61465	1 x A3	6590d_Drawings.dwg
Figure 6b: Interpretation of Geophysical Survey Ch61465	1 x A3	6590d_Drawings.dwg
Map 7: Geophysical Survey Location Map Ch61848	1 x A3	6590d_Drawings.dwg
Figure 7a: Models of Geophysical Survey Ch61848	1 x A3	6590d_Drawings.dwg
Figure 7b: Interpretation of Geophysical Survey Ch61848	1 x A3	6590d_Drawings.dwg
Map 8: Geophysical Survey Location Map Ch62198	1 x A3	6590d_Drawings.dwg
Figure 8a: Models of Geophysical Survey Ch62198	1 x A3	6590d_Drawings.dwg
Figure 8b: Interpretation of Geophysical Survey Ch62198	1 x A3	6590d_Drawings.dwg
Map 9: Geophysical Survey Location Map Ch62630	1 x A3	6590d_Drawings.dwg
Figure 9a: Models of Geophysical Survey Ch62630	1 x A3	6590d_Drawings.dwg
Figure 9b: Interpretation of Geophysical Survey Ch62630	1 x A3	6590d_Drawings.dwg
Map 10: Geophysical Survey Location Map Ch63018	1 x A3	6590d_Drawings.dwg
Figure 10a: Models of Geophysical Survey Ch63018	1 x A3	6590d_Drawings.dwg
Figure 10b: Interpretation of Geophysical Survey Ch63018	1 x A3	6590d_Drawings.dwg
Map 11: Geophysical Survey Location Map Ch63842	1 x A3	6590d_Drawings.dwg
Figure 11a: Models of Geophysical Survey Ch63842	1 x A3	6590d_Drawings.dwg
Figure 11b: Interpretation of Geophysical Survey Ch63842	1 x A3	6590d_Drawings.dwg

Map 12: Geophysical Survey Location Map Ch63869	1 x A3	6590d_Drawings.dwg
Figure 12a: Models of Geophysical Survey Ch63869	1 x A3	6590d_Drawings.dwg
Figure 12b: Interpretation of Geophysical Survey Ch63869	1 x A3	6590d_Drawings.dwg
Map 13: Geophysical Survey Location Map Ch65801	1 x A3	6590d_Drawings.dwg
Figure 13a: Models of Geophysical Survey Ch65801	1 x A3	6590d_Drawings.dwg
Figure 13b: Interpretation of Geophysical Survey Ch65801	1 x A3	6590d_Drawings.dwg
Map 14: Geophysical Survey Location Map Ch69297	1 x A3	6590d_Drawings.dwg
Figure 14a: Models of Geophysical Survey Ch69297	1 x A3	6590d_Drawings.dwg
Figure 14b: Interpretation of Geophysical Survey Ch69297	1 x A3	6590d_Drawings.dwg
Map 15: Geophysical Survey Location Map Ch69505	1 x A3	6590d_Drawings.dwg
Figure 15a: Models of Geophysical Survey Ch69505	1 x A3	6590d_Drawings.dwg
Figure 15b: Interpretation of Geophysical Survey Ch69505	1 x A3	6590d_Drawings.dwg
Map 16: Geophysical Survey Location Map Ch69672	1 x A3	6590d_Drawings.dwg
Figure 16a: Models of Geophysical Survey Ch69672	1 x A3	6590d_Drawings.dwg
Figure 16b: Interpretation of Geophysical Survey Ch69672	1 x A3	6590d_Drawings.dwg
Map 17: Geophysical Survey Location Map Ch76480	1 x A3	6590d_Drawings.dwg
Figure 17a: Models of Geophysical Survey Ch76480	1 x A3	6590d_Drawings.dwg
Figure 17b: Interpretation of Geophysical Survey Ch76480	1 x A3	6590d_Drawings.dwg
Map 18: Geophysical Survey Location Map Ch77465	1 x A3	6590d_Drawings.dwg
Figure 18a: Models of Geophysical Survey Ch77465	1 x A3	6590d_Drawings.dwg
Figure 18b: Interpretation of Geophysical Survey Ch77465	1 x A3	6590d_Drawings.dwg
Map 19: Geophysical Survey Location Map Ch89516	1 x A3	6590d_Drawings.dwg
Figure 19a: Models of Geophysical Survey Ch89516	1 x A3	6590d_Drawings.dwg
Figure 19b: Interpretation of Geophysical Survey Ch89516	1 x A3	6590d_Drawings.dwg
Map 20: Geophysical Survey Location Map Ch92560	1 x A3	6590d_Drawings.dwg
Figure 20a: Models of Geophysical Survey Ch92560	1 x A3	6590d_Drawings.dwg
Figure 20b: Interpretation of Geophysical Survey Ch92560	1 x A3	6590d_Drawings.dwg
Map 21: Geophysical Survey Location Map Ch97683	1 x A3	6590d_Drawings.dwg
Figure 21a: Models of Geophysical Survey Ch97683	1 x A3	6590d_Drawings.dwg
Figure 21b: Interpretation of Geophysical Survey Ch97683	1 x A3	6590d_Drawings.dwg
Map 22: Geophysical Survey Location Map Ch102624	1 x A3	6590d_Drawings.dwg
Figure 22a: Models of Geophysical Survey Ch102624	1 x A3	6590d_Drawings.dwg
Figure 22b: Interpretation of Geophysical Survey Ch102624	1 x A3	6590d_Drawings.dwg

1. INTRODUCTION

1.1 Background

Minerex Geophysics Ltd. (MGX) carried out a geophysical survey for the Watern Supply Project – Contract 2. The survey consisted of 2D-Resistivity and seismic refraction (p-wave) measurements at 19 specific locations along the pipeline route targeting areas of alluvium overburden. The survey was commissioned by Irish Drilling Ltd.

A previous geophysical report (MGX, 2017) was carried out for this scheme concentrating of water crossings along the full route. This survey was aimed mainly at areas containing alluvium overburden as well as some other targeted locations.

A broad geophysical interpretation covering various geological setting expected across the country was used in the previous survey which is again used in this report and is shown in Table 2. A more refined interpretation based on individual locations are provided on the interpretation figures and in Chapter 4 of this report.

This survey utilized various complimentary geophysical methods to improve final interpretations. The role of geophysics as a non-destructive fast method is to provide a geological interpretation over a wide area to complement direct ground investigations at specific locations. The direct ground investigation results can be used to improve the initial geophysical results and interpretation.

The proposed development is a large 2m diameter water supply pipeline from the River Shannon to Dublin.

1.2 Objectives

The main objectives of the geophysical survey were:

- To determine the ground conditions under the site
- To determine the depth to rock and the overburden thickness
- To estimate the strength or stiffness or compaction of overburden materials and the rock quality
- To determine the type of overburden and rock
- To detect lateral changes within the geological layers
- To determine the presence of possible faults and fracture zones
- To detect possible karstified zones within the rock, karst features

1.3 Site Description

The 19 geophysical survey sites proposed for Contract 2 are located along the proposed pipeline route. 15 of these locations were positions where the quaternary sediments are described as alluvium on the online GSI maps. For naming the locations, the chainage provided at the time of the survey is used in the labelling in this report.

1.4 Geology

The overburden and bedrock geological conditions as taken from the Geological Survey of Ireland (GSI, 2021) are shown in Table 1. The quaternary sediments in most areas are described as alluvium while some areas have limestone till overburden. The bedrock formations are Waulsortian Limestone, Lucan Formation, Old Cherty Limestone or the Ballysteen Formation. There are no karst features noted at any of the survey areas.

1.5 Report

This report includes the results and interpretation of the geophysical survey. Maps, figures and tables are included to illustrate the results of the survey. More detailed descriptions of geophysical methods and measurements can be found in GSEG (2002), Milsom (1989) and Reynolds (1997).

The description of soil, rock and the use of geotechnical terms (soft, stiff, dense etc) follows Eurocode (2007) and BSI (2015) standards. The terms are defined in the standards and the physical parameters are related from experience. This geophysical survey has been acquired, processed, interpreted and reported in accordance with these guidelines.

The client provided maps of the site and the digital version was used as the background map in this report. Elevations were surveyed on site and are used in the vertical sections.

The interpretative nature and the non-invasive survey methods must be taken into account when considering the results of this survey and Minerex Geophysics Limited, while using appropriate practice to execute, interpret and present the data, give no guarantees in relation to the existing subsurface.

2. GEOPHYSICAL SURVEY

2.1 Methodology

The methodology was agreed before surveying and consisted of 2D-Resistivity surveying and Seismic Refraction surveying along a number of lines in each area. In the final Area, shown on Map 22, one 2D-Resistivity lkine was carried out before access was rescinded to the site.

The survey locations are indicated on Maps 1-22. The lines, locations, chainage and parameters are tabulated in Table 1.

2.2 2D-Resistivity (ERT)

2D-Resistivity lines were surveyed with electrode spacing of 3m, up to 64 electrodes per set-up and a maximum length of 189m per set-up. The readings were taken with a Tigre Resistivity Meter, Imager Cables, stainless steel electrodes and a laptop with ImagerPro acquisition software.

Some data was acquired in the roll-along mode where lines extended greater than 189m to achieve continuous coverage to a depth of 15m.

During 2D-Resistivity surveying, data is acquired in the form of linear arrays using a suite of metal electrodes. A current is induced into the ground via a pair of electrodes whilst a potential difference is measured across a second pair of electrodes. This allows for the recording of the apparent resistivity in a two-dimensional arrangement below the line. The data is inverted after the survey to obtain a model of subsurface resistivities. The generated model resistivity values and their spatial distribution can then be related to typical values for different geological materials.

2D-Resistivity has previously proven zones of anomalous or karstified rock with lateral extents of 5m and more.

2.3 Seismic Refraction

Seismic refraction lines were surveyed with geophone spacing of 3m and 24 geophones per set-up resulting in a 69m length per set-up. The recording equipment consisted of a 24 Channel GEOMETRICS ES-3000 engineering seismograph with 4.5Hz vertical geophones. The seismic energy source consisted of a hammer and plate. A zero-delay trigger was used to start the recording. Normally 7 shot points per p-wave set-up were used.

Many set-ups were acquired in longer continuous lines using common shot points between set-ups and concatenating into longer lines at the processing stage.

The seismic refraction survey method focuses on propagating p-waves travelling through the subsurface, which are generated by hitting a hammer on a plate or other source. As the wave propagates through the subsurface, its velocity varies as it travels through overburden, rock with different elastic properties, and along geological boundaries. Velocity data is recorded via the surveying equipment, which is then processed, allowing geological layer thicknesses and boundaries to be established.

Seismic Refraction generally determines the depth to horizontal or near horizontal layers where the compaction or strength or rock quality changes with an accuracy of 10 – 20% of depth to that layer. Where low velocity layers or shadow zones are present (e.g., below solid ground surface) or where layers dip with more than a 20 degree angle the accuracy becomes much less.

The seismic refraction set-ups with 69m individual length have a reasonable penetration depth of around 15m. An internationally accepted maximum depth estimate for a seismic refraction set-up is 1/6 of the set-up length including offshots. The depth penetration varies according to the velocity structure of the subsurface. In this report we used a depth of 15m bgl. where the seismic modelling was ended as deeper modelling becomes less meaningful.

2.4 Site Work

The first phase of data acquisition was carried out between the 8th of November and 9th of December 2021. The second phase of data acquisition was carried out between the 7th and 14th of March 2022. A third visit near the break pressure tank site on the 30th of May 2022. The weather conditions were fair throughout the acquisition period. Health and safety standards were adhered to at all times. The locations and elevations were surveyed with a Carlson NR3 RTK-GPS to accuracy < 0.05m.

3. RESULTS AND INTERPRETATION

The interpretation of geophysical data was executed utilizing the known response of geophysical measurements, typical physical parameters for subsurface features that may underlay the site, and the experience of the authors.

Some ground investigation results were available before and after the survey from surveying carried out in 2017, and the abbreviated borehole logs are indicated on the sections.

3.1 2D-Resistivity (ERT)

The 2D-Resistivity data was positioned and inverted with the RES2DINV inversion package. Lines using the roll-along method were concatenated for a joint inversion. The programme uses a smoothness constrained least-squares inversion method to produce a 2D model of the subsurface resistivities from the recorded apparent resistivity values. Three variations of the least squares method are available and for this project the Jacobian Matrix was recalculated for the first three iterations, then a Quasi-Newton approximation was used for subsequent iterations. Each dataset was inverted using seven iterations resulting in a typical RMS error of <3.0%. The resulting models were colour contoured with the same resistivity scale for all lines and they are displayed as cross sections (Figure 1a – 22a).

Resistivities are characteristic for certain overburden and rock types. If there is a high content of clay minerals (which are electrically conductive) then the overburden resistivity will be lower than as if there is a high content of clastic grains like sand or gravel. The purer the clay and the lower the sand and gravel content, the lower the resistivity. Water content in overburden layers can influence the resistivities, but generally clay content has a more dominating effect.

Within bedrock types like clean limestone, high resistivities indicate a fresh, strong, unweathered rock. As the weathering in the rock increases, the resistivity gets lower because of weathering products, remineralisation of rock and infill of cracks, faults and voids with clay and water. Weathering within rock is typically indicated by lower resistivity values in the cross sections.

In limestone areas, karstified rock is defined in this report as a formerly intact clean limestone rock, liable to karstification, that has been partially dissolved by water over long geological time scales and where the cavities and voids have either remained empty (filled by air) or became filled by overburden sediment (clay, silt, sand), weathering product of the broken rock itself or water. This process would lead to a reduction of the resistivity of the overall rock and therefore karstified rock has a lower resistivity than intact clean limestone rock. This is generally indicated by lower resistivities embedded within high resistivity at depth.

The resistivities cover a range typical for materials from clay rich overburden (low resistivities) to fresh strong unweathered bedrock (high resistivities). The ranges have been taken into the consideration for the interpretation. Within the overburden layers, very low resistivities (<62.5 Ohmm) indicate a clay rich

overburden. Low resistivity values (62.5 - 250 Ohmm) indicates a sandy gravelly clay and silt. Medium values (250 to 500 Ohmm) show a clayey silty sand and gravel while high resistivities (>500 Ohmm) indicate sand and gravel.

Within Rock layers, the resistivities indicate different rock types as well as differing levels of weathering within a rock. Low resistivities (<250 Ohmm) indicate a mudstone or shale bedrock or a very infilled limestone. Medium resistivities (250 – 500 Ohmm) may be a shale or infilled limestone. High resistivities (500 – 2000 Ohmm) are interpreted either as shale or limestone while very high resistivities (>2000 Ohmm) indicate a clean limestone.

3.2 Seismic Refraction

The seismic refraction data was positioned and processed with the SEISIMAGER software package to give a layered model of the subsurface. The number of layers has been determined by analysing the seismic traces and up to 7 layers in total were used in the models ranging from 3 to 4-layer models. All seismic profiles were subject to a standardised processing sequence which consisted of a topographic correction which was based on integrated elevation data, first break picking, tomographic inversion, travel-time computation via ray-tracing and velocity modelling. Residual deviations of typically 0.4 to 1.8 msec RMS have been obtained for each profile. Following each processing stage QC procedures were adhered to. The resulting layer boundaries are shown as thick lines overlaid on the 2D-Resistivity cross sections (Figures 1a to 21a). The average seismic velocities obtained within the layers are annotated on the sections as bold black numbers.

The p-wave seismic velocity is closely linked to the density of subsurface materials and to parameters like compaction, stiffness, strength and rock quality. The higher the density of the subsurface materials the higher the seismic velocity. Similarly for the other parameters it is generally valid that a more compacted, stiffer and stronger material will have a higher seismic velocity. For rock, the seismic velocity is higher when the rock is stronger, less weathered and has a higher quality. If the rock is more weathered, broken, fractured, fissured or karstified then the seismic velocity will be reduced compared to that of intact fresh rock.

Because of the above relationship, the seismic refraction method and seismic velocities are suitable to investigate ground where the layers get denser, more compacted and stronger with depth. A disadvantage is that some materials may have the same seismic velocity: Very stiff to hard or very dense highly consolidated overburden and a weathered rock can have the same seismic velocity range.

3.3 Interpretation of Resistivity and Seismic Refraction

Table 2 summarises the interpretation. The stiffness or compaction and the rock strength or quality have been estimated from the seismic velocity. The estimation of the excavatability for the bedrock has been made according to the caterpillar chart published in Reynolds (1997). The geotechnical assessment for rippability will have to take factors like rock type and jointing into account and the estimation in this report is solely based on the seismic velocities.

Interpreted cross sections are shown in Figure 1b to 22b. The interpretation has been made from all available information. For overburden layers and the top of the rock, the seismic refraction data has been used as seismic refraction is the best method to delineate layer boundaries. The resistivity models have been used to delineate generalised types of overburden and rock. Resistivity data is better suited to show rock types and features within the rock while seismic refraction velocities are indicating the change of compaction, stiffness or rock quality with depth. Along short profile parts where only one data type is available an interpolation for the interpreted layers was made.

Table 2: Summary of Interpretation

Layer	**General Seismic Velocity Range (m/sec)**	**General Resistivity Range (Ohmm)**	**Stiffness/ Compaction or Rock Strength/ Quality**	**Interpretation**	**Estimated Excavation Method**
1	<150	N/A		Peat	Diggable
2	170 – 400	N/A	Soft or loose	Topsoil	Diggable
3A	500 - 900	<62.5	Firm	Clay	Diggable
3B	500 - 900	62.5 - 250	Firm	Sandy gravelly Clay or Silt	Diggable
3C	500 – 900	250 – 500	Medium Dense	Clayey silty Sand or Gravel	Diggable
4A	1000 – 1500	<62.5	Stiff	Clay	Diggable
4B	1000 – 1500	62.5 - 250	Stiff	Sandy gravelly Clay or Silt	Diggable
4C	1000 – 1500	250 - 500	Dense	Clayey silty Sand or Gravel	Diggable
4D	1000 – 1500	500 - 2000	Dense	Sand or Gravel	Diggable

5A	1600 – 2000	<62.5	Very Stiff or Poor	Clay or Very Weathered Mudstone or Shale or very infilled Limestone	Diggable/Rippable
5B	1600 – 2000	62.5 - 250	Very Stiff or Poor	Sandy gravelly Clay or Silt or very Weathered Mudstone or Shale or infilled Limestone	Diggable/Rippable
5C	1600 – 2000	250 - 500	Very Dense or Poor	Clayey silty Sand or Gravel or very Weathered Shale or Limestone	Diggable/Rippable
5D	1600 – 2000	500 – 2000	Very Dense or Poor	Sand or Gravel or very Weathered Shale or Limestone	Diggable/Rippable
6A	2100 – 2900	<62.5	Fair or very stiff	Weathered Mudstone or Shale or very infilled Limestone or Clay	Diggable/Rippable
6B	2100 – 2900	62.5 - 250	Fair or Very Stiff	Weathered Mudstone or Shale or very infilled Limestone or sandy gravelly Clay or Silt	Rippable/Marginal Rippable or Breaking and Blasting
6C	2100 – 2900	250 - 500	Fair or Very Dense	Weathered Shale or infilled Limestone or clayey silty Sand or Gravel	Rippable/Marginal Rippable or Breaking and Blasting
6D	2100 – 2900	500 - 2000	Fair or Very Dense	Weathered Shale or Limestone or Sand or Gravel	Rippable/Marginal Rippable or Breaking and Blasting
7B	>3000	62.5 - 250	Good	Mudstone, Shale or very infilled Limestone	Breaking or Blasting
7C	>3000	250 - 500	Good	Shale or Infilled Limestone	Breaking or Blasting
7D	>3000	500 - 2000	Good	Shale or Limestone	Breaking or Blasting
7E	>3000	>2000	Good	Clean Limestone	Breaking or Blasting

4. INTERPRETATION BY LOCATION

Due to the large distances covered during this project and the space between each survey area, the geology varies greatly throughout the project. In this chapter the interpretations are divided into a section for each box. The layers shown in table 2 are narrowed for each location to provide the most likely geological interpretation for each area using all available information available. The chainages, indicating the survey location indicate the lowest chainage where surveying being.

4.1 Ch36880

Maps and Figures: 1

Lines: 1 – 2, 62 - 63

Location Comments: Two parallel lines were surveyed which were broken at a field boundary.

GI Points: RC197, 70m SE of Line 1

The seismic refraction velocities provide a three-layer model with a shallow good rock layer. The resistivities are generally high across the survey area with one notable section showing lower resistivities at depth.

The top layer is interpreted as soft or loose topsoil. This layer is up to 1m thick and is underlain by 1.5 – 3m of poor, very weathered limestone. This layer becomes thicker on the higher ground towards the west where it is up to 6m thick. This layer may also contain some very stiff or very dense overburden. Good clean limestone is indicated at a depth of 2 – 4.5m below ground level (bgl) and up to 8m deep along line 62 in the west. RC197, shows weathered rock at 1.40m and strong limestone at 2.10m bgl.

On the west side of lines 1 and 2, there is an area of deep weathering within the rock. This is interpreted as a karst feature with infilled limestone. The feature is more pronounced along line 2 in the south and it is therefore recommended to locate the pipeline to the north of the area.

4.2 Ch49615

Maps and Figures: 2 & 3

Lines: 3 - 7

Location Comments: Two areas surveyed on opposite side of the river. A previous survey had been carried out along the banks of the river.

GI Points: BH12

The seismic refraction data is modelled with a four-layer model ranging from soft or loose overburden to good rock while the resistivities also gradually increase with depth from low to high.

The soft and loose topsoil layer is very thin and is underlain by stiff to very still clay and very stiff sandy gravelly clay to depths of 5 – 11m bgl. Where very stiff sandy gravelly clay is present there may also be some poor very weathered rock no shallower than 4m bgl. Good shale is interpreted at 5 – 11m bgl which is shallower towards the SW.

BH12 refuses after 1m but indicates clay rich soil above this.

4.3 Ch54130

Maps and Figures: 4 & 5

Lines: 8 - 12

Location Comments: Lines split at the river with 3 lines to the south and 2 lines to the north to cover the survey area.

GI Points: BH88, 170m SW of line 8

The depth of the seismic layers and the resistivities at depth vary across some of the lines indicating changes in geology across the area.

The soft and loose topsoil layer is underlain by stiff sandy gravelly clay and dense clayey silty sand and gravel to a depth of 1.5 – 3m bgl. This layer is underlain by a 1.5 – 11.5m thick layer characterised by rising resistivities and a seismic velocity range between 2400 – 2500m/s. This layer is likely primarily made up of very stiff and very dense overburden but may also contain some fair infilled limestone.

The good rock layer varies in depths of between 3.5 - 14m bgl and is described as good limestone and good infilled limestone. The shallowest rock is found to the north of the river. The deepest weathering occurs to the south of the river along lines 8 and 9 and may indicate a karst feature.

4.4 Ch61465

Maps and Figures: 6 & 7

Lines: 13 - 17

Location Comments: Lines split at the road with 3 lines to the SW and 2 lines to the NE to cover the survey area. A small section in the SW was not surveyed as access was not available.

GI Points: BH96

The geophysical survey in this area indicates a significant change from the west to east side of the road. The west side of the road is characterised by deep, primarily sandy gravelly clay and silt overburden underlain likely by a shale bedrock while the east side of the road is underlain by shallow limestone bedrock. The sudden change in geology is likely due to a fault of fault zone in this area running roughly N-S near the road.

The west side of the road consists of deep stiff to very stiff sandy gravelly clay and silt. There are some sand and gravel lenses located close to the road. The good rock is generally very deep but is as shallow 6.5m in some areas. Towards the road where resistivities rise there may also be some fair weathered shale at 4m bgl.

The overburden to the east of the road consists of sand and gravel and clayey silty sand and gravel to depths of 2.5 – 4.5m bgl and is underlain by good limestone at this depth.

BH96 shows clay with cobbles to a depth 1.6m before refusing.

4.5 Ch62198

Maps and Figures: 8

Lines: 18 - 20

Location Comments: Three parallel lines cover the survey area.

GI Points: N/A

This area is located 330m NE of the previous area and shows a change back to clay rich overburden and deep rock. There may be other faults causing the rock to drop between this area and the previous area or the rock gradually dips between the two sections.

This area is underlain by stiff to very stiff sandy gravelly clay and silt with some clayey silty sand and gravel lenses near the surface.

4.6 Ch62630

Maps and Figures: 9 & 10

Lines: 21 - 27

Location Comments: Three parallel lines carried out to the SW and NE of the river with a seventh line carried out in a separate field to the NW due to an impenetrable field boundary. A previous survey had been carried out along the banks of the river.

GI Points: RC17

The models in this area show consistent resistivities and seismic velocities across all lines. Soft or loose topsoil and firm sandy gravelly clay and silt extends to depths of 2 – 3.5m bgl and are underlain by deep very stiff sandy gravelly clay and silt.

RC17 shows silt, clay and sand to depths of 10m bgl.

4.7 Ch63842

Maps and Figures: 11 & 12

Lines: 28 - 32

Location Comments: Lines split at river with 2 lines in the south and three in the north. No seismic refraction surveying was carried out along line 32 due to flooding.

GI Points: N/A

The resistivities in this area are very low to low, particularly in the west where the ground was flooded and seismic refraction surveying hence could not be carried out. The low resistivities indicate a silt and clay overburden. This area may also contain deep peat but this was not observed on site and is not indicated on the GSI online mapping.

The soft and loose topsoil extends to depths of 1 - 3m bgl and is thickest to the west. The stiff clay and still sandy gravelly clay and silt layer is up to 7.5m thick in the west but is less than 1m thick in the east. The top of the very stiff sandy gravelly clay layer is between 1.5 – 11m bgl.

It is recommended to keep the pipeline to the east of this area to avoid potential peat or deeper soft materials.

4.8 Ch65801

Maps and Figures: 13

Lines: 33 - 35

Location Comments: Two parallel Lines and one perpendicular line carried out to cover the survey area.

GI Points: BH98, 94m north of line 33

The models in this area show deep clay rich overburden with some areas of more sandy gravelly material.

Soft and loose topsoil is 1 – 2m thick and is underlain by a 1 – 7m thick layer of stiff sandy gravelly clay and silt with some clayey silty sand ang gravel areas. This layer is thickest to the SW. The top of the very stiff sandy gravelly clay and silt layer ranges from 2 – 9m bgl and extends to at least 15m bgl.

4.9 Ch69297

Maps and Figures: 14 - 16

Lines: 36 - 44

Location Comments: lines were terminated at the road as well as impenetrable field boundaries. Nine lines allowed the area to be well covered.

GI Points: BH100

The resistivities and seismic velocities in this area are very consistent with depth and across this area.

The area is underlain by up to 1m of soft and loose topsoil and stiff sandy gravelly clay and silt and dense clayey silty sand and gravel to a depth of 1 – 4m bgl. Below this depth, the overburden is interpreted as very stiff sandy gravelly clay and silt and very dense clayey silty sand and gravel.

4.10 Ch76480

Maps and Figures: 17

Lines: 45 - 47

Location Comments: Three parallel lines carried out as proposed.

GI Points: N/A

The resistivities in this area are very consistent with depth and across this area with the seismic refraction velocities gradually increasing with depth.

The area is underlain by 1 – 1.5m of soft and loose topsoil and 2 – 8m of stiff sandy gravelly clay and silt. At a depth of 4 – 11m, the overburden is interpreted as very stiff sandy gravelly clay and silt. Increases in resistivities may indicate rock at depths over 15m bgl.

4.11 Ch77465

Maps and Figures: 18

Lines: 48

Location Comments: One line perpendicular to the pipeline route to compliment a previous geophysical survey near the site

GI Points: BH21, 52m west of the line

The resistivities in this area are very consistent with depth and across this area with the seismic refraction velocities gradually increasing with depth.

The area is underlain by up to 1m of soft and loose topsoil and 2 – 2.5m of stiff sandy gravelly clay and silt and dense clayey silty sand and gravel. At a depth of 3 - 3.5m the overburden is interpreted as very stiff sandy gravelly clay and silt. There is no rock indicated to a depth of at least 15m

4.12 Ch89516

Maps and Figures: 19

Lines: 49-51

Location Comments: Three parallel line on west bank of the river. No access was available to east bank.

GI Points: BH22, BH23

The resistivities are high near the surface before becoming lower with depth and subsequently increasing within the rock layer.

There is a 2m thick layer of soft or loose topsoil interpreted across survey area. This is underlain by very stiff sandy gravelly clay and silt, very dense clayey silty sand and gravel and very stiff sand and gravel on the higher elevations to a depth of 4 – 6m.

The resistivities decrease across the survey area at this depth and there is a 5 – 9m thick layer of very stiff sandy gravelly clay and silt. Good mudstone or shale is interpreted at a depth of 10 – 14m bgl.

The boreholes in this area are terminated at a depth of 10.10m bgl and show clay, sand, silt and gravel overburden to this depth.

4.13 Ch92560

Maps and Figures: 20

Lines: 52 - 54

Location Comments: Three parallel lines as proposed

GI Points: N/A

The resistivities and seismic velocities show in increase with depth which is interpreted at a change from overburden to rock.

There is a 1m thick layer of soft or loose topsoil underlain by 4 – 6m of stiff sandy gravelly clay and silt. Good clean limestone is indicated at depths of 5 – 7m across the area.

4.14 Ch97683

Maps and Figures: 21

Lines: 55 - 60

Location Comments: Three parallel lines on both banks of the river.

GI Points: BH121, BH122

The resistivities and seismic velocities show in increase with depth which is interpreted at a change from overburden to rock.

There is a 0.5 – 2m thick layer of soft or loose topsoil underlain by 4.5 – 9.5m of very stiff sandy gravelly clay and silt. Good limestone is interpreted at a depth of 5.5 – 11m bgl. The resistivities may indicate shale or limestone but BH121 describes limestone at a depth of 8.6m bgl. Lower resistivities in the west along line 55 may indicate some minor karstification in this area or a more shaley limestone.

4.15 Ch102624

Maps and Figures: 22

Lines: 61

Location Comments: One line perpendicular to the pipeline route consisting solely of 2D-Resistivity before access was rescinded.

GI Points: N/A

The resistivities along the line area generally low. As there is no seismic refraction information, the interpretation here is based solely on the 2D-Resistivity data and no information on the stiffness or density of the materials.

The resistivities are interpreted as primarily sandy gravelly clay and silt with some clay and silt and clayey silty sand and gravel. An alternative interpretation could be mudstone or shale but this is less likely.

5. CONCLUSIONS

The following conclusions are made:

- The large area the survey was carried out across means that the interpretation varies significantly across the project.
- The main geological concerns when constructing a pipeline are soft ground, shallow rock and karstified rock.

Soft Ground:

- The area between Ch63018 – 63895 (Map 11 & 12) shows soft material to depths of up to 3m underlain by deep stiff overburden. The soft layer is likely alluvium silts but may also by peat.

Shallow Rock:

- The shallowest rock encountered was at Ch36880 – 37080 (Map 1) where the top of the good limestone was interpreted between 2 and 4m bgl with weathered rock even shallower.
- In the area between Ch54130 – 54309 (Map 4 & 5) the top of the good rock is as shallow as 3.5m but is significantly deeper in other places.
- Between Ch61848 – 61868 (Map 7), good limestone is identified at 2.5 – 4.5m within a likely fault zone.

Karst Features:

- The clearest karst feature within any of the survey areas is identified between Ch36907 – 36941 (Map 1) within a shallow rock area.
- Between Ch54193 – 54260 (Map 4 & 5), a drop in the rock layer may indicate a karst feature. The top of rock changes from 3.5m to 14m bgl across this area.
- From Ch97703 - Ch97775 (Map 21) to the north of the proposed pipeline route there may be some karstification. This does not extend over the centreline of the proposed route.
- The interpretation presented here should be reviewed once any additional geotechnical data becomes available.

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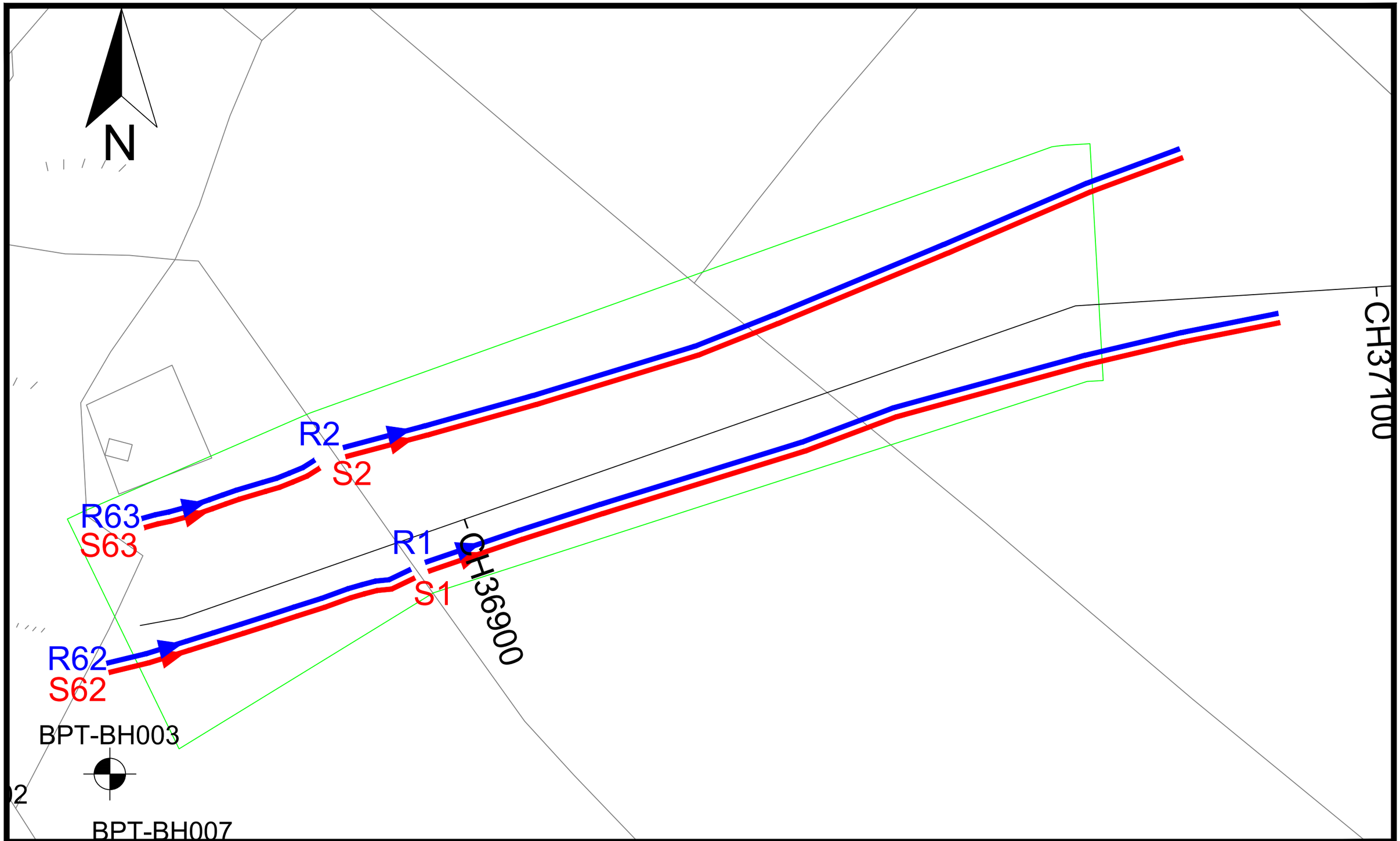
Table 1: Geophysical Survey Locations and Acquisition Parameters

Ervia Sheet No.	MGX Report Map/Figure No.	Treated Water Chainage	Profile Numbers	Display Direction	Combined Line Length Resistivity (m)	Combined Line Length Seismics (m)	Quatenary Sediments From Geological Survey of Ireland Database	Bedrock From Geological Survey of Ireland Database	Karst/Fault	Relevent Boreholes
36	1	36880 - 37080	R1, R2, S1, S2, R62, S62 R63, S63	W to E	486	486	Limestone Till	Waulsortian, shallow rock nearby in west	2.6km NW	RC197
45	2	49615 - 46660	R3-R4, S3-S4	NW to SE	186	186	Alluvium, Peat to West	Waulsortian		
45	3	49710 - 49852	R5-R7, S5-S7	SW to NE	456	456	Alluvium, Peat to East	Waulsortian		RC13
48	4	54130 - 54257	R8-10, S8-10	S-N	321	321	Alluvium	Lucan Formation		RC88
48	5	54250 - 54309	R11, R12, S11, S12	NW-SE	186	186	Alluvium	Lucan Formation		
52	6	61465 - 61825	R15-R17, S15-S17	SW-NE	1047	1047	Alluvium	Lucan Formation		
53	7	61848 - 61868	R13, R14, S13, S14	NW-SE	186	186	Alluvium	Lucan Formation	N-S Fault near Road	BH96
53	8	62198 - 62327	R18-R20, S18-S20	SW-NE	309	315	Alluvium	Lucan Formation		
53	9	62630 - 63005	R21-R26, S21-S26	SW-NE	1014	1014	Alluvium	Oldcourt Certy Limestone		
53	10	63018 - 63036	R27, S27	NW-SE	93	93	Alluvium	Oldcourt Certy Limestone		
54	11	63842 - 63895	R28, R29, S28, S29	W-E	186	186	Alluvium	Lucan Formation		
54	12	63869 - 64059	R30 - R32, S30, S31	S-N	426	252	Alluvium, Peat to North	Lucan Formation		
55	13	65801 - 65968	R33-R35, S33-S35	SW-NE, NW-SE	354	354	Alluvium, Limestone Till	Oldcourt Certy Limestone	Karst 2.8km West	BH98
58	14	69297-69511	R36-R39, S36-S39	SW-NE,N-S	564	564	Alluvium	Ballysteen Formation	Karst 2.3km South	BH100
58	15	69505-69655	R40-R42, S40-S42	SW-NE	426	426	Alluvium	Ballysteen Formation		
58	16	69672-69700	R43,R44, S43, S44	NW-SE	186	186	Alluvium	Ballysteen Formation		
63	17	76480-76608	R45-R47, S45-S47	SW-NE	387	387	Limestone Till	Waulsortian Limestone		
63	18	77465-77477	R48, S48	NW-SE	93	93	Alluvium	Ballysteen Formation		BH21
71	19	89516-89618	R49 - R51, S49 - S51	W-E	279	279	Limestone Till in West, Gravels in East, Alluvium by River	Waulsortian Limestone in NW, Ballysteen Formation in SE		BH22
73	20	92560-92655	R52 - R54, S52 - S54	SW-NE	279	279	Limestone Till	Lucan Formation in North, Waulsortian Fomration in South		
76	21	97683-97947	R55 - R60, S55 - S60	SW-NE	672	672	Limestone Till, Lacustrine Sediments to North	Lucan Formation		BH121, BH122
78	22	102624-102688	R61	NW-SE	93		Alluvium Along River, Peat to NE, Gravel to SW, Limestone Till to N & S	Lucan Formation	Spring 800m SW	
				Sums:	**8229**	**7968**				



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 1: Geophysical Survey Location Map Ch36880

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

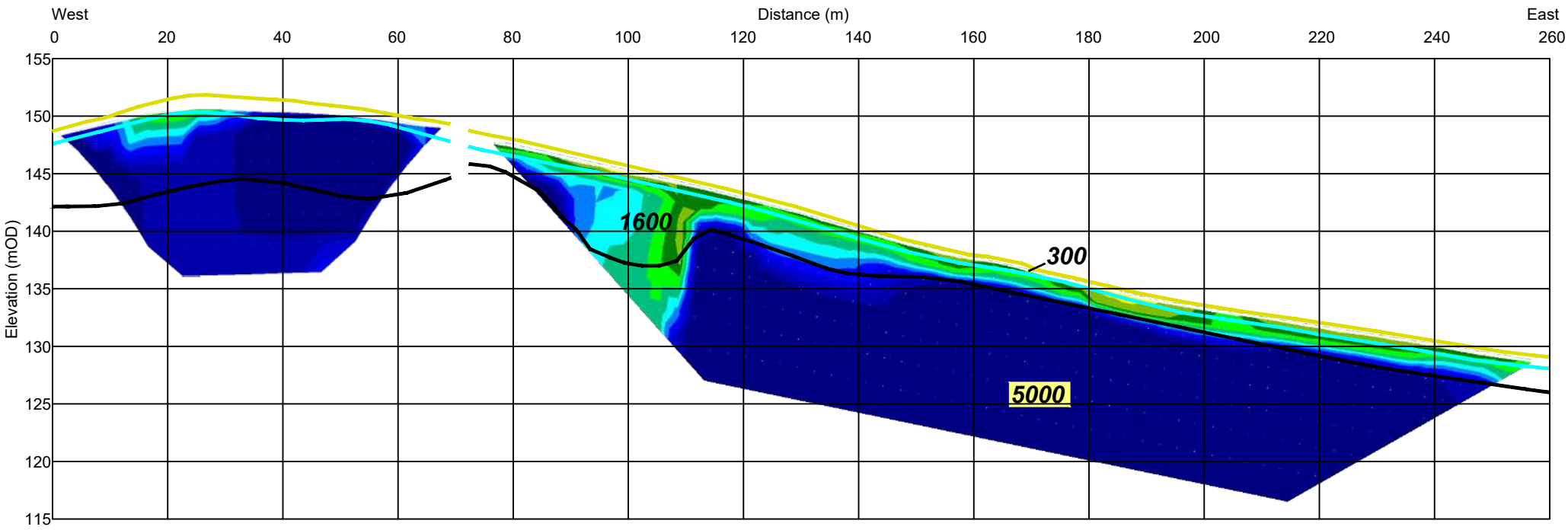
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

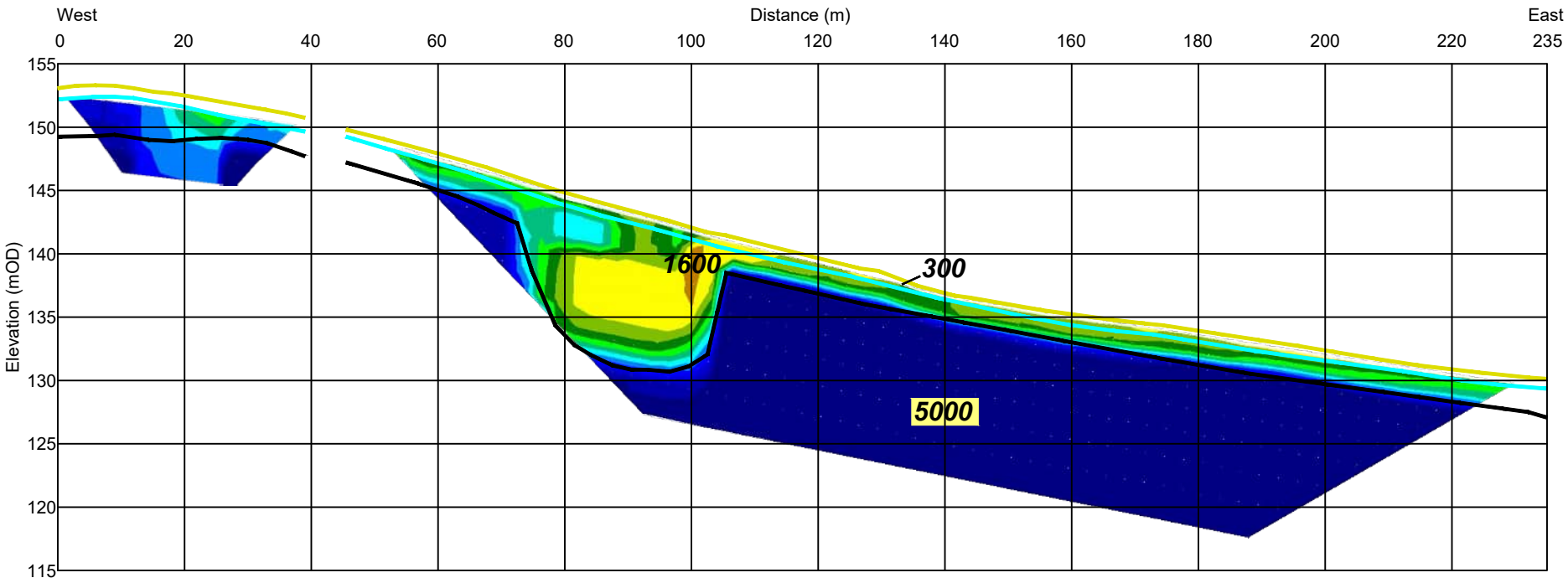
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R1 & R62 and Seismic Refraction Line S1 & S62 Model



2D-Resistivity Line R2 & R63 and Seismic Refraction Line S2 & S63 Model



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Web: www.mgx.ie

CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 1a: Models of Geophysical Survey Ch36880

SCALE:	1:1000 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

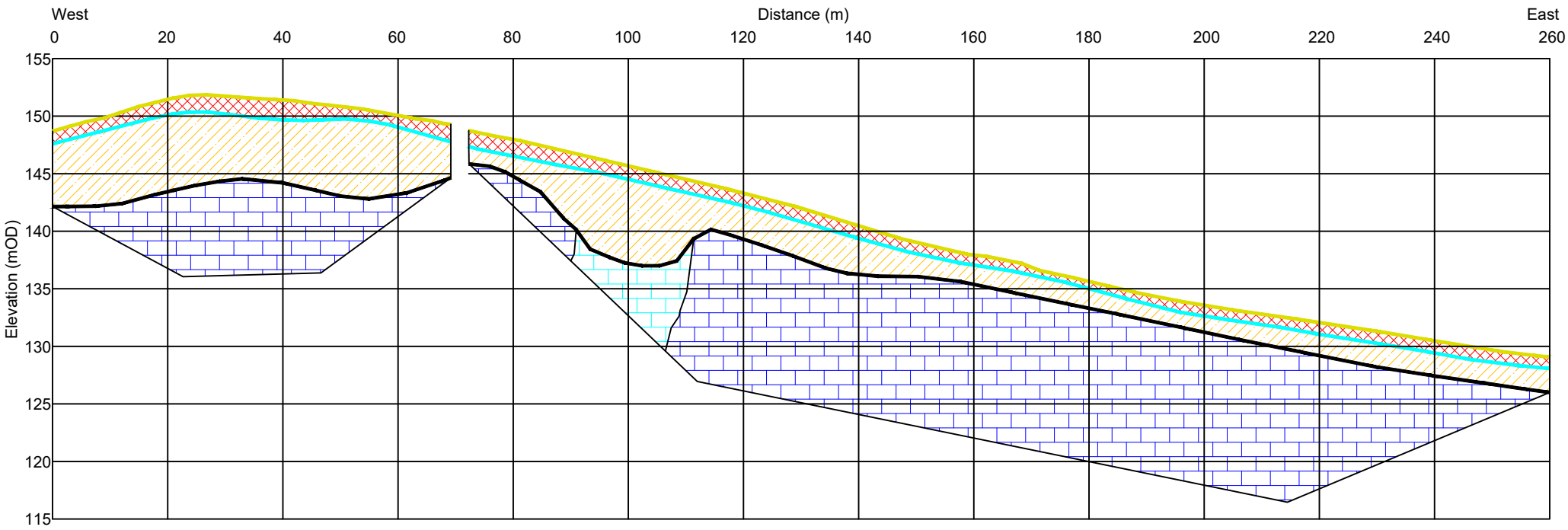
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

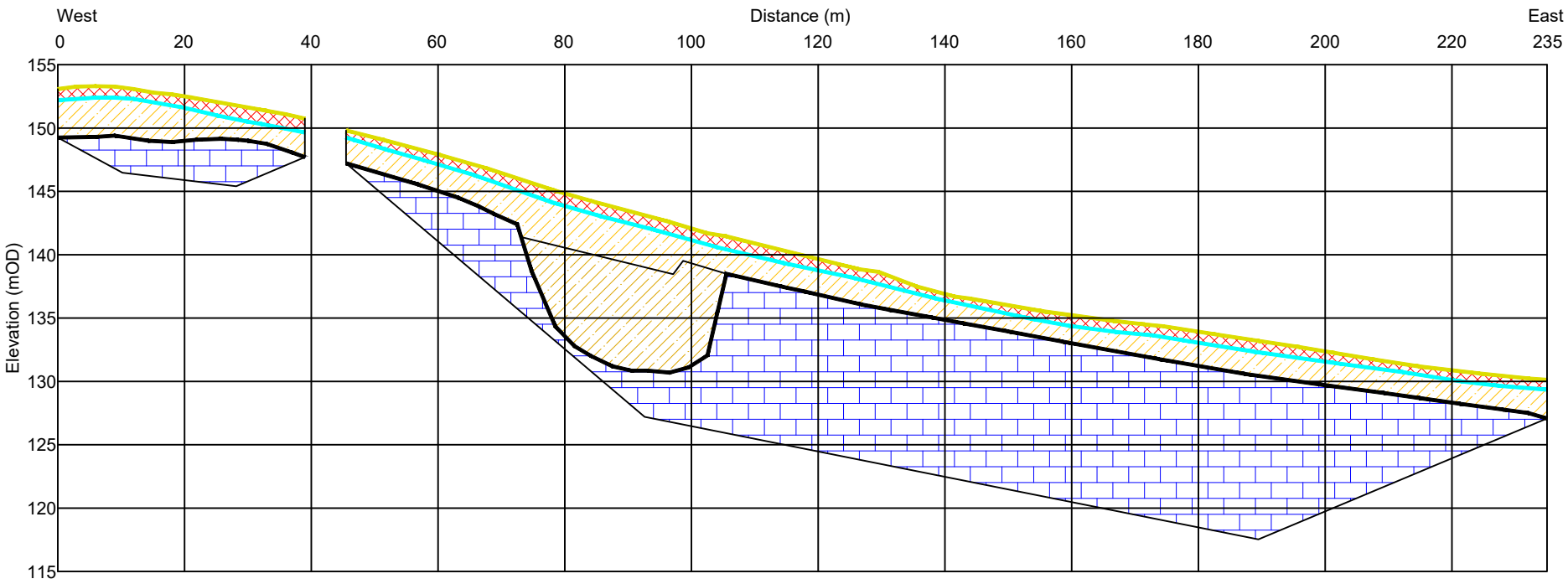
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R1 & R62 and Seismic Refraction Line S1 & S62 Model



2D-Resistivity Line R2 & R63 and Seismic Refraction Line S2 & S63 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 1a: Models of Geophysical Survey Ch36880

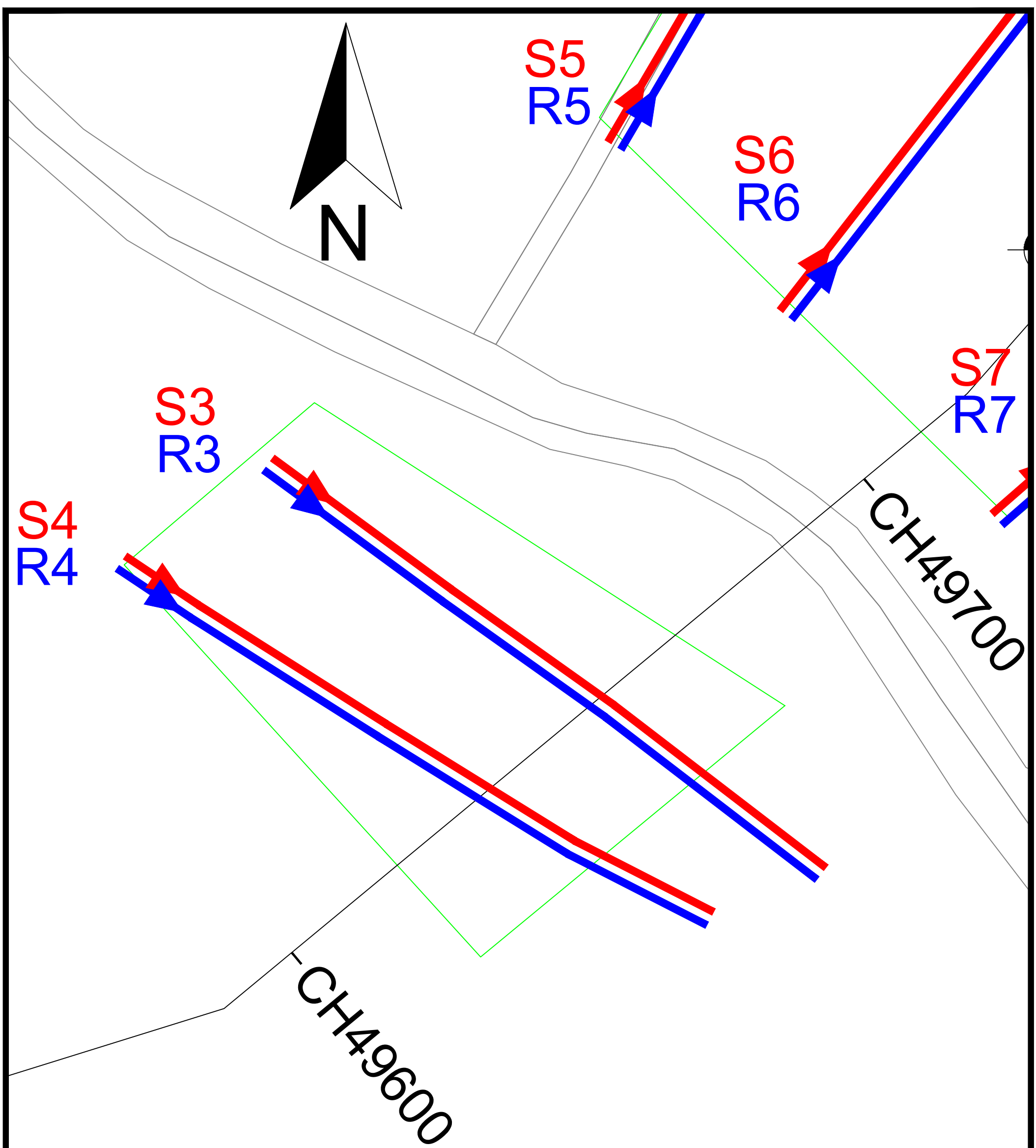
SCALE:	1:1000 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 2: Geophysical Survey Location Map Ch49615

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

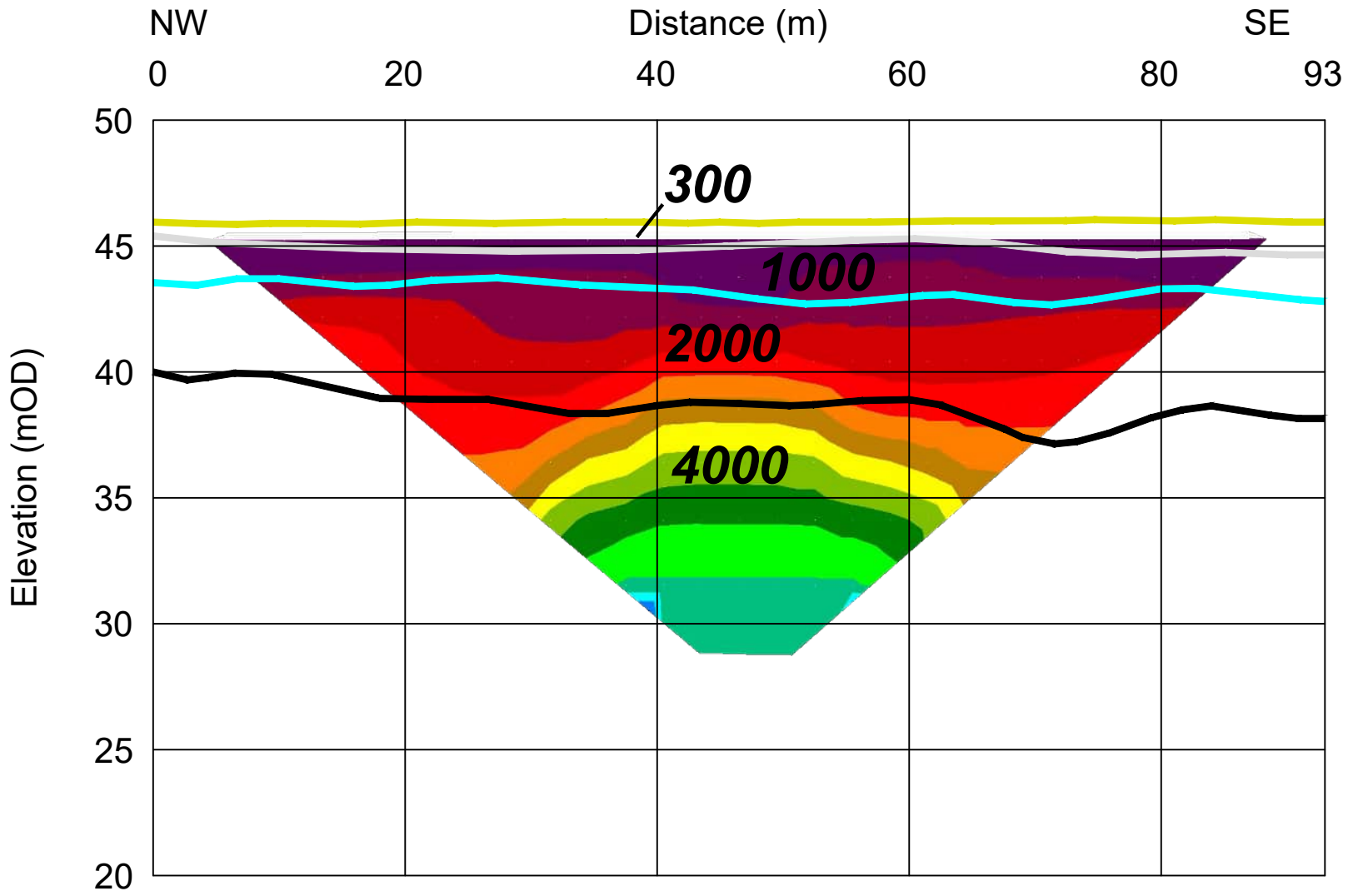
- R2 — 2D-Resistivity Line
- S1 — Seismic Refraction Line
- Survey Area

Direct Ground Investigation Locations:

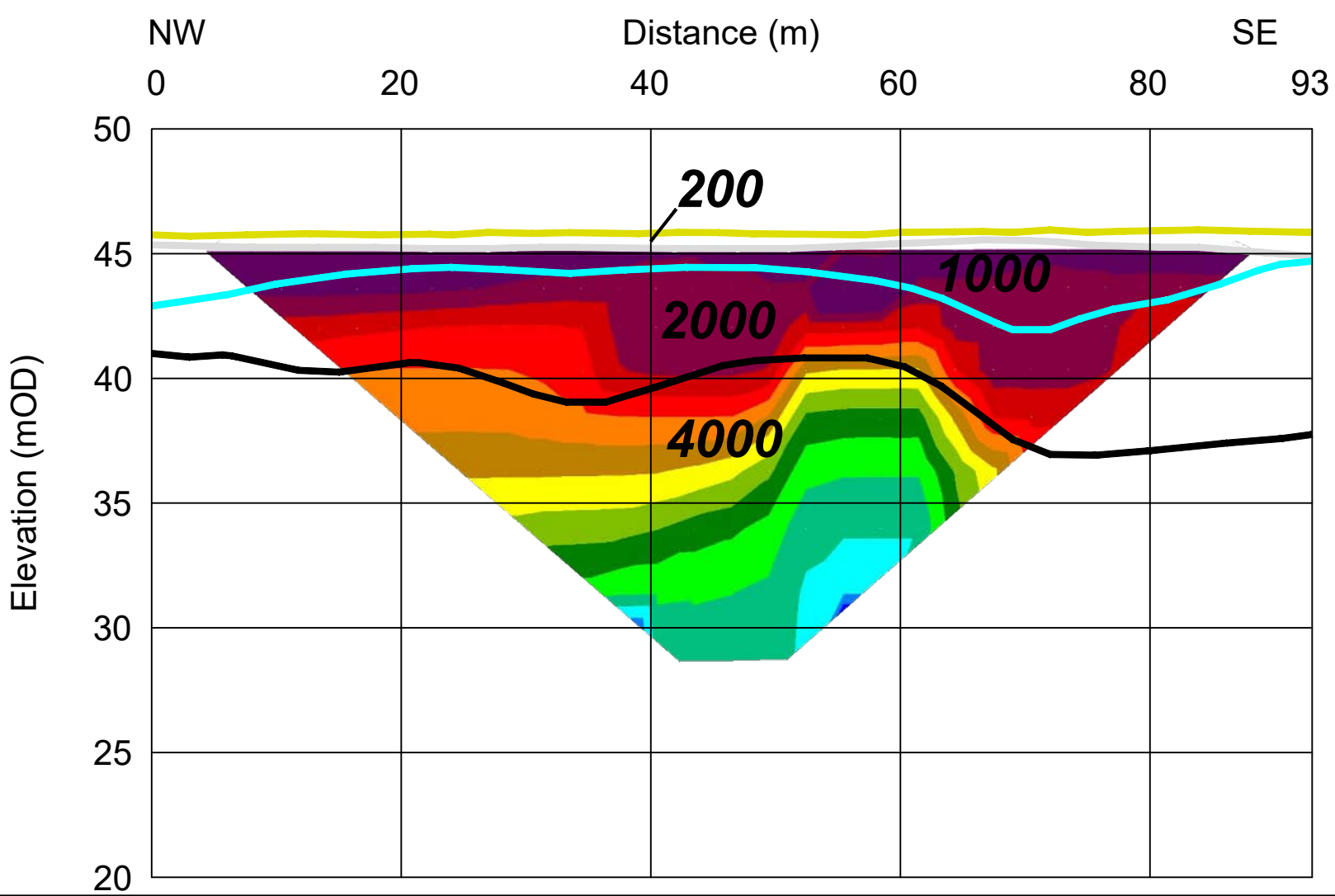
- RC1 — Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R3 and Seismic Refraction Line S3 Model



2D-Resistivity Line R4 and Seismic Refraction Line S4 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 2a: Models of Geophysical Survey Ch49615

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

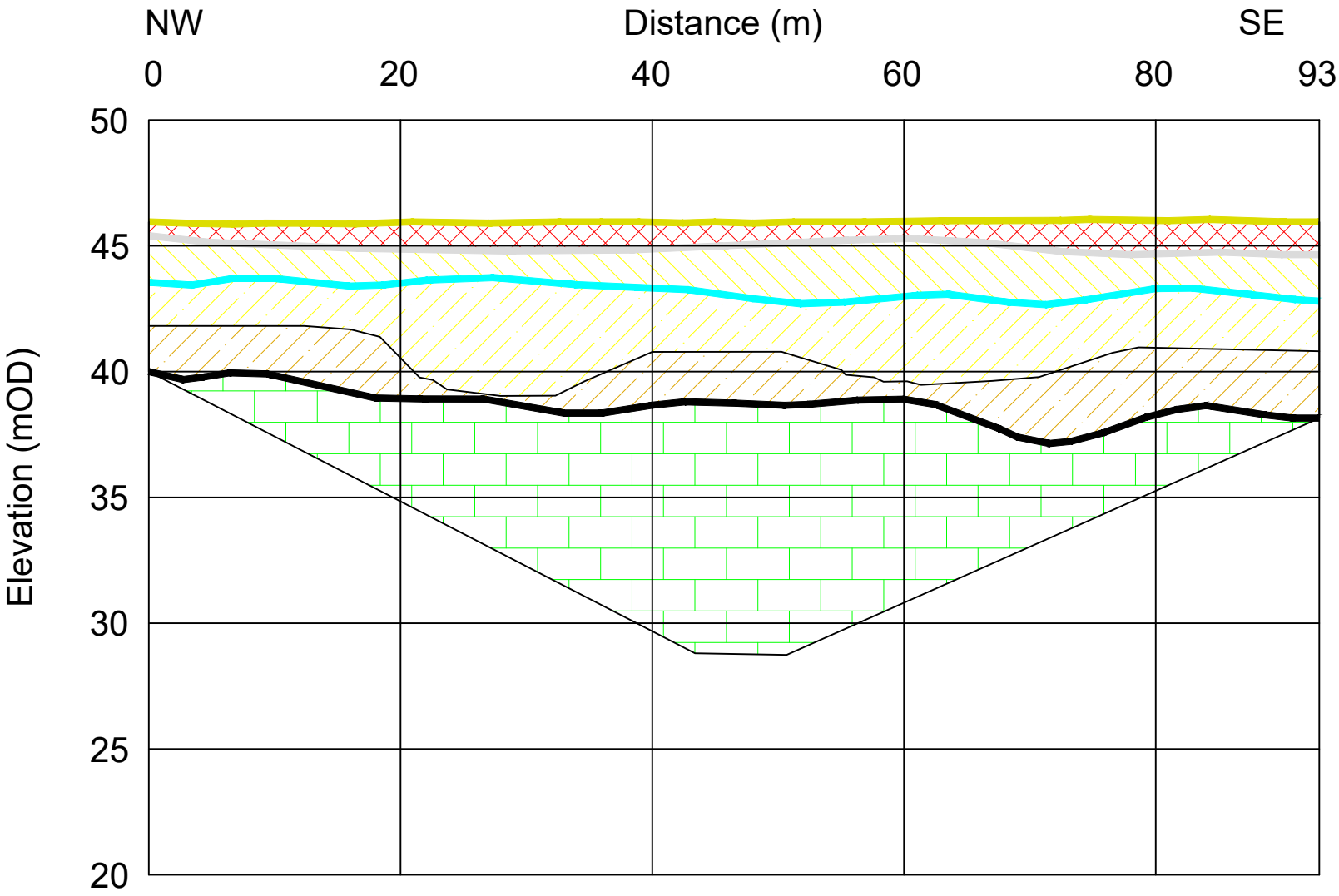
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

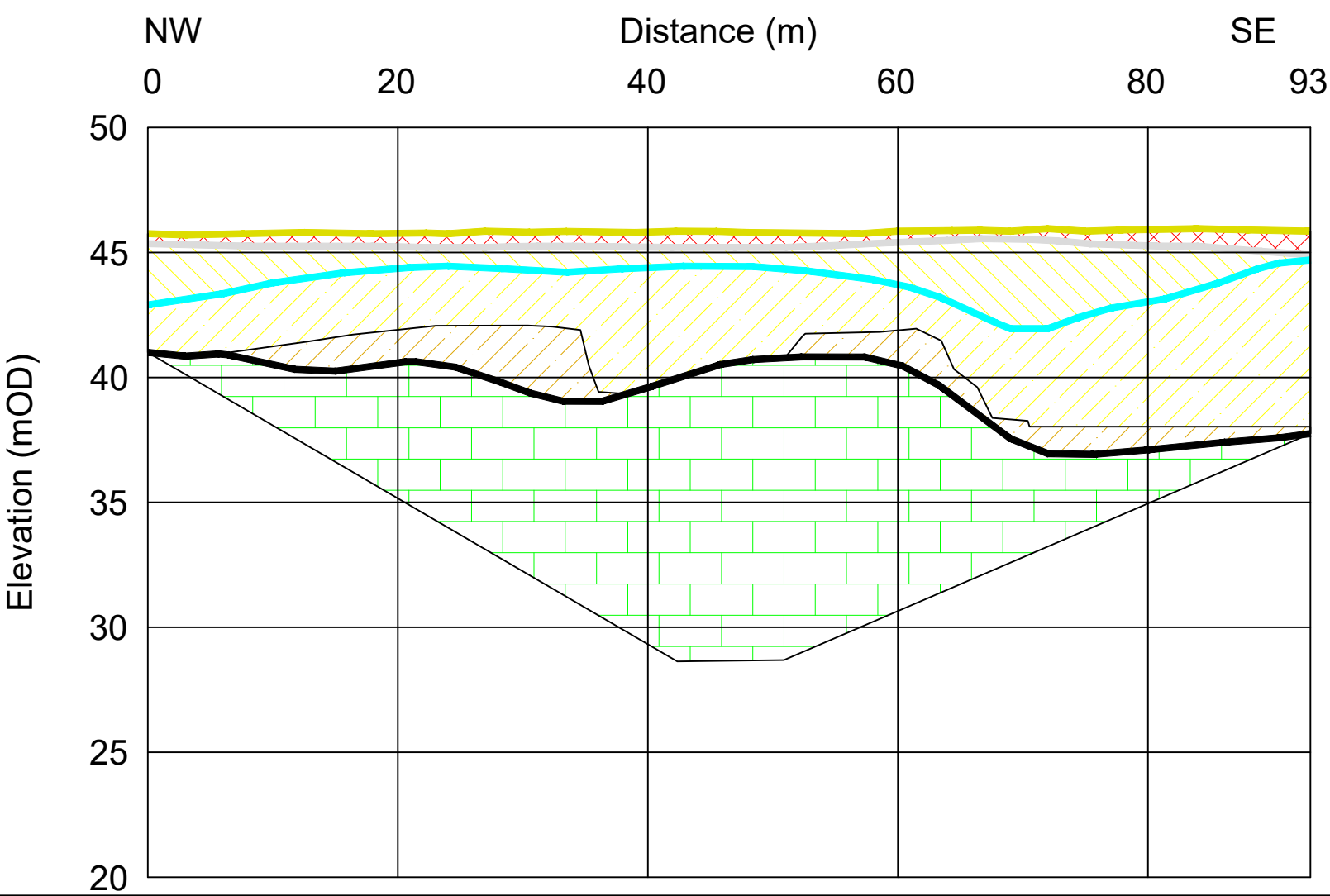
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R3 and Seismic Refraction Line S3 Interpretation



2D-Resistivity Line R4 and Seismic Refraction Line S4 Interpretation



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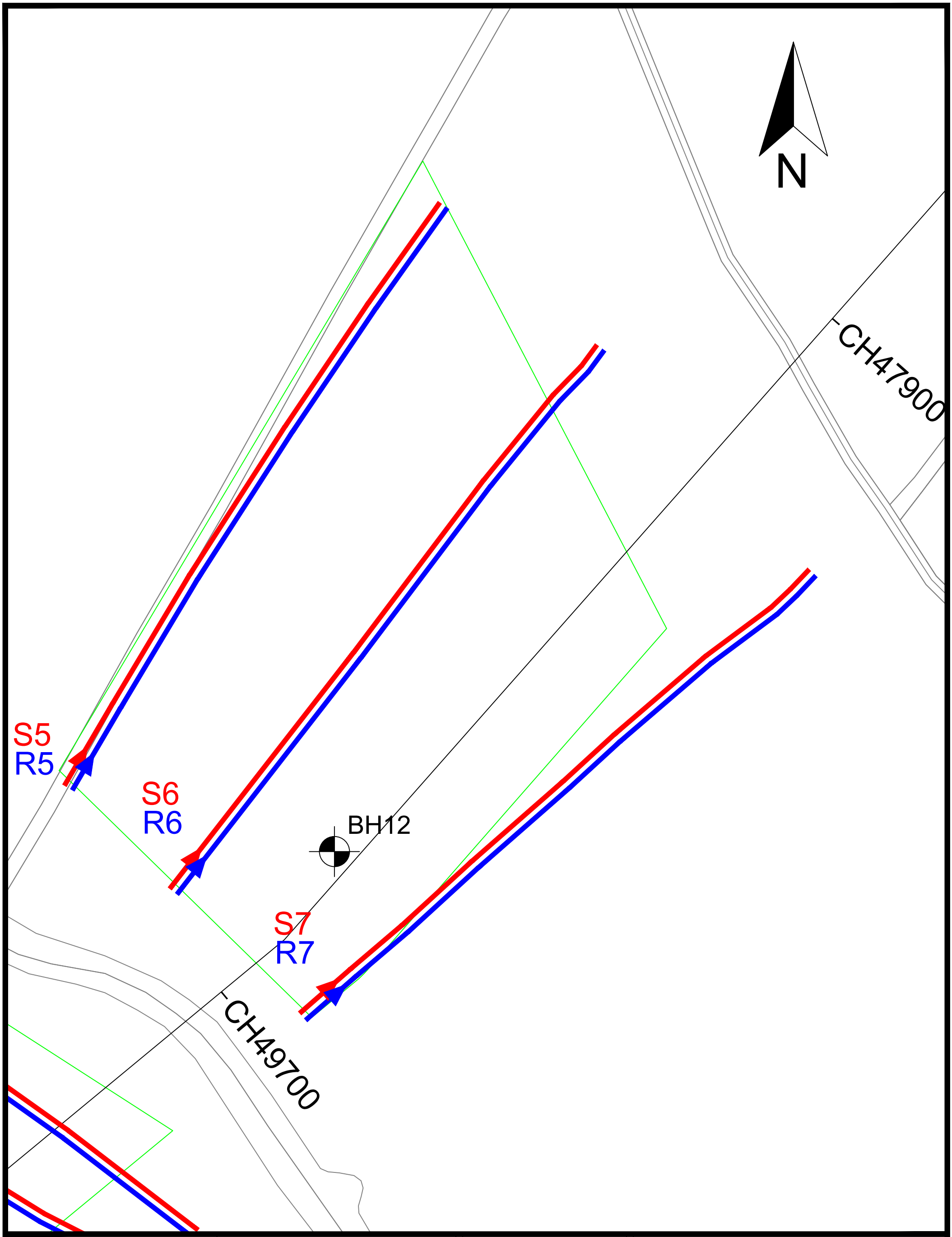
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 2b: Interpretation of Geophysical Survey Ch49615

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4A Stiff Clay
- 5A Very stiff Clay
- 5B Very stiff sandy gravelly Clay
- 7C Good Shale



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 3: Geophysical Survey Location Map From Ch49710

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

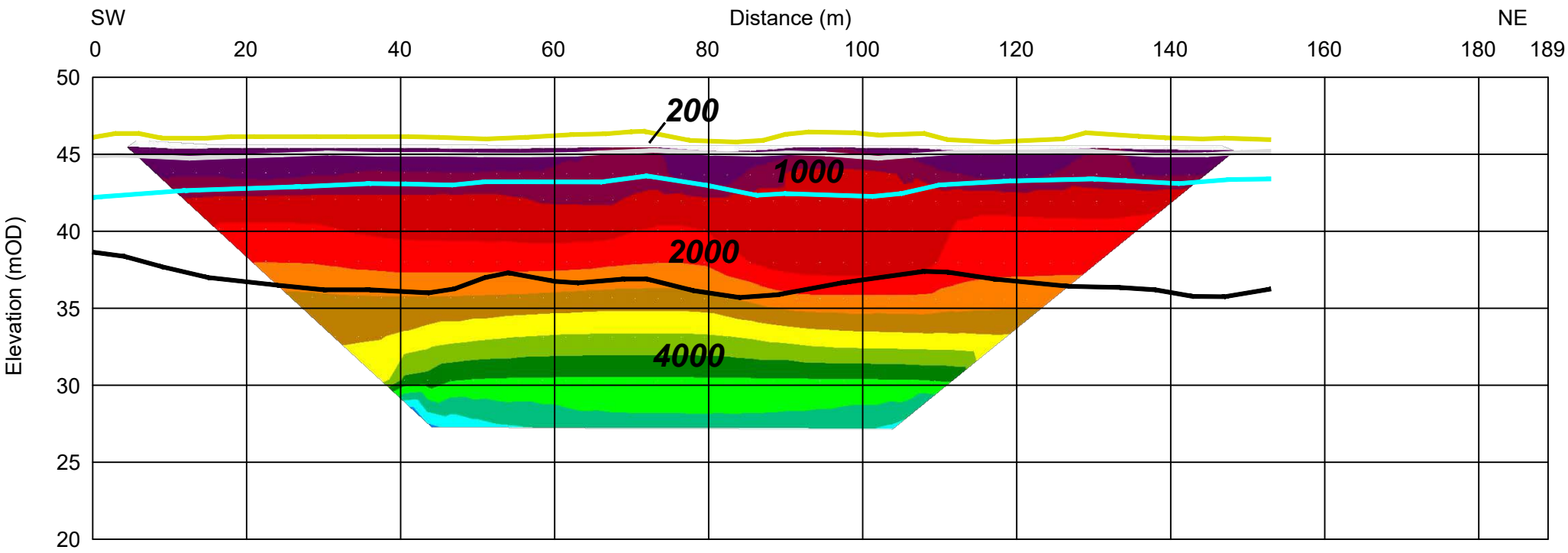
- R2 — 2D-Resistivity Line
- S1 — Seismic Refraction Line
- Survey Area

Direct Ground Investigation Locations:

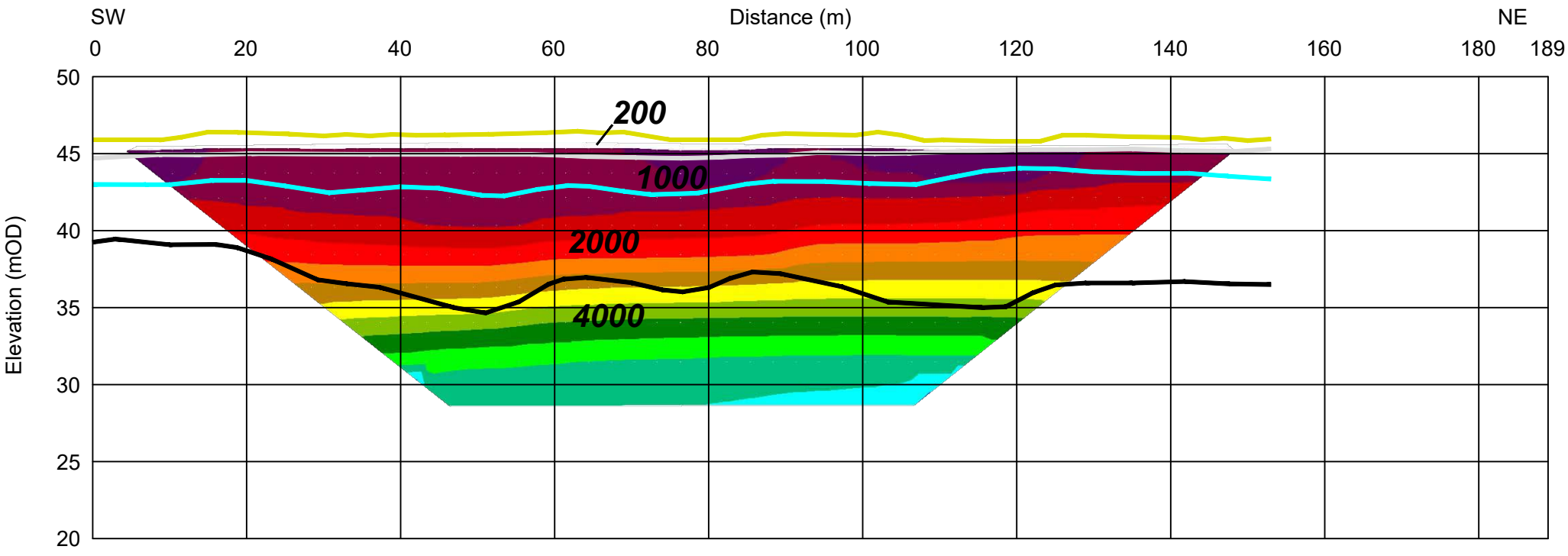
- RC1 — Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

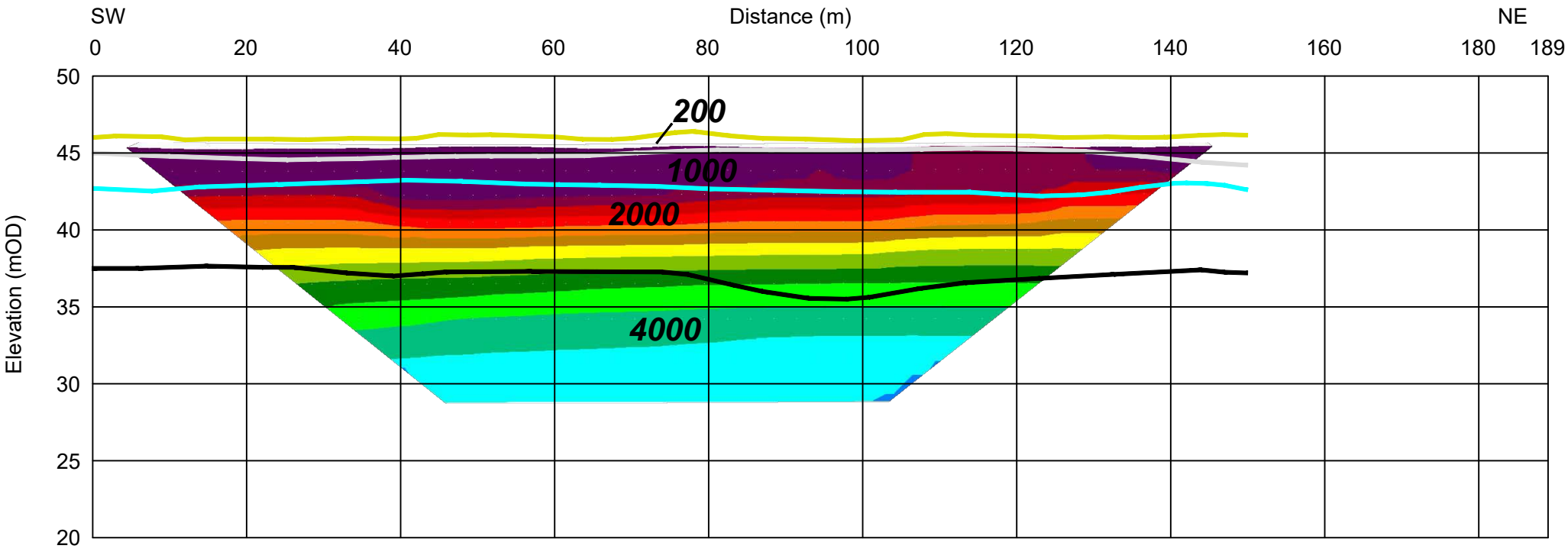
2D-Resistivity Line R5 and Seismic Refraction Line S5 Model



2D-Resistivity Line R6 and Seismic Refraction Line S6 Model



2D-Resistivity Line R7 and Seismic Refraction Line S7 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 3a: Models of Geophysical Survey from Ch49710

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

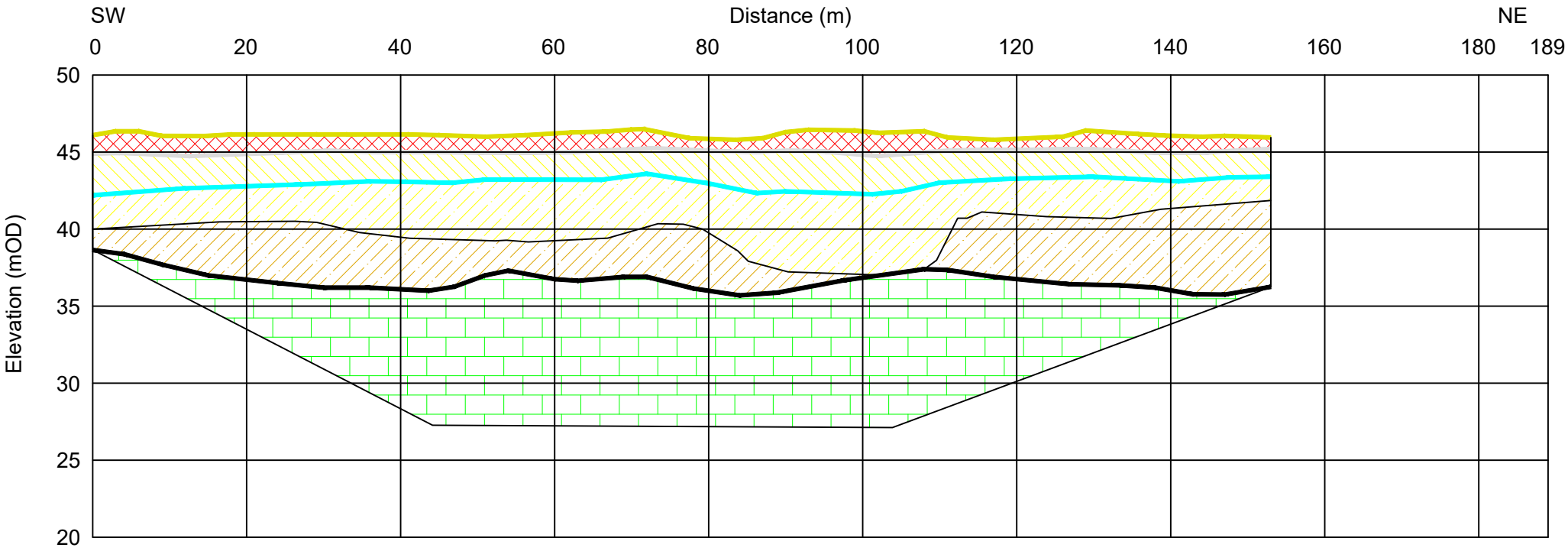
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

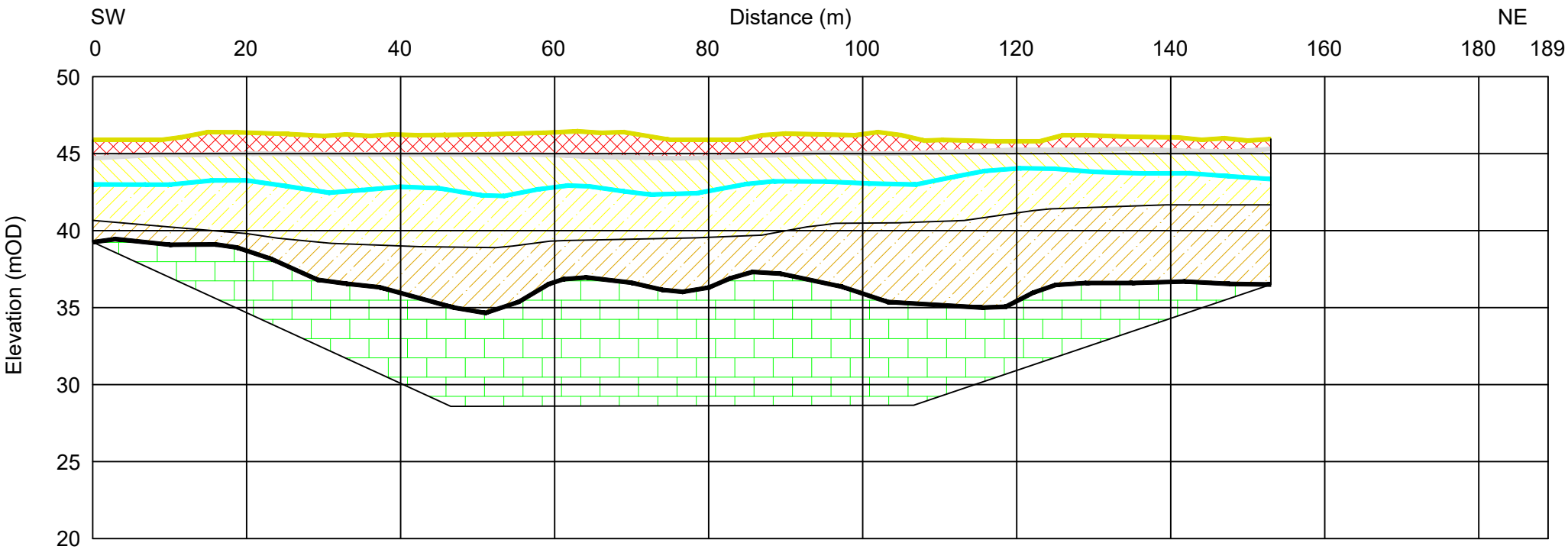
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

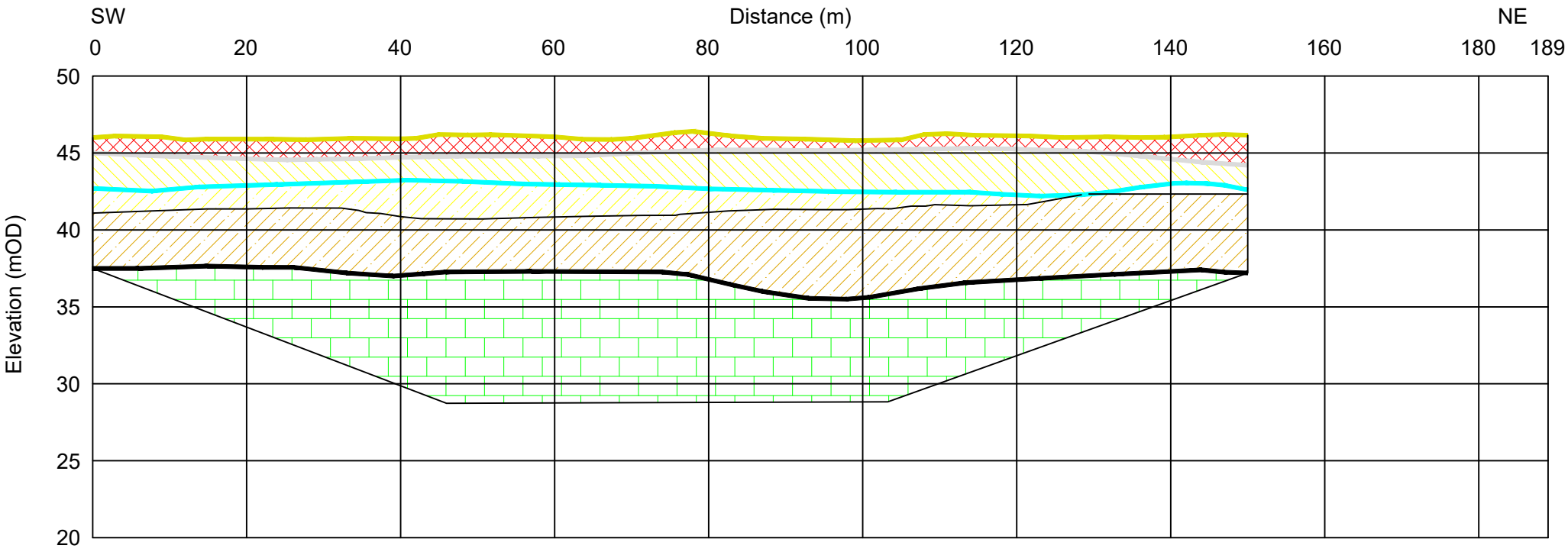
2D-Resistivity Line R5 and Seismic Refraction Line S5 Interpretation



2D-Resistivity Line R6 and Seismic Refraction Line S6 Interpretation



2D-Resistivity Line R7 and Seismic Refraction Line S7 Interpretation



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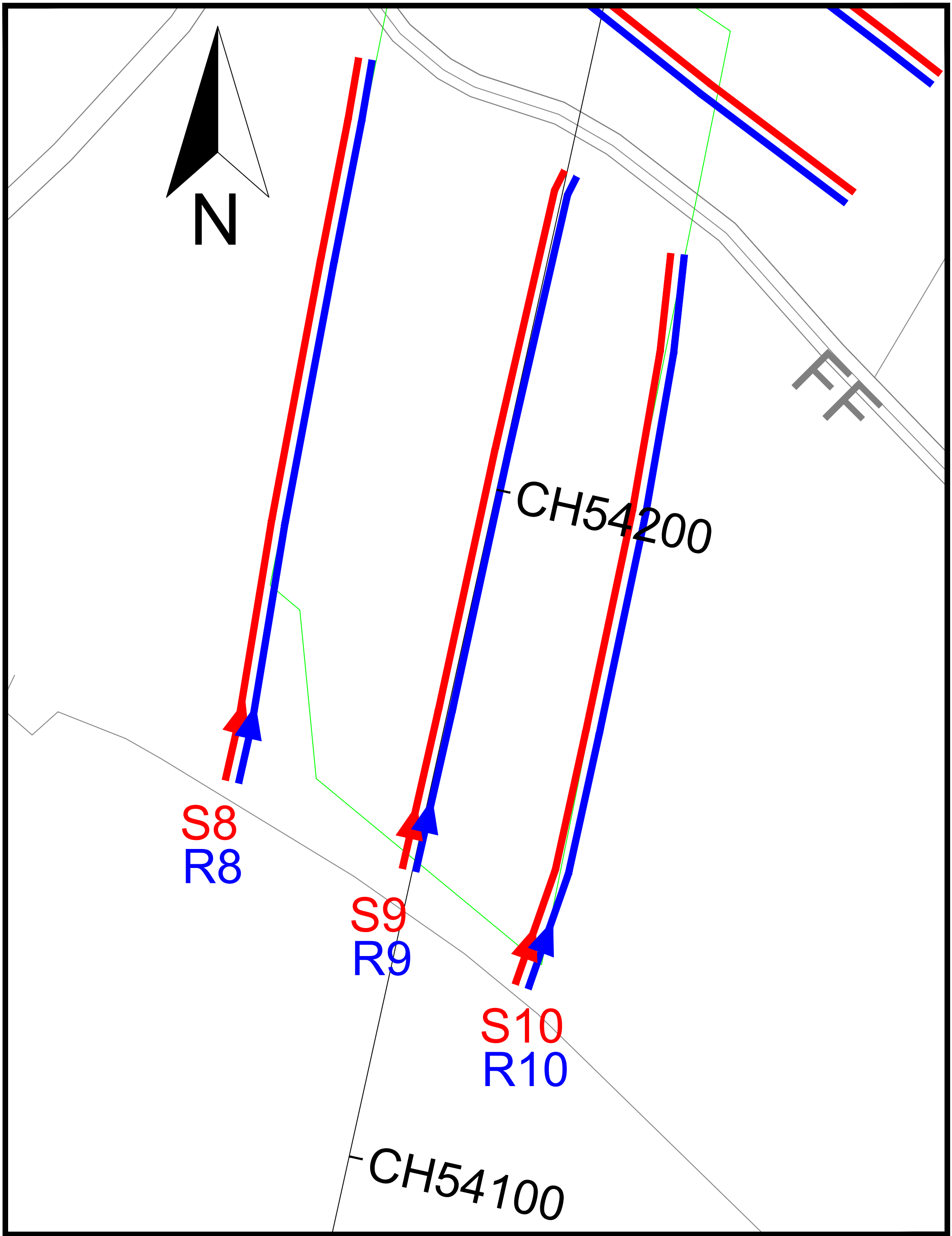
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 3b: Interpretation of Geophysical Survey from Ch49710

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4A Stiff Clay
- 5A Very stiff Clay
- 5B Very stiff sandy gravelly Clay
- 7C Good Shale



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 4: Geophysical Survey Location Map from Ch54130

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

R2 — 2D-Resistivity Line

S1 — Seismic Refraction Line

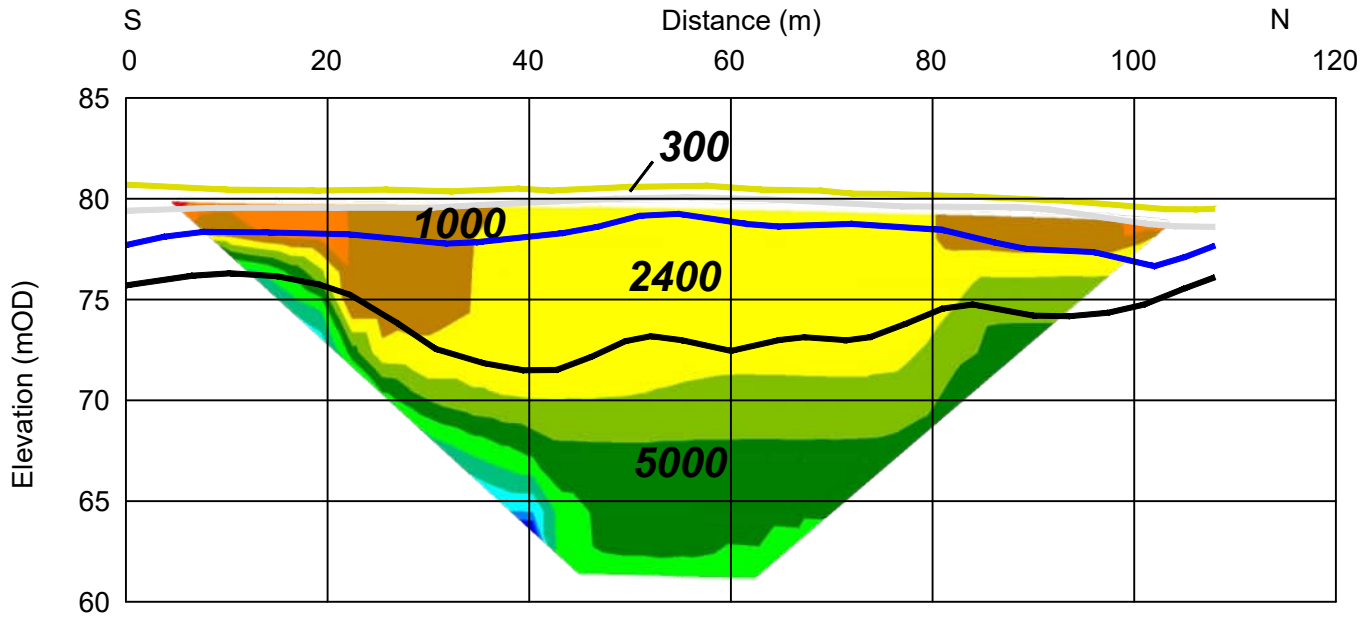
Survey Area

Direct Ground Investigation Locations:

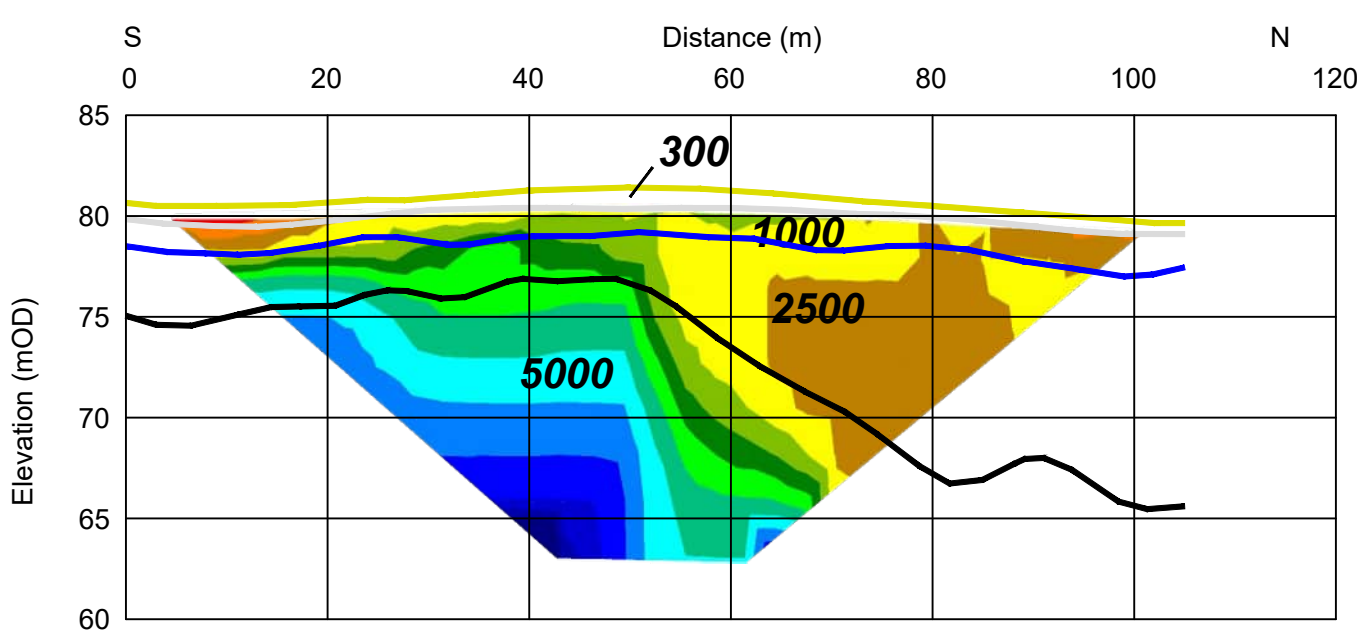
RC1 — Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

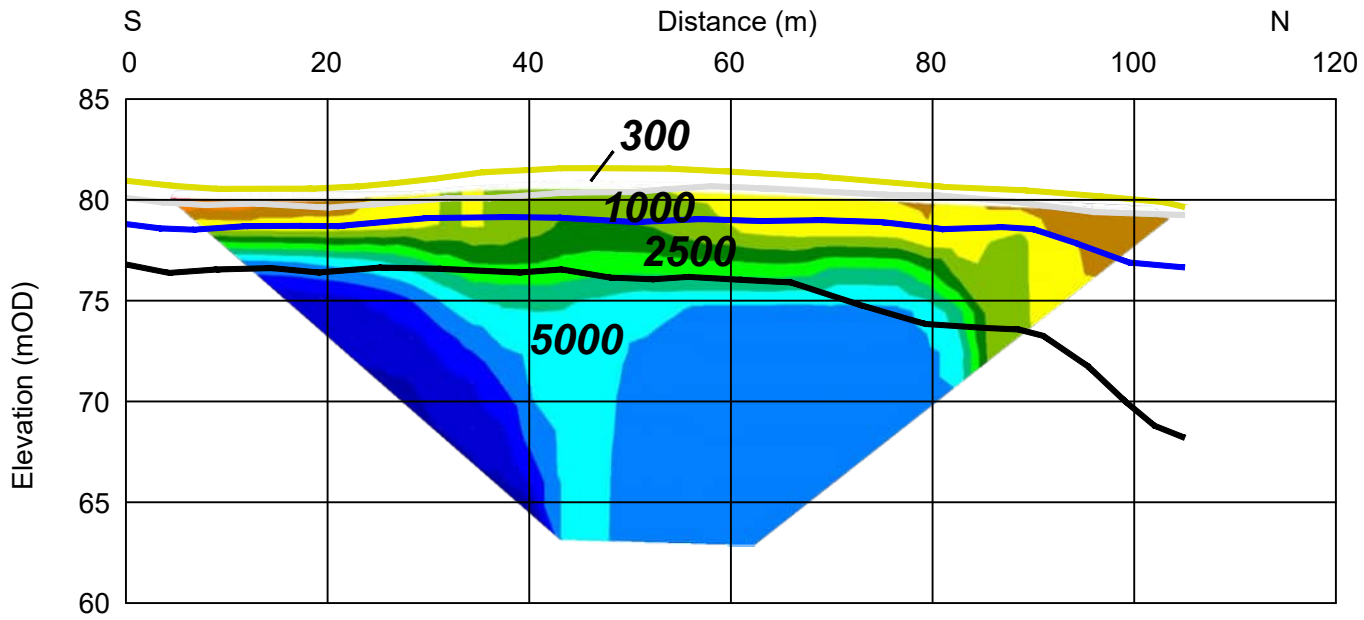
2D-Resistivity Line R8 and Seismic Refraction Line S8 Model



2D-Resistivity Line R9 and Seismic Refraction Line S9 Model



2D-Resistivity Line R10 and Seismic Refraction Line S10 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 4a: Models of Geophysical Survey from Ch54130

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

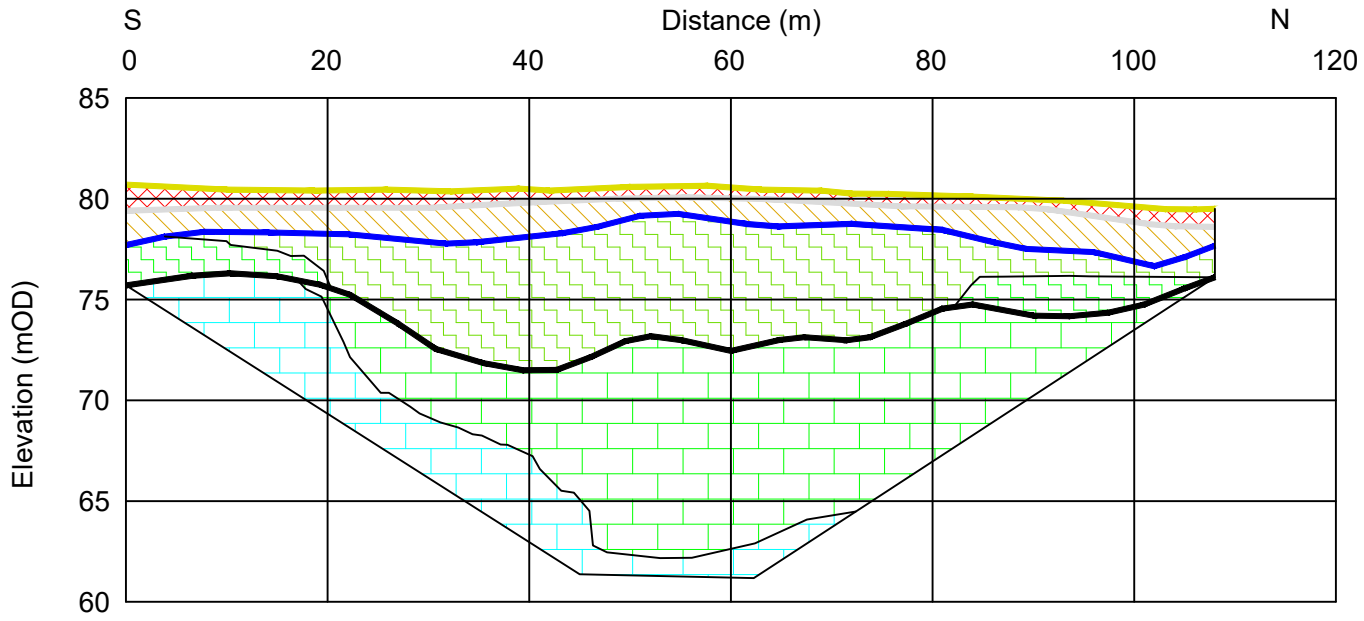
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

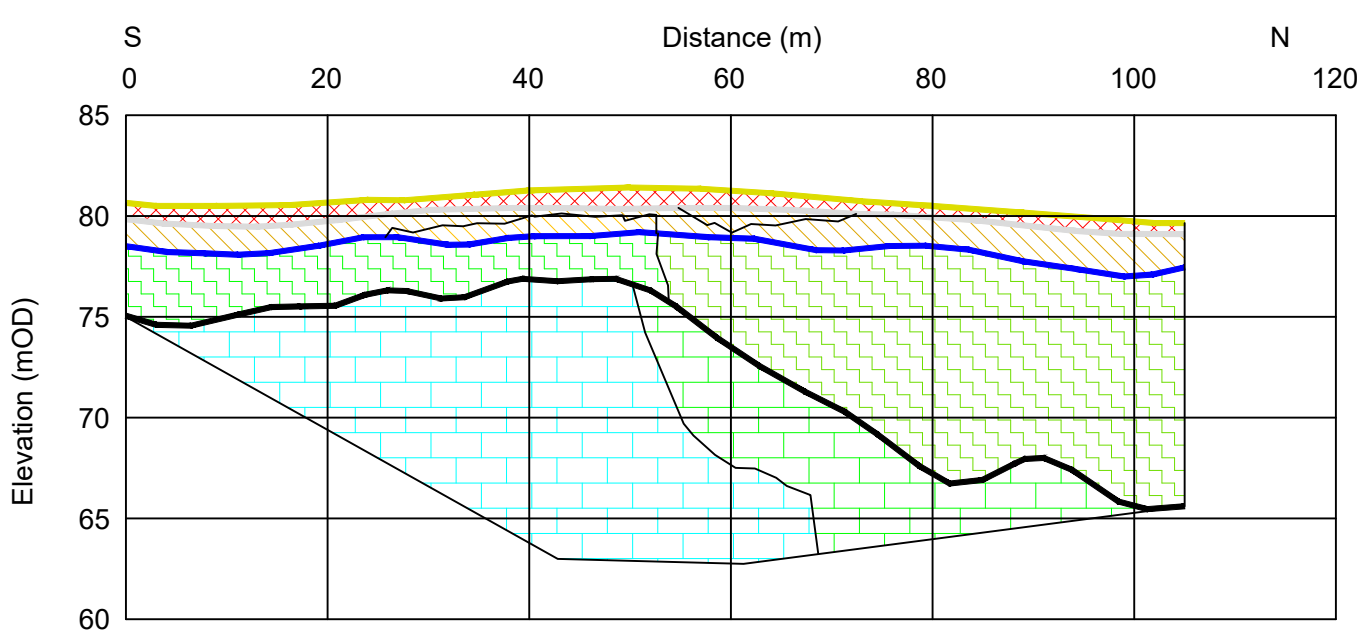
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

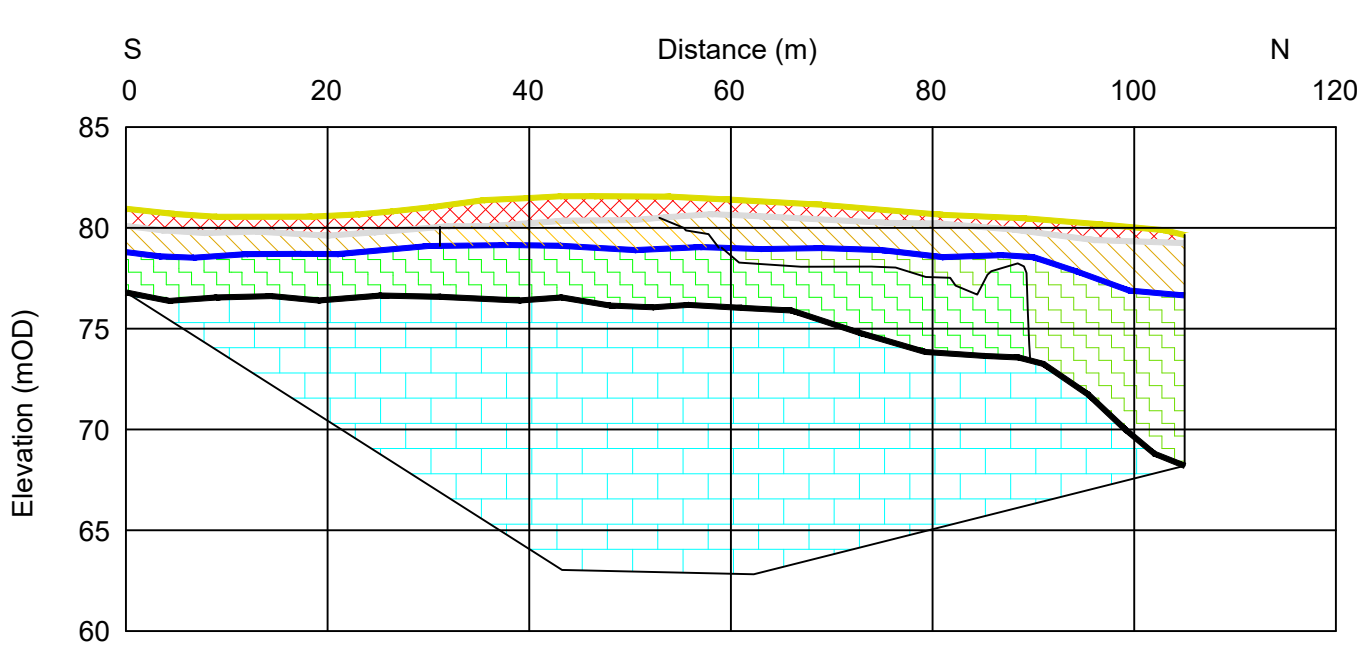
2D-Resistivity Line R8 and Seismic Refraction Line S8 Interpretation



2D-Resistivity Line R9 and Seismic Refraction Line S9 Interpretation



2D-Resistivity Line R10 and Seismic Refraction Line S10 Interpretation



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 4b: Interpretation of Geophysical Survey from Ch54130

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 6C Fair infilled Limestone or very dense clayey silty Sand or gravel
- 7C Good infilled Limestone
- 7D Good Limestone

S12
R12
S11
R11
CH54300
CH54200
N
FF

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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 5: Geophysical Survey Location Map from Ch54250

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

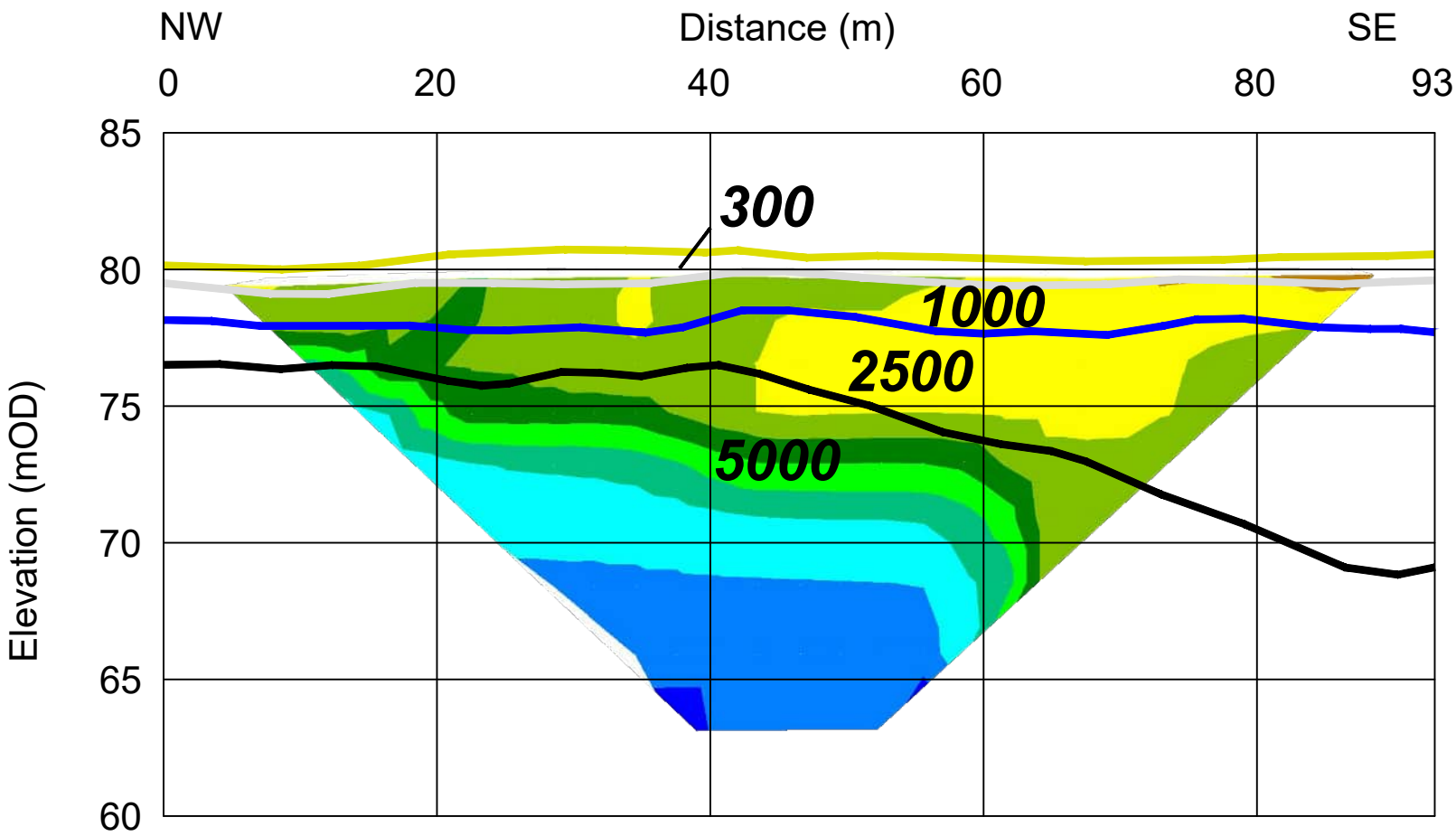
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

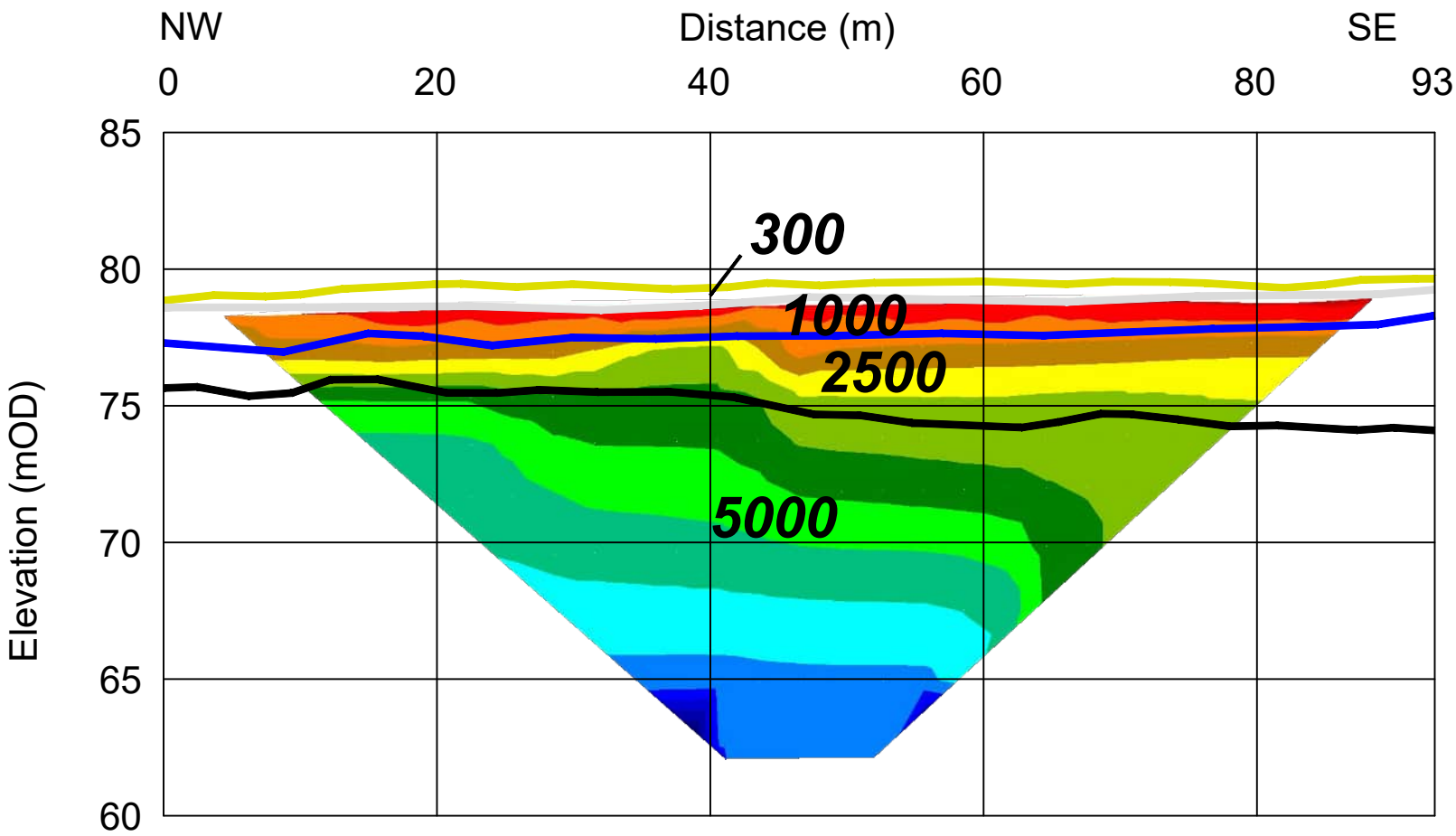
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R12 and Seismic Refraction Line S12 Model



2D-Resistivity Line R11 and Seismic Refraction Line S11 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 5a: Models of Geophysical Survey from Ch54250

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

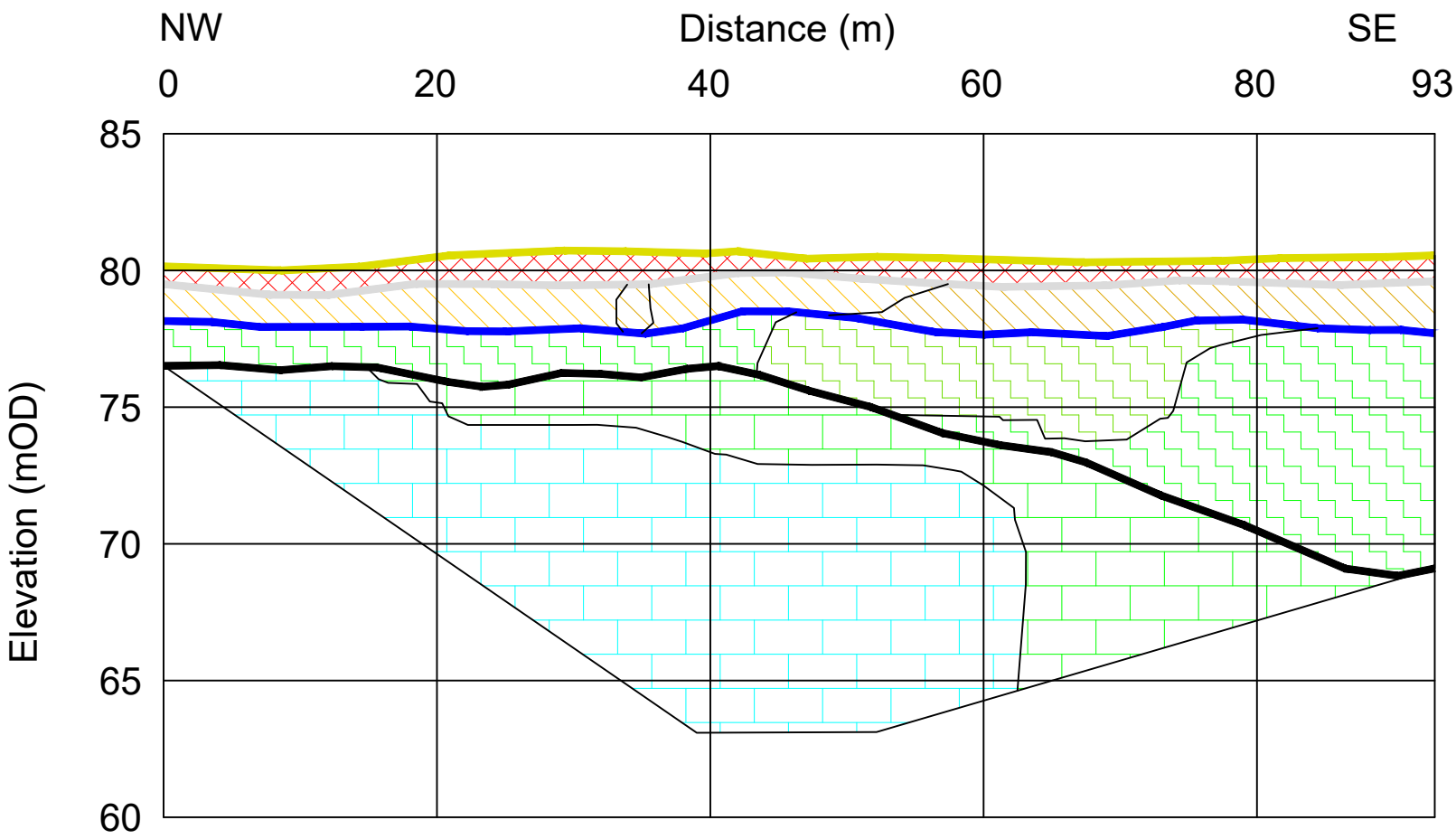
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

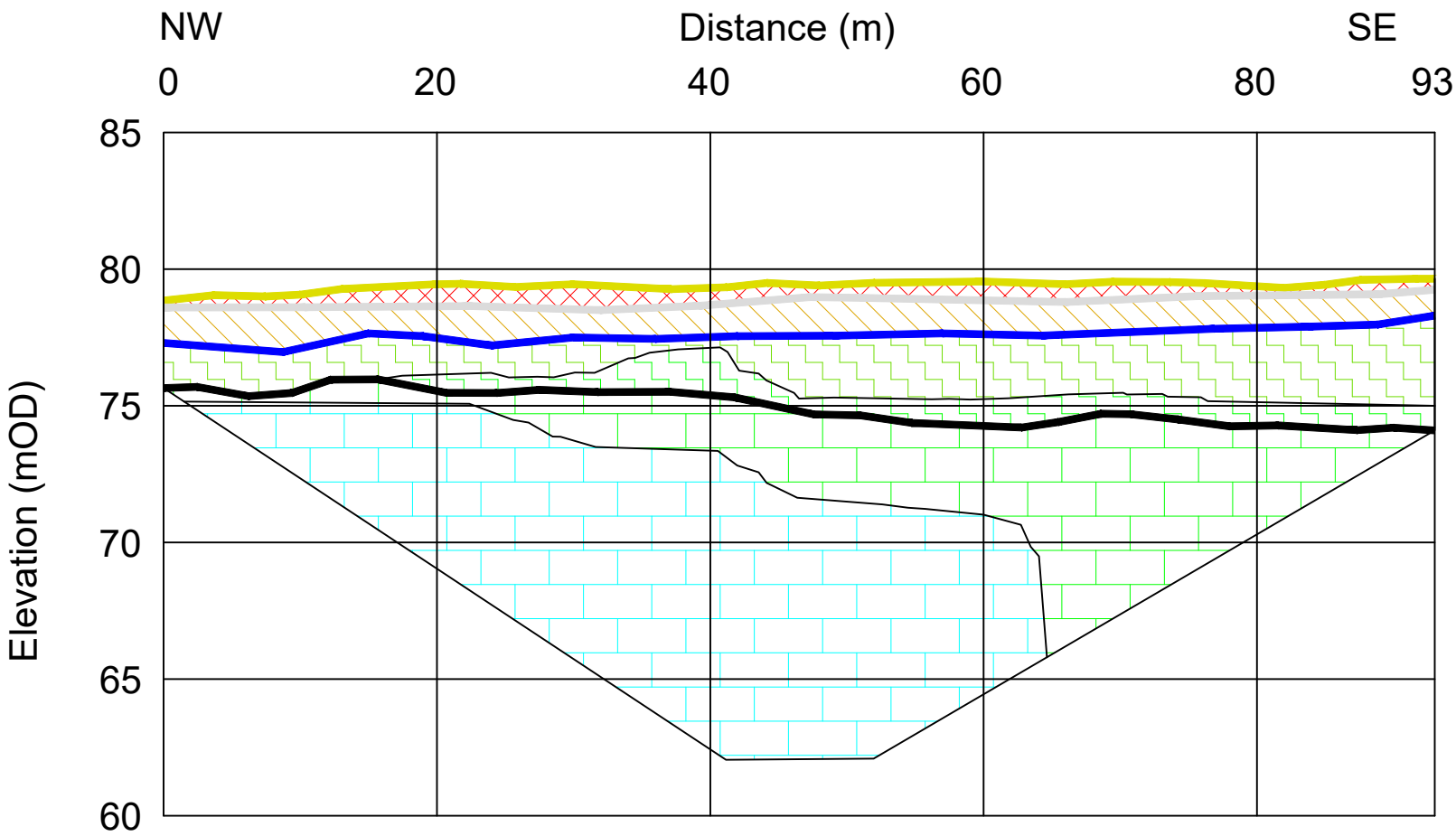
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R12 and Seismic Refraction Line S12 Interpretation



2D-Resistivity Line R11 and Seismic Refraction Line S11 Interpretation



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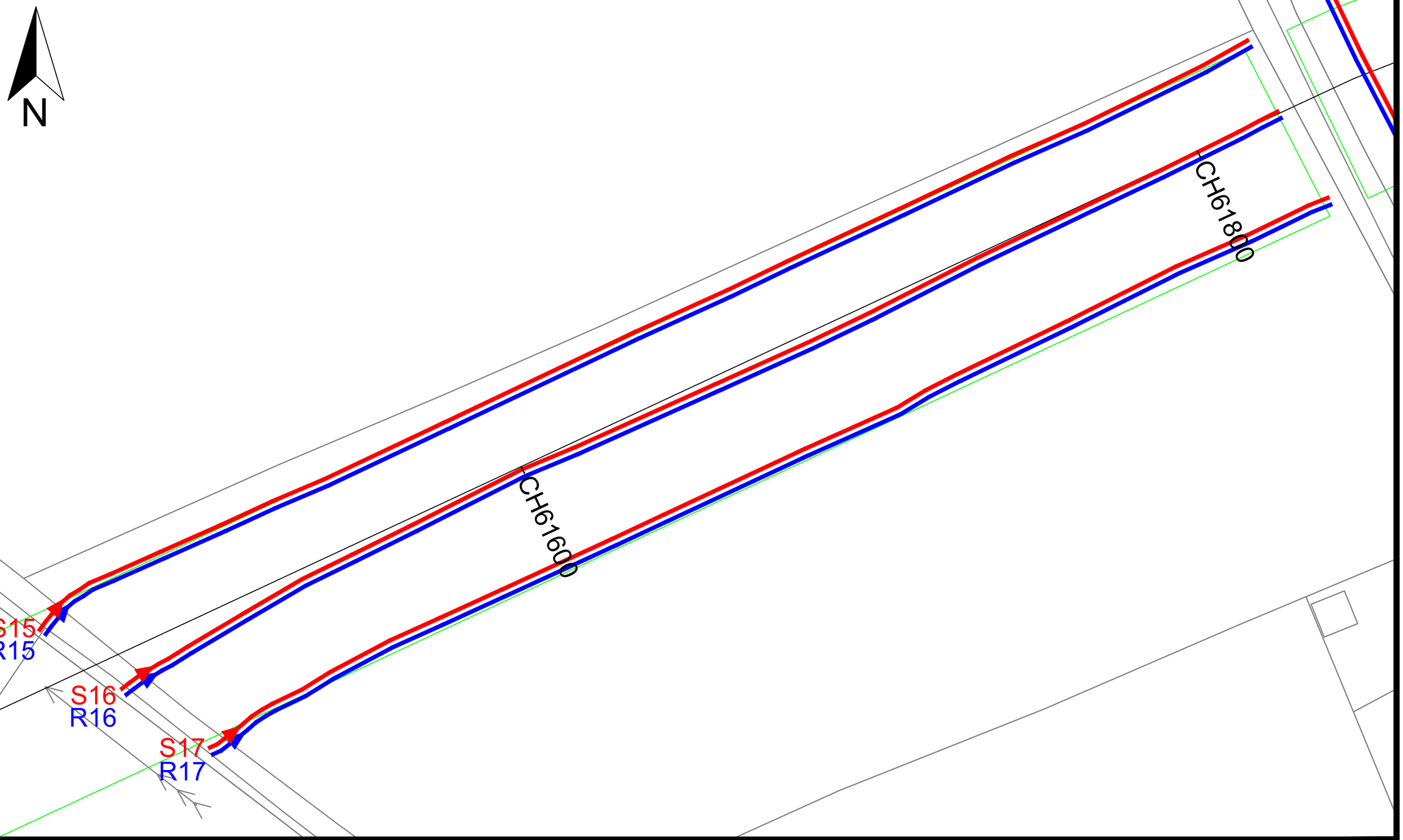
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 5b: Interpretation of Geophysical Survey from Ch54250

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 6C Fair infilled Limestone or very dense clayey silty Sand or gravel
- 7C Good infilled Limestone
- 7D Good Limestone



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 6: Geophysical Survey Location Map Ch61465

SCALE:	1:1000 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

R2 — 2D-Resistivity Line

S1 — Seismic Refraction Line

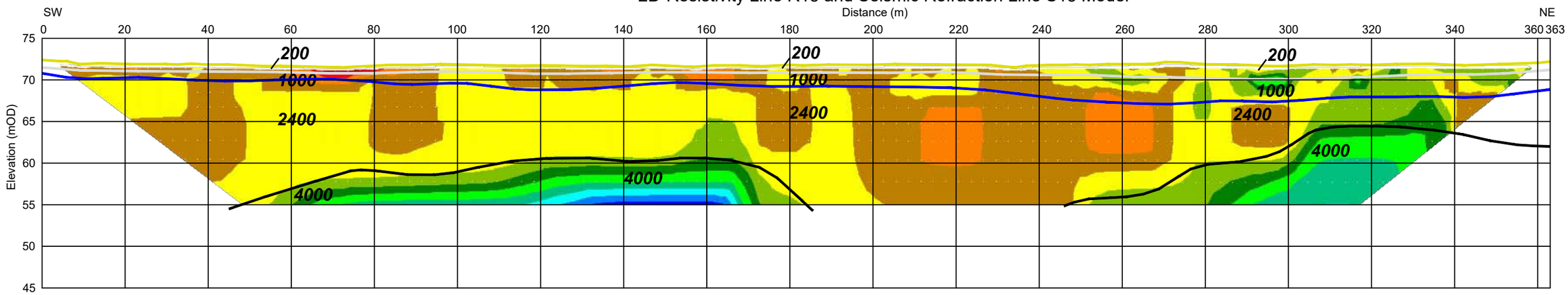
Survey Area

Direct Ground Investigation Locations:

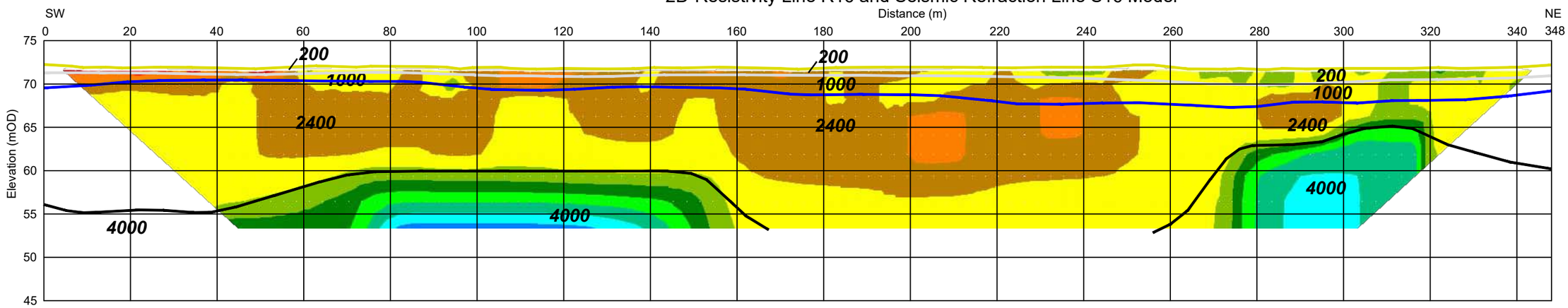
RC1 — Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

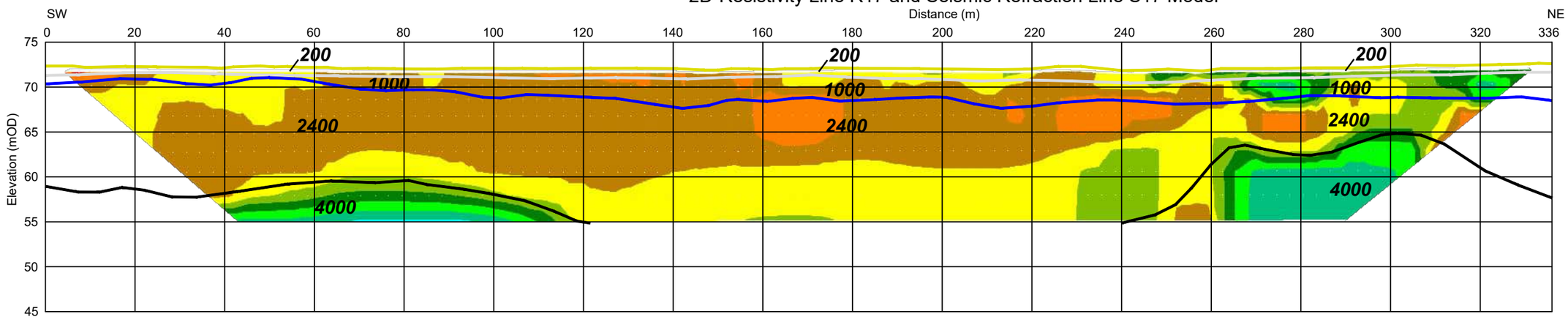
2D-Resistivity Line R15 and Seismic Refraction Line S15 Model



2D-Resistivity Line R16 and Seismic Refraction Line S16 Model



2D-Resistivity Line R17 and Seismic Refraction Line S17 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 6a: Models of Geophysical Survey Ch61465

SCALE:	1:1000 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

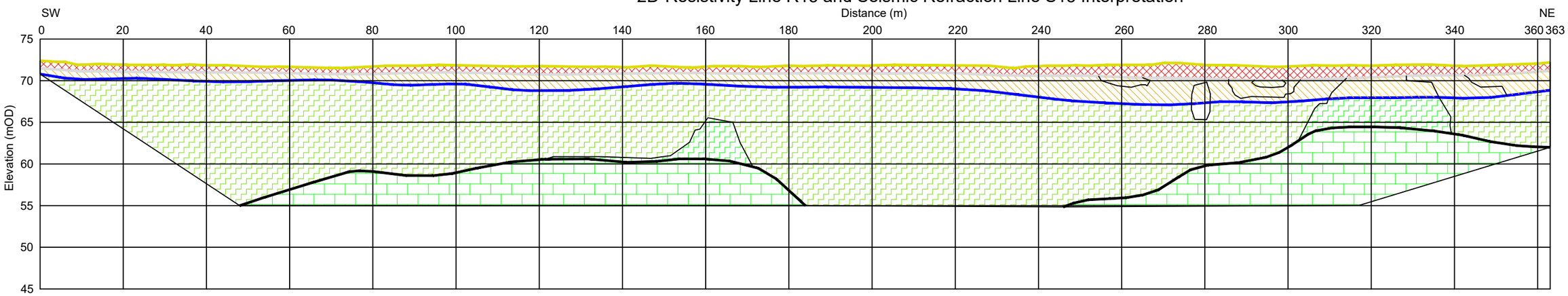
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

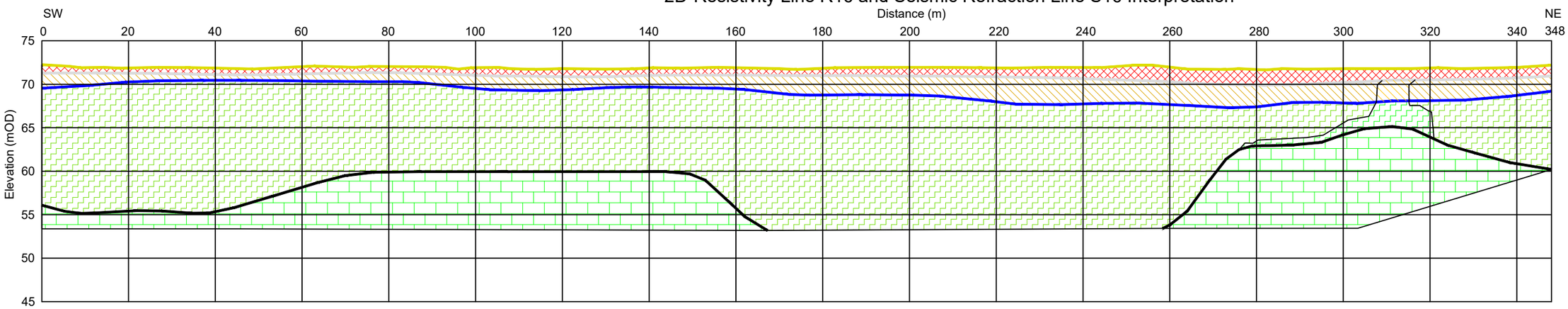
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

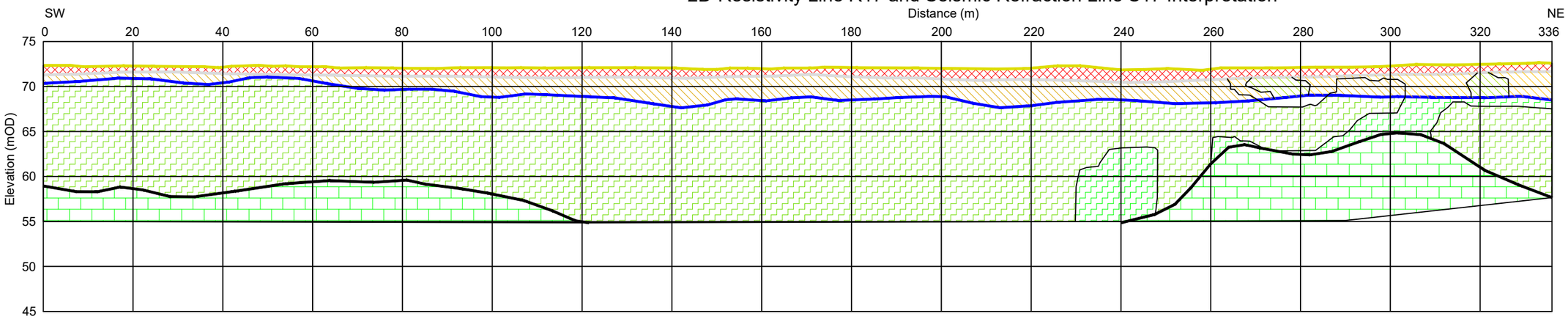
2D-Resistivity Line R15 and Seismic Refraction Line S15 Interpretation



2D-Resistivity Line R16 and Seismic Refraction Line S16 Interpretation



2D-Resistivity Line R17 and Seismic Refraction Line S17 Interpretation



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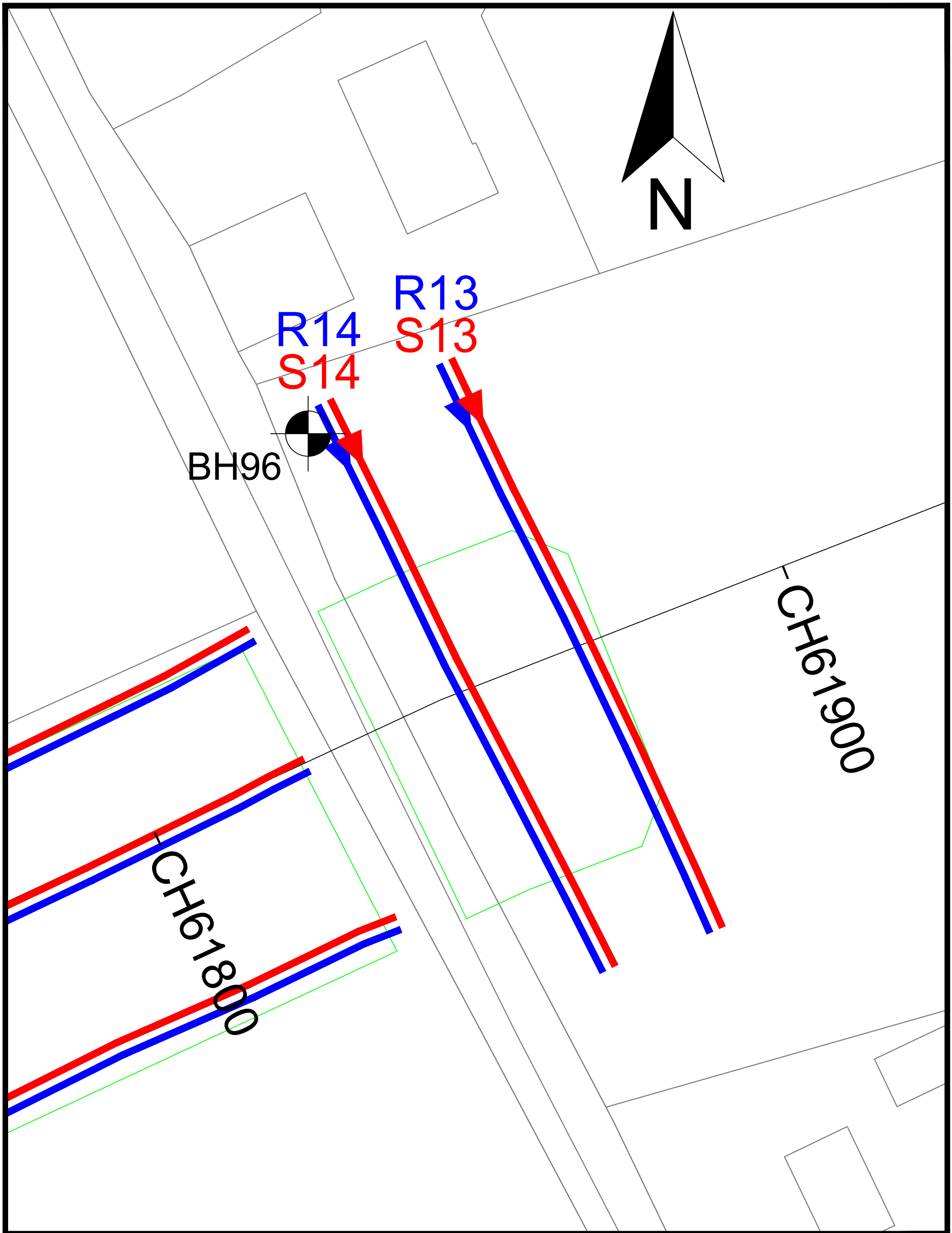
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 6b: Interpretation of Geophysical Survey Ch61465

SCALE:	1:1000 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 4D Dense Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 6C Fair weathered Shale or very dense clayey silty Sand or gravel
- 7C Good Shale



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 7: Geophysical Survey Location Map from Ch61848

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

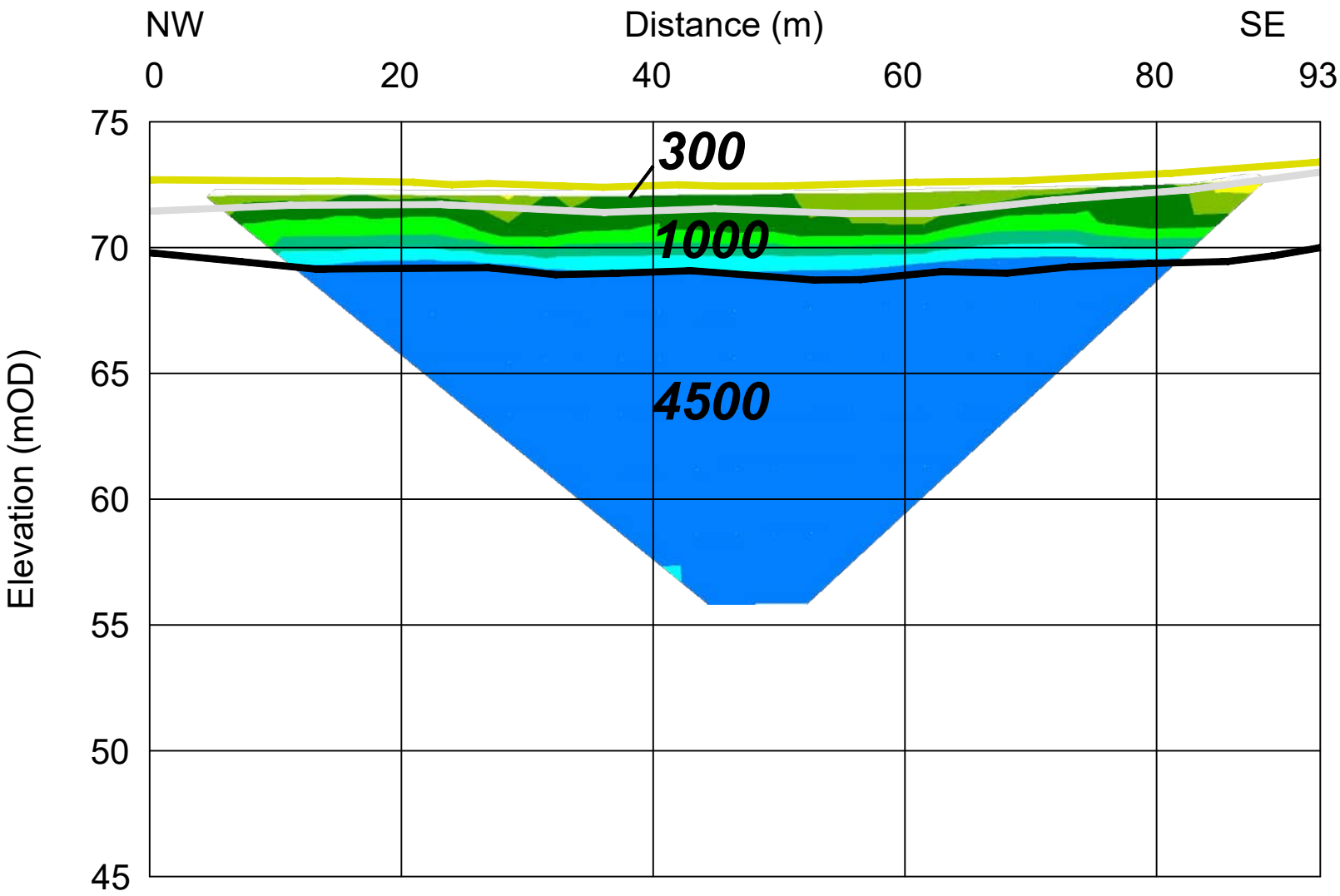
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

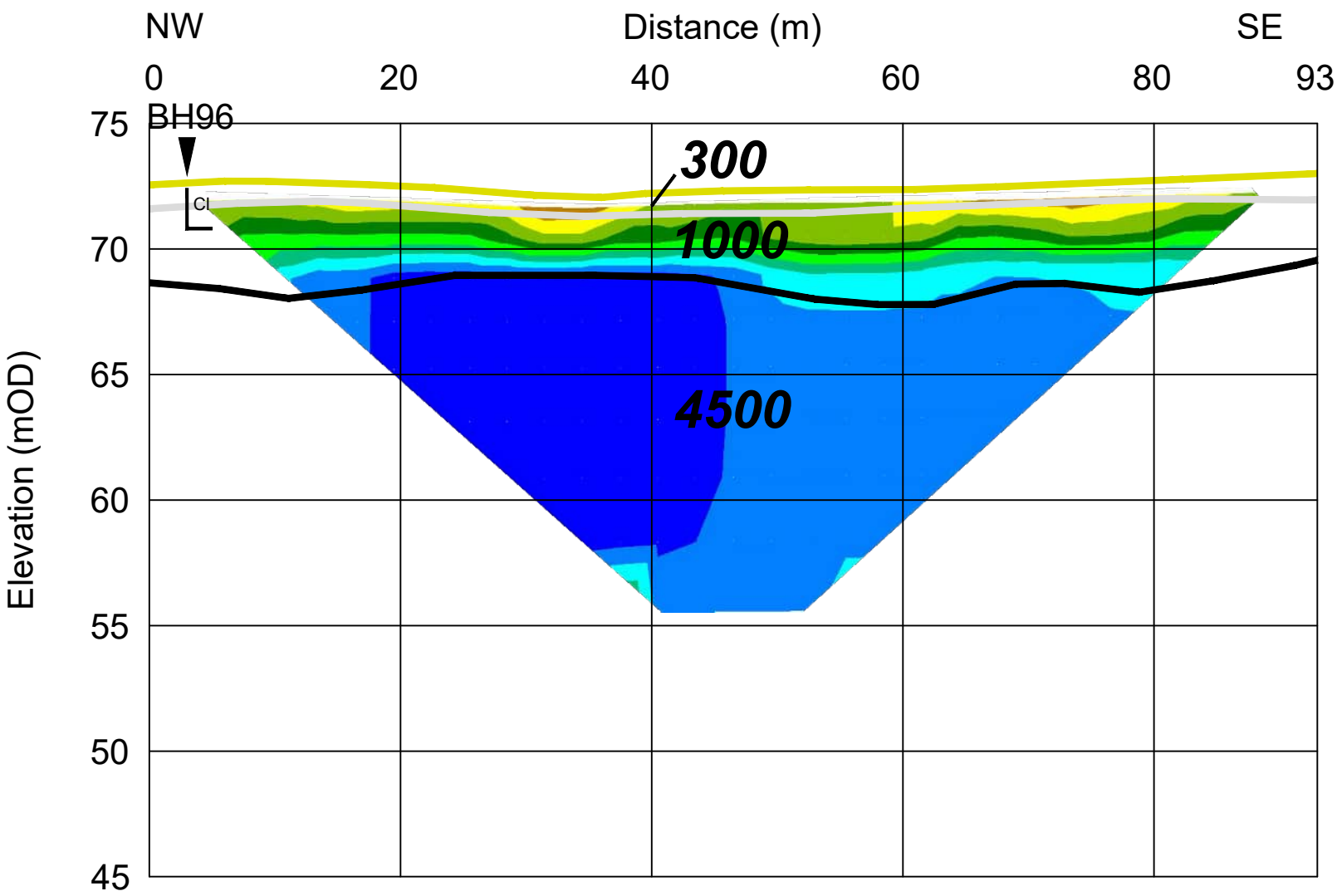
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R13 and Seismic Refraction Line S13 Model



2D-Resistivity Line R14 and Seismic Refraction Line S14 Model



Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone

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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 7a: Models of Geophysical Survey Ch61848

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

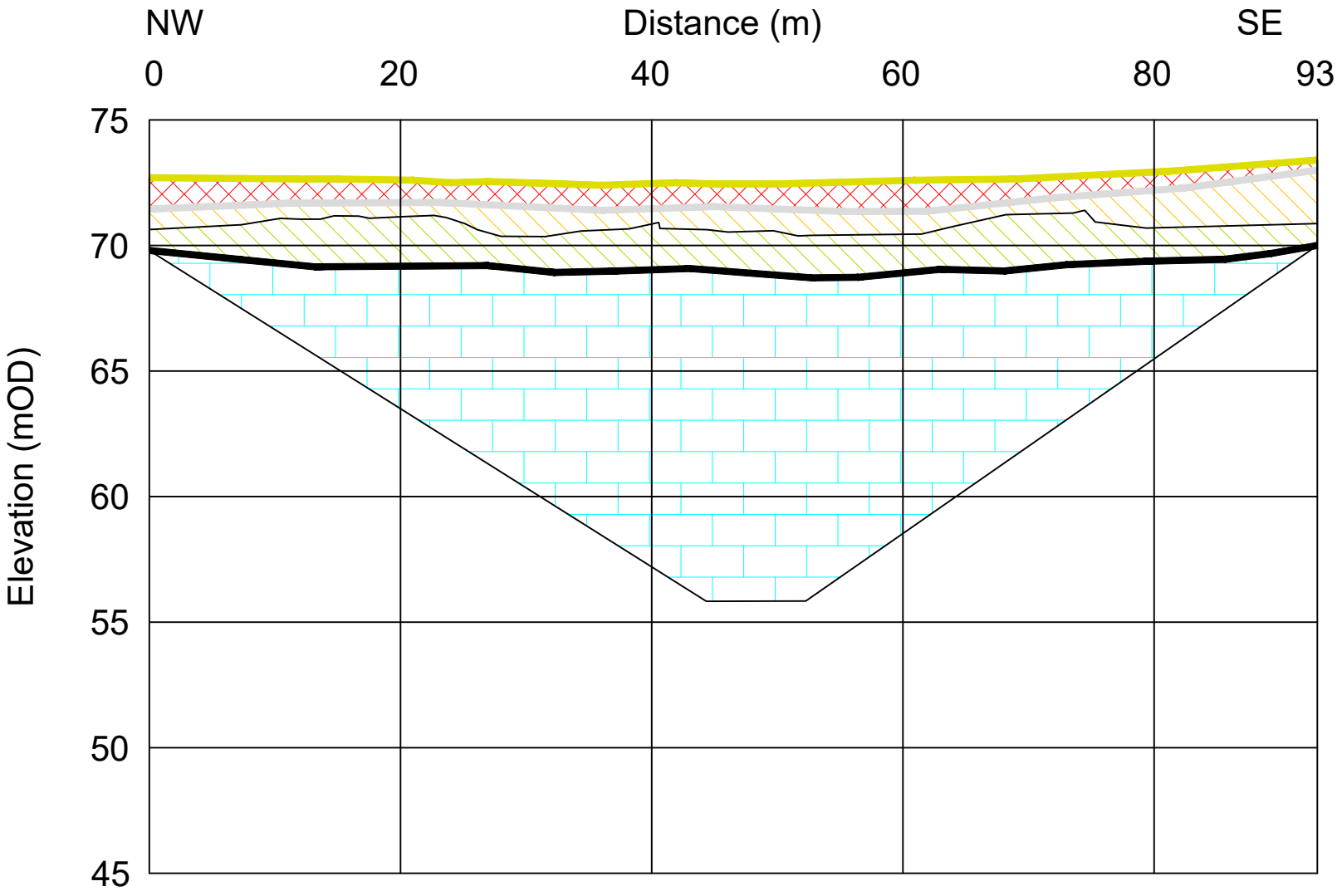
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

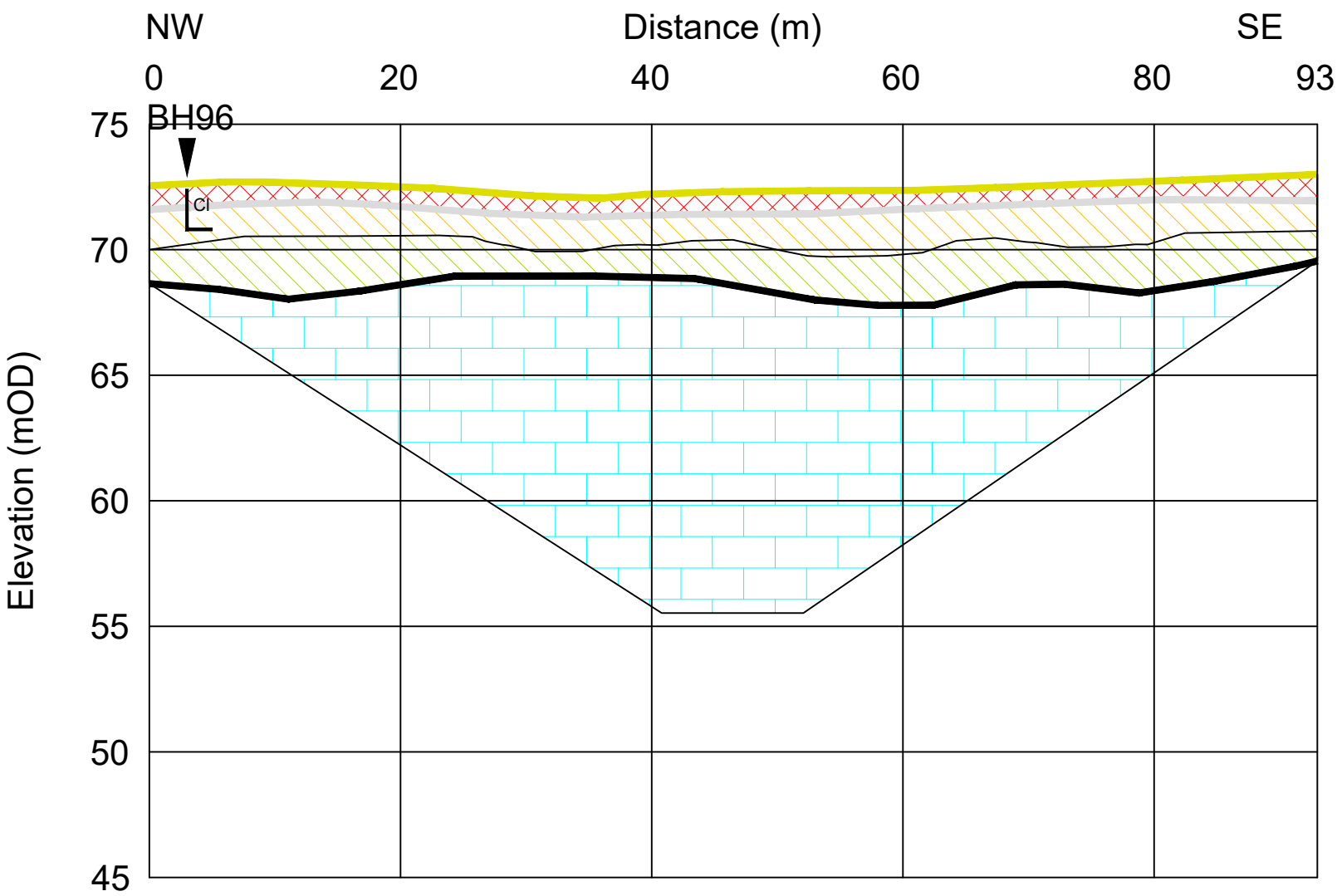
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R13 and Seismic Refraction Line S13 Interpretation



2D-Resistivity Line R14 and Seismic Refraction Line S14 Interpretation



Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone

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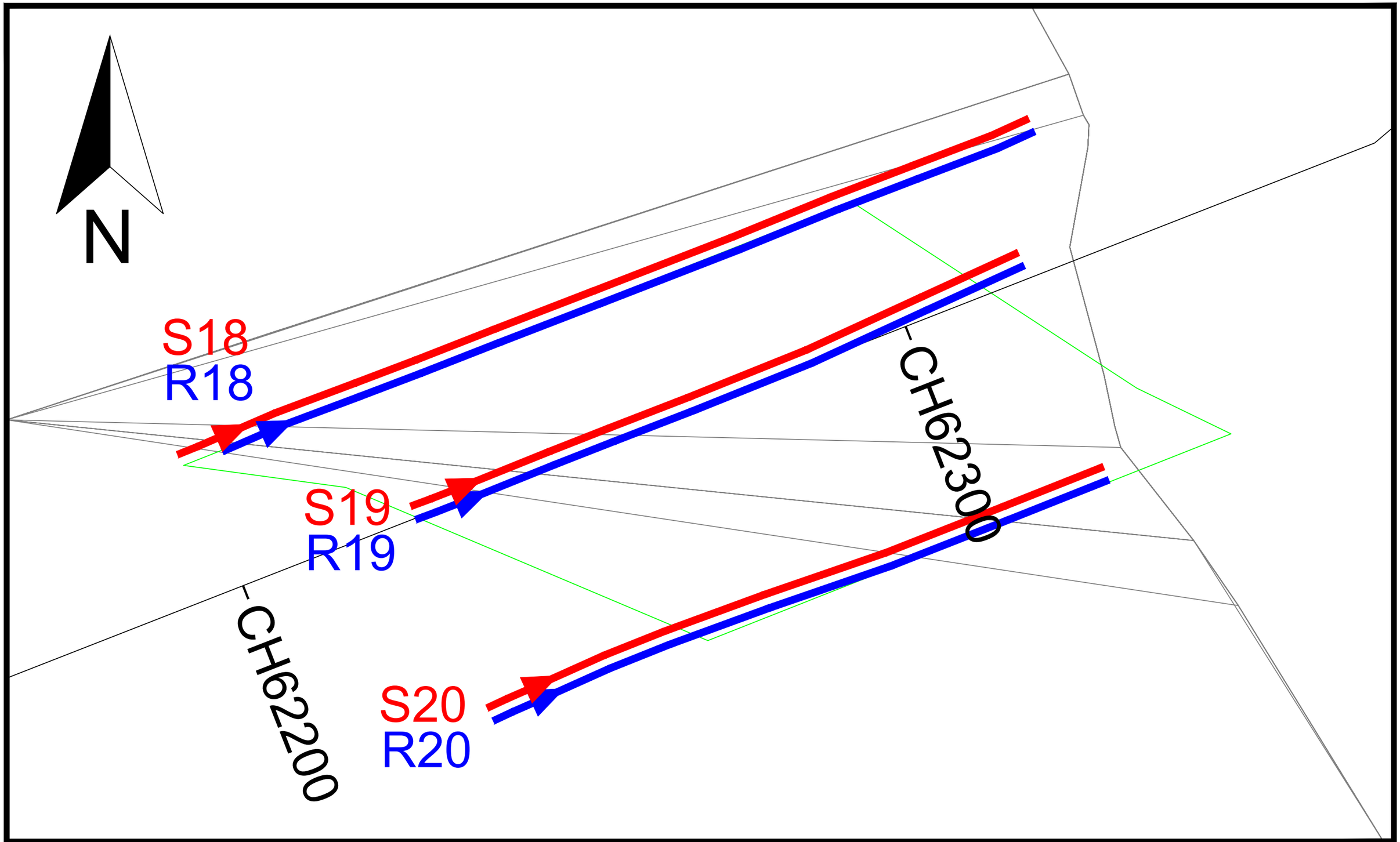
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 7b: Interpretation of Geophysical Survey Ch61848

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4C Dense clayey silty Sand or Gravel
- 4D Dense Sand or Gravel
- 7D Good Limestone



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 8: Geophysical Survey Location Map from Ch62198

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

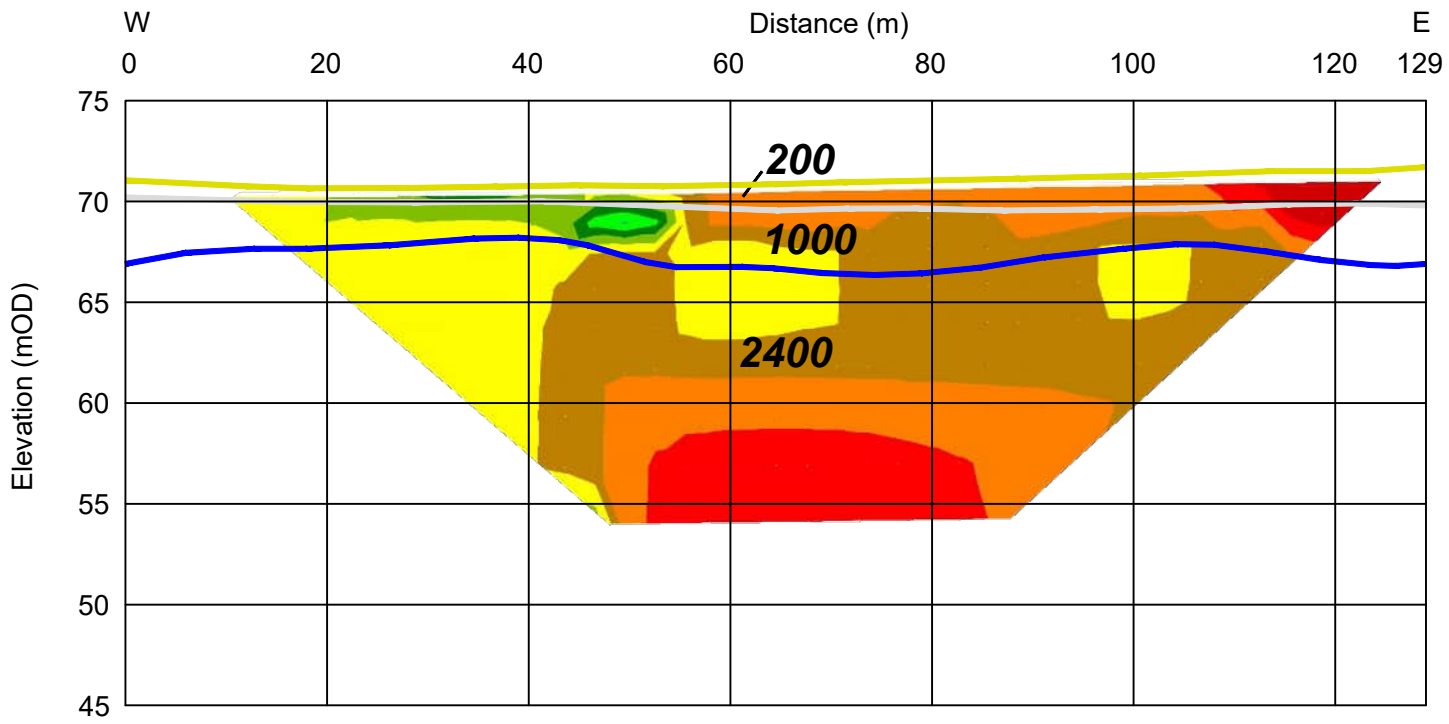
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

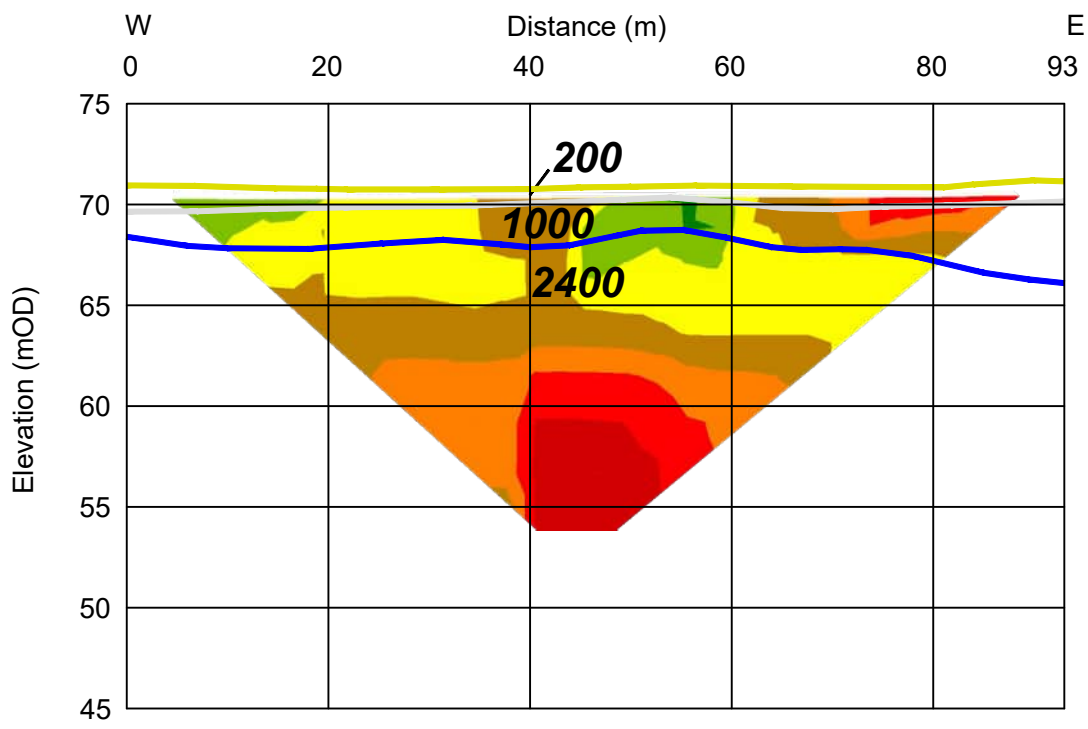
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

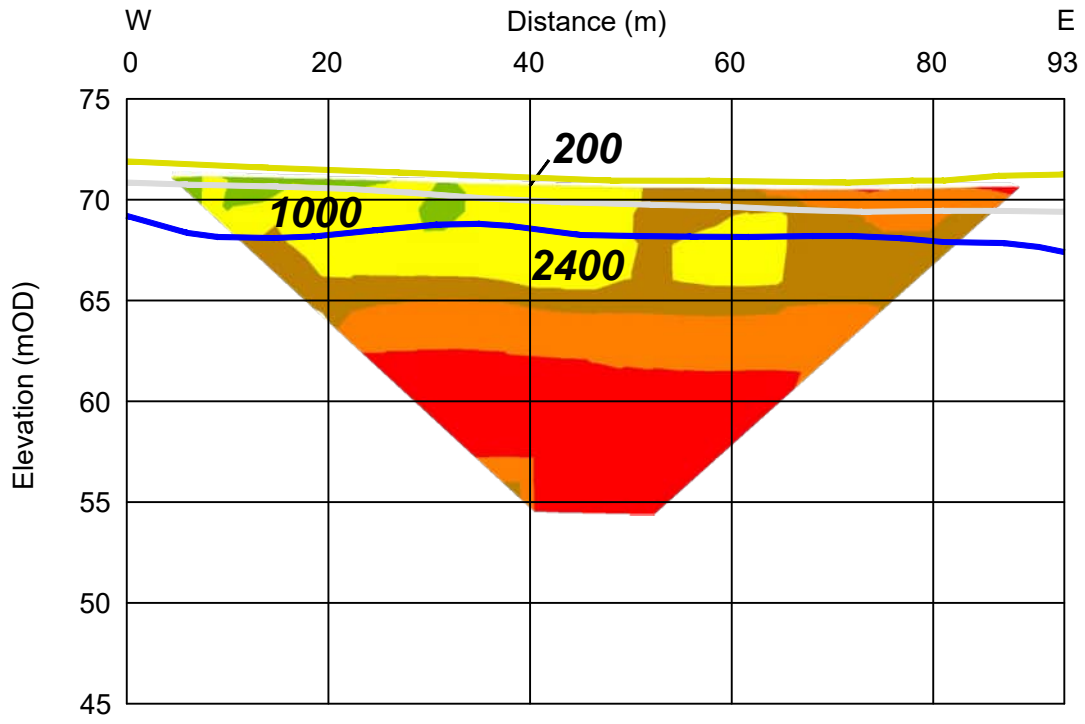
2D-Resistivity Line R18 and Seismic Refraction Line S18 Model



2D-Resistivity Line R19 and Seismic Refraction Line S19 Model



2D-Resistivity Line R20 and Seismic Refraction Line S20 Model



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Web: www.mgx.ie

CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 8a: Models of Geophysical Survey from Ch62198

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

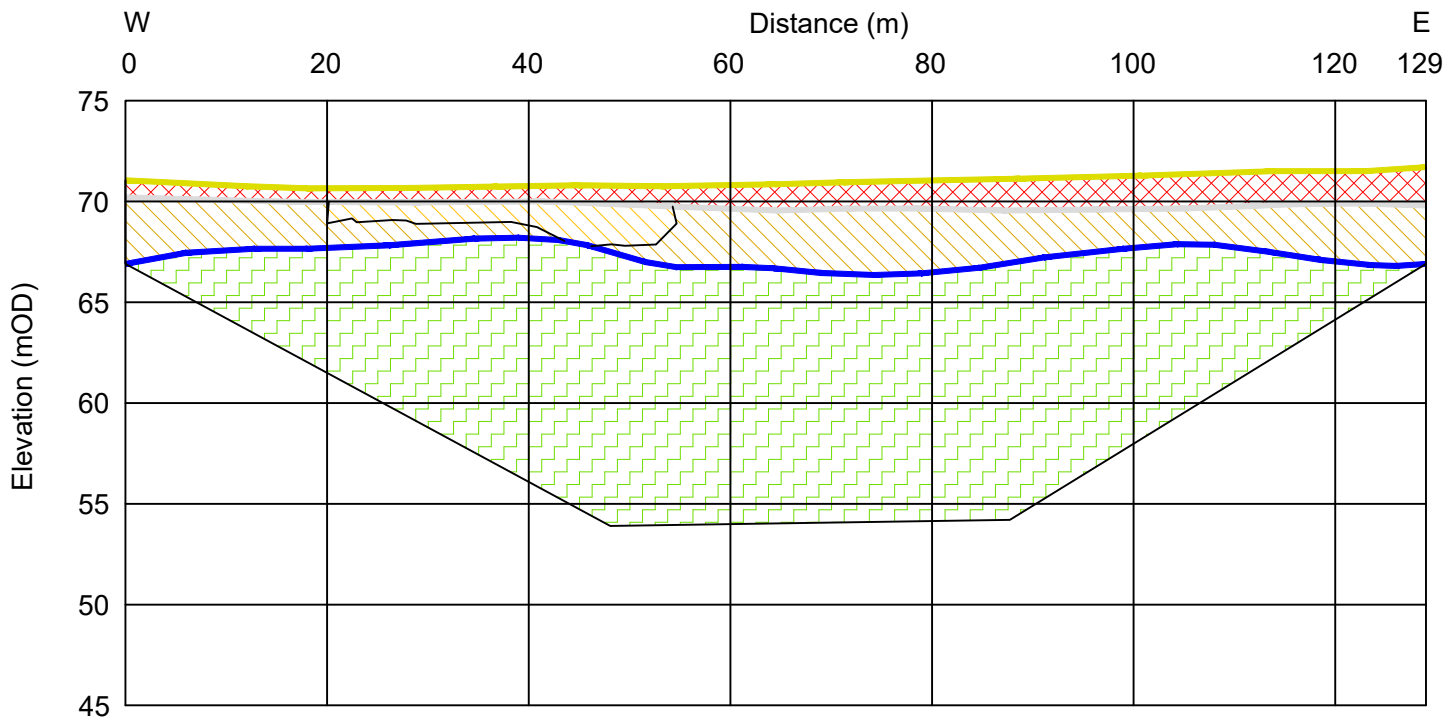
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

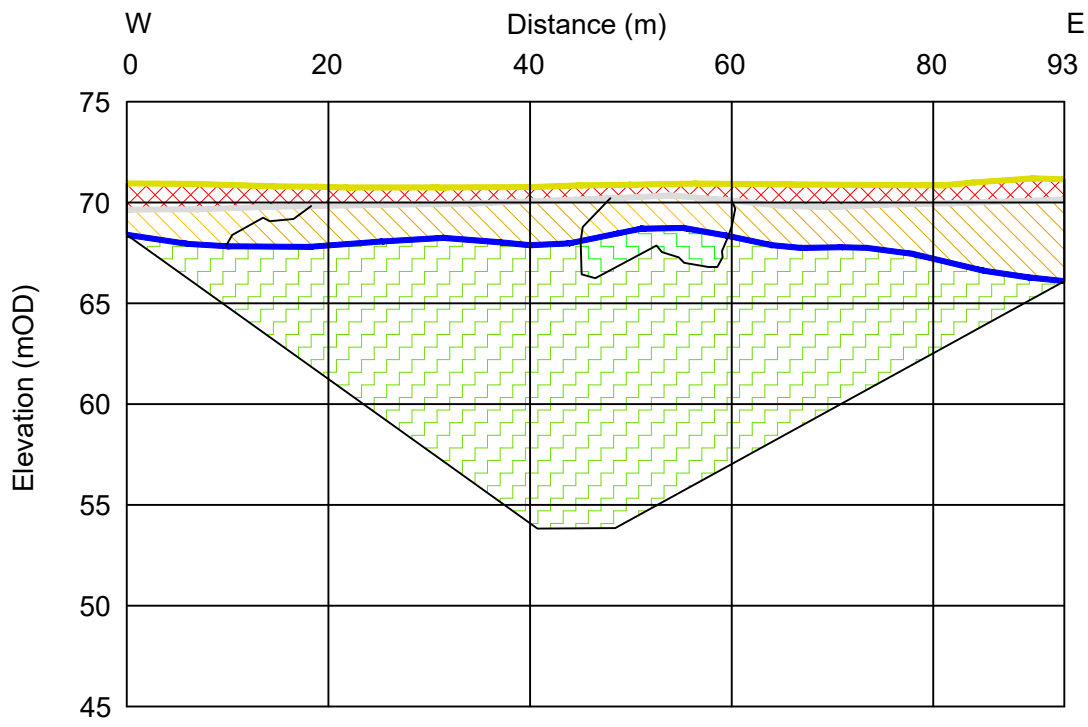
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

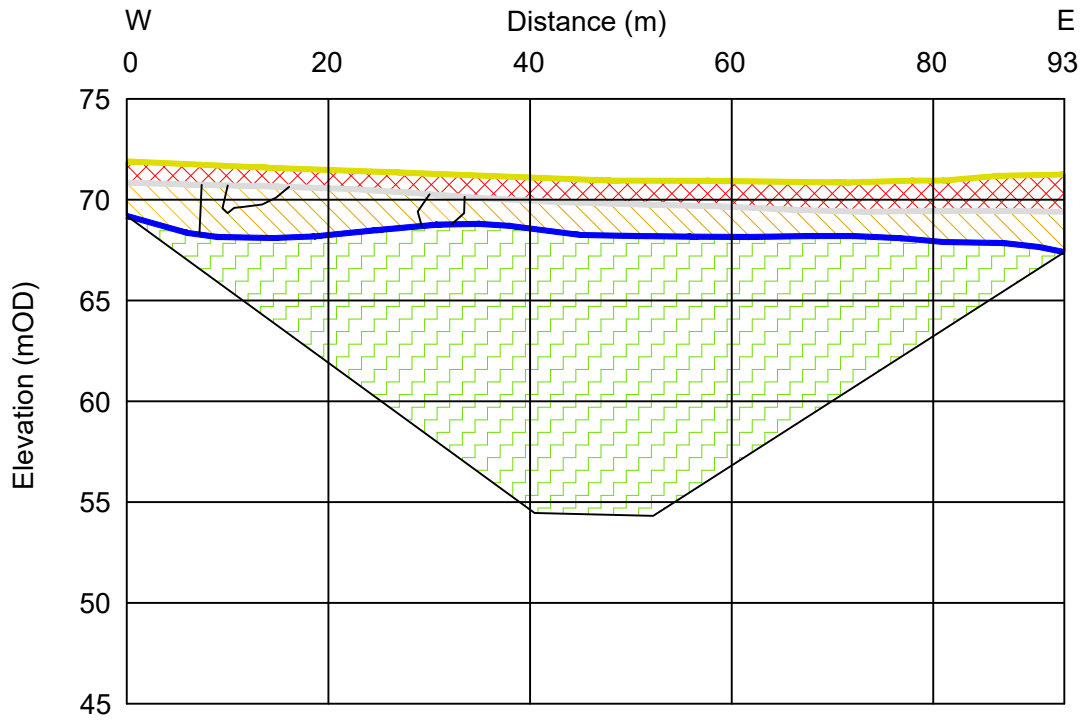
2D-Resistivity Line R18 and Seismic Refraction Line S18 Interpretation



2D-Resistivity Line R19 and Seismic Refraction Line S19 Interpretation



2D-Resistivity Line R20 and Seismic Refraction Line S20 Interpretation



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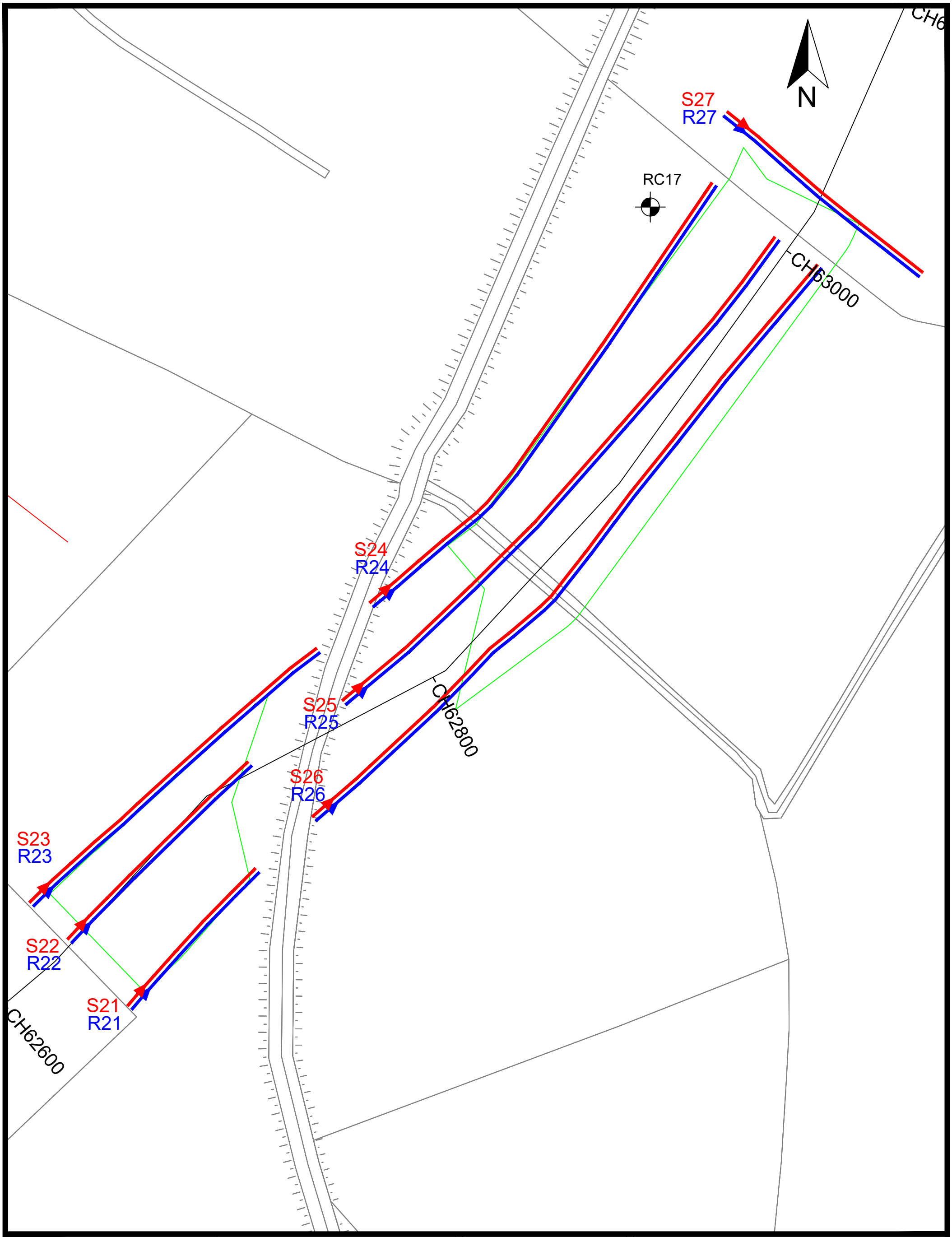
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 8b: Interpretation of Geophysical Survey from Ch62198

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 6C Very dense clayey silty Sand or gravel



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 9: Geophysical Survey Location Map Ch62630

SCALE:	1:1250 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

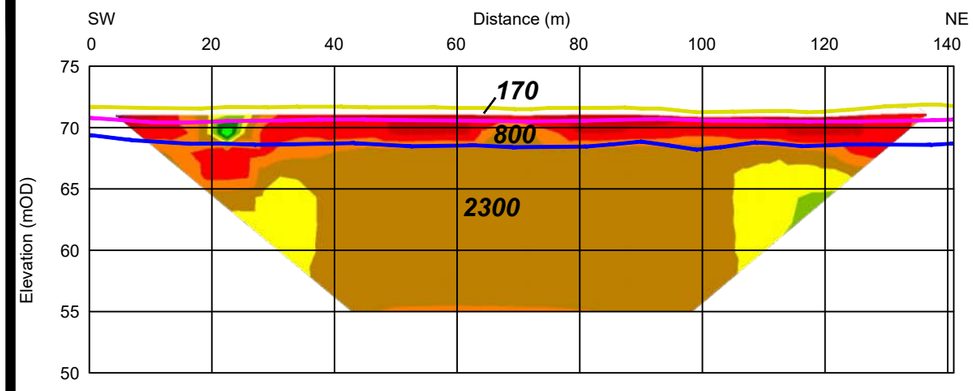
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

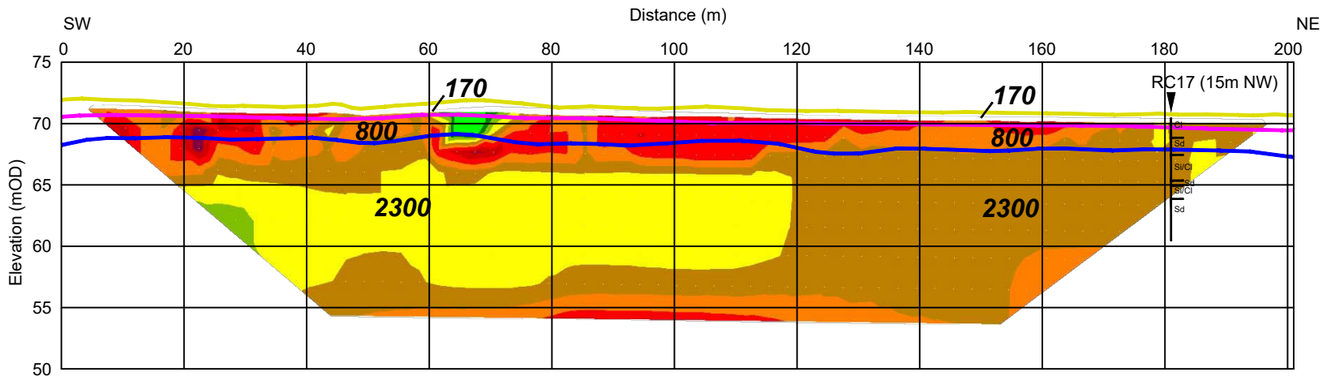
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

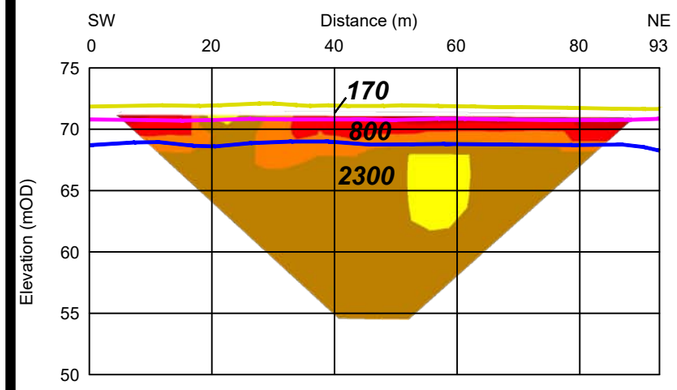
2D-Resistivity Line R23 and Seismic Refraction Line S23 Model



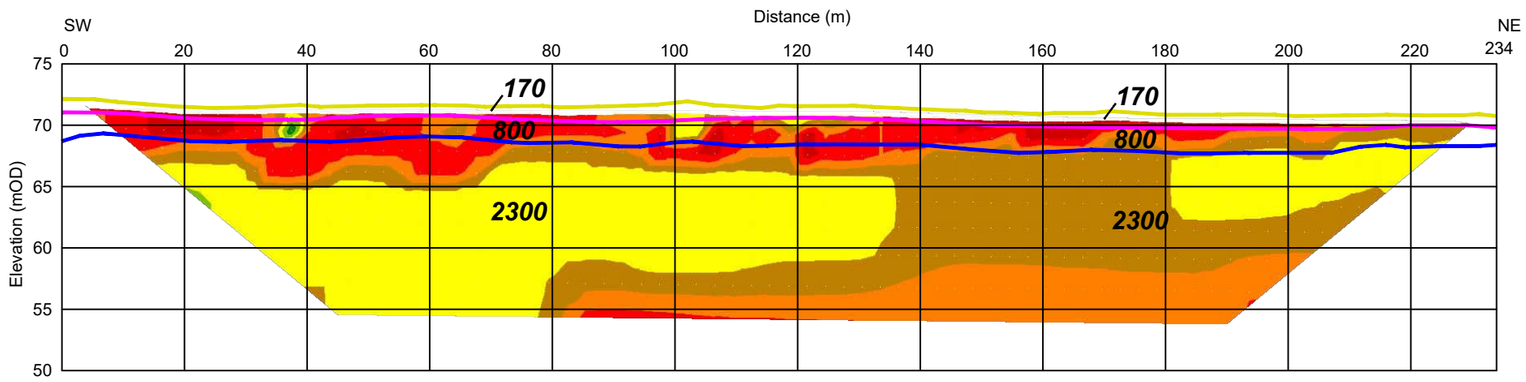
2D-Resistivity Line R24 and Seismic Refraction Line S24 Model



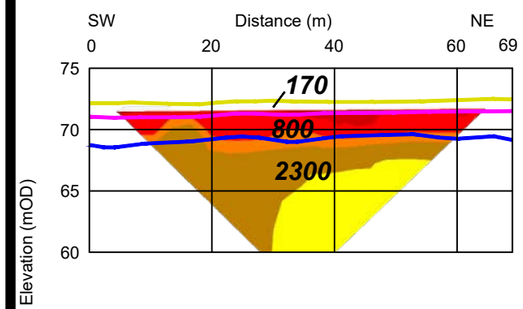
-Resistivity Line R22 and Seismic Refraction Line S22 Model



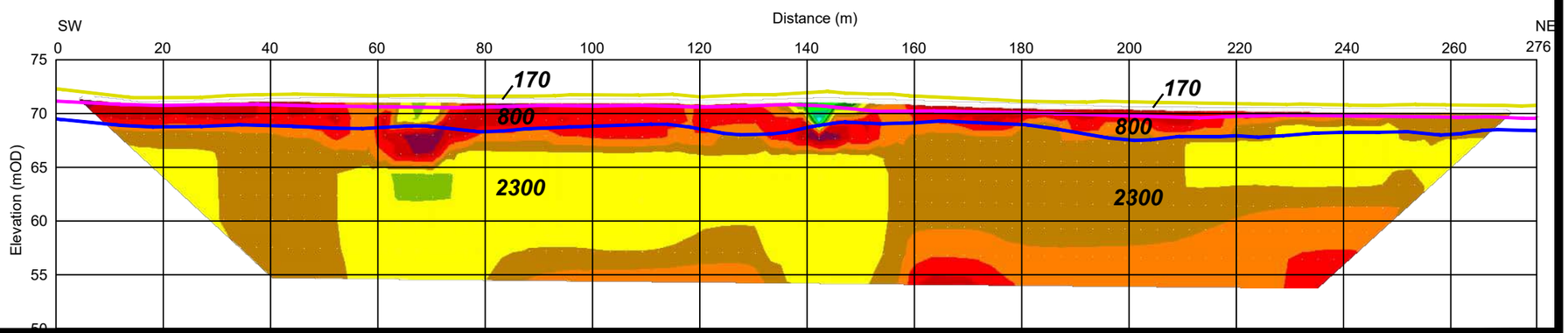
2D-Resistivity Line R25 and Seismic Refraction Line S25 Model



istivity Line R21 and Seismic Refraction Line S21 Model



2D-Resistivity Line R26 and Seismic Refraction Line S26 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 9a: Models of Geophysical Survey Ch62630

SCALE:	1:1000 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

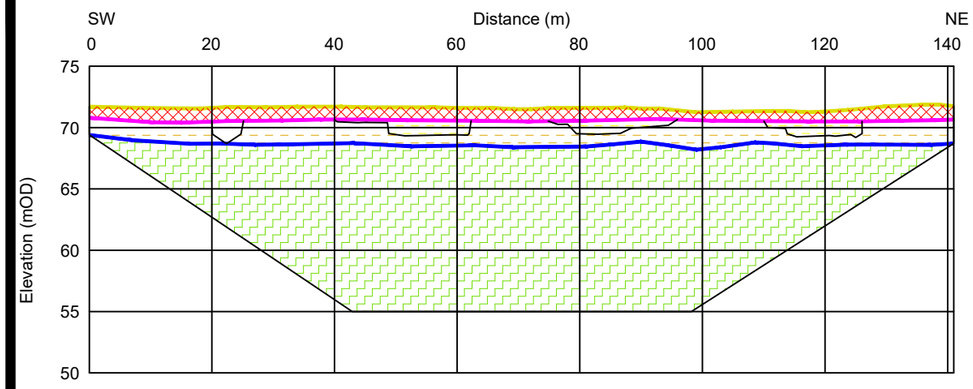
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

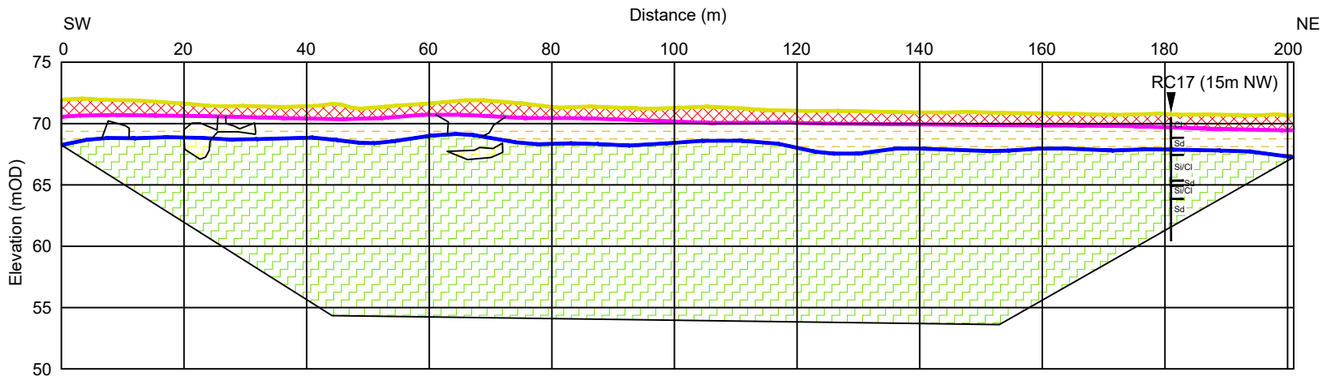
Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone

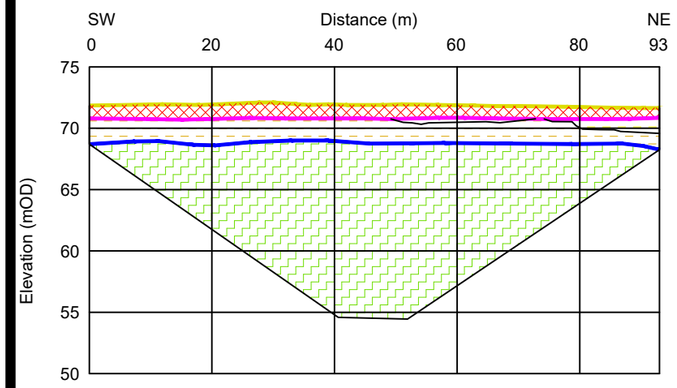
2D-Resistivity Line R23 and Seismic Refraction Line S23 Interpretation



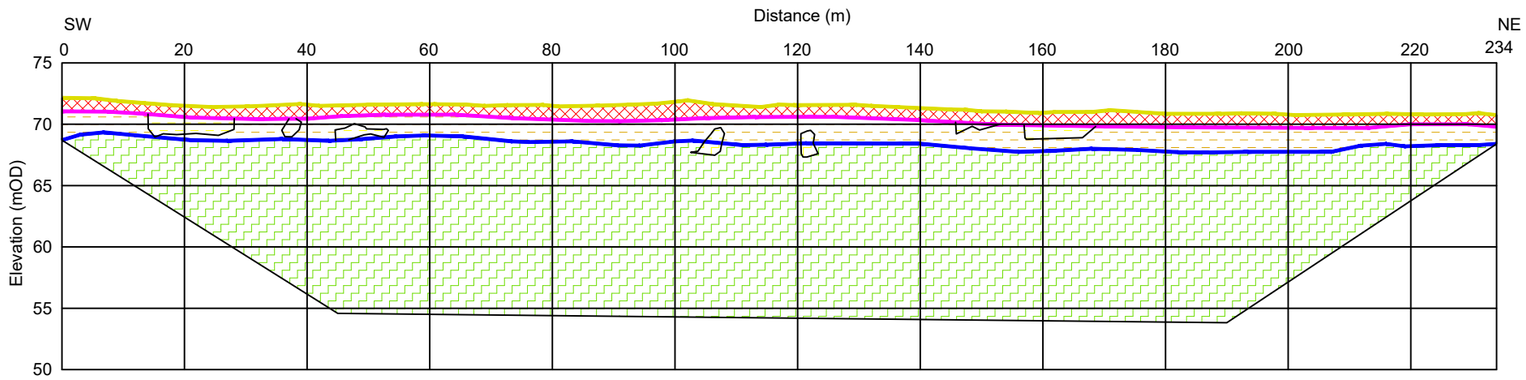
2D-Resistivity Line R24 and Seismic Refraction Line S24 Interpretation



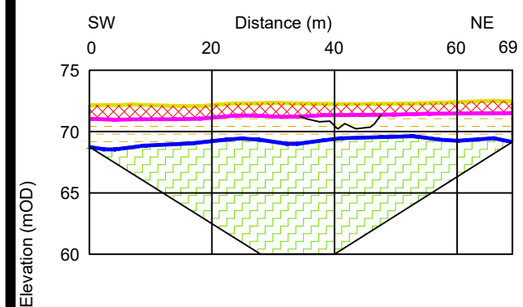
-Resistivity Line R22 and Seismic Refraction Line S22 Interpretation



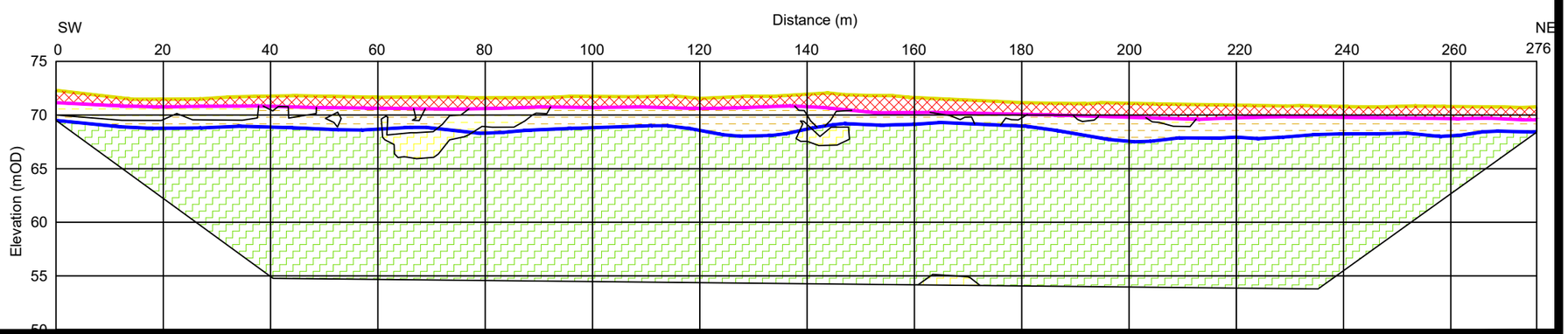
2D-Resistivity Line R25 and Seismic Refraction Line S25 Interpretation



istivity Line R21 and Seismic Refraction Line S21 Interpretation



2D-Resistivity Line R26 and Seismic Refraction Line S26 Interpretation



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 9b: Interpretation of Geophysical Survey Ch62630

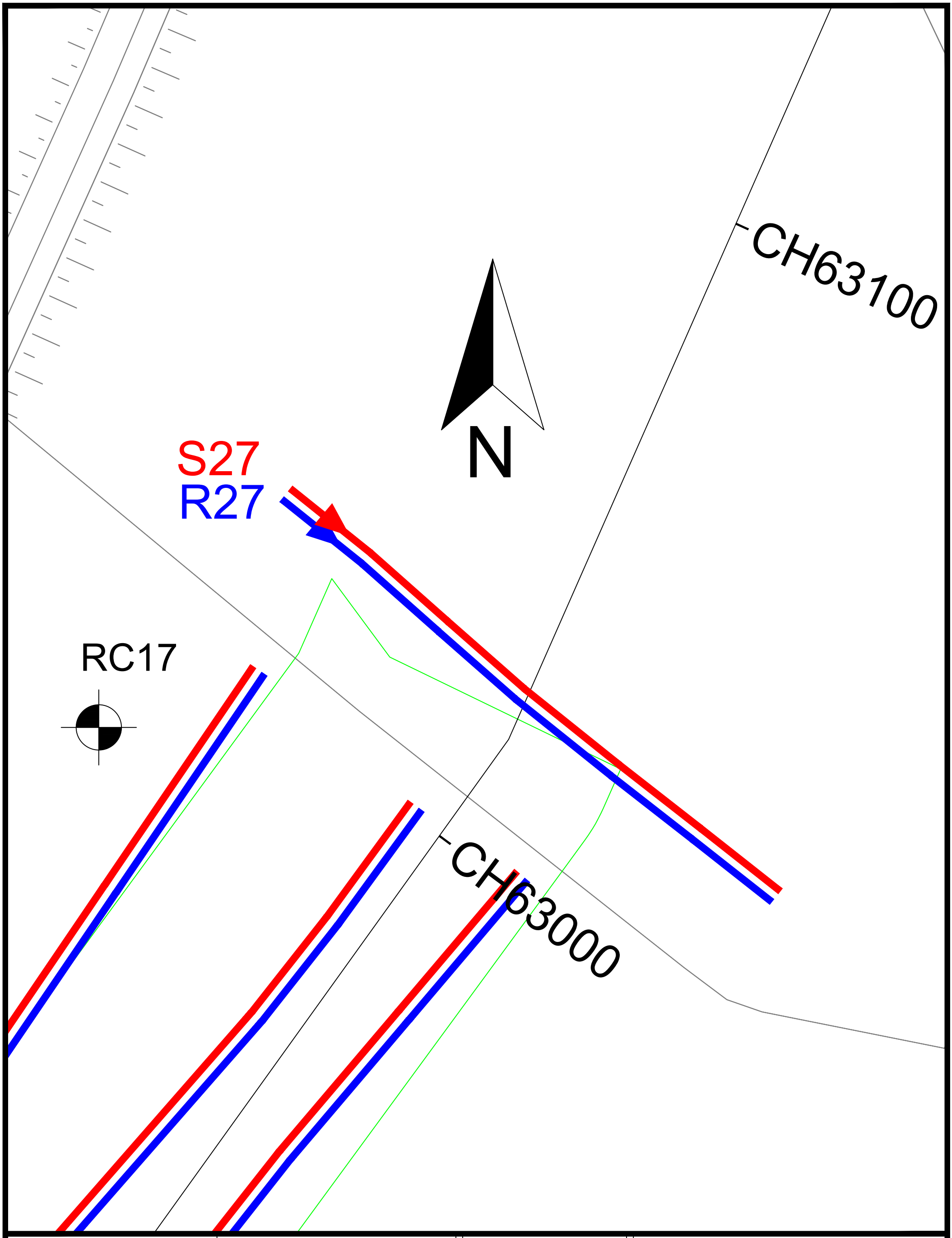
SCALE:	1:1000 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 3A Firm Clay
- 3B Firm sandy gravelly Clay or Silt
- 3C Medium Dense Clayey silty Sand or Gravel
- 6A Hard Clay
- 6B Very stiff sandy gravelly Clay or Silt

Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 10: Geophysical Survey Location Map Ch63018

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

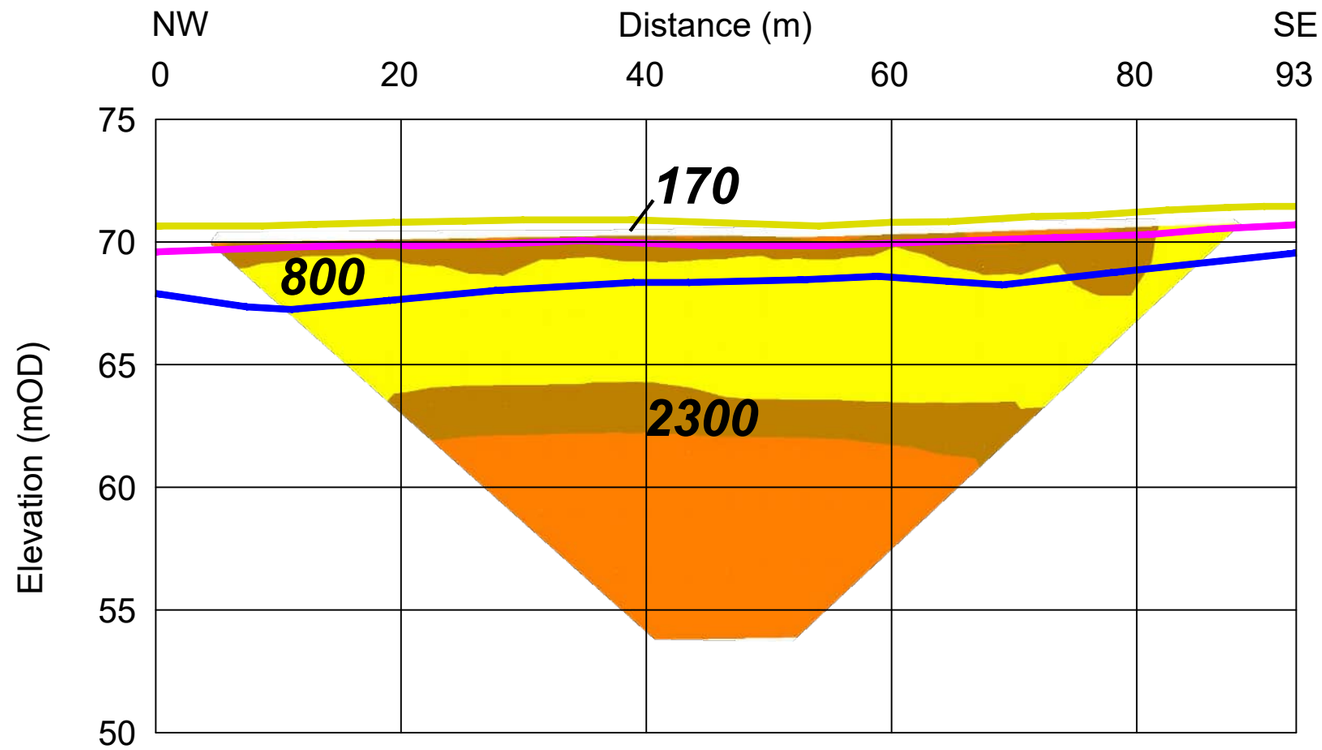
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R27 and Seismic Refraction Line S27 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 10a: Models of Geophysical Survey Ch63018

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

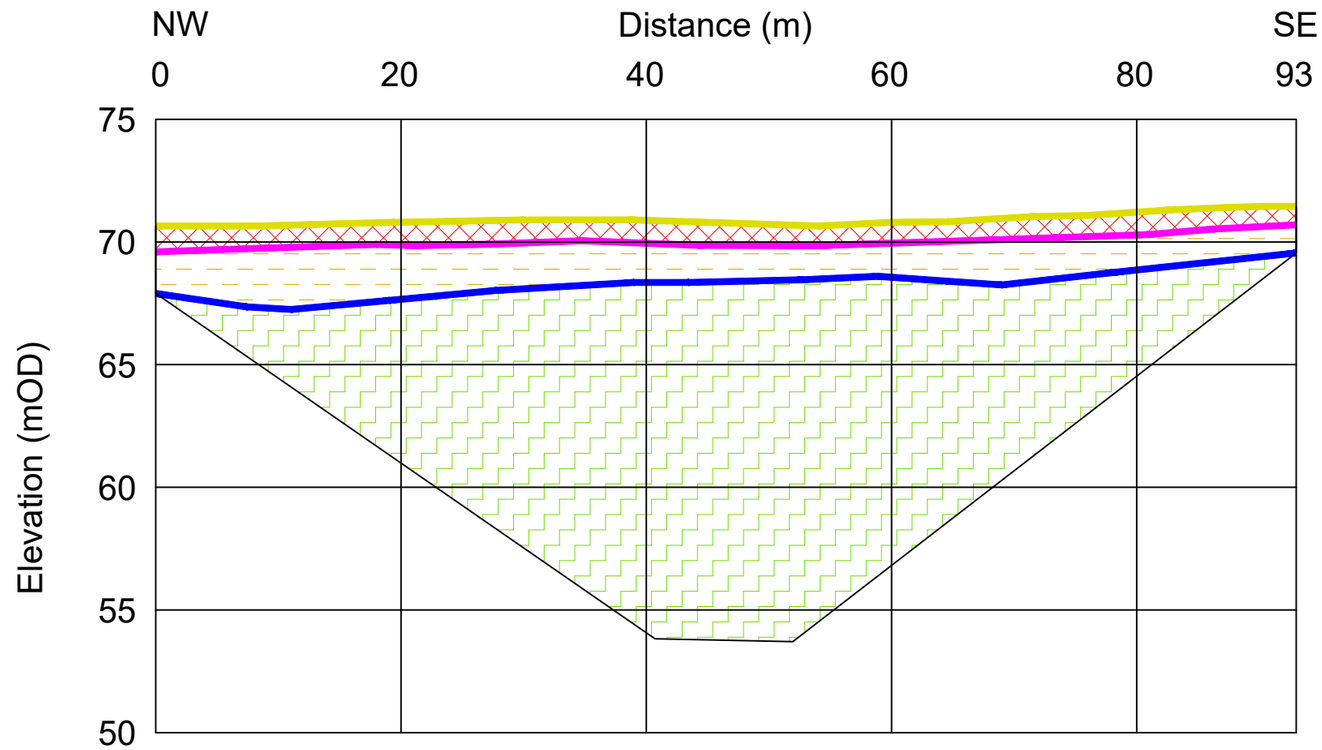
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R27 and Seismic Refraction Line S27 Model



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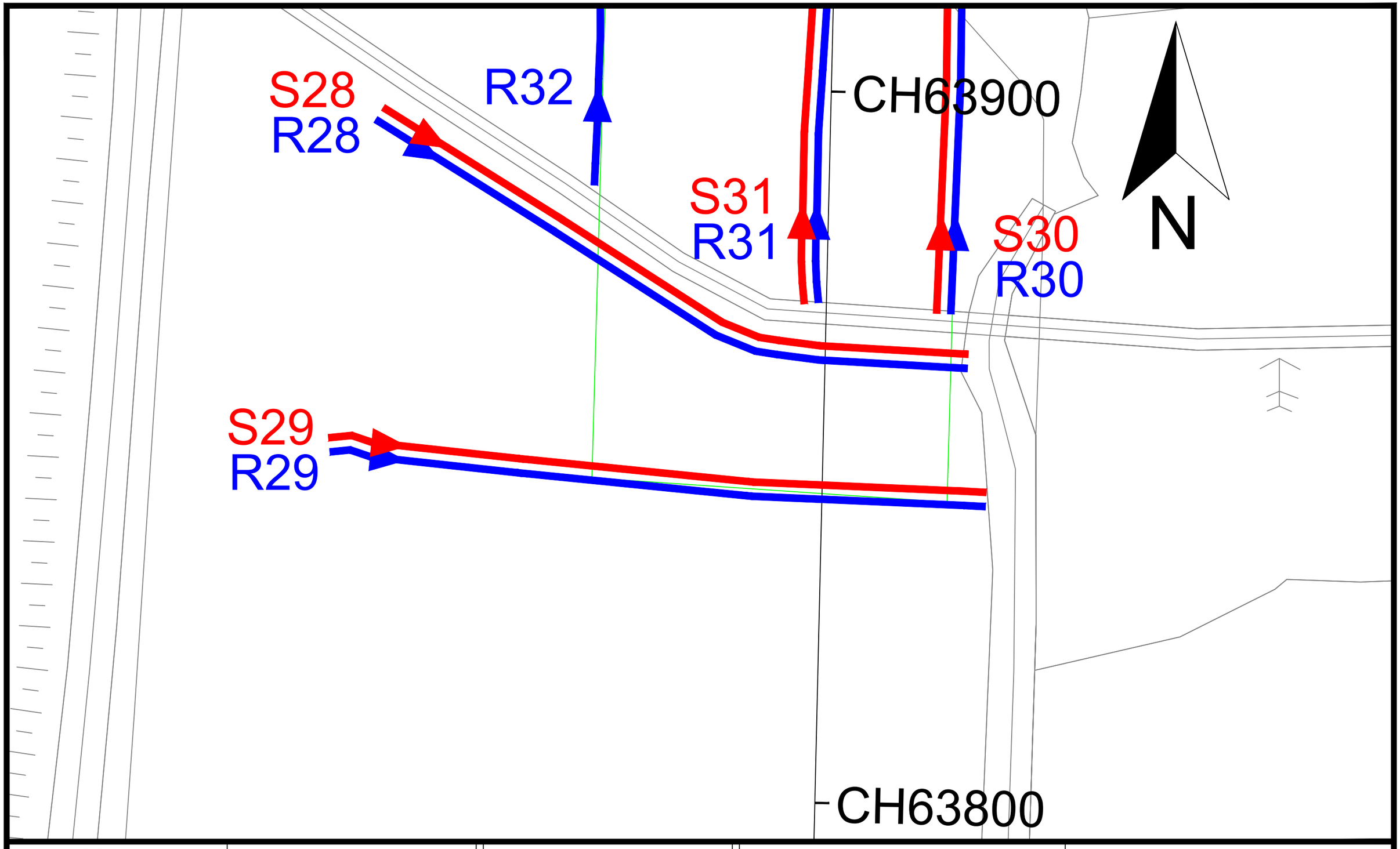
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 10b: Interpretation of Geophysical Survey Ch63018

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 3B Firm sandy gravelly Clay or Silt
- 6B Very stiff sandy gravelly Clay or Silt



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 11: Geophysical Survey Location Map Ch63842

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

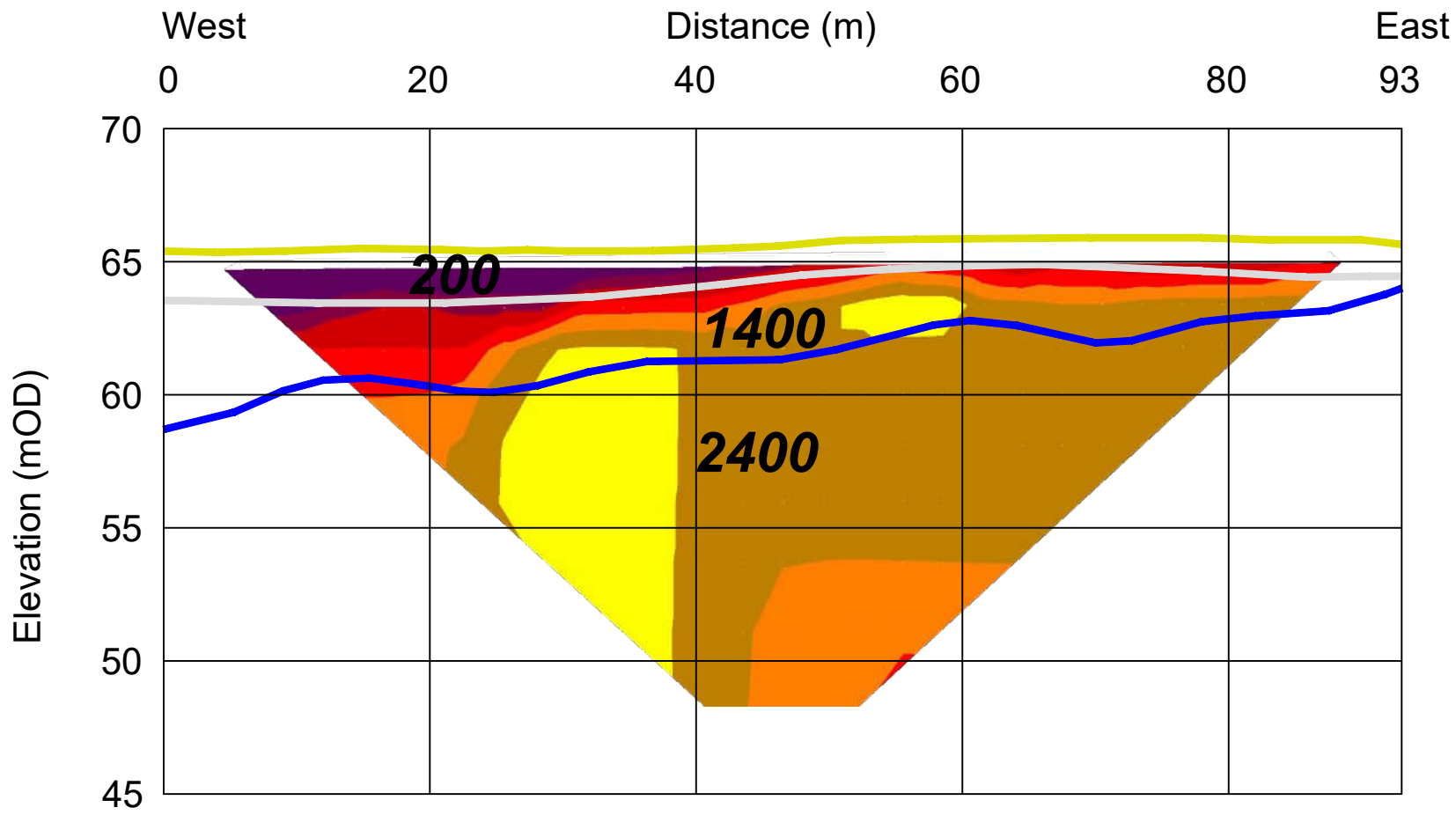
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

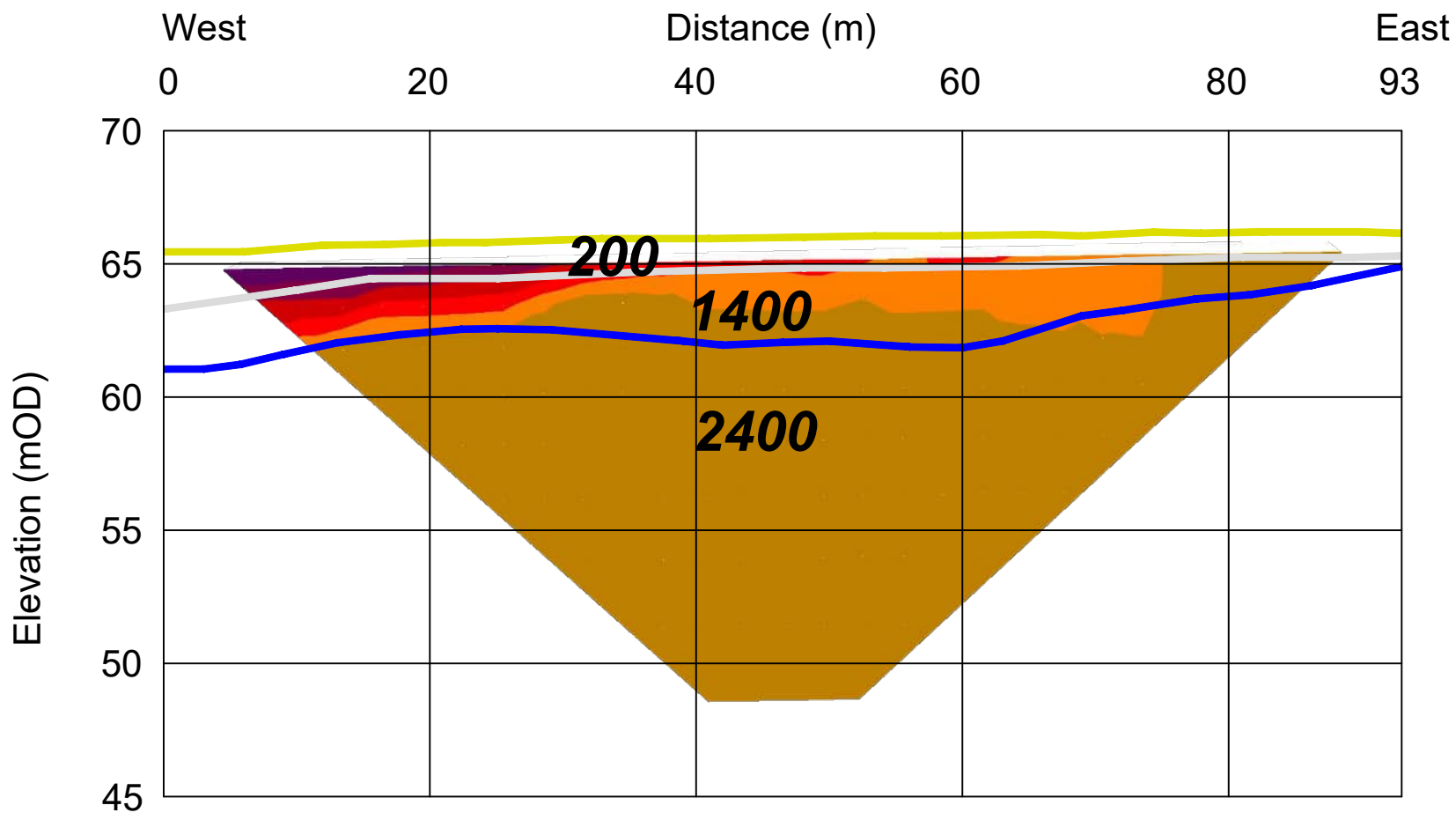
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R28 and Seismic Refraction Line S28 Model



2D-Resistivity Line R29 and Seismic Refraction Line S29 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 11a: Models of Geophysical Survey from Ch63842

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

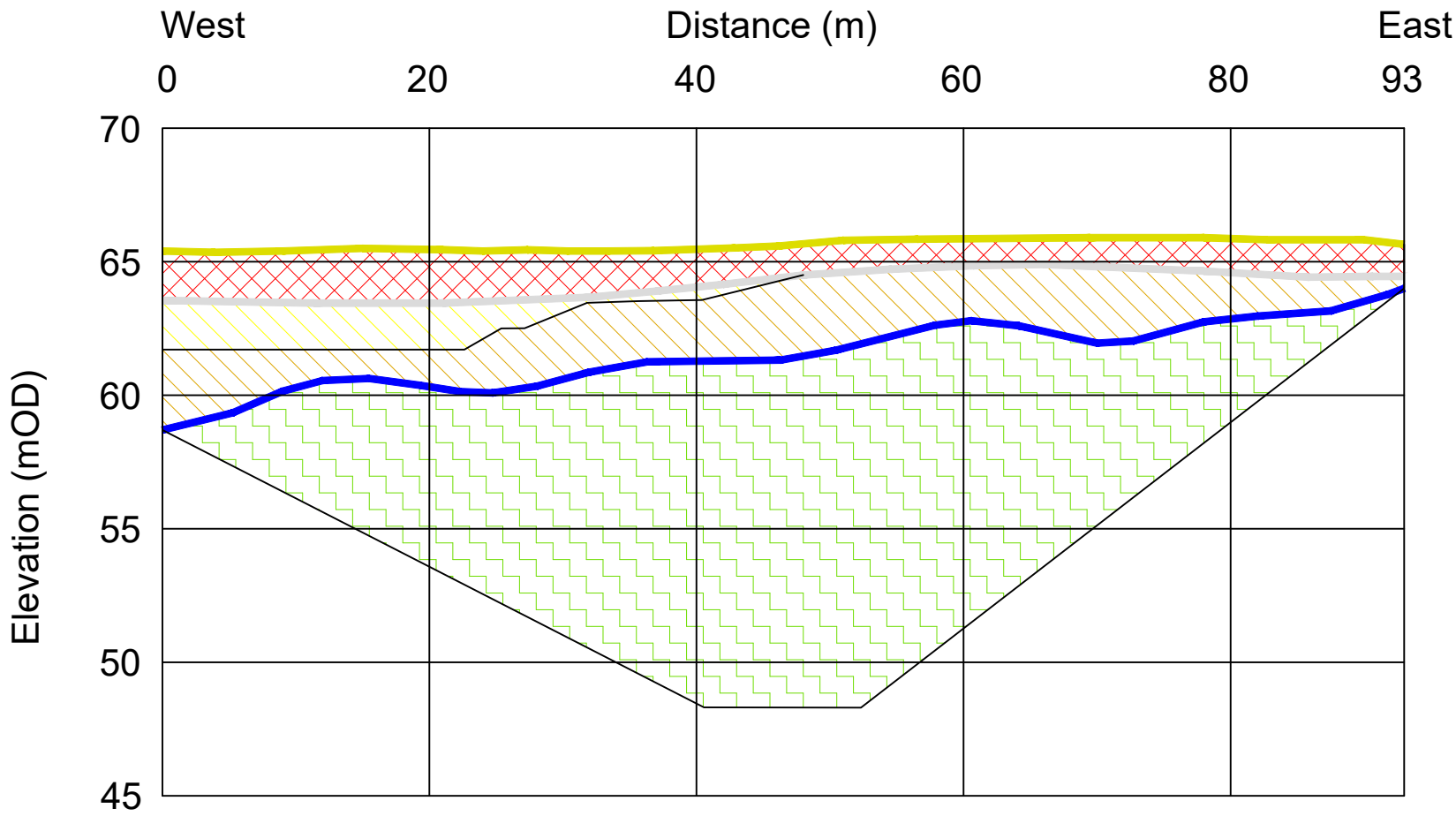
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

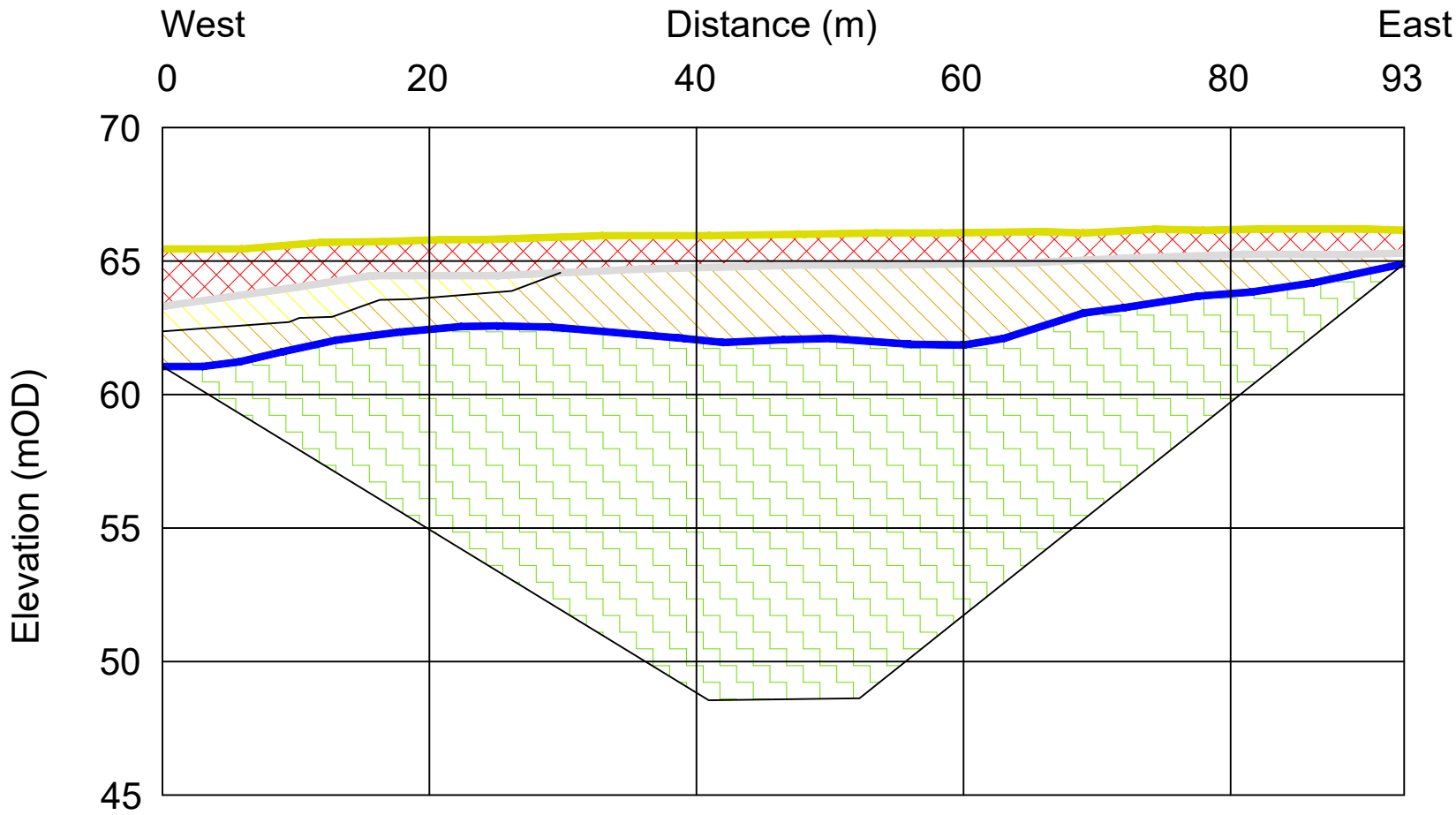
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R28 and Seismic Refraction Line S28 Interpretation



2D-Resistivity Line R29 and Seismic Refraction Line S29 Interpretation



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 11b: Interpretation of Geophysical Survey from Ch63842

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4A Stiff Clay
- 4B Stiff sandy gravelly Clay or Silt
- 6B Very stiff sandy gravelly Clay or Silt

CH64000

CH63900

UND

No
Seismics
Due to
Flooding

S28
R28

R32

S31
R31

S30
R30

N

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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 12: Geophysical Survey Location Map from Ch63869

SCALE:	1:600 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

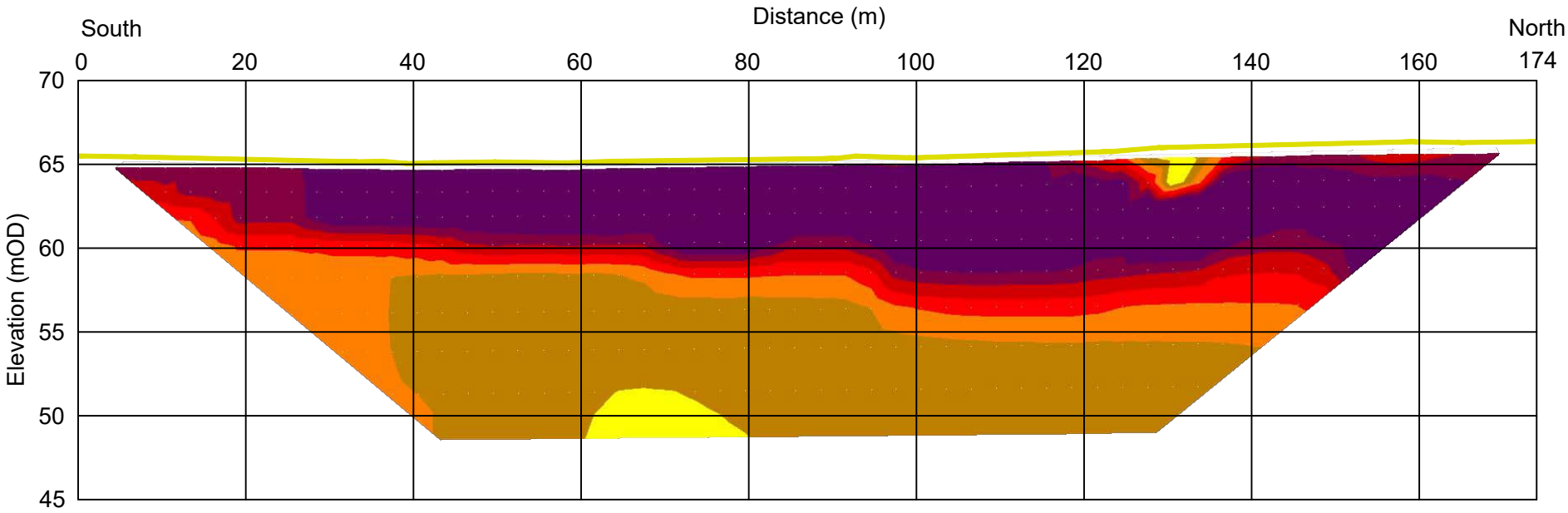
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

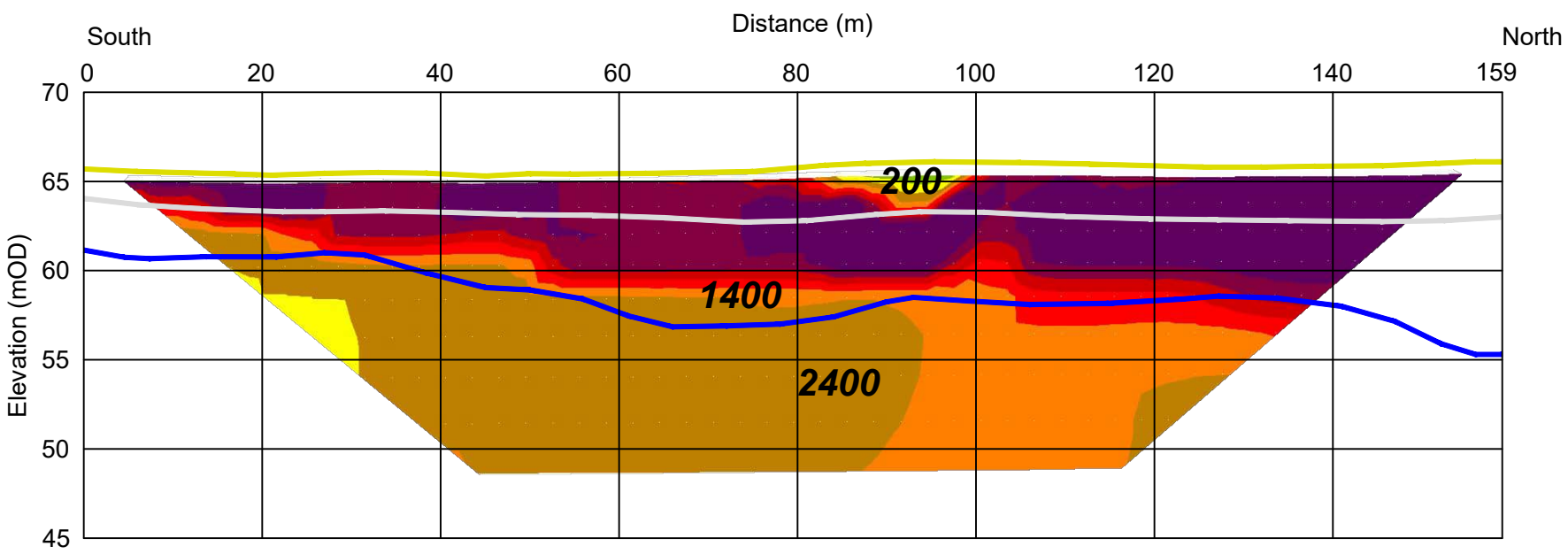
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

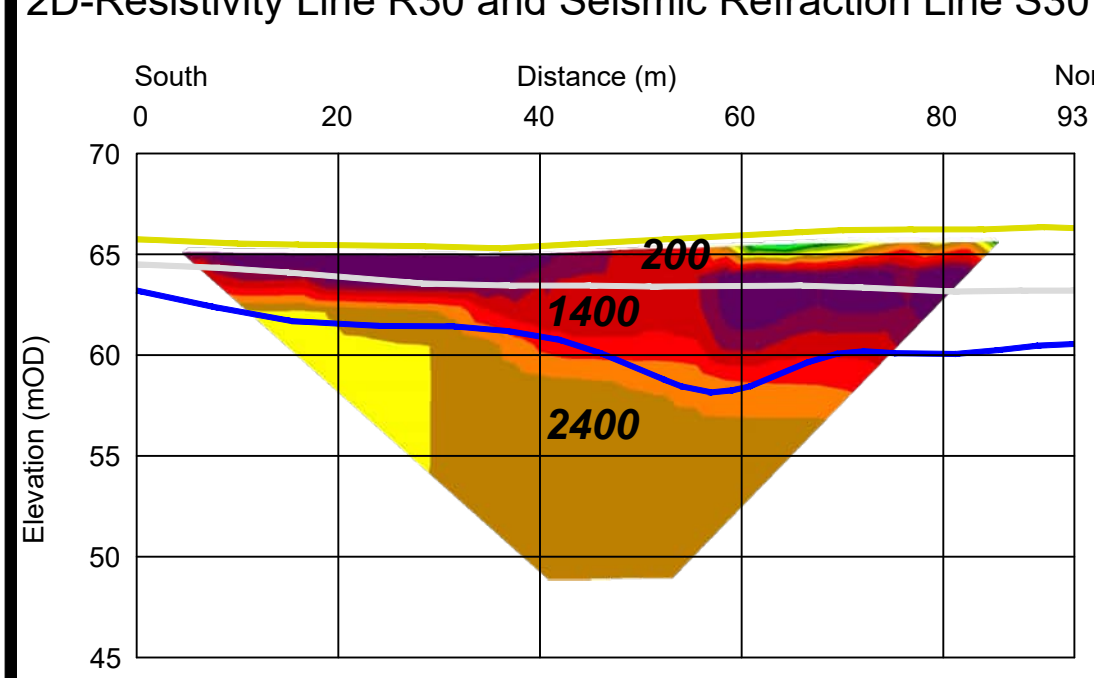
2D-Resistivity Line R32



2D-Resistivity Line R31 and Seismic Refraction Line S31 Model



2D-Resistivity Line R30 and Seismic Refraction Line S30 Model



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Web: www.mgx.ie

CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 12a: Models of Geophysical Survey from Ch63869

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

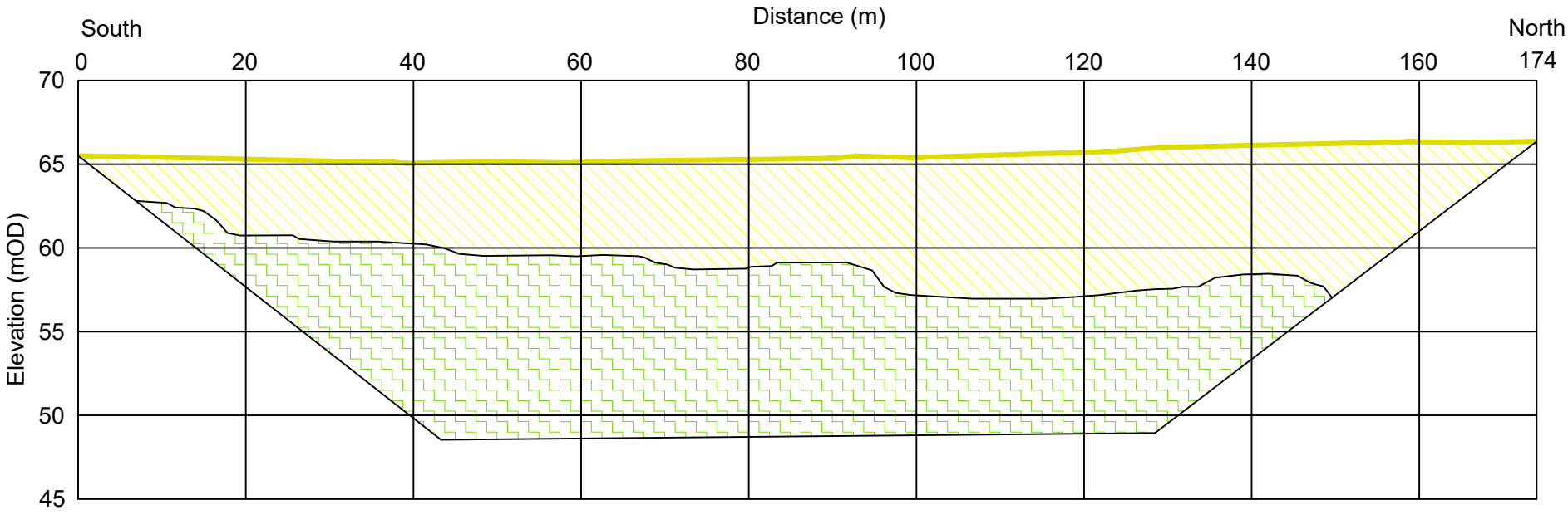
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

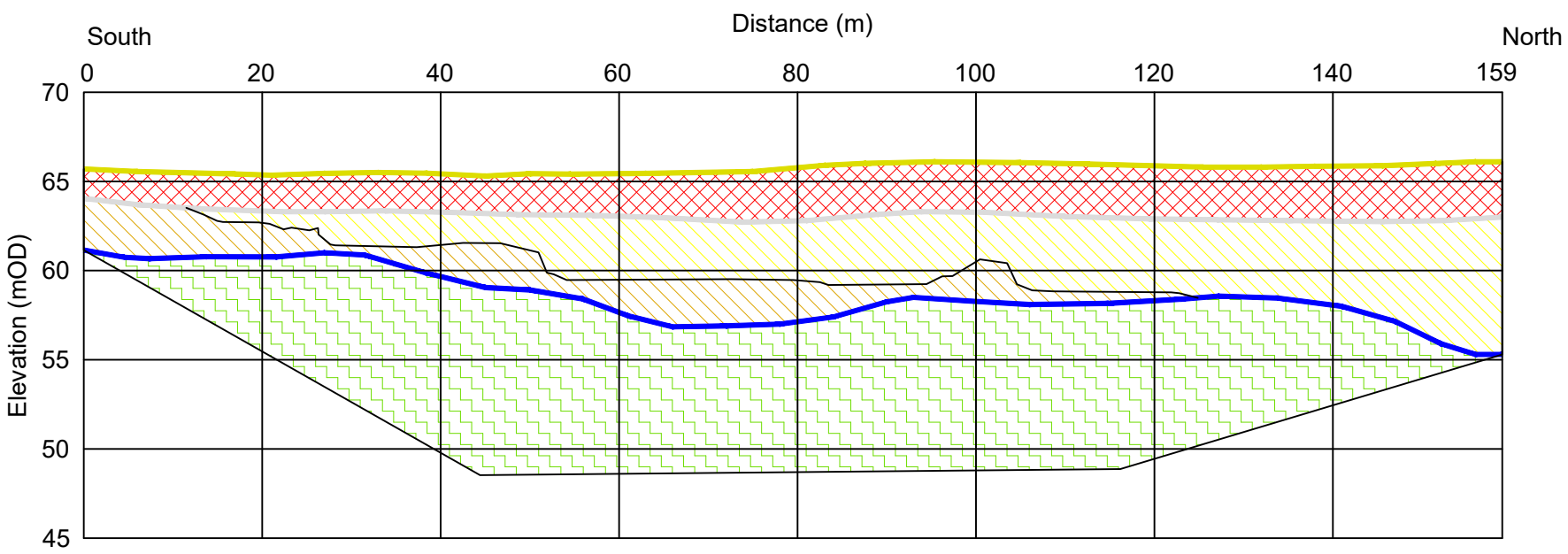
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

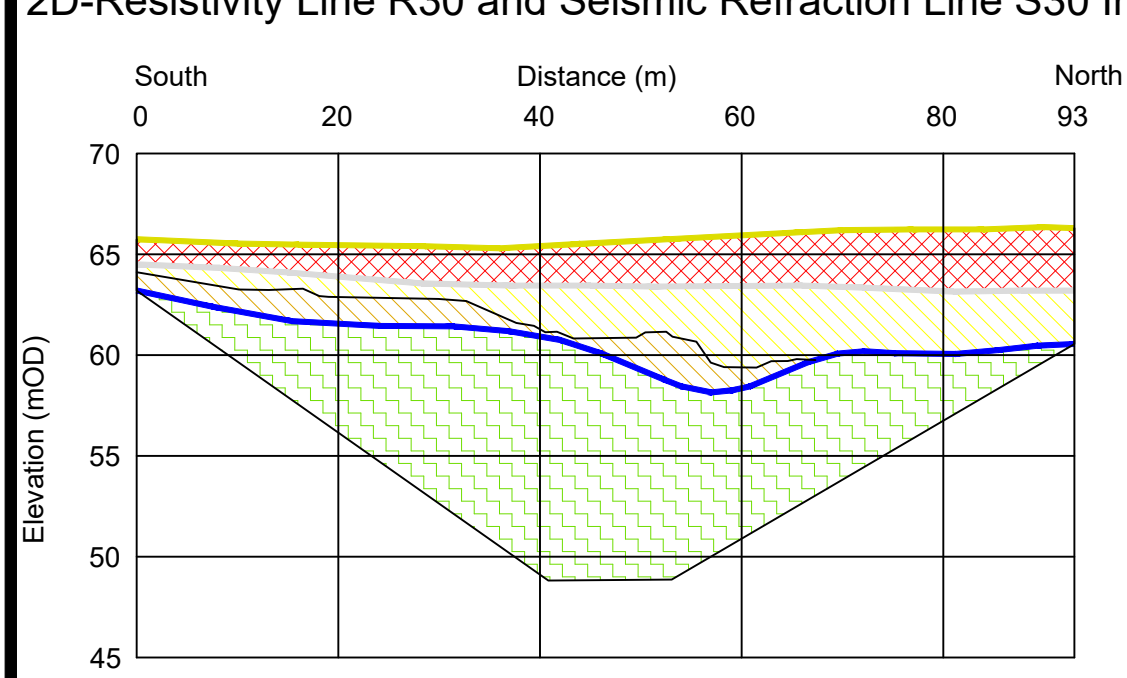
2D-Resistivity Line R32 Interpretation



2D-Resistivity Line R31 and Seismic Refraction Line S31 Interpretation



2D-Resistivity Line R30 and Seismic Refraction Line S30 Interpretation



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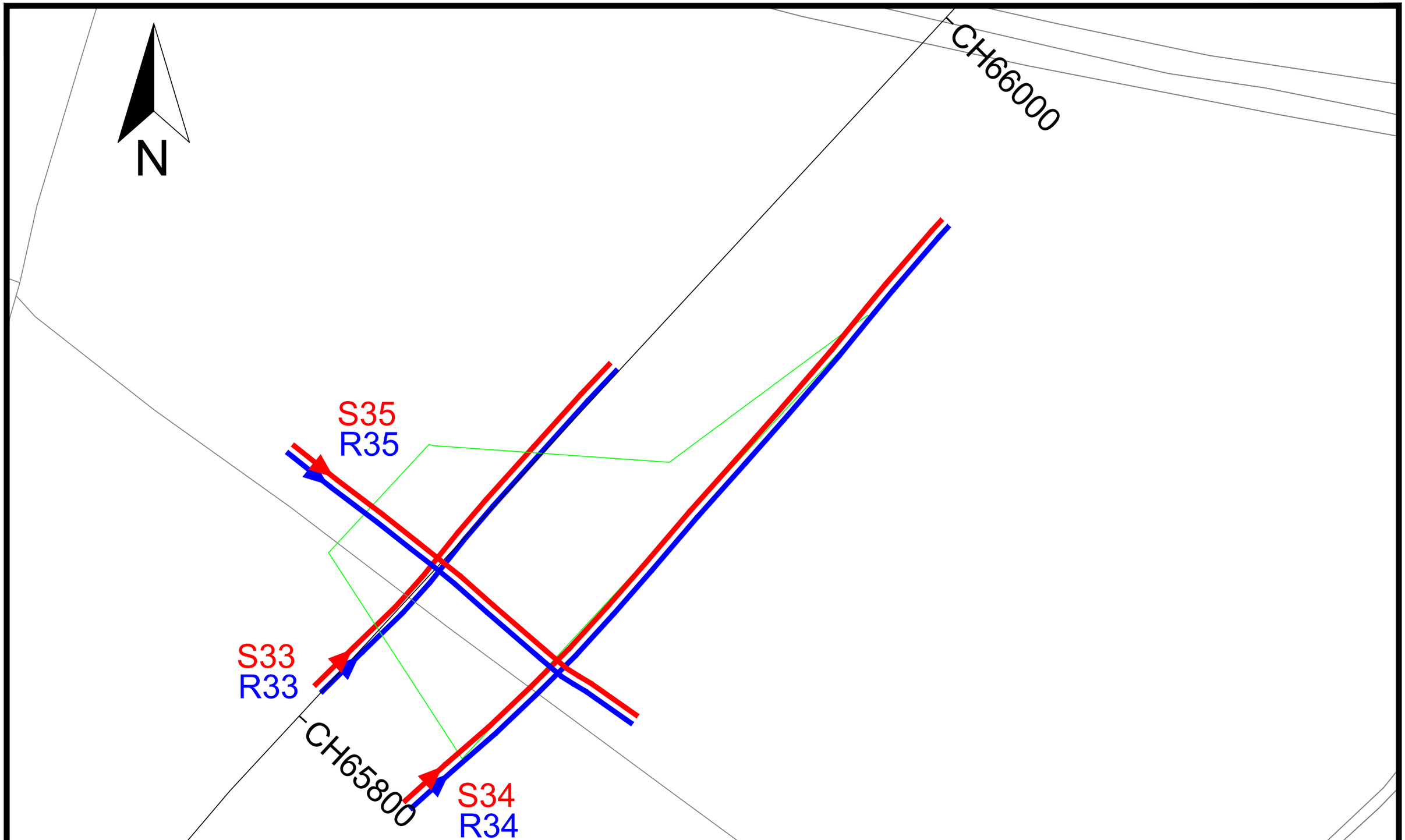
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 12b: Interpretation of Geophysical Survey from Ch63869

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4A Stiff Clay
- 4B Stiff sandy gravelly Clay or Silt
- 6B Very stiff sandy gravelly Clay or Silt



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Web: www.mgx.ie

CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 13: Geophysical Survey Location Map from Ch65801

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

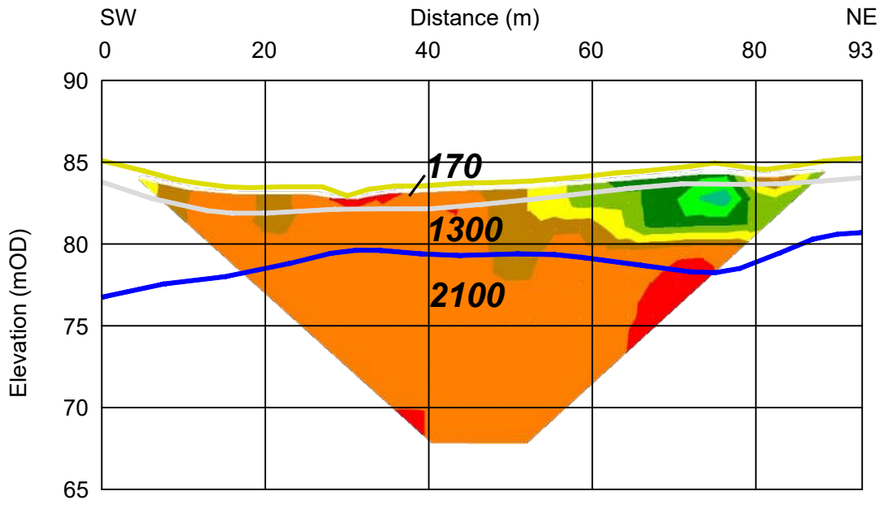
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

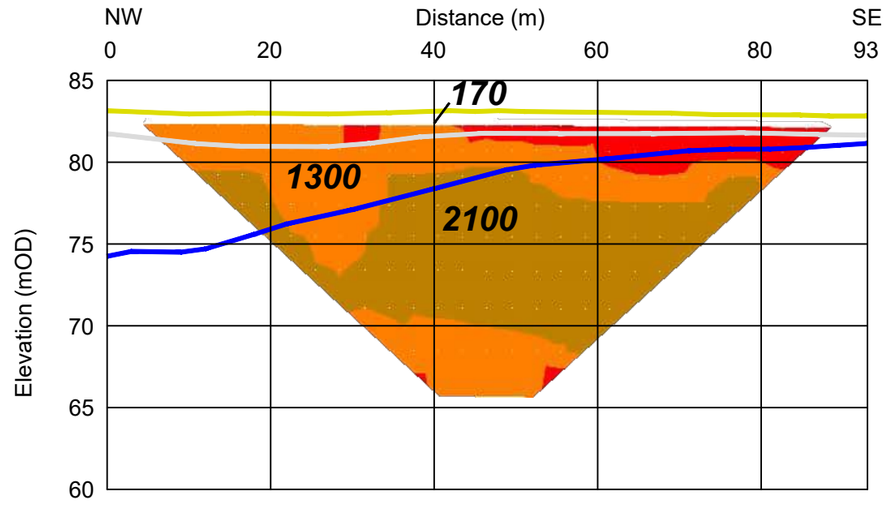
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

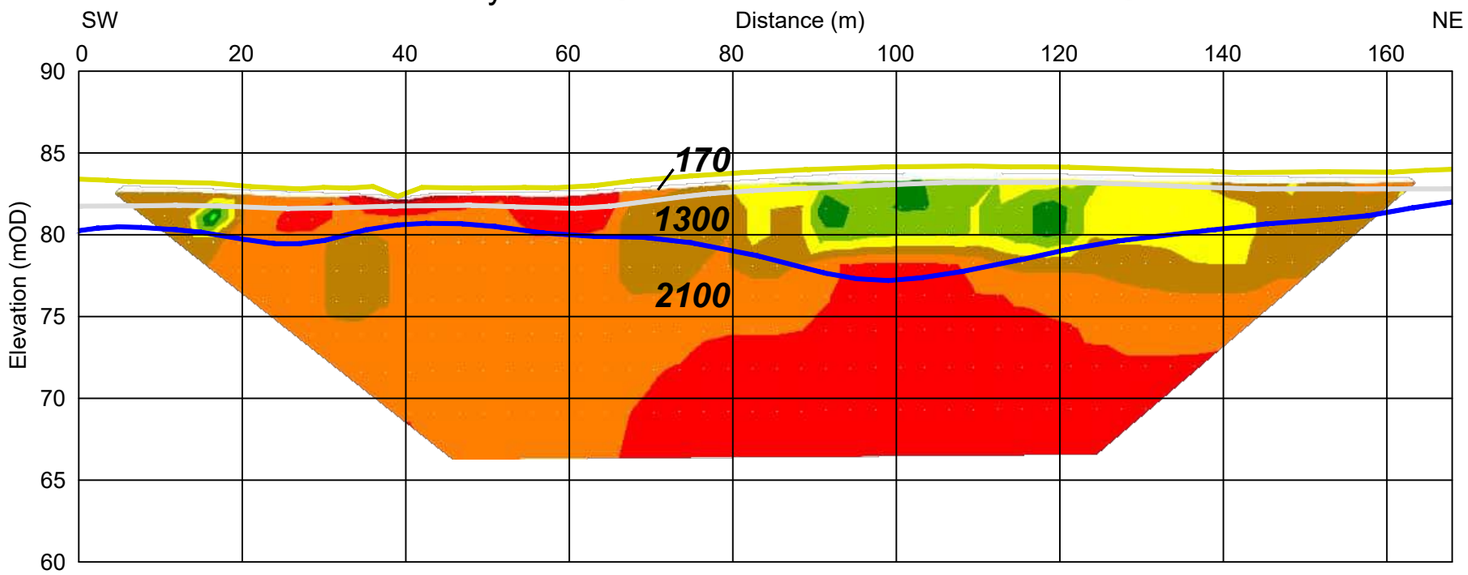
2D-Resistivity Line R33 and Seismic Refraction Line S33 Model



2D-Resistivity Line R35 and Seismic Refraction Line S35 Model



2D-Resistivity Line R34 and Seismic Refraction Line S34 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 13a: Models of Geophysical Survey Ch65801

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

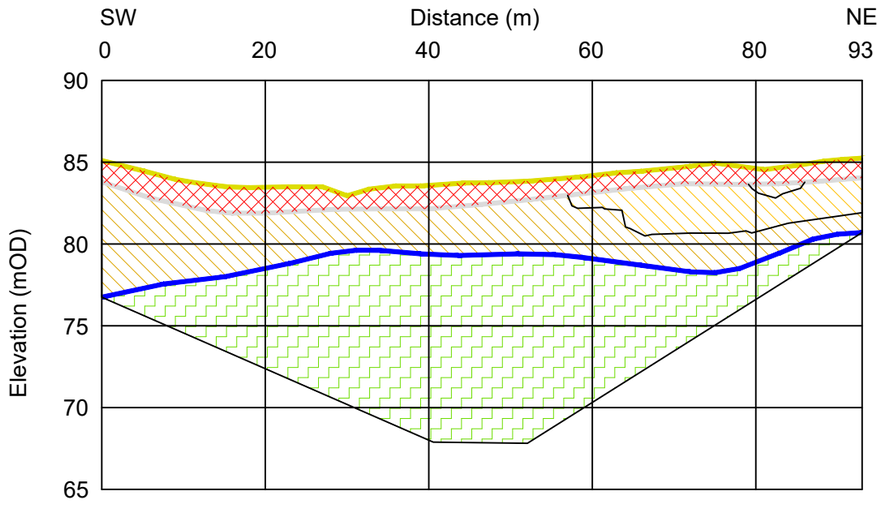
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

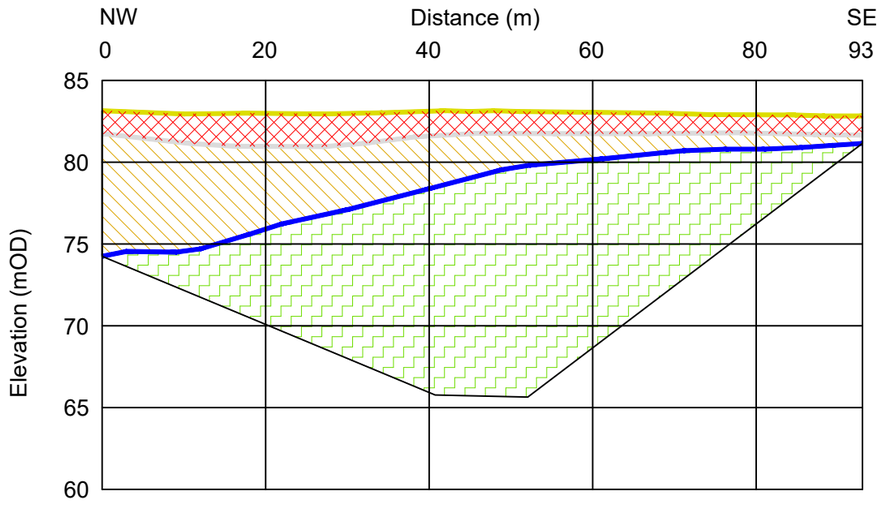
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 | 62.5 | 125 | 250 | 500 | 1000 | 2000 | 4000

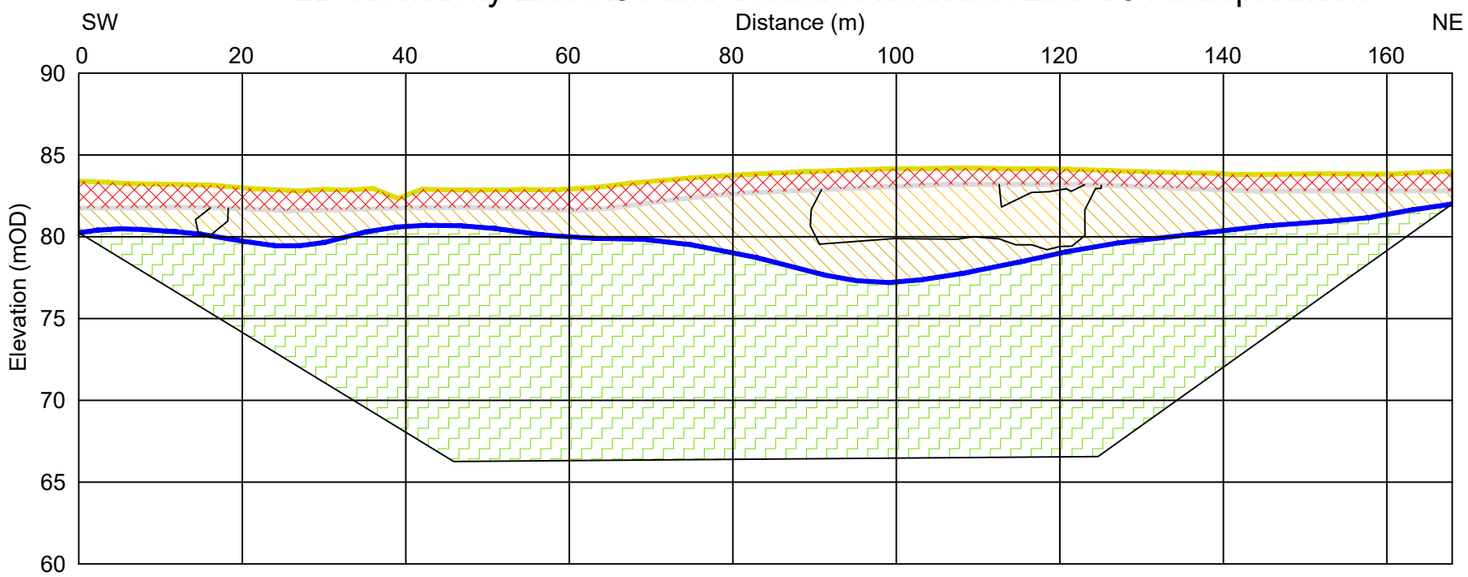
2D-Resistivity Line R33 and Seismic Refraction Line S33 Interpretation



2D-Resistivity Line R35 and Seismic Refraction Line S35 Interpretation



2D-Resistivity Line R34 and Seismic Refraction Line S34 Interpretation



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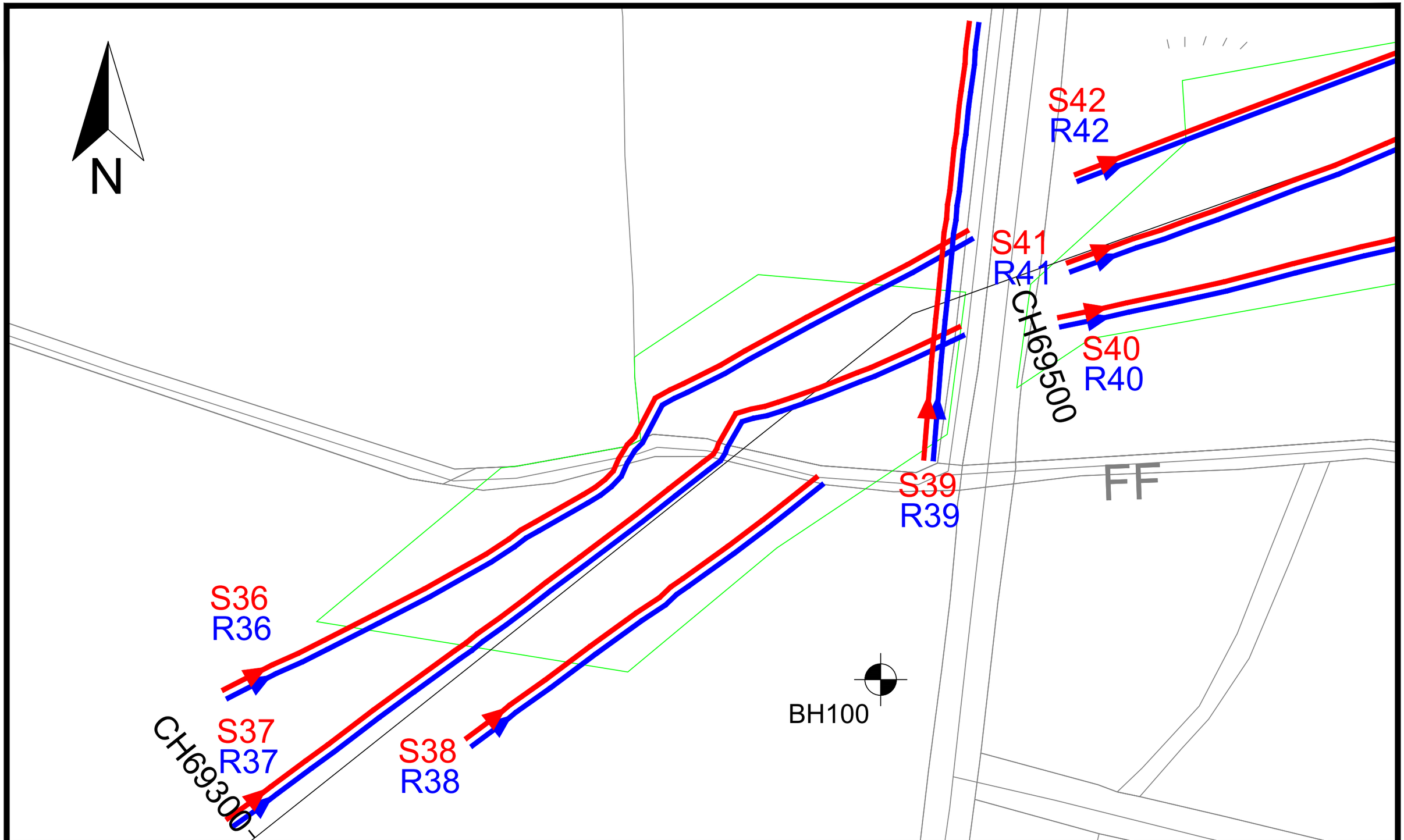
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 13b: Interpretation of Geophysical Survey Ch65801

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 14: Geophysical Survey Location Map from Ch69297

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

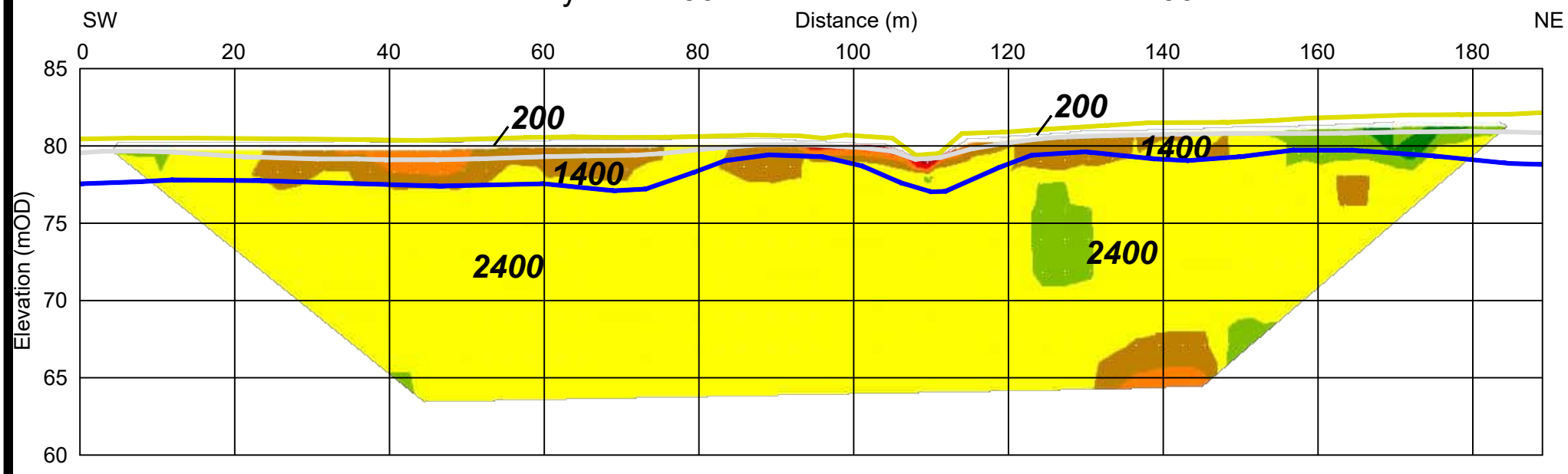
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

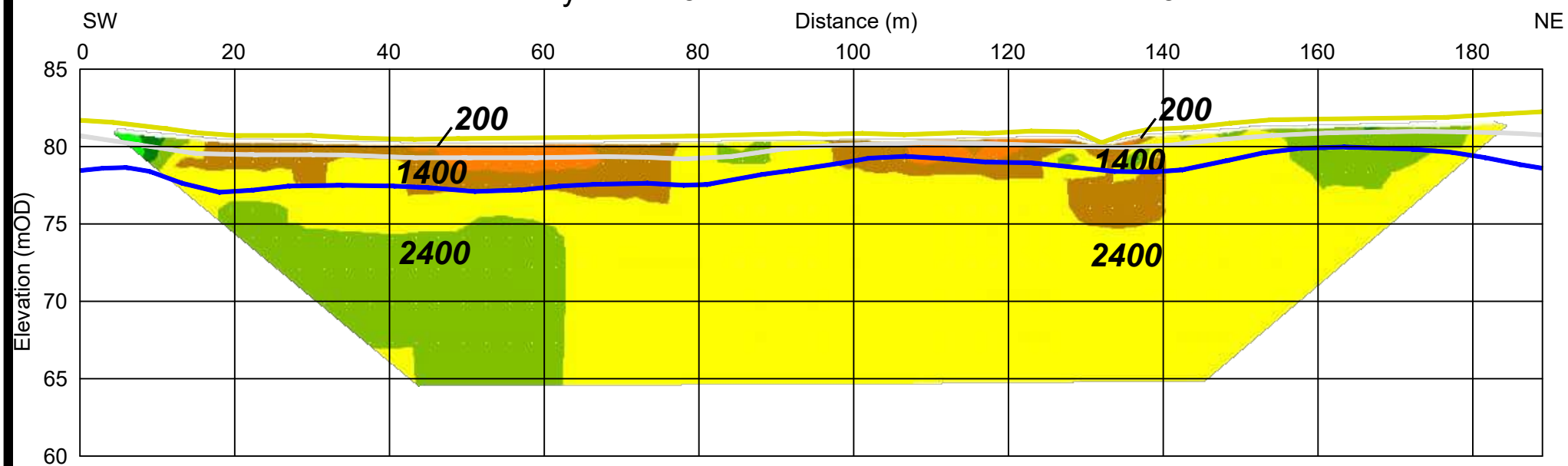
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

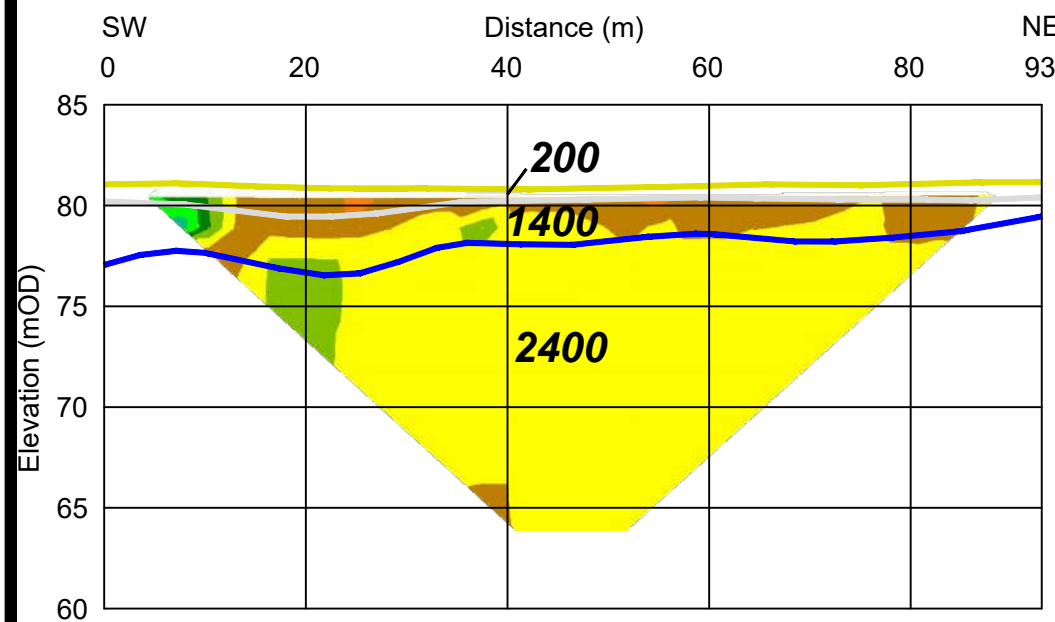
2D-Resistivity Line R36 and Seismic Refraction Line S36 Model



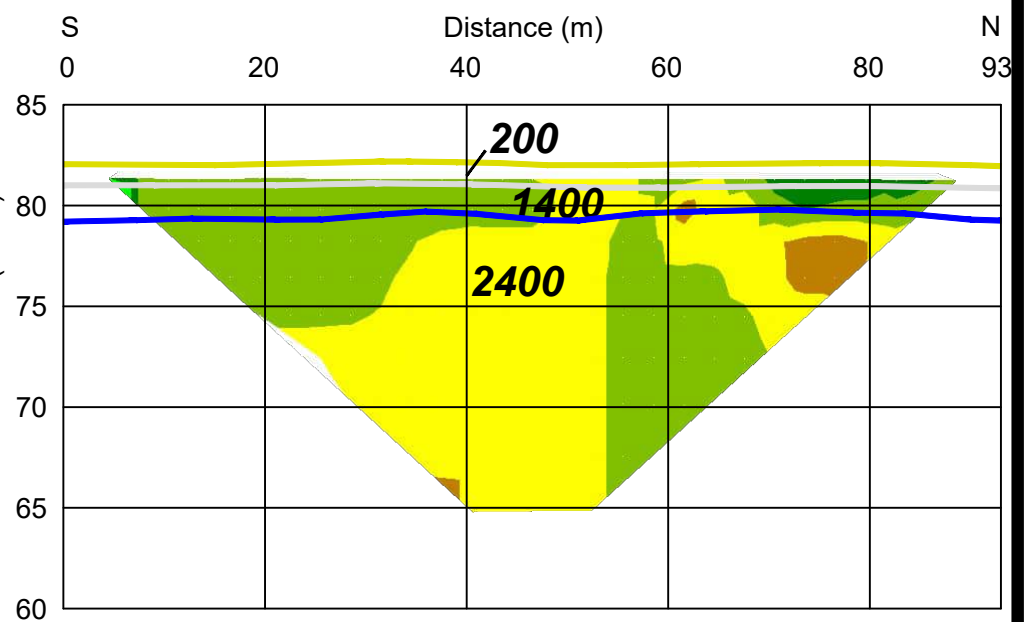
2D-Resistivity Line R37 and Seismic Refraction Line S37 Model



2D-Resistivity Line R38 and Seismic Refraction Line S38 Model



2D-Resistivity Line R39 and Seismic Refraction Line S39 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 14a: Models of Geophysical Survey from Ch69297

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

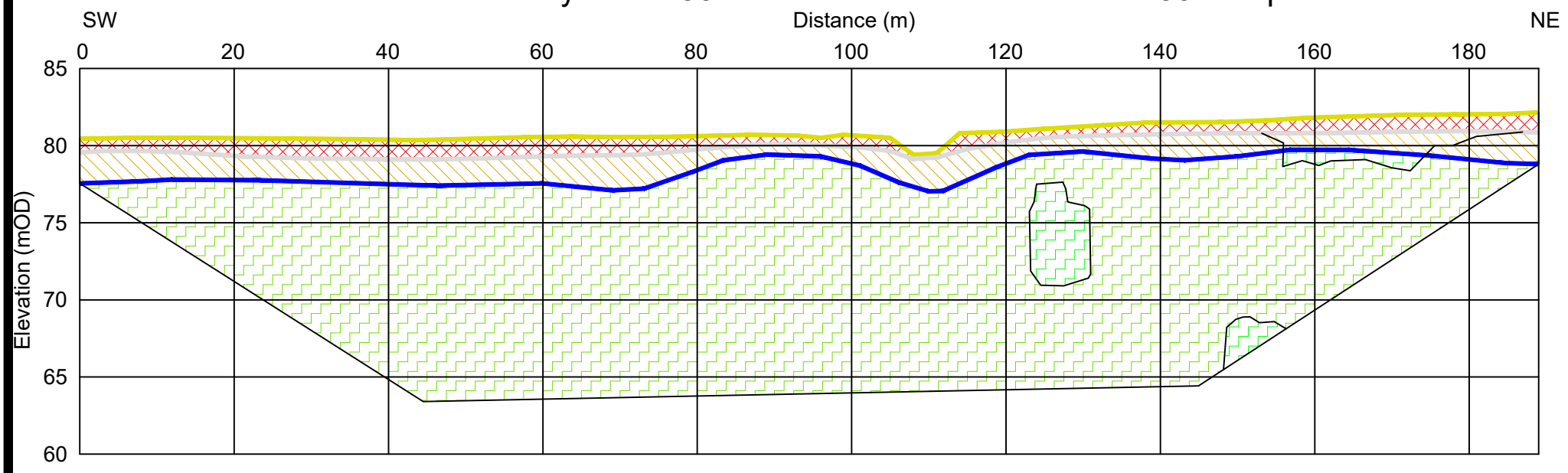
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

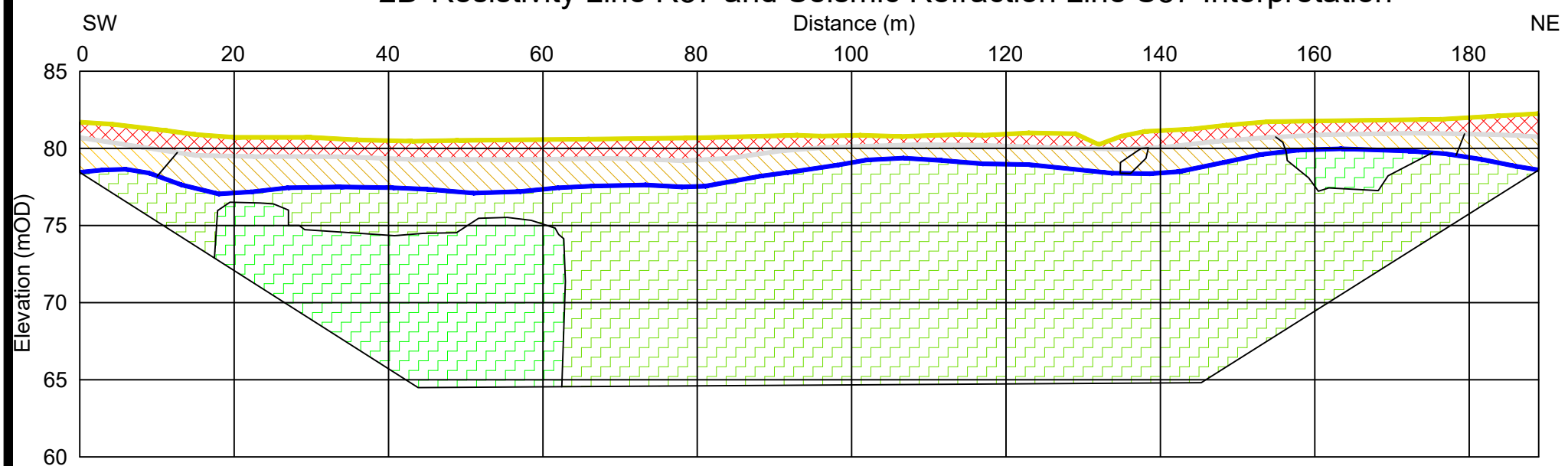
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

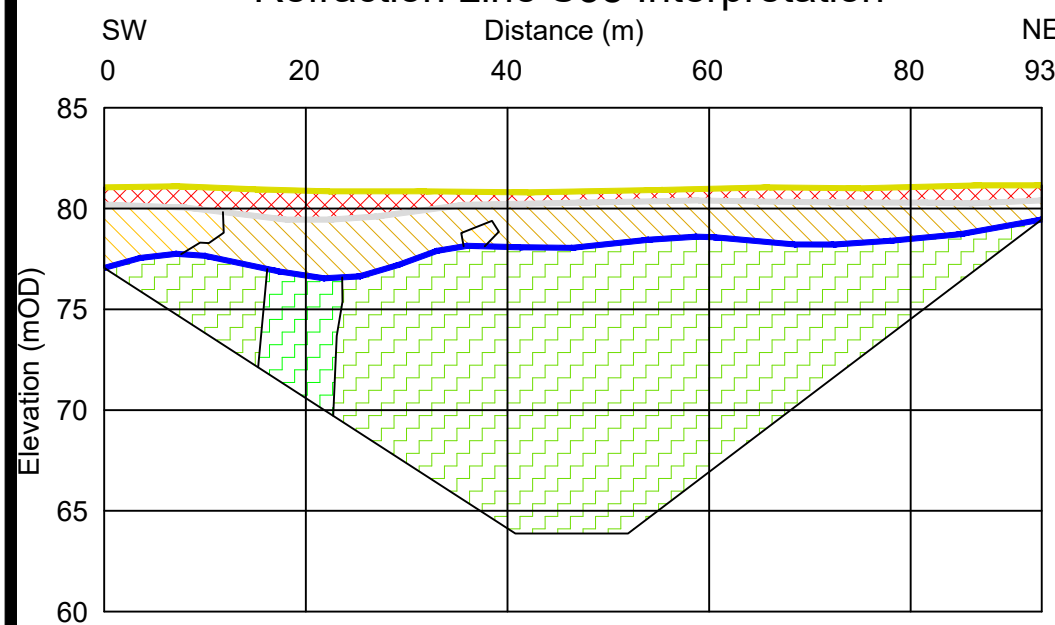
2D-Resistivity Line R36 and Seismic Refraction Line S36 Interpretation



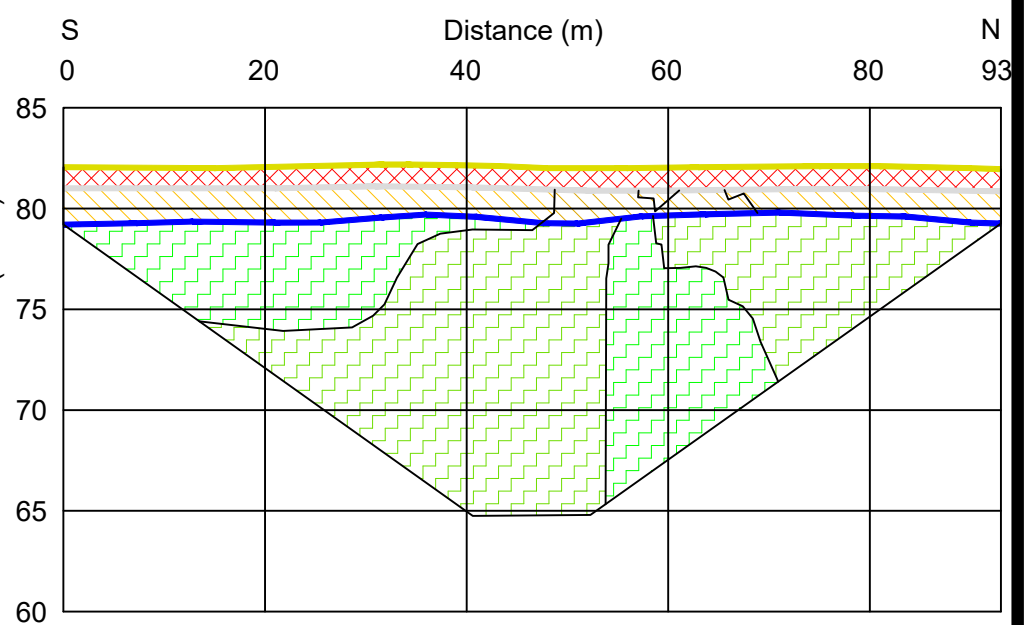
2D-Resistivity Line R37 and Seismic Refraction Line S37 Interpretation



2D-Resistivity Line R38 and Seismic Refraction Line S38 Interpretation



2D-Resistivity Line R39 and Seismic Refraction Line S39 Interpretation



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 14b: Interpretation of Geophysical Survey from Ch69297

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 6C Very dense clayey silty Sand or gravel

S44
R44

S43
R43

CH69700

N

S42
R42

S41
R41

CH69500

S40
R40

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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 15: Geophysical Survey Location Map from Ch69505

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

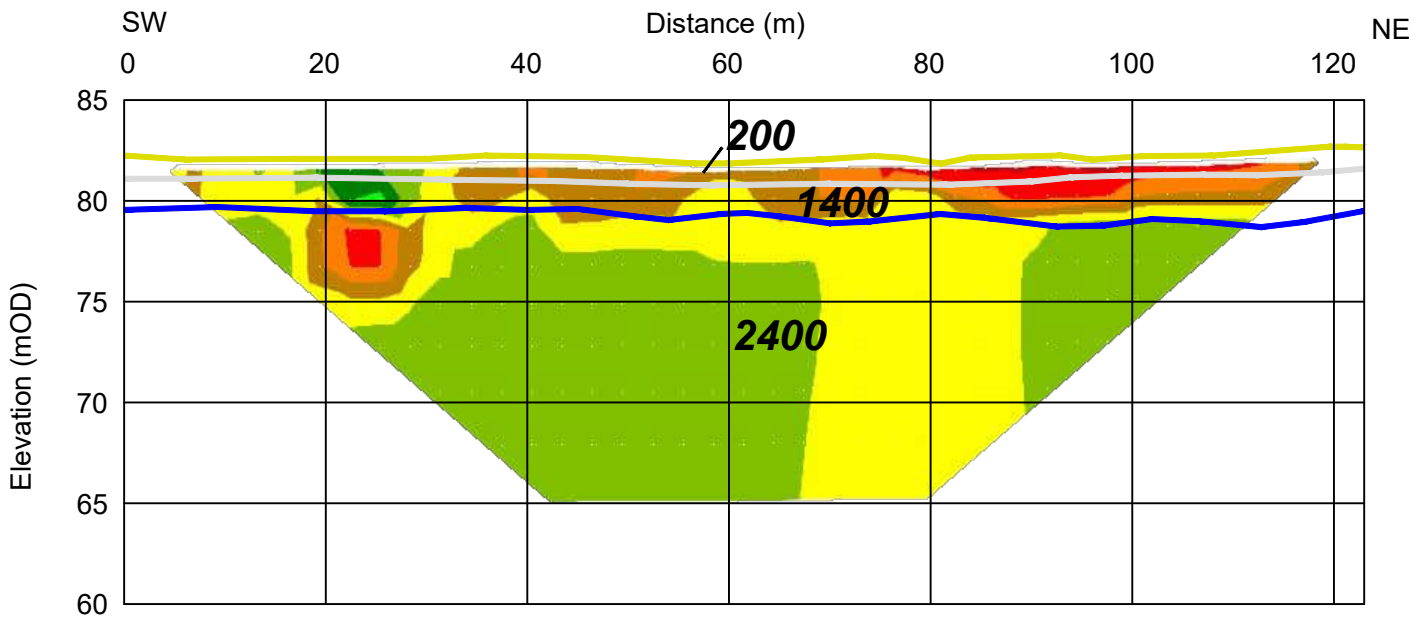
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

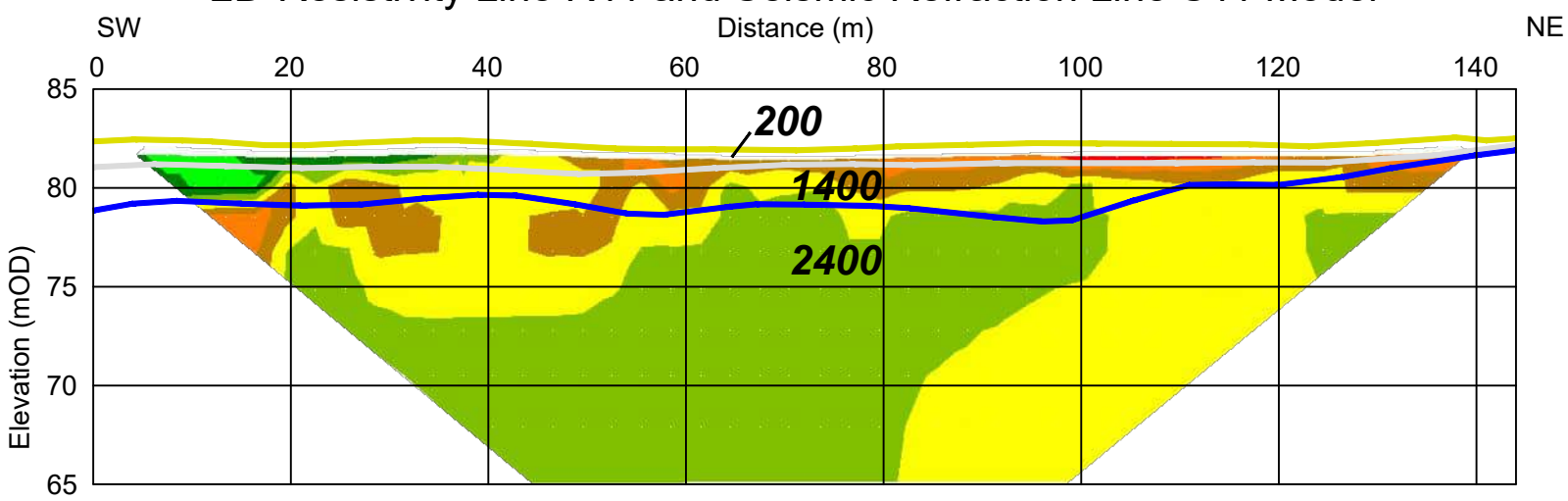
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

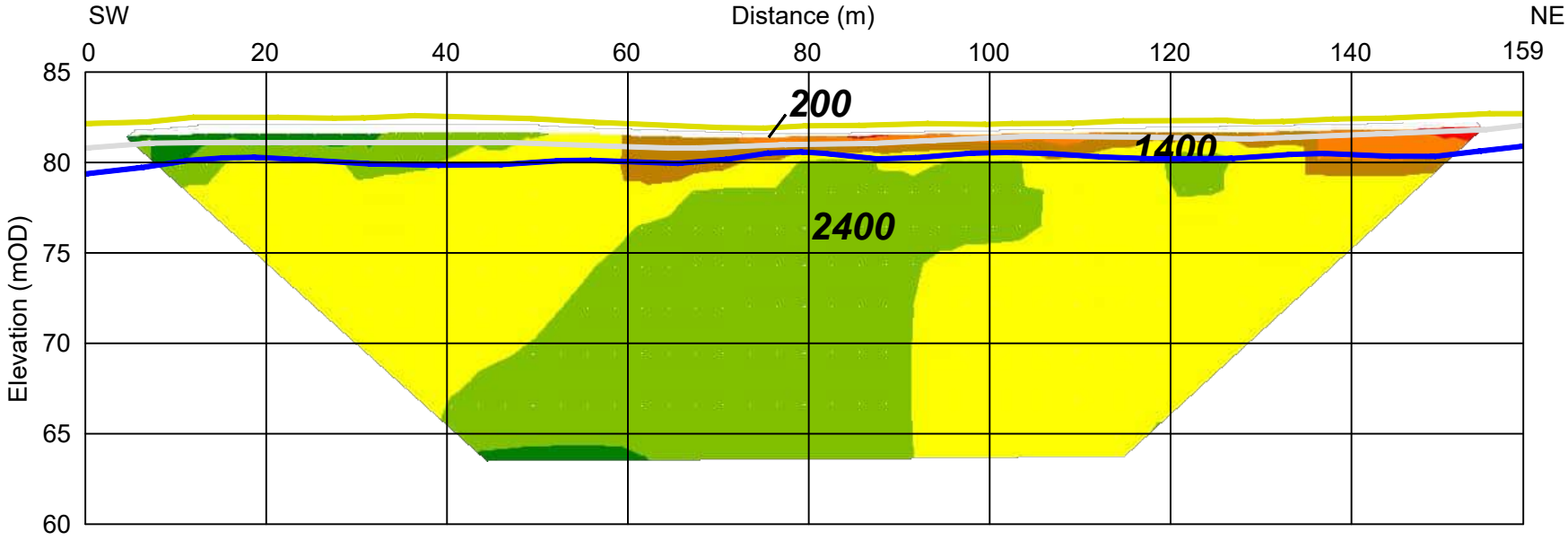
2D-Resistivity Line R42 and Seismic Refraction Line S42 Model



2D-Resistivity Line R41 and Seismic Refraction Line S41 Model



2D-Resistivity Line R40 and Seismic Refraction Line S40 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 15a: Models of Geophysical Survey from Ch69505

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

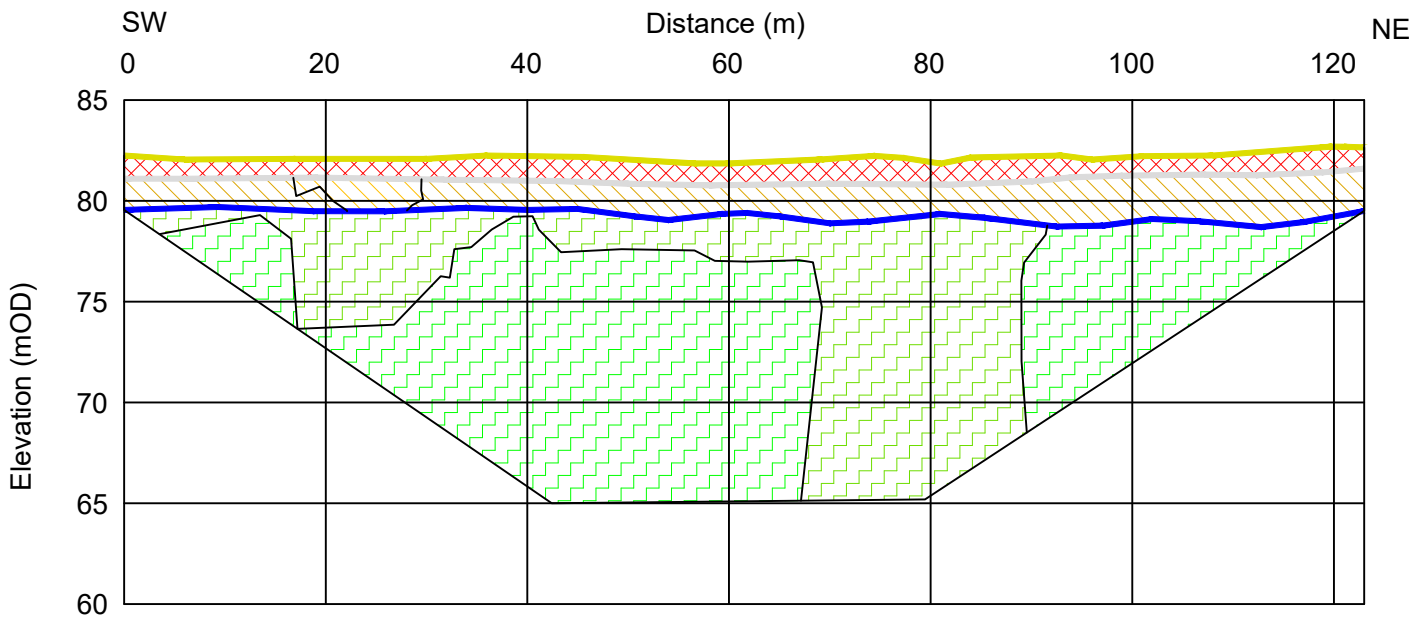
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

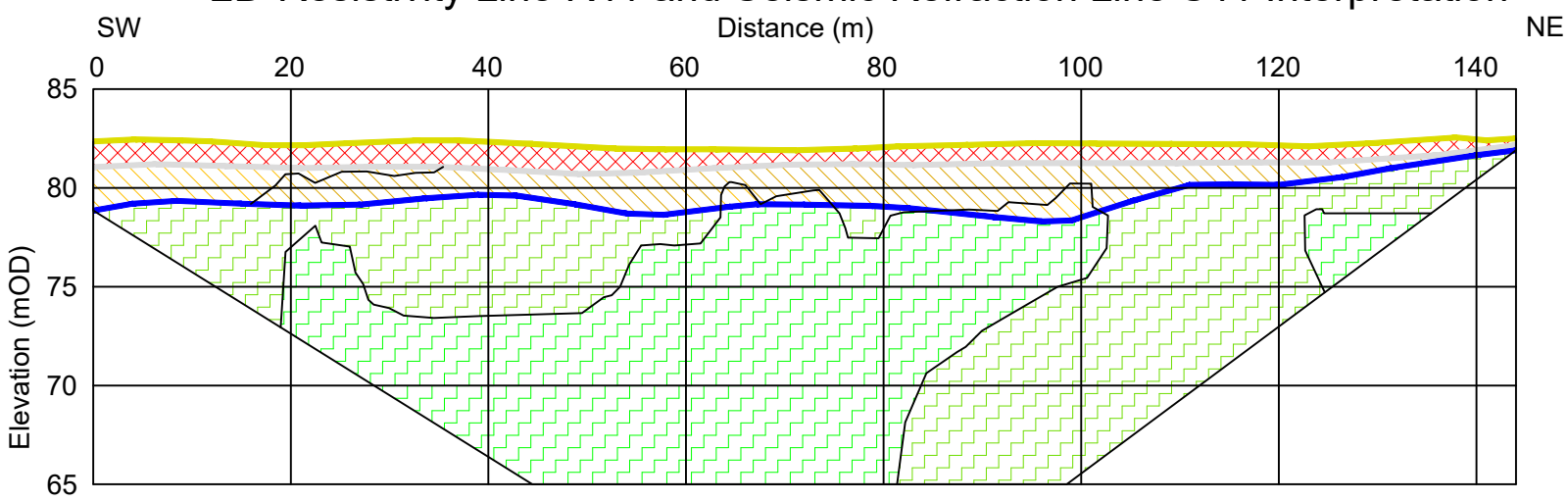
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

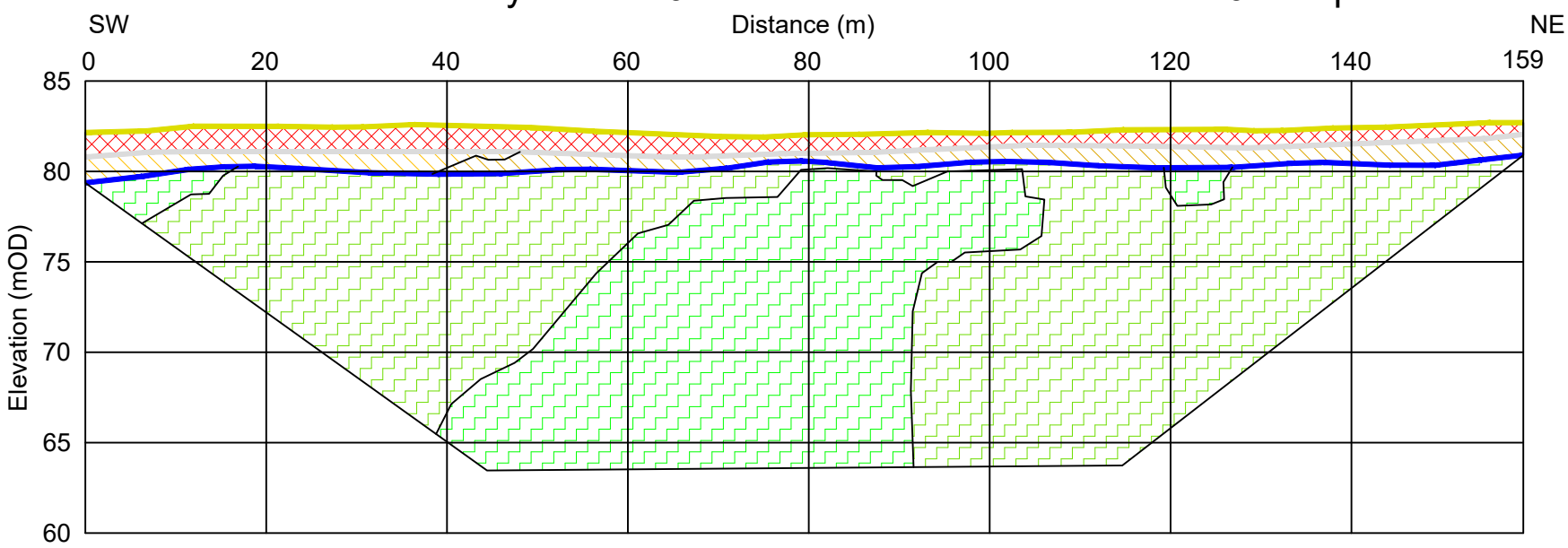
2D-Resistivity Line R42 and Seismic Refraction Line S42 Interpretation



2D-Resistivity Line R41 and Seismic Refraction Line S41 Interpretation



2D-Resistivity Line R40 and Seismic Refraction Line S40 Interpretation



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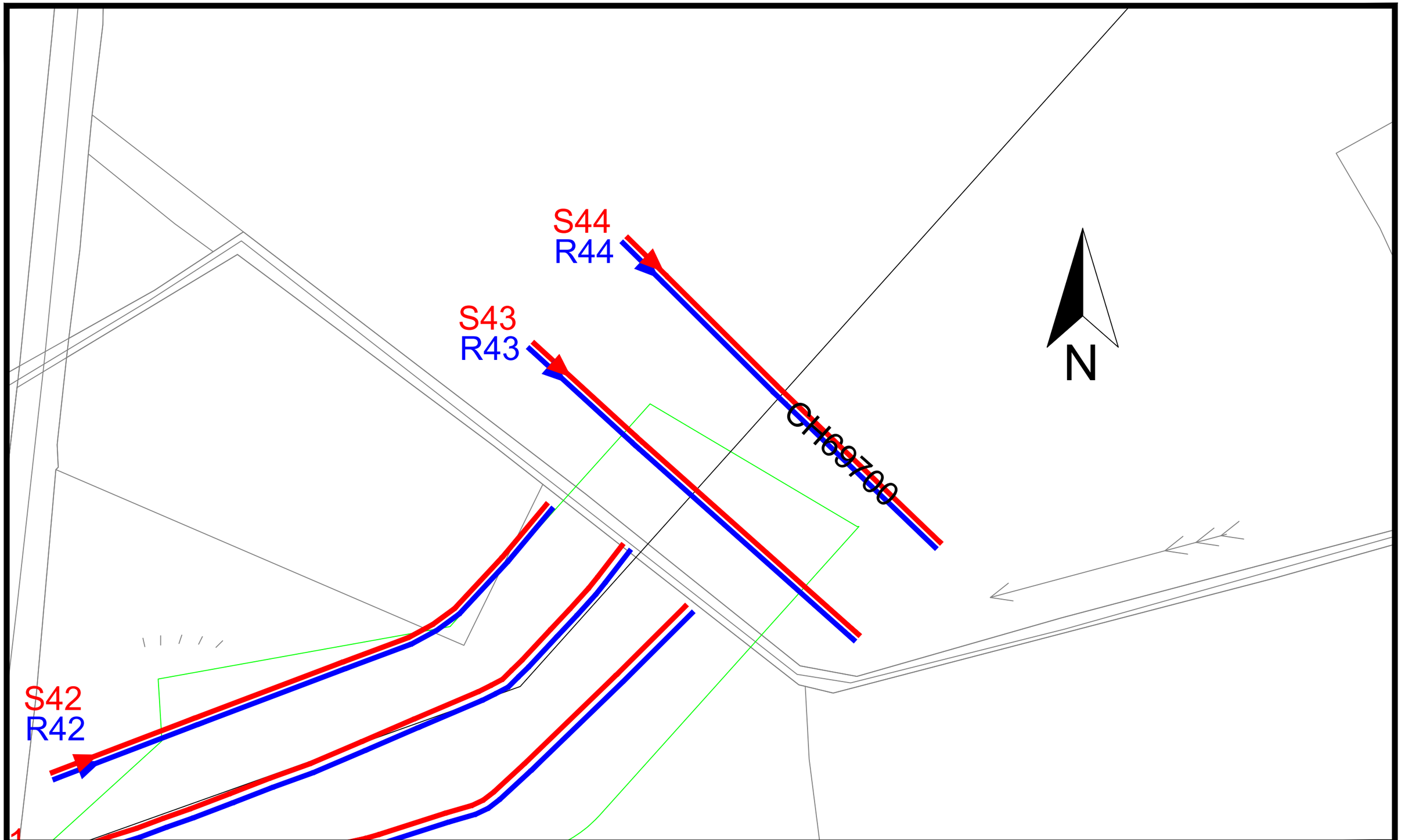
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 15b: Interpretation of Geophysical Survey from Ch69505

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 6C Very dense clayey silty Sand or gravel



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 16: Geophysical Survey Location Map from Ch69672

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

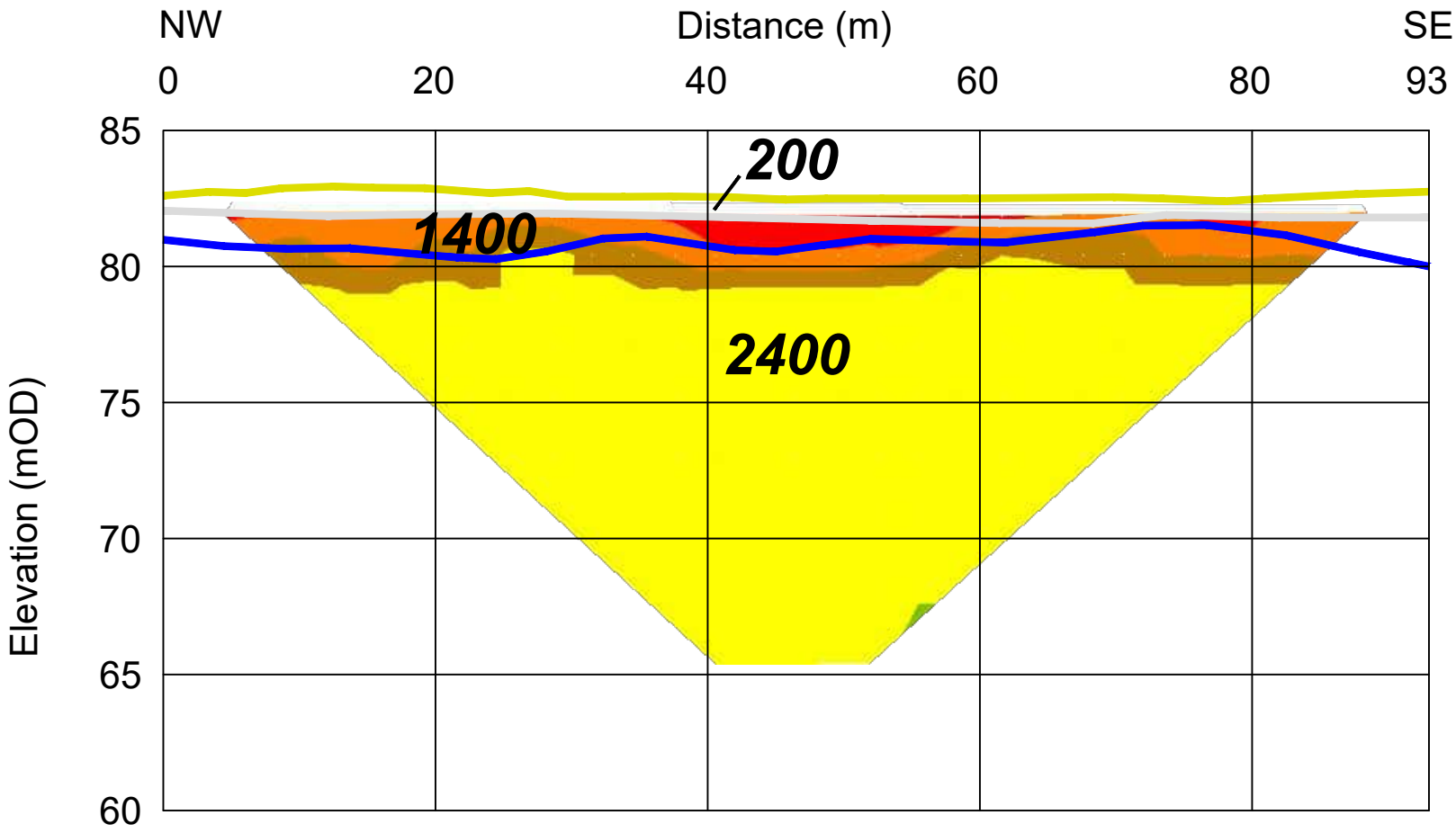
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

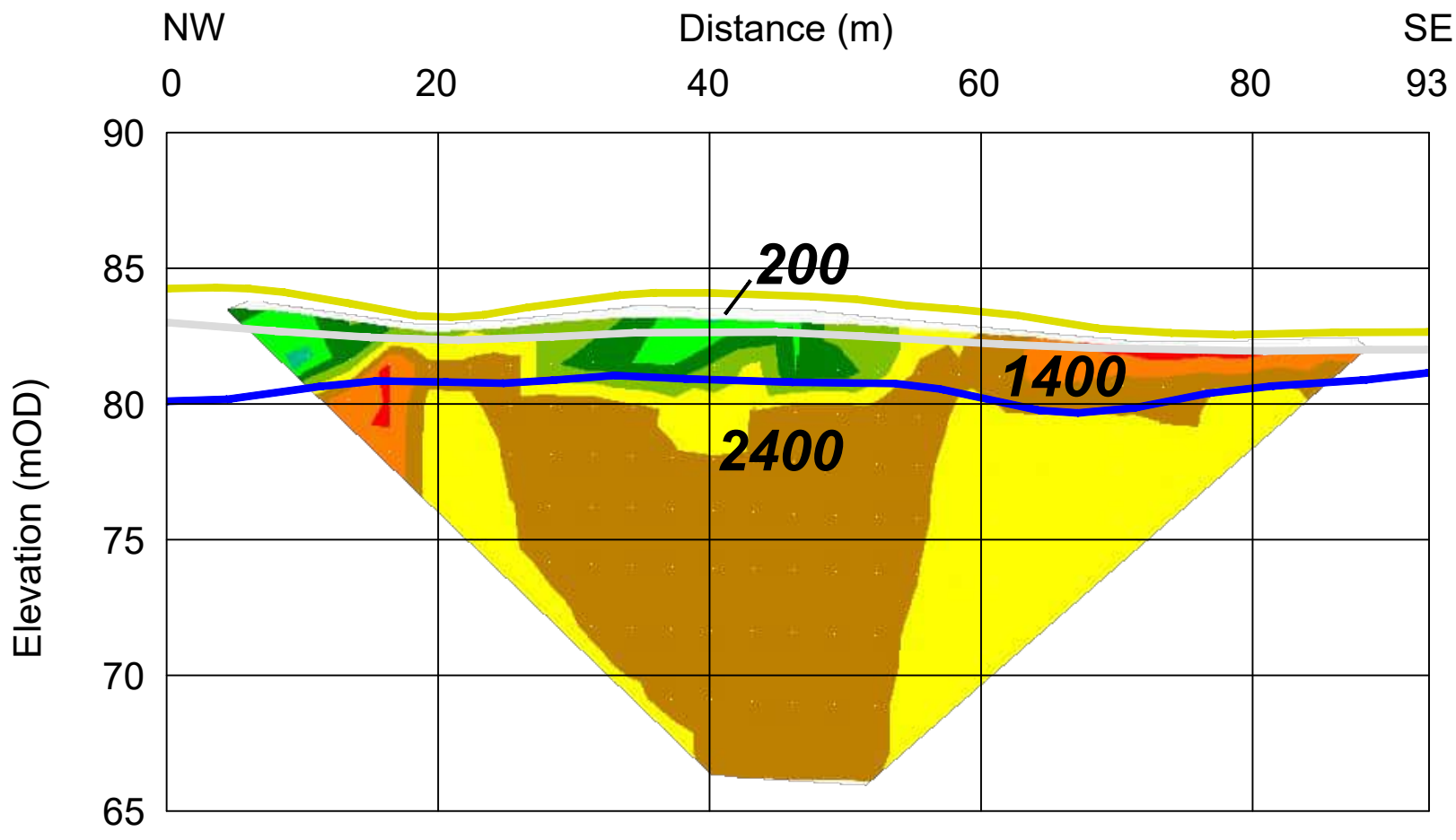
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R43 and Seismic Refraction Line S43 Model



2D-Resistivity Line R44 and Seismic Refraction Line S44 Model



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Web: www.mgx.ie

CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 16a: Models of Geophysical Survey from Ch69672

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

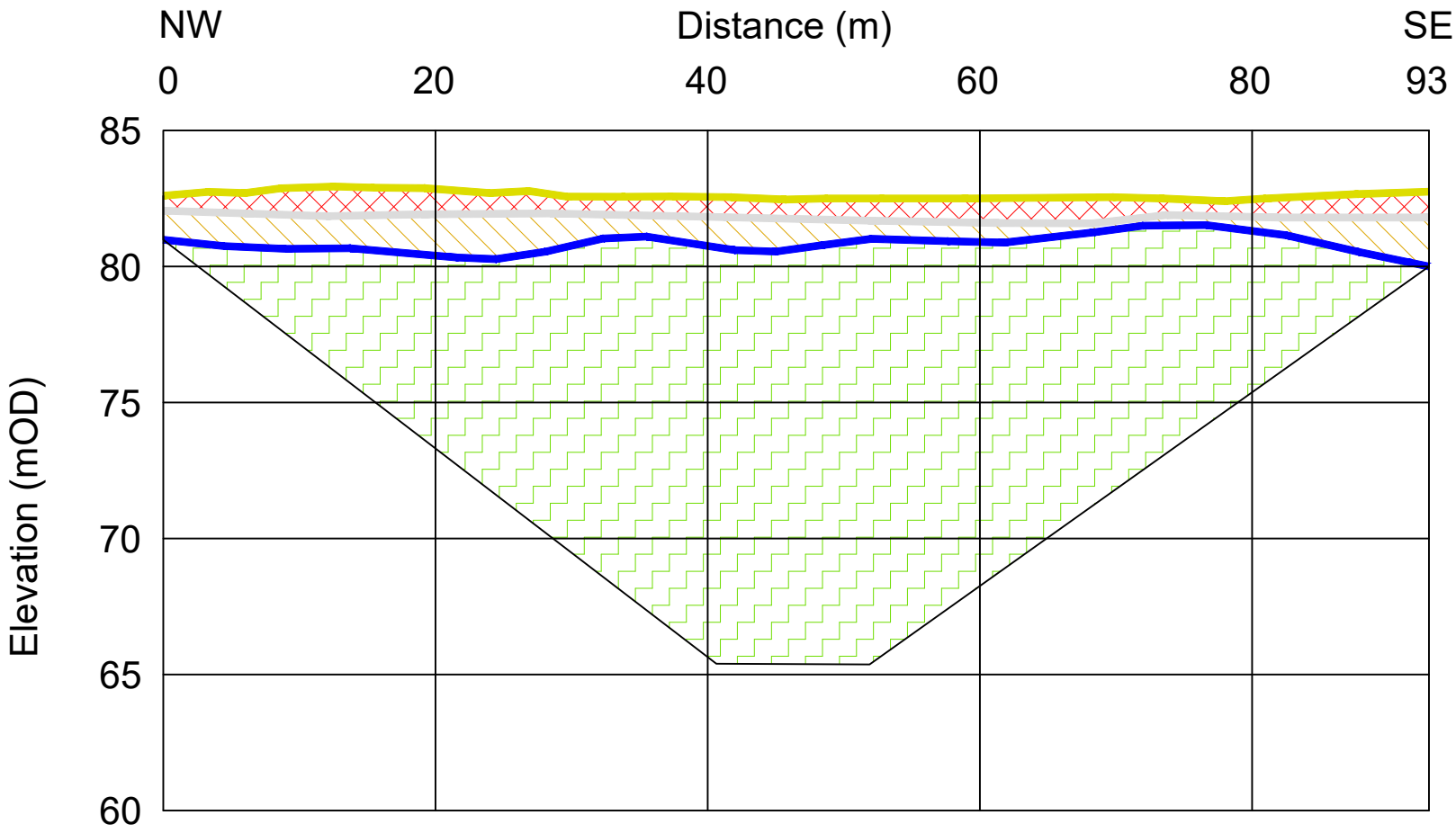
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

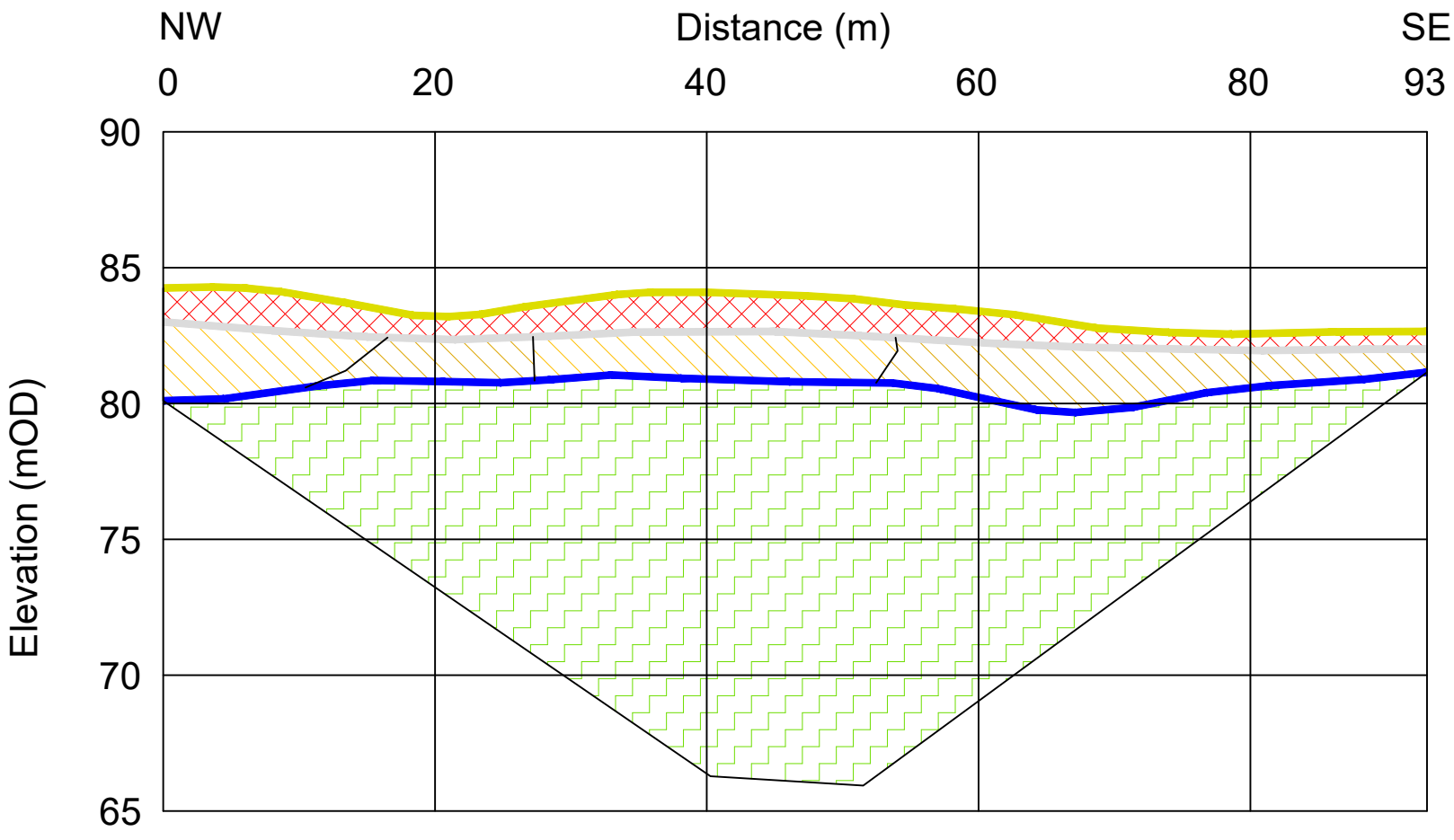
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R43 and Seismic Refraction Line S43 Model



2D-Resistivity Line R44 and Seismic Refraction Line S44 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 16b: Interpretation of Geophysical Survey from Ch69672

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/12/2021
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 6C Very dense clayey silty Sand or gravel

N

CH76600

S45
R45

S46
R46

S47
R47

CH76400

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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 17: Geophysical Survey Location Map from Ch76480

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

R2 2D-Resistivity Line

S1 Seismic Refraction Line

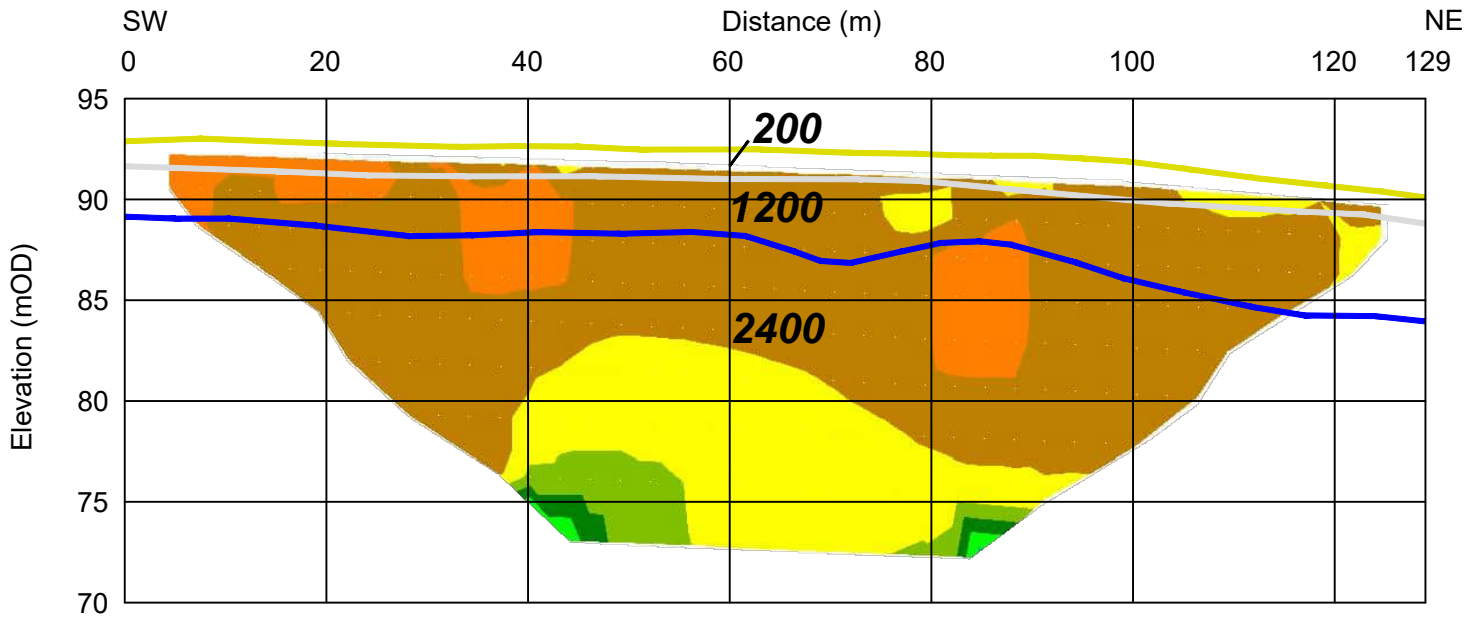
Survey Area

Direct Ground Investigation Locations:

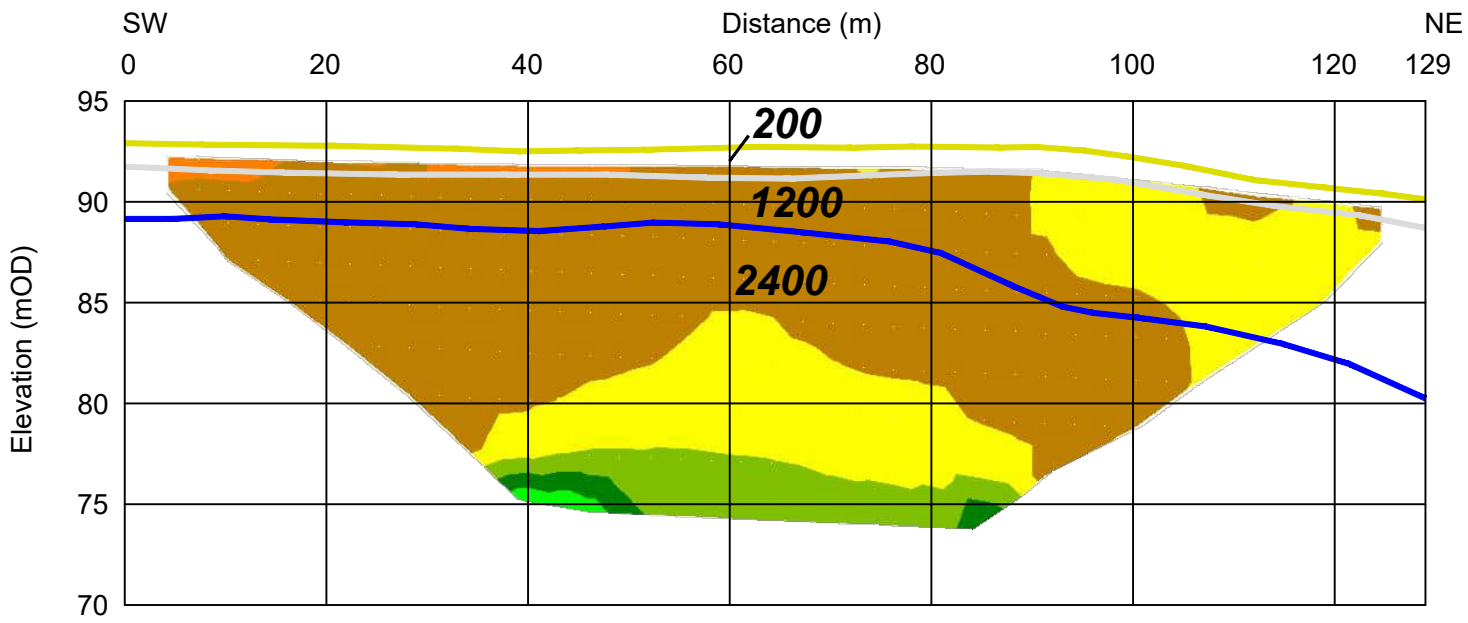
RC1 Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

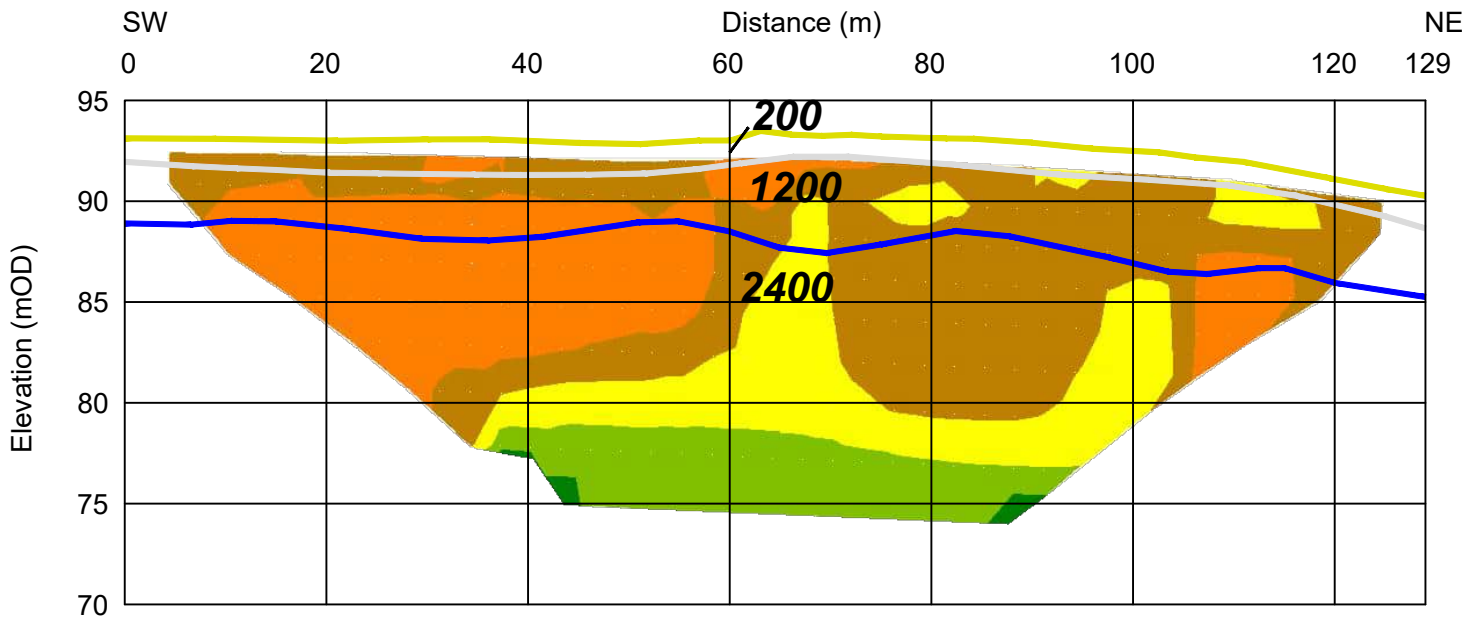
2D-Resistivity Line R45 and Seismic Refraction Line S45 Model



2D-Resistivity Line R46 and Seismic Refraction Line S46 Model



2D-Resistivity Line R47 and Seismic Refraction Line S47 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 17a: Models of Geophysical Survey from Ch76480

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

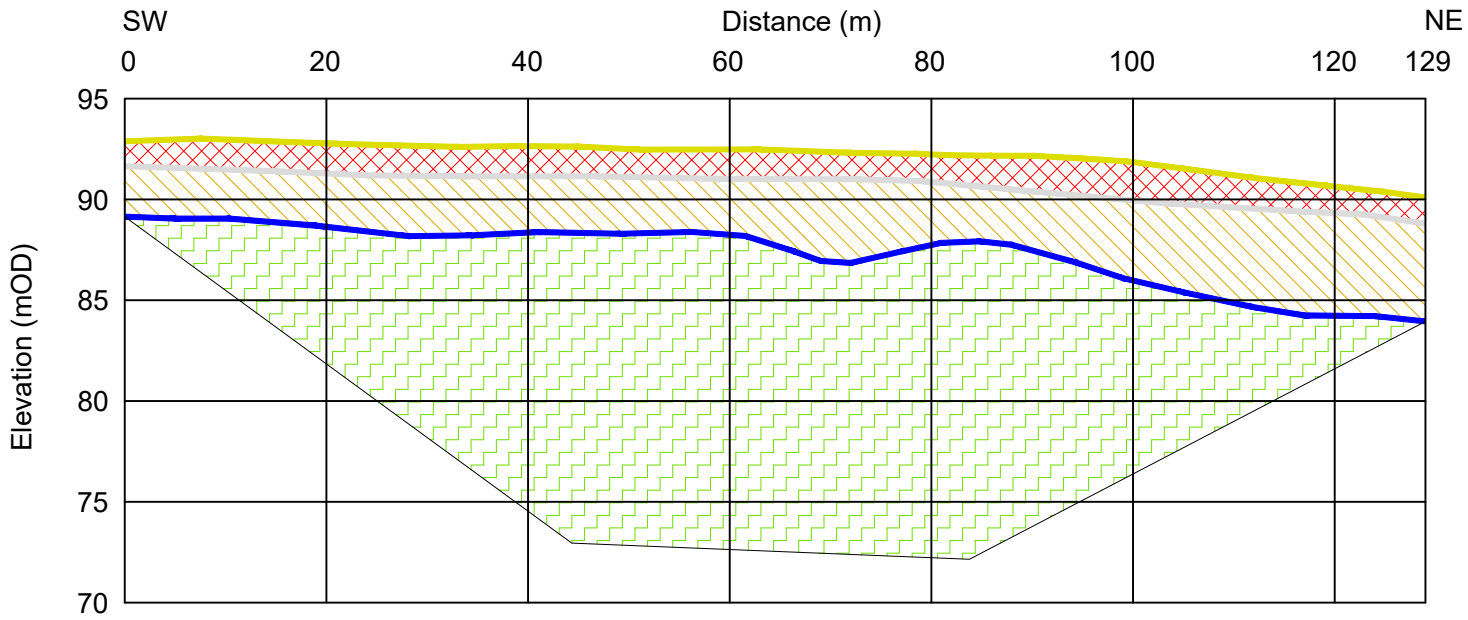
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

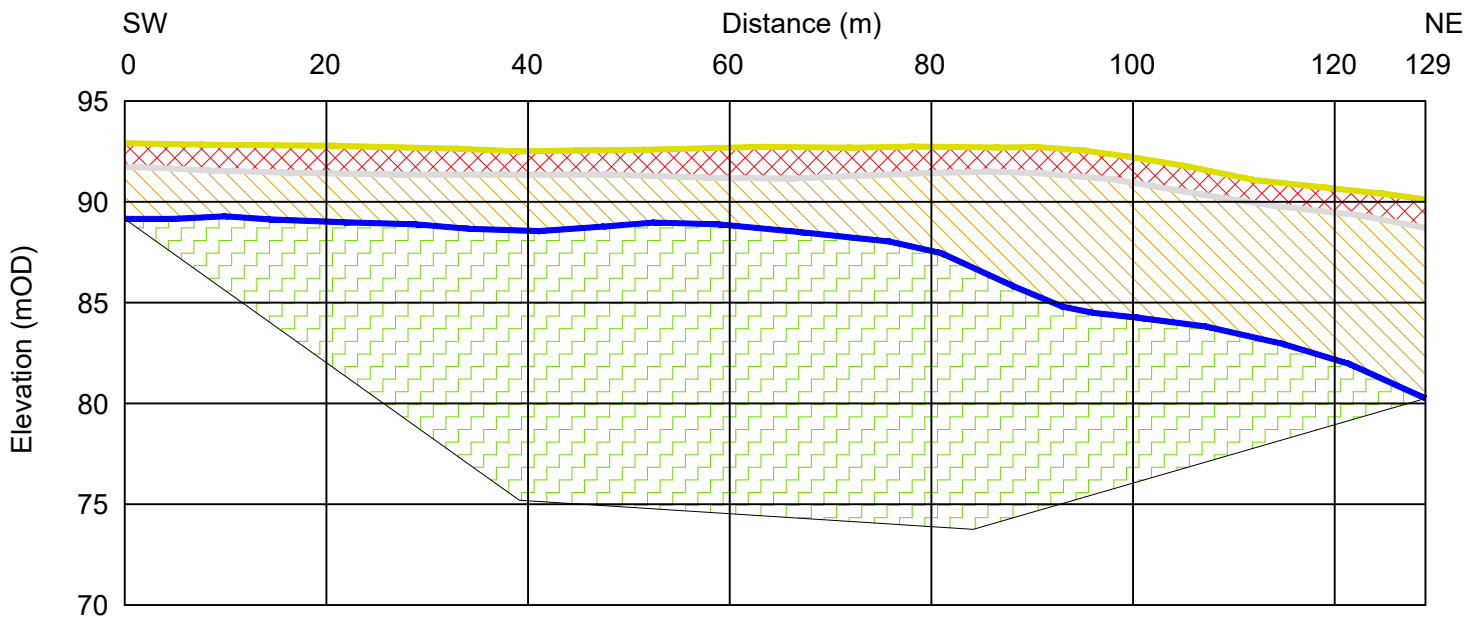
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

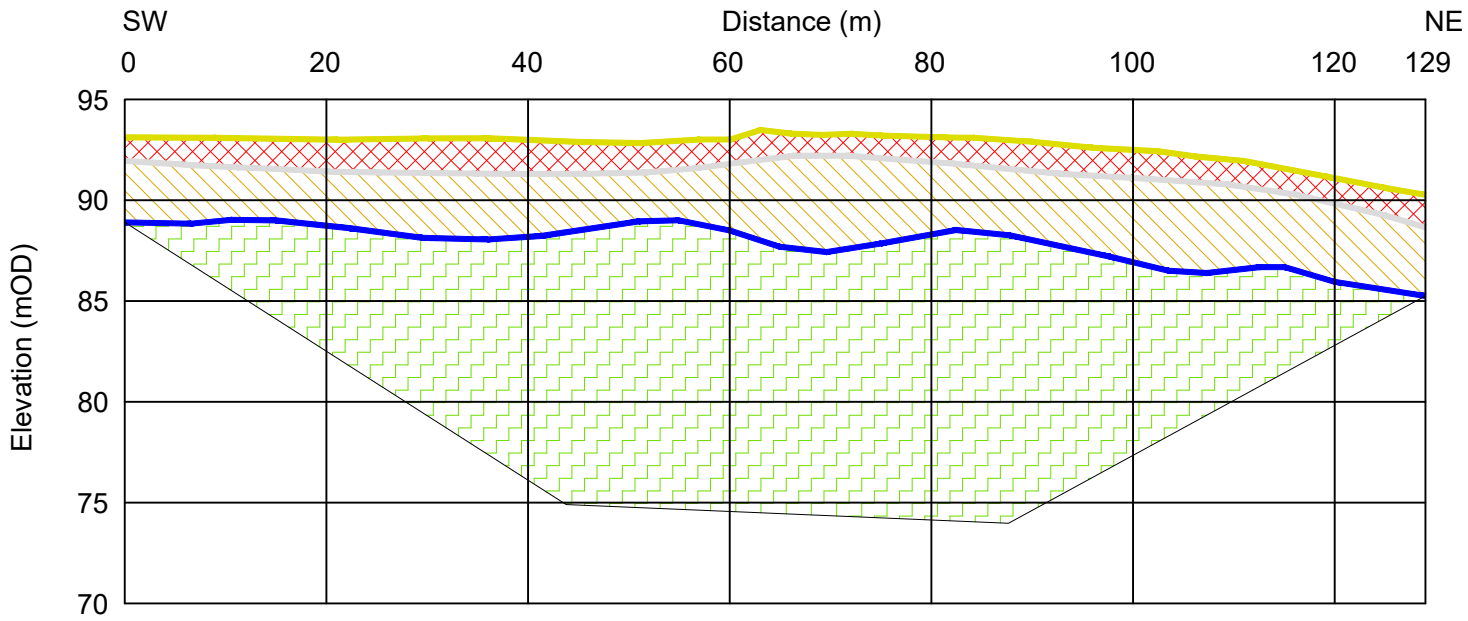
2D-Resistivity Line R45 and Seismic Refraction Line S45 Interpretation



2D-Resistivity Line R46 and Seismic Refraction Line S46 Interpretation



2D-Resistivity Line R47 and Seismic Refraction Line S47 Interpretation



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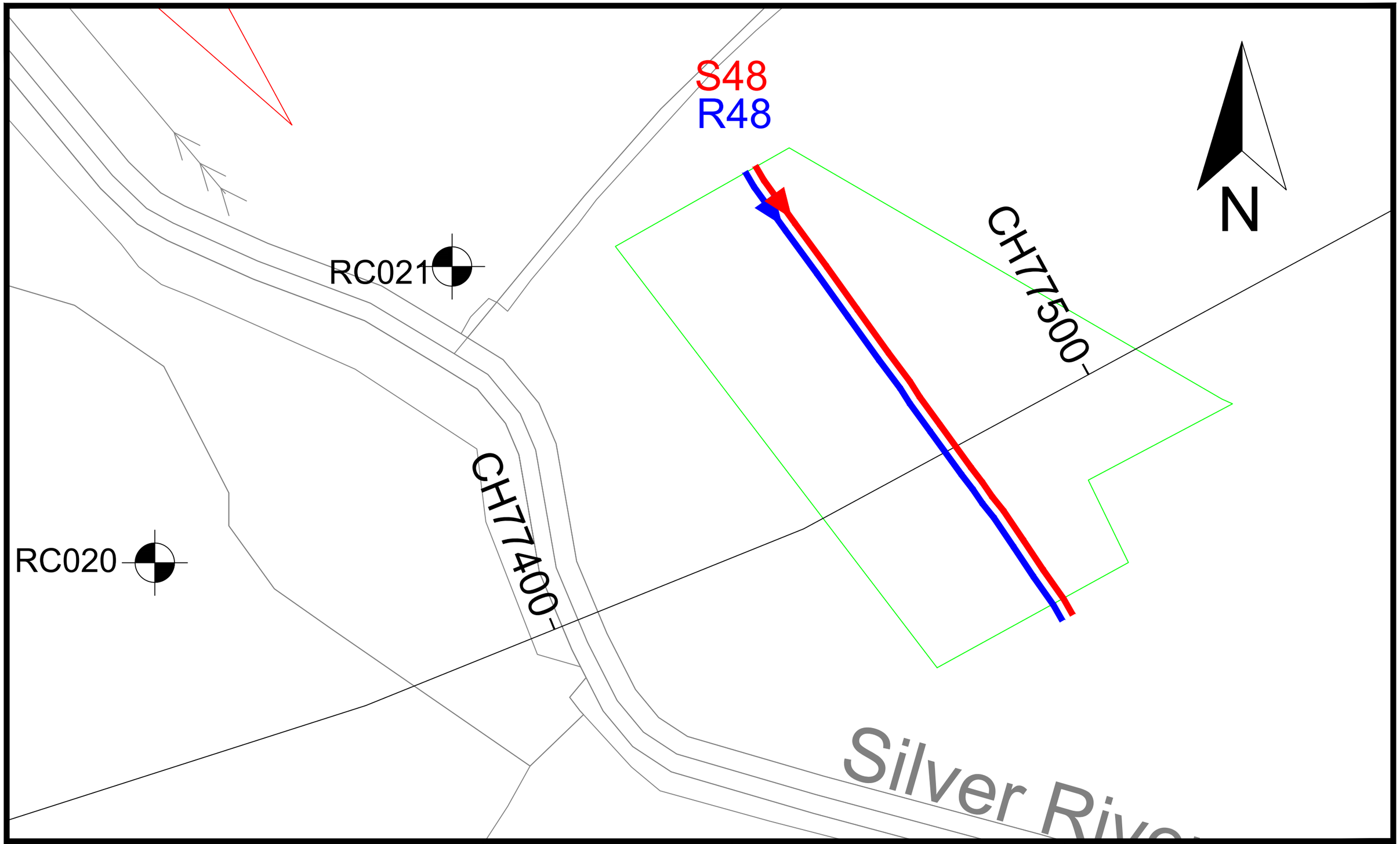
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 17b: Interpretation of Geophysical Survey from Ch76480

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 6B Very stiff sandy gravelly Clay or Silt



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 18: Geophysical Survey Location Map from Ch77465

SCALE:	1:600 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	08/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

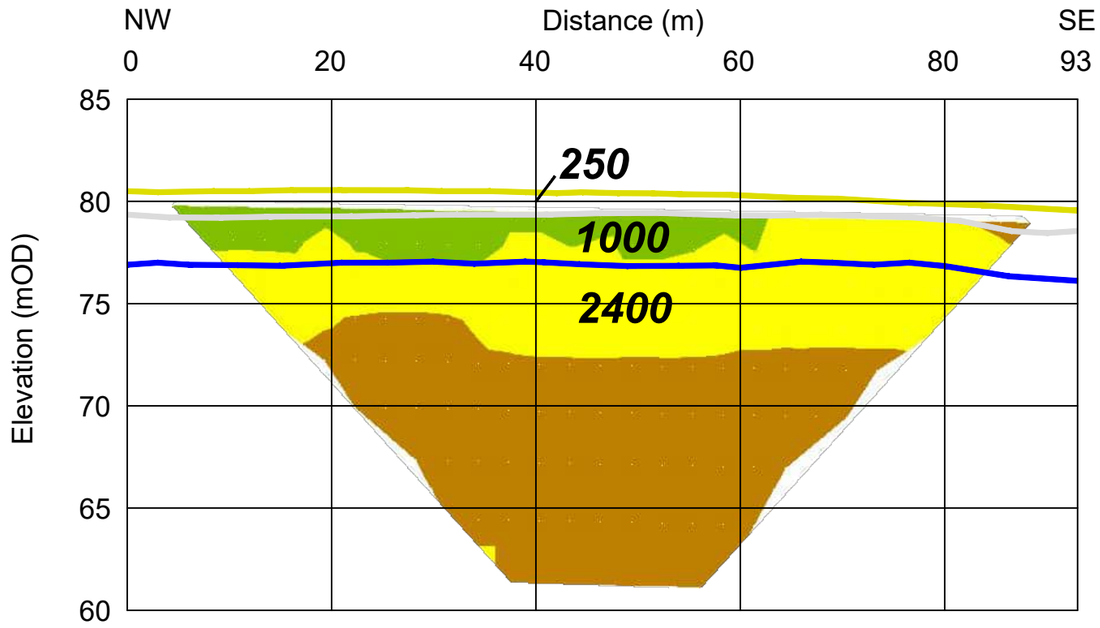
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R48 and Seismic Refraction Line S48 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 18a: Models of Geophysical Survey from Ch77465

SCALE:	1:600 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

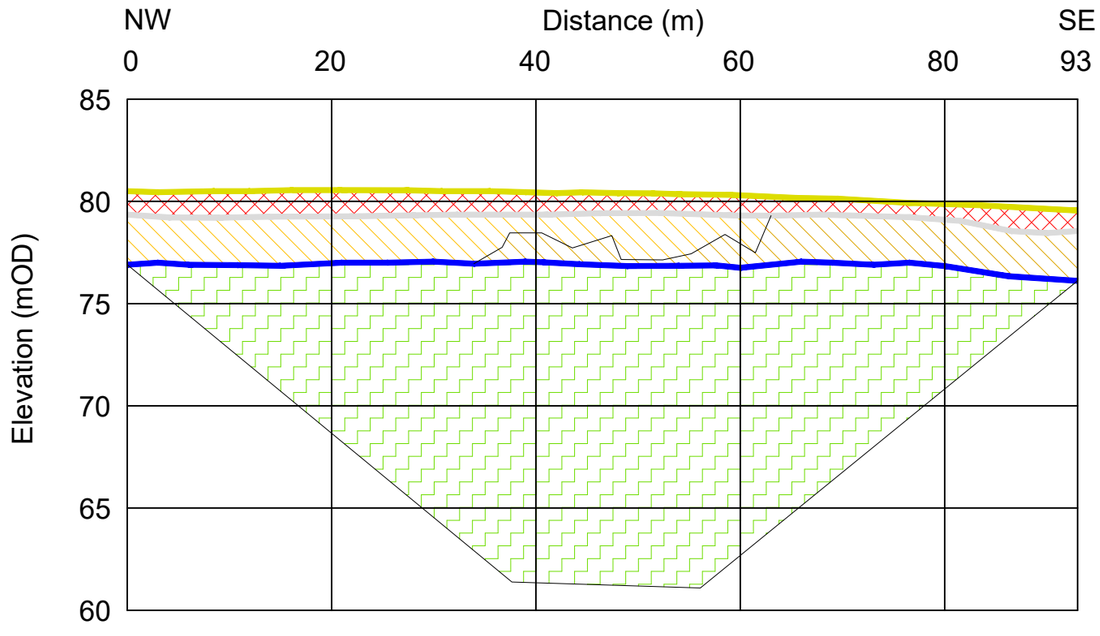
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R48 and Seismic Refraction Line S48 Interpretation



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 18b: Interpretation of Geophysical Survey from Ch77465

SCALE:	1:600 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	08/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 4C Dense clayey silty Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt

N

CH89700

RC023

RC022

S51
R51

CH89500

S50
R50

S49
R49

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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 19: Geophysical Survey Location Map from Ch89516

SCALE:	1:600 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

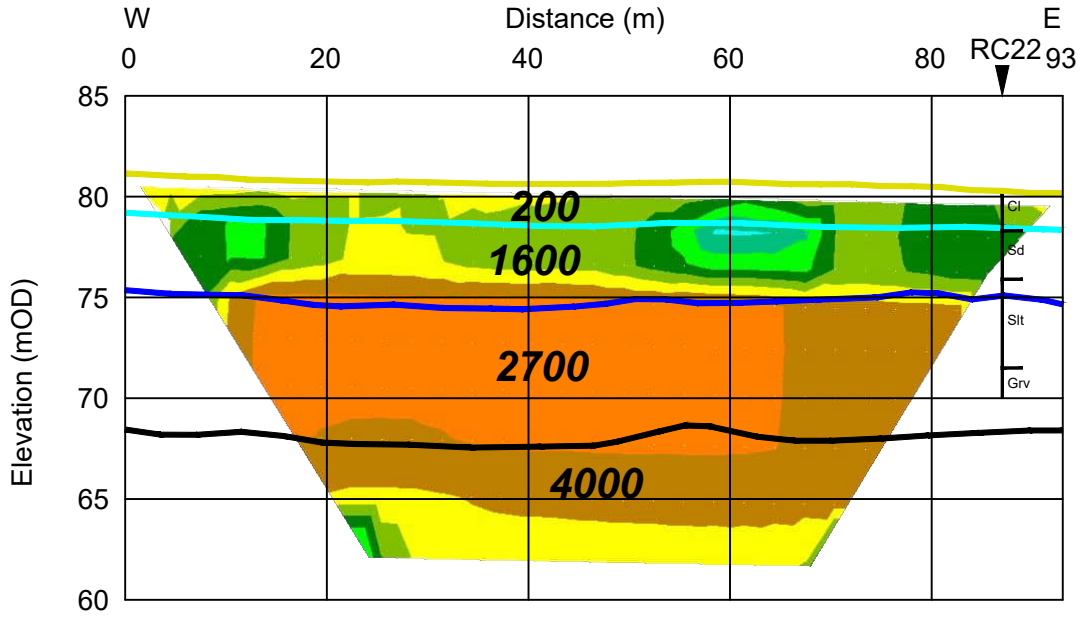
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

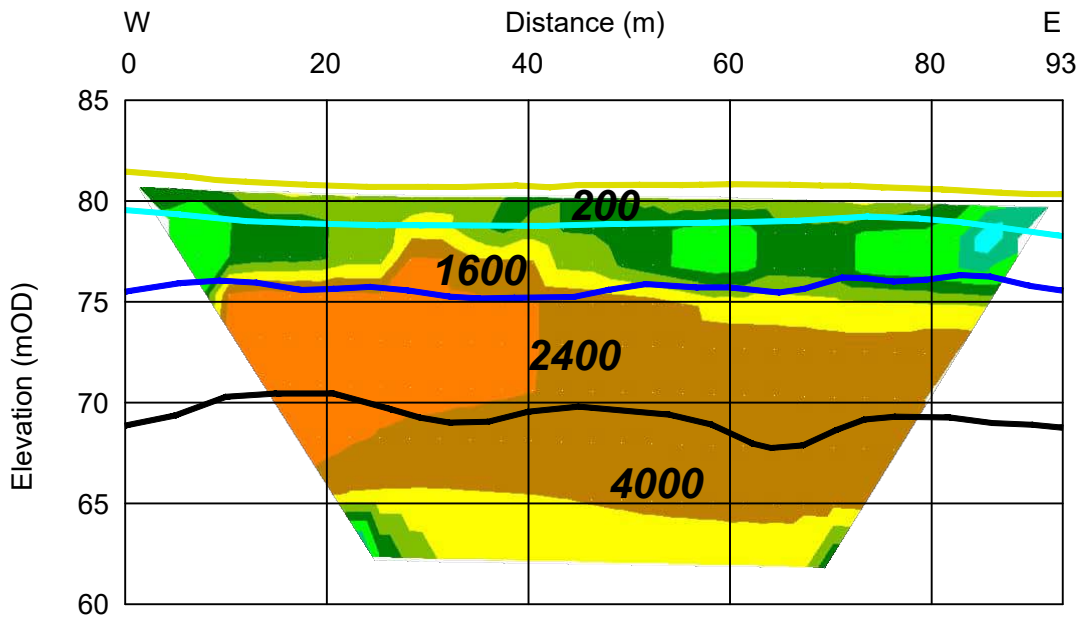
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

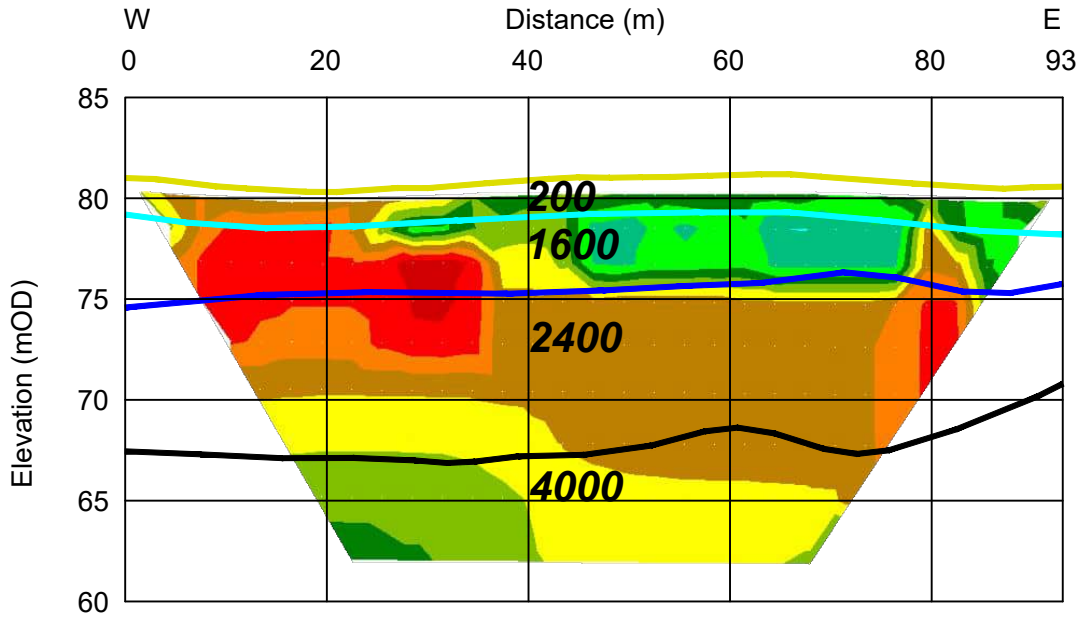
2D-Resistivity Line R51 and Seismic Refraction Line S51 Model



2D-Resistivity Line R50 and Seismic Refraction Line S50 Model



2D-Resistivity Line R49 and Seismic Refraction Line S49 Model



Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone

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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 19a: Models of Geophysical Survey from Ch89516

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

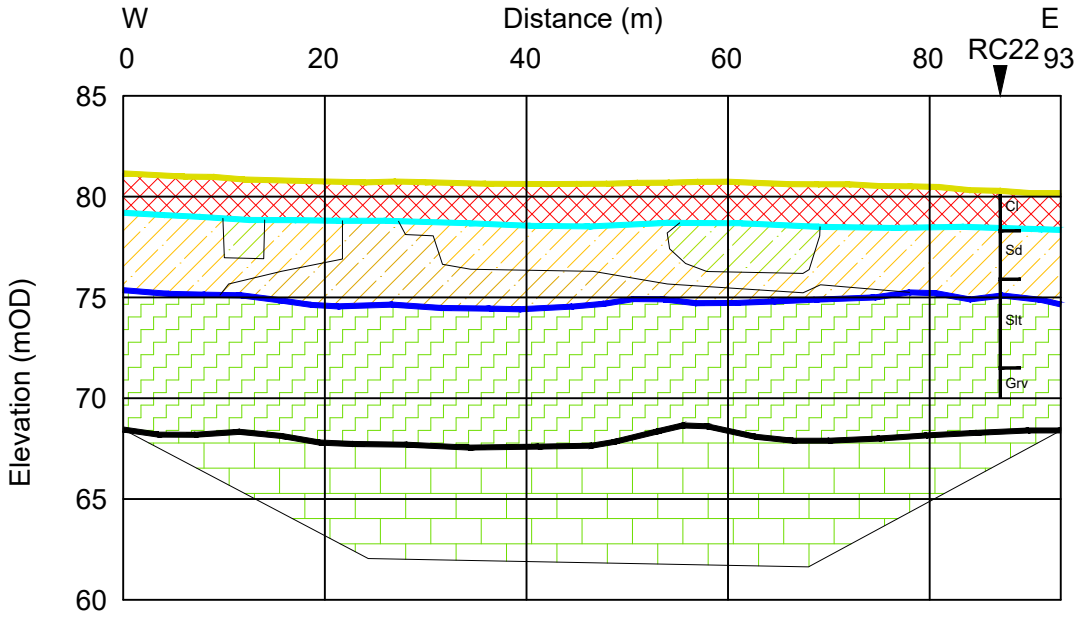
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

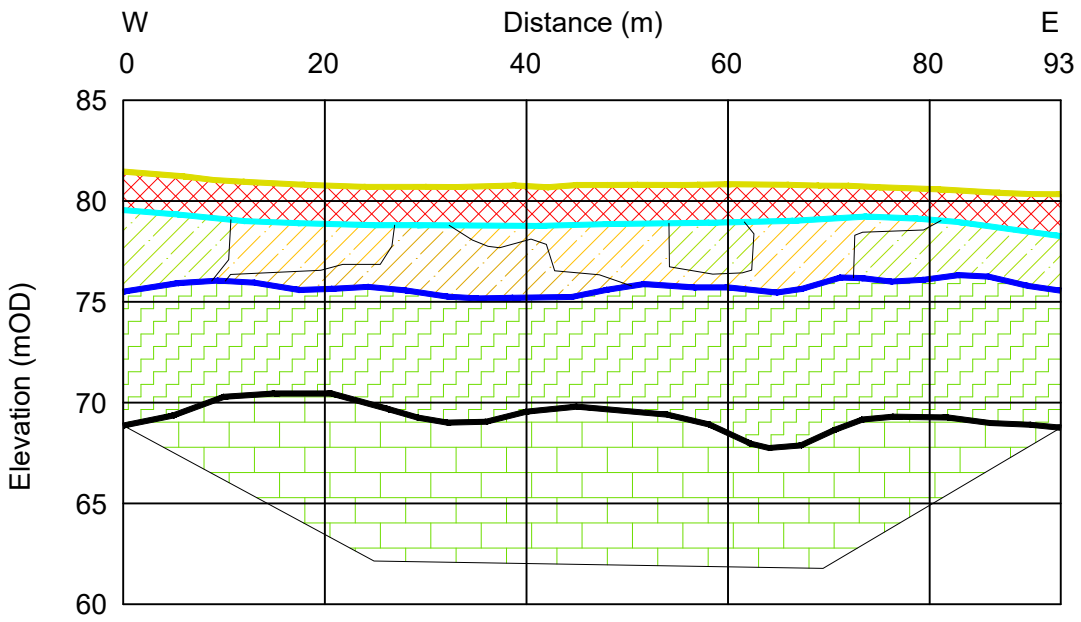
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

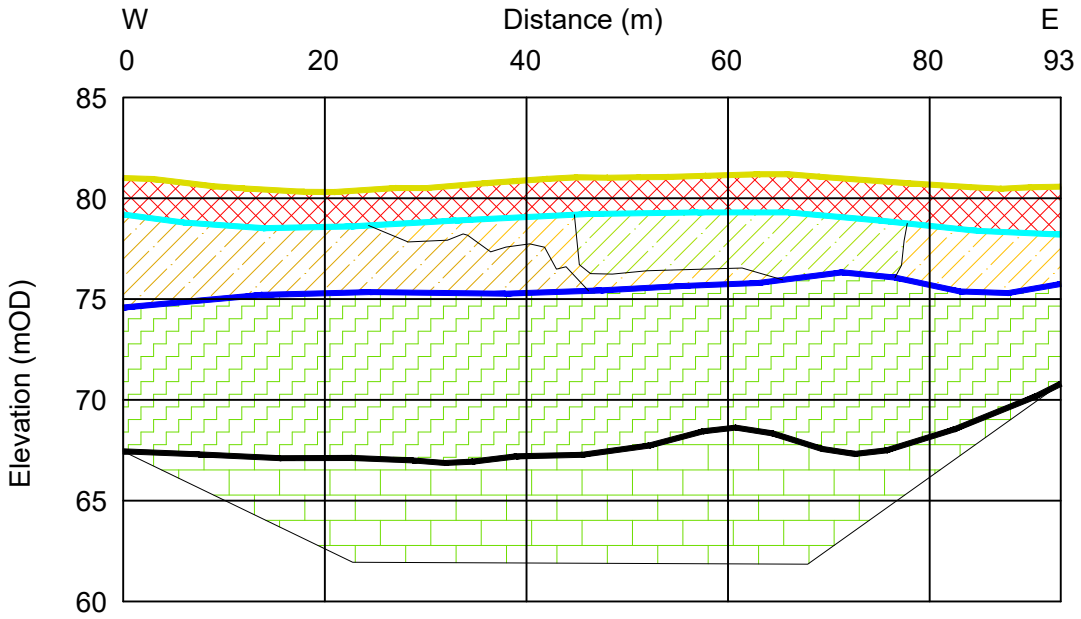
2D-Resistivity Line R51 and Seismic Refraction Line S51 Interpretation



2D-Resistivity Line R50 and Seismic Refraction Line S50 Interpretation



2D-Resistivity Line R49 and Seismic Refraction Line S49 Interpretation



Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone

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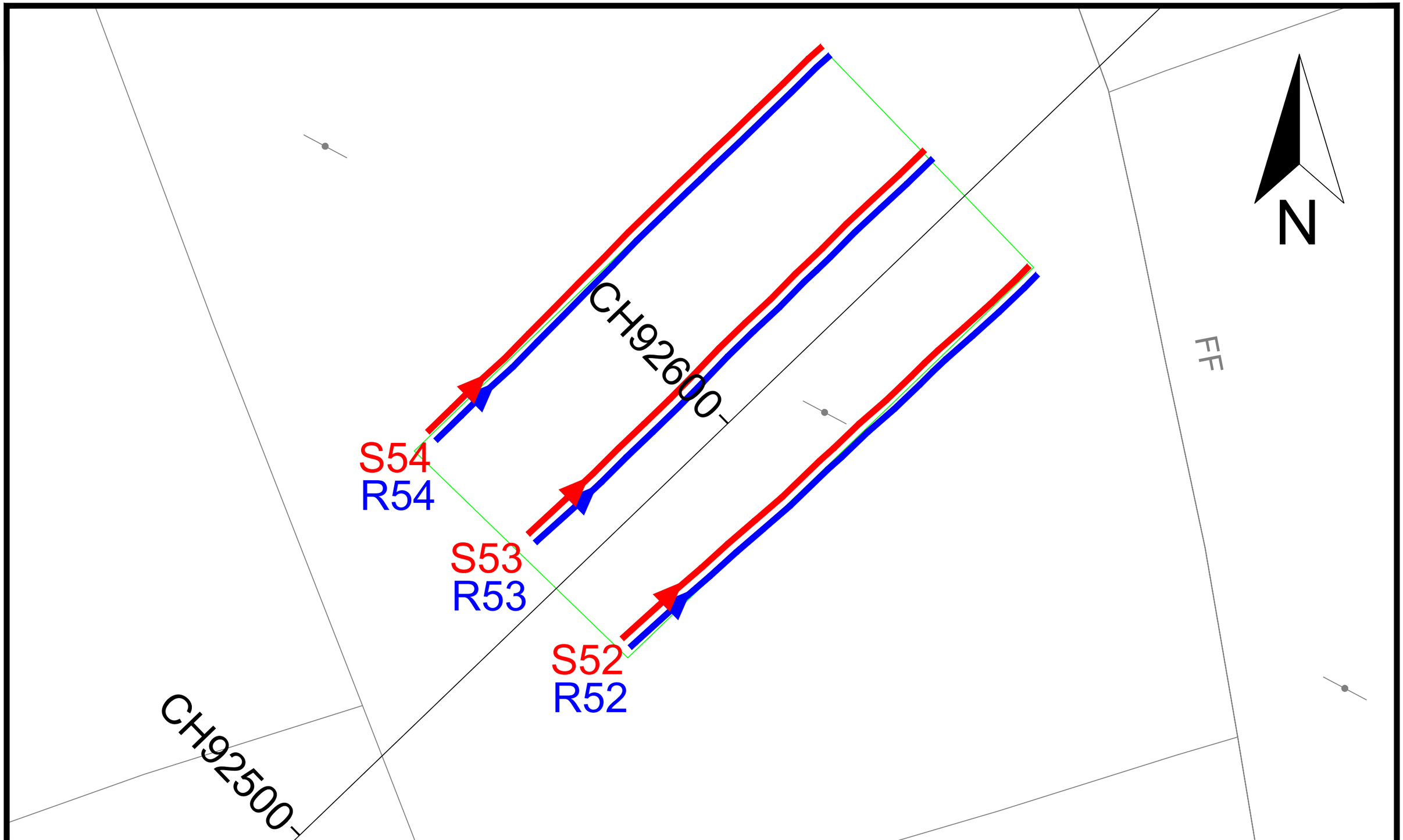
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 19b: Interpretation of Geophysical Survey from Ch89516

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 5B Very stiff sandy gravelly Clay or Silt
- 5C Very dense clayey silty Sand or Gravel
- 5D Very dense Sand or Gravel
- 6B Very stiff sandy gravelly Clay or Silt
- 7B Good Mudstone or Shale



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 20: Geophysical Survey Location Map from Ch92560

SCALE:	1:600 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

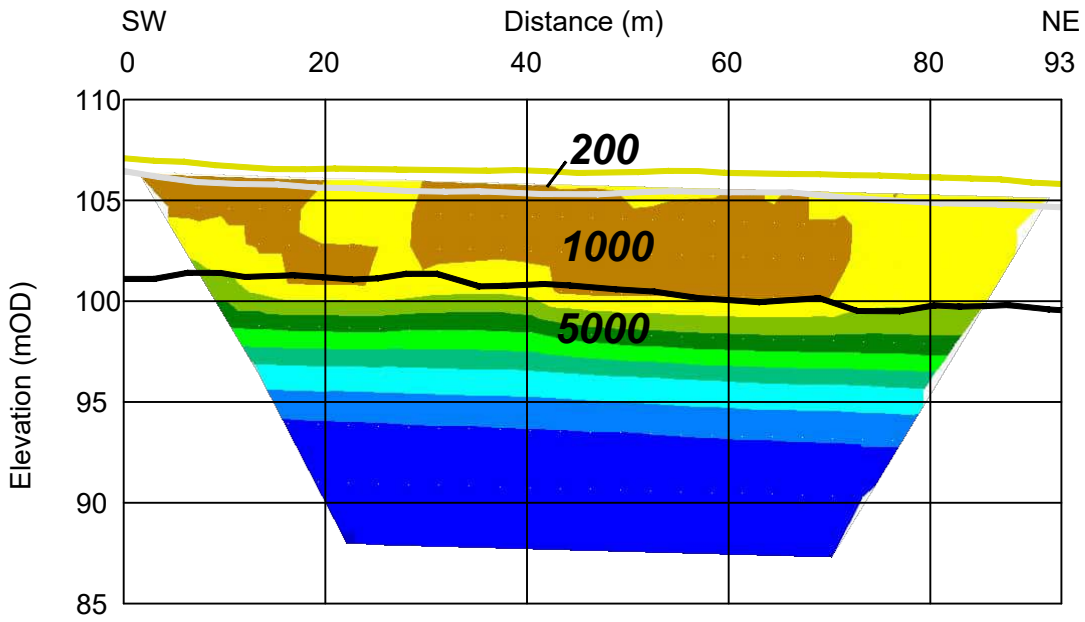
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

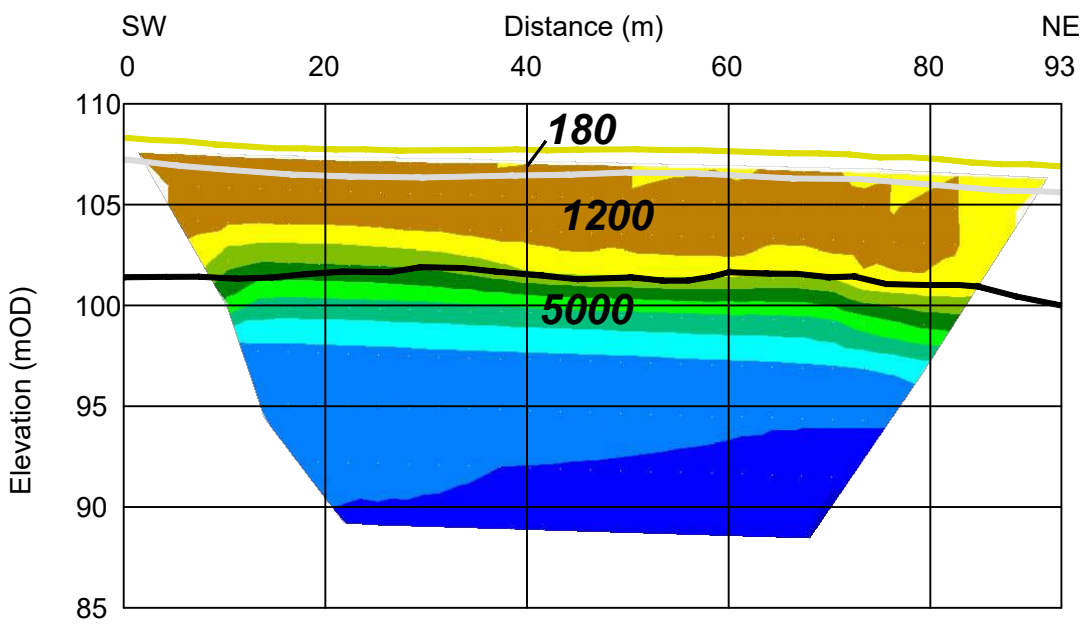
RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

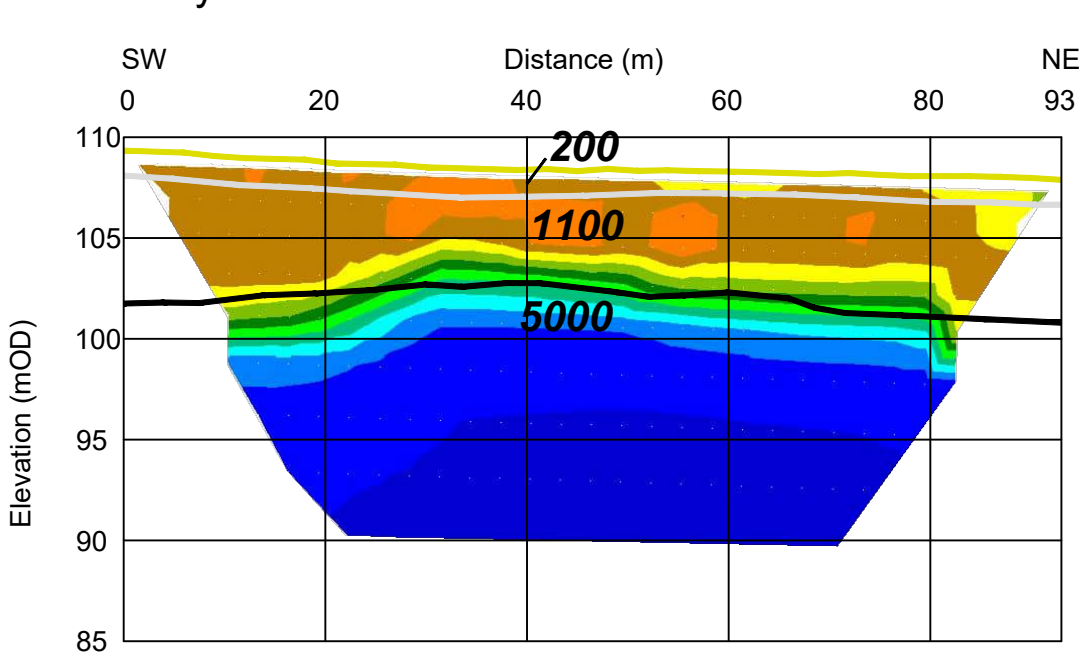
2D-Resistivity Line R54 and Seismic Refraction Line S54 Model



2D-Resistivity Line R53 and Seismic Refraction Line S53 Model



2D-Resistivity Line R52 and Seismic Refraction Line S52 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 20a: Models of Geophysical Survey from Ch92560

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

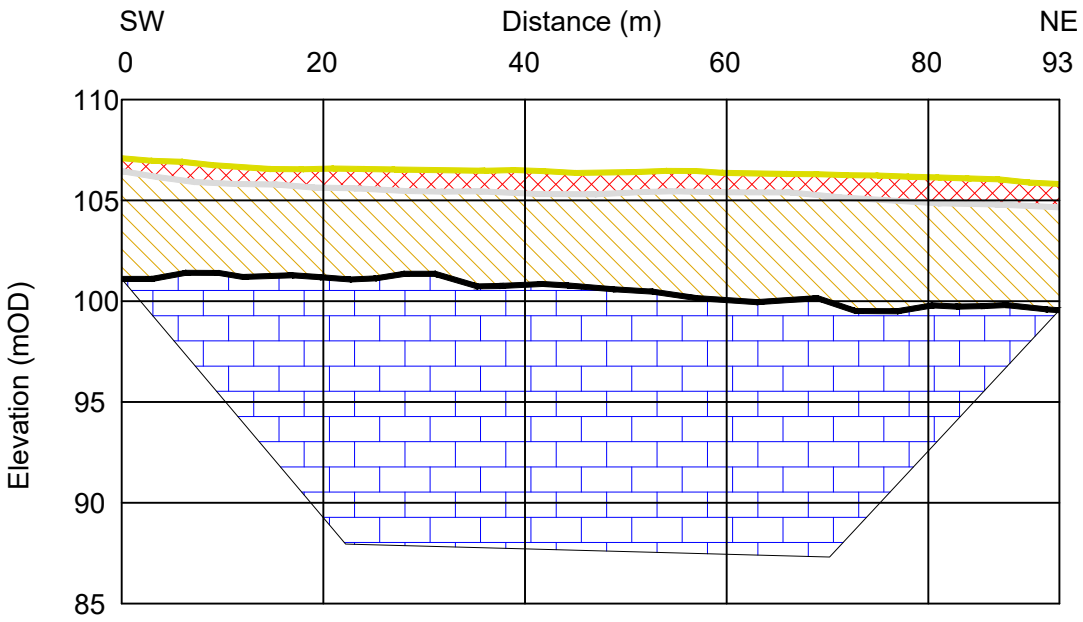
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

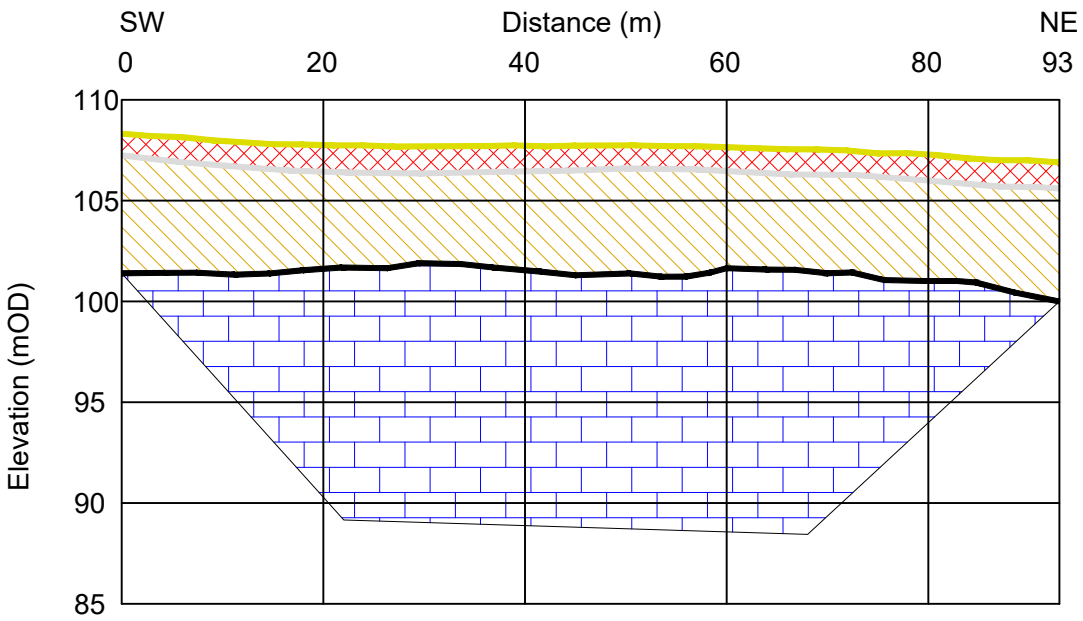
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

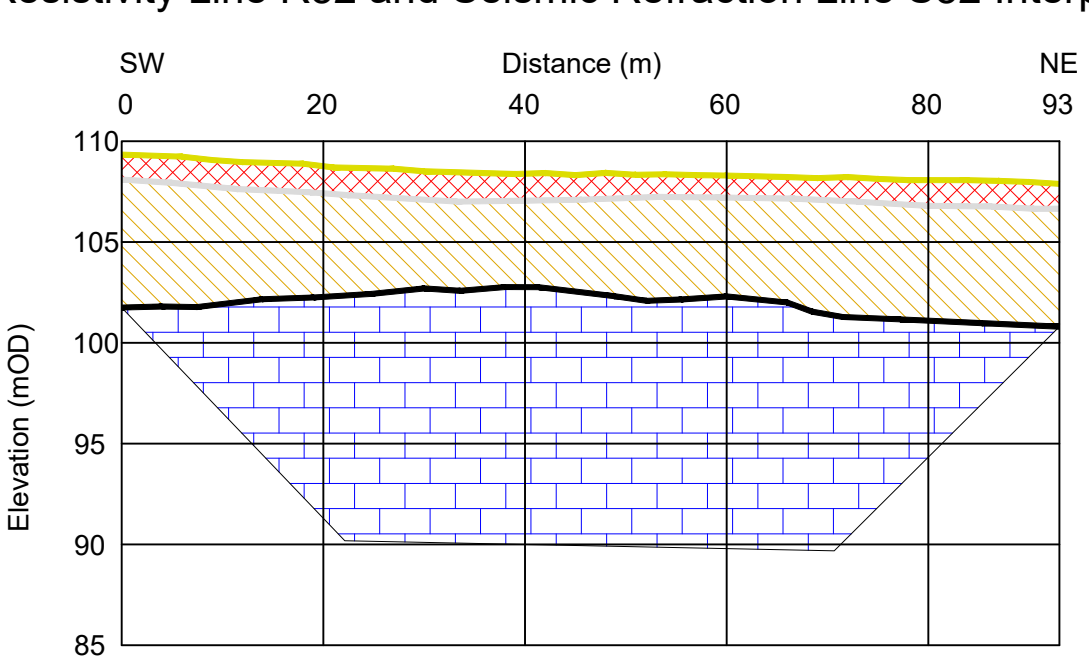
2D-Resistivity Line R54 and Seismic Refraction Line S54 Interpretation



2D-Resistivity Line R53 and Seismic Refraction Line S53 Interpretation



2D-Resistivity Line R52 and Seismic Refraction Line S52 Interpretation



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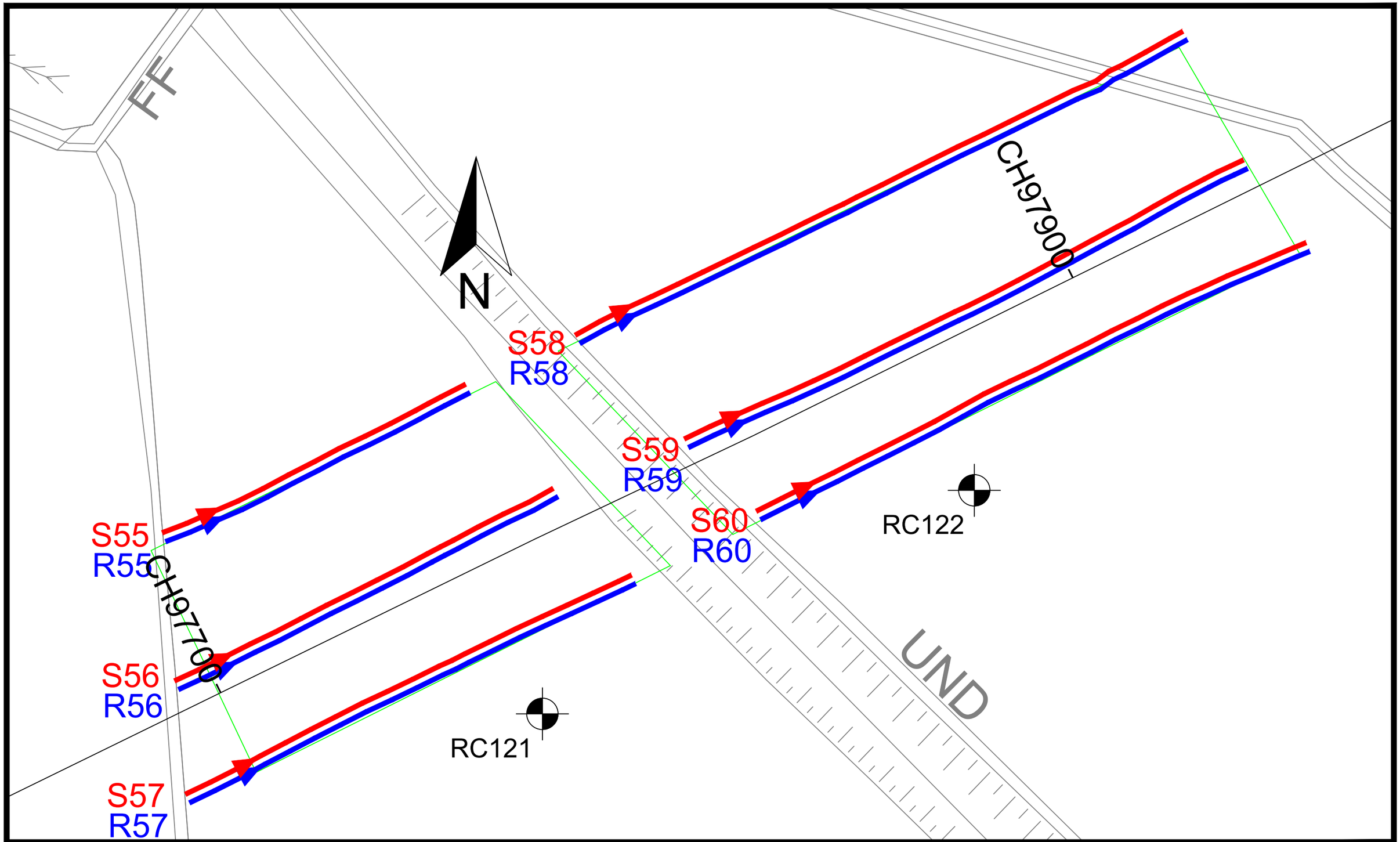
CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 20b: Interpretation of Geophysical Survey from Ch92560

SCALE:	1:750 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 4B Stiff sandy gravelly Clay or Silt
- 7E Good clean Limestone



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 21: Geophysical Survey Location Map from Ch97683

SCALE:	1:750 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

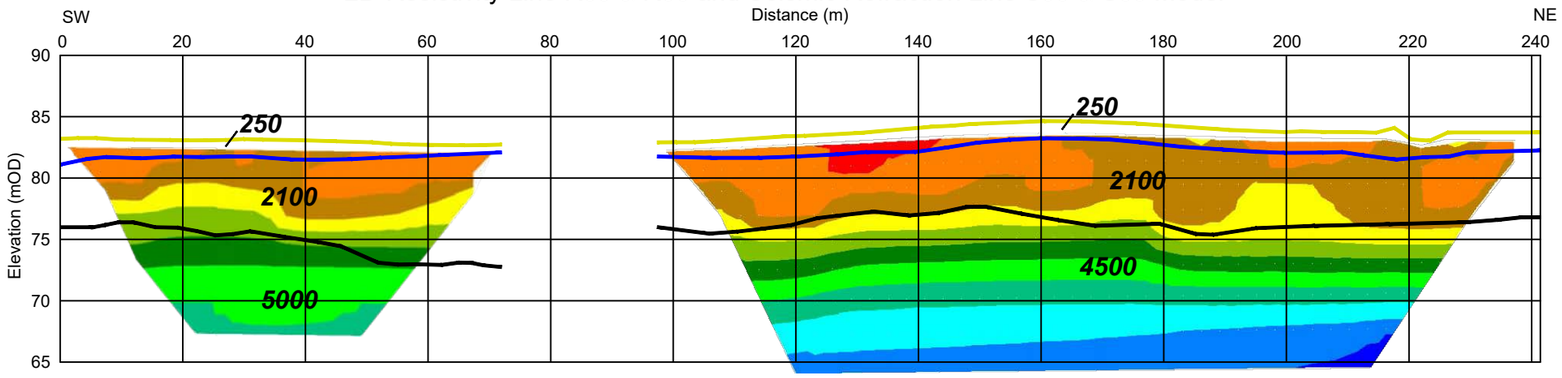
- R2 — 2D-Resistivity Line
- S1 — Seismic Refraction Line
- Survey Area

Direct Ground Investigation Locations:

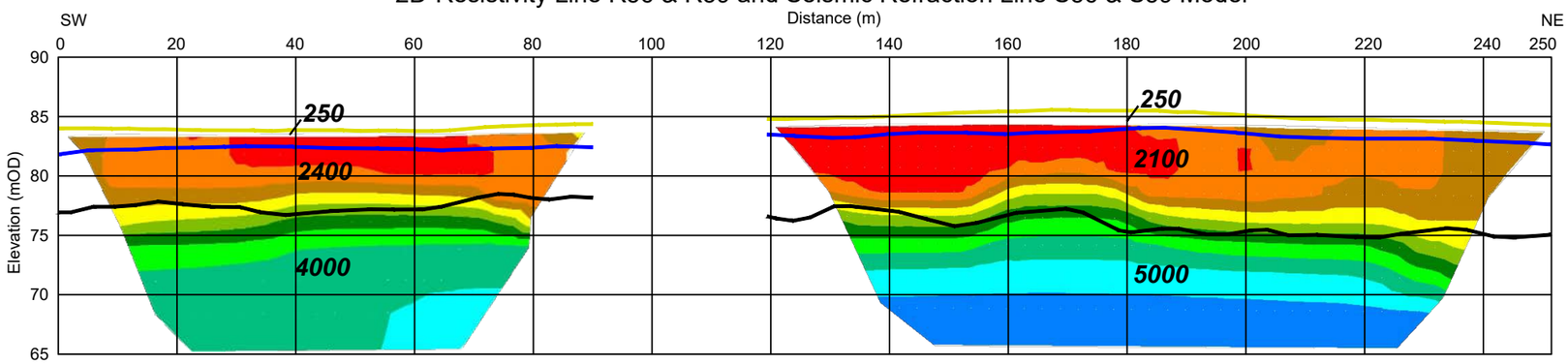
- RC1 — Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

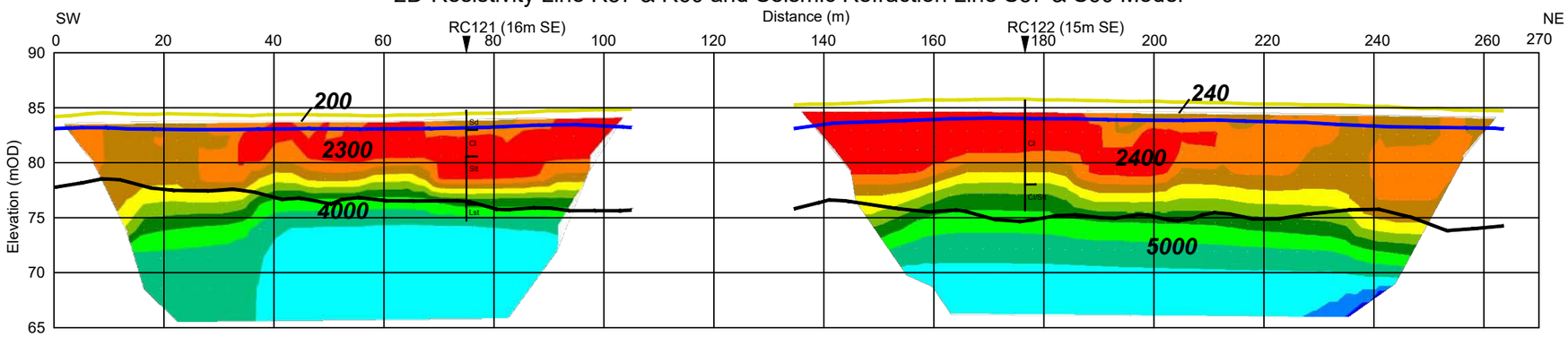
2D-Resistivity Line R55 & R58 and Seismic Refraction Line S55 & S58 Model



2D-Resistivity Line R56 & R59 and Seismic Refraction Line S56 & S59 Model



2D-Resistivity Line R57 & R60 and Seismic Refraction Line S57 & S60 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 21a: Models of Geophysical Survey from Ch97683

SCALE:	1:1000 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

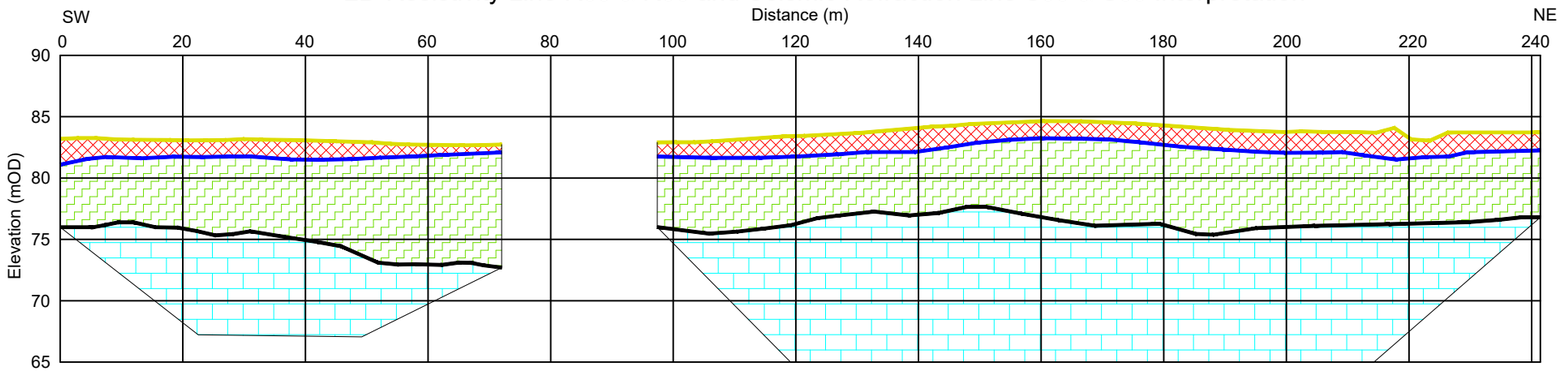
Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

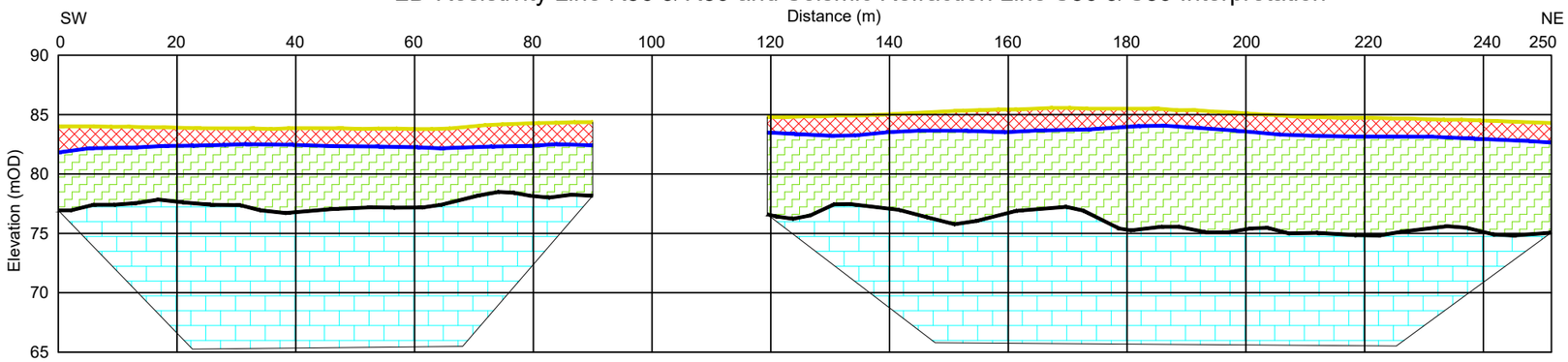
Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone

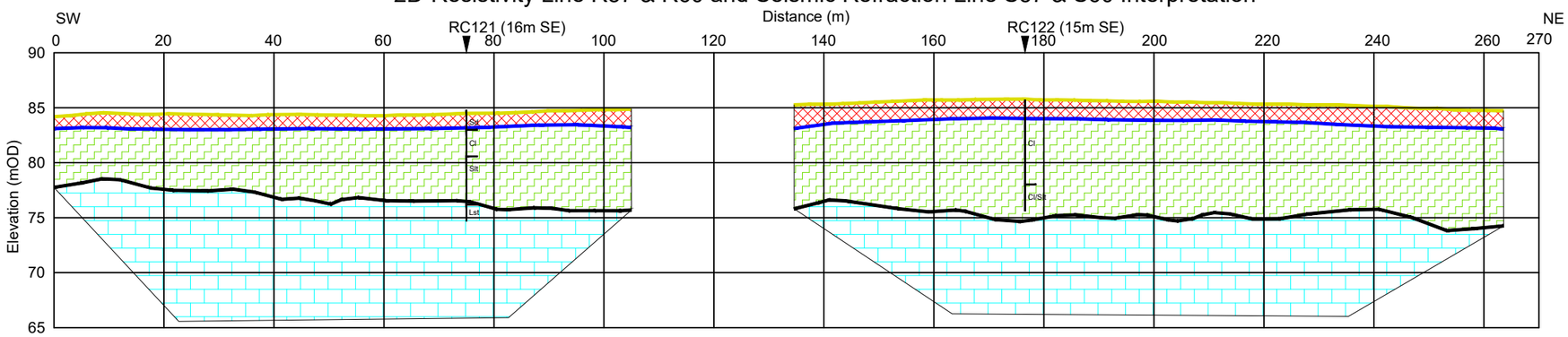
2D-Resistivity Line R55 & R58 and Seismic Refraction Line S55 & S58 Interpretation



2D-Resistivity Line R56 & R59 and Seismic Refraction Line S56 & S59 Interpretation



2D-Resistivity Line R57 & R60 and Seismic Refraction Line S57 & S60 Interpretation



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 21b: Interpretation of Geophysical Survey from Ch97683

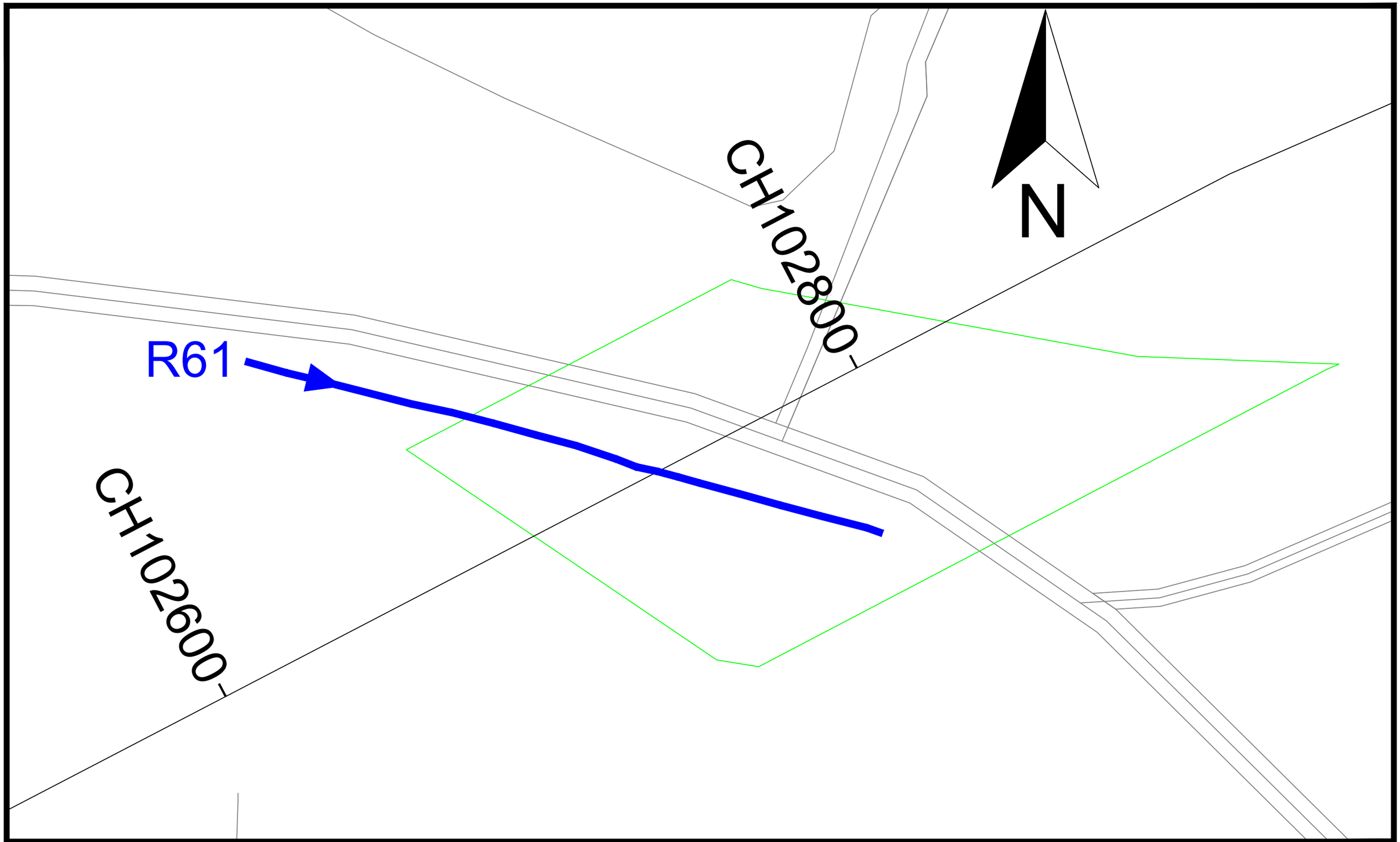
SCALE:	1:1000 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- 2 Soft or loose Topsoil
- 6B Very stiff sandy gravelly Clay or Silt
- 7D Good Limestone

Abbreviated GI Logs:

BH01	Borehole Name and Location
Cl	Clay
Grv	Gravel
Sd	Sand
Slt	Silt
Lst	Limestone



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Map 22: Geophysical Survey Location Map from Ch102624

SCALE:	1:500 @ A3
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation: Resistivity and Seismic Area

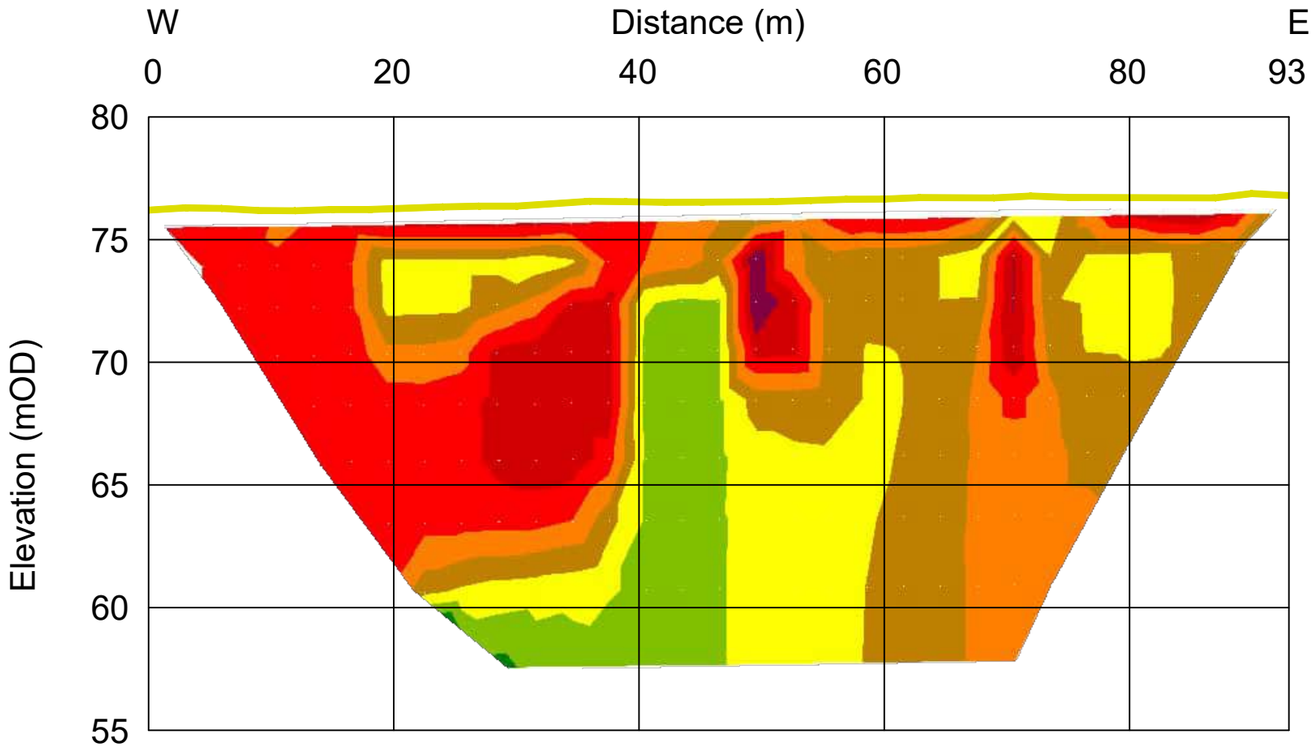
R2	2D-Resistivity Line
S1	Seismic Refraction Line
	Survey Area

Direct Ground Investigation Locations:

RC1	Borehole Location

Locations are in Irish Transverse Mercator (ITM), Elevations are in mOD (Malin Head)

2D-Resistivity Line R61 Model



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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 22a: Models of Geophysical Survey from Ch102624

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

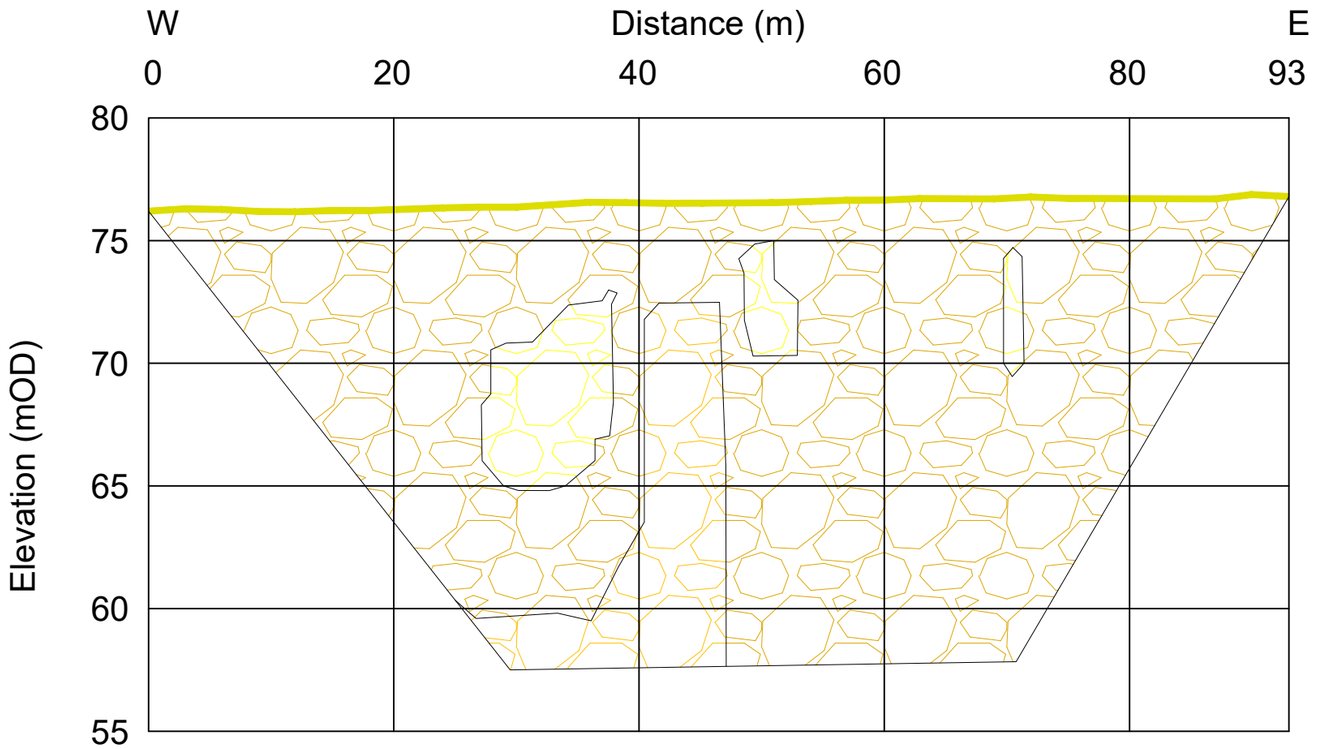
Layers from Seismic Refraction Model:

- Ground Surface/Top of Layer 1 (<150 m/s)
- Ground Surface/Top of Layer 2 (200 - 400 m/s)
- Top of Layer 3 (500 - 900 m/s)
- Top of Layer 4 (1000 - 1500 m/s)
- Top of Layer 5 (1600 - 2000 m/s)
- Top of Layer 6 (2100 - 2900 m/s)
- Top of Layer 7 (>3000 m/s)

Resistivities (Ohmm) for 2D-Resistivity Model

31.2 62.5 125 250 500 1000 2000 4000

2D-Resistivity Line R61 Interpretation



Minerex
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CLIENT	Irish Drilling Ltd. Irish Water
PROJECT	Water Supply Project, Lot 2 Geophysical Survey
TITLE	Figure 22b: Interpretation of Geophysical Survey from Ch102624

SCALE:	1:500 @ A3, VE x 2
PROJECT:	6590
DRAWN:	JC
DATE:	16/03/2022
MGX FILE:	6590d_Drawings.dwg
STATUS:	Draft

Interpretation:

- A Clay and Silt
- B Sandy gravelly Clay or Silt
- C Clayey silty Sand and Gravel

Appendix 6G
Geophysics Report
Part 2: GPR Survey

GPR-Utility Surveys | Chartered Geophysicists

SURVEY REPORT

GPR-UTILITY SURVEY

at

WSP Lot 2

for

Irish Drilling

January 2023

PRIVATE AND CONFIDENTIAL

THIS REPORT IS THE RESULT OF A GEOPHYSICAL SURVEY USING NON-INVASIVE ELECTROMAGNETIC/ GROUND PENETRATING RADAR SURVEY TECHNIQUES CARRIED OUT AT THE GROUND SURFACE. INTERPRETATIONS CONTAINED IN THIS REPORT ARE DERIVED FROM KNOWLEDGE OF THE GROUND CONDITIONS, THE GEOPHYSICAL RESPONSE OF THE SUBSURFACE AND THE EXPERIENCE OF THE AUTHOR. SCANTECH GEOSCIENCE LIMITED HAS PREPARED THIS REPORT IN LINE WITH BEST CURRENT PRACTICE AND WITH ALL REASONABLE SKILL, CARE AND DILIGENCE IN CONSIDERATION OF THE LIMITS IMPOSED BY THE SURVEY TECHNIQUE USED AND THE RESOURCES DEVOTED TO IT BY AGREEMENT WITH THE CLIENT. THE INTERPRETATIVE BASIS OF THE INFORMATION CONTAINED IN THIS REPORT SHOULD BE TAKEN INTO ACCOUNT IN ANY FUTURE USE OF THIS REPORT. WHILE THIS REPORT IS PRESENTED IN GOOD FAITH AND WITH PROFESSIONAL INTEGRITY, SCANTECH GEOSCIENCE LIMITED GIVES NO WARRANTY AS TO THE ACCURACY OF THE INTERPRETATIONS AND ASSUMES NO LIABILITY FOR HOW THIS REPORT IS UTILISED.

Author	Checked	Report Version	Date
Jane Carolan BSc. Geo	Declan Timlin BSc Surv.	1.0	13th January 2023

Table of Contents

Table of Contents 3
1 Executive Summary 4
2 Survey Acquisition 5
2.1 Objectives 5
2.2 Survey Area and Site Conditions 5
2.3 2.3 Survey Crew 7
2.4 Survey Type & Methodology 7
2.4.1 Existing Data Review 7
2.4.2 EM Location Survey 7
2.4.3 Manhole Survey 7
2.4.4 GPR Geophysical Survey 7
2.4.5 Site Mark-up 8
2.5 Base Map and Survey Location Mapping 8
3 Data processing 8
3.1 Off-Site GPR Analysis 8
3.2 GPR Data Processing 9
3.3 GPR Depth Calibration 9
4 Data interpretation 10
4.1 GPR Data Interpretation 10
4.2 Data Merge/Quality Control 10
4.3 Metadata and Drawing File Nomenclature 10
5 Conclusions & Recommendations 11

1 Executive Summary

- Scantech was requested by Irish Drilling to carry out a GPR-Utility Survey for 41 slit trenches on the WSP Lot 2 Irish Water project.

- The objective of the survey was to map the location of underground services or other significant GPR anomalies at each slit trench location.

- The GPR-Utility survey results have been presented in the final AutoCAD drawing file associated with this report along with the pdf drawing/report for each ST location.

2 Survey Acquisition

2.1 Objectives

The objective of the survey was to map the location of underground services or other significant GPR anomalies at each slit trench location.

2.2 Survey Area and Site Conditions

Figure 1. The slit trench locations marked as blue pins.

Survey Conditions/Comments:

The slit trench locations were located on roads from north of Cloughjordan running north east towards Geashill. Many of these roads were quiet local roads.

Figure 2. Slit trench location example.

Water: Scantech have identified water from Hydrant/SV information together with GPR data. Water record location (2D) has also been shown where GPR was unable to locate the possible location of water service according to the record information. Small feeds off main lines to houses/buildings have not been located.

Telecom: Scantech have identified Eir Telecom from manhole information together with GPR data. Opened accessible manholes were logged, clamped and traced. Eir Telecom record location has been included where it was not possible to locate the location of the telecom. A radio sweep was undertaken at each slit trench to identify any other possible telecoms. Cables can sometimes give no signal when they are either fibre-optic or too small to carry a signal.

Power: Scantech have identified Power from EML and record information together with GPR data. A power sweep was carried out at each slit trench to locate power lines. Where a record power line could not be verified on site using EML or GPR, the possible location of the power has been shown as per the record drawing. Small feeds off main lines to houses/buildings may not have been located.

Gas: Scantech have identified gas from gas valves and GPR data. Gas record location (2D) has also been shown where GPR was unable to locate the possible location of gas service as per the record information. Possible small feeds off main lines to buildings have not been located.

Drainage: Scantech have identified drainage lines from manhole information together with GPR data. Opened accessible manholes were logged, photographed and linked through sound-link (where possible). Drainage record location (2D) has also been shown where GPR was unable to locate the possible location of a pipe denoted 'UTT'.

Public Lighting: Scantech have identified Public Lighting from manhole information together with GPR data. Opened accessible manholes and AJs were logged, clamped and traced. Lampposts were inducted into and traced.

Fibre Optic: Scantech have identified Fibre Optic from manhole information together with GPR data. Opened accessible manholes were logged, clamped and traced. Fibre Optic cables usually give no signal when clamped.

Unknown Services: Where GPR has found an anomaly to which a service cannot be attributed, it is noted on the drawing as 'Scantech-Unknown Service'. Single anomalies are displayed as short orange lines in the direction of the unknown anomaly with the associated depth. Several unknown service lines were picked up within the slit trench locations. These were identified from the GPR data.

Radio Anomaly: Radio Anomalies are detected using EML, usually indicating the presence of a cable or metal pipe. These anomalies are then checked against GPR to find a depth.

2.3 2.3 Survey Crew

Name		Role
Pat Judge	Lead Surveyor	EML & Manhole Surveying
Brice LeComte	Geophysicist	GPR Acquisition and GPS Surveying
Sean Casey	Surveyor	GPR Acquisition and EML

2.4 Survey Type & Methodology

The survey was carried out to a Category B survey (PAS 128:2014 Specification for underground Utility detection, verification and Location, BSI 2014). Survey was carried out in September 2022.

The survey methodology is outlined in the sub-sections below.

2.4.1 Existing Data Review

Existing information for the survey area was provided to Scantech by the client prior to commencement of the survey. Record information was obtained from service providers.

2.4.2 EM Location Survey

Electromagnetic location (EML) surveying was carried out using Radiodetection RD8100 EM passive and active radio frequency transmitters and receivers. This method is used to detect metallic/conducting utilities e.g., power, telecoms, metallic services.

2.4.3 Manhole Survey

Visible manholes and access chambers on-site were inspected and surveyed. This involved opening each lid where possible and recording all relevant information; utility type, size, material, direction, invert levels etc. Photos were taken of the exterior and interior of all manholes. Manholes were not entered.

2.4.4 GPR Geophysical Survey

Ground Penetrating Radar is a geophysical technique used by geophysicists to image the subsurface. A high frequency electromagnetic pulse is transmitted into the ground. The pulse is reflected at the boundaries between materials of different dielectric permittivity and the receiver

records the returned energy. Combining the impulse response traces along a profile allows the geophysicist to build up a 2D or 3D geophysical image of the subsurface (radargram). Careful data analysis and interpretation is required for GPR application.

The survey was carried out using Mala Ground Explorer ground penetrating radar (GPR) antenna system with central frequency of 450MHz.

GPR profiles were recorded in the survey area. GPR anomalies were marked as the data was recorded and marked on the ground. Profiles were acquired in orthogonal directions within the survey area. All GPR data was recorded and saved for off-site post processing. GPR recording times ranging from 0 to 90 nanoseconds were used.

GPR is effective in resolving sub surface utilities, but its effectiveness is reduced by the presence of highly conductive materials e.g. wet clay/soil, reinforced concrete. Clay or plastic material pipes in wet or clay rich soil are unlikely to be identified. Pipes of diameter less than 100mm are difficult to identify- many of the gas records indicate pipes smaller than this size. The absence of features on the recorded GPR data is not conclusive proof of the absence of these features as they may lie outside the range or resolution of the GPR signal lie between GPR profiles or masked by shallower services or poor ground conditions. We therefore cannot accept liability for damage caused to utilities not identified by GPR survey.

2.4.5 Site Mark-up

Utilities were marked on the ground to indicate the utility location based on the detected signal return in the field. The survey area was marked using non-permanent spray paint on grassed areas and paint/chalk on paved/tarmac areas.

2.5 Base Map and Survey Location Mapping

No topographical base map was provided so Scantech surveyed some topographical information to add context to the GPR results.

The survey equipment used was a GQM8 RTK GPS receiver with K8 Field Controller. This equipment was also used to survey all utility ground marks.

3 Data processing

3.1 Off-Site GPR Analysis

All GPR data was processed and interpreted back in the office. Off-site GPR analysis, also referred to as post-processing, involves applying a range of mathematical filters to the data to improve the signal to noise ratio which facilitates effective interpretation. It also involves velocity analysis for depth conversions, see 3.3 below. The quality of the data processing and interpretation is directly dependent on the qualification of the personnel involved and their experience.

3.2 GPR Data Processing

Data processing included the following steps;

a.) DC adjustment
b.) Time-zero adjustment
c.) 2D spatial filtering
d.) Amplitude correction
e.) Predictive deconvolution
f.) Bandpass filtering
g.) Background removal
h.) F-K Migration

The GPR profiles were then processed using time varying gain functions to improve the target signal to noise ratio. This process aids interpretation of the enhanced GPR signatures.

3.3 GPR Depth Calibration

The speed of a radar wave through the subsurface will vary depending on the type of material it travels through. Velocities can be highly variable and depend strongly on the clay and water content of the subsurface.

In order to determine the depth to a GPR anomaly, the recorded two way travel times must be converted to depth using an accurate estimate of the average subsurface velocity.

The velocity ranges for the survey were determined using a combination of direct calibration (from manholes) and hyperbolic curve fitting algorithms applied to radargrams with reflection signatures which indicated different ground conditions.

A direct velocity calibration was carried out in the laneway (adjacent to a manhole) and in the enclosed site the velocity was determined from curve fitting. All GPR profiles acquired during the survey was converted from travel time to depth using velocities ranging between 90 cm/ns and 100 cm/ns.

To convert the measured two way time to depth, the following formula is used:

Depth [m] = Velocity [cm/ns] * Two-Way-Time [ns] * 0.005

The depth values presented should be checked and revised once additional trial pit or other excavation information within the enclosed site becomes available. The effective depth of penetration varied across the site and ranged from 0.2mbgl to 1.5mbgl.

4 Data interpretation

4.1 GPR Data Interpretation

Interpretation of GPR data involves the identification and characterisation of anomalies with respect to amplitude, frequency, phase, position, depth, geometry and coherency. Anomalies with similar attributes are interpolated across profiles. These linear features can then be constrained by manhole information or other ground truthing.

For this survey, the identified GPR anomalies within the enclosed site can be split into three categories,

1.) anomalies interpreted as possible unknown services (orange lines on the drawing);

2.) discrete anomalies consistent with responses from buried services but not coherent across profiles (orange circles along the GPR profiles);

3.) high amplitude anomalies not consistent with responses from buried services but possibly related to either a void or the presence of subsurface material change in the fill composition (orange clouded areas).

Note: Scantech reserves the right to revise the interpretation if additional relevant information is provided e.g., trial pit/slit trench or excavation information.

4.2 Data Merge/Quality Control

Information from all sources (GPR, EML, Manholes) were correlated and merged onto the final drawing.

4.3 Metadata and Drawing File Nomenclature

The final survey drawing is called SGL_22256_Nenagh-Lot2_Irish-Drillings_20.09.22.dwg and contains layers as listed below.

Utility Type	Line Colour
Foul Sewer	Green
Cable TV	Purple
Telecom - Eir	Magenta
Water	Blue
Power	Red
Unknown Service	Orange
Fibre Optic	Teal
Combined Sewer	Brown

Storm Sewer	Cyan
Gas	Yellow

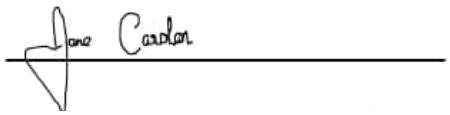
Notes:

- Unknowns are linear GPR anomalies identified across some GPR profiles but of unknown source.
- R denotes sections of services that have been taken from record.
- UTT denotes services that we have been “Unable to Trace” usually due to blockages or poor signal quality.
- UTO denotes services lids that we have been “Unable to Open”.

5 Conclusions & Recommendations

Scantech was requested by Irish Drilling to carry out a GPR-Utility Survey for 41 slit trenches on the WSP Lot 2 Irish Water project. The objective of the survey was to map the location of underground services or other significant GPR anomalies at each slit trench location. The survey has achieved this principle objective as shown on the survey drawings together with this associated survey report. Scantech reserves the right to revise the interpretation if additional relevant information is provided

Respectfully submitted,



Jane Carolan, BSc. Geo
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SITE NOTES

1. Date Scanned 06-09-22
2. No Power or Radio signal
3. GPR Anomaly at 1.4mBGL
4. Watermain identified at 0.8mBGL on Eastern side

150MM uPVC

0.8

0.8

1.4

ST-37200

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
The Information on this drawing is a general guide only and the accuracy thereof cannot be guaranteed. No liability is accepted for any discrepancy, ommission or deviation from the actual subsurface location or depth to underground utilities.

DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN
(NOT TO SCALE)

SCANTECH GEOSCIENCE
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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST37200 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. No Power or Radio signal
3. 2x unknown services on northern side
4. Watermain identified at 0.9mBGL on Soiuthern side

ST-38780

0.9

0.9

0.7

0.6

0.9

0.9

50.8 MM uPVC

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

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7. Survey carried out in September 2022.
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9. UTT denotes unable to Trace, UTO denotes unable to Open

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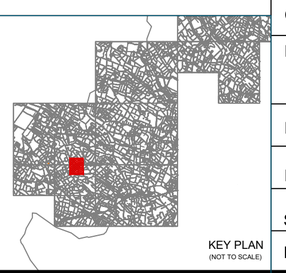
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST38780 | Revision:

SITE NOTES

1. Date Scanned 05-09-22
2. No Power or Radio signal
3. Watermain identified at 0.65mBGL on Eastern side

ST-39250

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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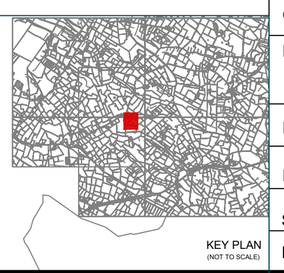
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST39250 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. No Power or Radio signal
3. 2x possible unknown services at 0.5 and 0.8mBGL

ST-41730

0.5
0.5
0.5

0.8
0.8
0.8

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in August 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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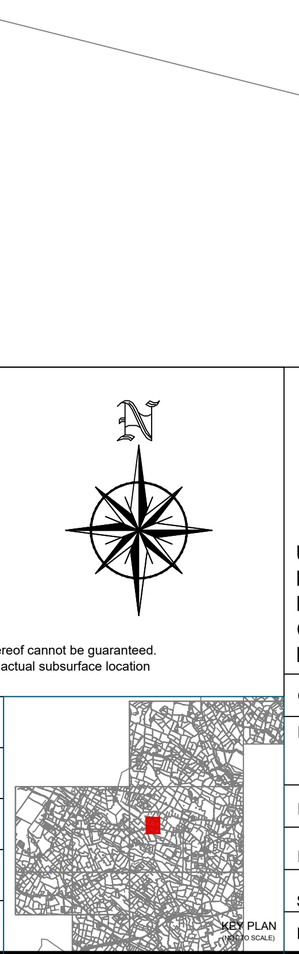
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST41730 | Revision:

SITE NOTES

1. Date Scanned 05-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground service found

ST-42855

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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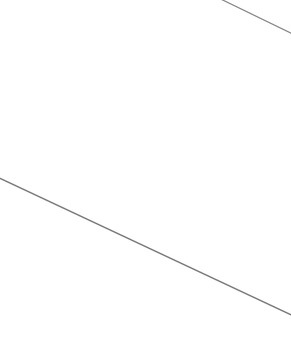
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

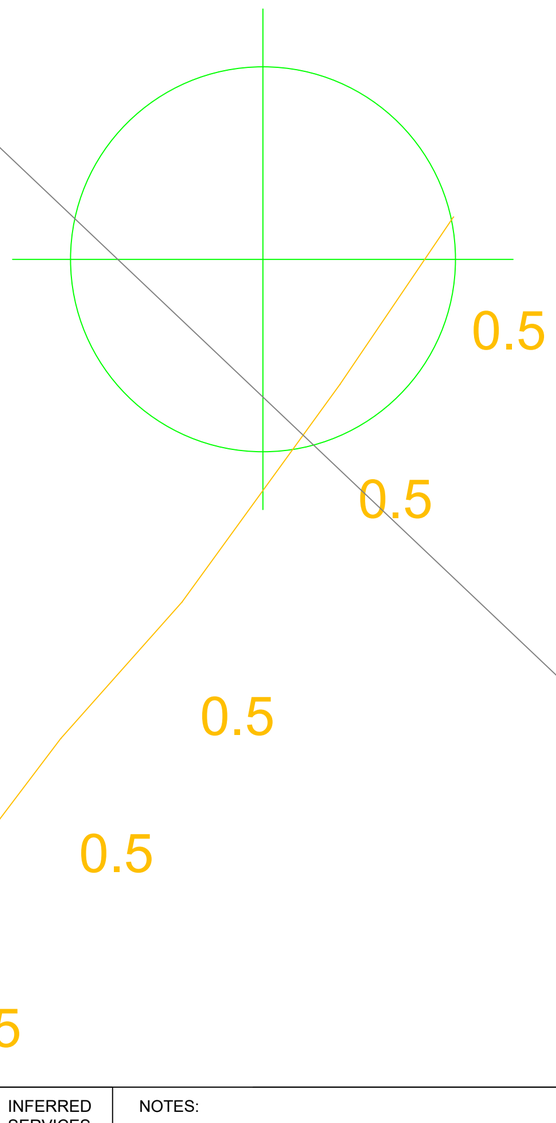
Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST42855 | Revision:

SITE NOTES

1. Date Scanned 05-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 1x possible unknown service at 0.5mBGL crossing

ST-44815



DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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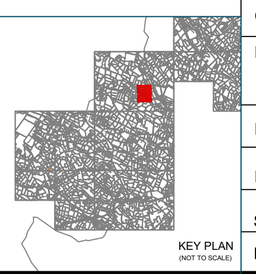
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST44815 | Revision:

SITE NOTES

1. Date Scanned 05-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground services found

ST-47400

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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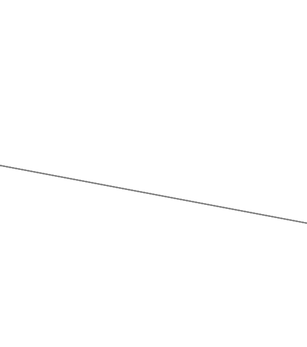
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST47400 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 1x possible unknown service at 0.8mBGL on E side

ST-48150

0.8

0.8

0.8

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R R	
Bord Gais Records	YELLOW	R R R	
Telecom Records	MAGENTA	R R R	
Water Records	BLUE	R R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST48150 | Revision:

SITE NOTES

1. Date Scanned 08-09-22
2. 1x Power utility at 0.65mBGL
3. 1x possible unknown at 0.8mBGL on E side
4. 3" uPVC watermain not located

0.8

3" uPVC ?

0.8

0.75

0.65

0.75

ST-50900

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
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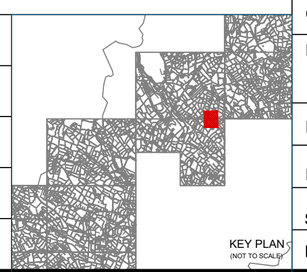
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST50900 | Revision:

SITE NOTES

1. Date Scanned 05-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground service found

ST-52010

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R R	
Bord Gais Records	YELLOW	R R R	
Telecom Records	MAGENTA	R R R	
Water Records	BLUE	R R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST52010 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. 1x Radio utility at 0.5mBGL on N side
3. 1x possible unknown service at 0.8mBGL on S side

0.5 RADIO

0.8

0.8

0.5 RADIO

0.5 RADIO

ST-53120

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
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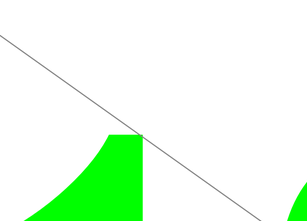
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST53120 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. No Power or Radio signal
3. 1x GPR anomaly at 0.5mBGL
4. 1x possible unknown services at 0.7mBGL (S side)
5. 1x possible unknown services at 0.85 (N side)

ST-57600

0.85

0.9

0.5

0.5

0.7

0.7

0.7

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

SCANTECH GEOSCIENCE

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022

Drawn By: B.L.C.

Scale: Not to Scale

Checked: D.T

Drawing No: SGL-22256_ST57600

Revision:

SITE NOTES

1. Date Scanned 05-09-22
2. No Power or Radio signal
3. 1x GPR Anomaly at 0.7mBGL
4. 1x possible water line not IW in field from records

POSSIBLE WATER LINE NON IW IN THE FIELD

ST-5810

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

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2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
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5. 300mm denotes the diameter of the pipe.
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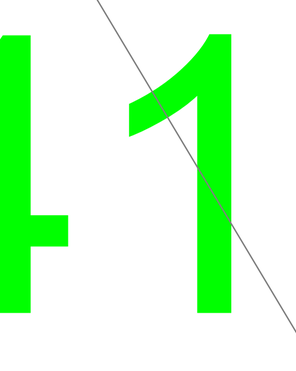
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST58410 | Revision:

SITE NOTES

1. Date Scanned 05-09-22
2. No Power or Radio signal
3. 1x possible unknown service at 0.9mBGL

ST-588800

0.9

0.9

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

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4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN
(NOT TO SCALE)

SCANTECH GEOSCIENCE
GPR - Utility Survey
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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST58800 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. No Power or Radio signal
3. 1x GPR Anomaly at 1.0mBGL
4. 1x possible unknown service at 0.8mBGL on S side

0.6 0.6 0.6

ST-60340

1.0

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST60340 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground service found

ST-60775

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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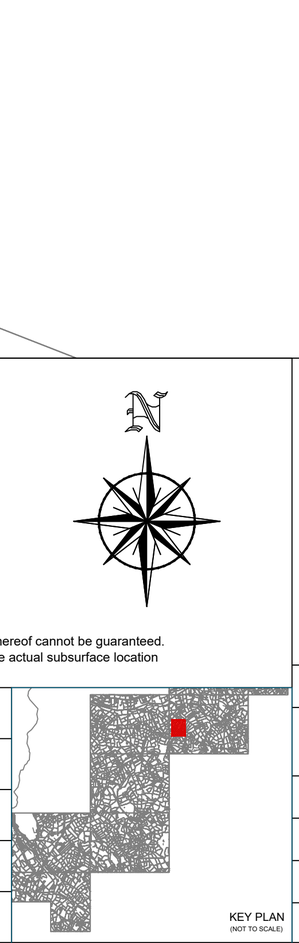
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST60775 | Revision:

SITE NOTES

1. Date Scanned 06-09-22
2. 1x power utility at 1.6-2.3 mBGL on W side
3. No GPR Anomaly
4. 1x unknown service at 1.2mBGL on E side

2.3

1.2

1.2

1.2

1.8

1.6

ST-61850

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

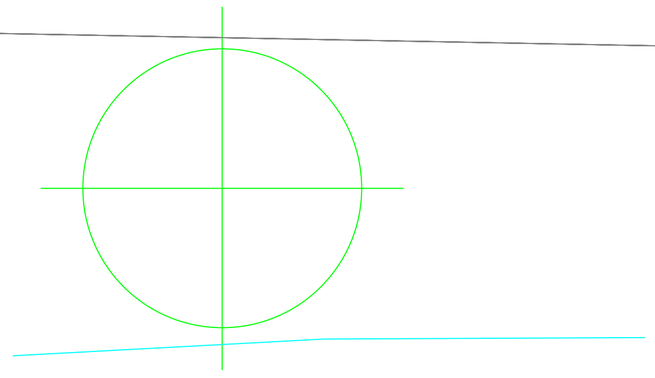
Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST61850 | Revision:

SITE NOTES

1. Date Scanned 13-09-22
2. 1x Radio utility at 1.3mBGL on N side
3. No GPR Anomaly
4. 1x possible Watermain at 0.9mBGL on S side

ST-64650



DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST64650 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. GPR Anomaly
4. 1x possible unknown service at 1.1mBGL on N side

1.1

1.1

1.1

ST-66000

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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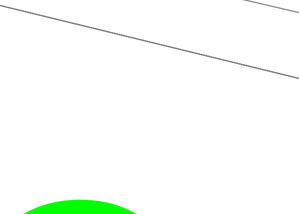
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST66000 | Revision:

SITE NOTES

1. Cancelled (located in field)

ST-68710 CANCELLED

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

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2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN
(NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST68710 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 1x possible unknown service at 1.5mBGL on E side

1.6

1.5

ST-69520

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

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2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST69520 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. 1x GPR Anomaly at 1.5mBGL
4. No underground service found

1.5

ST-72250

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN
(NOT TO SCALE)

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Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST72250 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground services found

ST-72690

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
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9. UTT denotes unable to Trace, UTO denotes unable to Open

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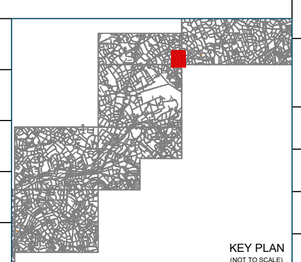
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST72690 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground services found

ST-73130

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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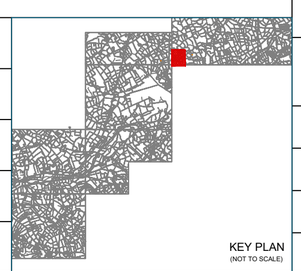
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



SCANTECH GEOSCIENCE

GPR - Utility Survey

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST73130 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. 1x GPR Anomaly at 0.4mBGL
4. No underground services found

ST-73750

0.4

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST73750 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground services found

ST-74200

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R R	
Bord Gais Records	YELLOW	R R R	
Telecom Records	MAGENTA	R R R	
Water Records	BLUE	R R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN
(NOT TO SCALE)

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Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST74200 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 1x possible unknown service at 0.5-0.7mBGL

0.7
0.7
0.5
0.5
0.5

ST-76100

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

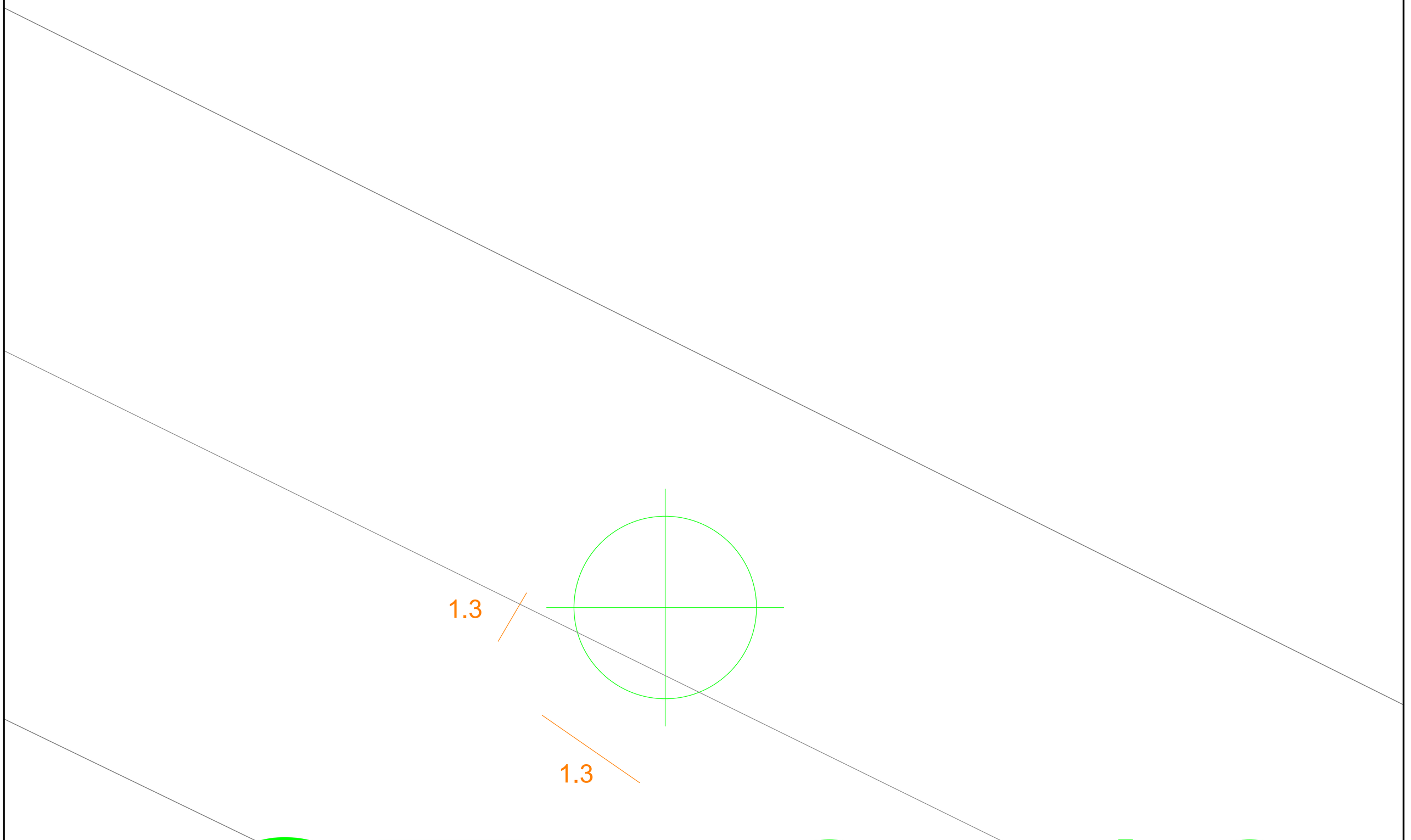
Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST76100 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. 2x GPR Anomaly at 1.3mBGL
4. No underground services found



DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST76710 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. 2x GPR Anomaly at 0.9 and 1.0mBGL
4. 2x possible unknown service at 0.8mBGL on E side and 0.9 mBGL on W side

0.85

0.9

0.9

0.8

1.0

1.0

0.9

0.9

0.8

ST-80025

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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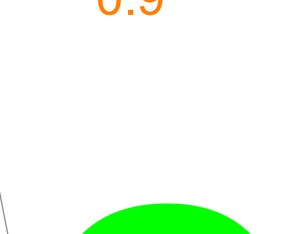
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST80025 | Revision:

SITE NOTES

1. Date Scanned 07-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 2x unknown services at 0.8mBGL on N side and 0.45mBGL on S side.

ST-80450

0.8 0.8 0.6

0.5 0.55 0.5 0.45

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST80450 | Revision:

SITE NOTES

1. Date Scanned 08-09-22
2. 1x Radio utility at 0.5mBGL
3. 1x GPR Anomaly at 0.5mBGL
4. 2x possible unknown service at 0.5mBGL on E side and 0.7mBGL on W side

ST-82200

0.5

0.5

0.5

0.7

0.5

0.5

0.5

0.8

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

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2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
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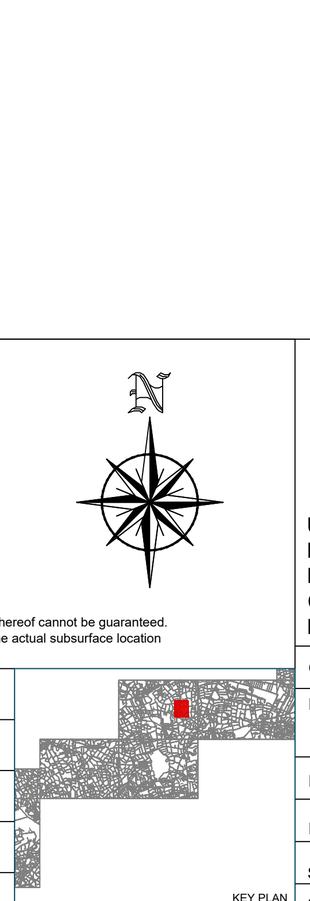
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST82200 | Revision:

SITE NOTES

1. Date Scanned 08-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 1x possible unknown service at 0.45mBGL on E side

ST-83580

0.45

0.65

0.6

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
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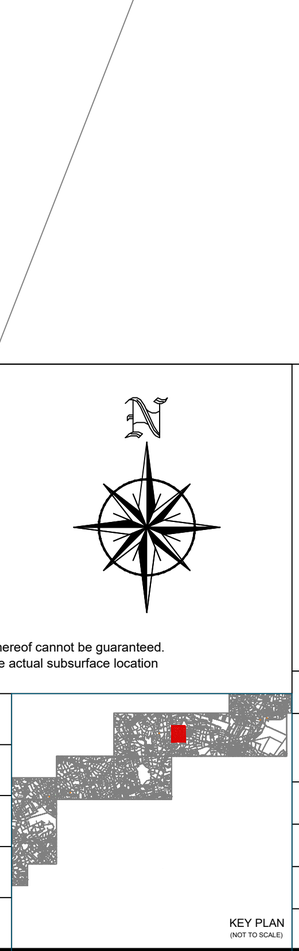
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



KEY PLAN
(NOT TO SCALE)

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Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

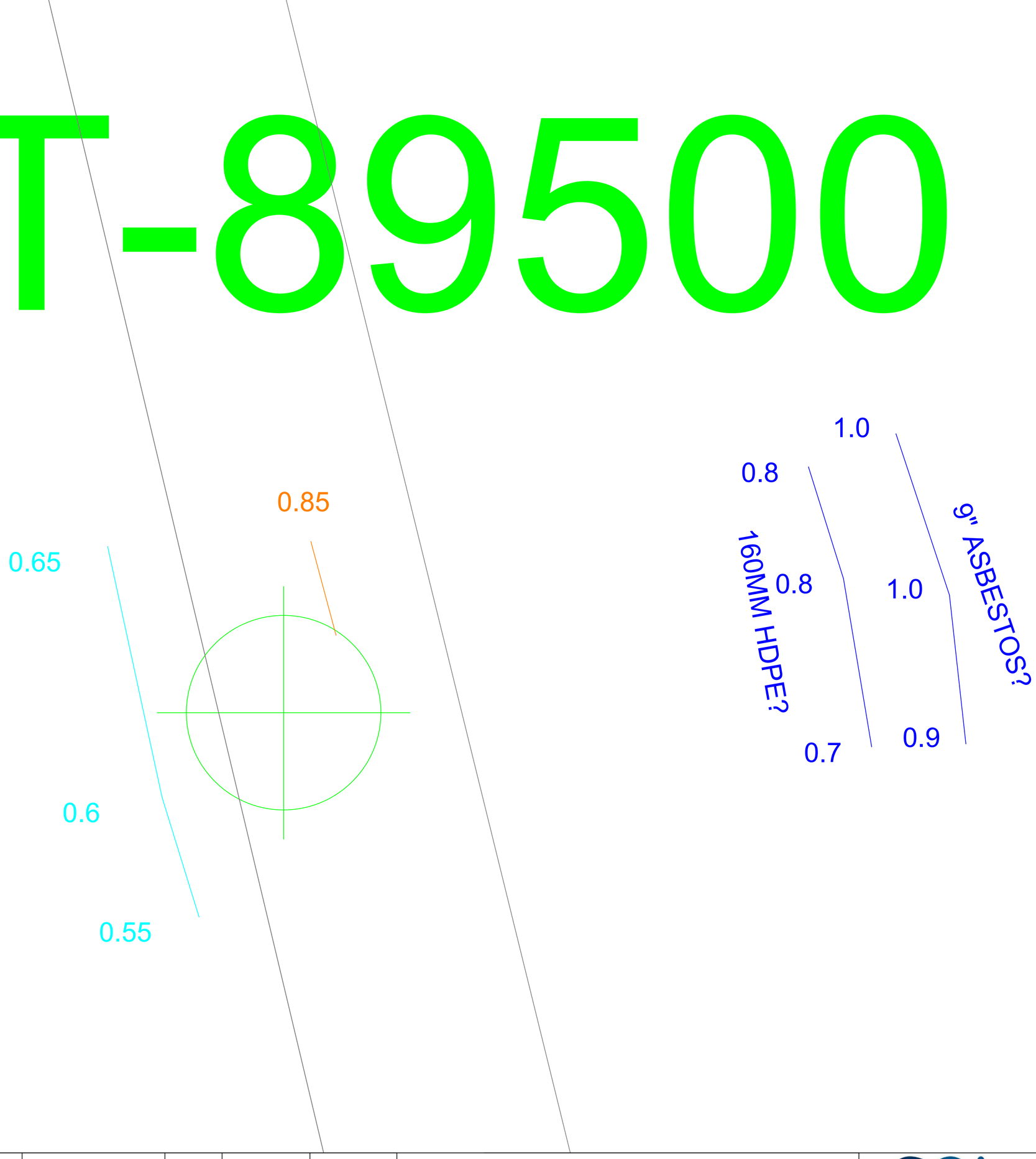
Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST83580 | Revision:

SITE NOTES

1. Date Scanned 08-09-22
2. 1x Radio utility at 0.6mBGL on W side
3. 1x GPR Anomaly at 0.85mBGL
4. 2x possible watermain at 0.7 and 0.9mBGL on E side

ST-89500



DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

SCANTECH GEOSCIENCE
GPR - Utility Survey
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www.scantech.ie

Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

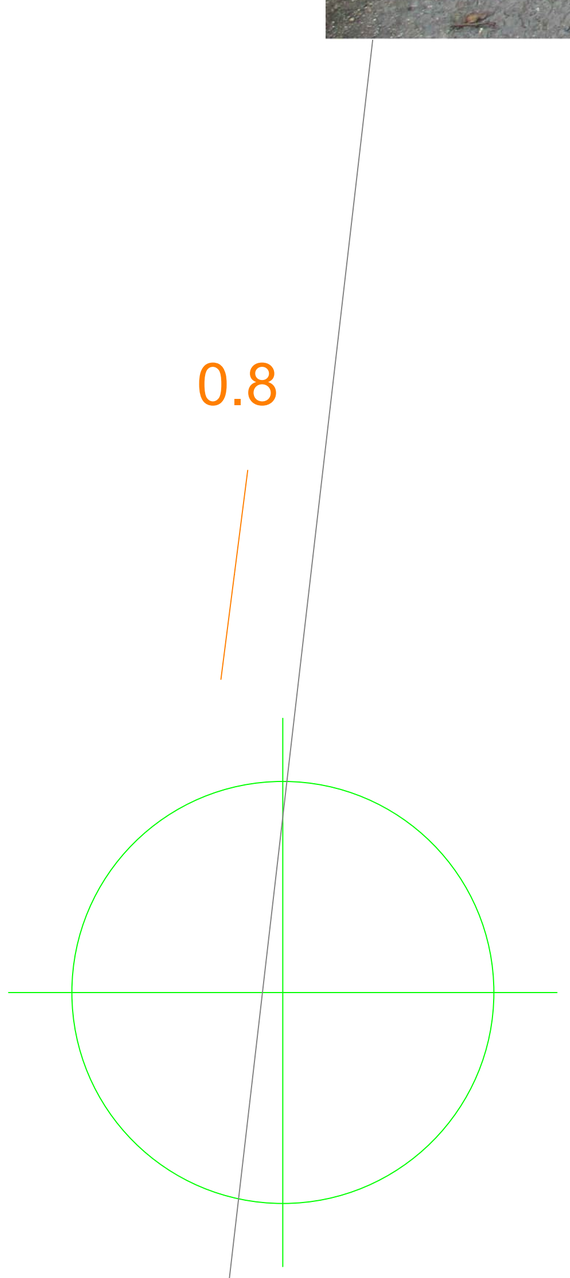
Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST89500 | Revision:

SITE NOTES

1. Date Scanned 08-09-22
2. No Power or Radio signal
3. 1x GPR Anomaly at 0.8mBGL
4. No underground services found



ST-89980

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST89980 | Revision:

SITE NOTES

1. Date Scanned 08-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 1x possible unknown at 1.2-1.5mBGL on road S side
5. 2x possible unknown at 0.6 and 0.7-0.8mBGL on N side

ST-93150

0.6

0.7

0.6

0.8

1.2

1.5

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST93150 | Revision:

SITE NOTES

1. Date Scanned 09-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 2x possible unknown service at 0.8mBGL on N side and at 0.6mBGL on S side

0.8

0.8

0.8

0.6

0.6

0.6

ST-93360

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST93360 | Revision:

SITE NOTES

1. Date Scanned 09-09-22
2. No Power or Radio signal
3. 2x GPR Anomaly at 0.8mBGL on N side
4. 1x possible unknown service crossing at 2.0mBGL
5. 1x possible unknown service at 0.8mBGL on S side

ST-95100

2.0

2.0 BIG PIPE?

0.8

0.8

0.8

0.8

0.9

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST95100 | Revision:

SITE NOTES

1. Date Scanned 09-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. No underground services found

ST-97440

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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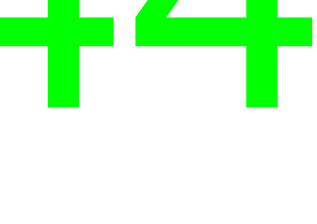
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST97440 | Revision:

SITE NOTES

1. Date Scanned 09-09-22
2. No Power or Radio signal
3. 2x GPR Anomaly at 0.6 and 0.8mBGL
4. 1x possible unknown service at 0.6mBGL on road

ST-99750

0.75

0.8

0.7

0.6

0.6

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED	R R	
Bord Gais Records	YELLOW	R R	
Telecom Records	MAGENTA	R R	
Water Records	BLUE	R R	
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN
(NOT TO SCALE)

SCANTECH GEOSCIENCE
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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

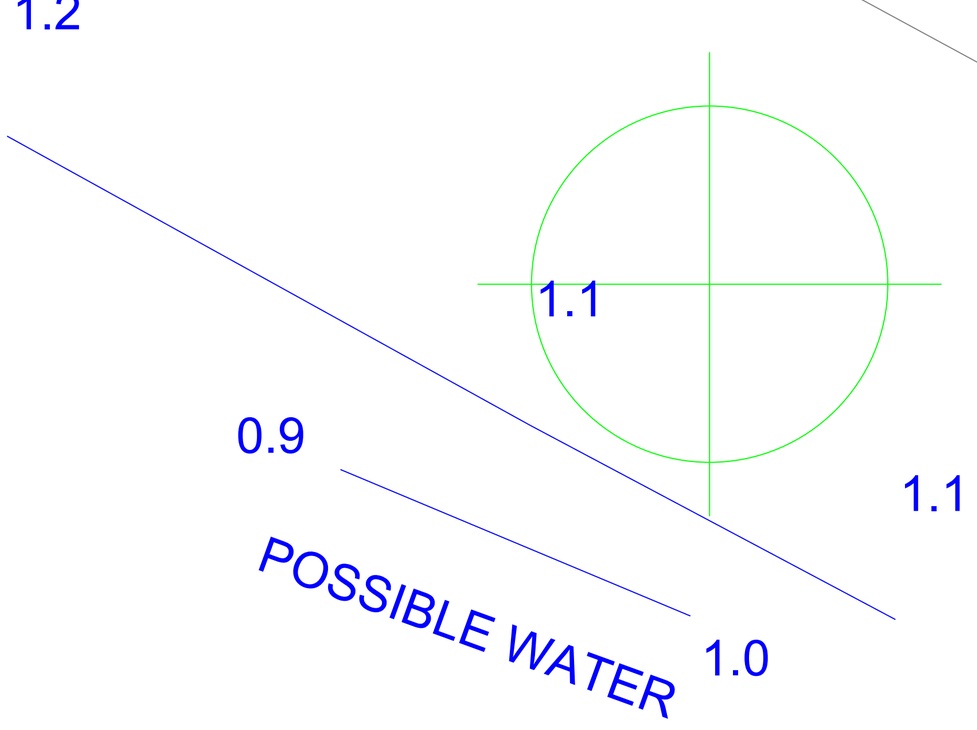
Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST99750 | Revision:

SITE NOTES

1. Date Scanned 09-09-22
2. No Power or Radio signal
3. No GPR Anomaly
4. 2x possible Watermain at 1.1 and 0.9 mBGL on S side



ST-100900

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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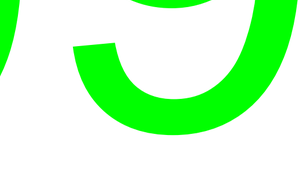
DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5



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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST100900 | Revision:

SITE NOTES

1. Date Scanned 09-09-22
2. No Power or Radio signal
3. 1x GPR Anomaly at 0.6mBGL on W side
4. 1x possible Watermain at 1.2mBGL on E side
5. 3x possible unknown service on W side

0.8

0.8

0.6

0.8

0.85

0.6

0.8 UTT

0.9

0.75

1.2

1.2

1.3 WATER?

ST-102000

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
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DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

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Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

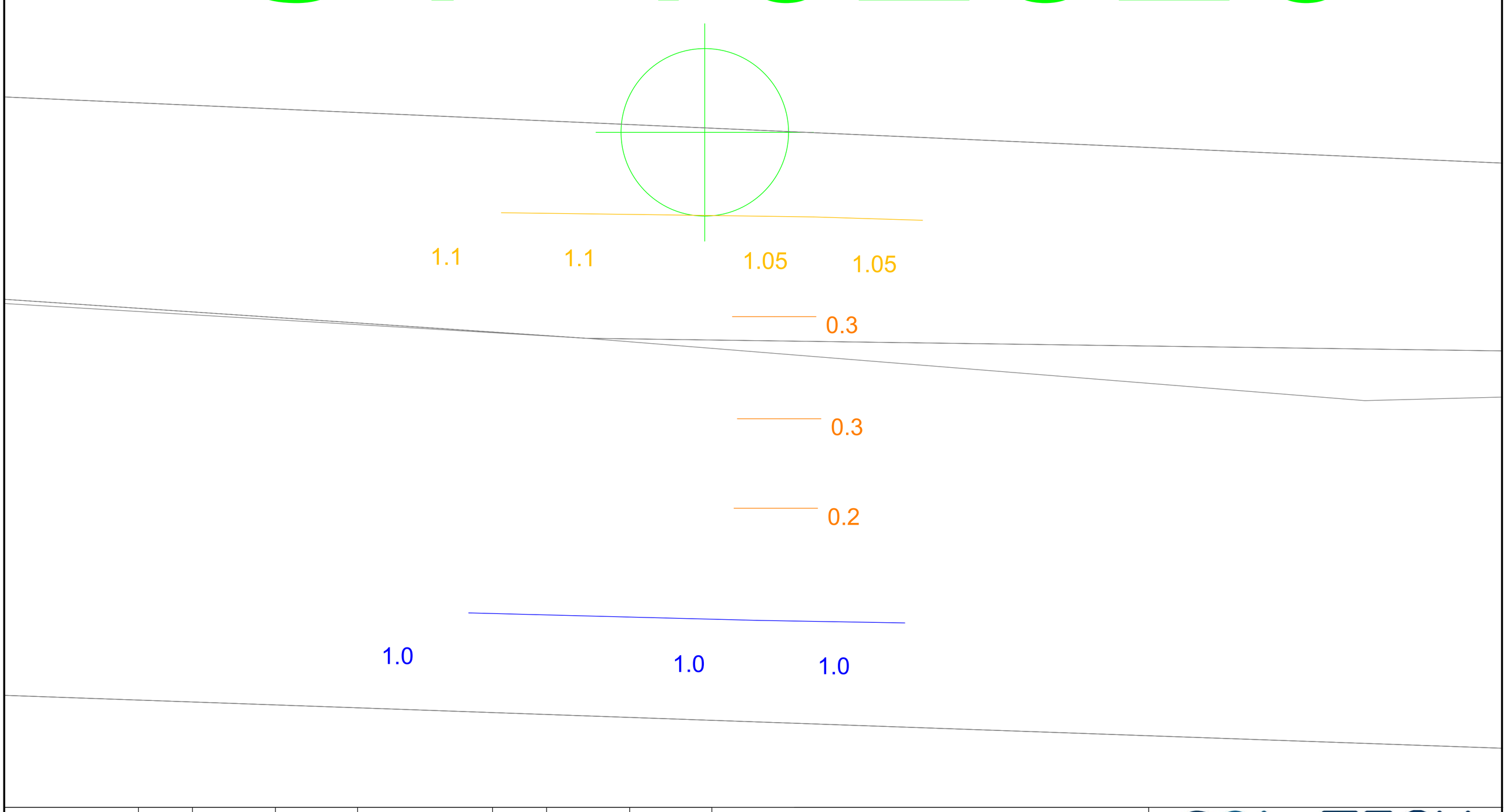
Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST102000 | Revision:

SITE NOTES

1. Date Scanned 09-09-22
2. No Power or Radio signal
3. 3x GPR Anomaly at 0.2-0.3mBGL on road
4. 1x possible Watermain at 1.0mBGL on S side
5. 1x possible unknown service at 1.1mBGL on N side

ST-102520



DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Foul Water Sewer	GREEN		
Surface/Storm Water Sewer	CYAN		
Combined Sewer	BROWN		
Power	RED		
Telecoms			
Eircom	MAGENTA		
Cable TV	PURPLE		
Alternative Telecoms	PINK		
Watermain	BLUE		
Gas	YELLOW		
Unknown Service	ORANGE		

DESCRIPTION	COLOUR	TRACED SERVICES	INFERRED SERVICES
Trench Scar	LIGHT GREEN		
Utility Providers Records			
ESB Records	RED		
Bord Gais Records	YELLOW		
Telecom Records	MAGENTA		
Water Records	BLUE		
Foul Sewer/Water Manhole	GREEN	MH 00	
Surface/Storm Water Manhole	CYAN	MH 00	
Power Manhole	RED	MH 00	
Telecom Manhole	MAGENTA	MH 00	
Watermain Manhole	BLUE	MH 00	
Water Hydrant, Meter, Sluice Valve, Air Valve, Stop Cock	BLUE	HY WM SV AV SC	

NOTES:

1. Utility survey carried out with RF & GPR equipment.
2. RF = RD8000 Transmitter & Receiver.
3. GPR = Ground Penetrating Radar - Mala 450 MHz.
4. Unknown voltage on electric cables.
5. 300mm denotes the diameter of the pipe.
6. 0.5 denotes depth in metres below ground level to top of pipe.
7. Survey carried out in September 2022.
8. R denotes sections of services taken from record.
9. UTT denotes unable to Trace, UTO denotes unable to Open

Disclaimer:
The Information on this drawing is a general guide only and the accuracy thereof cannot be guaranteed. No liability is accepted for any discrepancy, ommission or deviation from the actual subsurface location or depth to underground utilities.

DESCRIPTION	COLOUR	TRACED SERVICES
Gas Line Manhole	YELLOW	MH 00
Foul Sewer/Water Gully	GREEN	G
Surface/Storm Water Gully	CYAN	G
Unknown GPR Anomaly	ORANGE	0.5

KEY PLAN (NOT TO SCALE)

SCANTECH GEOSCIENCE
GPR - Utility Survey
Unit 1
Enterprise, Technology & Innovation Centre,
Clonmore Business Park,
Mullingar, Co Westmeath.
T: 01 2542680
E: info@scantech.ie
www.scantech.ie

Client: IRISH DRILLINGS LTD

Project Title: NENAGH LOT 2

Drawing Title: Underground Services Layout

Date: 19th September 2022 | Drawn By: B.L.C.

Scale: Not to Scale | Checked: D.T

Drawing No: SGL-22256_ST102520 | Revision:

Appendix 6H
Laboratory Test Results
Part 1: Cable Percussive Boreholes/Trial Pits

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Turnaround

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Misc	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
total scheduled	PIPELINE soil only						998	966	0	0	1159	626	49	48	32	0	0	0	0	0	8	2	2	113	3	54	0	0	0	0	21	0	0	0	1	0	0	0	0	0	309	
Completed to date	PIPELINE soil only						996	964	0	0	1157	624	49	48	32	0	0	0	0	0	8	2	2	113	3	54	0	0	0	0	21	0	0	0	1	0	0	0	0	0	309	
to do	PIPELINE soil only						2	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% completed	PIPELINE soil only						100%	100%			100%	100%	100%	100%	100%						100%	100%	100%	100%	100%	100%				100%				100%					100%	100%	
BH-100012				**1**	**14/04/22**	**AW42**																																			
BH-100012	1.00	2.00	B	4	29/04/22	**AW42**																																			
BH-100012	2.00		D	5	29/04/22	**AW42**	**1**	**1**																																**1**	Elab 22-45117
BH-100012	2.00	3.00	B	7	29/04/22	**AW42**					**1**	**1**																													
BH-100012	3.00		D	8	29/04/22	**AW42**																																			
BH-100012	3.00	4.00	B	10	29/04/22	**AW42**																																			
BH-100012	4.00		D	11	29/04/22	**AW42**																																			
BH-100012	4.00	5.00	B	13	29/04/22	**AW42**																																			
BH-100012	5.00		D	14	29/04/22	**AW42**																																			
BH-100012	5.00	6.00	B	16	29/04/22	**AW42**																																			
BH-100012	6.00		D	17	29/04/22	**AW42**																																			
BH-100012	6.00	7.00	B	19	29/04/22	**AW42**																																			
BH-100012	7.00		D	20	29/04/22	**AW42**																																			
BH-100012	7.00	8.00	B	22	29/04/22	**AW42**																																			
BH-100012	8.00		D	23	29/04/22	**AW42**																																			
BH-100203	**0.00**	**1.00**	**B**	**1**	03/05/22	AW41																																			
BH-100203	1.00		D	2	03/05/22	AW41																																			
BH-100203	1.00	2.00	B	4	03/05/22	AW41					**1**																														
BH-100203	2.00		D	5	03/05/22	AW41																																			
BH-100203	2.00	3.00	B	7	03/05/22	AW41																																			
BH-100203	3.00		D	8	03/05/22	AW41	**1**	**1**																																	
BH-100203	3.00	4.00	B	10	03/05/22	AW41					**1**																														
BH-100203	4.00		D	11	03/05/22	AW41																																		**1**	als 230110-35
BH-100203	4.00	5.00	B	13	03/05/22	AW41																																			
BH-100203	5.00		D	14	03/05/22	AW41																																			

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23			
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021			
	Start	01/10/21					
	Today	03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete							Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-100203	5.00	6.00	B	16	03/05/22	AW41																																			
BH-100203	6.00		D	17	03/05/22	AW41																																			
BH-100203	6.00	6.90	B	19	03/05/22	AW41																																			
BH-100203	6.90		D	20	03/05/22	AW41																																			
BH-101404	**0.00**	**1.00**	**B**	**1**	04/05/22	AW41																																			
BH-101404	1.00		D	2	04/05/22	AW41	0*	0*																																	* not enough
BH-101404	1.00	2.00	B	4	04/05/22	AW41																																			
BH-101404	2.00		D	5	04/05/22	AW41	1	1																																1	als 230110-35,
BH-101404	2.00	3.00	B	7	04/05/22	AW41					1																														
BH-101404	3.00		D	8	04/05/22	AW41																																			
BH-101404	3.00	4.00	B	10	04/05/22	AW41																																			
BH-101404	4.00		D	11	04/05/22	AW41																																			
BH-101404	4.00	5.00	B	13	04/05/22	AW41																																			
BH-101404	5.00		D	14	04/05/22	AW41																																			
BH-101404	5.00	6.00	B	16	04/05/22	AW41																																			
BH-101404	6.00		D	17	04/05/22	AW41																																			
BH-101404	6.00	7.00	B	19	04/05/22	AW41																																			
BH-101404	7.00		D	20	04/05/22	AW41																																			
BH-102037	**0.00**	**1.00**	**B**	**1**	10/05/22	AW54																																			
BH-102037	1.00		D	2	10/05/22	AW54	1	1																																	
BH-102037	1.00	2.00	B	4	10/05/22	AW54					1															1															
BH-102037	2.00		D	5	10/05/22	AW54																																			
BH-102037	2.00	3.00	B	7	10/05/22	AW54																																			
BH-102037	3.00		D	8	10/05/22	AW54																																			
BH-102037	3.00	4.00	B	10	10/05/22	AW54																																			
BH-102037	4.00		D	11	10/05/22	AW54																																		1	Elab 22-45181
BH-102037	4.00	5.00	B	13	10/05/22	AW54					1																														
BH-102037	5.00		D	14	10/05/22	AW54																																			
BH-102528	**0.00**	**1.00**	**B**	**1**	10/05/22	AW54																																			
BH-102528	1.00		D	2	10/05/22	AW54	1	1																																	
BH-102528	1.00	2.00	B	4	10/05/22	AW54																																			

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-102528	2.00		D	5	10/05/22	AW54																																			
BH-102528	2.00	3.00	B	7	11/05/22	AW54																																			
BH-102528	3.00		D	8	11/05/22	AW54																																			
BH-102528	3.00	4.00	B	10	11/05/22	AW54																																			
BH-102528	4.00		D	11	11/05/22	AW54	1	1																																	
BH-102528	4.00	5.00	B	13	11/05/22	AW54					1																														
BH-102528	5.00		D	14	11/05/22	AW54																																			
BH-102528	5.00	6.00	B	16	11/05/22	AW54																																			
BH-102528	6.00		D	17	11/05/22	AW54																																			
BH-103234	**0.00**	**1.00**	**B**	**1**	11/05/22	AW54																																			
BH-103234	1.00		D	2	11/05/22	AW54																																			
BH-103234	1.00	2.00	B	4	11/05/22	AW54					1																														
BH-103234	2.00		D	5	11/05/22	AW54	1	1																																1	Elab - 22-45186
BH-103234	2.00	3.00	B	7	11/05/22	AW54					1																														
BH-103234	3.00		D	8	11/05/22	AW54																																			
BH-103234	3.00	4.00	B	10	11/05/22	AW54																																			
BH-103234	4.00		D	11	11/05/22	AW54																																			
BH-103234	4.00	5.00	B	13	11/05/22	AW54																																			
BH-103234	5.00		D	14	11/05/22	AW54																																			
BH-36789	**0.00**	**1.00**	**B**	**1**	19/05/22	aw54?																																			
BH-36789	1.00		D	2	19/05/22	aw54?	1	1																																	
BH-36829	**0.00**	**0.50**	**B**	**1**	19/05/22	aw54?																																			
BH-36829	0.50		D	2	19/05/22	aw54?																																			
BH-36879	**0.00**	**1.00**	**B**	**1**	19/10/21	AV57																																			
BH-36879	1.00		D	2	19/10/21	AV57	1	1																																	
BH-36879	1.00	1.50	B	4	19/10/21	AV57					1	1																													
BH-36879	1.50		D	5	19/10/21	AV57																																			
BH-36879	2.00	2.50	B	7	19/10/21	AV57																																			
BH-36879	2.50		D	8	19/10/21	AV57	1	1																																	
BH-36879	3.00	3.40	B	10	19/10/21	AV57					1	1												1																	
BH-36879	3.40		D	11	19/10/21	AV57	1	1																																1	ALS 220121-98
BH-36883	**0.00**	**1.00**	**B**	**1**	19/10/21	AV57																																			
BH-36883	1.00		D	2	19/10/21	AV57	1	1																																	
BH-36956	**0.00**	**1.00**	**B**	**1**	20/10/21	AV57																																			
BH-36956	1.00		D	2	20/10/21	AV57																																			
BH-36956	1.00	1.50	B	4	20/10/21	AV57					1	1																													
BH-36956	1.50		D	5	20/10/21	AV57	1	1																																	
BH-37230	**0.00**	**1.00**	**B**	**1**	13/10/21	AV57																																			
BH-37230	1.00		D	2	13/10/21	AV57																																			
BH-37230	1.00	1.50	B	4	13/10/21	AV57					1	1																													

0 = test scheduled,
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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-37230	1.50		D	5	13/10/21	AV57	1	1																																			
BH-37778	**0.00**	**1.00**	**B**	**1**	12/10/21	AV57																																					
BH-37778	1.00		D	2	12/10/21	AV57	1	1																																			
BH-37778	1.00	1.50	B	4	12/10/21	AV57					1	1																															
BH-37778	1.50		D	5	12/10/21	AV57	1	1																																			
BH-37778	2.00	2.50	B	7	12/10/21	AV57																																					
BH-37778	2.50		D	8	12/10/21	AV57																																					
BH-37778	3.00	3.50	B	10	12/10/21	AV57					1	1																															
BH-37778	3.50		D	11	12/10/21	AV57	1	1																																	1		ALS: 220121-98
BH-38106	**0.00**	**1.00**	**B**	**1**	13/10/21	AV57																																					
BH-38106	1.00		D	2	13/10/21	AV57																																					
BH-38106	1.00	1.50	B	4	13/10/21	AV57					1	1																															
BH-38106	1.50		D	5	13/10/21	AV57	1	1																																	1		ALS: 220121-98
BH-38523	**0.00**	**1.00**	**B**	**1**	18/10/21	AV57																																					
BH-38523	1.00		D	2	18/10/21	AV57	1	1																																			
BH-38523	1.00	1.50	B	4	18/10/21	AV57					1	1																															
BH-38523	1.50		D	5	18/10/21	AV57																																					
BH-38523	2.00	2.50	B	7	18/10/21	AV57																																					
BH-38523	2.50		D	8	18/10/21	AV57																																					
BH-38523	3.00	3.30	B	10	18/10/21	AV57					1	1																															
BH-38523	3.30		D	11	18/10/21	AV57	1	1																																	1		ALS: 220121-98
BH-38786	**0.00**	**1.00**	**B**	**1**	14/10/21	AV57																																					
BH-38786	1.00		D	2	14/10/21	AV57																																					
BH-38786	1.00	1.50	B	4	14/10/21	AV57																																					
BH-38786	1.50		D	5	14/10/21	AV57																																					
BH-38786A	**0.00**	**1.00**	**B**	**1**	14/10/21	AV57																																					

0 = test scheduled,
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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
BH-38786A	1.00		D	2	14/10/21	AV57																																				
BH-38786A	1.00	1.50	B	4	14/10/21	AV57					1	1																														
BH-38786A	1.50		D	5	14/10/21	AV57	1	1																																		
BH-38786A	2.00	2.50	B	7	14/10/21	AV57					1	1																														
BH-38786A	2.50		D	8	14/10/21	AV57	1	1																																1		ALS: 220121-98
BH-39229	**0.00**	**1.00**	**B**	**1**	11/10/21	AV57																																				
BH-39229	1.00		D	2	11/10/21	AV57	1	1																																		
BH-39229	1.00	1.30	B	4	11/10/21	AV57					1	1																														
BH-39229	1.30		D	5	11/10/21	AV57																																		1		ALS: 220121-98
BH-39518	**0.00**	**1.00**	**B**	**1**	12/10/21	AV57																																				
BH-39518	1.00		D	2	12/10/21	AV57	1	1																																		
BH-39518	1.00	1.50	B	4	12/10/21	AV57					1	1																														
BH-39518	1.50		D	5	12/10/21	AV57																																		1		ALS: 220121-98
BH-40004	**0.00**	**1.00**	**B**	**1**	21/10/21	AV57																																				
BH-40004	1.00		D	2	21/10/21	AV57																																				
BH-40004	1.00	1.50	B	4	21/10/21	AV57					1	1																														
BH-40004	1.50		D	5	21/10/21	AV57	1	1																																		
BH-40405	**0.00**	**1.00**	**B**	**1**	20/10/21	AV57																																				
BH-40405	1.00		D	2	20/10/21	AV57																																				
BH-40405	1.00	1.50	B	4	20/10/21	AV57					1	1																														
BH-40405	1.50		D	5	20/10/21	AV57	1	1																																		
BH-40405	2.00	2.50	B	7	20/10/21	AV57																																				
BH-40405	2.50		D	8	20/10/21	AV57																																		1		ALS: 220121-98
BH-40405	3.00	3.50	B	10	20/10/21	AV57					1	1																														
BH-40405	3.50		D	11	20/10/21	AV57	1	1																																		
BH-40830	**0.00**	**1.00**	**B**	**1**	22/10/21	AV57																																				
BH-40830	1.00		D	2	22/10/21	AV57																																				
BH-40830	1.00	1.50	B	4	22/10/21	AV57					1	1																														
BH-40830	1.50		D	5	22/10/21	AV57	1	1																																		
BH-40830	2.00	2.50	B	7	22/10/21	AV57																		1																		
BH-40830	2.50		D	8	22/10/21	AV57																																		1		ALS: 220121-98
BH-40830	3.00	3.50	B	10	22/10/21	AV57					1	0*																														
BH-40830	3.50		D	11	22/10/21	AV57	1	1																																		
BH-41053	**0.00**	**1.00**	**B**	**1**	27/10/21	AV57																																				
BH-41053	1.00		D	2	27/10/21	AV57																																				
BH-41053	1.00	1.50	B	4	27/10/21	AV57																																				
BH-41053	1.50		D	5	27/10/21	AV57																																				
BH-41053	2.00	2.50	B	7	27/10/21	AV57					1	1																														
BH-41053	2.50		D	8	27/10/21	AV57	1	1																																1		ALS: 220121-98
BH-42602	**0.00**	**1.00**	**B**	**1**	01/11/21	av57																																				

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23	Turnaround	
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-42602	1.00		D	2	01/11/21	av57	1	1																																1		ALS 220901-118
BH-42602	1.00	1.50	B	4	01/11/21	av57					1	1																														
BH-42602	1.50		D	5	01/11/21	av57																																				
BH-42851	**0.00**	**0.40**	**B**	**1**	02/11/21	av57																																				
BH-42851	0.40		D	2	02/11/21	av57																																				
BH-42851A	**0.00**	**0.70**	**B**	**1**	02/11/21	av57																																				
BH-42851A	0.70		D	2	02/11/21	av57																																				
BH-43407	**0.00**	**1.00**	**B**	**1**	03/11/21	av57																																				
BH-43407	1.00		D	2	03/11/21	av57																																				
BH-43407	1.00	1.50	B	4	03/11/21	av57					1	0*																														
BH-43407	1.50		D	5	03/11/21	av57	1	1																																		
BH-43407	2.00	2.50	B	7	03/11/21	av57																																				
BH-43407	2.50		D	8	03/11/21	av57																																			1		ALS 220901-118
BH-43407	3.00	3.50	B	10	03/11/21	av57					1	1																														
BH-43407	3.50		D	11	03/11/21	av57	1	1																																		
BH-43817	**0.00**	**1.00**	**B**	**1**	03/11/21	av57																																				
BH-43817	1.00		D	2	03/11/21	av57																																				
BH-43817	1.00	1.50	B	4	03/11/21	av57					1	1																														
BH-43817	1.50		D	5	03/11/21	av57	1	1																																		
BH-44177	**0.00**	**1.00**	**B**	**1**	04/11/21	av57																																				
BH-44177	1.00		D	2	04/11/21	av57																																				
BH-44177	1.00	1.50	B	4	04/11/21	av57					1	1																														
BH-44177	1.50		D	5	04/11/21	av57	1	1																																	1		ALS 220901-118
BH-44534	**0.00**	**1.00**	**B**	**1**	04/11/21	av57																																				
BH-44534	1.00		D	2	04/11/21	av57	1	1																																		
BH-44534	1.00	1.50	B	4	04/11/21	av57					1	1																														
BH-44534	1.50		D	5	04/11/21	av57																																				
BH-44534	2.00	2.50	B	7	04/11/21	av57					1	1																														
BH-44534	2.50		D	8	04/11/21	av57	1	1																																		
BH-44534	2.70		W	9	04/11/21	av57																																				
BH-44534A	**0.00**	**1.00**	**B**	**1**	05/11/21	av57																																				
BH-44534A	1.00		D	2	05/11/21	av57	1	1																																		
BH-44534A	1.00		D	2	05/11/21	av57																																				
BH-44534A	1.00	1.50	B	4	05/11/21	av57					1	1																														
BH-44534A	1.00	1.50	B	4	05/11/21	av57																																				
BH-44534A	1.50		D	5	05/11/21	av57																																				
BH-44534A	2.00	2.50	B	7	05/11/21	av57					1	0*																														
BH-44534A	2.00	2.50	B	7	05/11/21	av57																																				
BH-44534A	2.50		D	8	05/11/21	av57	1	1																																		
BH-44534A	2.50		D	8	05/11/21	av57																																				
BH-44534A	3.00	3.50	B	10	05/11/21	av57					1	1																														

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-44534A	3.00	3.50	B	10	05/11/21	av57																																				
BH-44534A	3.50		D	11	05/11/21	av57	1	1																																	1		ALS 220901-118
BH-44534A	3.50		D	11	05/11/21	av85																																			1		ALS 221207-77
BH-44534A	3.50		D	11	05/11/21	av57																																				
BH-44534A	4.00	4.30	B	13	05/11/21	av57					1	0*																														
BH-44534A	4.00	4.30	B	13	05/11/21	av57																																				
BH-44534A	4.30		D	14	05/11/21	av57																																				
BH-44676	**0.00**	**1.00**	**B**	**1**	08/11/21	av85																																				
BH-44676	1.00		D	2	08/11/21	av85																																			1		ALS 221123-177
BH-44676	1.00	1.50	B	4	08/11/21	av85																		1																		
BH-44676	1.50		D	5	08/11/21	av85																																				
BH-44676	2.00	2.50	B	7	08/11/21	av85																																				
BH-44676	2.50		D	8	08/11/21	av85																																				
BH-44676	3.00	3.50	B	10	09/11/21	av85					1	1																														
BH-44676	3.50		D	11	09/11/21	av85	1	1																																		
BH-44676	4.00	4.50	B	13	09/11/21	av85																																				
BH-44676	4.50		D	14	09/11/21	av85																																				
BH-44676	5.00	5.40	B	16	09/11/21	av85																																				
BH-44676	5.40		D	17	09/11/21	av85																																				
BH-44676	6.00	6.50	B	19	09/11/21	av85					1	1																														
BH-44676	6.50		D	20	09/11/21	av85	1	1																																		
BH-45501	**0.00**	**1.00**	**B**	**1**	10/11/21	av85																																				
BH-45501	1.00		D	2	10/11/21	av85																																				
BH-45501	1.00	1.50	B	4	10/11/21	av85																																				
BH-45501	1.50		D	5	10/11/21	av85																																				
BH-45501	2.00	2.50	B	7	10/11/21	av85					1	1																														
BH-45501	2.50		D	8	10/11/21	av85	1	1																																		
BH-45501	3.00	3.50	B	10	10/11/21	av85																																				
BH-45501	3.50		D	11	10/11/21	av85																																				
BH-45501	4.00	4.50	B	13	10/11/21	av85																																				
BH-45501	4.50		D	14	10/11/21	av85	1	1																																	1		ALS 221123-177
BH-45501	5.00	5.50	B	16	10/11/21	av85																																				
BH-45501	5.50		D	17	10/11/21	av85																																				
BH-45501	6.00	6.50	B	19	10/11/21	av85																																				
BH-45501	6.50		D	20	10/11/21	av85																																				
BH-45501	7.50	8.00	B	22	10/11/21	av85					1	1																														
BH-45501	8.00		D	23	10/11/21	av85																																				
BH-45501	8.50	8.80	B	25	11/11/21	av85																																				
BH-45501	8.80		D	26	11/11/21	av85																																				
BH-46131	**0.00**	**1.00**	**B**	**1**	15/11/21	av85																																				
BH-46131	1.00		D	2	15/11/21	av85																																				

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23	Turnaround	
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
Start	01/10/21				
Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		Point Load	BRE Suite B	Other Rock Tests	comment
BH-46131	1.00	1.50	B	4	15/11/21	av85					1	1																																
BH-46131	1.50		D	5	15/11/21	av85	1	1																																		1		ALS 221123-177
BH-46131	2.00	2.50	B	7	15/11/21	av85																																						
BH-46131	2.50		D	8	15/11/21	av85																																						
BH-46131	3.00	3.50	B	10	15/11/21	av85																																						
BH-46131	3.50		D	11	15/11/21	av85																																						
BH-46402	**0.00**	**1.00**	**B**	**1**	16/11/21	av85																																						
BH-46402	1.00		D	2	16/11/21	av85																																						
BH-46402	1.00	1.50	B	4	16/11/21	av85					1	1																																
BH-46402	1.50		D	5	16/11/21	av85	1	1																																		1		ALS 221123-177
BH-46402	2.00	2.50	B	7	16/11/21	av85																																						
BH-46402	2.50		D	8	16/11/21	av85																																						
BH-46402	3.00	3.50	B	10	16/11/21	av85																																						
BH-46402	3.50		D	11	16/11/21	av85																																						
BH-46715	**0.00**	**1.00**	**B**	**1**	17/11/21	av85					1	1																																
BH-46715	1.00		D	2	17/11/21	av85	1	1																																				
BH-46715	1.00	1.50	B	4	17/11/21	av85																																						
BH-46715	1.50		D	5	17/11/21	av85																																						
BH-46715A	**0.00**	**1.00**	**B**	**1**	17/11/21	av85																																						
BH-46715A	1.00		D	2	17/11/21	av85																																						
BH-46715A	1.00	1.50	B	4	17/11/21	av85					1	1																																
BH-46715A	1.50		D	5	17/11/21	av85	1	1																																		1		ALS 221123-177
BH-46715A	2.00	2.50	B	7	17/11/21	av85																																						
BH-46715A	2.50		D	8	17/11/21	av85																		1																				
BH-47262	**0.00**	**1.00**	**B**	**1**	22/11/21	av85																																						
BH-47262	1.00		D	2	22/11/21	av85																																						
BH-47262	1.00	1.50	B	4	22/11/21	av85					1	1																																
BH-47262	1.50		D	5	22/11/21	av85	1	1																																		1		ALS 221123-177
BH-47262	2.00	2.50	B	7	22/11/21	av85																																						
BH-47262	2.50		D	8	22/11/21	av85																																						
BH-47262	3.00	3.50	B	10	22/11/21	av85																																						
BH-47262	3.50		D	11	22/11/21	av85																																						
BH-47262	4.00	4.50	B	13	22/11/21	av85					1	1																																
BH-47262	4.50		D	14	22/11/21	av85	1	1																																				
BH-47431	**0.00**	**1.00**	**B**	**1**	16/11/21	av86																																						
BH-47431	1.00		D	2	16/11/21	av86																																						
BH-47431	1.00	2.00	B	4	16/11/21	av86																																						
BH-47431	2.00		D	5	16/11/21	av86																																					1		ALS 211128-25
BH-47431	2.00	3.00	B	7	16/11/21	av86																																						
BH-47431	3.00		D	8	16/11/21	av86																																						
BH-47431	3.00	4.00	B	10	16/11/21	av86																																						

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23	Turnaround	
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete							Compaction					Compressibility				Strength (Total)						Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-47431	4.00		D	11	16/11/21	av86	1	1																																
BH-47431	4.00	5.00	B	13	16/11/21	av86					1	1																												
BH-47431	5.00		D	14	16/11/21	av86																																	
BH-47650	**0.00**	**1.00**	**B**	**1**	16/11/21	av86																																	
BH-47650	1.00		D	2	16/11/21	av86	1	1																															1	ALS 211128-25
BH-47650	1.00	2.00	B	4	16/11/21	av86					1	1																												
BH-47650	2.00		D	5	16/11/21	av86																																	
BH-47650	2.00	3.00	B	7	17/11/21	av86																																	
BH-47650	3.00		D	8	17/11/21	av86																																	
BH-47650	3.00	4.00	B	10	17/11/21	av86																																	
BH-47650	4.00		D	11	17/11/21	av86																																	
BH-48139	**0.00**	**1.00**	**B**	**1**	17/11/21	av86																																	
BH-48139	1.00		D	2	17/11/21	av86																																	
BH-48139	1.00	2.00	B	4	17/11/21	av86																																	
BH-48139	2.00		D	5	17/11/21	av86	1	1																																
BH-48139	2.00	3.00	B	7	17/11/21	av86					1	1																												
BH-48139	3.00		D	8	17/11/21	av86																																	
BH-48139	3.00	3.80	B	10	17/11/21	av86																																	
BH-48139	3.80		D	11	17/11/21	av86																																	
BH-48400	**0.00**	**1.00**	**B**	**1**	18/11/21	av86																																	
BH-48400	1.00		D	2	18/11/21	av86																																1	ALS 211128-25
BH-48795	**0.00**	**1.00**	**B**	**1**	18/11/21	av86																																	
BH-48795	1.00		D	2	18/11/21	av86																																	
BH-48795	1.00	2.00	B	4	18/11/21	av86																																	
BH-48795	2.00		D	5	18/11/21	av86																																	
BH-48795	2.00	3.00	B	7	18/11/21	av86					1	1																												
BH-48795	3.00		D	8	18/11/21	av86																																	
BH-48795	3.00	3.60	B	10	18/11/21	av86																								1									dense
BH-48795	3.60		D	11	18/11/21	av86																																	
BH-49214	**0.00**	**1.00**	**B**	**1**	23/11/21	av85																																	
BH-49214	1.00		D	2	23/11/21	av85	1	1																																
BH-49214	1.00	1.50	B	4	24/11/21	av85					1	1																												
BH-49214	1.50		D	5	24/11/21	av85																																	
BH-49513	**0.00**	**1.00**	**B**	**1**	26/11/21	av85							1	1																										ALS 221123-177
BH-49513	1.00		D	2	26/11/21	av85																																	
BH-49513	1.00	1.45	U100	3	26/11/21	av85																																	
BH-49513	1.50		D	4	26/11/21	av85																																	
BH-49513	2.00	2.50	B	6	26/11/21	av85																																	
BH-49513	2.50		D	7	26/11/21	av85							1	1																										ALS 221123-177
BH-49513	3.00	3.45	U100	8	26/11/21	av85																												60/120/240kPa	1					
BH-49513	3.50		D	9	26/11/21	av85	1	1																																

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-49513	3.80		B	10	29/11/21	av85																																				
BH-49513	3.80		D	11	29/11/21	av85																																				
BH-49513	4.50		B	13	29/11/21	av85																									1											
BH-49513	4.50		D	14	29/11/21	av85																																				
BH-49513	5.00		B	16	29/11/21	av85					1	0*																														
BH-49513	5.40		D	17	29/11/21	av85																																				
BH-49654	**0.00**	**1.00**	**B**	**1**	24/11/21	av85																																				
BH-49654	1.00		D	2	24/11/21	av85							1	1																												ALS 221123-177
BH-49654	1.00	1.50	B	4	24/11/21	av85																																				
BH-49654	1.50		D	5	24/11/21	av85																																				
BH-49654	2.00	2.45	U100	6	24/11/21	av85																																				
BH-49654	2.00	2.50	B	7	24/11/21	av85					1	1																														
BH-49654	2.50		D	8	24/11/21	av85																																				
BH-49654	3.00	3.50	B	10	24/11/21	av85																																				
BH-49654	3.50		D	11	24/11/21	av85																																				
BH-49654	4.00	4.50	B	13	24/11/21	av85					1	1																														
BH-49654	4.50		D	14	24/11/21	av85																																				
BH-49654	5.00	5.50	B	16	24/11/21	av85																																				
BH-49654	5.50		D	17	24/11/21	av85																																			1		ALS 221123-177
BH-49654	6.50	7.00	B	19	25/11/21	av85	1	1			1	1																														
BH-49654	7.00		D	20	25/11/21	av85																																				
BH-49654	7.80	8.00	B	22	25/11/21	av85																																				
BH-49880	**0.00**	**1.00**	**B**	**1**	03/12/21	av87																																				
BH-49880	1.00		D	2	03/12/21	av87							1	1																												ALS 221207-75
BH-49880	1.00	1.45	U100	3	03/12/21	av87																																				
BH-49880	1.50		D	4	03/12/21	av87																																				
BH-49880	2.00	2.50	B	6	03/12/21	av87							1	1																												ALS 221207-75
BH-49880	2.50		D	7	03/12/21	av87																																				
BH-49880	3.00	3.45	U100	8	03/12/21	av87							1	1																												ALS 221207-75
BH-49880	3.50		D	9	03/12/21	av87	1	1																																	1		ALS 221207-75
BH-49880	4.00	4.50	B	11	03/12/21	av87					1	1																														
BH-49880	4.50		D	12	03/12/21	av87																																				
BH-49880	5.00	5.50	B	14	03/12/21	av87					1	1																														
BH-49880	5.50		D	15	03/12/21	av87																																				
BH-50108	**0.00**	**1.00**	**B**	**1**	06/12/21	av87																																				
BH-50108	1.00		D	2	06/12/21	av87							1	1																											1		ALS 221207-75
BH-50108	1.00	1.50	B	4	06/12/21	av87																																				
BH-50108	1.50		D	5	06/12/21	av87																																				
BH-50108	2.00	2.50	B	7	06/12/21	av87																																				
BH-50108	2.50		D	8	06/12/21	av87																																				
BH-50108	3.00	3.50	B	10	08/12/21	av87					1	0*																														

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		Point Load	BRE Suite B	Other Rock Tests	comment
BH-50108	3.50		D	11	08/12/21	av87																																				
BH-50608	**0.00**	**0.80**	**B**	**1**	02/12/21	av87																																				
BH-50608	0.80		D	2	02/12/21	av87	1	1																																		
BH-50608A	**0.00**	**1.00**	**B**	**1**	02/12/21	av87					1	1																														
BH-50608A	1.00		D	2	02/12/21	av87	1	1																																	1	ALS 221207-75
BH-50885	**0.00**	**1.00**	**B**	**1**	22/11/21	av86																																				
BH-50885	1.00		D	2	22/11/21	av86	1	1																																		
BH-50885	1.00	2.00	B	4	22/11/21	av86																																				
BH-50885	2.00		D	5	22/11/21	av86																																				
BH-50885	2.00	2.80	B	7	22/11/21	av86					1	1																														
BH-50885	2.80		D	8	22/11/21	av86																																				
BH-50920	**0.00**	**1.00**	**B**	**1**	23/11/21	av86																																				
BH-50920	1.00		D	2	23/11/21	av86																																				
BH-50920	1.00	2.00	B	4	23/11/21	av86					1	1																														
BH-50920	2.00		D	5	23/11/21	av86																																				
BH-50920	2.00	3.00	B	7	23/11/21	av86																																				
BH-50920	3.00		D	8	23/11/21	av86	1	1																																	1	ALS 211128-25
BH-50920	3.00	3.90	B	10	23/11/21	av86																																				
BH-50920	3.90		D	11	23/11/21	av86																																				
BH-51386	**0.00**	**1.00**	**B**	**1**	24/11/21	av86																																				
BH-51386	1.00		D	2	24/11/21	av86																																				
BH-51386	1.00	2.00	B	4	24/11/21	av86																																				
BH-51386	2.00		D	5	24/11/21	av86																																				
BH-51386	2.00	3.00	B	7	24/11/21	av86																																				
BH-51386	3.00		D	8	24/11/21	av86																																				
BH-51386	3.00	4.00	B	10	24/11/21	av86					1	1																														
BH-51386	4.00		D	11	24/11/21	av86	1	1																																		
BH-51540	**0.00**	**1.00**	**B**	**1**	25/11/21	av86																																				
BH-51540	1.00		D	2	25/11/21	av86	1	1																																		
BH-51540	1.00	2.00	B	4	25/11/21	av86					1	1																														
BH-51540	2.00		D	5	25/11/21	av86																																				
BH-51540	2.00	3.00	B	7	25/11/21	av86																																				
BH-51540	3.00		D	8	25/11/21	av86																																				
BH-51540	3.00	4.00	B	10	25/11/21	av86																																				
BH-51540	4.00		D	11	25/11/21	av86																																				
BH-51540	4.00	5.00	B	13	25/11/21	av86																																				
BH-51540	5.00		D	14	25/11/21	av86																																			1	ALS 211128-25
BH-51540	5.00	6.00	B	16	25/11/21	av86																																				
BH-51540	6.00		D	17	25/11/21	av86	1	1																																		
BH-51540	6.00	7.00	B	19	25/11/21	av86					1	1																														
BH-51540	7.00		D	20	25/11/21	av86																																				

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete							Compaction					Compressibility				Strength (Total)						Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-52008	**0.00**	**1.00**	**B**	**1**	26/11/21	av86																																		
BH-52008	1.00		D	2	26/11/21	av86																																		
BH-52008	1.00	2.00	B	4	26/11/21	av86																																		
BH-52008	2.00		D	5	26/11/21	av86																																		
BH-52008	2.00	3.00	B	7	26/11/21	av86					1	1																												
BH-52008	3.00		D	8	26/11/21	av86																																		
BH-52008	3.00	4.00	B	10	26/11/21	av86																																		
BH-52008	4.00		D	11	26/11/21	av86																																		
BH-52008	4.00	4.80	B	13	26/11/21	av86																								1										dense
BH-52008	4.80		D	14	26/11/21	av86																																		
BH-52406	**0.00**	**1.00**	**B**	**1**	29/11/21	av86																																		
BH-52406	1.00		D	2	29/11/21	av86	1	1																																
BH-52406	1.00	2.00	B	4	29/11/21	av86					1																													
BH-52406	2.00		D	5	29/11/21	av86																																		
BH-52406	2.00	3.00	B	7	29/11/21	av86																																		
BH-52406	3.00		D	8	29/11/21	av86																																		
BH-52406	3.00	4.00	B	10	29/11/21	av86																																		
BH-52406	4.00		D	11	29/11/21	av86																																		
BH-52680	**0.00**	**1.00**	**B**	**1**	30/11/21	av86							1	1																										ALS 211128-25
BH-52680	1.00		D	2	30/11/21	av86	1	1																																
BH-52680	1.00	2.00	B	4	30/11/21	av86																																		
BH-52680	2.00		D	5	30/11/21	av86									1																									ALS 211128-25
BH-52680	2.00	3.00	B	7	30/11/21	av86					1																													
BH-52680	3.00		D	8	30/11/21	av86																																		
BH-52680	3.00	4.00	B	10	30/11/21	av86																																		
BH-52680	4.00		D	11	30/11/21	av86																																		
BH-52680	4.00	5.00	B	13	30/11/21	av86																																		
BH-52680	5.00		D	14	30/11/21	av86																																		
BH-52680	5.00	6.00	B	16	30/11/21	av86					1																													
BH-52680	6.00		D	17	30/11/21	av86																																		
BH-52680	6.00	7.00	B	19	30/11/21	av86																																		
BH-52680	7.00		D	20	30/11/21	av86																																		
BH-52680	7.00	7.60	B	22	30/11/21	av86																																		
BH-52680	7.60		D	23	30/11/21	av86																																		
BH-53367	**0.00**	**1.00**	**B**	**1**	13/12/21	av87																																		
BH-53367	1.00		D	2	13/12/21	av87	1	1																																
BH-53367	1.00	1.50	B	4	13/12/21	av87					1	1																												
BH-53367	1.50		D	5	13/12/21	av87																																	1	ALS 221207-75
BH-53367	2.00	2.30	B	7	13/12/21	av87																																		
BH-53367	2.30		D	8	13/12/21	av87																																		
BH-53713	**0.00**	**1.00**	**B**	**1**	10/12/21	av87																																		

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete							Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-53713	1.00		D	2	10/12/21	av87																																			
BH-53713	1.00	1.50	B	4	10/12/21	av87																																			
BH-53713	1.50		D	5	10/12/21	av87																																	1		ALS 221207-75
BH-53713	2.00	2.50	B	7	10/12/21	av87					1	1																													
BH-53713	2.50		D	8	10/12/21	av87	1	1																																	
BH-54059	**0.00**	**1.00**	**B**	**1**	13/12/21	av87																																			
BH-54059	1.00		D	2	13/12/21	av87	1	1																																	
BH-54059	1.00	1.50	B	4	13/12/21	av87					1	1																													
BH-54059	1.50		D	5	13/12/21	av87																																			
BH-54278	**0.00**	**1.00**	**B**	**1**	14/12/21	av87							1	1																											ALS 221207-75
BH-54278	1.00		D	2	14/12/21	av87	1	1																																	
BH-54278	1.00	1.50	B	4	14/12/21	av87					1	1																													
BH-54278	1.50		D	5	14/12/21	av87																																			
BH-54278	2.00	2.50	B	7	14/12/21	av87																																			
BH-54278	2.50		D	8	14/12/21	av87																																	1		ALS 221207-75
BH-54810	**0.00**	**1.00**	**B**	**1**	15/12/21	av87																																			
BH-54810	1.00		D	2	15/12/21	av87	1	1																																	
BH-55410	**0.00**	**1.00**	**B**	**1**	16/12/21	av87																																			
BH-55410	1.00		D	2	16/12/21	av87																																			
BH-55410	1.00	1.50	B	4	16/12/21	av87					1	1																													
BH-55410	1.50		D	5	16/12/21	av87	1	1																																	
BH-55944	**0.00**	**1.00**	**B**	**1**	16/12/21	av87																																			
BH-55944	1.00		D	2	16/12/21	av87																																			
BH-55944	1.00	1.50	B	4	17/12/21	av87					1	1												1																	
BH-55944	1.50		D	5	17/12/21	av87																																			
BH-55944	2.00	2.50	B	7	17/12/21	av87																																			
BH-55944	2.50		D	8	17/12/21	av87	1	1																																1		ALS 221207-75
BH-55944	3.00	3.50	B	10	17/12/21	av87																								1											
BH-55944	3.50		D	11	17/12/21	av87																																			
BH-55944	4.00	4.30	B	13	17/12/21	av87					1	0*																													
BH-55944	4.30		D	14	17/12/21	av87																																			
BH-56060	**0.00**	**1.00**	**B**	**1**	20/12/21	av87							1	1																											ALS 221207-75
BH-56060	1.00		D	2	20/12/21	av87	1	1																																	
BH-56060	1.00	1.50	B	4	20/12/21	av87				*	1																													
BH-56060	1.50		D	5	20/12/21	av87				*	1																													PSD
BH-56060	2.00	2.50	B	7	20/12/21	av87																																			
BH-56060	2.50		D	8	20/12/21	av87																																			
BH-56060	3.00	3.50	B	10	20/12/21	av87				*	1																													PSD
BH-56060	3.50		D	11	20/12/21	av87	1	1																																	
BH-56060	4.00	4.50	B	13	20/12/21	av87																																			
BH-56060	4.50		D	14	20/12/21	av87																																			

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0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-56109	**0.00**	**1.00**	**B**	**1**	21/12/21	av87							1	1																												ALS 221207-75
BH-56109	1.00		D	2	21/12/21	av87	1	1																																	
BH-56109	1.00	1.50	B	4	21/12/21	av87				*	1																														PSD
BH-56109	1.50		D	5	21/12/21	av87																																			
BH-56109	2.00	2.50	B	7	21/12/21	av87				*	1																														PSD
BH-56109	2.50		D	8	21/12/21	av87																																			
BH-56109	3.00	3.50	B	10	21/12/21	av87																																			
BH-56109	3.50		D	11	21/12/21	av87									*																									1		ALS 221207-75
BH-56109	4.00	4.50	B	13	21/12/21	av87				*	1																														PSD
BH-56109	4.50		D	14	21/12/21	av87	1	1																																	
BH-56109	5.00	5.40	B	16	21/12/21	av87																																			
BH-56109	5.40		D	17	21/12/21	av87																																			
BH-56272	**0.00**	**1.00**	**B**	**1**	05/01/22	av95					1	0*																													*hyd missed
BH-56272	1.00		D	2	05/01/22	av95	1	1																																	
BH-56272	1.00	1.50	B	4	05/01/22	av95																																			
BH-56272	1.50		D	5	05/01/22	av95																																		1	ALS 221207-75
BH-56272	2.00	2.50	B	7	05/01/22	av95																		1																	
BH-56272	2.50		D	8	05/01/22	av95																																			
BH-56272	3.00	3.50	B	10	05/01/22	av95					1	1																													
BH-56272	3.50		D	11	05/01/22	av95																																			
BH-56645	**0.00**	**1.00**	**B**	**1**	06/01/22	av95																																			
BH-56645	1.00		D	2	06/01/22	av95																																			
BH-56645	1.00	1.50	B	4	06/01/22	av95					1	1																													
BH-56645	1.50		D	5	06/01/22	av95	1	1																																1	ALS 221207-75
BH-56857	**0.00**	**1.00**	**B**	**1**	07/01/22	av95							1	1																											ALS 221207-75
BH-56857	1.00		D	2	07/01/22	av95	1	1																																	
BH-56857	1.00	1.50	B	4	07/01/22	av95					1	1																													
BH-56857	1.50		D	5	07/01/22	av95																																			
BH-56857	2.00	2.50	B	7	07/01/22	av95					1	1																				1									
BH-56857	2.50		D	8	07/01/22	av95																																			
BH-57037	**0.00**	**1.00**	**B**	**1**	10/01/22	av95																																			
BH-57037	1.00		D	2	10/01/22	av95	1	1																																	
BH-57037	1.00	1.50	B	4	10/01/22	av95					1	1																													
BH-57037	1.50		D	5	10/01/22	av95																																		1	ALS 221207-75
BH-57037	2.00	2.50	B	7	10/01/22	av95																																			
BH-57037	2.50		D	8	10/01/22	av95																																			
BH-57428	**0.00**	**1.00**	**B**	**1**	11/01/22	av95																																			
BH-57428	1.00		D	2	11/01/22	av95	1	1																																	
BH-57428	1.00	1.50	B	4	11/01/22	av95					1	1																													
BH-57428	1.50		D	5	11/01/22	av95																																		1	ALS 221207-75
BH-57428	2.00	2.50	B	7	11/01/22	av95					1	1																													
BH-57428	2.50		D	8	11/01/22	av95	1	1																																	

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-57599	**0.00**	**1.00**	**B**	**1**	12/01/22	**AV95**																																			
BH-57599	1.00		D	2	12/01/22	**AV95**	1	1																																	
BH-57599	1.00	1.50	B	4	12/01/22	**AV95**					1	1																													
BH-57599	1.50		D	5	12/01/22	**AV95**																																			
BH-57599	2.00	2.50	B	7	12/01/22	**AV95**																		1																
BH-57599	2.50		D	8	12/01/22	**AV95**																																			
BH-57599	3.00	3.50	B	10	12/01/22	**AV95**					1	1																													
BH-57599	3.50		D	11	12/01/22	**AV95**	1	1																																	
BH-58807	**0.00**	**1.00**	**B**	**1**	12/01/22	av95																																			
BH-58807	1.00		D	2	12/01/22	av95	1	1																																	
BH-58807	1.00	1.50	B	4	12/01/22	av95					1	1																													
BH-58807	1.50		D	5	12/01/22	av95																																			
BH-58807	2.00	2.50	B	7	12/01/22	av95																																			
BH-58807	2.50		D	8	12/01/22	av95																																			
BH-58807	3.00	3.50	B	10	12/01/22	av95																																			
BH-58807	3.50		D	11	12/01/22	av95																																			
BH-59474	**0.00**	**1.00**	**B**	**1**	13/01/22	av95																																			
BH-59474	1.00		D	2	13/01/22	av95	1	1																																	
BH-59474	1.00	1.50	B	4	13/01/22	av95					1	1																													
BH-59474	1.50		D	5	13/01/22	av95																																		1	ALS 221207-75
BH-59932	**0.00**	**1.00**	**B**	**1**	17/01/22	AV95																																			
BH-59932	1.00		D	2	17/01/22	AV95																																			
BH-59932	1.00	1.50	B	4	17/01/22	AV95					1																														
BH-59932	1.50		D	5	17/01/22	AV95	1	1																																	
BH-59932	2.00	2.50	B	7	17/01/22	AV95																		1																
BH-59932	2.50		D	8	17/01/22	AV95									*																									1	ALS 221207-75
BH-60345	**0.00**	**1.00**	**B**	**1**	18/01/22	AV95																																			
BH-60345	1.00		D	2	18/01/22	AV95																																			
BH-60345	1.00	1.50	B	4	18/01/22	AV95					1																														
BH-60345	1.50		D	5	18/01/22	AV95																																			
BH-60345	2.00	2.50	B	7	18/01/22	AV95																																			
BH-60345	2.50		D	8	18/01/22	AV95									*																									1	ALS 221207-75
BH-60345	3.00	3.40	B	10	18/01/22	AV95					1																														
BH-60345	3.40		D	11	18/01/22	AV95																																			
BH-60641	**0.00**	**1.00**	**B**	**1**	19/01/22	AV95																																			
BH-60641	1.00		D	2	19/01/22	AV95																																			
BH-60641	1.00	1.50	B	4	19/01/22	AV95					1																														
BH-60641	1.50		D	5	19/01/22	AV95																																			
BH-60641	2.00	2.50	B	7	19/01/22	AV95																																			
BH-60641	2.50		D	8	19/01/22	AV95																																			
BH-60805	**0.00**	**1.00**	**B**	**1**	20/01/22	AV95																																			

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	comment
BH-60805	1.00		D	2	20/01/22	AV95	1	1																																	
BH-60805	1.00	1.50	B	4	20/01/22	AV95					1																														
BH-60805	1.50		D	5	20/01/22	AV95																																			
BH-60805	2.00	2.50	B	7	20/01/22	AV95																																			
BH-60805	2.50		D	8	20/01/22	AV95									*																									1	ALS 221207-75
BH-60805	3.00	3.50	B	10	20/01/22	AV95					1																														
BH-60805	3.50		D	11	20/01/22	AV95	1	1																																	
BH-61136	**0.00**	**1.00**	**B**	**1**	21/01/22	AV95																																			
BH-61136	1.00		D	2	21/01/22	AV95																																			
BH-61136	1.00	1.50	B	4	21/01/22	AV95					1																														
BH-61136	1.50		D	5	21/01/22	AV95	1	1																																	
BH-61136	2.00	2.50	B	7	21/01/22	AV95																		1																	
BH-61136	2.50		D	8	21/01/22	AV95									*																									1	ALS 221207-75
BH-61136	3.00	3.50	B	10	21/01/22	AV95					1																														
BH-61136	3.50		D	11	21/01/22	AV95																																			
BH-61605	**0.00**	**1.00**	**B**	**1**	19/01/22	AV94																																			
BH-61605	1.00		D	2	19/01/22	AV94									*																									1	ALS 221207-75
BH-61605	1.00	2.00	B	4	19/01/22	AV94																																			
BH-61605	2.00		D	5	19/01/22	AV94																																			
BH-61605	2.00	3.00	B	7	19/01/22	AV94					1																														
BH-61605	3.00		D	8	19/01/22	AV94																																			
BH-61605	3.00	3.90	B	10	19/01/22	AV94																																			
BH-61605	3.90		D	11	19/01/22	AV94																																			
BH-61805	**0.00**	**1.00**	**B**	**1**	18/01/22	AV94																																			
BH-61805	1.00		D	2	18/01/22	AV94																																			
BH-61805	1.00	2.00	B	4	18/01/22	AV94					1																														
BH-61805	2.00		D	5	18/01/22	AV94																																			
BH-61805	2.00	3.00	B	7	19/01/22	AV94																																			
BH-61805	3.00		D	8	19/01/22	AV94																																			
BH-61805	3.00	3.60	B	10	19/01/22	AV94					1																														
BH-61805	3.60		D	11	19/01/22	AV94																																			
BH-61869	**0.00**	**1.00**	**B**	**1**	20/01/22	AV94																																			
BH-61869	1.00		D	2	20/01/22	AV94																																			
BH-61869	1.00	2.00	B	4	20/01/22	AV94																																			
BH-61869	2.00		D	5	20/01/22	AV94									*																									1	ALS 221207-75
BH-61869	2.00	3.00	B	7	20/01/22	AV94					1																														
BH-61869	3.00		D	8	20/01/22	AV94																																			
BH-62325	**0.00**	**1.00**	**B**	**1**	20/01/22	AV94																																			
BH-62325	1.00		D	2	20/01/22	AV94																																			
BH-62325	1.00	2.00	B	4	20/01/22	AV94					1																														
BH-62325	2.00		D	5	20/01/22	AV94									*																									1	ALS 221207-75

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)				Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		BRE Suite B	Other Rock Tests	comment
BH-62325	2.00	3.00	B	7	20/01/22	AV94																																				
BH-62325	3.00		D	8	20/01/22	AV94																																				
BH-62325	3.00	4.00	B	10	20/01/22	AV94																																				
BH-62325	4.00		D	11	20/01/22	AV94																																				
BH-62325	4.00	4.60	B	13	20/01/22	AV94					1																															
BH-62325	4.60		D	14	20/01/22	AV94																																				
BH-62456	**0.00**	**1.00**	**B**	**1**	21/01/22	AV94																																			
BH-62456	1.00		D	2	21/01/22	AV94																																				
BH-62456	1.00	2.00	B	4	21/01/22	AV94					1																															
BH-62456	2.00		D	5	21/01/22	AV94									*																										1		ALS 221207-75
BH-62456	2.00	3.00	B	7	21/01/22	AV94																		1																		
BH-62456	3.00		D	8	21/01/22	AV94																																				
BH-62456	3.00	3.90	B	10	21/01/22	AV94																																				
BH-62456	4.00		D	11	21/01/22	AV94																																				
BH-62456	4.00	5.00	B	13	21/01/22	AV94					1																															
BH-62456	5.00		D	14	21/01/22	AV94																																				
BH-62606	**0.00**	**1.00**	**B**	**1**	25/01/22	AV94																																			
BH-62606	1.00		D	2	25/01/22	AV94	1	1																																		
BH-62606	1.00	2.00	B	4	25/01/22	AV94					1																															
BH-62606	2.00		D	5	25/01/22	AV94									*																										1		ALS 221207-75
BH-62606	2.00	3.00	B	7	25/01/22	AV94																																				
BH-62606	3.00		D	8	25/01/22	AV94																																				
BH-62606	3.00	3.90	B	10	25/01/22	AV94																																				
BH-62606	4.00		D	11	25/01/22	AV94																																				
BH-62606	4.00	5.00	B	13	25/01/22	AV94					1																															
BH-62606	5.00		D	14	25/01/22	AV94																																				
BH-62741	**0.00**	**1.00**	**B**	**1**	25/01/22	AV94																																			
BH-62741	1.00		D	2	25/01/22	AV94	1	1																																		
BH-62741	1.00	2.00	B	4	25/01/22	AV94					1																															
BH-62741	2.00		D	5	25/01/22	AV94	1	1																																		
BH-62741	2.00	3.00	B	7	25/01/22	AV94					1																															
BH-62741	3.00		D	8	25/01/22	AV94																																				
BH-62741	3.00	3.90	B	10	26/01/22	AV94																																				
BH-62741	4.00		D	11	26/01/22	AV94																																				
BH-62741	4.00	5.00	B	13	26/01/22	AV94					1																															
BH-62741	5.00		D	14	26/01/22	AV94																																				
BH-62741	5.00	6.00	B	16	26/01/22	AV94																																				
BH-62741	6.00		D	17	26/01/22	AV94																																				
BH-62741	6.00	7.00	B	19	26/01/22	AV94																																				
BH-62741	7.00		D	20	26/01/22	AV94																																				
BH-62741	7.00	7.80	B	22	26/01/22	AV94																																				

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		Point Load	BRE Suite B	Other Rock Tests	comment
BH-62741	7.80		D	23	26/01/22	AV94																																					
BH-62806	**0.00**	**1.00**	**B**	**1**	08/02/22	AW11																				1																	
BH-62806	1.00		D	2	08/02/22	AW11	1	1																																			
BH-62806	1.00	2.00	B	4	08/02/22	AW11																																					
BH-62806	2.00		D	5	08/02/22	AW11																																				1	Elab - 22-45186
BH-62806	2.00	3.00	B	7	08/02/22	AW11																																					
BH-62806	3.00		D	8	08/02/22	AW11																																					
BH-62806	3.00	4.00	B	10	08/02/22	AW11					1	0*																															
BH-62806	4.00		D	11	08/02/22	AW11																																					
BH-62806	4.00	5.00	B	13	08/02/22	AW11																																					
BH-62806	5.00		D	14	08/02/22	AW11																								1													
BH-62806	5.00	6.00	B	16	08/02/22	AW11																																					
BH-62806	5.00		D	17	08/02/22	AW11																																					
BH-62806	6.00	7.00	B	19	08/02/22	AW11																																					
BH-62806	7.00		D	20	08/02/22	AW11																																					
BH-62806	7.00	8.00	B	22	08/02/22	AW11																																					
BH-62806	8.00		D	23	08/02/22	AW11																																					
BH-63008	**0.00**	**1.00**	**B**	**1**	07/02/22	AW11																																					
BH-63008	1.00		D	2	07/02/22	AW11																																					
BH-63008	1.00	2.00	B	4	07/02/22	AW11					1	1																															
BH-63008	2.00		D	5	07/02/22	AW11																																					
BH-63008	2.00	3.00	B	7	07/02/22	AW11																																					
BH-63008	3.00		D	8	07/02/22	AW11	1	1																																			
BH-63008	3.00	4.00	B	10	07/02/22	AW11					1	1																															
BH-63008	4.00		D	11	07/02/22	AW11																																					
BH-63008	4.00	5.00	B	13	07/02/22	AW11																																					
BH-63008	5.00		D	14	07/02/22	AW11																																					
BH-64085	**0.00**	**1.00**	**B**	**1**	10/02/22	AW11																																					
BH-64085	1.00		D	2	10/02/22	AW11																																					
BH-64085	1.00	2.00	B	4	10/02/22	AW11																																					
BH-64085	2.00		D	5	10/02/22	AW11	1	1																																			
BH-64085	2.00	3.00	B	7	10/02/22	AW11					1	1																															
BH-64085	3.00		D	8	10/02/22	AW11																																				1	Elab 22-45181
BH-64085	3.00	4.00	B	10	10/02/22	AW11																																					
BH-64085	4.00		D	11	10/02/22	AW11																								1													
BH-64085	4.00	5.00	B	13	10/02/22	AW11																																					
BH-64085	5.00		D	14	10/02/22	AW11	1	1																																			
BH-64085	5.00	6.00	B	16	10/02/22	AW11					1	1																															
BH-64085	5.00		D	17	10/02/22	AW11																																					
BH-64085	6.00	7.00	B	19	10/02/22	AW11																																					
BH-64085	7.00		D	20	10/02/22	AW11																																					

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-64085	7.00	8.00	B	22	10/02/22	AW11																																		
BH-64085	8.00		D	23	10/02/22	AW11																																		
BH-64085	8.00	9.00	B	25	10/02/22	AW11																																		
BH-64085	9.00		D	26	10/02/22	AW11	1	1																																
BH-64085	9.00	10.00	B	28	10/02/22	AW11					1	1																												
BH-64085	10.00		D	29	10/02/22	AW11																																		
BH-65612	**0.00**	**1.00**	**B**	**1**	08/02/22	AW14					1	1																												
BH-65612	1.00		D	2	08/02/22	AW14	1	1																																
BH-65612	1.00	1.50	B	4	08/02/22	AW14																																		
BH-65612	1.50		D	5	08/02/22	AW14																																		
BH-65612	2.00	2.50	B	7	08/02/22	AW14					1	1																												
BH-65612	2.50		D	8	08/02/22	AW14																																		
BH-66007	**0.00**	**1.00**	**B**	**1**	08/02/22	AW14																																		
BH-66007	1.00		D	2	08/02/22	AW14																																		
BH-66007	1.00	1.50	B	4	08/02/22	AW14																		1																
BH-66007	1.50		D	5	08/02/22	AW14																																		
BH-66007	2.00	2.50	B	7	08/02/22	AW14					1	1																												
BH-66007	2.50		D	8	08/02/22	AW14																																		
BH-66007	3.00	3.50	B	10	08/02/22	AW14																																		
BH-66007	3.50		D	11	08/02/22	AW14																																		
BH-67338	**0.00**	**1.00**	**B**	**1**	09/02/22	AW14																																		
BH-67338	1.00		D	2	09/02/22	AW14																																		
BH-67338	1.00	1.50	B	4	09/02/22	AW14					1	1																												
BH-67338	1.50		D	5	09/02/22	AW14																																		
BH-67338	2.00	2.50	B	7	09/02/22	AW14					1	1																												
BH-67338	2.50		D	8	09/02/22	AW14	1	1																																
BH-67630	**0.00**	**1.00**	**B**	**1**	10/02/22	AW14																																		
BH-67630	1.00		D	2	10/02/22	AW14																																		
BH-67630	1.00	1.50	B	4	10/02/22	AW14																				1														
BH-67630	1.50		D	5	10/02/22	AW14																																		
BH-67630	2.00	2.50	B	7	10/02/22	AW14					1	1																												
BH-67630	2.50		D	8	10/02/22	AW14	1	1																																
BH-67630	3.00	3.50	B	10	10/02/22	AW14																																		
BH-67630	3.50		D	11	10/02/22	AW14																																	1	Elab 22-45117
BH-67630	4.00	4.50	B	13	10/02/22	AW14					1	1																												
BH-67630	4.50		D	14	10/02/22	AW14	1	1																																
BH-67630	5.00	5.50	B	16	10/02/22	AW14																																		
BH-67630	5.50		D	17	10/02/22	AW14																																		
BH-67630	6.00	6.50	B	19	10/02/22	AW14					1	1																												
BH-67630	6.50		D	20	10/02/22	AW14	1	1																																

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-68009	**0.00**	**1.00**	**B**	**1**	11/02/22	AW14																																			
BH-68009	1.00		D	2	11/02/22	AW14	1	1																																	
BH-68009	1.00	1.50	B	4	11/02/22	AW14					1	1																													
BH-68009	1.50		D	5	11/02/22	AW14																																			
BH-68009	2.00	2.50	B	7	11/02/22	AW14																																			
BH-68009	2.50		D	8	11/02/22	AW14																																			
BH-68009	3.00	3.50	B	10	11/02/22	AW14					1	1																													
BH-68009	3.50		D	11	11/02/22	AW14																																			
BH-68009	4.00	4.50	B	13	11/02/22	AW14																								1											
BH-68009	4.50		D	14	11/02/22	AW14																																			
BH-68306	**0.00**	**1.00**	**B**	**1**	14/02/22	AW14																																			
BH-68306	1.00		D	2	14/02/22	AW14																																			
BH-68306	1.00	1.50	B	4	14/02/22	AW14					1	1																													
BH-68306	1.50		D	5	14/02/22	AW14	1	1																																	
BH-68804	**0.00**	**1.00**	**B**	**1**	15/02/22	AW14																																			
BH-68804	1.00		D	2	15/02/22	AW14																																			
BH-68804	1.00	1.50	B	4	15/02/22	AW14																																			
BH-68804	1.50		D	5	15/02/22	AW14																																			
BH-68804	2.00	2.50	B	7	15/02/22	AW14					1	1																													
BH-68804	2.50		D	8	15/02/22	AW14	1	1																																	
BH-68804	3.00	3.50	B	10	15/02/22	AW14																																			
BH-68804	3.50		D	11	15/02/22	AW14																																		1	Elab 22-45117
BH-69405	**0.00**	**1.00**	**B**	**1**	11/02/22	**AW11**																																			
BH-69405	1.00		D	2	11/02/22	**AW11**																																			
BH-69405	1.00	2.00	B	4	11/02/22	**AW11**					1	0*																													
BH-69405	2.00		D	5	11/02/22	**AW11**																																			
BH-69405	2.00	3.00	B	7	11/02/22	**AW11**																																			
BH-69405	3.00		D	8	11/02/22	**AW11**																																			
BH-69405	3.00	4.00	B	10	11/02/22	**AW11**																		1																	
BH-69405	4.00		D	11	11/02/22	**AW11**	1	1																																	
BH-69405	4.00	5.00	B	13	11/02/22	**AW11**					1	0*																													
BH-69405	5.00		D	14	11/02/22	**AW11**																																			
BH-69405	5.00	6.00	B	16	11/02/22	**AW11**																																			
BH-69405	5.00		D	17	11/02/22	**AW11**																																			
BH-69405	6.00	7.00	B	19	11/02/22	**AW11**																																			
BH-69405	7.00		D	20	11/02/22	**AW11**																																			
BH-69405	7.00	8.00	B	22	11/02/22	**AW11**																																			
BH-69405	8.00		D	23	11/02/22	**AW11**																																			
BH-69561	**0.00**	**1.00**	**B**	**1**	14/02/22	**AW11**																																			
BH-69561	1.00		D	2	14/02/22	**AW11**																																			
BH-69561	1.00	2.00	B	4	14/02/22	**AW11**																																			

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)									Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-69561	2.00		D	5	14/02/22	**AW11**																																					
BH-69561	2.00	3.00	B	7	14/02/22	**AW11**																																					
BH-69561	3.00		D	8	14/02/22	**AW11**																																					
BH-69561	3.00	4.00	B	10	14/02/22	**AW11**					1	0*																															
BH-69561	4.00		D	11	14/02/22	**AW11**																																					
BH-69561	4.00	5.00	B	13	14/02/22	**AW11**																																					
BH-69561	5.00		D	14	14/02/22	**AW11**																																					
BH-69646	**0.00**	**1.00**	**B**	**1**	15/02/22	AW06																																					
BH-69646	**0.00**	**1.00**	**B**	**1**	15/02/22	aw14?																																					
BH-69646	1.00		D	2	15/02/22	AW06																																					
BH-69646	1.00	2.00	B	4	15/02/22	aw14? NO					0*	0*																															* not done in K4
BH-69646	2.00		D	5	15/02/22	AW06																																					
BH-69703	**0.00**	**1.00**	**B**	**1**	15/02/22	AW06																																					
BH-69703	**0.00**	**1.00**	**B**	**1**	15/02/22	aw14?																																					
BH-69703	1.00		D	2	15/02/22	AW06																																					
BH-69703	1.00	2.00	B	4	15/02/22	AW06																																					
BH-69703	1.00	2.00	B	4	15/02/22	aw14?																																					
BH-69703	2.00		D	5	15/02/22	AW06																																					
BH-69703	2.00	3.00	B	7	15/02/22	AW06																																					
BH-69703	2.00	3.00	B	7	15/02/22	aw14?																																					
BH-69703	3.00		D	8	15/02/22	aw14?																																			1		Elab 22-45117
BH-69703	3.00	4.00	B	10	15/02/22	AW06																																					
BH-69703	3.00	4.00	B	10	15/02/22	aw14?																																					
BH-69703	4.00		D	11	15/02/22	AW06																																					
BH-69703	4.00	5.00	B	13	15/02/22	aw14?																								1													
BH-69703	5.00		D	14	15/02/22	AW06																																					
BH-69703	5.00	6.00	B	16	16/02/22	aw14? NO					1	0*																															
BH-69703	5.00		D	17	16/02/22	AW06																																					
BH-69703	6.00	6.90	B	19	16/02/22	AW06																																					
BH-69703	6.00	6.90	B	19	16/02/22	aw14?																																					
BH-69703	6.90		D	20	16/02/22	AW06																																					
BH-70205	**0.00**	**1.00**	**B**	**1**	16/02/22	AW06																																					
BH-70205	1.00		D	2	16/02/22	AW06																																					
BH-70205	1.00	2.00	B	4	16/02/22	AW06																																					
BH-70205	2.00		D	5	16/02/22	AW06																																					
BH-70205	2.00	3.00	B	7	16/02/22	AW06					1	1																															
BH-70205	3.00		D	8	16/02/22	AW06																																					
BH-70205	3.00	4.00	B	10	16/02/22	AW06																																					
BH-70205	4.00		D	11	16/02/22	AW06																																					
BH-70205	4.00	5.00	B	13	16/02/22	AW06																																					
BH-70205	5.00		D	14	16/02/22	AW06																																					

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)									Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-70701	**0.00**	**1.00**	**B**	**1**	17/02/22	AW06																																				
BH-70701	1.00		D	2	17/02/22	AW06																																				
BH-70701	1.00	2.00	B	4	17/02/22	AW06					0*	0*																														* not done in K4
BH-70701	2.00		D	5	17/02/22	AW06																																				
BH-70701	2.00	3.00	B	7	17/02/22	AW06																																				
BH-70701	3.00		D	8	17/02/22	AW06																																				
BH-70701	3.00	4.00	B	10	17/02/22	AW06																																				
BH-70701	4.00		D	11	17/02/22	AW06																																				
BH-70701	4.00	5.00	B	13	17/02/22	AW06					1	0*																														
BH-70701	5.00		D	14	17/02/22	AW06																																				
BH-71124	**0.00**	**1.00**	**B**	**1**	17/02/22	AW14							1	1																												Elab 22-45117
BH-71124	1.00		D	2	17/02/22	AW14																																				
BH-71124	1.00	1.50	B	4	17/02/22	AW14																				1																
BH-71124	1.50		D	5	17/02/22	AW14																																				
BH-71124	2.00	2.50	B	7	17/02/22	AW14					1	1																														
BH-71124	2.50		D	8	17/02/22	AW14	1	1																																1		Elab 22-45117
BH-71124	3.00	3.50	B	10	17/02/22	AW14																																				
BH-71124	3.50		D	11	17/02/22	AW14																																				
BH-71124	4.00	4.50	B	13	17/02/22	AW14					1	1																														
BH-71124	4.50		D	14	17/02/22	AW14	1	1																																		
BH-71124	5.00	5.50	B	16	17/02/22	AW14																																				
BH-71124	5.50		D	17	17/02/22	AW14																																				
BH-71124	6.00	6.50	B	19	17/02/22	AW14																																				
BH-71124	6.50		D	20	17/02/22	AW14																																				
BH-71397	**0.00**	**1.00**	**B**	**1**	15/02/22	AW14																																			
BH-71397	1.00		D	2	15/02/22	AW14							1	1																												Elab 22-45117
BH-71397	1.00	1.45	U100	3	15/02/22	AW14 - NO																										0*	100kPa @ 1.2m depth								* not found
BH-71397	1.50		D	4	15/02/22	AW14																																				
BH-71397	2.00	2.50	B	6	15/02/22	AW14																		1																		
BH-71397	2.50		D	7	15/02/22	AW14																																		1		Elab 22-45117
BH-71397	3.00	3.50	B	9	15/02/22	AW14					1	1																														
BH-71397	3.50		D	10	15/02/22	AW14	1	1																																		
BH-71397	4.00	4.50	B	12	15/02/22	AW14																																				
BH-71397	4.50		D	13	15/02/22	AW14																																				
BH-71397	5.00	5.50	B	15	16/02/22	AW14																																				
BH-71397	5.50		D	16	16/02/22	AW14																																				
BH-71397	6.50	7.00	B	18	16/02/22	AW14					1	1																														
BH-71397	7.00		D	19	16/02/22	AW14																																				
BH-72207	**0.00**	**1.00**	**B**	**1**	17/02/22	AW06																																			
BH-72207	1.00		D	2	17/02/22	AW06																																				
BH-72207	1.00	2.00	B	4	17/02/22	AW06					1	1																														

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Turnaround

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
BH-72207	2.00		D	5	17/02/22	AW06																																				
BH-72207	2.00	3.00	B	7	17/02/22	AW06																																				
BH-72207	3.00		D	8	17/02/22	AW06	1	1																																		
BH-72683	**0.00**	**1.00**	**B**	**1**	21/02/22	AW15																																				
BH-72683	1.00		D	2	21/02/22	**AW15**	1	1																																		
BH-72683	1.00	1.50	B	4	21/02/22	**AW15**					1	1																														
BH-72683	1.50		D	5	21/02/22	AW15																																				
BH-72683	2.00	2.50	B	7	21/02/22	AW15																																				
BH-72683	2.50		D	8	21/02/22	**AW15**																																			1	Elab 22-45181
BH-72683	3.00	3.50	B	10	21/02/22	AW15																																				
BH-72683	3.50		D	11	21/02/22	AW15																																				
BH-72683	4.00	4.50	B	13	21/02/22	**AW15**					1	1																														
BH-72683	4.50		D	14	21/02/22	AW15																																				
BH-73135	**0.00**	**1.00**	**B**	**1**	21/02/22	AW06																																				
BH-73135	1.00		D	2	21/02/22	AW06	1	1																																		
BH-73135	1.00	2.00	B	4	21/02/22	AW06					1	1																														
BH-73135	2.00		D	5	21/02/22	AW06																																				
BH-73135	2.00	3.00	B	7	21/02/22	AW06																																				
BH-73135	3.00		D	8	21/02/22	AW06																																			1	Elab 22-45117
BH-73135	3.00	4.00	B	10	21/02/22	AW06																																				
BH-73135	4.00		D	11	21/02/22	AW06																																				
BH-73135	4.00	5.00	B	13	21/02/22	AW06					1	0*																														
BH-73135	5.00		D	14	21/02/22	AW06																																				
BH-73966	**0.00**	**1.00**	**B**	**1**	24/02/22	AW15																																				
BH-73966	1.00		D	2	24/02/22	AW15																																				
BH-73966	1.00	1.50	B	4	24/02/22	**AW15**					1	1																														
BH-73966	1.50		D	5	24/02/22	AW15																																				
BH-73966	2.00	2.50	B	7	24/02/22	AW15																																				
BH-73966	2.50		D	8	24/02/22	AW15																																				
BH-73966	3.00	3.50	B	10	24/02/22	AW15																																				
BH-73966	3.50		D	11	24/02/22	AW15																																				
BH-74100	**0.00**	**1.00**	**B**	**1**	23/02/22	AW15																																				
BH-74100	1.00		D	2	23/02/22	AW15																																				
BH-74100	1.00	1.50	B	4	23/02/22	**AW15**																		1																		
BH-74100	1.50		D	5	23/02/22	AW15																																				
BH-74100	2.00	2.50	B	7	23/02/22	**AW15**					1	1																														
BH-74100	2.50		D	8	23/02/22	**AW15**	1	1																																		
BH-74100	3.00	3.50	B	10	23/02/22	AW15																																				
BH-74100	3.50		D	11	23/02/22	**AW15**																																			1	Elab 22-45181
BH-74100	4.00	4.50	B	13	23/02/22	AW15																																				
BH-74100	4.50		D	14	23/02/22	**AW15**							1	1																											Elab 22-45186

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)									Shear Stregth (Effective Stress)				Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
BH-74205	**0.00**	**1.00**	**B**	**1**	24/02/22	AW15																																				
BH-74205	1.00		D	2	24/02/22	AW15																																				
BH-74205	1.00	1.50	B	4	24/02/22	AW15																																				
BH-74205	1.50		D	5	24/02/22	AW15																																				
BH-74205	2.00	2.50	B	7	24/02/22	**AW15**					1	1																														
BH-74205	2.50		D	8	24/02/22	AW15																																				
BH-74205	3.00	3.50	B	10	24/02/22	AW15																																				
BH-74205	3.50		D	11	24/02/22	AW15																																				
BH-75808	**0.00**	**1.00**	**B**	**1**	25/02/22	AW15																																			
BH-75808	1.00		D	2	25/02/22	AW15																																				
BH-75808	1.00	1.50	B	4	25/02/22	**AW15**					1	1																														
BH-75808	1.50		D	5	25/02/22	**AW15**	1	1																																		
BH-75808	2.00	2.50	B	7	25/02/22	AW15																																				
BH-75808	2.50		D	8	25/02/22	AW15																																				
BH-75808	3.00	3.50	B	10	25/02/22	**AW15**					1	0*																														
BH-75808	3.50		D	11	25/02/22	AW15																																				
BH-76085	**0.00**	**1.00**	**B**	**1**	28/02/22	AW15																																			
BH-76085	1.00		D	2	28/02/22	**AW15**	1	1																																		
BH-76085	1.00	1.50	B	4	28/02/22	**AW15**					1																															
BH-76085	1.50		D	5	28/02/22	AW15																																				
BH-76085	2.00	2.50	B	7	28/02/22	AW15																																				
BH-76085	2.50		D	8	28/02/22	**AW15**																																			1		Elab 22-45181
BH-76085	3.00	3.50	B	10	28/02/22	AW15																																				
BH-76085	3.50		D	11	28/02/22	AW15																																				
BH-76545	**0.00**	**1.00**	**B**	**1**	22/02/22	AW06																																			
BH-76545	1.00		D	2	22/02/22	AW06																																			1		Elab 22-45117
BH-76545	1.00	2.00	B	4	22/02/22	AW06																																				
BH-76545	2.00		D	5	22/02/22	AW06	1	1																																		
BH-76545	2.00	3.00	B	7	22/02/22	AW06					1	1																														
BH-76545	3.00		D	8	22/02/22	AW06																																				
BH-76545	3.00	4.00	B	10	22/02/22	AW06																																				
BH-76545	4.00		D	11	22/02/22	AW06																																				
BH-76545	4.00	5.00	B	13	22/02/22	AW06																																				
BH-76545	5.00		D	14	22/02/22	AW06	1	1																																		
BH-76545	5.00	6.00	B	16	22/02/22	AW06					1	1																														
BH-76545	6.00		D	17	22/02/22	AW06																																				
BH-76718	**0.00**	**1.00**	**B**	**1**	23/02/22	AW06																																			
BH-76718	1.00		D	2	23/02/22	AW06																																				
BH-76718	1.00	2.00	B	4	23/02/22	AW06																																				
BH-76718	2.00		D	5	23/02/22	AW06																																				
BH-76718	2.00	3.00	B	7	23/02/22	AW06																																				

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-76718	3.00		D	8	23/02/22	AW06																																					
BH-76718	3.00	4.00	B	10	23/02/22	AW06																																					
BH-76718	4.00		D	11	23/02/22	AW06	1	1																																			
BH-76718	4.00	5.00	B	13	23/02/22	AW06					1	1																															
BH-76718	5.00		D	14	23/02/22	AW06																																					
BH-76718	5.00	6.00	B	16	23/02/22	AW06																																					
BH-76718	6.00		D	17	23/02/22	AW06																																					
BH-76718	6.00	7.00	B	19	23/02/22	AW06																																					
BH-76718	7.00		D	20	23/02/22	AW06																																					
BH-77176	**0.00**	**1.00**	**B**	**1**	24/02/22	AW06																																					
BH-77176	1.00		D	2	24/02/22	AW06																																					
BH-77176	1.00	2.00	B	4	24/02/22	AW06																																					
BH-77176	2.00		D	5	24/02/22	AW06	1	1																																			
BH-77176	2.00	3.00	B	7	24/02/22	AW06					1	1																															
BH-77176	3.00		D	8	24/02/22	AW06																																			1		Elab 22-45117
BH-77176	3.00	4.00	B	10	24/02/22	AW06																																					
BH-77176	4.00		D	11	24/02/22	AW06																																					
BH-77176	4.00	5.00	B	13	24/02/22	AW06																																					
BH-77176	5.00		D	14	24/02/22	AW06																																					
BH-77176	5.00	6.00	B	16	24/02/22	AW06																																					
BH-77176	6.00		D	17	24/02/22	AW06																																					
BH-77404	**0.00**	**1.00**	**B**	**1**	25/02/22	AW06																																					
BH-77404	1.00		D	2	25/02/22	AW06																																					
BH-77404	1.00	2.00	B	4	25/02/22	AW06																																					
BH-77404	2.00		D	5	25/02/22	AW06																																					
BH-77404	2.00	3.00	B	7	25/02/22	AW06																																					
BH-77404	3.00		D	8	25/02/22	AW06	1	1																																			
BH-77404	3.00	4.00	B	10	25/02/22	AW06					1	1																															
BH-77404	4.00		D	11	25/02/22	AW06																																					
BH-77404	4.00	5.00	B	13	25/02/22	AW06																																					
BH-77404	5.00		D	14	25/02/22	AW06																																					
BH-77404	5.00	6.00	B	16	25/02/22	AW06																																					
BH-77404	6.00		D	17	25/02/22	AW06																																					
BH-77477	**0.00**	**1.00**	**B**	**1**	28/02/22	**AW16**																																					
BH-77477	1.00		D	2	28/02/22	**AW16**																																					
BH-77477	1.00	2.00	B	4	28/02/22	**AW16**					1																																
BH-77477	2.00		D	5	28/02/22	**AW16**																																			1		Elab 22-45117
BH-77477	2.00	3.00	B	7	28/02/22	**AW16**																																					
BH-77477	3.00		D	8	28/02/22	**AW16**																																					
BH-77477	3.00	4.00	B	10	28/02/22	**AW16**																																					
BH-77477	4.00		D	11	28/02/22	**AW16**	1	1																																			

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-77477	4.00	5.00	B	13	28/02/22	AW16					1																																
BH-77477	5.00		D	14	28/02/22	AW16																																					
BH-77477	5.00	6.00	B	16	28/02/22	AW16																																					
BH-77477	6.00		D	17	28/02/22	AW16																																					
BH-77477	6.00	7.00	B	19	28/02/22	AW16																																					
BH-77477	7.00		D	20	28/02/22	AW16																																					
BH-77477	7.00	8.00	B	22	28/02/22	AW16																																					
BH-77477	8.00		D	23	28/02/22	AW16																																					
BH-77477	8.00	9.00	B	25	28/02/22	AW16																																					
BH-77477	9.00		D	26	28/02/22	AW16																																					
BH-77631	**0.00**	**1.00**	**B**	**1**	01/03/22	AW16																																					
BH-77631	1.00		D	2	01/03/22	AW16																																					
BH-77631	1.00	2.00	B	4	01/03/22	AW16																																					
BH-77631	2.00		D	5	01/03/22	AW16	1	1																																			
BH-77631	2.00	3.00	B	7	01/03/22	AW16					1																																
BH-77631	3.00		D	8	01/03/22	AW16																																					
BH-77631	3.00	4.00	B	10	01/03/22	AW16																																					
BH-77631	4.00		D	11	01/03/22	AW16																																					
BH-77631	4.00	5.00	B	13	01/03/22	AW16																				1																	
BH-77631	5.00		D	14	01/03/22	AW16																																					
BH-77631	5.00	5.90	B	16	01/03/22	AW16																																					
BH-77631	5.90		D	17	01/03/22	AW16																																					
BH-78204	**0.00**	**1.00**	**B**	**1**	01/03/22	AW16																																					
BH-78204	1.00		D	2	01/03/22	AW16																																				1	Elab 22-45117
BH-78204	1.00	2.00	B	4	01/03/22	AW16																																					
BH-78204	2.00		D	5	01/03/22	AW16																																					
BH-78204	2.00	3.00	B	7	01/03/22	AW16					1																																
BH-78204	3.00		D	8	01/03/22	AW16																																					
BH-78412	**0.00**	**1.00**	**B**	**1**	02/03/22	AW16																																					
BH-78412	1.00		D	2	02/03/22	AW16																																					
BH-78412	1.00	2.00	B	4	02/03/22	AW16																																					
BH-78412	2.00		D	5	02/03/22	AW16	1	1																																			
BH-78412	2.00	3.00	B	7	02/03/22	AW16					1																																
BH-78412	3.00		D	8	02/03/22	AW16																																					
BH-78412	3.00	4.00	B	10	02/03/22	AW16																																					
BH-78412	4.00		D	11	02/03/22	AW16																																				1	Elab 22-45117
BH-78412	4.00	5.00	B	13	02/03/22	AW16 - NO					0*																																*not tested in K4
BH-78412	5.00		D	14	02/03/22	AW16																																					
BH-78579	**0.00**	**1.00**	**B**	**1**	03/03/22	AW15																																					
BH-78579	1.00		D	2	03/03/22	AW15																																					
BH-78579	1.00	1.50	B	4	03/03/22	AW15					1																																

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete							Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	comment
BH-78579	1.50		D	5	03/03/22	AW15																																		
BH-78579	2.00	2.50	B	7	03/03/22	**AW15**					1																													
BH-78579	2.50		D	8	03/03/22	**AW15**																																	1	Elab - 22-45186
BH-78579	3.00	3.50	B	10	03/03/22	AW15																																		
BH-78579	3.50		D	11	03/03/22	AW15																																		
BH-78579	4.00	4.50	B	13	03/03/22	AW15																																		
BH-78579	4.50		D	14	03/03/22	AW15																																		
BH-78662	**0.00**	**1.00**	**B**	**1**	01/03/22	AW15																																		Change to 78862
BH-78662	1.00		D	2	01/03/22	AW15																																		Change to 78862
BH-78662	1.50		D	5	01/03/22	AW15																																		Change to 78862
BH-78662	2.00	2.50	B	7	01/03/22	AW15																																		Change to 78862
BH-78662	3.00	3.50	B	10	01/03/22	AW15																																		Change to 78862
BH-78662	3.50		D	11	01/03/22	AW15																																		Change to 78862
BH-78662	4.00	4.50	B	13	01/03/22	AW15																																		Change to 78862
BH-78662	4.50		D	14	01/03/22	AW15																																		Change to 78862
BH-78662	5.00	5.50	B	16	01/03/22	AW15																																		Change to 78862
BH-78662	5.50		D	17	01/03/22	AW15																																		Change to 78862
BH-78662 (to 7	1.00	1.50	B	4	01/03/22	**AW15**					1																													Change to 78862
BH-78662 (to 7	2.50		D	8	01/03/22	**AW15**																																1	Change to 78862
BH-78694	**0.00**	**1.00**	**B**	**1**	02/03/22	AW15																																		
BH-78694	1.00		D	2	02/03/22	AW15																																		
BH-78694	1.00	1.50	B	4	02/03/22	**AW15**					1																													
BH-78694	1.50		D	5	02/03/22	AW15																																		
BH-78694	2.00	2.50	B	7	02/03/22	AW15																																		
BH-78694	2.50		D	8	02/03/22	AW15																																		
BH-78694	3.00	3.50	B	10	02/03/22	AW15																																		
BH-78694	3.50		D	11	02/03/22	AW15																																		
BH-78694	4.00	4.50	B	13	02/03/22	**AW15**					0*																													*not tested in K4
BH-78694	4.50		D	14	02/03/22	AW15																																		
BH-78694	5.00	5.45	B	16	02/03/22	AW15																																		
BH-78694	5.50		D	17	02/03/22	AW15																																		
BH-78790	**0.00**	**1.00**	**B**	**1**	01/03/22	AW15																																		
BH-78790	1.00		D	2	01/03/22	AW15																																		
BH-78790	1.00	1.50	B	4	01/03/22	**AW15**					1																													
BH-78790	1.50		D	5	01/03/22	AW15																																		
BH-78790A	**0.00**	**1.00**	**B**	**1**	02/03/22	AW15																																		
BH-78790A	1.00		D	2	02/03/22	AW15																																		
BH-78790A	1.00	1.50	B	4	02/03/22	AW15																																		
BH-78790A	1.50		D	5	02/03/22	AW15																																		
BH-79026	**0.00**	**1.00**	**B**	**1**	04/03/22	AW15																																		
BH-79026	1.00		D	2	04/03/22	AW15																																		

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0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-79026	1.00	1.50	B	4	04/03/22	**AW15**					1																																
BH-79026	1.50		D	5	04/03/22	**AW15**	1	1																																			
BH-79026	2.00	2.50	B	7	04/03/22	**AW15**																		1																		
BH-79026	2.50		D	8	04/03/22	**AW15**																																			1		Elab - 22-45186
BH-79026	3.00	3.50	B	10	04/03/22	**AW15 - NO**					0*																																*not tested in K4
BH-79026	3.50		D	11	04/03/22	AW15																																			
BH-79026	4.00	4.50	B	13	04/03/22	AW15																																			
BH-79026	4.50		D	14	04/03/22	AW15																																			
BH-79209	**0.00**	**1.00**	**B**	**1**	07/03/22	**AW18**																																			
BH-79209	1.00		D	2	07/03/22	**AW18**																																			
BH-79209	1.00	1.50	B	4	07/03/22	**AW18**					1																																
BH-79209	1.50		D	5	07/03/22	**AW18**	1	1																																			
BH-79209	2.00	2.50	B	7	07/03/22	**AW18**																																			
BH-79209	2.50		D	8	07/03/22	**AW18**																																		1		Elab - 22-45186
BH-79209	3.00	3.40	B	10	07/03/22	**AW18**																																			
BH-79209	3.40		D	11	07/03/22	**AW18**																																			
BH-79273	**0.00**	**1.00**	**B**	**1**	07/03/22	**AW18**																																			
BH-79273	1.00		D	2	07/03/22	**AW18**	1	1																																			
BH-79273	1.00	1.50	B	4	07/03/22	**AW18**					1																																
BH-79273	1.50		D	5	07/03/22	**AW18**																																		1		Elab 22-45181
BH-79273	2.00	2.50	B	7	07/03/22	**AW18**																																			
BH-79273	2.50		D	8	07/03/22	**AW18**																																			
BH-79273	3.00	3.50	B	10	07/03/22	**AW18**																				1																
BH-79273	3.50		D	11	07/03/22	**AW18**																																			
BH-79273	4.00	4.50	B	13	07/03/22	**AW18**																																			
BH-79273	4.50		D	14	07/03/22	**AW18**																																			
BH-79441	**0.00**	**1.00**	**B**	**1**	09/03/22	**AW18**																																			
BH-79441	1.00		D	2	09/03/22	**AW18**																																			
BH-79441	1.00	1.50	B	4	09/03/22	**AW18**					1																																
BH-79441	1.50		D	5	09/03/22	**AW18**	1	1																																			
BH-79441	2.00	2.50	B	7	09/03/22	**AW18**																				1																
BH-79441	2.50		D	8	09/03/22	**AW18**																																		1		Elab - 22-45186
BH-79441	3.00	3.30	B	10	09/03/22	**AW18**																																			
BH-79441	3.30		D	11	09/03/22	**AW18**																																			
BH-79595	**0.00**	**1.00**	**B**	**1**	10/03/22	**AW18**																																			
BH-79595	1.00		D	2	10/03/22	**AW18**																																			
BH-79595	1.00	1.50	B	4	10/03/22	**AW18**					1															1																
BH-79595	1.50		D	5	10/03/22	**AW18**																																			
BH-79595	2.00	2.50	B	7	10/03/22	**AW18**																		1																		
BH-79595	2.50		D	8	10/03/22	**AW18**																																				
BH-79595	3.00	3.50	B	10	10/03/22	**AW18**					1																																

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Turnaround

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-79595	3.50		D	11	10/03/22	AW18	0*	0*																																	*not tested in K4
BH-79595	4.00	4.50	B	13	10/03/22	AW18																																			
BH-79595	4.50		D	14	10/03/22	AW18																																			
BH-80024	**0.00**	**1.00**	**B**	**1**	04/03/22	AW16																																			
BH-80024	1.00		D	2	04/03/22	AW16	1	1																																	
BH-80024	1.00	2.00	B	4	04/03/22	AW16					1																														
BH-80024	2.00		D	5	04/03/22	AW16																																		1	Elab 22-45117
BH-80024	2.00	3.00	B	7	04/03/22	AW16																																			
BH-80024	3.00		D	8	04/03/22	AW16																																			
BH-80024	3.00	4.00	B	10	04/03/22	AW16																																			
BH-80024	4.00		D	11	04/03/22	AW16																																			
BH-80024	4.00	5.00	B	13	04/03/22	AW16																		1																	
BH-80024	5.00		D	14	04/03/22	AW16	1	1																																	
BH-80024	5.00	6.00	B	16	04/03/22	AW16					1																														
BH-80024	6.00	7.00	B	19	04/03/22	AW16																																			
BH-80024	7.00		D	20	04/03/22	AW16																																			
BH-80024	7.00	8.00	B	22	04/03/22	AW16																																			
BH-80024	8.00		D	23	04/03/22	AW16																																			
BH-80338	**0.00**	**1.00**	**B**	**1**	07/03/22	AW16																																			
BH-80338	1.00		D	2	07/03/22	AW16	1	1																																	
BH-80338	1.00	2.00	B	4	07/03/22	AW16					1																														
BH-80338	2.00		D	5	07/03/22	AW16																																		1	Elab 22-45117
BH-80338	2.00	3.00	B	7	07/03/22	AW16																		1																	
BH-80338	3.00		D	8	07/03/22	AW16																																			
BH-80338	3.00	4.00	B	10	07/03/22	AW16																																			
BH-80338	4.00		D	11	07/03/22	AW16																																			
BH-80338	4.00	5.00	B	13	07/03/22	AW16																																			
BH-80338	5.00		D	14	07/03/22	AW16																																			
BH-80338	5.00	6.00	B	16	07/03/22	AW16																																			
BH-80338	6.00		D	17	07/03/22	AW16																																			
BH-80338	6.00	7.00	B	19	07/03/22	AW16					1																														
BH-80338	7.00		D	20	07/03/22	AW16																																			
BH-80439	**0.00**	**1.00**	**B**	**1**	07/03/22	AW16																																			
BH-80439	1.00		D	2	07/03/22	AW16	1	1																																	
BH-80439	1.00	2.00	B	4	07/03/22	AW16					1																														
BH-80439	2.00		D	5	07/03/22	AW16																																			
BH-80439	2.00	3.00	B	7	08/03/22	AW16																		1																	
BH-80439	3.00		D	8	08/03/22	AW16																		*																	*moved to bag
BH-80439	3.00	4.00	B	10	08/03/22	AW16																				1															
BH-80439	4.00		D	11	08/03/22	AW16																																			
BH-80439	4.00	5.00	B	13	08/03/22	AW16																																			

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Turnaround

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)										Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-80439	5.00		D	14	08/03/22	AW16																																			
BH-80439	5.00	6.00	B	16	08/03/22	AW16																																			
BH-80439	6.00		D	17	08/03/22	AW16																																			
BH-80960	**0.00**	**1.00**	**B**	**1**	08/03/22	AW16																																			
BH-80960	1.00		D	2	08/03/22	AW16	1	1																																	
BH-80960	1.00	2.00	B	4	08/03/22	AW16					1																														
BH-80960	2.00		D	5	08/03/22	AW16																																			
BH-80960	2.00	3.00	B	7	08/03/22	AW16																																			
BH-80960	3.00		D	8	08/03/22	AW16																																		1	Elab 22-45117
BH-80960	3.00	4.00	B	10	09/03/22	AW16																																			
BH-80960	4.00		D	11	09/03/22	AW16																																			
BH-80960	4.00	5.00	B	13	09/03/22	AW16																																			
BH-80960	5.00		D	14	09/03/22	AW16																																			
BH-80960	5.00	6.00	B	16	09/03/22	AW16																																			
BH-80960	6.00		D	17	09/03/22	AW16																																			
BH-80960	6.00	7.00	B	19	09/03/22	AW16																																			
BH-80960	7.00		D	20	09/03/22	AW16	1	1																																	
BH-80960	7.00	8.00	B	22	09/03/22	AW16					1																														
BH-80960	8.00		D	23	09/03/22	AW16																																			
BH-80960	8.00	9.00	B	25	09/03/22	AW16																																			
BH-80960	9.00		D	26	09/03/22	AW16																																			
BH-80960	9.00	9.80	B	28	09/03/22	AW16																																			
BH-80960	9.80		D	29	09/03/22	AW16																																			
BH-82974	**0.00**	**1.00**	**B**	**1**	10/03/22	AW37																																			
BH-82974	1.00		D	2	10/03/22	AW37																																			
BH-82974	1.00	2.00	B	4	10/03/22	AW37					1																														
BH-82974	2.00		D	5	10/03/22	AW37																																			
BH-82974	2.00	3.00	B	7	10/03/22	AW37																																			
BH-82974	3.00		D	8	10/03/22	AW37																																		1	Elab 22-45181
BH-82974	3.00	4.00	B	10	10/03/22	AW37																																			
BH-82974	4.00		D	11	10/03/22	AW37	1	1																																	
BH-82974	4.00	5.00	B	13	10/03/22	AW37					1																														
BH-82974	5.00		D	14	10/03/22	AW37																																			
BH-82974	5.00	6.00	B	16	10/03/22	AW37																																			
BH-82974	6.00		D	17	10/03/22	AW37																																			
BH-82974	6.00	6.90	B	19	10/03/22	AW37																																			
BH-82974	6.90		D	20	10/03/22	AW37																																			
BH-83591	**0.00**	**1.00**	**B**	**1**	11/03/22	AW37																																			
BH-83591	1.00		D	2	11/03/22	AW37																																			
BH-83591	1.00	2.00	B	4	11/03/22	AW37																																			

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)									Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-83591	2.00		D	5	11/03/22	AW37																																		
BH-83591	2.00	3.00	B	7	11/03/22	AW37																																		
BH-83591	3.00		D	8	11/03/22	AW37																																		
BH-83591	3.00	4.00	B	10	11/03/22	AW37					1																														
BH-83591	4.00		D	11	11/03/22	AW37																																		
BH-83591	4.00	5.00	B	13	11/03/22	AW37																								1										**1 @ 4.5m**
BH-83591	5.00		D	14	11/03/22	AW37																																		
BH-84203	**0.00**	**1.00**	**B**	**1**	21/03/22	AW37																																		
BH-84203	1.00		D	2	21/03/22	AW37																																		
BH-84203	1.00	2.00	B	4	21/03/22	AW37																																		
BH-84203	2.00		D	5	21/03/22	AW37																																		
BH-84203	2.00	3.00	B	7	21/03/22	AW37																																		
BH-84203	3.00		D	8	21/03/22	AW37																																	1	Elab 22-45181
BH-84203	3.00	4.00	B	10	21/03/22	AW37					1																														
BH-84203	4.00		D	11	21/03/22	AW37																																		
BH-84203	4.00	5.00	B	13	21/03/22	AW37																																		
BH-84203	5.00		D	14	21/03/22	AW37																																		
BH-84203	5.00	6.00	B	16	21/03/22	AW37																																		
BH-84203	6.00		D	17	21/03/22	AW37																																		
BH-84203	6.00	7.00	B	19	21/03/22	AW37																																		
BH-84203	7.00		D	20	21/03/22	AW37																																		
BH-84800	**0.00**	**1.00**	**B**	**1**	16/03/22	**AW38**																																		
BH-84800	1.00		D	2	16/03/22	**AW38**																																		
BH-84800	1.00	1.50	B	4	16/03/22	**AW38**																																		
BH-84800	2.00		D	5	16/03/22	**AW38**																																		
BH-84800	2.00	2.50	B	7	16/03/22	**AW38**																																		
BH-84800	3.00		D	8	16/03/22	**AW38**	1	1																																1	Elab 22-45117
BH-84800	3.00	3.50	B	10	16/03/22	**AW38**					1																														
BH-84800	4.00		D	11	16/03/22	**AW38**																																		
BH-84800	4.00	4.50	B	13	16/03/22	**AW38**																																		
BH-84800	5.00		D	14	16/03/22	**AW38**																																		
BH-85383	**0.00**	**1.00**	**B**	**1**	21/03/22	**AW38**																																		
BH-85383	1.00		D	2	21/03/22	**AW38**																																		
BH-85383	1.00	1.50	B	4	21/03/22	**AW38**																																		
BH-85383	2.00		D	5	21/03/22	**AW38**																																		
BH-85383	2.00	2.50	B	7	21/03/22	**AW38**					1																														
BH-85383	3.00		D	8	21/03/22	**AW38**	1	1																																		
BH-85791	**0.00**	**1.00**	**B**	**1**	22/03/22	**AW38**																																		
BH-85791	1.00		D	2	22/03/22	**AW38**																																		

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)								Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
BH-85791	1.00	1.50	B	4	22/03/22	AW38																																					
BH-85791	2.00		D	5	22/03/22	AW38	1	1																																	1		Elab 22-45117
BH-85791	2.00	2.50	B	7	22/03/22	AW38					1																																
BH-85791	3.00		D	8	22/03/22	AW38																																					
BH-85791	3.00	3.50	B	10	22/03/22	AW38																																					
BH-85791	4.00		D	11	22/03/22	AW38																																					
BH-85791	4.00	4.50	B	13	22/03/22	AW38																																					
BH-85791	5.00		D	14	22/03/22	AW38																																					
BH-85791	5.00	5.50	B	16	22/03/22	AW38																																					
BH-86203	**0.00**	**1.00**	**B**	**1**	31/03/22	AW38																																					
BH-86203	1.00		D	2	31/03/22	AW38	1	1																																			
BH-86203	1.00	1.50	B	4	31/03/22	AW38					1																																
BH-86203	2.00		D	5	31/03/22	AW38																																					
BH-86203	2.00	2.50	B	7	31/03/22	AW38																																					
BH-86203	3.00		D	8	31/03/22	AW38	0*	0*																																			* not tested in K4
BH-86203	3.00	3.50	B	10	31/03/22	AW38					1																																
BH-86203	4.00		D	11	31/03/22	AW38																																					
BH-86203	4.00	4.50	B	13	31/03/22	AW38																																					
BH-86592	**0.00**	**1.00**	**B**	**1**	01/04/22	AW38																																					
BH-86592	1.00		D	2	01/04/22	AW38	1	1																																			
BH-86592	1.00	1.50	B	4	01/04/22	AW38					1																																
BH-86592	2.00		D	5	01/04/22	AW38																																					
BH-86592	2.00	2.50	B	7	01/04/22	AW38					1																																
BH-86592	3.00		D	8	01/04/22	AW38	1	1																																	1		Elab 22-45117
BH-86592	3.00	3.50	B	10	01/04/22	AW38																																					
BH-86592	4.00		D	11	01/04/22	AW38																																					
BH-86592	4.00	4.50	B	13	01/04/22	AW38																																					
BH-87455	**0.00**	**1.00**	**B**	**1**	22/03/22	AW37?																																					
BH-87455	1.00		D	2	22/03/22	AW37?																																					
BH-87455	1.00	2.00	B	4	22/03/22	AW37?																																					
BH-87455	2.00		D	5	22/03/22	AW37?																																					
BH-87455	2.00	3.00	B	7	22/03/22	AW37?																																					
BH-87455	3.00		D	8	22/03/22	AW37?																																					
BH-87455	3.00	4.00	B	10	22/03/22	AW37?					0*																																* not tested in K4
BH-87455	4.00		D	11	22/03/22	AW37?																																					
BH-87455	4.00	4.50	B	13	22/03/22	AW37?																																					
BH-87455	4.50		D	14	22/03/22	AW37?																																					
BH-87806	**0.00**	**1.00**	**B**	**1**	23/03/22	AW37																																					
BH-87806	1.00		D	2	23/03/22	AW37	1	1																																			
BH-87806	1.00	2.00	B	4	23/03/22	AW37					1																																

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-87806	2.00		D	5	23/03/22	AW37																																			
BH-87806	2.00	3.00	B	7	24/03/22	AW37																																			
BH-87806	3.00		D	8	24/03/22	AW37																																		1	Elab 22-45181
BH-87806	3.00	4.00	B	10	24/03/22	AW37					1																														
BH-87806	4.00		D	11	24/03/22	AW37																																			
BH-87806	4.00	5.00	B	13	24/03/22	AW37																							0*	@ 4.5m											*unsuitable
BH-87806	5.00		D	14	24/03/22	AW37																																			
BH-87806	5.00	6.00	B	16	24/03/22	AW37																																			
BH-87806	6.00		D	17	24/03/22	AW37																																			
BH-87999	**0.00**	**1.00**	**B**	**1**	23/03/22	AW37																																			
BH-87999	1.00		D	2	23/03/22	AW37																																			
BH-87999	1.00	2.00	B	4	23/03/22	AW37																																			
BH-87999	2.00		D	5	23/03/22	AW37																																			
BH-87999	2.00	3.00	B	7	23/03/22	AW37					1																														
BH-87999	3.00		D	8	23/03/22	AW37																																			
BH-87999	3.00	4.00	B	10	23/03/22	AW37																																			
BH-87999	4.00		D	11	23/03/22	AW37																																			
BH-87999	4.00	5.00	B	13	23/03/22	AW37																																			
BH-87999	5.00		D	14	23/03/22	AW37	1	1																																	
BH-87999	5.00	6.00	B	16	23/03/22	AW37					0*																														* not tested in K4
BH-87999	6.00		D	17	23/03/22	AW37																																			
BH-88759	**0.00**	**1.00**	**B**	**1**	24/03/22	AW37																																			
BH-88759	1.00		D	2	24/03/22	AW37																																			
BH-88759	1.00	2.00	B	4	24/03/22	AW37																																			
BH-88759	2.00		D	5	24/03/22	AW37	1	1																																1	Elab - 22-45186
BH-88759	2.00	3.00	B	7	24/03/22	AW37					1																														
BH-88759	3.00		D	8	24/03/22	AW37																																			
BH-88759	3.00	4.00	B	10	24/03/22	AW37																																			
BH-88759	4.00		D	11	24/03/22	AW37																																			
BH-88759	4.00	5.00	B	13	24/03/22	AW37																																			
BH-88759	5.00		D	14	24/03/22	AW37																																			
BH-88759	5.00	5.80	B	16	25/03/22	AW37																																			
BH-88759	5.80		D	17	25/03/22	AW37																																			
BH-89092	**0.00**	**1.00**	**B**	**1**	01/04/22	**AW39**																																			
BH-89092	1.00		D	2	01/04/22	**AW39**																																			
BH-89092	1.00	2.00	B	4	01/04/22	**AW39**					1																														
BH-89092	2.00		D	5	01/04/22	**AW39**																																			
BH-89092	2.00	3.00	B	7	01/04/22	**AW39**																																			
BH-89092	3.00		D	8	01/04/22	**AW39**																																		1	Elab 22-45181
BH-89092	3.00	4.00	B	10	01/04/22	**AW39**																																			

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-89092	4.00		D	11	01/04/22	**AW39**																																		
BH-89604	**0.00**	**1.00**	**B**	**1**	30/03/22	AW37																																		
BH-89604	1.00		D	2	30/03/22	AW37																																		
BH-89604	1.00	2.00	B	4	30/03/22	AW37					1																													
BH-89604	2.00		D	5	30/03/22	AW37																																		
BH-89604	2.00	3.00	B	7	30/03/22	AW37					1																													
BH-89604	3.00		D	8	30/03/22	AW37																																		
BH-89604	3.00	4.00	B	10	30/03/22	AW37																																		
BH-89604	4.00		D	11	30/03/22	AW37																																	1	Elab 22-45181
BH-89604	4.00	5.00	B	13	30/03/22	AW37																																		
BH-89604	5.00		D	14	30/03/22	AW37																																		
BH-89604	5.00	6.00	B	16	30/03/22	AW37																																		
BH-89604	6.00		D	17	30/03/22	AW37	1	1																																
BH-89604	6.00	7.00	B	19	30/03/22	AW37					1																													
BH-89604	7.00		D	20	30/03/22	AW37																																		
BH-89604	7.00	8.00	B	22	30/03/22	AW37																																		
BH-89604	8.00		D	23	30/03/22	AW37																																		
BH-89604	8.00	9.00	B	25	30/03/22	AW37																																		
BH-89604	9.00		D	26	30/03/22	AW37																																		
BH-89604	9.00	10.00	B	28	30/03/22	AW37					1																													
BH-89604	10.00		D	29	30/03/22	AW37																																		
BH-89662	**0.00**	**1.00**	**B**	**1**	31/03/22	AW37																																		
BH-89662	1.00		D	2	31/03/22	AW37																																		
BH-89662	1.00	2.00	B	4	31/03/22	AW37					1																													
BH-89662	2.00		D	5	31/03/22	AW37																																	1	Elab - 22-45186
BH-89662	2.00	3.00	B	7	31/03/22	AW37																																		
BH-89662	3.00		D	8	31/03/22	AW37																																		
BH-89662	3.00	4.00	B	10	31/03/22	AW37																																		
BH-89662	4.00		D	11	31/03/22	AW37	1	1																																
BH-89662	4.00	5.00	B	13	31/03/22	AW37					1																													
BH-89662	5.00		D	14	31/03/22	AW37																																		
BH-89662	5.00	6.00	B	16	31/03/22	AW37																																		
BH-89662	6.00		D	17	31/03/22	AW37																																		
BH-89662	6.00	7.00	B	19	31/03/22	AW37					1																													
BH-89662	7.00		D	20	31/03/22	AW37																																		
BH-89662	7.00	8.00	B	22	31/03/22	AW37																																		
BH-89662	8.00		D	23	31/03/22	AW37																																		
BH-89690	**0.00**	**1.00**	**B**	**1**	04/04/22	**AW39**																																		
BH-89690	1.00		D	2	04/04/22	**AW39**																																		
BH-89690	1.00	2.00	B	4	04/04/22	**AW39**					1																													

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		BRE Suite B	Other Rock Tests	comment
BH-89690	2.00		D	5	04/04/22	AW39																																				
BH-89690	2.00	3.00	B	7	04/04/22	AW39																																				
BH-89690	3.00		D	8	04/04/22	AW39	1	1																																	1		Elab - 22-45186
BH-89690	3.00	4.00	B	10	04/04/22	AW39																																				
BH-89690	4.00		D	11	04/04/22	AW39																																				
BH-89690	4.00	5.00	B	13	04/04/22	AW39					1																															
BH-89690	5.00		D	14	04/04/22	AW39																																				
BH-89747	**0.00**	**1.00**	**B**	**1**	04/04/22	AW39																																			
BH-89747	1.00		D	2	04/04/22	AW39																																				
BH-89747	1.00	2.00	B	4	04/04/22	AW39																																				
BH-89747	2.00		D	5	04/04/22	AW39																																			1		Elab 22-45181
BH-89747	2.00	3.00	B	7	04/04/22	AW39					1																															
BH-89747	3.00		D	8	04/04/22	AW39																																				
BH-89747	3.00	4.00	B	10	05/04/22	AW39																																				
BH-89747	4.00		D	11	05/04/22	AW39	1	1																																		
BH-89747	4.00	5.00	B	13	05/04/22	AW39																																				
BH-89747	5.00		D	14	05/04/22	AW39																																				
BH-89747	5.00	6.00	B	16	05/04/22	AW39					1																															
BH-89747	6.00		D	17	05/04/22	AW39																																				
BH-89747	6.00	7.00	B	19	05/04/22	AW39																										1										
BH-89747	7.00		D	20	05/04/22	AW39																																				
BH-89747	7.00	8.00	B	22	05/04/22	AW39																																				
BH-89747	8.00		D	23	05/04/22	AW39																																				
BH-90003	**0.00**	**1.00**	**B**	**1**	05/04/22	AW39																																			
BH-90003	1.00		D	2	05/04/22	AW39	1	1																																		
BH-90003	1.00	2.00	B	4	05/04/22	AW39					1																															
BH-90003	2.00		D	5	05/04/22	AW39																																				
BH-90003	2.00	3.00	B	7	05/04/22	AW39																																				
BH-90003	3.00		D	8	05/04/22	AW39	1	1																																		
BH-90003	3.00	4.00	B	10	05/04/22	AW39																																				
BH-90003	4.00		D	11	05/04/22	AW39																																				
BH-90003	4.00	5.00	B	13	05/04/22	AW39					1																															
BH-90003	5.00		D	14	05/04/22	AW39																																				
BH-90003	5.00	6.00	B	16	05/04/22	AW39																																				
BH-90003	6.00		D	17	05/04/22	AW39																																				
BH-90402	**0.00**	**1.00**	**B**	**1**	05/04/22	AW38																																			
BH-90402	1.00		D	2	05/04/22	AW38																																				
BH-90402	1.00	1.50	B	4	05/04/22	AW38					1																															
BH-90402	2.00		D	5	05/04/22	AW38																																			1		Elab 22-45117
BH-90402	2.00	3.00	B	7	05/04/22	AW38																																				

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-90402	3.00		D	8	05/04/22	AW38																																				
BH-90402	3.00	4.00	B	10	05/04/22	AW38																																				
BH-90402	4.00		D	11	05/04/22	AW38	1	1																																		
BH-90402	4.00	5.00	B	13	05/04/22	AW38					1																															
BH-90402	5.00		D	14	05/04/22	AW38																																				
BH-90402	5.00	5.50	B	16	05/04/22	AW38																																				
BH-91011	**0.00**	**1.00**	**B**	**1**	06/04/22	AW39																																			
BH-91011	1.00		D	2	06/04/22	AW39	1	1																																		
BH-91011	1.00	2.00	B	4	06/04/22	AW39					1																															
BH-91011	2.00		D	5	06/04/22	AW39																																			1	Elab - 22-45186
BH-91011	2.00	3.00	B	7	06/04/22	AW39																																				
BH-91011	3.00		D	8	06/04/22	AW39																																				
BH-91011	3.00	4.00	B	10	06/04/22	AW39					1																															
BH-91011	4.00		D	11	06/04/22	AW39																																				
BH-91604	**0.00**	**1.00**	**B**	**1**	06/04/22	aw3..?																																				
BH-91604	1.00		D	2	06/04/22	aw3..?	0*	0*																																		* not tested in K4
BH-91604	1.00	2.00	B	4	06/04/22	aw3..?					0*																															* not tested in K4
BH-91604	2.00		D	5	06/04/22	aw3..?																																			
BH-92206	**0.00**	**1.00**	**B**	**1**	07/04/22	AW45																																				
BH-92206	1.00		D	2	07/04/22	AW45	1	1																																		
BH-92206	1.00	2.00	B	4	07/04/22	AW45					1																															
BH-92206	2.00		D	5	07/04/22	AW45																																				
BH-92206	2.00	3.00	B	7	07/04/22	AW45																																				
BH-92206	3.00		D	8	07/04/22	AW45																																				
BH-92680	**0.00**	**1.00**	**B**	**1**	08/04/22	AW41																																			
BH-92680	1.00		D	2	08/04/22	AW41	0*	0*																																		* not tested in K4
BH-92680	1.00	2.00	B	4	08/04/22	AW41					0*																															* not tested in K4
BH-92680	2.00		D	5	08/04/22	AW41																																		0*	* not tested in K4
BH-92680	2.00	3.00	B	7	08/04/22	AW41																																				
BH-92680	3.00		D	8	08/04/22	AW41																																				
BH-92680	3.00	4.00	B	10	08/04/22	AW41																																				
BH-92680	4.00		D	11	08/04/22	AW41																																				
BH-92680	4.00	5.00	B	13	08/04/22	AW41																																				
BH-92680	5.00		D	14	08/04/22	AW41																																				
BH-92680	5.00	6.00	B	16	08/04/22	AW41																																				
BH-92680	6.00		D	17	08/04/22	AW41																																				
BH-92680	6.00	7.00	B	19	08/04/22	AW41																																				
BH-92680	7.00		D	20	08/04/22	AW41																																				
BH-93391	**0.00**	**1.00**	**B**	**1**	06/04/22	AW38																																			
BH-93391	1.00		D	2	06/04/22	AW38	1	1																																		

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-93391	1.00	1.50	B	4	06/04/22	AW38					1																															
BH-93391	2.00		D	5	06/04/22	AW38	1	1																																		
BH-93391	2.00	2.50	B	7	06/04/22	AW38					1																															
BH-93391	3.00		D	8	06/04/22	AW38																																			1	Elab 22-45117
BH-93391	3.00	3.50	B	10	06/04/22	AW38																																				
BH-93391	4.00		D	11	06/04/22	AW38																																				
BH-93803	**0.00**	**1.00**	**B**	**1**	11/04/22	AW45																																			
BH-93803	1.00		D	2	11/04/22	AW45																																				
BH-93803	1.00	2.00	B	4	11/04/22	AW45																																				
BH-93803	2.00		D	5	11/04/22	AW45																																			1	Elab - 22-45186
BH-93803	2.00	3.00	B	7	11/04/22	AW45					1																															
BH-93803	3.00		D	8	11/04/22	AW45																																				
BH-94016	**0.00**	**1.00**	**B**	**1**	12/04/22	AW41							1	1																												Elab 22-45117
BH-94016	1.00		D	2	12/04/22	AW41																																				
BH-94016	1.00	2.00	B	4	12/04/22	AW41																																				
BH-94016	2.00		D	5	12/04/22	AW41																																				
BH-94016	2.00	3.00	B	7	12/04/22	AW41					1																															
BH-94016	3.00		D	8	12/04/22	AW41																																				
BH-94016	3.00	4.00	B	10	12/04/22	AW41																																				
BH-94016	4.00		D	11	12/04/22	AW41																										1											
BH-94403	**0.00**	**1.00**	**B**	**1**	12/04/22	AW41																																				
BH-94403	1.00		D	2	12/04/22	AW41																																				
BH-94403	1.00	2.00	B	4	12/04/22	AW41																																				
BH-94403	2.00		D	5	12/04/22	AW41																																				
BH-94403	2.00	3.00	B	7	12/04/22	AW41																																				
BH-94403	3.00		D	8	12/04/22	AW41	1	1																																	1	Elab 22-45117
BH-94403	3.00	4.00	B	10	12/04/22	AW41					1																															
BH-94403	4.00		D	11	12/04/22	AW41																																				
BH-94403	4.00	5.00	B	13	13/04/22	AW41																																				
BH-94403	5.00		D	14	13/04/22	AW41																																				
BH-94403	5.00	5.70	B	16	13/04/22	AW41					0*																															* not tested in K4
BH-94403	5.70		D	17	13/04/22	AW41																																				
BH-95064	**0.00**	**1.00**	**B**	**1**	07/04/22	AW38																																			
BH-95064	1.00		D	2	07/04/22	AW38	1	1																																		
BH-95064	1.00	1.50	B	4	07/04/22	AW38					1																															
BH-95595	**0.00**	**1.00**	**B**	**1**	07/04/22	AW38																																				
BH-95595	1.00		D	2	07/04/22	AW38																																				
BH-96005	**0.00**	**1.00**	**B**	**1**	08/04/22	AW38																																			
BH-96005	1.00		D	2	08/04/22	AW38	1	1																																		
BH-96005	1.00	1.50	B	4	08/04/22	AW38					1																															

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1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
BH-96005	2.00		D	5	08/04/22	AW38																																					
BH-96364	**0.00**	**1.00**	**B**	**1**	11/04/22	AW38																																					
BH-96364	1.00		D	2	11/04/22	AW38																																					
BH-96364	1.00	1.50	B	4	11/04/22	AW38																																					
BH-96364	2.00		D	5	11/04/22	AW38	1	1																																	1		Elab 22-45117
BH-96364	2.00	2.50	B	7	11/04/22	AW38					1	1																															
BH-96364	3.00		D	8	11/04/22	AW38																																					
BH-96364	3.00	3.50	B	10	11/04/22	AW38																																					
BH-96364	4.00		D	11	11/04/22	AW38																																					
BH-96364	4.00	4.50	B	13	11/04/22	AW38																																					
BH-96364	5.00		D	14	11/04/22	AW38																																					
BH-96858	**0.00**	**1.00**	**B**	**1**	12/04/22	AW38																																					
BH-96858	1.00		D	2	12/04/22	AW38	1	1																																			
BH-96858	1.00	1.50	B	4	12/04/22	AW38					1	1																															
BH-96858	2.00		D	5	12/04/22	AW38																																					
BH-96858	2.00	2.50	B	7	12/04/22	AW38																																					
BH-96858	3.00		D	8	12/04/22	AW38																																					
BH-96858	3.00	3.50	B	10	12/04/22	AW38																																					
BH-97104	**0.00**	**0.70**	**B**	**1**	13/04/22	AW38																																					
BH-97104A	**0.00**	**1.00**	**B**	**1**	13/04/22	AW38																																					
BH-97104A	1.00		D	2	13/04/22	AW38																																					
BH-97788	**0.00**	**1.00**	**B**	**1**	13/04/22	AW41																																					
BH-97788	1.00		D	2	13/04/22	AW41																																					
BH-97788	1.00	2.00	B	4	13/04/22	AW41																																					
BH-97788	2.00		D	5	13/04/22	AW41																																					
BH-97788	2.00	3.00	B	7	13/04/22	AW41																																					
BH-97788	3.00		D	8	13/04/22	AW41	1	1																																	1		Elab 22-45117
BH-97788	3.00	4.00	B	10	13/04/22	AW41					0*	0*																															* not tested in K4
BH-97788	4.00		D	11	13/04/22	AW41																																					
BH-97788	4.00	5.00	B	13	13/04/22	AW41																																					
BH-97788	5.00		D	14	13/04/22	AW41																																					
BH-97788	5.00	6.00	B	16	13/04/22	AW41																																					
BH-97788	6.00		D	17	13/04/22	AW41																																					
BH-97788	6.00	6.80	B	19	13/04/22	AW41																																					
BH-97788	6.80		D	20	13/04/22	AW41																																					
BH-97837	**0.00**	**1.00**	**B**	**1**	14/04/22	AW41																																					
BH-97837	1.00		D	2	14/04/22	AW41																																					
BH-97837	1.00	2.00	B	4	14/04/22	AW41																				1																	
BH-97837	2.00		D	5	14/04/22	AW41	1	1																																			
BH-97837	2.00	3.00	B	7	14/04/22	AW41					1	1																															

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Turnaround

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
BH-97837	3.00		D	8	14/04/22	AW41																																				
BH-97837	3.00	4.00	B	10	14/04/22	AW41																																				
BH-97837	4.00		D	11	14/04/22	AW41	1	1																																		
BH-97837	4.00	5.00	B	13	14/04/22	AW41					1	1																														
BH-97837	5.00		D	14	14/04/22	AW41																																				
BH-97837	5.00	6.00	B	16	14/04/22	AW41																																				
BH-97837	6.00		D	17	14/04/22	AW41																																				
BH-97837	6.00	7.00	B	19	14/04/22	AW41																																				
BH-97837	7.00		D	20	14/04/22	AW41																																				
BH-97837	7.00	8.00	B	22	14/04/22	AW41																																				
BH-97837	8.00		D	23	14/04/22	AW41																																				
BH-97837	8.00	9.00	B	25	14/04/22	AW41																																				
BH-97837	9.00		D	26	14/04/22	AW41																																				
BH-97837	9.00	9.80	B	28	14/04/22	AW41																																				
BH-97837	9.80		D	29	14/04/22	AW41																																				
BH-97881	**0.00**	**1.00**	**B**	**1**	19/04/22	AW45																																			
BH-97881	1.00		D	2	19/04/22	AW45	1	1																																		
BH-97881	1.00	2.00	B	4	19/04/22	AW45					1	1																														
BH-97881	2.00		D	5	19/04/22	AW45																																				
BH-97881	2.00	3.00	B	7	19/04/22	AW45																																				
BH-97881	3.00		D	8	19/04/22	AW45	1	1																																	1		Elab - 22-45186
BH-97881	3.00	4.00	B	10	19/04/22	AW45					1	1																														
BH-97881	4.00		D	11	19/04/22	AW45																																				
BH-97881	4.00	5.00	B	13	19/04/22	AW45																																				
BH-97881	5.00		D	14	19/04/22	AW45																																				
BH-97881	5.00	6.00	B	16	19/04/22	AW45																																				
BH-97881	6.00		D	17	19/04/22	AW45																																				
BH-97881	6.00	7.00	B	19	19/04/22	AW45																																				
BH-97881	7.00		D	20	19/04/22	AW45																																				
BH-97881	7.00	8.00	B	22	19/04/22	AW45					1	1																														
BH-97881	8.00		D	23	19/04/22	AW45																																				
BH-97881	8.00	9.00	B	25	19/04/22	AW45																																				
BH-97881	9.00		D	26	19/04/22	AW45																																				
BH-97881	9.00	10.00	B	28	19/04/22	AW45																																				
BH-97881	10.00		D	29	19/04/22	AW45																																				
BH-97914	**0.00**	**1.00**	**B**	**1**	20/04/22	AW45																																			
BH-97914	1.00		D	2	20/04/22	AW45																																				
BH-97914	1.00	2.00	B	4	20/04/22	AW45																																				
BH-97914	2.00		D	5	20/04/22	AW45	1	1																																		
BH-97914	2.00	3.00	B	7	20/04/22	AW45					1	1																														
BH-97914	3.00		D	8	20/04/22	AW45																																				

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
BH-97914	3.00	4.00	B	10	20/04/22	AW45																																			
BH-97914	4.00		D	11	20/04/22	AW45																																			
BH-97914	4.00	5.00	B	13	20/04/22	AW45																																			
BH-97914	5.00		D	14	20/04/22	AW45	1	1																																	
BH-97914	5.00	6.00	B	16	20/04/22	AW45																																			
BH-97914	6.00		D	17	20/04/22	AW45																																			
BH-97914	6.00	7.00	B	19	20/04/22	AW45																																			
BH-97914	7.00		D	20	20/04/22	AW45																																			
BH-97914	7.00	8.00	B	22	20/04/22	AW45																																			
BH-97914	8.00		D	23	20/04/22	AW45																																			
BH-97914	8.00	9.00	B	25	20/04/22	AW45																																			
BH-97914	9.00		D	26	20/04/22	AW45																																			
BH-98002	**0.00**	**1.00**	**B**	**1**	22/04/22	AW45																																			
BH-98002	1.00		D	2	22/04/22	AW45																																			
BH-98002	1.00	2.00	B	4	22/04/22	AW45																																			
BH-98002	2.00		D	5	22/04/22	AW45																																			
BH-98002	2.00	3.00	B	7	22/04/22	AW45																																			
BH-98002	3.00		D	8	22/04/22	AW45																																			
BH-98002	3.00	4.00	B	10	22/04/22	AW45																																			
BH-98002	4.00		D	11	22/04/22	AW45																																			
BH-98002	4.00	5.00	B	13	22/04/22	AW45																																			
BH-98002	5.00		D	14	22/04/22	AW45	1	1																																1	Elab - 22-45186
BH-98002	5.00	6.00	B	16	22/04/22	AW45					1	1																													
BH-98002	6.00		D	17	22/04/22	AW45																																			
BH-98002	6.00	7.00	B	19	22/04/22	AW45																																			
BH-98002	7.00		D	20	22/04/22	AW45																																			
BH-98002	7.00	8.00	B	22	22/04/22	AW45																																			
BH-98002	8.00		D	23	22/04/22	AW45																																			
BH-98314	**0.00**	**1.00**	**B**	**1**	25/04/22	AW42																																			
BH-98314	1.00		D	2	25/04/22	AW42	1	1																																	
BH-98314	1.00	2.00	B	4	25/04/22	AW42					1	1																													
BH-98314	2.00		D	5	25/04/22	AW42																																			
BH-98314	2.00	3.00	B	7	25/04/22	AW42																																			
BH-98314	3.00		D	8	25/04/22	AW42	1	1																																	
BH-98314	3.00	4.00	B	10	25/04/22	AW42					1	1																													
BH-98314	4.00		D	11	25/04/22	AW42																																			
BH-98314	4.00	5.00	B	13	25/04/22	AW42																																			
BH-98314	5.00		D	14	25/04/22	AW42																																			
BH-98314	5.00	6.00	B	16	25/04/22	AW42																																			
BH-98314	6.00		D	17	25/04/22	AW42																																			

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)								Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
BH-98314	6.00	7.00	B	19	25/04/22	AW42																																				
BH-98314	7.00		D	20	25/04/22	AW42																																				
BH-98314	7.00	7.80	B	22	25/04/22	AW42																																				
BH-98314	7.80		D	23	25/04/22	AW42																																				
BH-98314					**25/04/22**	AW42																																				
BH-98602	**0.00**	**1.00**	**B**	**1**	26/04/22	AW42																																			
BH-98602	1.00		D	2	26/04/22	AW42	**1**	**1**																																		
BH-98602	1.00	2.00	B	4	26/04/22	AW42																																				
BH-98602	2.00		D	5	26/04/22	AW42																																				
BH-98602	2.00	3.00	B	7	26/04/22	AW42					**1**	**1**																														
BH-98602	3.00		D	8	26/04/22	AW42																																			**1**	Elab 22-45117
BH-98602	3.00	4.00	B	10	26/04/22	AW42																																				
BH-98602	4.00		D	11	26/04/22	AW42																																				
BH-98602	4.00	5.00	B	13	26/04/22	AW42																																				
BH-98602	5.00		D	14	26/04/22	AW42	**1**	**1**																																		
BH-98602	5.00	6.00	B	16	26/04/22	AW42					**1**	**1**																														
BH-98602	6.00		D	17	26/04/22	AW42																																				
BH-98602	6.00	7.00	B	19	26/04/22	AW42																																				
BH-98602	7.00		D	20	26/04/22	AW42																																				
BH-98602					**26/04/22**	AW42																																				
BH-99204	**0.00**	**1.00**	**B**	**1**	27/04/22	AW42																																			
BH-99204	1.00		D	2	27/04/22	AW42																																				
BH-99204	1.00	2.00	B	4	27/04/22	AW42																																				
BH-99204	2.00		D	5	27/04/22	AW42	**1**	**1**																																		
BH-99204	2.00	3.00	B	7	27/04/22	AW42					**1**	**1**																														
BH-99204	3.00		D	8	27/04/22	AW42																																				
BH-99204	3.00	4.00	B	10	27/04/22	AW42																																				
BH-99204	4.00		D	11	27/04/22	AW42																																				
BH-99204	4.00	5.00	B	13	27/04/22	AW42																																				
BH-99204	5.00		D	14	27/04/22	AW42																																				
BH-99204	5.00	6.00	B	16	27/04/22	AW42																																				
BH-99204	6.00		D	17	27/04/22	AW42																																				
BH-99204	6.00	7.00	B	19	27/04/22	AW42																																				
BH-99204	7.00		D	20	27/04/22	AW42	**1**	**1**																																		
BH-99204	7.00	8.00	B	22	27/04/22	AW42					**1**	**1**																														
BH-99204	8.00		D	23	27/04/22	AW42																																				
BH-99204	8.00	9.00	B	25	27/04/22	AW42																																				
BH-99204	9.00		D	26	27/04/22	AW42																																				
BH-99204	9.00	10.00	B	28	27/04/22	AW42																																				
BH-99204	10.00		D	29	27/04/22	AW42																																				

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		BRE Suite B	comment
BH-99204	10.00	10.80	B	31	27/04/22	AW42																																				
BH-99204	10.80		D	32	27/04/22	AW42																																				
BH-99204					**27/04/22**	**AW42**																																				
BH-99777	**0.00**	**1.00**	**B**	**1**	28/04/22	**AW42**																																				
BH-99777	1.00		D	2	28/04/22	**AW42**																																				
BH-99777	1.00	2.00	B	4	28/04/22	**AW42**																																				
BH-99777	2.00		D	5	28/04/22	**AW42**	1	1																																	1	Elab 22-45117
BH-99777	2.00	3.00	B	7	28/04/22	**AW42**					1	1																														
BH-99777	3.00		D	8	28/04/22	**AW42**																																				
BH-99777	3.00	4.00	B	10	28/04/22	**AW42**																																				
BH-99777	4.00		D	11	28/04/22	**AW42**																																				
BH-99777	4.00	5.00	B	13	28/04/22	**AW42**																																				
BH-99777	5.00		D	14	28/04/22	**AW42**	1	1																																		
BH-99777	5.00	6.00	B	16	28/04/22	**AW42**					1	1																														
BH-99777	6.00		D	17	28/04/22	**AW42**																																				
BH-99777	6.00	7.00	B	19	28/04/22	**AW42**																																				
BH-99777	7.00		D	20	28/04/22	**AW42**																																				
BH-99777	7.00	8.00	B	22	28/04/22	**AW42**																																				
BH-99777	8.00		D	23	28/04/22	**AW42**																																				
BH-99777					**28/04/22**	**AW42**																																				
BRE Suite B:				pH, Water Soluble Sulphate, Acid Soluble Sulphate, Total Sulphur.																																						
TP-100304	**0.30**	**0.60**	**B**	**1**	25/02/22	**AW17**					1																															
TP-100304	0.60		D	2	25/02/22	**AW17**	1	1																																		
TP-100304	1.30	1.60	B	3	25/02/22	**AW17**					1																															
TP-100304	1.60		D	4	25/02/22	**AW17**	1	1																																	1	chem: elab 22-44032
TP-100304	2.30	2.60	B	5	25/02/22	**AW17**					1																															
TP-100304	2.60		D	6	25/02/22	**AW17**	1	1																																		
TP-100407	**0.50**	**0.80**	**B**	**1**	28/02/22	**AW17**					1																															
TP-100407	0.80		D	2	28/02/22	**AW17**	1	1																																		
TP-100407	1.50	1.80	B	3	28/02/22	**AW17**					1																															
TP-100407	1.80		D	4	28/02/22	**AW17**	1	1																																	1	chem: elab 22-44032
TP-100449	**0.40**	**0.70**	**B**	**1**	25/02/22	**AW17**					1																															
TP-100449	0.70		D	2	25/02/22	**AW17**	1	1																																		
TP-100449	1.40	1.70	B	3	25/02/22	**AW17**					1																															
TP-100449	1.70		D	4	25/02/22	**AW17**	1	1																																	1	chem: elab 22-44032
TP-100449	2.80	3.10	B	5	25/02/22	**AW17**					1														1																	
TP-100449	3.10		D	6	25/02/22	**AW17**	1	1																																		
TP-100485	**0.30**	**0.60**	**B**	**1**	25/02/22	**AW17**																																				
TP-100485	0.60		D	2	25/02/22	**AW17**	1	1																																		
TP-100485	1.30	1.60	B	3	25/02/22	**AW17**					1																1															

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-100485	1.60	2.30	D	4	25/02/22	AW17	1	1																																			
TP-100503	**0.40**	**0.70**	**B**	**1**	24/02/22	AW17					1																																
TP-100503	0.70		D	2	24/02/22	AW17	1	1																																		
TP-100503	1.80	2.10	B	3	24/02/22	AW17					1															1																
TP-100503	2.10		D	4	24/02/22	AW17	1	1																																		
TP-100503	3.40	3.70	B	5	24/02/22	AW17																																				
TP-100503	3.70		D	6	24/02/22	AW17																																				
TP-100517	**0.30**	**0.60**	**B**	**1**	25/02/22	AW17																																				
TP-100517	0.50		D	2	25/02/22	AW17	1	1																																		
TP-100517	0.70	1.00	B	3	25/02/22	AW17					1																																
TP-100517	1.00		D	4	25/02/22	AW17	1	1																																	1		chem: elab 22-44032
TP-100517	1.70	2.00	B	5	25/02/22	AW17					1																																
TP-100517	2.00		D	6	25/02/22	AW17	1	1																		0*																sample
TP-100517	2.80	3.10	B	7	25/02/22	AW17																																				
TP-100517	3.10		D	8	25/02/22	AW17																																				
TP-100605	**0.40**	**0.70**	**B**	**1**	24/02/22	AW17					1																																
TP-100605	1.10	1.40	B	2	24/02/22	AW17					1																																
TP-100605	1.40		D	3	24/02/22	AW17	1	1																																		
TP-100605	2.00	2.30	B	4	24/02/22	AW17					1																																
TP-101206	**0.20**	**0.50**	**B**	**1**	24/02/22	AW17																																				
TP-101206	0.40		D	2	24/02/22	AW17																																				
TP-101206	0.60	0.90	B	3	24/02/22	AW17					1																																
TP-101206	0.90		D	4	24/02/22	AW17	1	1																																		
TP-101206	1.00	1.20	B	5	24/02/22	AW17																																				
TP-101206	1.30	1.60	B	6	24/02/22	AW17					1																																
TP-101206	1.60		D	7	24/02/22	AW17	1	1																																		
TP-101206	2.20	2.50	B	8	24/02/22	AW17					1																																
TP-101304	**0.50**	**0.80**	**B**	**1**	24/02/22	AW17					1													1																				
TP-101304	0.80		D	2	24/02/22	AW17	1	1																																		
TP-101304	1.50	1.80	B	3	24/02/22	AW17					1																																
TP-101407	**0.30**	**0.60**	**B**	**1**	28/02/22	AW19					1																																
TP-101407	0.60		D	2	28/02/22	AW19	1	1																																		
TP-101407	1.60	1.90	B	3	28/02/22	AW19					1															1																
TP-101407	1.90		D	4	28/02/22	AW19	1	1																																	1		chem: elab 22-44032
TP-101503	**0.20**	**0.50**	**B**	**1**	28/02/22	AW19					1																																
TP-101503	0.40		D	2	28/02/22	AW19	1	1																																		
TP-101503	0.80	1.10	B	3	28/02/22	AW19																																				
TP-101503	1.10		D	4	28/02/22	AW19																																				
TP-101503	2.70	3.00	B	5	28/02/22	AW19					1																																
TP-101503	3.00		D	6	28/02/22	AW19	1	1																																		
TP-101600	**0.30**	**0.60**	**B**	**1**	28/02/22	AW19																																				

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-101600	0.60		D	2	28/02/22	AW19	1	1																																		
TP-101600	1.30	1.60	B	3	28/02/22	AW19					1													1																		
TP-101600	1.60		D	4	28/02/22	AW19	1	1																																1		chem: elab 22-44032
TP-101600	2.80	3.10	B	5	28/02/22	AW19																																			
TP-101600	3.10		D	6	28/02/22	AW19																																			
TP-101600	3.40	3.70	B	7	28/02/22	AW19					1																														
TP-101704	**0.30**	**0.60**	**B**	**1**	01/03/22	AW19					1																														
TP-101704	0.60		D	2	01/03/22	AW19	1	1																																	
TP-101704	0.70	1.00	B	3	01/03/22	AW19					1																														
TP-101704	1.00		D	4	01/03/22	AW19	1	1																																	
TP-101704	2.00	2.30	B	5	01/03/22	AW19					1																														
TP-101804	**0.30**	**0.60**	**B**	**1**	01/03/22	AW19					1																														
TP-101804	0.60		D	2	01/03/22	AW19	1	1																																	
TP-101804	2.30	2.60	B	3	01/03/22	AW19					1																														
TP-101804	2.60		D	4	01/03/22	AW19	1	1																																	
TP-101804	3.20	3.50	B	5	01/03/22	AW19																		1																	
TP-101804	3.50		D	6	01/03/22	AW19																																			
TP-102105	**0.40**	**0.70**	**B**	**1**	01/03/22	AW19					1																														
TP-102105	0.70		D	2	01/03/22	AW19	1	1																																1		chem: elab 22-44032
TP-102105	1.40	1.70	B	3	01/03/22	AW19					1																														
TP-102204	**0.20**	**0.40**	**B**	**1**	01/03/22	AW19																																		
TP-102204	0.30		D	2	01/03/22	AW19	1	1																																	
TP-102204	0.60	0.90	B	3	01/03/22	AW19					1																														
TP-102204	0.90		D	4	01/03/22	AW19	1	1																																	
TP-102204	2.00	2.30	B	5	01/03/22	AW19					1																														
TP-102303	**0.30**	**0.50**	**B**	**1**	02/03/22	AW19																																		
TP-102303	0.40		D	2	02/03/22	AW19																																			
TP-102303	1.20	1.50	B	3	02/03/22	AW19					1																														
TP-102303	1.50		D	4	02/03/22	AW19	1	1																																1		chem: elab 22-44032
TP-102303	2.70	3.00	B	5	02/03/22	AW19					1															1															
TP-102303	3.00		D	6	02/03/22	AW19	1	1																																	
TP-102405	**0.70**	**1.00**	**B**	**1**	02/03/22	AW19					1																														
TP-102488	**0.50**	**0.80**	**B**	**1**	02/03/22	AW19					1																														
TP-102488	0.80		D	2	02/03/22	AW19	1	1																																	
TP-102617	**0.30**	**0.60**	**B**	**1**	01/03/22	AW19																																		
TP-102617	0.60		D	2	01/03/22	AW19																																			
TP-102617	0.90	1.20	B	3	01/03/22	AW19					1																														
TP-102617	1.20		D	4	01/03/22	AW19	1	1																																	
TP-102617	2.00	2.30	B	5	01/03/22	AW19					1															1															
TP-102617	2.30		D	6	01/03/22	AW19	1	1																																	
TP-102704	**0.30**	**0.60**	**B**	**1**	01/03/22	AW19					1																														

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-102704	1.50	1.80	B	2	01/03/22	**AW19**					1													1																	
TP-102704	1.80		D	3	01/03/22	**AW19**	1	1																																	
TP-36504	1.00	1.30	B	1	23/05/22	AW55					0	0																													Sent to StSoils 1/11/22
TP-36504	1.30		D	2	23/05/22	AW55	0	0																																	Sent to StSoils 1/11/22
TP-36504					23/05/22	AW55																																			
TP-36504					23/05/22	AW55																																			
tp-36504					23/05/22	AW55																																			
TP-36595	0.20	0.50	B	1	23/05/22	AW55																																			
TP-36595	0.50		D	2	23/05/22	AW55																																			
TP-36595	1.20	1.50	B	3	23/05/22	AW55					0	0																													Sent to StSoils 1/11/22
TP-36595	1.50		D	4	23/05/22	AW55	0	0																																	Sent to StSoils 1/11/22
tp-36595																																								
TP-36595					23/05/22	AW55																																			
TP-36595					23/05/22	AW55																																			
TP-36595					23/05/22	AW55																																			
TP-36595					23/05/22	AW55																																			
TP-36861	**0.20**	**0.40**	**B**	**1**	19/10/21	AV58																																			
TP-36861	0.30		D	2	19/10/21	AV58																																			
TP-36861	0.50	0.80	B	3	19/10/21	AV58					1																														
TP-36861	0.80		D	4	19/10/21	AV58	1	1																																	
TP-36861	1.60	1.90	B	5	19/10/21	AV58					1																														
TP-36861	1.90		D	6	19/10/21	AV58	1	1																																	
TP-37001	**0.40**	**0.70**	**B**	**1**	19/10/21	AV58																																			
TP-37001	0.70		D	2	19/10/21	AV58																																			
TP-37001	0.90	1.20	B	3	19/10/21	AV58					1																														
TP-37001	1.20		D	4	19/10/21	AV58	1	1																																	
TP-37102	**0.40**	**0.70**	**B**	**1**	19/10/21	AV58																																			
TP-37102	0.70		D	2	19/10/21	AV58																																			
TP-37102	1.40	1.70	B	3	19/10/21	AV58					1														1																
TP-37102	1.70		D	4	19/10/21	AV58	1	1							1																										ALS: 220624-151
TP-37201	**0.20**	**0.50**	**B**	**1**	19/10/21	AV58					1																														
TP-37201	0.50		D	2	19/10/21	AV58	1	1																																	
TP-37201	0.60	0.90	B	3	19/10/21	AV58																																			
TP-37201	0.90		D	4	19/10/21	AV58																																			
TP-37302	**0.20**	**0.40**	**B**	**1**	19/10/21	AV58																																			
TP-37302	0.30		D	2	19/10/21	AV58																																			
TP-37698	**0.30**	**0.50**	**B**	**1**	27/09/21	AV56																																			
TP-37698	0.30		D	2	27/09/21	AV56	1	1																																	
TP-37698	1.20	1.50	B	3	27/09/21	AV56	1				1	1													1																
TP-37698	1.50		D	4	27/09/21	AV56	1	1																																1	ALS 220223-35

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)								Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-37698	2.00	2.30	B	5	27/09/21	AV56					1	1																														
TP-37698	2.30		D	6	27/09/21	AV56																																				
TP-37778	**0.20**	**0.40**	**B**	**1**	15/10/21	AV52																																		
TP-37778	0.30		D	2	15/10/21	AV52																																				
TP-37778	0.50	0.80	B	3	15/10/21	AV52					1	1																														
TP-37778	0.80		D	4	15/10/21	AV52	1	1																																	1	ALS: 220208-68
TP-37778	2.10	2.40	B	5	15/10/21	AV52					1	1												1																		
TP-37778	2.40		D	6	15/10/21	AV52	1	1																																		
TP-37903	**0.30**	**0.50**	**B**	**1**	15/10/21	AV52																																		
TP-37903	0.40		D	2	15/10/21	AV52																																				
TP-37903	0.90	1.20	B	3	15/10/21	AV52					1	1																														
TP-37903	1.20		D	4	15/10/21	AV52	1	1																																		
TP-37903	2.30	2.60	B	5	15/10/21	AV52																																				
TP-37903	2.60		D	6	15/10/21	AV52	1	1																																	1	ALS: 220208-68
TP-38100	**0.40**	**0.70**	**B**	**1**	15/10/21	AV52					1	1																														
TP-38100	0.70		D	2	15/10/21	AV52	1	1																																		
TP-38100	1.70	2.00	B	3	15/10/21	AV52					1	1																														
TP-38100	2.00		D	4	15/10/21	AV52	1	1																																		
TP-38205	**0.20**	**0.50**	**B**	**1**	15/10/21	AV52																																		
TP-38205	0.40		D	2	15/10/21	AV52	1	1																																	1	ALS: 220208-68
TP-38205	0.80	1.10	B	3	15/10/21	AV52																																				
TP-38205	1.10		D	4	15/10/21	AV52																																				
TP-38205	2.00	2.30	B	5	15/10/21	AV52					1	1												1																		
TP-38205	2.30		D	6	15/10/21	AV52	1	1																																		
TP-38313	**0.30**	**0.60**	**B**	**1**	18/10/21	AV52																																		
TP-38313	0.60		D	2	18/10/21	AV52																																				
TP-38313	1.70	2.00	B	3	18/10/21	AV52					1																															
TP-38313	2.00		D	4	18/10/21	AV52	1	1																																		
TP-38500	**0.40**	**0.70**	**B**	**1**	18/10/21	AV52																																		
TP-38500	0.70		D	2	18/10/21	AV52	1	1							1																										ALS 220616-107
TP-38500	2.10	2.40	B	3	18/10/21	AV52					1																															
TP-38500	2.40		D	4	18/10/21	AV52	1	1																																		
TP-38604	**0.30**	**0.50**	**B**	**1**	18/10/21	AV52																																		
TP-38604	0.40		D	2	18/10/21	AV52																																				
TP-38604	0.80	1.10	B	3	18/10/21	AV52					1																															
TP-38604	1.10		D	4	18/10/21	AV52	1	1																																		
TP-38604	2.00	2.30	B	5	18/10/21	AV52					1																															
TP-38604	2.30		D	6	18/10/21	AV52	1	1																																		
TP-38700	**0.50**	**0.80**	**B**	**1**	18/10/21	AV52																																		
TP-38700	0.80		D	2	18/10/21	AV52																																				

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-38700	1.30	1.60	B	3	18/10/21	AV52					1																																
TP-38700	1.60		D	4	18/10/21	AV52	1	1																																			
TP-38700	2.70	3.00	B	5	18/10/21	AV52					1													1																			
TP-38700	3.00		D	6	18/10/21	AV52	1	1																																			
TP-38777	0.60		D	2	18/10/21	AV52																																					
TP-38777	1.30	1.60	B	3	18/10/21	AV52					1																																
TP-38777	1.60		D	4	18/10/21	AV52	1	1							1																												ALS 220616-107
TP-38777	2.50	2.80	B	5	18/10/21	AV52					1																																
TP-38777	2.80		D	6	18/10/21	AV52	1	1																																			
TP-38901	**0.30**	**0.60**	**B**	**1**	28/09/21	AV56					1	1																															
TP-38901	0.50		D	2	28/09/21	AV56	1	1																																	1		ALS 220223-35
TP-38901	1.00	1.30	B	3	28/09/21	AV56																																				
TP-38901	1.30		D	4	28/09/21	AV56																																				
TP-38901	2.50	2.80	B	5	28/09/21	AV56					1	1																															
TP-38901	2.80		D	6	28/09/21	AV56	1	1																																			
TP-39006	**0.30**		**D**	**1**	28/09/21	AV56	1	1																																			
TP-39006	0.40	0.70	B	2	28/09/21	AV56					1	1																															
TP-39006	0.70		D	3	28/09/21	AV56																																					
TP-39006	1.10	1.30	B	4	28/09/21	AV56	1				1	1											1																					
TP-39006	1.30		D	5	28/09/21	AV56	1	1																																	1		ALS 220223-35
TP-39101	**0.30**	**0.50**	**B**	**1**	27/09/21	AV56					1	1																															
TP-39101	0.50		D	2	27/09/21	AV56	1	1																																			
TP-39101	1.30	1.60	B	3	27/09/21	AV56					1	1																															
TP-39101	1.60		D	4	27/09/21	AV56	1	1																																	1		ALS 220223-35
TP-39218	**0.40**	**0.70**	**B**	**1**	27/09/21	AV56	1				1	1												1																			
TP-39218	0.70		D	2	27/09/21	AV56	1	1																																			
TP-39300	**0.40**	**0.70**	**B**	**1**	29/09/21	AV56					1	1																															
TP-39300	0.70		D	2	29/09/21	AV56	1	1																																	1		ALS 220223-35
TP-39403	**0.30**	**0.60**	**B**	**1**	29/09/21	AV56					1	1																															
TP-39403	0.60		D	2	29/09/21	AV56																																					
TP-39403	0.90	1.20	B	3	29/09/21	AV56					1	1									1																							
TP-39403	1.20		D	4	29/09/21	AV56	1	1																																	1		ALS 220223-35
TP-39503	**0.40**	**0.70**	**B**	**1**	28/09/21	AV56					1	1																															
TP-39503	0.70		D	2	28/09/21	AV56	1	1																																			
TP-39503	1.70	2.00	B	3	28/09/21	AV56	1				1	1												1																			
TP-39503	2.00		D	4	28/09/21	AV56	1	1																																	1		ALS 220223-35
TP-39601	**0.50**	**0.80**	**B**	**1**	29/09/21	AV56					1	1																															
TP-39601	0.80		D	2	29/09/21	AV56	1	1																																	1		ALS 220223-35
TP-39706	**0.60**	**0.90**	**B**	**1**	29/09/21	AV56					1	1																															
TP-39706	0.90		D	2	29/09/21	AV56	1	1																																			
TP-39805	**0.40**	**0.70**	**B**	**1**	28/09/21	AV56					1	1																															

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)						Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-39805	0.70		D	2	28/09/21	AV56	1	1																																1		ALS 220223-35
TP-39906	**0.30**	**0.50**	**B**	**1**	28/09/21	AV56					1	1																													
TP-39906	0.40		D	2	28/09/21	AV56	1	1																																	
TP-39906	0.90	1.20	B	3	28/09/21	AV56					1	1									1																				
TP-39906	1.20		D	4	28/09/21	AV56	1	1																																1		als 220407-114
TP-40001	**0.30**	**0.60**	**B**	**1**	29/09/21	AV56					1	1																													
TP-40001	0.60		D	2	29/09/21	AV56																																			
TP-40001	1.20	1.50	B	3	29/09/21	AV56					1	1																													
TP-40001	1.40		D	4	29/09/21	AV56	1	1																																1		ALS 220223-35
TP-40001	2.20	2.50	B	5	29/09/21	AV56	1				1	1												1																	
TP-40001	2.50		D	6	29/09/21	AV56	1	1																																	
TP-40205	**0.20**	**0.50**	**B**	**1**	30/09/21	AV56					1	1																													
TP-40205	0.30		D	2	30/09/21	AV56	1	1																																	
TP-40205	0.70	1.00	B	3	30/09/21	AV56					1	1									1																				
TP-40205	1.00		D	4	30/09/21	AV56	1	1																																1		ALS 220223-35
TP-40305	**0.40**		**D**	**1**	30/09/21	AV56	1	1					1																												als 220407-114
TP-40305	0.80	1.10	B	2	30/09/21	AV56					1	1																													
TP-40305	1.10		D	3	30/09/21	AV56	1	1																																1		ALS 220223-35
TP-40305	1.70	2.00	B	4	30/09/21	AV56	1				1	1												1																	
TP-40305	2.00		D	5	30/09/21	AV56	1	1																																	
TP-40404	**0.30**	**0.60**	**B**	**1**	30/09/21	AV56					1	1																													
TP-40404	0.40		D	2	30/09/21	AV56	1	1																																	
TP-40404	0.80	1.10	B	3	30/09/21	AV56					1	1																													
TP-40404	1.10		D	4	30/09/21	AV56	1	1																																	
TP-40404	2.50	2.80	B	5	30/09/21	AV56	1				1	1										1																				
TP-40404	2.80		D	6	30/09/21	AV56	1	1																																1		ALS 220223-35
TP-40505	**0.20**	**0.50**	**B**	**1**	30/09/21	AV56																																	
TP-40505	0.50		D	2	30/09/21	AV56																																	
TP-40505	0.70	1.00	B	3	30/09/21	AV56	1				1	1												1																	
TP-40505	1.00		D	4	30/09/21	AV56	1	1																																	
TP-40505	2.10	2.40	B	5	30/09/21	AV56					1	1																													
TP-40505	2.40		D	6	30/09/21	AV56	1	1																																1		ALS 220223-35
TP-40605	**0.30**	**0.60**	**B**	**1**	30/09/21	AV56																																	
TP-40605	0.60		D	2	30/09/21	AV56																																	
TP-40605	1.30	1.60	B	3	30/09/21	AV56					1	1									1																				
TP-40605	1.60		D	4	30/09/21	AV56	1	1																																	
TP-40605	2.30	2.60	B	5	30/09/21	AV56	1				1	1												1																	
TP-40605	2.60		D	6	30/09/21	AV56	1	1																																1		ALS 220223-35
TP-43108	**0.30**	**0.60**	**B**	**1**	30/09/21	AV56					1	1																													
TP-43108	0.40		D	2	30/09/21	AV56																																			
TP-43108	0.80	1.10	B	3	30/09/21	AV56	1				1	1												1																	

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-43108	1.10		D	4	30/09/21	AV56	1	1																																1		ALS 220223-35
TP-43108	1.80	2.20	B	5	30/09/21	AV56					1	1																														
TP-43108	2.20		D	6	30/09/21	AV56	1	1																																		
TP-43207	**0.30**	**0.60**	**B**	**1**	01/10/21	AV56					1	1																														
TP-43207	0.60		D	2	01/10/21	AV56	1	1																																		
TP-43207	1.20	1.50	B	3	01/10/21	AV56					1	1																														
TP-43207	1.50		D	4	01/10/21	AV56	1	1																																1		ALS 220223-35
TP-43308	**0.20**	**0.50**	**B**	**1**	01/10/21	AV56																																		
TP-43308	0.40		D	2	01/10/21	AV56	1	1																																		
TP-43308	1.10	1.40	B	3	01/10/21	AV56					1	1									1																					
TP-43308	1.40		D	4	01/10/21	AV56																																				
TP-43308	1.70	2.00	B	5	01/10/21	AV56	1				1	1												1																		
TP-43308	1.80		D	6	01/10/21	AV56	1	1																																1		ALS 220223-35
TP-43406	**0.30**	**0.50**	**B**	**1**	01/10/21	AV54																																		
TP-43406	0.40		D	2	01/10/21	AV54	1	1																																		
TP-43406	1.00	1.30	B	3	01/10/21	AV54					1	1																														
TP-43406	1.30		D	4	01/10/21	AV54	1	1																																1		ALS: 220208-68
TP-43406	2.70	3.00	B	5	01/10/21	AV54					1	1																														
TP-43406	3.00		D	6	01/10/21	AV54																																				
TP-43507	**0.30**	**0.50**	**B**	**1**	01/10/21	AV54					1	1																														
TP-43507	0.40		D	2	01/10/21	AV54	1	1																																		
TP-43507	1.10	1.40	B	3	01/10/21	AV54					1	1									1																					
TP-43507	1.40		D	4	01/10/21	AV54	1	1																																1		ALS: 220208-68
TP-43507	2.70	3.00	B	5	01/10/21	AV54					1	1																														
TP-43507	3.00		D	6	01/10/21	AV54																																				
TP-43607	**0.30**	**0.60**	**B**	**1**	01/10/21	AV54					1	1																														
TP-43607	0.60		D	2	01/10/21	AV54	1	1																																		
TP-43607	1.20	1.50	B	3	01/10/21	AV54	1				1	1												1																		
TP-43607	1.50		D	4	01/10/21	AV54	1	1																																		
TP-43607	2.50	2.80	B	5	01/10/21	AV54					1	1																														
TP-43607	2.80		D	6	01/10/21	AV54	1	1																																1		ALS: 220208-68
TP-43708	**0.40**	**0.70**	**B**	**1**	04/10/21	AV54					1	1																														
TP-43708	0.70		D	2	04/10/21	AV54	1	1																																		
TP-43708	1.20	1.50	B	3	04/10/21	AV54					1	1									1																					
TP-43708	1.50		D	4	04/10/21	AV54	1	1																																1		ALS: 220208-68
TP-43815	**0.30**	**0.60**	**B**	**1**	04/10/21	AV54					1	1																														
TP-43815	0.50		D	2	04/10/21	AV54	1	1																																		
TP-43815	0.70	1.00	B	3	04/10/21	AV54	1				1	1												1																		
TP-43815	1.00		D	4	04/10/21	AV54																																				
TP-43905	**0.20**	**0.50**	**B**	**1**	04/10/21	AV54					1	1																														
TP-43905	0.40		D	2	04/10/21	AV54	1	1																																		

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-43905	1.30	1.60	B	3	04/10/21	AV54	1				1	1												1																			
TP-43905	1.60		D	4	04/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-43905	2.30	2.60	B	5	04/10/21	AV54																																					
TP-43905	2.60		D	6	04/10/21	AV54	1	1																																			
TP-44003	**0.40**	**0.70**	**B**	**1**	04/10/21	AV54																																					
TP-44003	0.50		D	2	04/10/21	AV54	1	1																																			
TP-44003	1.20	1.50	B	3	04/10/21	AV54					1	1																															
TP-44003	1.50		D	4	04/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-44003	2.50	2.80	B	5	04/10/21	AV54					1	1																															
TP-44003	2.80		D	6	04/10/21	AV54	1	1																																			
TP-44104	**0.30**	**0.60**	**B**	**1**	05/10/21	AV54					1	1																															
TP-44104	0.60		D	2	05/10/21	AV54																																					
TP-44104	1.30	1.60	B	3	05/10/21	AV54	1				1	1											1																					
TP-44104	1.60		D	4	05/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-44104	2.90	3.20	B	5	05/10/21	AV54					1	0*																															
TP-44104	3.20		D	6	05/10/21	AV54	1	0*																																			
TP-44211	**0.30**		**D**	**1**	05/10/21	AV54																																				
TP-44211	0.50	0.80	B	2	05/10/21	AV54	1				1	1												1																			
TP-44211	0.70		D	3	05/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-44211	1.50	1.80	B	4	05/10/21	AV54					1	1																															
TP-44211	1.80		D	5	05/10/21	AV54	1	1																																			
TP-44309	**0.30**	**0.60**	**B**	**1**	05/10/21	AV54					1	1																															
TP-44309	0.60		D	2	05/10/21	AV54	1	1																																			
TP-44309	1.00	1.30	B	3	05/10/21	AV54					1	1									1																						
TP-44309	1.30		D	4	05/10/21	AV54																																					
TP-44309	2.30	2.60	B	5	05/10/21	AV54					1	1																															
TP-44309	2.60		D	6	05/10/21	AV54	1	1																																			
TP-44408	**0.40**	**0.70**	**B**	**1**	05/10/21	AV54					1	1																															
TP-44408	0.70		D	2	05/10/21	AV54	1	1																																			
TP-44408	1.30	1.60	B	3	05/10/21	AV54					1	1																															
TP-44408	1.60		D	4	05/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-44508	**0.30**	**0.60**	**B**	**1**	05/10/21	AV54					1	1																															
TP-44508	0.60		D	2	05/10/21	AV54	1	1																																			
TP-44508	1.20	1.50	B	3	05/10/21	AV54	1				1	1												1																			
TP-44508	1.50		D	4	05/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-44508	2.20	2.50	B	5	05/10/21	AV54					1	1																															
TP-44508	2.50		D	6	05/10/21	AV54	1	1																																			
TP-44611	**0.40**	**0.70**	**B**	**1**	06/10/21	AV54					1	0*																															
TP-44611	0.70		D	2	06/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-44611	2.00	2.30	B	3	06/10/21	AV54					1	1																															
TP-44611	2.30		D	4	06/10/21	AV54	1	1																																			

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0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)											Shear Stregth (Effective Stress)				Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-44611	2.70	3.00	B	5	06/10/21	AV54																																						
TP-44611	3.00		D	6	06/10/21	AV54																																						
TP-46303	**0.20**	**0.40**	**B**	**1**	06/10/21	AV54					1	1																																
TP-46303	0.30		D	2	06/10/21	AV54																																						
TP-46303	0.70	1.00	B	3	06/10/21	AV54	1				1	1												1																				
TP-46303	1.00		D	4	06/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-46303	1.50	1.80	B	5	06/10/21	AV54																																						
TP-46303	1.80		D	6	06/10/21	AV54	1	1																																				
TP-46502	**0.30**	**0.60**	**B**	**1**	06/10/21	AV54					1	1																																
TP-46502	0.60		D	2	06/10/21	AV54																																						
TP-46502	1.30	1.60	B	3	06/10/21	AV54					1	1																																
TP-46502	1.60		D	4	06/10/21	AV54	1	1																																	1		ALS: 220208-68
TP-46502	2.90	3.20	B	5	06/10/21	AV54					1	1																																
TP-46502	3.20		D	6	06/10/21	AV54	1	1																																				
TP-46603	**0.70**	**1.00**	**B**	**1**	06/10/21	AV54					1	1																																
TP-46603	1.00		D	2	06/10/21	AV54	1	1																																				
TP-46603	1.80	2.10	B	3	06/10/21	AV54	1				1	1										1																								
TP-46603	2.10		D	4	06/10/21	AV54																																						
TP-46603	2.80	3.10	B	5	06/10/21	AV54					1	1																																
TP-46603	3.10		D	6	06/10/21	AV54	1	1																																				
TP-46717	**0.30**	**0.60**	**B**	**1**	07/10/21	AV60					1	1																																
TP-46717	0.60		D	2	07/10/21	AV60	1	1																																				
TP-46717	1.30	1.60	B	3	07/10/21	AV60					1	0*																																
TP-46717	1.60		D	4	07/10/21	AV60																																			1		ALS: 220606-31
TP-46717	2.90	3.20	B	5	07/10/21	AV60					1	1																																
TP-46717	3.20		D	6	07/10/21	AV60	1	1																																				
TP-46801	**0.30**	**0.60**	**B**	**1**	07/10/21	AV60																																						
TP-46801	0.40		D	2	07/10/21	AV60																																						
TP-46801	1.30	1.60	B	3	07/10/21	AV60					1	1																																
TP-46801	1.60		D	4	07/10/21	AV60	1	1																																				
TP-46801	2.50	2.80	B	5	07/10/21	AV60					1	1																																
TP-46801	2.80		D	6	07/10/21	AV60	1	1																																		1		ALS: 220606-31
TP-46901	**0.40**	**0.70**	**B**	**1**	07/10/21	AV60																																						
TP-46901	0.70		D	2	07/10/21	AV60																																						
TP-46901	1.90	2.20	B	3	07/10/21	AV60					1	1																																
TP-46901	2.20		D	4	07/10/21	AV60	1	1																																				
TP-47003	**0.40**	**0.70**	**B**	**1**	07/10/21	AV60					1	1																																
TP-47003	0.70		D	2	07/10/21	AV60	1	1																																				
TP-47003	1.40	1.70	B	3	07/10/21	AV60					1	1																																
TP-47003	1.70		D	4	07/10/21	AV60	1	1																																		1		ALS 220427-99
TP-47003	2.30	2.50	B	5	07/10/21	AV60					1	1																																

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23			
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021			
	Start	01/10/21					
	Today	03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)								Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-47003	2.50		D	6	07/10/21	AV60	1	1																																			
TP-47102	**0.30**	**0.60**	**B**	**1**	07/10/21	AV60																																					
TP-47102	0.60		D	2	07/10/21	AV60																																					
TP-47102	1.30	1.60	B	3	07/10/21	AV60					1	1																															
TP-47102	1.60		D	4	07/10/21	AV60	1	1																																			
TP-47102	2.50	2.80	B	5	07/10/21	AV60																																					
TP-47102	2.60		D	6	07/10/21	AV60																																					
TP-47102	3.70	4.00	B	7	07/10/21	AV60					1	1																															
TP-47102	4.00		D	8	07/10/21	AV60	1	1																																	1		ALS 220427-99
TP-47202	**0.30**	**0.60**	**B**	**1**	08/10/21	AV60																																					
TP-47202	0.60		D	2	08/10/21	AV60																																					
TP-47202	1.00	1.30	B	3	08/10/21	AV60					1	1																															
TP-47202	1.30		D	4	08/10/21	AV60	1	1																																			
TP-47202	1.70	2.00	B	5	08/10/21	AV60																																					
TP-47202	2.00		D	6	08/10/21	AV60																																					
TP-47202	2.40	2.70	B	7	08/10/21	AV60					1	1												1																			
TP-47202	2.70		D	8	08/10/21	AV60	1	1																																			
TP-47308	**0.30**	**0.60**	**B**	**1**	08/10/21	AV60																																					
TP-47308	0.60		D	2	08/10/21	AV60	1	1																																	1		ALS: 220606-31
TP-47308	1.70	2.00	B	3	08/10/21	AV60					1	1																															
TP-47308	2.00		D	4	08/10/21	AV60	1	1																																			
TP-47308	2.70	3.00	B	5	08/10/21	AV60																																					
TP-47308	3.00		D	6	08/10/21	AV60																																					
TP-47392	**0.30**	**0.60**	**B**	**1**	08/10/21	AV60																																					
TP-47392	0.60		D	2	08/10/21	AV60																																					
TP-47392	1.00	1.30	B	3	08/10/21	AV60					1	1																															
TP-47392	1.30		D	4	08/10/21	AV60	1	1																																			
TP-47392	2.00	2.30	B	5	08/10/21	AV60					1	1																															
TP-47392	2.30		D	6	08/10/21	AV60	1	1																																			
TP-47392	3.10	3.40	B	7	08/10/21	AV60																																					
TP-47392	3.40		D	8	08/10/21	AV60	1	1																																			
TP-47507	**0.40**	**0.70**	**B**	**1**	11/10/21	AV60																																					
TP-47507	0.50		D	2	11/10/21	AV60																																					
TP-47507	1.00	1.30	B	3	11/10/21	AV60					1	1																															
TP-47507	1.30		D	4	11/10/21	AV60	1	1																																	1		ALS: 220606-31
TP-47507	2.50	2.80	B	5	11/10/21	AV60					1	1																															
TP-47507	2.80		D	6	11/10/21	AV60	1	1																																			
TP-47615	**0.40**	**0.70**	**B**	**1**	11/10/21	AV60					1	1																															
TP-47615	0.70		D	2	11/10/21	AV60	1	1																																			
TP-47615	1.20	1.50	B	3	11/10/21	AV60					1	1																															
TP-47615	1.50		D	4	11/10/21	AV60	1	1																																	1		ALS: 220606-31

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)				Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	comment
TP-47615	2.30	2.60	B	5	11/10/21	AV60					1	1																														
TP-47615	2.60		D	6	11/10/21	AV60	1	1																																		
TP-47705	**0.40**	**0.70**	**B**	**1**	13/10/21	AV52					1	1																														
TP-47705	0.70		D	2	13/10/21	AV52	1	1																																		
TP-47705	1.40	1.70	B	3	13/10/21	AV52																																				
TP-47705	1.70		D	4	13/10/21	AV52																																				
TP-47705	2.20	2.50	B	5	13/10/21	AV52																																				
TP-47705	2.50		D	6	13/10/21	AV52	1	1																																	1	ALS: 220208-68
TP-47801	**0.30**	**0.50**	**B**	**1**	14/10/21	AV52																																				
TP-47801	0.40		D	2	14/10/21	AV52																																				
TP-47801	0.50	0.80	B	3	14/10/21	AV52					1	0*																														
TP-47801	0.80		D	4	14/10/21	AV52	1	1																																		
TP-47801	1.50	1.80	B	5	14/10/21	AV52					1	1																														
TP-47801	1.80		D	6	14/10/21	AV52	1	1																																		
TP-47801	2.50	2.80	B	7	14/10/21	AV52																																				
TP-47801	2.80		D	8	14/10/21	AV52																																				
TP-47902	**0.50**	**0.80**	**B**	**1**	11/10/21	AV60					1	1																														
TP-47902	0.80		D	2	11/10/21	AV60	1	1																																	1	ALS: 220606-31
TP-47902	1.30	1.60	B	3	11/10/21	AV60																																				
TP-47902	1.60		D	4	11/10/21	AV60																																				
TP-47902	2.40	2.70	B	5	11/10/21	AV60					1	1																														
TP-47902	2.70		D	6	11/10/21	AV60	1	1																																		
TP-48001	**0.70**	**1.00**	**B**	**1**	11/10/21	AV60					1	1																														
TP-48001	0.80		D	2	11/10/21	AV60	1	1																																		
TP-48001	1.30	1.60	B	3	11/10/21	AV60																																				
TP-48001	1.60		D	4	11/10/21	AV60																																				
TP-48102	**0.40**	**0.70**	**B**	**1**	11/10/21	AV60					1	1																														
TP-48102	0.70		D	2	11/10/21	AV60	1	1																																		
TP-48102	2.10	2.40	B	3	11/10/21	AV60					0*	0*												0*																		*bag not found
TP-48102	2.40		D	4	11/10/21	AV60	1	1																																		
TP-48302	**0.20**	**0.40**	**B**	**1**	12/10/21	AV60																																			
TP-48302	0.30		D	2	12/10/21	AV60																																				
TP-48302	1.30	1.60	B	3	12/10/21	AV60					1	1																														
TP-48302	1.60		D	4	12/10/21	AV60	1	1																																		
TP-48401	**0.50**	**0.80**	**B**	**1**	12/10/21	AV60																																			
TP-48401	0.80		D	2	12/10/21	AV60																																				
TP-48401	1.60	1.90	B	3	12/10/21	AV60					1	1																														
TP-48401	1.90		D	4	12/10/21	AV60	1	1																																	1	ALS: 220606-31
TP-48500	**0.30**	**0.50**	**B**	**1**	12/10/21	AV60																																				
TP-48500	0.40		D	2	12/10/21	AV60																																				
TP-48500	0.60	0.90	B	3	12/10/21	AV60																																				

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete							Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-48500	0.80		D	4	12/10/21	AV60	1	1																																		
TP-48500	1.50	1.80	B	5	12/10/21	AV60					1	1																														
TP-48500	1.80		D	6	12/10/21	AV60	1	1																																		
TP-48500	2.20	2.50	B	7	12/10/21	AV60					1	1																														
TP-48500	2.50		D	8	12/10/21	AV60	1	1																																		
TP-48596	**0.40**	**0.70**	**B**	**1**	12/10/21	av60																																		
TP-48596	0.70		D	2	12/10/21	av60																																				
TP-48596	1.70	2.00	B	3	12/10/21	av60					1	1												1																		
TP-48596	2.00		D	4	12/10/21	av60	1	1																																1		ALS: 220606-31
TP-48596	2.70	3.00	B	5	12/10/21	av60																																		
TP-48596	3.00		D	6	12/10/21	av60																																		
TP-48701	**0.40**	**0.70**	**B**	**1**	12/10/21	AV60					1	1																														
TP-48701	0.70		D	2	12/10/21	AV60	1	1																																		
TP-48701	1.00	1.30	B	3	12/10/21	AV60					1	1																														
TP-48701	1.30		D	4	12/10/21	AV60	1	1																																		
TP-48701	1.70	2.00	B	5	12/10/21	AV60																																		
TP-48701	2.00		D	6	12/10/21	AV60																																		
TP-48800	**0.20**	**0.40**	**B**	**1**	12/10/21	AV60																																		
TP-48800	0.30		D	2	12/10/21	AV60																																		
TP-48800	0.70	1.00	B	3	12/10/21	AV60					1	1																														
TP-48800	1.00		D	4	12/10/21	AV60	1	1																																1		ALS: 220606-31
TP-48800	2.10	2.40	B	5	12/10/21	AV60					1	1																														
TP-48800	2.40		D	6	12/10/21	AV60	1	1																																		
TP-48900	**0.30**	**0.60**	**B**	**1**	13/10/21	AV52																																		
TP-48900	0.60		D	2	13/10/21	AV52																																		
TP-48900	1.00	1.30	B	3	13/10/21	AV52																																		
TP-48900	1.30		D	4	13/10/21	AV52																																		
TP-48900	1.70	2.00	B	5	13/10/21	AV52					1	1																														
TP-48900	2.00		D	6	13/10/21	AV52	1	1																																1		ALS: 220208-68
TP-48900	3.20	3.50	B	7	13/10/21	AV52					1	1																														
TP-48900	3.50		D	8	13/10/21	AV52	1	1					1	1																												ALS: 220208-68
TP-49000	**0.20**	**0.40**	**B**	**1**	13/10/21	AV52																																		
TP-49000	0.30		D	2	13/10/21	AV52																																		
TP-49000	1.20	1.50	B	3	13/10/21	AV52							1	1																												ALS: 220208-68
TP-49000	1.50		D	4	13/10/21	AV52	1	1																																		
TP-49000	2.00	2.30	B	5	13/10/21	AV52																																		
TP-49000	2.30		D	6	13/10/21	AV52																																		
TP-49102	**0.20**	**0.50**	**B**	**1**	14/10/21	AV52																																		
TP-49102	0.40		D	2	14/10/21	AV52																																		
TP-49102	0.60	0.90	B	3	14/10/21	AV52							1	1																												ALS 220223-35
TP-49102	0.90		D	4	14/10/21	AV52	1	1																																		
TP-49102	1.80	2.10	B	5	14/10/21	AV52																		1																	

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-49102	2.10		D	6	14/10/21	AV52	1	1																																		
TP-49215	**0.30**	**0.60**	**B**	**1**	14/10/21	AV52																																			
TP-49215	0.60		D	2	14/10/21	AV52																																			
TP-49215	1.20	1.50	B	3	14/10/21	AV52							1	1																											ALS 220223-35
TP-49215	1.50		D	4	14/10/21	AV52	1	1																															1		ALS 220223-35
TP-49303	**0.50**	**0.80**	**B**	**1**	14/10/21	AV52																																			
TP-49303	0.80		D	2	14/10/21	AV52																																			
TP-49408	**0.60**	**0.90**	**B**	**1**	14/10/21	AV52							1	1																											ALS 220223-35
TP-49408	0.90		D	2	14/10/21	AV52	1	1																															1		ALS 220223-35
TP-50309	**0.30**	**0.60**	**B**	**1**	26/10/21	AV53																																			
TP-50309	0.60		D	2	26/10/21	AV53	1	1																																	
TP-50309	1.00	1.30	B	3	26/10/21	AV53																																			
TP-50309	1.30		D	4	26/10/21	AV53																																			
TP-50309	2.70	3.00	B	5	26/10/21	AV53	1				1																														
TP-50309	3.00		D	6	26/10/21	AV53	*	1																																	
TP-50409	**0.30**	**0.60**	**B**	**1**	26/10/21	AV53																																			
TP-50409	0.60		D	2	26/10/21	AV53																																			
TP-50409	1.50	1.80	B	3	26/10/21	AV53	1				1																														
TP-50409	1.80		D	4	26/10/21	AV53	*	1																																	
TP-50508	**0.40**	**0.70**	**B**	**1**	26/10/21	AV53																																			
TP-50508	0.70		D	2	26/10/21	AV53							1	1																											ALS 220822-32
TP-50508	1.40	1.70	B	3	26/10/21	AV53	1				1																														
TP-50508	1.70		D	4	26/10/21	AV53	*	1							1																											ALS 220822-32
TP-50608	**0.40**	**0.70**	**B**	**1**	22/10/21	AV58					1																														
TP-50608	0.70		D	2	22/10/21	AV58	1	1																																	
TP-50707	**0.20**	**0.50**	**B**	**1**	22/10/21	AV58																																			
TP-50707	0.50		D	2	22/10/21	AV58	1	1																																	
TP-50707	1.10	1.40	B	3	22/10/21	AV58					1																														
TP-50707	1.40		D	4	22/10/21	AV58	1	1																																	
TP-50707	2.30	2.60	B	5	22/10/21	AV58					1																														
TP-50707	2.60		D	6	22/10/21	AV58	1	1							1																											als 220624-151
TP-50809	**0.20**	**0.40**	**B**	**1**	26/10/21	AV53																																			
TP-50809	0.30		D	2	26/10/21	AV53																																			
TP-50809	0.50	0.80	B	3	26/10/21	AV53	1				1																														
TP-50809	0.80		D	4	26/10/21	AV53	*	1																																	
TP-50809	1.50	1.80	B	5	26/10/21	AV53																																			
TP-50809	1.80		D	6	26/10/21	AV53																																			
TP-50921	**0.40**	**0.70**	**B**	**1**	20/10/21	AV58																																			
TP-50921	0.70		D	2	20/10/21	AV58																																			
TP-50921	1.70	2.00	B	3	20/10/21	AV58					1																														
TP-50921	2.00		D	4	20/10/21	AV58	1	1																																	
TP-50959	**0.30**	**0.60**	**B**	**1**	20/10/21	AV58																																			

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		BRE Suite B	Other Rock Tests	comment
TP-50959	0.60		D	2	20/10/21	AV58																																			
TP-50959	1.30	1.60	B	3	20/10/21	AV58					1																														
TP-50959	1.60		D	4	20/10/21	AV58	1	1																																	
TP-50959	2.30	2.60	B	5	20/10/21	AV58					1													1																	
TP-50959	2.60		D	6	20/10/21	AV58	1	1							1																										als 220624-151
TP-50964	**0.30**	**0.60**	**B**	**1**	20/10/21	AV58																																		
TP-50964	0.60		D	2	20/10/21	AV58																																		
TP-50964	1.50	1.80	B	3	20/10/21	AV58					1																														
TP-50964	1.80		D	4	20/10/21	AV58	1	1																																	
TP-50987	**0.30**	**0.60**	**B**	**1**	21/12/21	AV83					1																														
TP-50987	0.60		D	2	21/12/21	AV83	1	1																																	
TP-50987	0.80	1.10	B	3	21/12/21	AV83					1																														
TP-50987	1.10		D	4	21/12/21	AV83	1	1																																	
TP-50987	2.00	2.30	B	5	21/12/21	AV83					1													1																	
TP-50987	2.30		D	6	21/12/21	AV83	1	1							*																									1	als 221115-85
TP-50998	**0.50**	**0.80**	**B**	**1**	20/10/21	AV58					1																														
TP-50998	0.80		D	2	20/10/21	AV58	1	1																																	
TP-50998	1.50	1.80	B	3	20/10/21	AV58																																		
TP-50998	1.80		D	4	20/10/21	AV58																																		
TP-50998	3.00	3.30	B	5	20/10/21	AV58					1																														
TP-50998	3.30		D	6	20/10/21	AV58	1	1																																	
TP-51019	**0.30**	**0.50**	**B**	**1**	21/12/21	AV83					1																														
TP-51019	0.40		D	2	21/12/21	AV83	1	1																																	
TP-51019	0.60	0.90	B	3	21/12/21	AV83					1																														
TP-51019	0.90		D	4	21/12/21	AV83	1	1																																	
TP-51019	1.70	2.00	B	5	21/12/21	AV83					1																														
TP-51019	2.00		D	6	21/12/21	AV83	1	1							*																									1	als 221115-85
TP-51052	**0.20**	**0.50**	**B**	**1**	21/10/21	AV58																																		
TP-51052	0.30		D	2	21/10/21	AV58																																		
TP-51052	1.00	1.30	B	3	21/10/21	AV58					1																														
TP-51052	1.30		D	4	21/10/21	AV58	1	1							1																										als 220624-151
TP-51052	2.50	2.80	B	5	21/10/21	AV58																		1																
TP-51052	2.80		D	6	21/10/21	AV58																																		
TP-51059	**0.30**	**0.60**	**B**	**1**	21/12/21	AV83					1																														
TP-51059	0.30		D	2	21/12/21	AV83	1	1																																	
TP-51059	1.30	1.60	B	3	21/12/21	AV83					1																														
TP-51059	1.60		D	4	21/12/21	AV83	1	1																																	
TP-51059	2.30	2.60	B	5	21/12/21	AV83					1															1															
TP-51059	2.60		D	6	21/12/21	AV83	1	1																																	
TP-51059	3.20	3.50	B	7	21/12/21	AV83																																		
TP-51059	3.50		D	8	21/12/21	AV83																																		
TP-51061	**0.30**	**0.60**	**B**	**1**	20/10/21	AV58																																		

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Rock	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		Point Load	BRE Suite B	Other Rock Tests	comment
TP-51061	0.60		D	2	20/10/21	AV58																																					
TP-51061	1.50	1.80	B	3	20/10/21	AV58					1		1	1																														als 220624-151
TP-51061	1.80		D	4	20/10/21	AV58	1	1							1																													als 220624-151
TP-51061	2.70	3.00	B	5	20/10/21	AV58																																					
TP-51061	3.00		D	6	20/10/21	AV58	1	1																																			
TP-51107	**0.30**	**0.60**	**B**	**1**	22/12/21	AV83					1																																
TP-51107	0.60		D	2	22/12/21	AV83	1	1																																			
TP-51107	1.30	1.60	B	3	22/12/21	AV83					1																																
TP-51107	1.60		D	4	22/12/21	AV83	1	1																																			
TP-51116	**0.30**	**0.60**	**B**	**1**	21/10/21	AV58					1																																
TP-51116	0.60		D	2	21/10/21	AV58	1	1							1																													als 220624-151
TP-51116	1.00	1.30	B	3	21/10/21	AV58																																					
TP-51116	1.30		D	4	21/10/21	AV58																																					
TP-51116	1.80	2.10	B	5	21/10/21	AV58																																					
TP-51116	2.10		D	6	21/10/21	AV58																																					
TP-51116	2.40	2.70	B	7	21/10/21	AV58					1																																
TP-51116	2.70		D	8	21/10/21	AV58	1	1																																			
TP-51138	**0.40**	**0.70**	**B**	**1**	22/12/21	AV83					1																																
TP-51138	0.70		D	2	22/12/21	AV83	1	1																																			
TP-51138	2.00	2.30	B	3	22/12/21	AV83					1													1																			
TP-51138	2.30		D	4	22/12/21	AV83	1	1																																			
TP-51201	**0.40**	**0.70**	**B**	**1**	21/10/21	AV58																																					
TP-51201	0.70		D	2	21/10/21	AV58																																					
TP-51201	1.00	1.30	B	3	21/10/21	AV58					1																																
TP-51201	1.30		D	4	21/10/21	AV58	1	1																																			
TP-51201	2.40	2.70	B	5	21/10/21	AV58					1																																
TP-51201	2.70		D	6	21/10/21	AV58	1	1																																			
TP-51305	**0.30**	**0.60**	**B**	**1**	21/10/21	AV58																																					
TP-51305	0.40		D	2	21/10/21	AV58																																					
TP-51305	1.20	1.50	B	3	21/10/21	AV58					1																																
TP-51305	1.50		D	4	21/10/21	AV58	1	1							1																													als 220624-151
TP-51305	2.30	2.60	B	5	21/10/21	AV58					1																																
TP-51305	2.60		D	6	21/10/21	AV58	1	1																																			
TP-51385	**0.70**	**1.00**	**B**	**1**	21/10/21	AV58					1																																
TP-51385	1.00		D	2	21/10/21	AV58	1	1																																			
TP-51385	2.00	2.30	B	3	21/10/21	AV58																																					
TP-51385	2.30		D	4	21/10/21	AV58	1	1							1																													als 220624-151
TP-51603	**0.30**	**0.60**	**B**	**1**	22/10/21	AV58																																					
TP-51603	0.40		D	2	22/10/21	AV58	1	1																																			
TP-51603	0.70	1.00	B	3	22/10/21	AV58																																					
TP-51603	1.00		D	4	22/10/21	AV58																																					
TP-51603	1.80	2.10	B	5	22/10/21	AV58					1																																

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-51603	2.10		D	6	22/10/21	AV58	1	1																																			
TP-51705	**0.30**	**0.60**	**B**	**1**	22/10/21	AV58					1																																
TP-51705	0.60		D	2	22/10/21	AV58	1	1																																			
TP-51705	1.50	1.80	B	3	22/10/21	AV58																																				
TP-51705	1.80		D	4	22/10/21	AV58																																				
TP-51705	3.00	3.30	B	5	22/10/21	AV58					1													1																			
TP-51705	3.30		D	6	22/10/21	AV58	1	1							1																												ALS 220624-151
TP-51801	**0.20**	**0.50**	**B**	**1**	27/10/21	AV53																																				
TP-51801	0.50		D	2	27/10/21	AV53																																				
TP-51801	1.00	1.30	B	3	27/10/21	AV53	1				1																															
TP-51801	1.30		D	4	27/10/21	AV53	1	1							1																												ALS 220822-32
TP-51801	2.40	2.70	B	5	27/10/21	AV53	1				1																															
TP-51801	2.70		D	6	27/10/21	AV53	1	1																																		
TP-51906	**0.20**	**0.50**	**B**	**1**	27/10/21	AV53																																				
TP-51906	0.50		D	2	27/10/21	AV53																																				
TP-51906	1.20	1.50	B	3	27/10/21	AV53	1				1																															
TP-51906	1.50		D	4	27/10/21	AV53	1	1																																		
TP-51906	2.20	2.50	B	5	27/10/21	AV53	1				1																															
TP-51906	2.50		D	6	27/10/21	AV53	1	1																																		
TP-52050	**0.30**	**0.60**	**B**	**1**	27/10/21	AV53																																			
TP-52050	0.60		D	2	27/10/21	AV53																																				
TP-52050	0.80	1.10	B	3	27/10/21	AV53	1				1																															
TP-52050	1.00		D	4	27/10/21	AV53	1	1																																		
TP-52050	1.30	1.60	B	5	27/10/21	AV53	1				1																															
TP-52050	1.60		D	6	27/10/21	AV53	1	1																																		
TP-52108	**0.30**	**0.60**	**B**	**1**	27/10/21	AV53					1																															
TP-52108	0.60		D	2	27/10/21	AV53							1	1																												ALS 220822-32
TP-52108	1.30	1.60	B	3	27/10/21	AV53	1				1																															
TP-52108	1.60		D	4	27/10/21	AV53	*	1							1																												ALS 220822-32
TP-52207	**0.30**	**0.60**	**B**	**1**	28/10/21	AV53	1				1	1																														
TP-52207	0.60		D	2	28/10/21	AV53	1	1																																		
TP-52207	1.30	1.60	B	3	28/10/21	AV53	1				1	1																														
TP-52207	1.60		D	4	28/10/21	AV53	1	1																																	1		ALS 220822-32
TP-52207	3.30	3.60	B	5	28/10/21	AV53																																				
TP-52207	3.60		D	6	28/10/21	AV53																																				
TP-52308	**0.30**	**0.60**	**B**	**1**	28/10/21	AV53	1				1	1																														
TP-52308	0.60		D	2	28/10/21	AV53	*	1																																	1		ALS 220822-32
TP-52308	1.30	1.60	B	3	28/10/21	AV53																																				
TP-52308	1.60		D	4	28/10/21	AV53																																				
TP-52308	2.30	2.60	B	5	28/10/21	AV53	1				1	1																														
TP-52308	2.60		D	6	28/10/21	AV53	1	1																																		

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-52400	**0.30**	**0.60**	**B**	**1**	28/10/21	AV53																																				
TP-52400	0.60		D	2	28/10/21	AV53																																				
TP-52400	1.30	1.60	B	3	28/10/21	AV53					1	1												1																		
TP-52400	1.60		D	4	28/10/21	AV53	1	1																																		
TP-52507	**0.50**	**0.80**	**B**	**1**	28/10/21	AV53					1	1																														
TP-52507	0.80		D	2	28/10/21	AV53	1	1																																		
TP-52507	1.80	2.10	B	3	28/10/21	AV53																																				
TP-52507	2.10		D	4	28/10/21	AV53																																				
TP-52507	3.30	3.60	B	5	28/10/21	AV53					1	1																														
TP-52507	3.60		D	6	28/10/21	AV53	1	1																																1	ALS 220822-32	
TP-52609	**0.30**	**0.60**	**B**	**1**	28/10/21	AV53																																				
TP-52609	0.40		D	2	28/10/21	AV53																																				
TP-52609	0.90	1.20	B	3	28/10/21	AV53					1	1																														
TP-52609	1.10		D	4	28/10/21	AV53	1	1																																		
TP-52609	2.80	3.10	B	5	28/10/21	AV53																																				
TP-52609	3.10		D	6	28/10/21	AV53	1	1																																		
TP-52709	**0.30**	**0.60**	**B**	**1**	29/10/21	AV53																																				
TP-52709	0.60		D	2	29/10/21	AV53							1	1	1																										ALS 220822-32
TP-52709	0.80	1.10	B	3	29/10/21	AV53																																				
TP-52709	1.00		D	4	29/10/21	AV53																																				
TP-52709	1.30	1.60	B	5	29/10/21	AV53					1	1																														
TP-52709	1.60		D	6	29/10/21	AV53	1	1																																1	ALS 220822-32	
TP-52709	2.20	2.50	B	7	29/10/21	AV53					1	1																														
TP-52709	2.50		D	8	29/10/21	AV53	1	1																																		
TP-52910	**0.50**	**0.80**	**B**	**1**	01/11/21	AV59					1	1																														
TP-52910	0.80		D	2	01/11/21	AV59	1	1																																		
TP-52910	1.90	2.20	B	3	01/11/21	AV59					1	1												1																		
TP-52910	2.20		D	4	01/11/21	AV59	1	1																																		
TP-52910	3.10	3.40	B	5	01/11/21	AV59																																				
TP-52910	3.40		D	6	01/11/21	AV59																																				
TP-53110	**0.20**	**0.50**	**B**	**1**	29/10/21	AV53																																				
TP-53110	0.50		D	2	29/10/21	AV53																																				
TP-53110	0.80	1.10	B	3	29/10/21	AV53					1	1																														
TP-53110	1.10		D	4	29/10/21	AV53	1	1																																		
TP-53110	2.30	2.60	B	5	29/10/21	AV53																																				
TP-53110	2.60		D	6	29/10/21	AV53	1	1																																1	ALS 220822-32	
TP-53211	**0.40**	**0.70**	**B**	**1**	29/10/21	AV53																																				
TP-53211	0.70		D	2	29/10/21	AV53	1	1																																		
TP-53211	1.80	2.10	B	3	29/10/21	AV53					1	1																														
TP-53211	2.10		D	4	29/10/21	AV53	1	1																																		
TP-53310	**0.30**	**0.60**	**B**	**1**	29/10/21	AV53																																				

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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
Start	01/10/21				
Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		Point Load	BRE Suite B	Other Rock Tests	comment
TP-53310	0.60		D	2	29/10/21	AV53																																						
TP-53310	1.50	1.80	B	3	29/10/21	AV53					1	1													1																				
TP-53310	1.80		D	4	29/10/21	AV53	1	1																																		1		ALS 220822-32
TP-53371	**0.30**	**0.60**	**B**	**1**	01/11/21	AV59																																						
TP-53371	0.50		D	2	01/11/21	AV59	1	1																																				
TP-53371	0.90	1.20	B	3	01/11/21	AV59					1	1																																
TP-53371	1.20		D	4	01/11/21	AV59	1	1																																				
TP-53371	1.80	2.10	B	5	01/11/21	AV59					1	1																																
TP-53371	2.10		D	6	01/11/21	AV59	1	1																																				
TP-53510	**0.30**	**0.60**	**B**	**1**	01/11/21	AV59					1	1																																
TP-53510	0.60		D	2	01/11/21	AV59	1	1																																				
TP-53510	1.40	1.70	B	3	01/11/21	AV59					1	1																																
TP-53510	1.70		D	4	01/11/21	AV59	1	1																																		1		ALS 220822-32
TP-53510	2.50	2.80	B	5	01/11/21	AV59																																						
TP-53510	2.80		D	6	01/11/21	AV59	1	1																																				
TP-53609	**0.30**	**0.60**	**B**	**1**	01/11/21	AV59																																						
TP-53609	0.60		D	2	01/11/21	AV59																																						
TP-53609	1.10	1.40	B	3	01/11/21	AV59					1	1																																
TP-53609	1.40		D	4	01/11/21	AV59	1	1																																				
TP-53609	2.30	2.60	B	5	01/11/21	AV59																																						
TP-53609	2.60		D	6	01/11/21	AV59																																						
TP-53692	**0.30**	**0.60**	**B**	**1**	02/11/21	AV59																																						
TP-53692	0.60		D	2	02/11/21	AV59																																						
TP-53692	1.70	2.00	B	3	02/11/21	AV59					1	1													1																				
TP-53692	2.00		D	4	02/11/21	AV59	1	1																																			1		ALS 220901-112
TP-53810	**0.40**	**0.70**	**B**	**1**	02/11/21	AV59					1	1																																
TP-53810	0.70		D	2	02/11/21	AV59	1	1																																				
TP-53810	1.80	2.10	B	3	02/11/21	AV59					1	1																																
TP-53810	2.10		D	4	02/11/21	AV59	1	1																																			1		ALS 220901-112
TP-54012	**0.50**	**0.80**	**B**	**1**	02/11/21	AV59																																						
TP-54012	0.80		D	2	02/11/21	AV59																																					1		ALS 220901-112
TP-54012	1.40	1.70	B	3	02/11/21	AV59					1	0*																																
TP-54012	1.70		D	4	02/11/21	AV59	1	1																																				
TP-54109	**0.30**	**0.60**	**B**	**1**	02/11/21	AV59					1	1																																
TP-54109	0.60		D	2	02/11/21	AV59	1	1																																			1		ALS 220901-112
TP-54109	1.20	1.50	B	3	02/11/21	AV59																																						
TP-54109	1.50		D	4	02/11/21	AV59																																						
TP-54309	**0.40**	**0.70**	**B**	**1**	02/11/21	AV59																																						
TP-54309	0.70		D	2	02/11/21	AV59	1	1																																				
TP-54309	2.10	2.40	B	3	02/11/21	AV59					1	1													1																			1		ALS 220901-112
TP-54309	2.40		D	4	02/11/21	AV59	1	1																																				
TP-54411	**0.30**	**0.60**	**B**	**1**	03/11/21	AV59					1	1																																

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		Point Load	BRE Suite B	Other Rock Tests	comment
TP-54411	0.60		D	2	03/11/21	AV59	1	1																																			
TP-54411	1.60	1.90	B	3	03/11/21	AV59					1	1																																
TP-54411	1.90		D	4	03/11/21	AV59	1	1																																		1		ALS 220901-112
TP-54511	**0.30**	**0.60**	**B**	**1**	03/11/21	AV59																																					
TP-54511	0.60		D	2	03/11/21	AV59																																					
TP-54511	1.40	1.70	B	3	03/11/21	AV59					1	1																															
TP-54511	1.70		D	4	03/11/21	AV59	1	1																																		1		ALS 220901-112
TP-54611	**0.30**	**0.50**	**B**	**1**	03/11/21	AV59																																					
TP-54611	0.40		D	2	03/11/21	AV59																																					
TP-54611	0.70	1.00	B	3	03/11/21	AV59					1	1																															
TP-54611	1.00		D	4	03/11/21	AV59	1	1																																		1		ALS 220901-112
TP-54611	1.90	2.20	B	5	03/11/21	AV59					1	1												1																			
TP-54611	2.20		D	6	03/11/21	AV59	1	1																																			
TP-54710	**0.50**	**0.80**	**B**	**1**	10/11/21	AV55					1	1																															
TP-54710	0.60		D	2	10/11/21	AV55	1	1																																			
TP-54809	**0.30**	**0.60**	**B**	**1**	10/11/21	AV55					1	1																															
TP-54809	0.60		D	2	10/11/21	AV55	1	1																																			
TP-54809	1.30	1.60	B	3	10/11/21	AV55																																					
TP-54809	1.60		D	4	10/11/21	AV55																																				1		ALS 221207-77
TP-54922	**0.30**	**0.60**	**B**	**1**	10/11/21	AV55																																					
TP-54922	0.60		D	2	10/11/21	AV55																																					
TP-54922	1.20	1.50	B	3	10/11/21	AV55					1	1																															
TP-54922	1.50		D	4	10/11/21	AV55	1	1																																		1		ALS 221207-77
TP-55008	**0.50**	**0.80**	**B**	**1**	05/11/21	AV59																																					
TP-55008	0.80		D	2	05/11/21	AV59																																				1		ALS 220901-112
TP-55008	1.70	2.00	B	3	05/11/21	AV59					1	1																															
TP-55008	2.00		D	4	05/11/21	AV59	1	0*																																			
TP-55109	**0.20**	**0.40**	**B**	**1**	05/11/21	AV59																																					
TP-55109	0.30		D	2	05/11/21	AV59																																					
TP-55109	0.50	0.80	B	3	05/11/21	AV59					1	1																															
TP-55109	0.80		D	4	05/11/21	AV59	1	1																																			
TP-55109	1.30	1.60	B	5	05/11/21	AV59					1	1												1																			
TP-55109	1.60		D	6	05/11/21	AV59	1	1																																		1		ALS 220901-112
TP-55207	**0.30**	**0.60**	**B**	**1**	04/11/21	AV59					1	1																															
TP-55207	0.60		D	2	04/11/21	AV59	1	1																																			
TP-55207	1.20	1.50	B	3	04/11/21	AV59																																					
TP-55207	1.50		D	4	04/11/21	AV59																																					
TP-55207	2.30	2.60	B	5	04/11/21	AV59					1	1																															
TP-55207	2.60		D	6	04/11/21	AV59	1	1																																			
TP-55310	**0.50**	**0.80**	**B**	**1**	04/11/21	AV59					1	1																															
TP-55310	0.80		D	2	04/11/21	AV59	1	1																																			
TP-55310	1.90	2.20	B	3	04/11/21	AV59					1	1																															

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-55310	2.20		D	4	04/11/21	AV59	1	1																																1	ALS 220901-112
TP-55409	**0.40**	**0.70**	**B**	**1**	04/11/21	AV59					1	1																													
TP-55409	0.70		D	2	04/11/21	AV59	1	1																																	
TP-55409	1.70	2.00	B	3	04/11/21	AV59					1	1																													
TP-55409	2.00		D	4	04/11/21	AV59	1	1																																	
TP-55510	**0.50**	**0.80**	**B**	**1**	04/11/21	AV59					1	1																													
TP-55510	0.80		D	2	04/11/21	AV59	1	1																																	
TP-55612	**0.40**	**0.70**	**B**	**1**	04/11/21	AV59																																			
TP-55612	0.70		D	2	04/11/21	AV59																																			
TP-55612	1.10	1.40	B	3	04/11/21	AV59					1	1																													
TP-55612	1.40		D	4	04/11/21	AV59	1	1																																	
TP-55711	**0.30**	**0.60**	**B**	**1**	04/11/21	AV59					1	1																													
TP-55711	0.60		D	2	04/11/21	AV59	1	1																																	
TP-55711	1.40	1.70	B	3	04/11/21	AV59					1	1												1																	
TP-55711	1.70		D	4	04/11/21	AV59	1	1																																	
TP-55806	**0.10**	**0.40**	**B**	**1**	03/11/21	AV59																																			
TP-55806	0.30		D	2	03/11/21	AV59							1	1																											ALS 2111228-25
TP-55806	0.70	1.00	B	3	03/11/21	AV59					1	1																													
TP-55806	1.00		D	4	03/11/21	AV59	1	1																																	
TP-55806	1.40	1.70	B	5	03/11/21	AV59					1	1																													
TP-55806	1.70		D	6	03/11/21	AV59	1	1																																1	ALS 220901-112
TP-55897	**0.30**	**0.60**	**B**	**1**	03/11/21	AV59																																			
TP-55897	0.60		D	2	03/11/21	AV59																																			
TP-55897	1.20	1.50	B	3	03/11/21	AV59					1	1																													
TP-55897	1.50		D	4	03/11/21	AV59	1	1																																	
TP-55897	2.10	2.40	B	5	03/11/21	AV59					1	1																													
TP-55897	2.40		D	6	03/11/21	AV59	1	1																																1	chem sent 30.08.22
TP-56114	**0.30**	**0.60**	**B**	**1**	08/03/22	**AW40**					1																														
TP-56114	1.00	1.30	B	2	08/03/22	**AW40**					1																														
TP-56114	1.30		D	3	08/03/22	**AW40**																																			
TP-56220	**0.10**	**0.40**	**B**	**1**	08/03/22	**AW40**																																			
TP-56220	0.40		D	2	08/03/22	**AW40**	1	1																																	
TP-56308	**0.20**	**0.50**	**B**	**1**	08/11/21	AV55																																			
TP-56308	0.50		D	2	08/11/21	AV55	1	1																																	
TP-56308	0.90	1.20	B	3	08/11/21	AV55					1	1																													
TP-56308	1.20		D	4	08/11/21	AV55	1	1																																	
TP-56408	**0.30**	**0.60**	**B**	**1**	05/11/21	AV55					1	1																													
TP-56408	0.60		D	2	05/11/21	AV55	1	1																																	
TP-56408	1.30	1.60	B	3	05/11/21	AV55																																			
TP-56408	1.60		D	4	05/11/21	AV55																																			
TP-56408	2.00	2.30	B	5	05/11/21	AV55					1	1																													
TP-56408	2.30		D	6	05/11/21	AV55	1	1																																	

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-56485	**0.30**	**0.60**	**B**	**1**	05/11/21	AV55					1	1																														
TP-56485	0.60		D	2	05/11/21	AV55	1	1																																		
TP-56485	1.30	1.60	B	3	05/11/21	AV55					1	1																														
TP-56485	1.60		D	4	05/11/21	AV55	1	1																																1	ALS 221207-77
TP-56485	2.30	2.60	B	5	05/11/21	AV55																																			
TP-56485	2.60		D	6	05/11/21	AV55																																			
TP-56627	**0.30**	**0.60**	**B**	**1**	08/11/21	AV55																																		
TP-56627	0.60		D	2	08/11/21	AV55																																			
TP-56627	0.90	1.20	B	3	08/11/21	AV55					1	1																														
TP-56627	1.20		D	4	08/11/21	AV55	1	1																																1	ALS 221207-77
TP-56627	2.30	2.60	B	5	08/11/21	AV55					1	1																														
TP-56627	2.60		D	6	08/11/21	AV55	1	1																																		
TP-56709	**0.30**	**0.60**	**B**	**1**	08/11/21	AV55					1	1																														
TP-56709	0.60		D	2	08/11/21	AV55	1	1																																		
TP-56709	1.20	1.50	B	3	08/11/21	AV55																																				
TP-56709	1.50		D	4	08/11/21	AV55																																		1	ALS 221207-77
TP-56709	2.40	2.70	B	5	08/11/21	AV55					1	1																														
TP-56709	2.70		D	6	08/11/21	AV55	1	1																																		
TP-57107	**0.30**	**0.60**	**B**	**1**	08/11/21	AV55					1	1																														
TP-57107	0.60		D	2	08/11/21	AV55	1	1																																		
TP-57107	1.50	1.80	B	3	08/11/21	AV55					1	1																														
TP-57107	1.80		D	4	08/11/21	AV55	1	1																																1	ALS 221207-77
TP-57203	**0.30**	**0.60**	**B**	**1**	08/11/21	AV55																																			
TP-57203	0.50		D	2	08/11/21	AV55																																			
TP-57203	0.90	1.20	B	3	08/11/21	AV55					1	1																														
TP-57203	1.20		D	4	08/11/21	AV55	1	1																																		
TP-57203	3.20	3.50	B	5	08/11/21	AV55					1	*																														*hyd missed
TP-57203	3.50		D	6	08/11/21	AV55	1	1																																1	ALS 221207-77
TP-57307	**0.50**	**0.80**	**B**	**1**	09/11/21	AV55																																			
TP-57307	0.80		D	2	09/11/21	AV55																																			
TP-57307	1.80	2.10	B	3	09/11/21	AV55					1	1																														
TP-57307	2.10		D	4	09/11/21	AV55	1	1																																1	ALS 221207-77
TP-57307	2.60	2.90	B	5	09/11/21	AV55																																			
TP-57307	2.90		D	6	09/11/21	AV55	1	1																																		
TP-57417	**0.40**	**0.70**	**B**	**1**	09/11/21	AV55					1	1																														
TP-57417	0.70		D	2	09/11/21	AV55																																			
TP-57417	1.50	1.80	B	3	09/11/21	AV55																																			
TP-57417	1.80		D	4	09/11/21	AV55	1	1																																		
TP-57510	**0.20**	**0.40**	**B**	**1**	09/11/21	AV55																																			
TP-57510	0.30		D	2	09/11/21	AV55																																			
TP-57510	0.40	0.70	B	3	09/11/21	AV55																																			
TP-57510	0.60		D	4	09/11/21	AV55																																			

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	comment
TP-57510	1.70	2.00	B	5	09/11/21	AV55					1	1																														
TP-57510	2.00		D	6	09/11/21	AV55	1	1																																		
TP-57602	**0.20**	**0.30**	**B**	**1**	09/11/21	AV55							1	1																												ALS 220926-33
TP-57602	0.20		D	2	09/11/21	AV55																																		
TP-57602	0.40	0.70	B	3	09/11/21	AV55																																		
TP-57602	0.50		D	4	09/11/21	AV55																																		
TP-57602	1.60	1.90	B	5	09/11/21	AV55					1	1																												
TP-57602	1.90		D	6	09/11/21	AV55	1	1																																1	ALS 221207-77
TP-57708	**0.00**	**0.20**	**B**	**1**	09/11/21	AV55							1	1																											ALS 220926-33
TP-57708	0.10		D	2	09/11/21	AV55					1	1																												
TP-57708	0.40	0.70	B	3	09/11/21	AV55	1	1																																
TP-57708	0.70		D	4	09/11/21	AV55					1	1																												
TP-57708	1.50	1.80	B	5	09/11/21	AV55	1	1					1	1																												ALS 220926-33
TP-57708	1.80		D	6	09/11/21	AV55																																		
TP-58419	**0.60**	**0.90**	**B**	**1**	10/11/21	AV55					1	1																												
TP-58505	**0.30**	**0.60**	**B**	**1**	10/11/21	AV55					1	1																												
TP-58505	0.60		D	2	10/11/21	AV55	1	1																																
TP-58505	1.50	1.80	B	3	10/11/21	AV55					1	1																												
TP-58505	1.80		D	4	10/11/21	AV55	1	1																																1	ALS 221207-77
TP-58505	2.30	2.60	B	5	10/11/21	AV55																																		
TP-58505	2.60		D	6	10/11/21	AV55																																		
TP-58606	**0.40**		**D**	**1**	11/11/21	AV55																																		
TP-58606	0.70	1.00	B	2	11/11/21	AV55					1	1																												
TP-58606	0.80		D	3	11/11/21	AV55	1	1																																
TP-58702	**0.30**	**0.50**	**B**	**1**	11/11/21	AV55					1	1																												
TP-58702	0.50		D	2	11/11/21	AV55	1	1																																
TP-58702	1.50	1.80	B	3	11/11/21	AV55					1	1																												
TP-58702	1.80		D	4	11/11/21	AV55	0*	0*																																1	enough
TP-58814	**0.40**	**0.70**	**B**	**1**	11/11/21	AV55					1	1																												
TP-58814	0.70		D	2	11/11/21	AV55	1	1																																
TP-58814	1.70	2.00	B	3	11/11/21	AV55					1	1																												
TP-58814	2.00		D	4	11/11/21	AV55	0*	0*																																1	enough
TP-58904	**0.40**	**0.70**	**B**	**1**	11/11/21	AV55					1	1																												
TP-58904	0.70		D	2	11/11/21	AV55	1	1																																
TP-59203	**0.20**	**0.30**	**B**	**1**	11/11/21	AV69																																		
TP-59203	0.25		D	2	11/11/21	AV69					1	1																												
TP-59203	0.60	0.90	B	3	11/11/21	AV69	1	1																																1	ALS 220616-107
TP-59203	0.90		D	4	11/11/21	AV69																																		
TP-59203	1.70	2.00	B	5	11/11/21	AV69					1	0*																												
TP-59305	**0.50**	**1.00**	**B**	**1**	12/11/21	AV69					1	1																												
TP-59305	0.50	1.00	D	2	12/11/21	AV69	1	1																																
TP-59305	1.70	2.20	B	3	12/11/21	AV69					1	1																												

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Test	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-59305	1.70	2.20	D	4	12/11/21	AV69	1	1																																			
TP-59305	3.50	4.00	B	5	12/11/21	AV69																																				
TP-59305	3.50	4.00	D	6	12/11/21	AV69																																				
TP-59407	**0.70**	**1.20**	**B**	**1**	12/11/21	AV69					1	1																														
TP-59407	0.70	1.20	D	2	12/11/21	AV69	1	1																																		
TP-59407	1.70	2.20	B	3	12/11/21	AV69					1	1																														
TP-59407	1.70	2.20	D	4	12/11/21	AV69																																			1	ALS 221207-77
TP-59407	3.50	4.00	B	5	12/11/21	AV69																																				
TP-59407	3.50	4.00	D	6	12/11/21	AV69	1	1																																		
TP-59504	**0.70**	**1.20**	**B**	**1**	12/11/21	AV70					1	1																														
TP-59504	0.70	1.20	D	2	12/11/21	AV70	1	1																																		
TP-59504	2.20	2.70	B	3	12/11/21	AV70					1	1																														
TP-59504	2.20	2.70	D	4	12/11/21	AV70	1	1																																		
TP-59504	3.50	4.00	B	5	12/11/21	AV70																																				
TP-59504	3.50	4.00	D	6	12/11/21	AV70																																				
TP-60003	**0.40**	**0.60**	**B**	**1**	15/11/21	AV70					1	1																														
TP-60003	0.50		D	2	15/11/21	AV70	1	1																																		
TP-60003	0.90	1.20	B	3	15/11/21	AV70					1	1																														
TP-60003	1.20		D	4	15/11/21	AV70																																			1	ALS 220822-32
TP-60003	2.00	2.30	B	5	15/11/21	AV70																																				
TP-60003	2.90	3.20	B	6	15/11/21	AV70					1	1																														
TP-60106	**0.30**	**0.60**	**B**	**1**	15/11/21	AV70					1	1																														
TP-60106	0.60		D	2	15/11/21	AV70																																				
TP-60106	0.90	1.20	B	3	15/11/21	AV70																																				
TP-60106	1.20		D	4	15/11/21	AV70																																			1	ALS 220822-32
TP-60106	1.90	2.20	B	5	15/11/21	AV70					1	1																														
TP-60106	2.20		D	6	15/11/21	AV70																																				
TP-60212	**0.10**	**0.40**	**B**	**1**	15/11/21	AV70	1				1	1																														
TP-60212	0.40		D	2	15/11/21	AV70	*	1																																		
TP-60212	0.80	1.10	B	3	15/11/21	AV70					1	1																														
TP-60212	1.10		D	4	15/11/21	AV70																																				
TP-60212	1.80	2.10	B	5	15/11/21	AV70	1				1	1																														
TP-60212	2.10		D	6	15/11/21	AV70	*	1																																		
TP-60269	**0.30**	**0.60**	**B**	**1**	15/11/21	AV70					1	1																														
TP-60269	0.60		D	2	15/11/21	AV70																																				
TP-60269	1.30	1.60	B	3	15/11/21	AV70	1				1	1																														
TP-60269	1.60		D	4	15/11/21	AV70	*	1																																	1	ALS 220822-32
TP-60312	**0.30**	**0.60**	**B**	**1**	15/11/21	AV70					1	1																														
TP-60312	0.50		D	2	15/11/21	AV70																																				
TP-60312	1.50	1.80	B	3	15/11/21	AV70					1	1																														
TP-60312	1.80		D	4	15/11/21	AV70	1	1																																		
TP-60709	**0.20**	**0.40**	**B**	**1**	16/11/21	AV70																																		

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Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-60709	0.30		D	2	16/11/21	AV70	1	1																																		
TP-60709	0.70	1.00	B	3	16/11/21	AV70					1	1																														
TP-60709	1.00		D	4	16/11/21	AV70	1	1																																		
TP-60805	**0.20**	**0.50**	**B**	**1**	16/11/21	AV70																																		
TP-60805	0.30		D	2	16/11/21	AV70																																				
TP-60805	0.60	0.90	B	3	16/11/21	AV70					1	1																														
TP-60805	0.90		D	4	16/11/21	AV70	1	1																																		
TP-60805	1.50	1.80	B	5	16/11/21	AV70					1	1																														
TP-60805	1.80		D	6	16/11/21	AV70	1	1																																1	ALS 220822-32	
TP-60905	**0.30**	**0.60**	**B**	**1**	16/11/21	AV70																																		
TP-60905	0.40		D	2	16/11/21	AV70																																				
TP-60905	0.80	0.90	B	3	16/11/21	AV70					1	1																														
TP-60905	1.10		D	4	16/11/21	AV70	1	1																																1	ALS 220822-32	
TP-60905	1.70	2.00	B	5	16/11/21	AV70																																		
TP-60905	2.00		D	6	16/11/21	AV70					1	1																														
TP-60905	2.30	2.50	B	7	16/11/21	AV70	1	1																																		
TP-60905	2.50		D	8	16/11/21	AV70																																				
TP-61007	**0.20**	**0.40**	**B**	**1**	16/11/21	AV70																																		
TP-61007	0.30		D	2	16/11/21	AV70																																				
TP-61007	0.60	0.90	B	3	16/11/21	AV70					1	1																														
TP-61007	0.90		D	4	16/11/21	AV70	1	1																																		
TP-61007	1.50	1.80	B	5	16/11/21	AV70					1	1																														
TP-61007	1.80		D	6	16/11/21	AV70	1	1																																		
TP-61133	**0.30**	**0.60**	**B**	**1**	16/11/21	AV70					1	1																														
TP-61133	0.50		D	2	16/11/21	AV70	1	1																																		
TP-61133	0.90	1.20	B	3	16/11/21	AV70																																				
TP-61133	1.20		D	4	16/11/21	AV70																																				
TP-61133	2.50	2.80	B	5	16/11/21	AV70					1	1																														
TP-61133	2.80		D	6	16/11/21	AV70	1	1																																		
TP-61201	**0.30**	**0.60**	**B**	**1**	16/11/21	AV70					1	1																														
TP-61201	0.60		D	2	16/11/21	AV70	1	1																																		
TP-61201	1.00	1.30	B	3	16/11/21	AV70																																				
TP-61201	1.30		D	4	16/11/21	AV70	1	1																																		
TP-61201	1.90	2.20	B	5	16/11/21	AV70					1	1																														
TP-61201	2.20		D	6	16/11/21	AV70	1	1																																		
TP-61521	**0.20**	**0.50**	**B**	**1**	17/11/21	AV70																																		
TP-61521	0.50		D	2	17/11/21	AV70																																				
TP-61521	1.20	1.50	B	3	17/11/21	AV70					1	1																														
TP-61521	1.50		D	4	17/11/21	AV70	1	1																																		
TP-61706	**0.20**	**0.40**	**B**	**1**	17/11/21	AV70																																		
TP-61706	0.30		D	2	17/11/21	AV70																																				
TP-61706	0.70	1.00	B	3	17/11/21	AV70					1	1																														

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-61706	1.00		D	4	17/11/21	AV70	1	1																																		
TP-61706	2.00	2.30	B	5	17/11/21	AV70					1	1																														
TP-61706	2.30		D	6	17/11/21	AV70	1	1																																		
TP-61904	**0.30**	**0.50**	**B**	**1**	17/11/21	AV70																																		
TP-61904	0.40		D	2	17/11/21	AV70	1	1																																		
TP-61904	0.50	0.80	B	3	17/11/21	AV70																																		
TP-61904	0.80		D	4	17/11/21	AV70	1	1																																		
TP-61904	1.70	2.00	B	5	17/11/21	AV70					1	1																														
TP-61904	2.00		D	6	17/11/21	AV70																																		1		ALS 220822-32
TP-62004	**0.30**	**0.50**	**B**	**1**	17/11/21	AV70					1	1																														
TP-62004	0.40		D	2	17/11/21	AV70																																				
TP-62004	1.40	1.70	B	3	17/11/21	AV70					1	1																														
TP-62004	1.70		D	4	17/11/21	AV70	1	1																																		
TP-62205	**0.30**	**0.60**	**B**	**1**	17/11/21	AV70					1	0*																														*not done
TP-62205	0.60		D	2	17/11/21	AV70																																				
TP-62205	1.10	1.40	B	3	17/11/21	AV70					1	1																														
TP-62205	1.40		D	4	17/11/21	AV70																																		1		ALS 220822-32
TP-62205	1.60	1.90	B	5	17/11/21	AV70	1	1																																		
TP-62205	1.90		D	6	17/11/21	AV70																																				
TP-62305	**0.40**	**0.70**	**B**	**1**	17/11/21	AV70					1	0*																														
TP-62305	0.70		D	2	17/11/21	AV70																																		1		ALS 220822-32
TP-62305	1.20	1.50	B	3	17/11/21	AV70					1	0*																														
TP-62305	1.50		D	4	17/11/21	AV70																																				
TP-62417	**0.30**	**0.60**	**B**	**1**	18/11/21	AV69					1	1																														
TP-62417	0.60		D	2	18/11/21	AV69	1	1																																		
TP-62417	1.30	1.60	B	3	18/11/21	AV69					1	0*																														
TP-62417	1.60		D	4	18/11/21	AV69																																				
TP-62506	**0.40**	**0.70**	**B**	**1**	18/11/21	AV70																																		
TP-62506	0.70		D	2	18/11/21	AV70	1	1																																		
TP-62506	1.20	1.50	B	3	18/11/21	AV70					1	1																														
TP-62506	1.50		D	4	18/11/21	AV70	1	1																																1		ALS 220822-32
TP-62506	1.80	1.90	B	5	18/11/21	AV70																																				
TP-62506	1.90		D	6	18/11/21	AV70																																				
TP-62608	**0.40**	**0.70**	**B**	**1**	18/11/21	AV70					1	1																														
TP-62608	0.70		D	2	18/11/21	AV70	1	1																																		
TP-62608	1.40	1.70	B	3	18/11/21	AV70																																				
TP-62608	1.70		D	4	18/11/21	AV70	1	1																																		
TP-62608	1.90	2.20	B	5	18/11/21	AV70					1	1																														
TP-62608	2.20		D	6	18/11/21	AV70	1	1																																		
TP-62706	**0.40**	**0.70**	**B**	**1**	18/11/21	AV70					1	1																														
TP-62706	0.70		D	2	18/11/21	AV70	1	1																																		

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-62706	1.50	1.80	B	3	18/11/21	AV70					1	1																														
TP-62706	1.80		D	4	18/11/21	AV70	1	1					1	1																												ALS 220822-32
TP-62706	2.20	2.50	B	5	18/11/21	AV70					1	1																														
TP-62706	2.50		D	6	18/11/21	AV70																																				
TP-62907	**0.30**	**0.60**	**B**	**1**	18/11/21	AV69																																		
TP-62907	0.60		D	2	18/11/21	AV69	1	1																																		
TP-62907	1.40	1.70	B	3	18/11/21	AV69					1	1																														
TP-62907	1.70		D	4	18/11/21	AV69	1	1					1	1																												ALS 220616-107
TP-62907	2.40	2.70	B	5	18/11/21	AV69					1	1																														
TP-62907	2.70		D	6	18/11/21	AV69																																			1	ALS 220616-107
TP-63205	**0.30**	**0.60**	**B**	**1**	19/11/21	AV69					1	1																														
TP-63205	0.60		D	2	19/11/21	AV69	1	1																																		
TP-63205	0.90	1.20	B	3	19/11/21	AV69					1	1																														
TP-63205	1.20		D	4	19/11/21	AV69																																				
TP-63205	2.00	2.30	B	5	19/11/21	AV69					1	1																														
TP-63205	2.30		D	6	19/11/21	AV69	1	1																																		
TP-63510	**0.20**	**0.50**	**B**	**1**	19/11/21	AV69																																		
TP-63510	0.30		D	2	19/11/21	AV69	1	1																																		
TP-63510	0.70	1.00	B	3	19/11/21	AV69					1	1																														
TP-63510	1.00		D	4	19/11/21	AV69	1	1																																		
TP-63510	1.70	2.00	B	5	19/11/21	AV69					1	1																														
TP-63510	2.00		D	6	19/11/21	AV69	1	1																																		
TP-63610	**0.20**	**0.50**	**B**	**1**	19/11/21	AV69					1	1																														
TP-63610	0.50		D	2	19/11/21	AV69	1	1																																		
TP-63610	1.20	1.50	B	3	19/11/21	AV69																																				
TP-63610	1.50		D	4	19/11/21	AV69	1	1																																	1	ALS 220616-107
TP-63610	2.10	2.40	B	5	19/11/21	AV69																																				
TP-63610	2.40		D	6	19/11/21	AV69	1	1																																		
TP-63711	**0.30**	**0.60**	**B**	**1**	22/11/21	AV69					1	1																														
TP-63711	0.60		D	2	22/11/21	AV69	1	1					1	1																												ALS 220616-107
TP-63711	1.00	1.30	B	3	22/11/21	AV69					1	0*																														
TP-63711	1.90	2.20	B	4	22/11/21	AV69					1	1																														
TP-63711	2.20		D	5	22/11/21	AV69	1	1																																		
TP-63812	**0.30**	**0.60**	**B**	**1**	22/11/21	AV69																																		
TP-63812	0.60		D	2	22/11/21	AV69	1	1					1	1																											1	ALS 220616-107
TP-63812	0.80	1.10	B	3	22/11/21	AV69																																				
TP-63812	1.10		D	4	22/11/21	AV69	1	1																																		
TP-63812	1.70	2.00	B	5	22/11/21	AV69					1	1																														
TP-63911	**0.20**	**0.50**	**B**	**1**	22/11/21	AV69					1	1																														
TP-63911	0.50	0.80	B	2	22/11/21	AV69																																				
TP-63911	1.20	1.50	B	3	22/11/21	AV69	1	1																																		

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-63911	1.50		D	4	22/11/21	AV69							1	1																											ALS 220616-107
TP-63911	2.30	2.60	B	5	22/11/21	AV69	1	1																															1		ALS 220616-107
TP-63911	2.60		D	6	22/11/21	AV69							1	1																											ALS 220616-107
TP-65707	**0.50**	**0.80**	**B**	**1**	22/11/21	AV69							1	1																											ALS 220616-107
TP-65707	0.80		D	2	22/11/21	AV69	1	1																																	
TP-65707	2.10	2.40	B	3	22/11/21	AV69																																			
TP-65707	2.40		D	4	22/11/21	AV69																																	1		ALS 220616-107
TP-65707	3.30	3.60	B	5	22/11/21	AV69							1	1																											ALS 220616-107
TP-65805	**0.30**	**0.60**	**B**	**1**	22/11/21	AV69																																			
TP-65805	0.60		D	2	22/11/21	AV69	1	1																																	
TP-65805	1.30	1.60	B	3	22/11/21	AV69							1	1																											ALS 220616-107
TP-65805	1.60		D	4	22/11/21	AV69	1	1																																	
TP-65805	2.20	2.50	B	5	22/11/21	AV69																																			
TP-65805	2.50		D	6	22/11/21	AV69	1	1																																	1		ALS 220616-107
TP-65906	**0.20**	**0.50**	**B**	**1**	23/11/21	AV69							1	1																											ALS 220616-107
TP-65906	0.50		D	2	23/11/21	AV69																																			
TP-65906	1.30	1.60	B	3	23/11/21	AV69							1	1																											ALS 220616-107
TP-65906	1.60		D	4	23/11/21	AV69																																			
TP-65906	2.50	2.80	B	5	23/11/21	AV69							1	1																											ALS 220616-107
TP-65906	2.80		D	6	23/11/21	AV69	1	1																																	
TP-66005	**0.30**	**0.60**	**B**	**1**	23/11/21	AV69																																			
TP-66005	0.50		D	2	23/11/21	AV69	1	1																																	
TP-66005	0.80	1.10	B	3	23/11/21	AV69							1	1																											ALS 220616-107
TP-66005	1.10		D	4	23/11/21	AV69	1	1																																1	ALS 220616-107
TP-66005	1.70	2.00	B	5	23/11/21	AV69							1	1																											ALS 220616-107
TP-66005	2.00		D	6	23/11/21	AV69	1	0*																																	*too coarse
TP-67410	**0.30**	**0.60**	**B**	**1**	29/11/21	AV67																																			
TP-67410	0.60		D	2	29/11/21	AV67	1	1																																	
TP-67410	1.50	1.80	B	3	29/11/21	AV67					1	1																													
TP-67410	1.80		D	4	29/11/21	AV67	1	1																																	
TP-67410	2.90	3.20	B	5	29/11/21	AV67					1	1																													
TP-67410	3.20		D	6	29/11/21	AV67	1	1																																1	ALS 221010-25
TP-67511	**0.30**	**0.40**	**B**	**1**	29/11/21	AV67																																			
TP-67511	0.40		D	2	29/11/21	AV67	1	1																																	
TP-67511	0.70	1.00	B	3	29/11/21	AV67					1	1																													
TP-67511	1.00		D	4	29/11/21	AV67	1	1																																	
TP-67511	2.10	2.40	B	5	29/11/21	AV67					1	1																													
TP-67511	2.40		D	6	29/11/21	AV67	1	1																																	
TP-67630	**0.40**	**0.70**	**B**	**1**	29/11/21	AV67					1	1																													
TP-67630	0.70		D	2	29/11/21	AV67	1	1																																1	ALS 221010-25

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-67630	1.80	2.10	B	3	29/11/21	AV67					1	1												1																				
TP-67630	2.10		D	4	29/11/21	AV67	1	1																																			
TP-67708	**0.40**	**0.70**	**B**	**1**	29/11/21	AV67					1	1																															
TP-67708	0.70		D	2	29/11/21	AV67	1	1																																			
TP-67708	1.80	2.10	B	3	29/11/21	AV67					1	1																															
TP-67708	2.10		D	4	29/11/21	AV67	1	1																																			
TP-67809	**0.50**	**0.80**	**B**	**1**	29/11/21	AV67					1	1																															
TP-67809	0.80		D	2	29/11/21	AV67	1	1																																			
TP-67809	1.90	2.20	B	3	29/11/21	AV67					1	1																															
TP-67809	2.20		D	4	29/11/21	AV67	1	1																																	1		ALS 221010-25
TP-67908	**0.20**	**0.40**	**B**	**1**	01/12/21	AV67																																			
TP-67908	0.30		D	2	01/12/21	AV67	1	1																																			
TP-67908	1.00	1.30	B	3	01/12/21	AV67					1																																
TP-67908	1.30		D	4	01/12/21	AV67	1	1																																			
TP-67908	2.30	2.60	B	5	01/12/21	AV67					1													1																				
TP-67908	2.60		D	6	01/12/21	AV67	1	1																																			
TP-67908	3.70	4.00	B	7	01/12/21	AV67					1																																
TP-67908	1.00		D	8	01/12/21	AV67	1	1																																			
TP-68007	**0.30**	**0.60**	**B**	**1**	02/12/21	AV67					1																																
TP-68007	0.60		D	2	02/12/21	AV67	1	1																																			
TP-68007	1.30	1.60	B	3	02/12/21	AV67					1																																
TP-68007	1.60		D	4	02/12/21	AV67	1	1																																			
TP-68007	2.00	2.30	B	5	02/12/21	AV67					1																																
TP-68007	2.30		D	6	02/12/21	AV67																																					
TP-68007	3.20	3.50	B	7	02/12/21	AV67					1																																
TP-68007	3.50		D	8	02/12/21	AV67	1	1																																			
TP-68007	4.00	4.30	B	9	02/12/21	AV67					1																																
TP-68007	4.30		D	10	02/12/21	AV67	1	1																																			
TP-68108	**0.30**	**0.60**	**B**	**1**	02/12/21	AV67					1																																
TP-68108	0.60		D	2	02/12/21	AV67	1	1																																			
TP-68108	1.00	1.30	B	3	02/12/21	AV67					1																																
TP-68108	1.30		D	4	02/12/21	AV67									1																												ALS 221010-25
TP-68108	1.90	2.20	B	5	02/12/21	AV67																									1											to NMTL 21.10.22
TP-68108	2.20		D	6	02/12/21	AV67																																				
TP-68210	**0.20**	**0.50**	**B**	**1**	02/12/21	AV67					1																																
TP-68210	0.50		D	2	02/12/21	AV67	1	1																																			
TP-68405	**0.30**	**0.50**	**B**	**1**	02/12/21	AV67					1																																
TP-68405	0.40		D	2	02/12/21	AV67	1	1																																			
TP-68405	1.00	1.30	B	3	02/12/21	AV67					1													1																				
TP-68405	1.30		D	4	02/12/21	AV67	1	1																																			
TP-68405	2.20	2.50	B	5	02/12/21	AV67					1																																
TP-68405	2.50		D	6	02/12/21	AV67									1																												ALS 221010-25

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-68505	**0.30**	**0.60**	**B**	**1**	02/12/21	AV67					1																													
TP-68505	0.50		D	2	02/12/21	AV67	1	1																																
TP-68505	0.80	1.10	B	3	02/12/21	AV67																																		
TP-68505	1.10		D	4	02/12/21	AV67									1																										ALS 221010-25
TP-68505	2.00	2.30	B	5	02/12/21	AV67					1															1														
TP-68505	2.30		D	6	02/12/21	AV67	1	1																																
TP-68607	**0.40**	**0.70**	**B**	**1**	02/12/21	AV67					1																													
TP-68607	0.70		D	2	02/12/21	AV67	1	1																																
TP-68607	1.90	2.20	B	3	02/12/21	AV67					1																													
TP-68607	2.20		D	4	02/12/21	AV67	1	1							1																										ALS 221010-25
TP-68705	**0.40**	**0.70**	**B**	**1**	03/12/21	AV67					1	1																												
TP-68705	0.70		D	2	03/12/21	AV67	1	1																																
TP-68705	1.30	1.60	B	3	03/12/21	AV67					1	1																												
TP-68705	2.20	2.50	B	4	03/12/21	AV67					1	1																												
TP-68705	2.50		D	5	03/12/21	AV67	1	1																															1	ALS 220926-33
TP-68806	**0.40**		**D**	**1**	03/12/21	AV67	1	1																																
TP-68806	0.50	0.80	B	2	03/12/21	AV67					1	1																												
TP-68806	1.10	1.40	B	3	03/12/21	AV67					1	1																												
TP-68806	1.40		D	4	03/12/21	AV67																																		
TP-68806	1.80	2.10	B	5	03/12/21	AV67																				1														
TP-68806	2.10		D	6	03/12/21	AV67	1	1																																
TP-68806	3.00	3.30	B	7	03/12/21	AV67					1	1																												
TP-68806	3.30		D	8	03/12/21	AV67	1	1																															1	ALS 220926-33
TP-68905	**0.40**	**0.70**	**B**	**1**	30/11/21	AV67					1	1																												
TP-68905	0.70		D	2	30/11/21	AV67	1	1																																
TP-68905	1.40	1.70	B	3	30/11/21	AV67					1	1																												
TP-68905	1.70		D	4	30/11/21	AV67	1	1																																
TP-68905	2.40	2.70	B	5	30/11/21	AV67					1	1																			1										Shear to NMTL 21.10.22
TP-69006	**0.30**	**0.60**	**B**	**1**	30/11/21	AV67																																		
TP-69006	0.60		D	2	30/11/21	AV67	1	1																																
TP-69006	1.00	1.30	B	3	30/11/21	AV67					1	1																												
TP-69006	1.30	2.80	D	4	30/11/21	AV67	1	1																																
TP-69006	2.50	2.70	B	5	30/11/21	AV67					1	0*																											1	ALS 221010-25
TP-69106	**0.30**	**0.60**	**B**	**1**	30/11/21	AV67					1	1																												
TP-69106	0.50		D	2	30/11/21	AV67	1	1																																
TP-69106	1.30	1.60	B	3	30/11/21	AV67					1	1																												
TP-69106	1.60		D	4	30/11/21	AV67	1	1																																
TP-69106	2.30	2.60	B	5	30/11/21	AV67					1	1																												
TP-69203	**0.20**	**0.40**	**B**	**1**	30/11/21	AV67																																		
TP-69203	0.30		D	2	30/11/21	AV67	1	1																																
TP-69203	0.40	0.70	B	3	30/11/21	AV67					1	0*																												

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Turnaround

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		BRE Suite B	comment
TP-69203	1.30	1.60	B	4	30/11/21	AV67					1	0*																														
TP-69306	**0.30**	**0.60**	**B**	**1**	30/11/21	AV67																																				
TP-69306	0.50		D	2	30/11/21	AV67	1	1																																		
TP-69306	1.30	1.60	B	3	30/11/21	AV67					1	0*																														
TP-69306	2.10	2.40	B	4	30/11/21	AV67					1	1																														
TP-69306	2.40		D	5	30/11/21	AV67	1	1																																	1	ALS 221010-25
TP-69407	**0.30**	**0.60**	**B**	**1**	30/11/21	AV67					1	1																														
TP-69407	0.60		D	2	30/11/21	AV67	1	1																																		
TP-69407	1.20	1.50	B	3	30/11/21	AV67					1	1																														
TP-69407	1.50		D	4	30/11/21	AV67	1	1																																	1	ALS 221010-25
TP-69407	2.00	2.30	B	5	30/11/21	AV67																																				
TP-69407	2.30		D	6	30/11/21	AV67	1	1																																		
TP-69505	**0.30**	**0.60**	**B**	**1**	01/12/21	**AV67**					1																															
TP-69505	1.20	1.50	B	2	01/12/21	**AV67**					1																														1	ALS 221010-25
TP-69703	**0.20**	**0.50**	**B**	**1**	01/12/21	AV67																																	1	ALS 221010-25
TP-69703	0.90	1.20	B	3	01/12/21	AV67					1																															
TP-69806	**0.30**	**0.60**	**B**	**1**	01/12/21	**AV67**					1																															
TP-69806	0.60		D	2	01/12/21	**AV67**																																				
TP-69806	1.50	1.80	B	3	01/12/21	**AV67**					1																															
TP-69806	2.50	2.80	B	4	01/12/21	**AV67**					1																															
TP-69905	**0.40**	**0.70**	**B**	**1**	01/12/21	AV67					1																															
TP-69905	1.50	1.80	B	2	01/12/21	AV67					1																															
TP-69905	2.50	2.80	B	3	01/12/21	AV67					1																															
TP-70005	**0.30**	**0.50**	**B**	**1**	03/12/21	AV84					1	1																														
TP-70005	0.40		D	2	03/12/21	AV84	1	1																																		
TP-70005	0.70	1.00	B	3	03/12/21	AV84																																				
TP-70005	1.70	2.00	B	4	03/12/21	AV84					1	0*																														
TP-70104	**0.30**	**0.60**	**B**	**1**	03/12/21	AV84					1	1																														
TP-70104	1.00	1.30	B	2	03/12/21	AV84					1	0*																				1										to NMTL 21.10.22
TP-70204	**0.30**	**0.50**	**B**	**1**	06/12/21	AV84					1	1																														
TP-70204	0.90	1.20	B	2	06/12/21	AV84					1	0*																													1	ALS 221010-25
TP-70304	**0.20**	**0.50**	**B**	**1**	06/12/21	AV84					1	1																														
TP-70304	0.50		D	2	06/12/21	AV84	1	1																																		
TP-70304	1.00	1.30	B	3	06/12/21	AV84					1	1																														
TP-70304	1.30		D	4	06/12/21	AV84	1	1																																		
TP-70304	2.00	2.30	B	5	06/12/21	AV84					1	1														1																
TP-70304	2.30		D	6	06/12/21	AV84	1	1																																		
TP-70393	**0.30**	**0.60**	**B**	**1**	06/12/21	AV84					1	1																														
TP-70393	0.50		D	2	06/12/21	AV84	1	1																																		
TP-70393	0.70	1.00	B	3	06/12/21	AV84					1	1																														
TP-70393	1.00		D	4	06/12/21	AV84	1	1																																		
TP-70393	1.80	2.10	B	5	06/12/21	AV84					1	1																														

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
Start	01/10/21					
Today	03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-70393	2.10		D	6	06/12/21	AV84	1	1																																1	ALS 221010-27
TP-70504	**0.20**	**0.40**	**B**	**1**	06/12/21	AV84																																			
TP-70504	0.30		D	2	06/12/21	AV84																																			
TP-70504	0.50	0.80	B	3	06/12/21	AV84					1	1																													
TP-70504	0.80		D	4	06/12/21	AV84	1	1																																	
TP-70504	1.80	2.10	B	5	06/12/21	AV84					1	1																													
TP-70504	2.10		D	6	06/12/21	AV84	1	1																																1	ALS 221013-80
TP-70608	**0.30**	**0.60**	**B**	**1**	06/12/21	AV84					1	1																													
TP-70608	0.60		D	2	06/12/21	AV84	1	1																																	
TP-70608	1.00	1.30	B	3	06/12/21	AV84					1	1																													
TP-70608	1.30		D	4	06/12/21	AV84	1	1																																	
TP-70608	2.20	2.50	B	5	06/12/21	AV84					1	1																													
TP-70608	2.50		D	6	06/12/21	AV84	1	1																																	
TP-70716	**0.40**	**0.70**	**B**	**1**	06/12/21	AV84					1	1																													
TP-70716	0.70		D	2	06/12/21	AV84	1	1																																	
TP-70716	1.20	1.50	B	3	06/12/21	AV84					1	1																													
TP-70716	2.00	2.30	B	4	06/12/21	AV84	1	1																		1														
TP-70716	2.30		D	5	06/12/21	AV84	1	1																																1	ALS 221010-27
TP-71808	**0.30**	**0.60**	**B**	**1**	09/12/21	AV84					1	1																													
TP-71808	0.50		D	2	09/12/21	AV84	1	1																																	
TP-71808	1.20	1.50	B	3	09/12/21	AV84					1	1																													
TP-71808	1.40		D	4	09/12/21	AV84	1	1																																	
TP-71808	2.20	2.50	B	5	09/12/21	AV84					1	1																													
TP-71808	2.50		D	6	09/12/21	AV84	1	1																																	
TP-71907	**0.30**	**0.60**	**B**	**1**	09/12/21	AV84					1	1																													
TP-71907	0.60		D	2	09/12/21	AV84	1	1																																	
TP-72009	**0.30**	**0.60**	**B**	**1**	09/12/21	AV84					1	1																													
TP-72009	0.50		D	2	09/12/21	AV84	1	1																																	
TP-72009	1.10	1.40	B	3	09/12/21	AV84					1	1																													
TP-72009	1.40		D	4	09/12/21	AV84	1	1																																	
TP-72108	**0.30**	**0.60**	**B**	**1**	08/12/21	AV84					1	1																													
TP-72108	0.60		D	2	08/12/21	AV84	1	1																																	
TP-72108	1.50	1.80	B	3	08/12/21	AV84					1	1												1																	
TP-72108	1.80		D	4	08/12/21	AV84	1	1																																1	ALS 221010-25
TP-72160	**0.30**	**0.60**	**B**	**1**	08/12/21	AV84					1	1																													
TP-72160	0.60		D	2	08/12/21	AV84	1	1																																	
TP-72160	1.30	1.60	B	3	08/12/21	AV84					1	1																													
TP-72160	1.60		D	4	08/12/21	AV84	1	1																																	
TP-72289	**0.20**	**0.40**	**B**	**1**	08/12/21	AV84					1	1																													
TP-72289	0.30		D	2	08/12/21	AV84	1	1																																	
TP-72289	0.70	1.00	B	3	08/12/21	AV84					1	1																													
TP-72289	1.00		D	4	08/12/21	AV84	1	1																																	

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Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
Start	01/10/21				
Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Rock	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-72289	2.00	2.30	B	5	08/12/21	AV84					1	1																																
TP-72289	2.30		D	6	08/12/21	AV84	1	1																																	1		ALS 221013-80
TP-72403	**0.30**	**0.60**	**B**	**1**	08/12/21	AV84					1	1																																
TP-72403	0.60		D	2	08/12/21	AV84	1	1																																			
TP-72403	1.00	1.30	B	3	08/12/21	AV84					1	1																																
TP-72403	1.30		D	4	08/12/21	AV84	1	1																																			
TP-72403	2.20	2.50	B	5	08/12/21	AV84					1	1														1																		
TP-72403	2.50		D	6	08/12/21	AV84	1	1																																			
TP-72503	**0.30**	**0.60**	**B**	**1**	08/12/21	AV84																																				
TP-72503	0.60		D	2	08/12/21	AV84	1	1																																			
TP-72503	1.10	1.40	B	3	08/12/21	AV84					1	1																																
TP-72503	1.40		D	4	08/12/21	AV84	1	1																																			
TP-72503	2.30	2.60	B	5	08/12/21	AV84					1	1																																
TP-72503	2.60		D	6	08/12/21	AV84	1	1																																	1		ALS 221010-27
TP-72603	**0.30**		**D**	**1**	09/12/21	AV84							1	1																												ALS 221013-80
TP-72603	0.50	0.80	B	2	09/12/21	AV84					1	1																														
TP-72603	0.80		D	3	09/12/21	AV84	1	1					1	1																												ALS 221010-27
TP-72603	1.30	1.60	B	4	09/12/21	AV84					1	1																														
TP-72603	1.60		D	5	09/12/21	AV84	1	1																																		
TP-72703	**0.30**	**0.60**	**B**	**1**	10/12/21	AV84					1	1																														
TP-72703	0.60		D	2	10/12/21	AV84	1	1																																		
TP-72703	1.30	1.60	B	3	10/12/21	AV84					1	1																														
TP-72703	1.60		D	4	10/12/21	AV84	1	1																																		
TP-72703	2.30	2.60	B	5	10/12/21	AV84																																				
TP-72703	2.60		D	6	10/12/21	AV84	1	1																																		
TP-72801	**0.30**	**0.60**	**B**	**1**	09/12/21	AV84					1	1																														
TP-72801	0.60		D	2	09/12/21	AV84	1	1																																		
TP-72801	1.40	1.70	B	3	09/12/21	AV84					1	1																														
TP-72801	1.70		D	4	09/12/21	AV84	1	1																																	1		ALS 221010-27
TP-72801	2.40	2.70	B	5	09/12/21	AV84	1	1																	1																	
TP-72801	2.70		D	6	09/12/21	AV84	1	1																																		
TP-72903	**0.30**	**0.60**	**B**	**1**	10/12/21	AV84					1	1																														
TP-72903	0.60		D	2	10/12/21	AV84	1	1																																		
TP-72903	1.50	1.80	B	3	10/12/21	AV84					1	1																														
TP-72903	1.80		D	4	10/12/21	AV84	1	1																																		
TP-73001	**0.20**	**0.50**	**B**	**1**	10/12/21	AV84					1	1	1	1																												ALS 221010-25
TP-73001	0.50		D	2	10/12/21	AV84	1	1																																		
TP-73001	0.70	1.00	B	3	10/12/21	AV84																																				
TP-73001	1.00		D	4	10/12/21	AV84	1	1																																		
TP-73001	1.70	2.00	B	5	10/12/21	AV84					1	1																														
TP-73001	2.00		D	6	10/12/21	AV84	1	1																																	1		ALS 221013-80
TP-73103	**0.30**	**0.60**	**B**	**1**	10/12/21	AV84					1	1																														
TP-73103	0.60		D	2	10/12/21	AV84	1	1																																		

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-73103	1.70	2.00	B	3	10/12/21	AV84					1	1																													
TP-73103	2.00		D	4	10/12/21	AV84	1	1																																	
TP-73202	**0.30**	**0.60**	**B**	**1**	13/12/21	AV84																																			
TP-73202	0.50		D	2	13/12/21	AV84																																			
TP-73202	0.60	0.90	B	3	13/12/21	AV84					1	1																													
TP-73202	0.80		D	4	13/12/21	AV84	1	1																																	
TP-73202	1.80	2.10	B	5	13/12/21	AV84					1	1																													
TP-73202	2.10		D	6	13/12/21	AV84	1	1																																1	ALS 221013-80
TP-73303	**0.50**	**0.80**	**B**	**1**	13/12/21	AV84					1	1																													
TP-73303	0.80		D	2	13/12/21	AV84	1	1																																	
TP-73403	**0.30**	**0.60**	**B**	**1**	07/03/22	**AW40**																																			
TP-73403	0.50		D	2	07/03/22	**AW40**	1	1																																	
TP-73403	1.00	1.30	B	3	07/03/22	**AW40**					1																														
TP-73403	1.30		D	4	07/03/22	**AW40**	1	1																																1	chem ELAB: 22-44478
TP-73403	2.00	2.30	B	5	07/03/22	**AW40**					1																														
TP-73403	2.30		D	6	07/03/22	**AW40**	1	1																																	
TP-73504	**0.40**	**0.70**	**B**	**1**	07/03/22	**AW40**					1																														
TP-73504	0.70		D	2	07/03/22	**AW40**	1	1																																	
TP-73504	1.40	1.70	B	3	07/03/22	**AW40**																				1														
TP-73504	1.70		D	4	07/03/22	**AW40**	1	1																																1	chem ELAB: 22-44478
TP-73504	2.40	2.70	B	5	07/03/22	**AW40**					1																														
TP-73504	2.70		D	6	07/03/22	**AW40**																																			
TP-73602	**0.30**	**0.60**	**B**	**1**	13/12/21	AV84					1	1																													
TP-73602	0.60		D	2	13/12/21	AV84	1	1																																	
TP-73602	1.10	1.40	B	3	13/12/21	AV84					1	1																													
TP-73602	1.40		D	4	13/12/21	AV84	1	1																																1	ALS 221013-80
TP-73602	2.20	2.50	B	5	13/12/21	AV84					1	1														1														
TP-73602	2.50		D	6	13/12/21	AV84	1	1																																	
TP-73704	**0.60**	**0.90**	**B**	**1**	13/12/21	AV84					1	1																													
TP-73704	0.90		D	2	13/12/21	AV84																																			
TP-73704	1.30	1.60	B	3	13/12/21	AV84					1	1												1																	
TP-73704	1.60		D	4	13/12/21	AV84	1	1																																	
TP-73704	2.50	2.70	B	5	13/12/21	AV84					1	1																													
TP-73704	2.70		D	6	13/12/21	AV84																																		1	ALS 221013-80
TP-74102	**0.20**	**0.50**	**B**	**1**	20/12/21	AV83					1																														
TP-74102	0.50		D	2	20/12/21	AV83	1	1																																	
TP-74102	0.90	1.20	B	3	20/12/21	AV83					1																														
TP-74102	1.20		D	4	20/12/21	AV83	1	1																																	
TP-74102	1.90	2.20	B	5	20/12/21	AV83					1													1																	
TP-74102	2.20		D	6	20/12/21	AV83	1	1							*																									1	als 221115-85
TP-74170	**0.20**	**0.50**	**B**	**1**	20/12/21	AV83					1																														
TP-74170	0.40		D	2	20/12/21	AV83																																			
TP-74170	0.70	1.00	B	3	20/12/21	AV83					1																														

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-74170	1.20	1.50	B	4	20/12/21	AV83					1																																	
TP-74170	1.50		D	5	20/12/21	AV83	1	1																																			
TP-74416	**0.20**	**0.40**	**B**	**1**	20/12/21	AV83					1																																	
TP-74416	0.30		D	2	20/12/21	AV83	1	1																																			
TP-74416	0.60	0.90	B	3	20/12/21	AV83					1																																	
TP-74416	0.90		D	4	20/12/21	AV83																																						
TP-74416	1.20	1.50	B	5	20/12/21	AV83					1																																	
TP-74503	**0.30**	**0.60**	**B**	**1**	14/12/21	AV88					1																																	
TP-74503	0.60		D	2	14/12/21	AV88	1	1																																			
TP-74503	1.30	1.60	B	3	14/12/21	AV88					1																1																	
TP-74503	1.60		D	4	14/12/21	AV88	1	1							1																													ALS 211026-74
TP-74601	**0.30**	**0.50**	**B**	**1**	15/12/21	AV88					1																																	
TP-74601	0.40		D	2	15/12/21	AV88	1	1																																			
TP-74601	0.60	0.90	B	3	15/12/21	AV88					1																																	
TP-74601	0.80		D	4	15/12/21	AV88	1	1																																			
TP-74601	2.00	2.30	B	5	15/12/21	AV88					1														1																			
TP-74601	2.30		D	6	15/12/21	AV88	1	1																																			
TP-74702	**0.30**	**0.60**	**B**	**1**	14/12/21	AV88					1																																	
TP-74702	0.50		D	2	14/12/21	AV88																																					
TP-74702	1.00	1.30	B	3	14/12/21	AV88					1																																	
TP-74702	1.30		D	4	14/12/21	AV88	1	1																																			
TP-74702	2.00	2.30	B	5	14/12/21	AV88					1																																	
TP-74702	2.30		D	6	14/12/21	AV88																																					
TP-74804	**0.30**	**0.60**	**B**	**1**	14/12/21	AV88					1																																	
TP-74804	0.60		D	2	14/12/21	AV88	1	1																																			
TP-74804	1.30	1.60	B	3	14/12/21	AV88					1																																	
TP-74804	1.60		D	4	14/12/21	AV88	1	1																																			
TP-74804	2.10	2.40	B	5	14/12/21	AV88					1																																	
TP-74804	2.40		D	6	14/12/21	AV88	1	1																																			
TP-74902	**0.30**	**0.60**	**B**	**1**	14/12/21	AV88					1																																	
TP-74902	0.60		D	2	14/12/21	AV88	1	1																																			
TP-74902	0.90	1.20	B	3	14/12/21	AV88					1																																	
TP-74902	1.20		D	4	14/12/21	AV88	1	1																																			
TP-74902	1.70	2.00	B	5	14/12/21	AV88					1																																	
TP-74902	2.00		D	6	14/12/21	AV88	1	1							1																													ALS 221026-74
TP-74969	**0.30**	**0.60**	**B**	**1**	14/12/21	AV88					1																																	
TP-74969	0.50		D	2	14/12/21	AV88	1	1																																			
TP-74969	1.30	1.60	B	3	14/12/21	AV88					1														1																			
TP-74969	1.60		D	4	14/12/21	AV88	1	1																																			
TP-74969	1.80	2.10	B	5	14/12/21	AV88					1																																	
TP-74969	2.10		D	6	14/12/21	AV88	1	1																																			

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specir	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-74969	2.20	2.50	B	7	14/12/21	AV88					1																														
TP-75104	**0.20**	**0.50**	**B**	**1**	15/12/21	AV88					1																														
TP-75104	0.50		D	2	15/12/21	AV88	1	1																																	
TP-75104	0.80	1.10	B	3	15/12/21	AV88					1													1																	
TP-75104	1.10		D	4	15/12/21	AV88	1	1																																	
TP-75104	2.00	2.30	B	5	15/12/21	AV88					1																														
TP-75104	2.30		D	6	15/12/21	AV88	1	1																																	
TP-75197	**0.30**	**0.50**	**B**	**1**	15/12/21	AV88					1																														
TP-75197	0.40		D	2	15/12/21	AV88	1	1																																	
TP-75197	0.50	0.80	B	3	15/12/21	AV88					1																														
TP-75197	0.70		D	4	15/12/21	AV88																																			
TP-75197	1.30	1.60	B	5	15/12/21	AV88					1																				1										to NMTL 21.10.22
TP-75197	1.60		D	6	15/12/21	AV88																																		
TP-75197	2.50	2.80	B	7	15/12/21	AV88					1																				1										Shear to NMTL 21.10.22
TP-75197	2.80		D	8	15/12/21	AV88									1																										ALS 221026-74
TP-75305	**0.40**	**0.70**	**B**	**1**	15/12/21	AV88					1																														
TP-75305	0.70		D	2	15/12/21	AV88	1	1																																	
TP-75305	1.40	1.70	B	3	15/12/21	AV88					1																														
TP-75305	2.50	2.80	B	4	15/12/21	AV88					1																														
TP-75305	2.80		D	5	15/12/21	AV88																																			
TP-75404	**0.30**	**0.60**	**B**	**1**	16/12/21	AV88					1																														
TP-75404	0.60		D	2	16/12/21	AV88	1	1																																	
TP-75404	1.00	1.30	B	3	16/12/21	AV88					1																														
TP-75404	1.30		D	4	16/12/21	AV88	1	1							1																											ALS 221026-74
TP-75404	2.00	2.30	B	5	16/12/21	AV88					1																				1										Shear to NMTL 21.10.22
TP-75508	**0.40**	**0.70**	**B**	**1**	15/12/21	AV88																																		
TP-75508	0.70		D	2	15/12/21	AV88																																		
TP-75508	1.40	1.70	B	3	15/12/21	AV88					1															1															
TP-75508	1.70		D	4	15/12/21	AV88	1	1																																	
TP-75508	2.70	3.00	B	5	15/12/21	AV88					1																														
TP-75508	3.00		D	6	15/12/21	AV88	1	1							1																											ALS 221026-74
TP-75605	**0.30**	**0.60**	**B**	**1**	16/12/21	AV88					1																														
TP-75605	0.50		D	2	16/12/21	AV88	1	1																																	
TP-75605	1.30	1.60	B	3	16/12/21	AV88					1																														
TP-75605	1.60		D	4	16/12/21	AV88	1	1																																	
TP-75605	2.00	2.30	B	5	16/12/21	AV88					1																														
TP-75605	2.30		D	6	16/12/21	AV88	1	1							1																											ALS 221026-74
TP-75908	**0.40**	**0.70**	**B**	**1**	20/12/21	AV88					1																														
TP-75908	0.70		D	2	20/12/21	AV88																																			
TP-75908	1.80	2.10	B	3	20/12/21	AV88					1																														

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Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-75908	2.10		D	4	20/12/21	AV88	1	1							1																												ALS 221026-74
TP-76006	**0.30**	**0.60**	**B**	**1**	20/12/21	AV88					1																																
TP-76006	0.60		D	2	20/12/21	AV88	1	1																																		
TP-76006	1.70	2.00	B	3	20/12/21	AV88					1															1																
TP-76006	2.00		D	4	20/12/21	AV88	1	1							1																												ALS 221026-74
TP-76087	**0.30**	**0.60**	**B**	**1**	17/12/21	AV88					1																																
TP-76087	0.60		D	2	17/12/21	AV88	1	1																																		
TP-76087	2.00	2.30	B	3	17/12/21	AV88					1													1																			
TP-76087	2.30		D	4	17/12/21	AV88	1	1							1																												ALS 221026-74
TP-76212	**0.30**	**0.60**	**B**	**1**	16/12/21	AV88					1																																
TP-76212	0.50		D	2	16/12/21	AV88	1	1																																		
TP-76212	1.30	1.60	B	3	16/12/21	AV88					1																																
TP-76212	1.60		D	4	16/12/21	AV88	1	1																																		
TP-76212	2.30	2.60	B	5	16/12/21	AV88																																				
TP-76212	2.60		D	6	16/12/21	AV88																		1																			
TP-76212	3.30	3.60	B	7	16/12/21	AV88					1																																
TP-76212	3.60		D	8	16/12/21	AV88	1	1																																		
TP-76309	**0.30**	**0.60**	**B**	**1**	16/12/21	AV88					1																																
TP-76309	0.50		D	2	16/12/21	AV88	1	1																																		
TP-76309	1.30	1.60	B	3	16/12/21	AV88					1																																
TP-76309	1.60		D	4	16/12/21	AV88	1	1																																		
TP-76309	2.30	2.60	B	5	16/12/21	AV88																																				
TP-76309	2.60		D	6	16/12/21	AV88									1																												ALS 221026-74
TP-76440	**0.40**	**0.70**	**B**	**1**	16/12/21	AV88					1																																
TP-76440	0.60		D	2	16/12/21	AV88	1	1																																		
TP-76440	1.40	1.70	B	3	16/12/21	AV88					1																																
TP-76440	1.70		D	4	16/12/21	AV88	1	1																																		
TP-76440	2.40	2.70	B	5	16/12/21	AV88					1															1																
TP-76440	2.70		D	6	16/12/21	AV88	1	1							1																												ALS 221026-74
TP-76508	**0.40**	**0.70**	**B**	**1**	16/12/21	AV88					1																																
TP-76508	0.70		D	2	16/12/21	AV88	1	1																																		
TP-76508	1.40	1.70	B	3	16/12/21	AV88					1																																
TP-76508	1.70		D	4	16/12/21	AV88	1	1																																		
TP-76508	2.40	2.70	B	5	16/12/21	AV88					1																																
TP-76508	2.70		D	6	16/12/21	AV88	1	1																																		
TP-76641	**0.20**	**0.50**	**B**	**1**	17/12/21	AV88					1																																
TP-76641	0.50		D	2	17/12/21	AV88	1	1																																		
TP-76641	1.20	1.50	B	3	17/12/21	AV88					1																																
TP-76641	1.50		D	4	17/12/21	AV88	1	1																																		
TP-76641	2.20	2.50	B	5	17/12/21	AV88																																				
TP-76641	2.50		D	6	17/12/21	AV88									1																												ALS 221026-74

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23			
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021			
	Start	01/10/21					
	Today	03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		BRE Suite B	Other Rock Tests	comment
TP-76707	**0.40**	**0.70**	**B**	**1**	17/12/21	AV88					1																															
TP-76707	0.60		D	2	17/12/21	AV88	1	1																																		
TP-76707	1.30	1.50	B	3	17/12/21	AV88					1													1																		
TP-76707	1.50		D	4	17/12/21	AV88	1	1							1																											ALS 221026-74
TP-76707	2.70	3.00	B	5	17/12/21	AV88					1															1																
TP-76707	3.00		D	6	17/12/21	AV88	1	1																																		
TP-76805	**0.30**	**0.60**	**B**	**1**	04/01/22	AV83					1																															
TP-76805	0.50		D	2	04/01/22	AV83	1	1																																		
TP-76805	1.30	1.60	B	3	04/01/22	AV83					1													1																		
TP-76805	1.60		D	4	04/01/22	AV83	1	1																																		
TP-76805	2.30	2.60	B	5	04/01/22	AV83																																				
TP-76805	2.60		D	6	04/01/22	AV83									*																										1	als 221115-85
TP-76907	**0.30**	**0.60**	**B**	**1**	04/01/22	AV83					1																															
TP-76907	0.60		D	2	04/01/22	AV83	1	1																																		
TP-76907	1.30	1.60	B	3	04/01/22	AV83					1																															
TP-76907	1.60		D	4	04/01/22	AV83	1	1																																		
TP-76907	1.90	2.20	B	5	04/01/22	AV83					1																															
TP-76907	3.10	3.40	B	6	04/01/22	AV83					1																															
TP-76907	3.40		D	7	04/01/22	AV83	1	1																																		
TP-77008	**0.30**	**0.60**	**B**	**1**	04/01/22	AV83					1																															
TP-77008	0.60		D	2	04/01/22	AV83									*																										1	als 221115-85
TP-77008	1.30	1.60	B	3	04/01/22	AV83					1																															
TP-77008	1.60		D	4	04/01/22	AV83																																				
TP-77107	**0.20**	**0.50**	**B**	**1**	04/01/22	AV83					1																															
TP-77107	0.40		D	2	04/01/22	AV83	1	1																																		
TP-77107	0.60	0.90	B	3	04/01/22	AV83					1																															
TP-77107	1.40	1.70	B	4	04/01/22	AV83					1				*																										1	als 221115-85
TP-77107	3.10	3.40	B	5	04/01/22	AV83					1																				1											
TP-77175	**0.30**	**0.60**	**B**	**1**	04/01/22	AV83					1																															
TP-77175	0.60		D	2	04/01/22	AV83	1	1																																		
TP-77175	1.00	1.30	B	3	04/01/22	AV83					1																															
TP-77175	1.30		D	4	04/01/22	AV83																																				
TP-77175	2.10	2.40	B	5	04/01/22	AV83					1													1																		
TP-77175	2.40		D	6	04/01/22	AV83	1	1																																		
TP-77304	**0.40**	**0.70**	**B**	**1**	05/01/22	AV83					1	1																														
TP-77304	0.70		D	2	05/01/22	AV83	1	1																																		
TP-77304	1.70	2.00	B	3	05/01/22	AV83					1	1														1																
TP-77304	2.00		D	4	05/01/22	AV83	1	1																																		
TP-77416	**0.40**	**0.70**	**B**	**1**	04/01/22	AV83					1																															
TP-77416	0.70		D	2	04/01/22	AV83	1	1																																		
TP-77416	1.80	2.10	B	3	04/01/22	AV83					1															1																

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete								Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-77416	2.10		D	4	04/01/22	AV83	1	1																																	
TP-77504	**0.40**	**0.70**	**B**	**1**	05/01/22	AV83					1	1																													
TP-77504	0.70		D	2	05/01/22	AV83	1	1																																	
TP-77504	1.80	2.10	B	3	05/01/22	AV83					1																			0*											* Gravel - not suitable
TP-77705	**0.30**	**0.60**	**B**	**1**	05/01/22	AV83					1	1																													
TP-77705	0.60		D	2	05/01/22	AV83	1	1																																	
TP-77705	0.90	1.20	B	3	05/01/22	AV83					1													1																	
TP-77705	1.50	1.80	B	4	05/01/22	AV83					1																														
TP-77808	**0.30**	**0.60**	**B**	**1**	05/01/22	AV83																																			
TP-77808	1.20	1.50	B	2	05/01/22	AV83					1																														
TP-77808	1.70	2.00	B	3	05/01/22	AV83					1																														
TP-77903	**0.50**	**0.80**	**B**	**1**	05/01/22	AV83					1	1																													
TP-77903	0.80		D	2	05/01/22	AV83	1	1																																	
TP-77903	1.30	1.60	B	3	05/01/22	AV83					1	1																													
TP-77903	1.60		D	4	05/01/22	AV83	1	1						bre																										1	ALS 221026-74
TP-77903	2.40	2.70	B	5	05/01/22	AV83					1																														
TP-77903	2.70		D	6	05/01/22	AV83																																			
TP-78507	**0.30**	**0.60**	**B**	**1**	06/01/22	AV83					1																														
TP-78507	1.10	1.40	B	2	06/01/22	AV83					1																														
TP-78697	**0.20**	**0.50**	**B**	**1**	07/01/22	AV82					1	1																													
TP-78697	0.40		D	2	07/01/22	AV82	1	1																																	
TP-78697	1.20	1.50	B	3	07/01/22	AV82					1																														
TP-78697	1.50		D	4	07/01/22	AV82																																			
TP-78697	2.20	2.50	B	5	07/01/22	AV82					1																														
TP-78697	2.50		D	6	07/01/22	AV82																																		1	als 221115-85
TP-78784	**0.20**	**0.50**	**B**	**1**	07/01/22	AV82					1	1																													
TP-78784	0.50		D	2	07/01/22	AV82	1	1																																	
TP-78784	1.20	1.50	B	3	07/01/22	AV82					1													1																	
TP-78784	2.20	2.50	B	4	07/01/22	AV82					1																														
TP-79208	**0.30**	**0.60**	**B**	**1**	06/01/22	AV82					1	1																													
TP-79208	0.60		D	2	06/01/22	AV82	1	1																																	
TP-79208	1.30	1.60	B	3	06/01/22	AV82					1	1												1																	
TP-79208	1.60		D	4	06/01/22	AV82	1	1																																	
TP-79208	2.30	2.60	B	5	06/01/22	AV82					1	1														1															
TP-79208	2.60		D	6	06/01/22	AV82	1	1																																	
TP-79309	**0.40**	**0.70**	**B**	**1**	06/01/22	AV82					1	1																													
TP-79309	0.70		D	2	06/01/22	AV82	1	1																																	
TP-79309	1.40	1.70	B	3	06/01/22	AV82																			1															
TP-79309	1.70		D	4	06/01/22	AV82																																			
TP-79309	2.40	2.70	B	5	06/01/22	AV82					1	1																													
TP-79309	2.70		D	6	06/01/22	AV82	1	1																																1	als 221115-85
TP-79425	**0.60**	**0.90**	**B**	**1**	06/01/22	AV82					1	1																													

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-79425	0.90		D	2	06/01/22	AV82	1	1																																			
TP-79425	1.90	2.20	B	3	06/01/22	AV82					1	1																															
TP-79425	2.20		D	4	06/01/22	AV82	1	1																																			
TP-79507	**0.30**	**0.60**	**B**	**1**	06/01/22	AV82					1	1																															
TP-79507	0.50		D	2	06/01/22	AV82	1	1																																			
TP-79507	1.30	1.60	B	3	06/01/22	AV82					1	1																															
TP-79507	1.60		D	4	06/01/22	AV82	1	1																																	1		als 221115-85
TP-80306	**0.30**	**0.50**	**B**	**1**	07/01/22	AV82	1	1																																			
TP-80306	0.40		D	2	07/01/22	AV82					1	1																															
TP-80306	0.80	1.10	B	3	07/01/22	AV82					1	1												1																			
TP-80306	1.10		D	4	07/01/22	AV82	1	1																																			
TP-80306	1.80	2.10	B	5	07/01/22	AV82					1	1																															
TP-80306	2.10		D	6	07/01/22	AV82	1	1																																			
TP-80442	**0.40**	**0.70**	**B**	**1**	06/01/22	AV82					1	1																															
TP-80442	0.70		D	2	06/01/22	AV82	1	1																																			
TP-80442	1.40	1.70	B	3	06/01/22	AV82																				1																
TP-80442	1.70		D	4	06/01/22	AV82																																			1		als 221115-85
TP-80442	2.40	2.70	B	5	06/01/22	AV82					1	1																															
TP-80442	2.70		D	6	06/01/22	AV82	1	1																																			
TP-80508	**1.00**	**1.50**	**B**	**1**	10/01/22	AV81					1				*																										1		ALS 221123-177
TP-80508	1.00	1.50	D	2	10/01/22	AV81	1	1																																	
TP-80508	3.00	3.50	B	3	10/01/22	AV81																				1																
TP-80508	3.00	3.50	D	4	10/01/22	AV81																																					
TP-80634	**0.50**	**1.00**	**B**	**1**	10/01/22	AV81					1																																
TP-80634	0.50	1.00	D	2	10/01/22	AV81	1	1																																	
TP-80634	2.00	2.50	B	3	10/01/22	AV81																		1																		
TP-80634	2.00	2.50	D	4	10/01/22	AV81									*																										1		ALS 221123-177
TP-80634	3.00	3.50	B	5	10/01/22	AV81					1																																
TP-80634	3.00	3.50	D	6	10/01/22	AV81	1	1																																	
TP-80718	**0.00**	**0.30**	**D**	**1**	11/01/22	AV81																																			
TP-80718	0.50	1.00	B	2	11/01/22	AV81																																			
TP-80718	1.00	1.50	B	3	11/01/22	AV81					1																																
TP-80718	1.50	1.90	D	4	11/01/22	AV81	1	1																																	
TP-80718	1.90	2.40	B	5	11/01/22	AV81					1																																
TP-80800	**0.00**	**0.30**	**D**	**1**	11/01/22	AV81																																			
TP-80800	0.50	1.00	B	2	11/01/22	AV81																																			
TP-80800	1.00	1.40	D	3	11/01/22	AV81																																			
TP-80800	2.00	2.50	B	4	11/01/22	AV81	1	1			1																																
TP-80800	2.20	3.00	B	5	11/01/22	AV81																		1																		
TP-80903	**0.00**	**0.30**	**D**	**1**	11/01/22	AV81																																			

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification					Chemical / Concrete							Compaction					Compressibility				Strength (Total)											Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-80903	0.50	1.00	B	2	11/01/22	AV81	1	1			1																														
TP-80903	1.50	2.00	B	3	11/01/22	AV81																																			
TP-80903	2.00	2.40	D	4	11/01/22	AV81									*																								1		ALS 221123-177
TP-80903	2.50	3.00	B	5	11/01/22	AV81					1																														
TP-80903	3.00	3.50	B	6	11/01/22	AV81																		1																	
TP-80903	3.50	3.70	D	7	11/01/22	AV81	1	1																																	
TP-80972	**0.00**	**0.30**	**D**	**1**	11/01/22	AV81																																			
TP-80972	0.30	0.70	B	2	11/01/22	AV81																																			
TP-80972	1.00	1.50	B	3	11/01/22	AV81					1																														
TP-80972	1.50	2.00	D	4	11/01/22	AV81	1	1																																	
TP-80972	2.50	3.00	B	5	11/01/22	AV81																																			
TP-80972	3.00	3.50	D	6	11/01/22	AV81																																			
TP-80972	3.60	3.80	B	7	11/01/22	AV81					1																														
TP-81064	**0.20**	**0.50**	**D**	**1**	11/01/22	AV81																																			
TP-81064	1.00	1.50	B	2	11/01/22	AV81					1																														
TP-81064	2.00	2.40	D	3	11/01/22	AV81	1	1																																	
TP-81064	2.50	3.00	B	4	11/01/22	AV81																																			
TP-81202	**0.50**	**1.00**	**B**	**1**	12/01/22	AV81					1																														
TP-81202	0.50	1.00	D	2	12/01/22	AV81	1	1							*																								1		ALS 221123-177
TP-81202	1.50	2.00	B	3	12/01/22	AV81	1	1			1																														
TP-81202	1.50	2.00	D	4	12/01/22	AV81																																			
TP-81300	**0.00**	**0.25**	**D**	**1**	13/01/22	AV81																																			
TP-81300	1.00	1.50	B	2	13/01/22	AV81																																			
TP-81300	2.00	2.50	B	3	13/01/22	AV81	1	1			1																														
TP-81300	3.00	3.50	B	4	13/01/22	AV81																																			
TP-81404	**0.00**	**0.40**	**D**	**1**	13/01/22	AV81																																			
TP-81404	1.00	1.50	B	2	13/01/22	AV81																		1																	
TP-81404	2.00	2.50	B	3	13/01/22	AV81	1	1			1																														
TP-81404	3.00	3.50	B	4	13/01/22	AV81																																			
TP-81501	**0.00**	**0.40**	**D**	**1**	13/01/22	AV81																																			
TP-81501	0.50	1.00	B	2	13/01/22	AV81																				1															
TP-81501	1.50	2.00	B	3	13/01/22	AV81	1	1			1																														
TP-81501	2.00	2.40	B	4	13/01/22	AV81									*																								1		ALS 221123-177
TP-81601	**0.00**	**0.34**	**D**	**1**	13/01/22	AV81																																			
TP-81601	0.50	1.00	B	2	13/01/22	AV81					1																														
TP-81601	1.50	1.80	B	3	13/01/22	AV81	1	1			1																														
TP-81601	2.00	2.50	B	4	13/01/22	AV81																		1																	
TP-81601	2.50	3.00	B	5	13/01/22	AV81	1	1			1																														
TP-81702	**0.40**	**0.80**	**B**	**1**	14/01/22	AV81					1																														
TP-81702	0.40	0.80	D	2	14/01/22	AV81	1	1																																	
TP-81702	1.50	2.00	B	3	14/01/22	AV81					1																														

0 = test scheduled,
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0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23			
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021			
	Start	01/10/21					
	Today	03/04/23					

Sample Details							Classification					Hydrometer	Chemical / Concrete							Compaction					Compressibility				Strength (Total)								Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio		Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine		BRE Suite B	comment
TP-81702	1.50	2.00	D	4	14/01/22	AV81	1	1																																		
TP-81702	3.50	4.00	B	5	14/01/22	AV81																																				
TP-81702	3.50	4.00	D	6	14/01/22	AV81																																				
TP-81802	**0.40**	**0.70**	**B**	**1**	14/01/22	AV81					1																															
TP-81802	0.40	0.70	D	2	14/01/22	AV81	1	1																																		
TP-81802	1.50	2.00	B	3	14/01/22	AV81					1																															
TP-81802	1.50	2.00	D	4	14/01/22	AV81	1	1																																		
TP-81802	3.50	4.00	B	5	14/01/22	AV81					1																															
TP-81802	3.50	4.00	D	6	14/01/22	AV81	1	1																																		
TP-81902	**0.50**	**0.80**	**B**	**1**	17/01/22	AV82					1																															
TP-81902	0.80		D	2	17/01/22	AV82	1	1																																		
TP-81902	1.50	1.80	B	3	17/01/22	AV82					1																															
TP-81902	1.80		D	4	17/01/22	AV82	1	1							*																										1	als 221115-85
TP-81902	3.10	3.40	B	5	17/01/22	AV82					1																															
TP-81902	3.40		D	6	17/01/22	AV82	1	1																																		
TP-82001	**0.60**	**0.90**	**B**	**1**	17/01/22	AV82					1																															
TP-82001	0.90		D	2	17/01/22	AV82	1	1																																		
TP-82001	2.60	2.90	B	3	17/01/22	AV82					1															1																
TP-82001	2.90		D	4	17/01/22	AV82	1	1																																		
TP-82102	**0.40**	**0.70**	**B**	**1**	17/01/22	AV82					1																															
TP-82102	0.70		D	2	17/01/22	AV82	1	1																																		
TP-82102	1.40	1.70	B	3	17/01/22	AV82					1																															
TP-82102	1.70		D	4	17/01/22	AV82	1	1																																		
TP-82102	2.40	2.70	B	5	17/01/22	AV82																																				
TP-82102	2.70		D	6	17/01/22	AV82									*																										1	als 221115-85
TP-82102	3.40	3.70	B	7	17/01/22	AV82					1																															
TP-82102	3.70		D	8	17/01/22	AV82	1	1																																		
TP-82207	**0.40**	**0.70**	**B**	**1**	17/01/22	AV82					1																															
TP-82207	0.70		D	2	17/01/22	AV82	1	1																																		
TP-82207	1.40	1.70	B	3	17/01/22	AV82					1																															
TP-82207	1.70		D	4	17/01/22	AV82	1	1																																		
TP-82207	2.40	2.70	B	5	17/01/22	AV82																		1																	
TP-82207	2.70		D	6	17/01/22	AV82									*																										1	als 221115-85
TP-82303	**0.30**	**0.60**	**B**	**1**	17/01/22	AV82					1																															
TP-82303	0.50		D	2	17/01/22	AV82	1	1																																		
TP-82303	1.30	1.60	B	3	17/01/22	AV82					1																															
TP-82303	1.60		D	4	17/01/22	AV82	1	1							*																										1	als 221115-85
TP-82303	2.20	2.50	B	5	17/01/22	AV82					1																															
TP-82400	**0.30**	**0.60**	**B**	**1**	17/01/22	AV82					1													1																	
TP-82400	0.60		D	2	17/01/22	AV82	1	1																																		
TP-82400	1.80	2.10	B	3	17/01/22	AV82					1																															
TP-82400	2.10		D	4	17/01/22	AV82	1	1							*																										1	als 221115-85

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-82400	3.20	3.50	B	5	17/01/22	AV82					1																																
TP-82400	3.50		D	6	17/01/22	AV82	1	1																																			
TP-82502	**0.40**	**0.70**	**B**	**1**	18/01/22	AV82					1																																
TP-82502	0.70		D	2	18/01/22	AV82	1	1																																			
TP-82502	2.10	2.40	B	3	18/01/22	AV82					1																																
TP-82502	2.40		D	4	18/01/22	AV82	1	1							*																										1		als 221115-85
TP-82502	3.30	3.60	B	5	18/01/22	AV82																		1																			
TP-82502	3.60		D	6	18/01/22	AV82																																				
TP-82590	**0.40**	**0.70**	**B**	**1**	18/01/22	AV82					1																																
TP-82590	0.60		D	2	18/01/22	AV82	1	1																																			
TP-82590	0.70	1.00	B	3	18/01/22	AV82					1																																
TP-82590	1.70	2.00	B	4	18/01/22	AV82					1															1																		
TP-82590	2.00		D	5	18/01/22	AV82	1	1																																			
TP-82590	3.30	3.60	B	6	18/01/22	AV82					1																																
TP-82590	3.60		D	7	18/01/22	AV82	1	1																																			
TP-82702	**0.50**	**0.80**	**B**	**1**	18/01/22	AV82					1																																
TP-82702	1.80	2.10	B	2	18/01/22	AV82	1	1			1																																
TP-82812	**0.40**	**0.70**	**B**	**1**	19/01/22	AV97																																				
TP-82812	0.70		D	2	19/01/22	AV97																																				
TP-82812	1.40	1.70	B	3	19/01/22	AV97					1																																
TP-82812	1.70		D	4	19/01/22	AV97	1	1																																	1		chem: Elab 22-44308
TP-82812	2.70	3.00	B	5	19/01/22	AV97					1																																
TP-82902	**0.40**	**0.70**	**B**	**1**	19/01/22	AV97					1																																
TP-82902	0.70		D	2	19/01/22	AV97	1	1																																			
TP-82902	1.80	2.10	B	3	19/01/22	AV97																																				
TP-82902	2.10		D	4	19/01/22	AV97																																			1		chem: Elab 22-44308
TP-82902	3.40	3.70	B	5	19/01/22	AV97					1																																
TP-82902	3.70		D	6	19/01/22	AV97	1	1																																			
TP-82979	**0.70**	**1.00**	**B**	**1**	19/01/22	AV97					1																																
TP-82979	0.90		D	2	19/01/22	AV97	1	1																																			
TP-82979	1.70	2.00	B	3	19/01/22	AV97					1													1																			
TP-82979	2.00		D	4	19/01/22	AV97	1	1																																			
TP-83101	**0.40**	**0.70**	**B**	**1**	19/01/22	AV97					1																																
TP-83101	0.70		D	2	19/01/22	AV97	1	1																																			
TP-83101	1.40	1.70	B	3	19/01/22	AV97					1															1																		
TP-83101	1.70		D	4	19/01/22	AV97	1	1																																	1		chem: Elab 22-44308
TP-83101	3.10	3.40	B	5	19/01/22	AV97					1																																
TP-83101	3.40		D	6	19/01/22	AV97	1	1																																			
TP-83303	**0.70**	**1.00**	**B**	**1**	19/01/22	AV97					1																																
TP-83303	1.00		D	2	19/01/22	AV97	1	1																																			
TP-83303	1.00	1.30	B	3	19/01/22	AV97																																				

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)											Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-83303	1.30		D	4	19/01/22	AV97																																			1		chem: Elab 22-44308
TP-83303	2.30	2.60	B	5	19/01/22	AV97					1																																
TP-84901	**0.40**	**0.70**	**B**	**1**	20/01/22	AV97					1																																
TP-84901	0.70		D	2	20/01/22	AV97	1	1																																		
TP-84901	1.10	1.70	B	3	20/01/22	AV97																		1																		
TP-84901	1.70		D	4	20/01/22	AV97																																				
TP-84901	2.40	2.70	B	5	20/01/22	AV97					1																																
TP-84901	2.70		D	6	20/01/22	AV97	1	1																																		
TP-85005	**0.40**	**0.70**	**B**	**1**	20/01/22	AV97					1																																
TP-85005	0.70		D	2	20/01/22	AV97	1	1																																		
TP-85005	1.40	1.70	B	3	20/01/22	AV97					1																																
TP-85005	1.70		D	4	20/01/22	AV97	1	1																																	1		chem: Elab 22-44308
TP-85005	2.40	2.70	B	5	20/01/22	AV97					1																																
TP-85005	2.70		D	6	20/01/22	AV97	1	1																																		
TP-85102	**0.40**	**0.70**	**B**	**1**	20/01/22	AV97																																			
TP-85102	0.70		D	2	20/01/22	AV97																																				
TP-85102	1.20	1.50	B	3	20/01/22	AV97					1																																
TP-85102	1.50		D	4	20/01/22	AV97	1	1																																		
TP-85102	2.60	2.90	B	5	20/01/22	AV97					1													1																		
TP-85102	2.90		D	6	20/01/22	AV97	1	1																																		
TP-85302	**0.20**	**0.50**	**B**	**1**	20/01/22	AV97																																			
TP-85302	0.50		D	2	20/01/22	AV97																																				
TP-85302	1.20	1.50	B	3	20/01/22	AV97					1																																
TP-85302	1.40		D	4	20/01/22	AV97	1	1																																	1		chem: Elab 22-44308
TP-85302	2.20	2.50	B	5	20/01/22	AV97					1															1																
TP-85302	2.50		D	6	20/01/22	AV97	1	1																																		
TP-85383	**0.40**	**0.70**	**B**	**1**	20/01/22	AV97																																			
TP-85383	0.70		D	2	20/01/22	AV97																																				
TP-85383	1.40	1.70	B	3	20/01/22	AV97					1													1																		
TP-85383	1.70		D	4	20/01/22	AV97	1	1																																		
TP-85383	2.40	2.70	B	5	20/01/22	AV97					1																																
TP-85383	2.70		D	6	20/01/22	AV97	1	1																																		
TP-86302	**0.30**	**0.60**	**B**	**1**	21/01/22	AV97																																			
TP-86302	1.30	1.60	B	2	21/01/22	AV97					1																																
TP-87206	**0.40**	**0.70**	**B**	**1**	21/01/22	AV97					1																																
TP-87206	0.70		D	2	21/01/22	AV97	1	1																																		
TP-87206	1.70	2.00	B	3	21/01/22	AV97					1																																
TP-87304	**0.20**	**0.40**	**B**	**1**	21/01/22	AV97																																			
TP-87304	0.30		D	2	21/01/22	AV97																																				
TP-87304	1.20	1.50	B	3	21/01/22	AV97					1													1																		
TP-87304	1.50		D	4	21/01/22	AV97	1	1																																		

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)				Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undrained		Point Load	BRE Suite B	Other Rock Tests	comment
TP-87304	2.10	2.40	B	5	21/01/22	AV97					1																																	
TP-87706	**0.30**	**0.60**	**B**	**1**	24/01/22	AV97																																						
TP-87706	0.60		D	2	24/01/22	AV97																																						
TP-87706	1.30	1.60	B	3	24/01/22	AV97					1																																	
TP-87706	2.00	2.30	B	4	24/01/22	AV97					1																																	
TP-87803	**0.20**	**0.40**	**B**	**1**	24/01/22	AV97																																						
TP-87803	0.30		D	2	24/01/22	AV97																																						
TP-87803	0.50	0.80	B	3	24/01/22	AV97					1																																	
TP-87803	0.80		D	4	24/01/22	AV97	1	1																																				
TP-87803	1.70	2.00	B	5	24/01/22	AV97					1																																1		chem: Elab 22-44308
TP-87905	**0.30**	**0.50**	**B**	**1**	24/01/22	AV97																																						
TP-87905	0.40		D	2	24/01/22	AV97																																						
TP-87905	0.80	1.10	B	3	24/01/22	AV97					1																																	
TP-88303	**0.30**	**0.60**	**B**	**1**	01/02/22	AV96					1	1																																	
TP-88303	0.60		D	2	01/02/22	AV96																																						
TP-88303	0.80	1.10	B	3	01/02/22	AV96					1	1																																	
TP-88303	1.10		D	4	01/02/22	AV96	1	1																																				
TP-88303	2.00	2.30	B	5	01/02/22	AV96					1	1													1																					
TP-88303	2.30		D	6	01/02/22	AV96	1	1																																			1		chem: Elab 22-44308
TP-88402	**0.30**	**0.60**	**B**	**1**	01/02/22	AV96					1	1																																	
TP-88402	1.20	1.50	B	2	01/02/22	AV96					1	1																																	
TP-88402	1.50		D	3	01/02/22	AV96	1	1																																				
TP-88503	**0.30**	**0.60**	**B**	**1**	25/01/22	AV97					1																																	
TP-88503	1.20	1.50	B	2	25/01/22	AV97					1																																	
TP-88503	1.50		D	3	25/01/22	AV97	1	1																																			1		chem: Elab 22-44308
TP-88601	**0.30**	**0.60**	**B**	**1**	25/01/22	AV97																																						
TP-88601	0.50		D	2	25/01/22	AV97																																						
TP-88601	1.30	1.60	B	3	25/01/22	AV97					1																																	
TP-88703	**0.50**	**0.80**	**B**	**1**	25/01/22	AV97					1																																	
TP-88703	0.80		D	2	25/01/22	AV97																																						
TP-88703	1.50	1.80	B	3	25/01/22	AV97					1																																	
TP-88703	1.80		D	4	25/01/22	AV97	1	1																																				
TP-88802	**0.30**	**0.60**	**B**	**1**	24/01/22	AV97					1																																	
TP-88802	0.50		D	2	24/01/22	AV97																																						
TP-88802	0.60	0.90	B	3	24/01/22	AV97																																						
TP-88802	0.90		D	4	24/01/22	AV97	1	1																																				
TP-88802	1.30	1.60	B	5	24/01/22	AV97					1																																	
TP-88802	1.60		D	6	24/01/22	AV97	1	1																																			1		chem: Elab 22-44308
TP-88802	2.70	3.00	B	7	24/01/22	AV97					1																																	
TP-88802	3.00		D	8	24/01/22	AV97	1	1																																				
TP-88904	**0.30**	**0.60**	**B**	**1**	24/01/22	AV97					1																																	

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
Start	01/10/21				
Today	03/04/23				

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)										Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-88904	0.90	1.20	B	2	24/01/22	AV97					1																													
TP-88904	2.70	3.00	B	3	24/01/22	AV97					1																												1	chem: Elab 22-44308
TP-89003	**0.30**	**0.60**	**B**	**1**	25/01/22	AV97					1																													
TP-89003	1.30	1.60	B	2	25/01/22	AV97					1																													
TP-89003	1.60		B	3	25/01/22	AV97	1	1																																
TP-89003	2.30	2.60	D	4	25/01/22	AV97					1																													
TP-89104	**0.50**	**0.80**	**B**	**1**	25/01/22	AV97					1																													
TP-89104	0.80		D	2	25/01/22	AV97	1	1																															1	chem: Elab 22-44308
TP-89104	1.20	1.50	B	3	25/01/22	AV97					1																													
TP-89205	**0.50**	**0.80**	**B**	**1**	25/01/22	AV97					1																													
TP-89205	1.40	1.70	B	2	25/01/22	AV97					1																													
TP-89205	1.70		D	3	25/01/22	AV97	1	1																																
TP-89303	**0.30**	**0.60**	**B**	**1**	26/01/22	AV97					1																													
TP-89303	1.10		D	2	26/01/22	AV97																																		
TP-89303	1.30	1.40	B	3	26/01/22	AV97																																		
TP-89303	1.80		D	4	26/01/22	AV97																																		
TP-89303	1.80	2.10	B	5	26/01/22	AV97					1																													
TP-89303	2.10		D	6	26/01/22	AV97	1	1																																
TP-89405	**0.40**	**0.70**	**B**	**1**	26/01/22	AV97					1																													
TP-89405	0.70		D	2	26/01/22	AV97	1	1																																
TP-89405	1.60	1.90	B	3	26/01/22	AV97					1																													
TP-89504	**0.40**	**0.70**	**B**	**1**	26/01/22	AV97					1																													
TP-89504	1.20	1.50	B	2	26/01/22	AV97																																		
TP-89504	1.90	2.20	B	3	26/01/22	AV97					1																													
TP-89555	**0.40**	**0.70**	**B**	**1**	01/02/22	AV96					1	1																												
TP-89555	0.80	1.10	B	2	01/02/22	AV96					1	1																												
TP-89555	1.10		D	3	01/02/22	AV96	1	1																																
TP-89555	1.50	1.80	B	4	01/02/22	AV96					1	1																												
TP-89555	2.20	2.50	B	5	01/02/22	AV96					1	1																												
TP-90401	**0.30**	**0.60**	**B**	**1**	02/02/22	AV96					1	1																												
TP-90401	0.60		D	2	02/02/22	AV96	1	1																																
TP-90401	1.20	1.50	B	3	02/02/22	AV96					1	1														1														
TP-90401	1.50		D	4	02/02/22	AV96	1	1																																
TP-90401	1.80	2.10	B	5	02/02/22	AV96																																		
TP-90401	2.10		D	6	02/02/22	AV96	1	1																															1	chem: Elab 22-44308
TP-90503	**0.40**	**0.70**	**B**	**1**	02/02/22	AV96					1	1																												
TP-90503	0.70		D	2	02/02/22	AV96																																		
TP-90503	1.40	1.70	B	3	02/02/22	AV96					1	1																												
TP-90503	1.70		D	4	02/02/22	AV96	1	1																																
TP-90604	**0.20**	**0.50**	**B**	**1**	02/02/22	AV96					1	1																												
TP-90604	0.40		D	2	02/02/22	AV96	1	1																																

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Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete										Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-90604	0.60	0.90	B	3	02/02/22	AV96					1	1																																
TP-90604	1.50	1.80	B	4	02/02/22	AV96					1	1																																
TP-90604	1.80		D	5	02/02/22	AV96	1	1																																	1		chem: Elab 22-44308
TP-90704	**0.20**	**0.50**	**B**	**1**	01/02/22	AV96					1	1																																
TP-90704	0.40		D	2	01/02/22	AV96																																					
TP-90704	0.60	0.90	B	3	01/02/22	AV96					1	1																															
TP-90704	1.60	1.90	B	4	01/02/22	AV96					1	1												1																			
TP-90704	1.90		D	5	01/02/22	AV96	1	1																																			
TP-90800	**0.30**	**0.60**	**B**	**1**	02/02/22	AV96					1	1																																
TP-90800	0.60		D	2	02/02/22	AV96																																					
TP-90800	1.30	1.60	B	3	02/02/22	AV96					1	1																															
TP-90800	1.60		D	4	02/02/22	AV96	1	1																																			
TP-90800	3.00	3.30	B	5	02/02/22	AV96	1	1			1	1																															
TP-90894	**0.40**	**0.70**	**B**	**1**	02/02/22	AV96					1	1																															
TP-90894	0.70		D	2	02/02/22	AV96	1	1																																			
TP-90894	1.50	1.80	B	3	02/02/22	AV96					1	1														1																	
TP-90894	3.10	3.40	B	4	02/02/22	AV96					1	1																															
TP-90894	3.40		D	5	02/02/22	AV96	1	1																																	1		chem: Elab 22-44308
TP-91012	**0.40**	**0.70**	**B**	**1**	03/02/22	AV96					1	1																															
TP-91012	0.70		D	2	03/02/22	AV96	1	1																																			
TP-91012	1.70	2.00	B	3	03/02/22	AV96																																			
TP-91012	2.00		D	4	03/02/22	AV96																																			1		chem: Elab 22-44308
TP-91012	3.90	4.20	B	5	03/02/22	AV96					1	1																		1													
TP-91012	4.20		D	6	03/02/22	AV96	1	1																																			
TP-91104	**0.50**	**0.80**	**B**	**1**	03/02/22	av96?					1	1																															
TP-91104	0.80		D	2	03/02/22	av96																																					
TP-91104	1.50	1.80	B	3	03/02/22	av96?					1	1																															
TP-91104	1.80		D	4	03/02/22	av96?	1	1																																	1		chem ELAB: 22-44478
TP-91193	**0.30**	**0.50**	**B**	**1**	03/02/22	av96?																																			
TP-91193	0.40		D	2	03/02/22	av96																																			
TP-91193	1.30	1.50	B	3	03/02/22	av96?					1	1																													
TP-91193	1.50		D	4	03/02/22	av96?	1	1																																	
TP-91193	2.70	3.00	B	5	03/02/22	av96?					1	1																													
TP-91193	3.00		D	6	03/02/22	av96?	1	1																																	
TP-91305	**0.30**	**0.60**	**B**	**1**	03/02/22	AW12					1	1																													
TP-91305	1.00	1.30	B	2	03/02/22	AW12					1	1																													
TP-91305	1.30		D	3	03/02/22	AW12	1	1																																	
TP-91305	2.30	2.60	B	4	03/02/22	AW12					1	1																													
TP-91305	2.60		D	5	03/02/22	AW12	1	1																																	1		chem ELAB: 22-44478
TP-91305	3.20	3.50	B	6	03/02/22	AW12					1	1																		1													
TP-91406	**0.20**	**0.50**	**B**	**1**	03/02/22	AW12					1	1																															

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-91406	0.50		D	2	03/02/22	AW12	1	1																																	
TP-91406	1.50	1.80	B	3	03/02/22	AW12					1	1												1																	
TP-91406	1.80		D	4	03/02/22	AW12	1	1																																	
TP-91504	**0.40**	**0.70**	**B**	**1**	04/02/22	AW12					1	1																													
TP-91504	0.70		D	2	04/02/22	AW12	1	1																																	
TP-91504	1.10	1.40	B	3	04/02/22	AW12					1	1																													
TP-91504	1.40		D	4	04/02/22	AW12																																			
TP-91504	2.00	2.30	B	5	04/02/22	AW12					1	1																													
TP-91603	**0.60**	**0.90**	**B**	**1**	04/02/22	AW12					1	1																													
TP-91603	0.90		D	2	04/02/22	AW12																																			
TP-91603	1.60	1.90	B	3	04/02/22	AW12					1	1																												1	chem ELAB: 22-44478
TP-91705	**0.50**	**0.80**	**B**	**1**	04/02/22	AW12					1	1																													
TP-91705	0.80		D	2	04/02/22	AW12	1	1																																	
TP-91705	1.10	1.30	B	3	04/02/22	AW12					1	1																													
TP-91805	**0.40**		**D**	**1**	04/02/22	AW12																																			
TP-91805	0.50	0.80	B	2	04/02/22	AW12					1	1																													
TP-91805	0.80		D	3	04/02/22	AW12	1	1																																	
TP-91805	2.30	2.60	B	4	04/02/22	AW12					1	1																													
TP-91805	2.60		D	5	04/02/22	AW12	1	1																																1	chem ELAB: 22-44478
TP-91905	**0.40**	**0.70**	**B**	**1**	09/02/22	**AW07**					1																														
TP-91905	0.70		D	2	09/02/22	**AW07**																																		1	chem - ELAB 22.43588
TP-91905	1.70	2.00	B	3	09/02/22	**AW07**					1															1														
TP-91905	2.00		D	4	09/02/22	**AW07**	1	1																																	
TP-92029	**0.30**	**0.60**	**B**	**1**	09/02/22	**AW07**					1																														
TP-92029	0.60		D	2	09/02/22	**AW07**	1	1																																1	chem - ELAB 22.43588
TP-92029	1.30	1.60	B	3	09/02/22	**AW07**					1																														
TP-92029	1.60		D	4	09/02/22	**AW07**	1	1																																	
TP-92106	**0.30**	**0.60**	**B**	**1**	09/02/22	**AW07**					1																														
TP-92106	0.60		D	2	09/02/22	**AW07**																																		1	chem - ELAB 22.43588
TP-92106	1.30	1.60	B	3	09/02/22	**AW07**					1																														
TP-92106	1.60		D	4	09/02/22	**AW07**	0*	0*																																	*not tested in K4
TP-92106	2.30	2.60	B	5	09/02/22	**AW07**																		1																	
TP-92106	2.60		D	6	09/02/22	**AW07**																																			
TP-92209	**0.30**	**0.60**	**B**	**1**	09/02/22	**AW07**					1																														
TP-92209	0.60		D	2	09/02/22	**AW07**	1	1																																	
TP-92209	0.90	1.20	B	3	09/02/22	**AW07**					1																														
TP-92209	1.20		D	4	09/02/22	**AW07**	1	1																																	
TP-92209	2.40	2.70	B	5	09/02/22	**AW07**					1															1														
TP-92209	2.70		D	6	09/02/22	**AW07**	1	1																																	
TP-92306	**0.20**	**0.50**	**B**	**1**	08/02/22	AW12					1	1																													

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Turnaround

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)				Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	Other Rock Tests	comment
TP-92306	0.50		D	2	08/02/22	AW12	1	1																																			
TP-92306	1.20	1.50	B	3	08/02/22	AW12					1	1																															
TP-92306	1.50		D	4	08/02/22	AW12	1	1																																			
TP-92306	2.20	2.50	B	5	08/02/22	AW12					1	1																															
TP-92306	2.50		D	6	08/02/22	AW12	1	1																																			
TP-92407	**0.30**	**0.60**	**B**	**1**	08/02/22	AW12					1	1																															
TP-92407	0.60		D	2	08/02/22	AW12	1	1																																			
TP-92407	1.30	1.60	B	3	08/02/22	AW12					1	1														1																	
TP-92407	1.60		D	4	08/02/22	AW12	1	1																																			
TP-92407	3.00	3.30	B	5	08/02/22	AW12					1	1																															
TP-92407	3.30		D	6	08/02/22	AW12	1	1																																	1		chem ELAB: 22-44478
TP-92506	**0.40**	**0.70**	**B**	**1**	08/02/22	AW12					1	1																															
TP-92506	0.70		D	2	08/02/22	AW12	1	1																																			
TP-92506	2.00	2.30	B	3	08/02/22	AW12					1	1																															
TP-92506	2.30		D	4	08/02/22	AW12	1	1																																			
TP-92506	3.00	3.30	B	5	08/02/22	AW12					1	1																															
TP-92506	3.30		D	6	08/02/22	AW12	1	1																																			
TP-92587	**0.30**	**0.60**	**B**	**1**	08/02/22	AW12					1	1																															
TP-92587	0.60		D	2	08/02/22	AW12	1	1																																			
TP-92587	1.30	1.60	B	3	08/02/22	AW12					1	1																															
TP-92587	1.60		D	4	08/02/22	AW12	1	1																																	1		chem ELAB: 22-44478
TP-92587	2.30	2.60	B	5	08/02/22	AW12					1	1																															
TP-92587	2.60		D	6	08/02/22	AW12	1	1																																			
TP-92706	**0.30**	**0.60**	**B**	**1**	08/02/22	AW12					1	1																															
TP-92706	0.60		D	2	08/02/22	AW12	1	1																																			
TP-92706	1.30	1.60	B	3	08/02/22	AW12					1	1												1																			
TP-92706	1.60		D	4	08/02/22	AW12																																					
TP-92706	2.30	2.60	B	5	08/02/22	AW12					1	1																															
TP-92706	2.60		D	6	08/02/22	AW12	1	1																																			
TP-92804	**0.40**	**0.70**	**B**	**1**	07/02/22	AW12					1	1																															
TP-92804	0.70		D	2	07/02/22	AW12	1	1																																			
TP-92804	0.80	1.10	B	3	07/02/22	AW12																																			
TP-92804	0.90		D	4	07/02/22	AW12																																					
TP-92804	1.30	1.60	B	5	07/02/22	AW12					1	1																															
TP-92804	3.00	3.30	B	6	07/02/22	AW12					1	1																															
TP-92804	3.30		D	7	07/02/22	AW12																																			1		chem ELAB: 22-44478
TP-92904	**0.30**	**0.60**	**B**	**1**	07/02/22	AW12					1	1																															
TP-92904	0.60		D	2	07/02/22	AW12	1	1																																			
TP-92904	1.00	1.30	B	3	07/02/22	AW12					1	1																															
TP-92904	2.30	2.60	B	4	07/02/22	AW12					1	1																															

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Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-92904	2.60		D	5	07/02/22	AW12	1	1																																			
TP-93003	**0.30**	**0.60**	**B**	**1**	07/02/22	AW12					1	1																															
TP-93003	0.60		D	2	07/02/22	AW12	1	1																																			
TP-93003	1.30	1.60	B	3	07/02/22	AW12					1	1																															
TP-93003	1.60		D	4	07/02/22	AW12																																					
TP-93003	3.30	3.60	B	5	07/02/22	AW12					1	1																															
TP-93003	3.30		D	6	07/02/22	AW12	1	1																																			
TP-93106	**0.40**	**0.70**	**B**	**1**	07/02/22	AW12					1	1																															
TP-93106	0.70		D	2	07/02/22	AW12																																					
TP-93106	1.70	2.00	B	3	07/02/22	AW12					1	1												1																			
TP-93106	2.00		D	4	07/02/22	AW12	1	1																																			
TP-93106	3.80	4.10	B	5	07/02/22	AW12					1	1																															
TP-93106	4.10		D	6	07/02/22	AW12	1	1																																	1		chem ELAB: 22-44478
TP-93174	**0.40**	**0.70**	**B**	**1**	07/02/22	AW12					1	1																															
TP-93174	0.70		D	2	07/02/22	AW12	1	1																																			
TP-93174	1.30	1.60	B	3	07/02/22	AW12					1	1																															
TP-93174	1.60		D	4	07/02/22	AW12																																					
TP-93174	2.80	3.10	B	5	07/02/22	AW12					1	1																															
TP-93174	3.10		D	6	07/02/22	AW12	1	1																																			
TP-93352	**0.30**	**0.60**	**B**	**1**	09/02/22	**AW07**					1																																
TP-93352	0.60		D	2	09/02/22	**AW07**	1	1																																			
TP-93352	1.00	1.30	B	3	09/02/22	**AW07**					1																														1		chem - ELAB 22.43588
TP-93352	1.60	1.90	B	4	09/02/22	**AW07**					1																																
TP-93352	2.70	3.00	B	5	09/02/22	**AW07**					1																																
TP-93352	3.00		D	6	09/02/22	**AW07**	1	1																																			
TP-93505	**0.60**	**0.90**	**B**	**1**	10/02/22	AW07					1	1												1																			
TP-93505	0.90		D	2	10/02/22	AW07	1	1																																			
TP-93505	1.60	1.90	B	3	10/02/22	AW07																																					
TP-93505	1.90		D	4	10/02/22	AW07																																			1		chem - ELAB 22.43588
TP-93505	2.50	2.80	B	5	10/02/22	AW07					1	1																															
TP-93505	2.80		D	6	10/02/22	AW07	1	1																																			
TP-93602	**0.30**	**0.60**	**B**	**1**	10/02/22	AW07																																			
TP-93602	0.60		D	2	10/02/22	AW07																																					
TP-93602	1.30	1.60	B	3	10/02/22	AW07					1	1																															
TP-93602	1.60		D	4	10/02/22	AW07	1	1																																			
TP-93602	2.30	2.60	B	5	10/02/22	AW07																																					
TP-93602	2.60		D	6	10/02/22	AW07																																					
TP-93703	**0.30**	**0.60**	**B**	**1**	10/02/22	AW07																																			
TP-93703	0.60		D	2	10/02/22	AW07																																					
TP-93703	0.90	1.20	B	3	10/02/22	AW07					1	1																															

0 = test scheduled,
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0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)										Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-93703	2.30	2.60	B	4	10/02/22	AW07					1	1														1																		
TP-93703	2.60		D	5	10/02/22	AW07	1	1																																			
TP-93803	**0.30**	**0.60**	**B**	**1**	11/02/22	AW07																																					
TP-93803	0.50		D	2	11/02/22	AW07																																					
TP-93803	1.30	1.60	B	3	11/02/22	AW07					1	1																															
TP-93803	1.60		D	4	11/02/22	AW07	1	1																																			
TP-93902	**0.40**	**0.70**	**B**	**1**	11/02/22	AW07					1	1																															
TP-93902	1.70	2.00	B	2	11/02/22	AW07					1	1												1																			
TP-93902	2.00		D	3	11/02/22	AW07	1	1																																	1		chem - ELAB 22.43588
TP-94015	**0.20**	**0.50**	**B**	**1**	10/02/22	AW07																																					
TP-94015	0.40		D	2	10/02/22	AW07																																					
TP-94015	0.80	1.10	B	3	10/02/22	AW07																																					
TP-94015	1.10		D	4	10/02/22	AW07							1	1																													chem - ELAB 22.43588
TP-94015	1.50	1.80	B	5	10/02/22	AW07					1	1																															
TP-94015	2.10	2.40	B	6	10/02/22	AW07					1	1																															
TP-94015	2.40		D	7	10/02/22	AW07																																			1		chem - ELAB 22.43588
TP-94103	**0.20**	**0.50**	**B**	**1**	10/02/22	AW07																																					
TP-94103	0.50		D	2	10/02/22	AW07																																					
TP-94103	1.20	1.50	B	3	10/02/22	AW07																																					
TP-94103	1.50		D	4	10/02/22	AW07							1	1																													chem - ELAB 22.43588
TP-94103	2.00	2.30	B	5	10/02/22	AW07					1	1																															
TP-94103	2.30		D	6	10/02/22	AW07																																					
TP-94198	**0.30**	**0.60**	**B**	**1**	10/02/22	AW07					1	1																															
TP-94198	0.60		D	2	10/02/22	AW07																																					
TP-94198	1.30	1.60	B	3	10/02/22	AW07					1	1												1																			
TP-94198	1.60		D	4	10/02/22	AW07	1	1																																			
TP-94401	**0.40**	**0.70**	**B**	**1**	11/02/22	AW07					1	1																															
TP-94401	0.70		D	2	11/02/22	AW07	1	1																																			
TP-94401	1.40	1.70	B	3	11/02/22	AW07					1	1																															
TP-94401	1.70		D	4	11/02/22	AW07	1	1																																			
TP-94504	**0.50**	**0.80**	**B**	**1**	11/02/22	AW07					1	1																															
TP-94504	0.80		D	2	11/02/22	AW07	1	1																																			
TP-94504	1.50	1.80	B	3	11/02/22	AW07					1	1																															
TP-94504	1.80		D	4	11/02/22	AW07	1	1																																	1		chem - ELAB 22.43588
TP-94504	2.40	2.60	B	5	11/02/22	AW07					1	1																															
TP-94608	**0.20**	**0.50**	**B**	**1**	14/02/22	AW07					1	1																															
TP-94608	1.20	1.50	B	2	14/02/22	AW07					1	1																															
TP-94608	1.50		D	3	14/02/22	AW07	1	1																																			
TP-94704	**0.20**	**0.50**	**B**	**1**	14/02/22	AW07																																					
TP-94704	0.50		D	2	14/02/22	AW07																																					
TP-94704	1.10	1.40	B	3	14/02/22	AW07					1	1																															

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Point Load	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-94704	1.40		D	4	14/02/22	AW07	1	1																																	
TP-94704	1.50	1.80	B	5	14/02/22	AW07					1	0*																												1	chem - ELAB 22.43588
TP-94809	**0.20**	**0.50**	**B**	**1**	14/02/22	AW07																																		
TP-94809	0.50		D	2	14/02/22	AW07																																		
TP-94809	0.70	1.00	B	3	14/02/22	AW07					1	1																												
TP-94809	1.00		D	4	14/02/22	AW07	1	1																																
TP-94809	1.30	1.60	B	5	14/02/22	AW07					1	0*																												
TP-94905	**0.40**	**0.70**	**B**	**1**	14/02/22	AW07					1	1														1														
TP-94905	0.70		D	2	14/02/22	AW07	1	1																																
TP-94905	1.50	1.80	B	3	14/02/22	AW07					1	1																												
TP-95003	**0.30**	**0.60**	**B**	**1**	14/02/22	AW07																																		
TP-95003	0.60		D	2	14/02/22	AW07																																		
TP-95003	1.10	1.40	B	3	14/02/22	AW07					1	1																												
TP-95003	1.40		D	4	14/02/22	AW07	1	1																																
TP-95003	2.00	2.30	B	5	14/02/22	AW07					1	1																												
TP-95003	2.30		D	6	14/02/22	AW07																																		1	chem - ELAB 22.43588
TP-95408	**0.60**	**0.90**	**B**	**1**	15/02/22	AW09					1	1																												
TP-95408	0.90		D	2	15/02/22	AW09	1	1																																
TP-95408	1.60	1.90	B	3	15/02/22	AW09					1	1												1																
TP-95408	1.90		D	4	15/02/22	AW09	1	1																																
TP-95408	3.00	3.30	B	5	15/02/22	AW09																																		
TP-95408	3.30		D	6	15/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-95504	**0.60**	**0.90**	**B**	**1**	15/02/22	AW09					1	1																												
TP-95504	1.30	1.60	B	2	15/02/22	AW09					1	1																												
TP-95600	**0.20**	**0.60**	**B**	**1**	15/02/22	AW09																																		
TP-95600	0.30		D	2	15/02/22	AW09																																		
TP-95600	0.50	0.80	B	3	15/02/22	AW09					1	1																												
TP-95705	**0.50**	**0.80**	**B**	**1**	15/02/22	AW09					1	0*																												
TP-95806	**0.30**	**0.60**	**B**	**1**	15/02/22	AW09																																		
TP-95806	0.60		D	2	15/02/22	AW09																																		
TP-95806	1.30	1.60	B	3	15/02/22	AW09					1	1												1																
TP-95806	1.60		D	4	15/02/22	AW09	1	1																																
TP-95806	2.10	2.40	B	5	15/02/22	AW09					1	1																												
TP-95806	2.40		D	6	15/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-95905	**0.30**	**0.60**	**B**	**1**	15/02/22	AW09																																		
TP-95905	0.50		D	2	15/02/22	AW09																																		
TP-95905	1.30	1.60	B	3	15/02/22	AW09					1	1														1														
TP-95905	1.60		D	4	15/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-95999	**0.30**	**0.60**	**B**	**1**	16/02/22	AW09					1	1																												
TP-95999	0.50		D	2	16/02/22	AW09	1	1																																
TP-95999	1.30	1.60	B	3	16/02/22	AW09					1	1																												

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0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23			
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021			
	Start	01/10/21					
	Today	03/04/23					

Sample Details							Classification					Chemical / Concrete										Compaction					Compressibility				Strength (Total)										Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	comment
TP-96105	**0.30**	**0.60**	**B**	**1**	16/02/22	AW09																																			
TP-96105	0.60		D	2	16/02/22	AW09																																			
TP-96105	1.00	1.32	B	3	16/02/22	AW09					1	1																													
TP-96105	1.30		D	4	16/02/22	AW09	1	1																																	
TP-96105	1.70	2.00	B	5	16/02/22	AW09					1	1																													
TP-96105	2.00		D	6	16/02/22	AW09																																		1	CHEM ELAB 22-43588
TP-96204	**0.30**	**0.60**	**B**	**1**	16/02/22	AW09																																			
TP-96204	0.60		D	2	16/02/22	AW09																																			
TP-96204	1.30	1.60	B	3	16/02/22	AW09					1	1														1															
TP-96204	1.60		D	4	16/02/22	AW09	1	1																																	
TP-96304	**0.40**	**0.70**	**B**	**1**	16/02/22	AW09					1	0*																													
TP-96304	0.90	1.20	B	2	16/02/22	AW09					1	1																													
TP-96304	1.20		D	3	16/02/22	AW09	1	1																																	
TP-96304	1.40	1.70	B	4	16/02/22	AW09					1	1																													
TP-96387	**0.30**	**0.60**	**B**	**1**	16/02/22	AW09					1	1																													
TP-96387	0.60		D	2	16/02/22	AW09	1	1																																	
TP-96387	1.30	1.60	B	3	16/02/22	AW09					1	0*																													
TP-96505	**0.30**	**0.60**	**B**	**1**	17/02/22	AW09																																			
TP-96505	0.60	0.90	B	2	17/02/22	AW09																																			
TP-96505	0.70		D	3	17/02/22	AW09																																			
TP-96505	1.10	1.40	B	4	17/02/22	AW09					1	0*																													
TP-96608	**0.30**	**0.60**	**B**	**1**	17/02/22	AW09					1	1																													
TP-96608	0.60		D	2	17/02/22	AW09	1	1																																	
TP-96608	1.00	1.30	B	3	17/02/22	AW09					1	0*																													
TP-96705	**0.30**	**0.60**	**B**	**1**	17/02/22	AW09					1	1																													
TP-96705	0.60		D	2	17/02/22	AW09	1	1																																	
TP-96705	1.30	1.60	B	3	17/02/22	AW09					1	1																													
TP-96831	**0.30**	**0.60**	**B**	**1**	17/02/22	AW09																																			
TP-96831	0.60		D	2	17/02/22	AW09	1																																		
TP-96831	1.00	1.30	B	3	17/02/22	AW09					1	1																													
TP-96831	1.30		D	4	17/02/22	AW09	1	1																																	
TP-96831	2.80	3.10	B	5	17/02/22	AW09					1	1												1																	
TP-96831	3.10		D	6	17/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-96905	**0.40**	**0.70**	**B**	**1**	21/02/22	AW09					0*	0*																													*not tested in K4
TP-96905	0.70		D	2	21/02/22	AW09	1	1																																	
TP-96905	1.80	2.10	B	3	21/02/22	AW09					1	1												1																	
TP-96905	2.10		D	4	21/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-97009	**0.30**	**0.60**	**B**	**1**	21/02/22	AW09																																			
TP-97009	0.90	1.20	B	2	21/02/22	AW09					1	1																													
TP-97009	1.20		D	3	21/02/22	AW09	1	1																																	
TP-97009	1.60	1.90	B	4	21/02/22	AW09					1	0*																													
TP-97108	**0.30**	**0.60**	**B**	**1**	17/02/22	AW09					1	1																													
TP-97108	0.60		D	2	17/02/22	AW09	1	1																																	

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Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification					Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-97108	1.20	1.50	B	3	17/02/22	AW09					1	1																														
TP-97206	**0.40**	**0.70**	**B**	**1**	21/02/22	AW09					1	0*																														
TP-97206	1.70	2.00	B	2	21/02/22	AW09					1	0*																														
TP-97309	**0.30**	**0.60**	**B**	**1**	21/02/22	AW09																																			
TP-97309	0.80	1.10	B	2	21/02/22	AW09																		1																	
TP-97309	0.80		D	3	21/02/22	AW09	1	1																																	
TP-97309	2.00	2.30	B	4	21/02/22	AW09					1	1																													
TP-97309	2.30		D	5	21/02/22	AW09	1	1																																	
TP-97309	3.00	3.30	B	6	21/02/22	AW09					1	1																													
TP-97309	3.30		D	7	21/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-97383	**0.30**	**0.50**	**B**	**1**	21/02/22	AW09																																		
TP-97383	0.40		D	2	21/02/22	AW09																																		
TP-97383	0.80	1.10	B	3	21/02/22	AW09					1	1																													
TP-97383	1.10		D	4	21/02/22	AW09	1	1																																	
TP-97383	2.50	2.80	B	5	21/02/22	AW09					1	1																													
TP-97383	2.80		D	6	21/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-97505	**0.40**	**0.70**	**B**	**1**	22/02/22	AW09																																		
TP-97505	0.70		D	2	22/02/22	AW09																																		
TP-97505	1.40	1.70	B	3	22/02/22	AW09					1	1														1															
TP-97505	1.70		D	4	22/02/22	AW09	1	1																																	
TP-97505	2.30	2.60	B	5	22/02/22	AW09					1	1																													
TP-97505	2.60		D	6	22/02/22	AW09	1	1																																	
TP-97602	**0.30**	**0.60**	**B**	**1**	22/02/22	AW09																																		
TP-97602	0.60		D	2	22/02/22	AW09																																		
TP-97602	0.90	1.20	B	3	22/02/22	AW09					1	1																													
TP-97602	1.20		D	4	22/02/22	AW09	1	1																																	
TP-97602	2.50	2.80	B	5	22/02/22	AW09					1	1																													
TP-97602	2.80		D	6	22/02/22	AW09	1	1																																1	CHEM ELAB 22-43588
TP-97602	4.30	4.50	B	7	22/02/22	AW09					1	1																													
TP-97704	**0.40**	**0.70**	**B**	**1**	22/02/22	AW09																																		
TP-97704	0.70		D	2	22/02/22	AW09																																		
TP-97704	2.00	2.30	B	3	22/02/22	AW09					1	1												1																	
TP-97704	2.30		D	4	22/02/22	AW09	1	1																																	
TP-97704	3.00	3.30	B	5	22/02/22	AW09					1	1																													
TP-97704	3.30		D	6	22/02/22	AW09	1	1																																	
TP-97704	3.80	4.00	B	7	22/02/22	AW09					1	1																												1	CHEM ELAB 22-43588
TP-97777	**0.30**	**0.60**	**B**	**1**	22/02/22	AW09																																		
TP-97777	1.30	1.60	B	2	22/02/22	AW09					1	1																													
TP-97777	1.60		D	3	22/02/22	AW09	1	1																																	
TP-97998	**0.30**	**0.60**	**B**	**1**	22/02/22	AW09																																		
TP-97998	0.50		D	2	22/02/22	AW09					1	1																													
TP-97998	0.70	1.00	B	3	22/02/22	AW09					1	1																													
TP-97998	1.50	1.80	B	4	22/02/22	AW09	1	1																																	

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.	Turnaround
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23			
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021			
	Start 01/10/21					
	Today 03/04/23					

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)							Shear Stregth (Effective Stress)			Index	Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	ph	Chloride Content	Chloride Content Acid		Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specif	Consolidated Drained	Consolidated Undraine	Consolidated Undrained	Point Load	BRE Suite B	comment
TP-97998	1.80		D	5	22/02/22	AW09																																			
TP-98105	**0.30**	**0.60**	**B**	**1**	22/02/22	AW09					1	1																													
TP-98105	0.60		D	2	22/02/22	AW09	1	1																																	
TP-98105	1.30	1.60	B	3	22/02/22	AW09					1	1														1														
TP-98105	1.60		D	4	22/02/22	AW09	1	1																																	
TP-98105	2.30	2.60	B	5	22/02/22	AW09					1	1																													
TP-98105	2.60		D	6	22/02/22	AW09	1	1																																1	chem: elab 22-44032
TP-98205	**0.40**	**0.70**	**B**	**1**	23/02/22	**AW17**																																	
TP-98205	0.80	1.10	B	2	23/02/22	**AW17**					1																													
TP-98205	1.10		D	3	23/02/22	**AW17**	1	1																																	
TP-98205	2.00	2.30	B	4	23/02/22	**AW17**					1														1															
TP-98205	2.30		D	5	23/02/22	**AW17**	1	1																																	
TP-98271	**0.20**	**0.50**	**B**	**1**	23/02/22	**AW17**					1																													
TP-98271	0.70	1.00	B	2	23/02/22	**AW17**					1																													
TP-98271	1.00		D	3	23/02/22	**AW17**	1	1																																	
TP-98271	2.20	2.50	B	4	23/02/22	**AW17**					1																													
TP-98271	2.50		D	5	23/02/22	**AW17**	1	1																																1	chem: elab 22-44032
TP-98403	**0.30**	**0.60**	**B**	**1**	23/02/22	**AW17**	1	1			1																1													
TP-98403	1.30	1.60	B	2	23/02/22	**AW17**					1																													
TP-98403	1.60		D	3	23/02/22	**AW17**	1	1																																	
TP-98403	2.30	2.60	B	4	23/02/22	**AW17**					1																													
TP-98403	2.60		D	5	23/02/22	**AW17**	1	1																																	
TP-98403	3.00	3.20	B	6	23/02/22	**AW17**																																			
TP-98502	**0.40**	**0.70**	**B**	**1**	23/02/22	**AW17**					1																													
TP-98502	0.70		D	2	23/02/22	**AW17**	1	1																																1	chem: elab 22-44032
TP-98502	1.50	1.80	B	3	23/02/22	**AW17**					1														1															
TP-98502	1.80		D	4	23/02/22	**AW17**	1	1																																	
TP-98602	**0.60**	**0.90**	**B**	**1**	23/02/22	**AW17**					1																													
TP-98602	0.90		D	2	23/02/22	**AW17**	1	1																																	
TP-98602	1.80	2.10	B	3	23/02/22	**AW17**					1																													
TP-98702	**0.30**	**0.60**	**B**	**1**	03/03/22	**AW19**					1																1													
TP-98702	0.60		D	2	03/03/22	**AW19**	1	1																																	
TP-98702	1.30	1.60	B	3	03/03/22	**AW19**					1																													
TP-98702	1.60		D	4	03/03/22	**AW19**																																	1	chem: elab 22-44032
TP-98702	1.90	2.20	B	5	03/03/22	**AW19**					1																													
TP-98805	**0.30**	**0.60**	**B**	**1**	03/03/22	**AW19**																																	
TP-98805	0.60		D	2	03/03/22	**AW19**	1	1																																	
TP-98805	1.20	1.50	B	3	03/03/22	**AW19**					1																													
TP-98805	1.50		D	4	03/03/22	**AW19**	1	1																																	
TP-98805	2.00	2.30	B	5	03/03/22	**AW19**					1														1															
TP-98805	2.30		D	6	03/03/22	**AW19**	1	1																																	
TP-98904	**0.50**	**0.80**	**B**	**1**	02/03/22	**AW19**					1																													
TP-98904	0.80		D	2	02/03/22	**AW19**	1	1																																1	chem: elab 22-44032
TP-98904	1.50	1.80	B	3	02/03/22	**AW19**																					1													
TP-98904	1.80		D	4	02/03/22	**AW19**																																			
TP-99004	**0.30**	**0.60**	**B**	**1**	02/03/22	**AW19**					1																													
TP-99004	0.60		D	2	02/03/22	**AW19**	1	1																																	

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102		Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region		Report Date	3/4/23		Turnaround
Schedule ID	2021OY102_1-29		Scheduled Date	from 14/10/2021		
	Start	01/10/21				
	Today	03/04/23				

Sample Details							Classification						Chemical / Concrete									Compaction					Compressibility				Strength (Total)											Other		
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B	Other Rock Tests	comment
TP-99004	1.20	1.50	B	3	02/03/22	AW19					1																																
TP-99004	1.50		D	4	02/03/22	AW19	1	1																																	1		chem: elab 22-44032
TP-99004	2.00	2.30	B	5	02/03/22	AW19					1																																
TP-99004	2.30		D	6	02/03/22	AW19	1	1																																			
TP-99105	**0.30**	**0.60**	**B**	**1**	04/03/22	AW40																																				
TP-99105	0.50		D	2	04/03/22	AW40																																					
TP-99105	1.00	1.30	B	3	04/03/22	AW40					1																																
TP-99105	1.30		D	4	04/03/22	AW40	1	1																																			
TP-99105	2.30	2.60	B	5	04/03/22	AW40					1															1																		
TP-99105	2.60		D	6	04/03/22	AW40	1	1																																			
TP-99206	**0.40**	**0.70**	**B**	**1**	04/03/22	AW40																																				
TP-99206	0.70		D	2	04/03/22	AW40	1	1																																			
TP-99206	1.40	1.70	B	3	04/03/22	AW40					1																																
TP-99206	1.70		D	4	04/03/22	AW40	1	1																																			
TP-99206	2.40	2.70	B	5	04/03/22	AW40					1													1																				
TP-99206	2.70		D	6	04/03/22	AW40	1	1																																			
TP-99304	**0.30**	**0.60**	**B**	**1**	03/03/22	AW19					1																																
TP-99304	0.60		D	2	03/03/22	AW19	1	1																																	1		chem: elab 22-44032
TP-99304	1.30	1.60	B	3	03/03/22	AW19																																				
TP-99304	1.60		D	4	03/03/22	AW19																																				
TP-99304	2.30	2.60	B	5	03/03/22	AW19					1															1																		
TP-99304	2.60		D	6	03/03/22	AW19	1	1																																			
TP-99400	**0.40**	**0.70**	**B**	**1**	03/03/22	AW19					1													1																				
TP-99400	0.70		D	2	03/03/22	AW19	1	1																																	1		chem: elab 22-44032
TP-99400	1.40	1.70	B	3	03/03/22	AW19					1																																
TP-99400	1.70		D	4	03/03/22	AW19	1	1																																			
TP-99400	2.70	3.00	B	5	03/03/22	AW19																																				
TP-99400	3.00		D	6	03/03/22	AW19																																				
TP-99505	**0.30**	**0.60**	**B**	**1**	03/03/22	AW19																																				
TP-99505	0.60		D	2	03/03/22	AW19																																				
TP-99505	1.20	1.50	B	3	03/03/22	AW19					1															1																		
TP-99505	1.50		D	4	03/03/22	AW19	1	1																																			
TP-99505	2.30	2.60	B	5	03/03/22	AW19					1																																
TP-99505	2.60		D	6	03/03/22	AW19	1	1																																			
TP-99599	**0.40**	**0.70**	**B**	**1**	04/03/22	AW19					1																																
TP-99599	0.70		D	2	04/03/22	AW19	1	1																																			
TP-99599	1.20	1.50	B	3	04/03/22	AW19					1																																
TP-99599	2.20	2.50	B	4	04/03/22	AW19					1													1																				
TP-99599	2.50		D	5	04/03/22	AW19	1	1																																	1		chem: elab 22-44032
TP-99701	**0.20**	**0.50**	**B**	**1**	04/03/22	AW19																																				
TP-99701	0.50		D	2	04/03/22	AW19	1	1																																			
TP-99701	0.70	1.00	B	3	04/03/22	AW19					1																																
TP-99701	2.80	3.10	B	4	04/03/22	AW19					1													1																				
TP-99701	3.10		D	5	04/03/22	AW19	1	1																																			

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Project ID	2021OY102	Client	Irish Water	Remarks	For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve. MCV tests: 1p test at natural moisture content.
Project Name	WSP Eastern & Midlands Region	Report Date	3/4/23		
Schedule ID	2021OY102_1-29	Scheduled Date	from 14/10/2021		
	Start 01/10/21				
	Today 03/04/23				

Turnaround

Sample Details							Classification						Chemical / Concrete								Compaction					Compressibility				Strength (Total)									Other	
Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas J	Particle Density by Small	Particle Size Distributio	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravim	Carbonate Titration	pH	Chloride Content	Chloride Content Acid	Compaction Light	Compaction Heavy	Compaction Vibrating H	Moisture Condition Valu	Moisture Condition Rela	CBR	Consolidation	Pressures	Swelling Pressure Test	Laboratory Vane test	Small Direct Shearbox	Ring shear Test	Triaxial Quick Undraine	(Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Speci	Consolidated Drained	Consolidated Undraine	Consolidated Undraine	Point Load	BRE Suite B Other Rock Tests	comment

For all PSDs & hydrometer tests scheduled: Hydrometer required if more than 10% passing for last sieve.

MCV tests: 1p test at natural moisture content.

Moisture content tests to be undertaken as part of all Atterberg / PI testing as well as any other test which tyhis forms an integral part of the test i.e. MCV, Compactions.

Testing of cross-strata samples shall be avoided.

Please advise if additional information is required to inform sample preparation and testing conditions.

0 = test scheduled,
1 = test completed as scheduled,
0* = sample not suitable for scheduled test

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH-100203	4	1.00	2.00	B		Dark grey slightly gravelly slightly sandy SILT.			16.0	89					
BH-100203	10	3.00	4.00	B		Dark grey slightly gravelly slightly sandy SILT.			15.0	83					
BH-100203	8	3.00		D		Dark grey slightly gravelly slightly sandy SILT.			16.0	77	27	17	10		CL
BH-101404	5	2.00		D		Greenish-brown slightly gravelly slightly sandy SILT.			9.9	52	38	18	20		CI
BH-36789	2	1.00		D		Light brown slightly gravelly CLAY.			16.0	48	49	27	22		CI
BH-36879	2	1.00		D		Brown slightly gravelly slightly sandy SILT. Gravel is medium.			16.0		27	21	6		ML
BH-36879	8	2.50		D		Brown slightly gravelly slightly sandy SILT. Gravel is medium.			12.0	52	23	14	9		CL
BH-36879	11	3.40		D		Orangish-brown very sandy very silty medium GRAVEL.			12.0		30	18	12		CL
BH-36883	2	1.00		D		Brown slightly gravelly slightly sandy SILT.			15.0	58	29	20	9		CL
BH-36956	5	1.50		D		Light greyish-brown slightly gravrelly slightly sandy SILT.			11.0						NP
BH-37230	5	1.50		D		Grey slightly sandy slightly gravelly SILT. Gravel is medium.			11.0						NP
BH-37778	2	1.00		D		Dark grey slightly gravelly slightly sandy SILT.			21.0	68	33	25	8		ML
BH-37778	5	1.50		D		Dark grey slightly gravelly slightly sandy SILT.			11.0		20	16	4		ML
BH-37778	11	3.50		D		Dark brown slightly gravelly sandy SILT.			11.0		22	15	7		CL
BH-38106	5	1.50		D		Light brown very silty very sandy medium GRAVEL.			11.0		26	20	6		ML
BH-38523	2	1.00		D		Grey slightly sandy slightly gravelly SILT. Gravel is medium.			11.0		24	14	10		CL
BH-38523	11	3.30		D		Grey slightly sandy gravelly SILT.			8.4						
BH-38786A	5	1.50		D		Light grey slightly gravelly slightly sandy SILT.			10.0		20	14	6		ML
BH-38786A	8	2.50		D		Grey very sandy very silty medium GRAVEL.			7.6		19	12	7		CL
BH-39229	2	1.00		D		Dark brown slightly gravelly slightly sandy SILT.			26.0		22	15	7		CL
BH-39518	2	1.00		D		Light brown slightly sandy gravelly SILT.			11.0		37	30	7		MI
BH-40004	5	1.50		D		Light brown slightly gravelly sandy SILT.			10.0		19	10	9		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH-40405	5	1.50		D		Grey slightly sandy slightly gravelly SILT.			10.0		22	14	8		CL
BH-40405	11	3.50		D		Light brown slightly sandy gravelly SILT.			9.8		21	16	5		ML
BH-40830	5	1.50		D		Grey slightly gravelly slightly sandy SILT.			12.0		21	13	8		CL
BH-40830	11	3.50		D		Grey slightly silty gravelly SAND.			5.3						NP
BH-41053	8	2.50		D		Brown very silty very sandy coarse GRAVEL.			11.0		23	17	6		ML
BH-42602	2	1.00		D		Dark grey very silty very sandy medium GRAVEL.			7.3		23	14	9		CL
BH-42602	4	1.00	1.50	B		Dark grey very silty very sandy medium GRAVEL.			8.0	42					
BH-43407	4	1.00	1.50	B		Light brown slightly sandy gravelly SILT. Gravel is coarse.			9.5	52					
BH-43407	5	1.50		D		Light brown slightly sandy gravelly SILT. Gravel is coarse.			11.0		22	13	9		CL
BH-43407	10	3.00	3.50	B		Brown slightly gravelly slightly sandy SILT.			10.0	66					
BH-43407	11	3.50		D		Brown slightly gravelly slightly sandy SILT.			10.0		23	13	10		CL
BH-43817	4	1.00	1.50	B		Light brown slightly gravelly slightly sandy SILT.			12.0	55					
BH-43817	5	1.50		D		Light brown slightly gravelly sandy SILT.			12.0		21	13	8		CL
BH-44177	4	1.00	1.50	B		Dark brown slightly sandy gravelly SILT. Gravel is medium.			12.0	53					
BH-44177	5	1.50		D		Dark brown slightly sandy gravelly SILT. Gravel is medium.			11.0		28	16	12		CL
BH-44534	2	1.00		D		Brown very sandy very silty medium and coarse GRAVEL.			57.0	61	23	17	6		ML
BH-44534	4	1.00	1.50	B		Brown very sandy very silty medium and coarse GRAVEL.			8.2	50					
BH-44534	7	2.00	2.50	B		Brown very silty SAND and GRAVEL.			7.1	48					
BH-44534	8	2.50		D		Brown very silty SAND and GRAVEL.			8.2		19	11	8		CL
BH-44534A	2	1.00		D		Dark brown slightly sandy gravelly silty CLAY.			9.7		21	10	11		CL
BH-44534A	4	1.00	1.50	B		Dark brown slightly sandy gravelly SILT.			9.9	53					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: Linear measurement unless : wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH-44534A	8	2.50		D		Dark brownish-grey silty very sandy medium and coarse GRAVEL.			5.9	30	22 -1pt	17	5		ML
BH-44534A	10	3.00	3.50	B		Grey very silty very sandy GRAVEL.			7.2	40					
BH-44534A	11	3.50		D		Grey very silty very sandy GRAVEL.			4.6		19	11	8		CL
BH-44534A	13	4.00	4.30	B		Light grey silty very sandy medium and coarse GRAVEL.			5.4	10					
BH-44676	11	3.50		D		Light brown very silty SAND and GRAVEL.			8.4	50	20	7	13		CL
BH-44676	20	6.50		D		Blackish-grey slightly gravelly slightly sandy SILT.			31.0	79	55	35	20		MH
BH-45501	8	2.50		D		Light brown slightly sandy slightly gravelly SILT.			9.8		25	15	10		CL
BH-45501	14	4.50		D		Light brown slightly sandy slightly gravelly SILT.			10.0	61	22	13	9		CL
BH-46131	5	1.50		D		Greenish-brown slightly gravelly sandy SILT.			25.0	67	39	24	15		CI
BH-46402	5	1.50		D		Light brown very silty very sandy coarse GRAVEL.			13.0	38	24	14	10		CL
BH-46715	2	1.00		D		Light brown slightly gravelly sandy SILT.			34.0	55	50	26	24		CH
BH-46715A	5	1.50		D		Light brown slightly gravelly sandy SILT.			9.8	55	20	16	4		ML
BH-47262	5	1.50		D		Orange-brown slightly gravelly slightly sandy SILT.			19.0	63	31	17	14		CL
BH-47262	14	4.50		D		Light brown slightly gravelly slightly sandy SILT.			11.0	64	22	13	9		CL
BH-47431	11	4.00		D		Light brown slightly gravelly sandy SILT.			11.0	58	20	14	6		ML
BH-47650	2	1.00		D		Light brown slightly gravelly sandy SILT.			24.0	65	77	42	35		MV
BH-48139	5	2.00		D		Light brown very silty SAND and GRAVEL.			23.0	62	30	17	13		CL
BH-49214	2	1.00		D		Brownish-grey very silty GRAVEL and SAND.			12.0	50	30	21	9		CL
BH-49513	9	3.50		D		Greyish-brown slightly gravelly sandy SILT.			30.0	93	47	20	27		CI
BH-49654	19	6.50	7.00	B		Greyish-brown slightly sandy slightly gravelly CLAY.			26.0	79	36	17	19		CI

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: Linear measurement unless : wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 3

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH-49880	9	3.50		D		Brownish-grey slightly gravelly slightly sandy SILT.			61.0	82	231	150	81		MEO
BH-50608	2	0.80		D		Brown sandy very silty medium GRAVEL.			30.0	58	56	41	15		MH
BH-50608A	2	1.00		D		Greyish-brown sandy very silty medium GRAVEL.			10.0	47	42	29	13		MI
BH-50885	2	1.00		D		Creamy-grey very silty very sandy coarse GRAVEL.			36.0	61	71	43	28		MV
BH-50920	8	3.00		D		Cream-grey sandy very silty medium GRAVEL.			8.9	59	17	11	6		ML
BH-51386	11	4.00		D		Cream very sandy very silty GRAVEL.			0.2	38	18	14	4		ML
BH-51540	2	1.00		D		Blackish-brown slightly gravelly slightly sandy SILT.			60.0	80	133	90	43		MEO
BH-51540	17	6.00		D		Dark grey slightly gravelly sandy SILT.			8.7	55	17	11	6		ML
BH-52406	2	1.00		D		Light brown slightly gravelly sandy SILT.			30.0	59	69	41	28		MH
BH-52680	2	1.00		D		Greyish-brown silty very sandy medium GRAVEL.			23.0	58	59	35	24		MH
BH-53367	2	1.00		D		Greyish-brown silty very sandy medium GRAVEL.			14.0	43	55	34	21		MH
BH-53713	8	2.50		D		Greyish-brown sandy very silty medium GRAVEL.			12.0	45					NP
BH-54059	2	1.00		D		Greyish-brown very silty very sandy GRAVEL.			27.0	52	48	31	17		MI
BH-54278	2	1.00		D		Black sandy very silty coarse GRAVEL.			41.0	45	147	107	40		MEO
BH-54810	2	1.00		D		Brownish-grey sandy very silty medium GRAVEL.			11.0	41	31	21	10		CL
BH-55410	5	1.50		D		Greyish-brown sandy very silty medium GRAVEL.			15.0	53	31	21	10		CL
BH-55944	8	2.50		D		Dark grey silty very sandy medium GRAVEL.			8.9	44	21	16	5		ML
BH-56060	2	1.00		D		Brown-black very sandy very silty medium GRAVEL.			33.0	30	80	54	26		MV
BH-56060	11	3.50		D		Brown-black very sandy very silty medium GRAVEL.			9.9	53	21	13	8		CL
BH-56109	2	1.00		D		Brown-black silty very sandy medium GRAVEL.			31.0	31	123	98	25		MEO
BH-56109	14	4.50		D		Dark grey sandy very silty medium GRAVEL.			11.0	26	20	13	7		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 4

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH-56272	2	1.00		D		Dark brownish-black slightly sandy slightly gravelly organic SILT and PEAT.			171.0	72	256	182	74		MEO
BH-56645	5	1.50		D		Brownish-grey silty very sandy GRAVEL.			8.9	34	25	19	6		ML
BH-56857	2	1.00		D		Dark bluish-grey very silty very gravelly medium and coarse SAND.			32.0	35	62	44	18		MH
BH-57037	2	1.00		D		Brownish-grey very silty SAND and GRAVEL.			23.0	69	32	23	9		CL
BH-57428	2	1.00		D		Greyish-brown very silty SAND and GRAVEL.			22.0	58	51	34	17		MH
BH-57428	8	2.50		D		Light brown slightly sandy slightly gravelly SILT.			10.0	55	20	15	5		ML
BH-57599	2	1.00		D		Brownish-grey very silty very sandy GRAVEL.			22.0	58	33	20	13		CL
BH-57599	11	3.50		D		Light brown very sandy very silty GRAVEL.			9.1	50	19	13	6		ML
BH-58807	2	1.00		D		Greyish-brown very silty SAND and GRAVEL.			18.0	54	25	17	8		CL
BH-59474	2	1.00		D		Greyish-brown very gravelly very silty medium SAND.			14.0		22	15	7		CL
BH-59932	5	1.50		D		Dark grey very silty medium SAND and coarse GRAVEL.			11.0	54					NP
BH-60805	2	1.00		D		Brownish-grey very sandy very silty coarse GRAVEL.			29.0	74	38	24	14		MI
BH-60805	11	3.50		D		Dark grey slightly sandy gravelly SILT.			10.0	48	19	13	6		ML
BH-61136	5	1.50		D		Greyish-brown very sandy very silty GRAVEL.			9.9	48	21	14	7		CL
BH-62606	2	1.00		D		Brown very silty very gravelly medium SAND.			29.0	55	65	44	21		MH
BH-62741	2	1.00		D		Brownish-grey slightly sandy SILT.			32.0	92	41	30	11		MI
BH-62741	5	2.00		D		Dark grey slightly gravelly sandy SILT.			50.0	73	49	26	23		CI

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: Linear measurement unless : wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

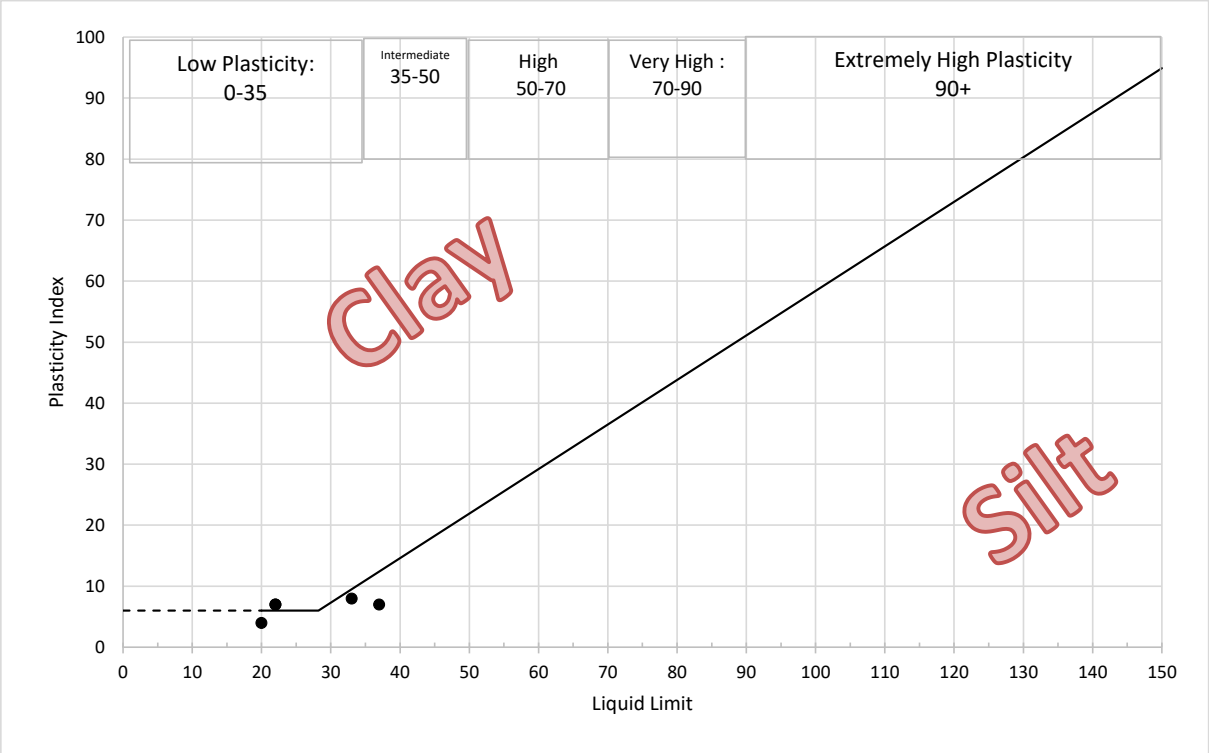
Table 1

sheet 5

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 02, BH file 01

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102

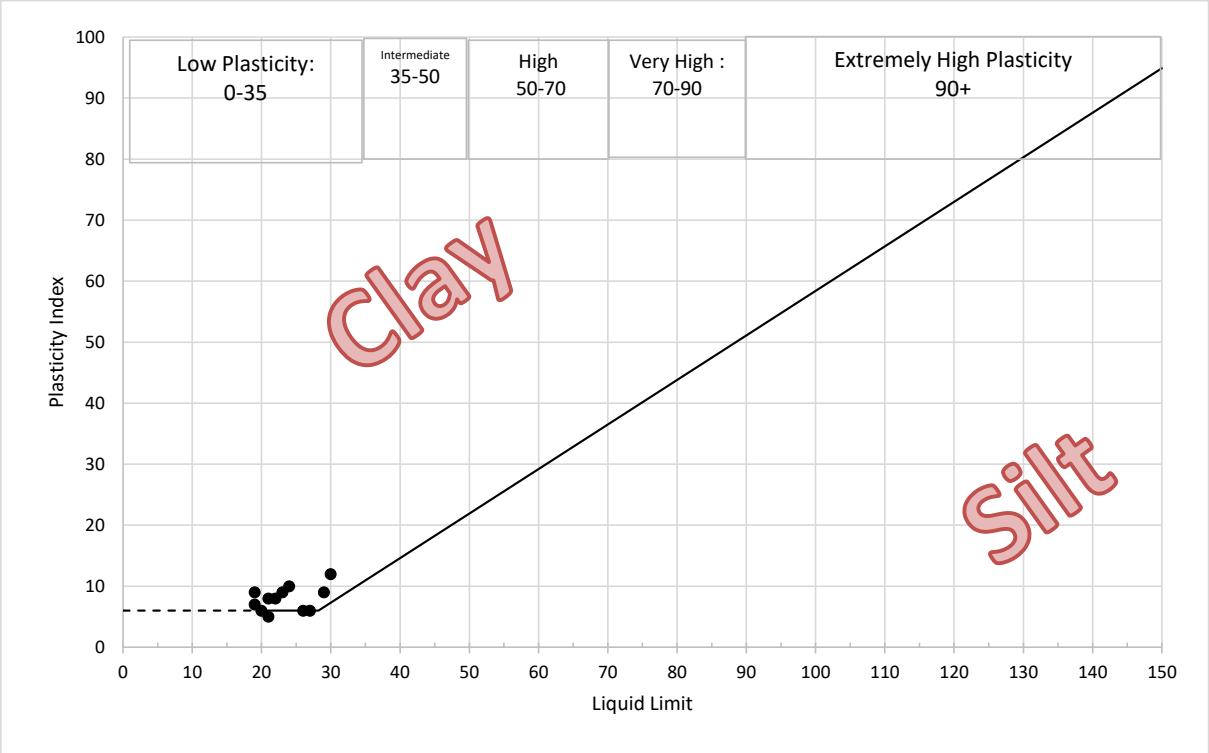


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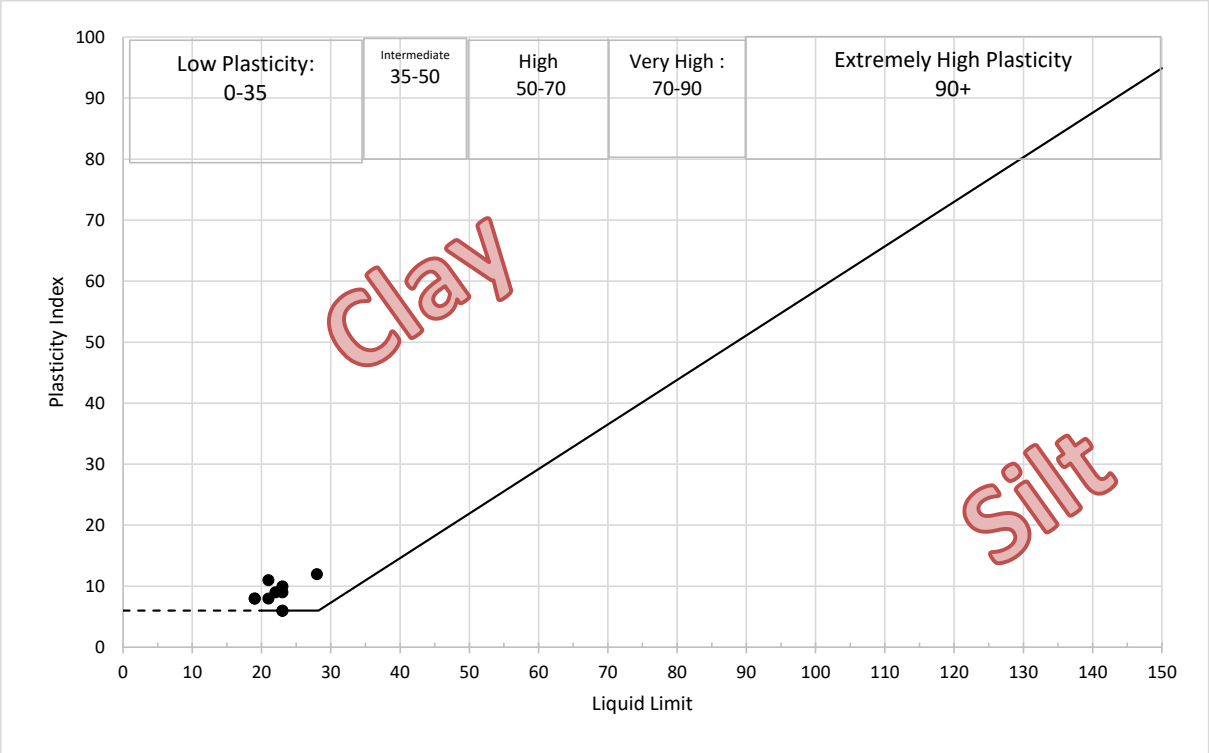
Chart taken from BS5930: 2010

Schedule 04, BH file 02

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

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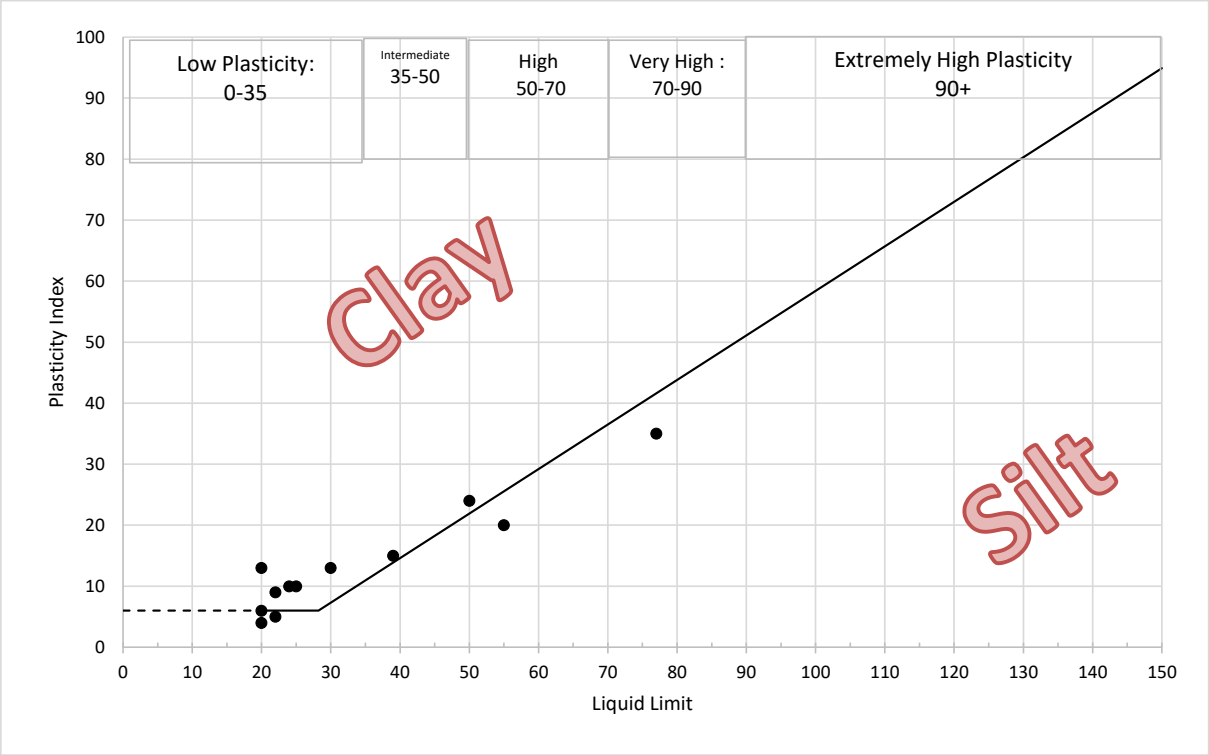
Chart taken from BS5930: 2010

Schedule 08, BH file 04

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

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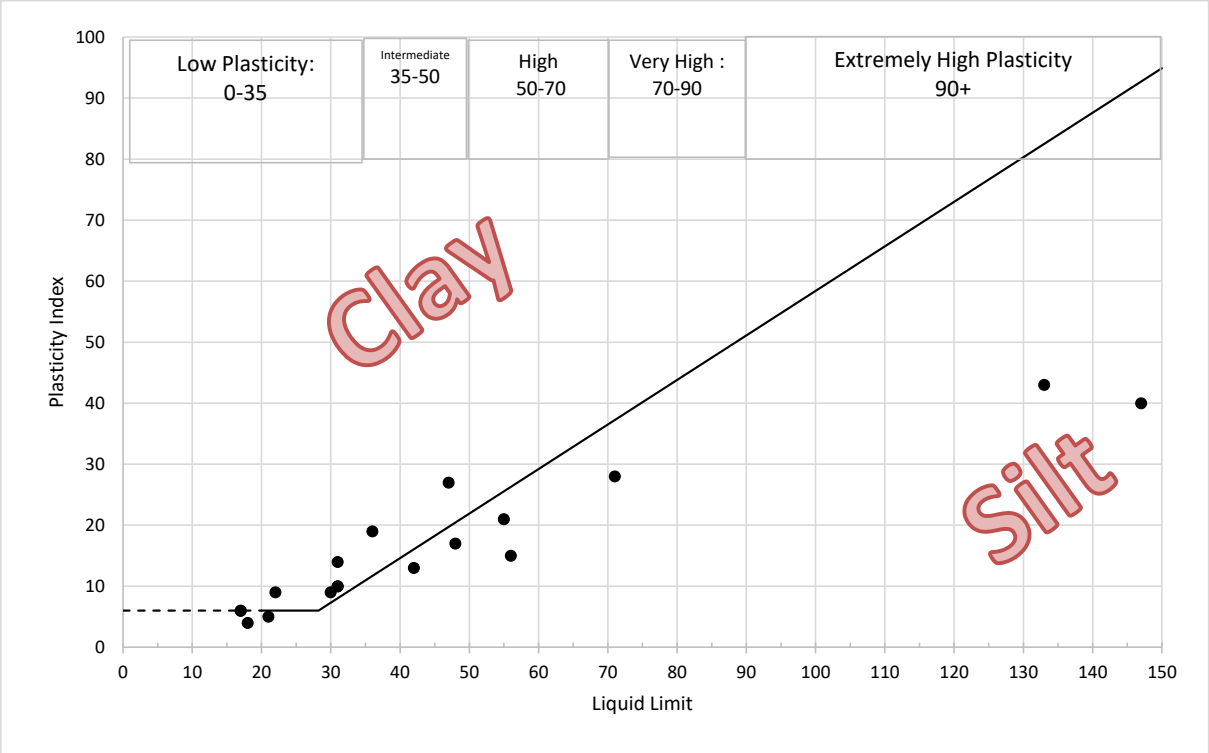
Chart taken from BS5930: 2010

Sch 10 & 12, BH file 5&6

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

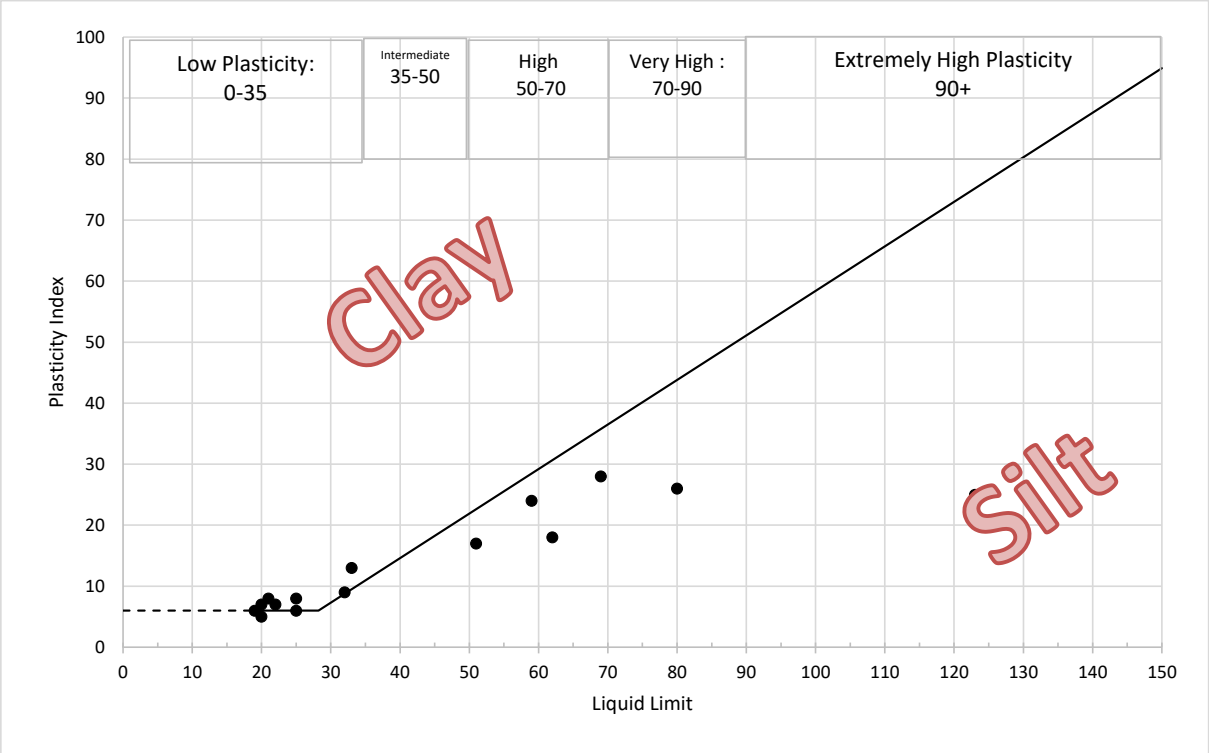
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedules 14, 17, 19, BH files 7,8,9

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	WSP Eastern & Midlands Region	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

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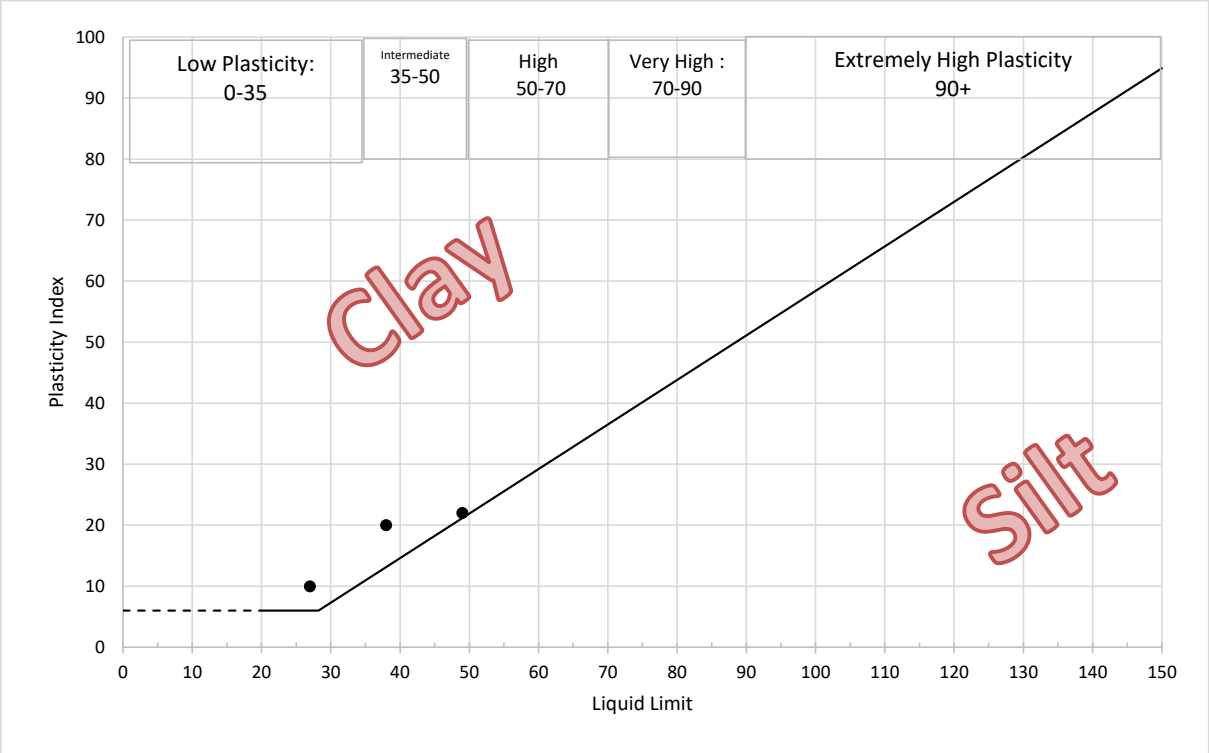
Chart taken from BS5930: 2010

Schedule 21, 24, 25, 27. BH files 10, 11, 12, 13

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Sch 57, BH file 27+25

QC Form: R1

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-100012	5	2.00		D	Brownish grey and grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	58	19	12	7	Sample washed to obtain test fraction
BH-102037	-	1.00		D	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel	17	99	35	18	17	
BH-102528	-	1.00		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	18	52	23	17	6	Sample washed to obtain test fraction
BH-102528	-	4.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	10	65	19	13	6	Sample washed to obtain test fraction
BH-103234	-	2.00		D	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	12	45	21	14	7	Sample washed to obtain test fraction
BH-62806	-	1.00		D	Brown slightly gravelly slightly sandy very silty CLAY with rare numerous fine roots (gravel is fine and sub-angula)	51	83	47	32	15	Sample washed to obtain test fraction
BH-63008	-	3.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	14	73	24	16	8	Sampe washed to obtain test fraction
BH-64085	-	2.00		D	Brown slightly sandy silty CLAY with rare fine sub-angular gravel	35	99	46	23	23	
BH-64085	-	5.00		D	Dark greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel	64	99	75	32	43	
BH-64085	-	9.00		D	Dark grey slightly gravelly slightly sandy very silty CLAY (gravel is fine and anguar to sub-angular)	60	89	37	25	12	Sample washed to obtain test fraction
BH-65612	2	1.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	45	19	13	6	Sample washed to obtain test fraction
BH-67338	8	2.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	59	18	13	5	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials **J.P**

Date: 15/12/2022

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-67630	8	2.50		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	10	55	20	13	7	Sample washed to obtain test fraction
BH-67630	14	4.50		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	56	21	12	9	Sample washed to obtain test fraction
BH-67630	20	6.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	7.2	53	21	13	8	Sample washed to obtain test fraction
BH-68009	2	1.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	49	21	14	7	Sample washed to obtain test fraction
BH-68306	5	1.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	60	20	13	7	Sample washed to obtain test fraction
BH-68804	8	2.50		D	Brown slightly sandy very gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.5	18	22	16	6	Sample washed to obtain test fraction
BH-69405	-	4.00		D	Grey fmc sub-angular to sub-rounded GRAVEL in a slightly sandy silty clay matrix	8.5	18	18	12	6	Sample washed to obtain test fraction
BH-71124	8	2.50		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	50	19	12	7	Sample washed to obtain test fraction
BH-71124	14	4.50		D	Brownish grey slightly sandy very gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.6	28	18	13	5	Sample washed to obtain test fraction
BH-71397	10	3.50		D	Grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	10	60	18	12	6	Sample washed to obtain test fraction
BH-72207	8	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	51	19	12	7	Sample washed to obtain test fraction
BH-72683		1.00		D	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	62	21	16	5	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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Date: 15/12/2022

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-73135	2	1.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	21	67	28	18	10	Sample washed to obtain test fraction
BH-74100	-	2.50		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.0	56	17	13	4	Sample washed to obtain test fraction
BH-75808	-	1.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.8	50	16	13	3	Sample washed to obtain test fraction
BH-76085	-	1.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	57	20	13	7	Sample washed to obtain test fraction
BH-76545	5	2.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	49	21	14	7	Sample washed to obtain test fraction
BH-76545	14	5.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	10	56	20	12	8	Sample washed to obtain test fraction
BH-76718	11	4.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.5	50	20	12	8	Sample washed to obtain test fraction
BH-77176	5	2.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.8	47	19	13	6	Sample washed to obtain test fraction
BH-77404	8	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	48	19	12	7	Sample washed to obtain test fraction
BH-77477	11	4.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	9.3	45	18	11	7	Sample washed to obtain test fraction
BH-77631	5	2.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	40	17	13	4	Sample washed to obtain test fraction
BH-78412	5	2.00		D	Dark grey slightly gravelly slightly sandy slightly organic very silty CLAY (gravel is fine and angular to sub-angular)	56	97	69	35	34	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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Date: 15/12/2022

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-79026	-	1.50		D	Dark brown and brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	17	57	26	19	7	Sample washed to obtain test fraction
BH-79209	-	1.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	9.9	62	19	12	7	Sample washed to obtain test fraction
BH-79273	-	1.00		D	Brown slightly sandy slightly gravelly silty CLAY (gravel is fm and sub-angular to sub-rounded)	21	66	28	16	12	Sample washed to obtain test fraction
BH-79441	-	1.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	13	60	21	13	8	Sample washed to obtain test fraction
BH-80024	2	1.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	49	20	14	6	Sample washed to obtain test fraction
BH-80024	14	5.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.4	58	18	12	6	Sample washed to obtain test fraction
BH-80338	2	1.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	58	21	14	7	Sample washed to obtain test fraction
BH-80439	2	1.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-rounded)	9.0	61	19	12	7	Sample washed to obtain test fraction
BH-80960	2	1.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.9	54	19	12	7	Sample washed to obtain test fraction
BH-80960	20	7.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	61	19	12	7	Sample washed to obtain test fraction
BH-82974	-	4.00		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and angular to sub-rounded)	7.1	35	16	12	4	Sample washed to obtain test fraction
BH-84800	8	3.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.7	43	17	13	4	Sample washed to obtain test fraction

UKAS TESTING

2519

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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Date: 15/12/2022

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-85383	8	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	7.2	38	19	13	6	Sample washed to obtain test fraction
BH-85791	5	2.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.8	56	17	12	5	Sample washed to obtain test fraction
BH-86203	2	1.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.6	38	26	19	7	Sample washed to obtain test fraction
BH-86592	2	1.00		D	Dark brown gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	15	46	36	29	7	Sample washed to obtain test fraction
BH-86592	8	3.00		D	Grey very silty GRAVEL in a sandy silty clay matrix (gravel is fmc and sub-angular to sub-rounded)	6.5	26	19	14	5	Sample washed to obtain test fraction
BH-87806	-	1.00		D	Brownish grey and dark grey slightly sandy very silty CLAY with rare fine sub-angular gravel	26	98	37	17	20	
BH-87999	-	5.00		D	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.9	62	19	13	6	Sample washed to obtain test fraction
BH-88759	-	2.00		D	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)	9.5	61	18	13	5	Sample washed to obtain test fraction
BH-89604	-	6.00		D	Dark grey slightly sandy very silty CLAY with rare fine sub-angular gravel	21	99	29	16	13	
BH-89662	-	4.00		D	Dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	15	80	20	15	5	Sample washed to obtain test fraction
BH-89690	-	3.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	55	17	12	5	Sample washed to obtain test fraction
BH-89747	-	4.00		D	Dark grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	10	48	18	13	5	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-90003	-	1.00		D	Brownish grey and dark greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	19	65	27	22	5	Sample washed to obtain test fraction
BH-90003	-	3.00		D	Dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	64	18	13	5	Sample washed to obtain test fraction
BH-90402	11	4.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.0	59	17	12	5	Sample washed to obtain test fraction
BH-91011	-	1.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	68	20	14	6	Sample washed to obtain test fraction
BH-92206	-	1.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	62	21	15	6	Sample washed to obtain test fraction
BH-93391	2	1.00		D	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)	23	83	26	18	8	Sample washed to obtain test fraction
BH-93391	5	2.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	11	68	18	12	6	Sample washed to obtain test fraction
BH-94403	8	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.4	49	18	12	6	Sample washed to obtain test fraction
BH-95064	2	1.00		D	Brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	19	67	28	17	11	Sample washed to obtain test fraction
BH-96005	2	1.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	14	48	25	16	9	Sample washed to obtain test fraction
BH-96364	5	2.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	15	77	26	17	9	Sample washed to obtain test fraction
BH-96858	2	1.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	61	20	13	7	Sample washed to obtain test fraction

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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-97788	8	3.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	8.8	55	18	12	6	Sample washed to obtain test fraction
BH-97837	5	2.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	15	83	24	16	8	Sample washed to obtain test fraction
BH-97837	11	4.00		D	Grey slightly sandy clayey SILT	18	100	26	16	10	
BH-97881	-	1.00		D	Greyish brown and yellowish brown mottled slightly sandy very silty CLAY	16	100	26	16	10	
BH-97881	-	3.00		D	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel	19	99	26	17	9	
BH-97914	-	2.00		D	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel	20	99	26	17	9	
BH-97914	-	5.00		D	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel	19	99	26	17	9	
BH-98002	-	5.00		D	Grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	62	20	13	7	Sample washed to obtain test fraction
BH-98314	2	1.00		D	Brownish grey and dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	23	73	28	17	11	Sample washed to obtain test fraction
BH-98314	8	3.00		D	Greyish brown and dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)	14	80	22	13	9	Sample washed to obtain test fraction
BH-98602	2	1.00		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	44	17	14	3	Sample washed to obtain test fraction
BH-98602	14	5.00		D	Dark grey and brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.3	56	17	11	6	Sample washed to obtain test fraction

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH-99204	5	2.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	42	21	13	8	Sample washed to obtain test fraction
BH-99204	20	7.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)	10	70	22	13	9	Sample washed to obtain test fraction
BH-99777	5	2.00		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)	12	83	21	13	8	Sample washed to obtain test fraction
BH-99777	14	5.00		D	Dark grey and greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	11	61	22	13	9	Sample washed to obtain test fraction
TP-100304	2	0.60		D	Brownish grey sandy silty CLAY	21	100	24	15	9	
TP-100304	4	1.60		D	Bluish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	13	77	21	13	8	
TP-100304	6	2.60		D	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	81	20	13	7	
TP-100407	2	0.80		D	Brownish grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.3	60	20	12	8	Sample washed to obtain test fraction
TP-100407	4	1.80		D	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	68	21	13	8	Sample washed to obtain test fraction
TP-100449	2	0.70		D	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	76	23	14	9	
TP-100449	4	1.70		D	Light brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	65	18	11	7	
TP-100449	6	3.10		D	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	80	18	11	7	

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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-100485	2	0.60		D	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	68	18	11	7	Sample washed to obtain test fraction
TP-100485	4	1.60	2.30	D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	80	21	13	8	Sample washed to obtain test fraction
TP-100503	2	0.70		D	Brown slightly gravelly sandy silty CLAY with traces of roots (gravel is fmc and sub-angular to sub-rounded)	13	67	25	14	11	
TP-100503	4	2.10		D	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	64	19	12	7	Sample washed to obtain test fraction
TP-100517	2	0.50		D	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	15	72	22	15	7	
TP-100517	4	1.00		D	Orangish brown and grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	15	70	22	14	8	
TP-100517	6	2.00		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	14	93	23	14	9	
TP-100605	3	1.40		D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	73	18	11	7	
TP-101206	4	0.90		D	Brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	57	23	15	8	Sample washed to obtain test fraction
TP-101206	7	1.60		D	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	66	19	11	8	
TP-101304	2	0.80		D	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	75	20	12	8	
TP-101407	2	0.60		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	9.8	60	19	12	7	

Test Methods: BS1377: Part 2: 1990:
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-101407	4	1.90		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.8	76	17	12	5	
TP-101503	2	0.40		D	Brown fine sandy very silty CLAY with rare fine sub-angular gravel and traces of fine rootlets	16	99	28	17	11	
TP-101503	6	3.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	14	84	26	13	13	
TP-101600	2	0.60		D	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular)	22	95	37	19	18	
TP-101600	4	1.60		D	Greyish brown slightly sandy silty CLAY with rare fine sub-angular gravel	18	98	33	17	16	
TP-101704	2	0.60		D	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)	22	94	34	18	16	
TP-101704	4	1.00		D	Grey slightly gravelly sandy silty CLAY (gravel is fm and sub-angular)	13	90	20	13	7	
TP-101804	2	0.60		D	Brownish grey slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)	17	97	22	14	8	
TP-101804	4	2.60		D	Dark grey fine sandy very silty CLAY	21	100	23	15	8	
TP-102105	2	0.70		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	11	92	23	13	10	
TP-102204	2	0.30		D	Brown slightly sandy silty CLAY with rare fm sub-angular gravel	23	99	44	21	23	
TP-102204	4	0.90		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)	17	92	32	17	15	

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2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-102303	4	1.50		D	Greyish brown slightly gravelly fine sandy very silty CLAY (gravel is fmc and angular to sub-angular)	13	85	22	14	8	
TP-102303	6	3.00		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	8.9	76	19	12	7	
TP-102488	2	0.80		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	18	71	28	16	12	
TP-102617	4	1.20		D	Greyish brown gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	13	54	24	15	9	Sample washed to obtain test fraction
TP-102617	6	2.30		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	12	75	20	13	7	
TP-102704	3	1.80		D	Dark grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.6	82	19	11	8	
TP-56220	2	0.40		D	Dark grey slightly sandy gravelly clayey very PEAT with rootlets (gravel is fm and angular to sub-angular)	82	53	73	61	12	Sample washed to obtain test fraction
TP-73403	2	0.50		D	Brown gravelly clayey very silty SAND (gravel is fmc and angular to sub-angular)	20	71	27	18	9	Sample washed to obtain test fraction
TP-73403	4	1.30		D	Dark greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	53	18	12	6	Sample washed to obtain test fraction
TP-73403	6	2.30		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.8	46	19	12	7	Sample washed to obtain test fraction
TP-73504	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.1	53	20	14	6	Sample washed to obtain test fraction
TP-73504	4	1.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	55	18	12	6	Sample washed to obtain test fraction

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2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-82812	4	1.70		D	Greyish brown slightly clayey gravelly very silty SAND (gravel is fmc and sub-angular to sub-rounded)	6.2	36	18	12	6	Sample washed to obtain test fraction
TP-82902	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.3	44	17	12	5	Sample washed to obtain test fraction
TP-82902	6	3.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.9	50	18	12	6	Sample washed to obtain test fraction
TP-82979	2	0.90		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.0	47	20	14	6	Sample washed to obtain test fraction
TP-82979	4	2.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.6	54	17	12	5	Sample washed to obtain test fraction
TP-83101	2	0.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	13	65	20	13	7	Sample washed to obtain test fraction
TP-83101	4	1.70		D	Greyish brown sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	7.8	46	16	11	5	Sample washed to obtain test fraction
TP-83101	6	3.40		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	9.0	53	17	11	6	Sample washed to obtain test fraction
TP-83303	2	1.00		D	Greyish brown gravelly very sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.6	57	17	12	5	Sample washed to obtain test fraction
TP-84901	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	12	59	24	15	9	Sample washed to obtain test fraction
TP-84901	6	2.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	59	18	12	6	Sample washed to obtain test fraction
TP-85005	2	0.70		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	12	76	20	13	7	

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Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-85005	4	1.70		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	11	58	19	13	6	Sample washed to obtain test fraction
TP-85005	6	2.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to rounded)	6.1	37	17	12	5	Sample washed to obtain test fraction
TP-85102	4	1.50		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	11	61	20	13	7	Sample washed to obtain test fraction
TP-85102	6	2.90		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	66	19	12	7	Sample washed to obtain test fraction
TP-85302	4	1.40		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)	11	74	19	12	7	Sample washed to obtain test fraction
TP-85302	6	2.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.7	55	18	12	6	Sample washed to obtain test fraction
TP-85383	4	1.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	59	19	12	7	Sample washed to obtain test fraction
TP-85383	6	2.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.7	56	18	12	6	Sample washed to obtain test fraction
TP-87206	2	0.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.4	54	17	12	5	Sample washed to obtain test fraction
TP-87304	4	1.50		D	Greyish brown gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	11	61	19	13	6	Sample washed to obtain test fraction
TP-87803	4	0.80		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	12	77	18	12	6	
TP-88303	4	1.10		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	75	16	11	5	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-88303	6	2.30		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	8.5	58	17	12	5	Sample washed to obtain test fraction
TP-88402	3	1.50		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	64	18	12	6	Sample washed to obtain test fraction
TP-88503	3	1.50		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.8	34	16	11	5	Sample washed to obtain test fraction
TP-88703	4	1.80		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.7	50	17	12	5	Sample washed to obtain test fraction
TP-88802	4	0.90		D	Brownish grey gravelly clayey very silty SAND (gravel is fmc and sub-angular to sub-rounded)	9.6	53	18	13	5	Sample washed to obtain test fraction
TP-88802	6	1.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	5.8	60	18	12	6	Sample washed to obtain test fraction
TP-88802	8	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.6	51	19	12	7	Sample washed to obtain test fraction
TP-89003	3	1.60		B	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	69	17	12	5	Sample washed to obtain test fraction
TP-89104	2	0.80		D	Brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	60	24	16	8	Sample washed to obtain test fraction
TP-89205	3	1.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.8	59	18	12	6	Sample washed to obtain test fraction
TP-89303	6	2.10		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.7	60	18	12	6	Sample washed to obtain test fraction
TP-89405	2	0.70		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.2	63	18	12	6	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-89555	3	1.10		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.6	58	17	12	5	Sample washed to obtain test fraction
TP-90401	2	0.60		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	66	18	12	6	Sample washed to obtain test fraction
TP-90401	4	1.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	70	16	11	5	
TP-90401	6	2.10		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.2	53	19	12	7	Sample washed to obtain test fraction
TP-90503	4	1.70		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	64	17	11	6	
TP-90604	2	0.40		D	Greyish brown and brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-angular)	27	65	46	17	29	Sample washed to obtain test fraction
TP-90604	5	1.80		D	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-rounded)	11	70	16	10	6	
TP-90704	5	1.90		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	60	20	12	8	Sample washed to obtain test fraction
TP-90800	4	1.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	60	20	13	7	Sample washed to obtain test fraction
TP-90800	5	3.00	3.30	B	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)	9.4	60	20	13	7	Sample washed to obtain test fraction
TP-90894	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	8.6	61	19	13	6	Sample washed to obtain test fraction
TP-90894	5	3.40		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	9.6	61	19	12	7	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-91012	2	0.70		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	65	19	12	7	Sample washed to obtain test fraction
TP-91012	6	4.20		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	72	18	12	6	
TP-91104	4	1.80		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	71	18	12	6	Sample washed to obtain test fraction
TP-91193	4	1.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	66	21	14	7	Sample washed to obtain test fraction
TP-91193	6	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	57	19	13	6	Sample washed to obtain test fraction
TP-91305	3	1.30		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	10	60	18	14	4	Sample washed to obtain test fraction
TP-91305	5	2.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	9.4	63	17	12	5	Sample washed to obtain test fraction
TP-91406	2	0.50		D	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	18	74	26	17	9	Sample washed to obtain test fraction
TP-91406	4	1.80		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	12	80	18	13	5	Sample washed to obtain test fraction
TP-91504	2	0.70		D	Brown slightly clayey gravelly silty SAND (gravel is fm and angular to sub-angular)	18	70	26	20	6	Sample washed to obtain test fraction
TP-91705	2	0.80		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	8.7	53	19	14	5	Sample washed to obtain test fraction
TP-91805	3	0.80		D	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	16	68	23	13	10	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-91805	5	2.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	10	66	20	12	8	Sample washed to obtain test fraction
TP-91905	4	2.00		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)	9.3	55	18	12	6	
TP-92029	2	0.60		D	Dark brown slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)	21	79	24	16	8	
TP-92029	4	1.60		D	Grey silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	11	62	18	12	6	
TP-92209	2	0.60		D	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	21	97	33	19	14	
TP-92209	4	1.20		D	Light brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)	12	63	18	13	5	Sample washed to obtain test fraction
TP-92209	6	2.70		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	54	19	11	8	Sample washed to obtain test fraction
TP-92306	2	0.50		D	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)	19	83	31	19	12	Sample washed to obtain test fraction
TP-92306	4	1.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	9.4	72	19	13	6	Sample washed to obtain test fraction
TP-92306	6	2.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	56	19	12	7	Sample washed to obtain test fraction
TP-92407	2	0.60		D	Brown slightly gravelly clayey very silty SAND (gravel is fm and sub-angular to sub-rounded)	18	74	24	19	5	Sample washed to obtain test fraction
TP-92407	4	1.60		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	7.3	52	18	11	7	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-92407	6	3.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	7.8	65	18	11	7	Sample washed to obtain test fraction
TP-92506	2	0.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	63	18	11	7	Sample washed to obtain test fraction
TP-92506	4	2.30		D	Dark greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.6	62	19	13	6	Sample washed to obtain test fraction
TP-92506	6	3.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	65	18	11	7	Sample washed to obtain test fraction
TP-92587	2	0.60		D	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and sub-angular)	20	80	27	18	9	Sample washed to obtain test fraction
TP-92587	4	1.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	65	18	13	5	Sample washed to obtain test fraction
TP-92587	6	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.0	56	18	12	6	Sample washed to obtain test fraction
TP-92706	2	0.60		D	Brown slightly gravelly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)	19	78	24	16	8	Sample washed to obtain test fraction
TP-92706	6	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.8	59	18	12	6	Sample washed to obtain test fraction
TP-92804	2	0.70		D	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	20	75	27	18	9	Sample washed to obtain test fraction
TP-92904	2	0.60		D	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	20	95	31	18	13	
TP-92904	5	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	8.7	56	17	12	5	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-93003	2	0.60		D	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	21	97	30	18	12	
TP-93003	6	3.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	7.4	66	19	12	7	Sample washed to obtain test fraction
TP-93106	4	2.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	9.5	76	19	13	6	Sample washed to obtain test fraction
TP-93106	6	4.10		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	59	18	12	6	Sample washed to obtain test fraction
TP-93174	2	0.70		D	Brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)	25	97	44	19	25	
TP-93174	6	3.10		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.8	74	19	12	7	Sample washed to obtain test fraction
TP-93352	2	0.60		D	Brown gravelly sandy silty CLAY (gravel is fm and sub-angular)	17	73	26	19	7	Sample washed to obtain test fraction
TP-93352	6	3.00		D	Greyish brown gravelly silty CLAY (gravel is fmc and sub-angular)	10	69	18	11	7	Sample washed to obtain test fraction
TP-93505	2	0.90		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	55	19	12	7	Sample washed to obtain test fraction
TP-93505	6	2.80		D	Grey sandy fmc sub-angular to sub-rounded gravel in a silty CLAY matrix	7.3	42	17	12	5	Sample washed to obtain test fraction
TP-93602	4	1.60		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.0	58	18	12	6	
TP-93703	5	2.60		D	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	9.8	48	17	11	6	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-93803	4	1.60		D	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix	10	59	21	14	7	Sample washed to obtain test fraction
TP-93902	3	2.00		D	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix	9.7	59	17	11	6	Sample washed to obtain test fraction
TP-94198	4	1.60		D	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	9.7	55	17	11	6	
TP-94401	2	0.70		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fm and angular)	12	55	20	13	7	
TP-94401	4	1.70		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	9.2	64	17	11	6	
TP-94504	2	0.80		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	12	53	19	13	6	
TP-94504	4	1.80		D	Greenish grey and brown gravelly silty CLAY (gravel is fmc and sub-angular)	9.4	65	17	10	7	Sample washed to obtain test fraction
TP-94608	3	1.50		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.7	49	18	11	7	Sample washed to obtain test fraction
TP-94704	4	1.40		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	12	53	18	12	6	Sample washed to obtain test fraction
TP-94809	4	1.00		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	11	51	18	12	6	Sample washed to obtain test fraction
TP-94905	2	0.70		D	Brown and light grey sandy silty CLAY with rare fm sub-angular gravel	23	98	36	22	14	
TP-95003	4	1.40		D	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	11	47	22	14	8	

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Initials **J.P**

Date: 15/12/2022

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-95408	2	0.90		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	11	63	20	13	7	
TP-95408	4	1.90		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	60	18	11	7	
TP-95408	6	3.30		D	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	51	21	13	8	Sample washed to obtain test fraction
TP-95806	4	1.60		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	10	80	20	14	6	
TP-95806	6	2.40		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.2	41	19	13	6	Sample washed to obtain test fraction
TP-95905	4	1.60		D	Greyish brown fmc angular to sub-angular and tabular gravel in a sandy silty CLAY matrix	10	50	21	15	6	Sample washed to obtain test fraction
TP-95999	2	0.50		D	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix	8.8	55	20	12	8	
TP-96105	4	1.30		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	9.9	75	20	12	8	
TP-96204	4	1.60		D	Greyish brown fmc angular to sub-angular and tabular gravel in a slightly sandy silty CLAY matrix	13	49	25	15	10	Sample washed to obtain test fraction
TP-96304	3	1.20		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	8.9	67	21	13	8	
TP-96387	2	0.60		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)	14	93	31	17	14	
TP-96608	2	0.60		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)	10	70	25	14	11	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-96705	2	0.60		D	Grey slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	15	81	22	15	7	
TP-96831	2	0.60		D	Yellowish brown sandy silty CLAY	22	-	-	-	-	NMC Only
TP-96831	4	1.30		D	Brown and grey mottled slightly gravelly slightly sandy silty CLAY (gravel is fm)	20	95	28	17	11	
TP-96831	6	3.10		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)	10	70	18	11	7	
TP-96905	2	0.70		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	12	63	25	14	11	
TP-96905	4	2.10		D	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix	9.9	45	19	12	7	
TP-97009	3	1.20		D	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix	10	55	18	12	6	
TP-97108	2	0.60		D	Brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	16	75	35	19	16	
TP-97309	3	0.80		D	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)	14	97	28	16	12	
TP-97309	5	2.30		D	Brown and grey mottled silty CLAY with sandy patches and rare fine gravel	17	99	28	17	11	
TP-97309	7	3.30		D	Dark grey silty CLAY with rare fine gravel	19	99	29	17	12	
TP-97383	4	1.10		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	10	70	20	12	8	

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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-97383	6	2.80		D	Greyish brown fmc angular to sub-angular gravel in a sandy silty CLAY matrix	9.6	60	20	12	8	
TP-97505	4	1.70		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	75	23	12	11	
TP-97505	6	2.60		D	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix	9.2	40	19	12	7	
TP-97602	4	1.20		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)	15	70	27	16	11	
TP-97602	6	2.80		D	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)	13	97	22	13	9	
TP-97704	4	2.30		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)	14	90	23	14	9	
TP-97704	6	3.30		D	Grey and brown mottled silty CLAY with sandy patches and rare fine gravel	14	99	28	17	11	
TP-97777	3	1.60		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)	13	80	18	12	6	
TP-97998	4	1.50	1.80	B	Dark greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-rounded)	10	82	20	12	8	
TP-98105	2	0.60		D	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	7.0	60	19	12	7	
TP-98105	4	1.60		D	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	70	19	12	7	
TP-98105	6	2.60		D	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	75	18	11	7	

Test Methods: BS1377: Part 2: 1990:
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-98205	3	1.10		D	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	60	18	11	7	
TP-98205	5	2.30		D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	75	17	10	7	
TP-98271	3	1.00		D	Grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	81	18	12	6	
TP-98271	5	2.50		D	Grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.8	55	16	10	6	Sample washed to obtain test fraction
TP-98403	1	0.30	0.60	B	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	70	22	14	8	
TP-98403	3	1.60		D	Bluish grey and greenish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	65	18	11	7	
TP-98403	5	2.60		D	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	75	16	11	5	
TP-98502	2	0.70		D	Orangish brown and light grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	13	73	22	13	9	
TP-98502	4	1.80		D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	70	19	12	7	
TP-98602	2	0.90		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fm and sub-anguar to sub-rounded)	13	88	24	15	9	Sample washed to obtain test fraction
TP-98702	2	0.60		D	Greyish brown slightly sandy very silty CLAY with rare fmc angular to sub-angular gravel	13	83	28	16	12	Sample washed to obtain test fraction
TP-98805	2	0.60		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)	11	84	34	17	17	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-98805	4	1.50		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	12	84	20	13	7	
TP-98805	6	2.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	84	26	15	11	
TP-98904	2	0.80		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.9	75	19	12	7	
TP-99004	2	0.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	22	84	34	17	17	
TP-99004	4	1.50		D	Greyish brown slightly gravelly fine sandy clayey SILT (gravel is fm and sub-angular)	16	96	21	15	6	
TP-99004	6	2.30		D	Grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.5	77	19	11	8	
TP-99105	4	1.30		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	57	20	13	7	Sample washed to obtain test fraction
TP-99105	6	2.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	12	75	21	13	8	Sample washed to obtain test fraction
TP-99206	2	0.70		D	Brown slightly sandy silty CLAY	27	100	54	22	32	
TP-99206	4	1.70		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	11	71	21	15	6	Sample washed to obtain test fraction
TP-99206	6	2.70		D	Greyish brown slightly sandy slighty gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	66	20	13	7	Sample washed to obtain test fraction
TP-99304	2	0.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	81	23	14	9	

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Test Methods: BS1377: Part 2: 1990:
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Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-99304	6	2.60		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	7.9	32	19	12	7	Sample washed to obtain test fraction
TP-99400	2	0.70		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	18	94	33	18	15	
TP-99400	4	1.70		D	Greyish brown fine sandy very silty CLAY	16	100	27	16	11	
TP-99505	4	1.50		D	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	83	23	14	9	
TP-99505	6	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	60	20	13	7	Sample washed to obtain test fraction
TP-99599	2	0.70		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	9.2	80	20	13	7	
TP-99599	5	2.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	6.7	64	18	12	6	Sample washed to obtain test fraction
TP-99701	2	0.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	12	93	21	11	10	
TP-99701	5	3.10		D	Greyish brown fine sandy clayey SILT with rare fine sub-angular gravel	13	98	19	13	6	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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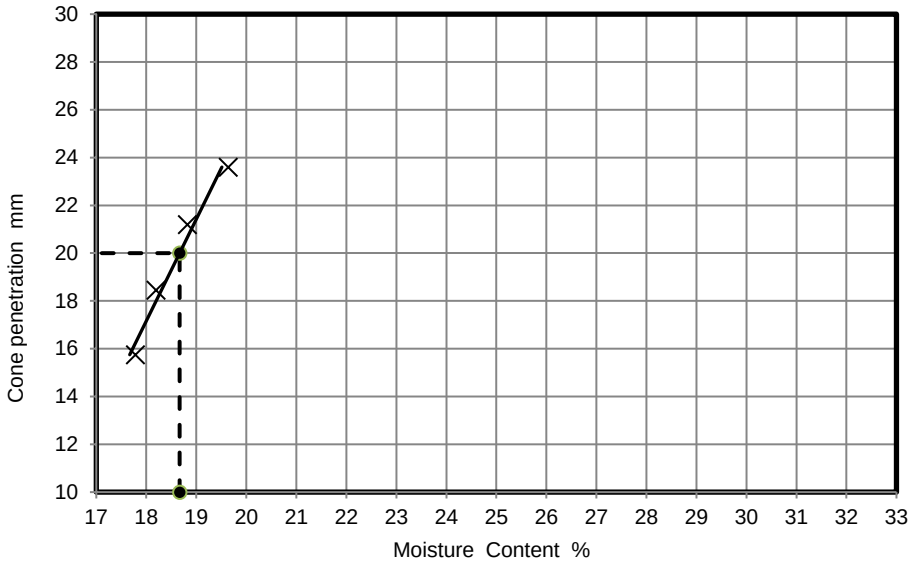
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-100012
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey and grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

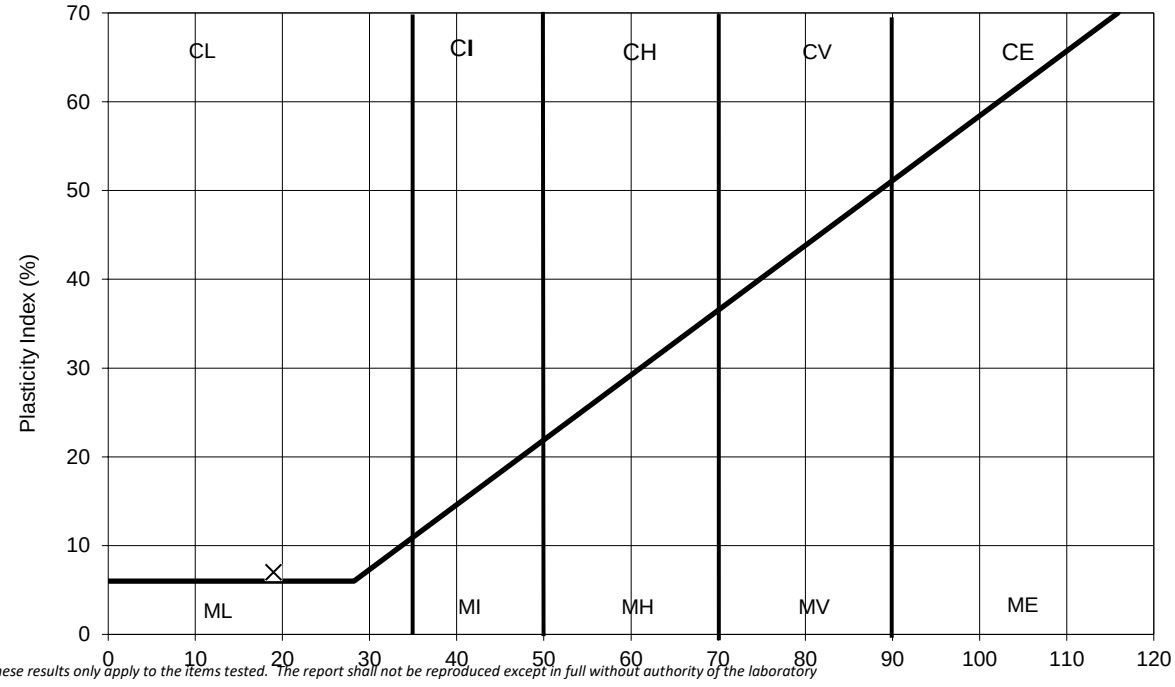


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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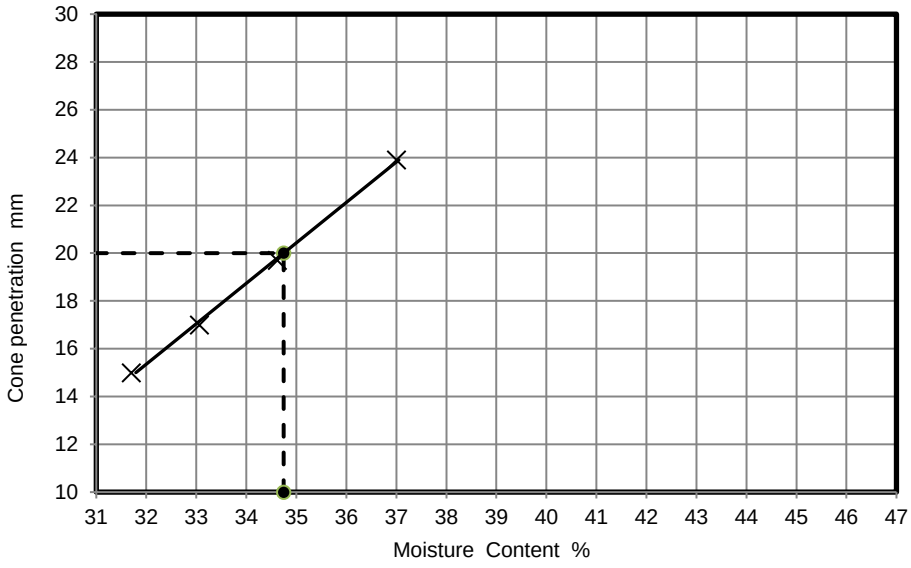
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

Job No. 32282

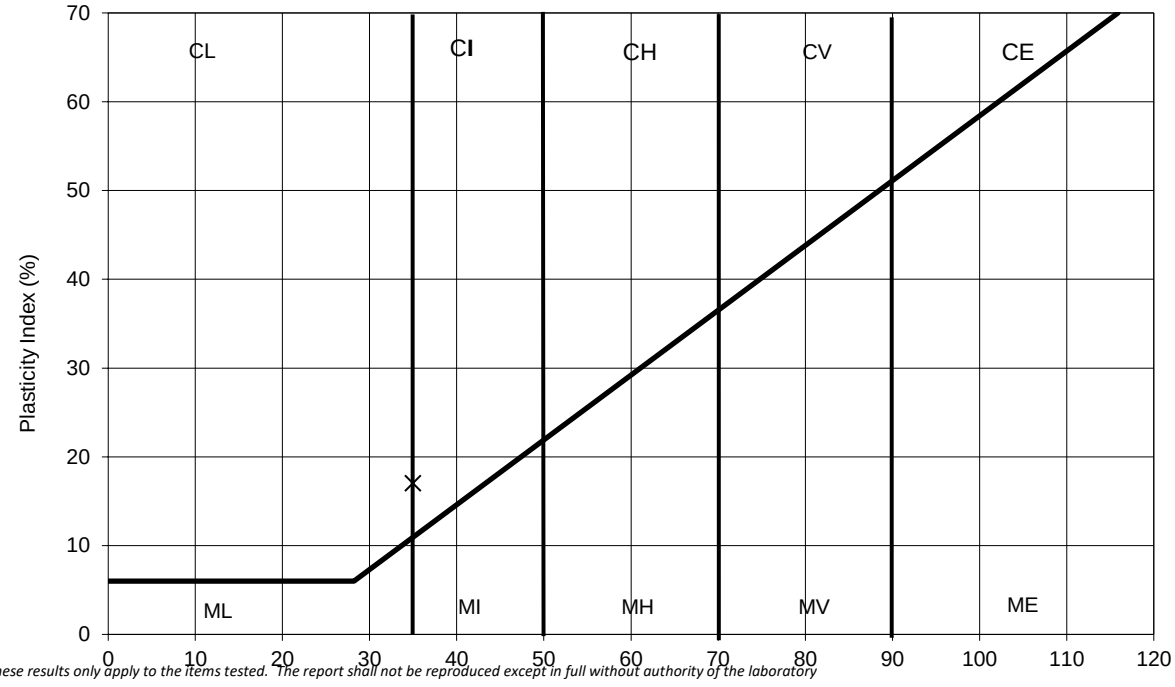
Borehole/Pit No. BH-102037



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**35**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**17**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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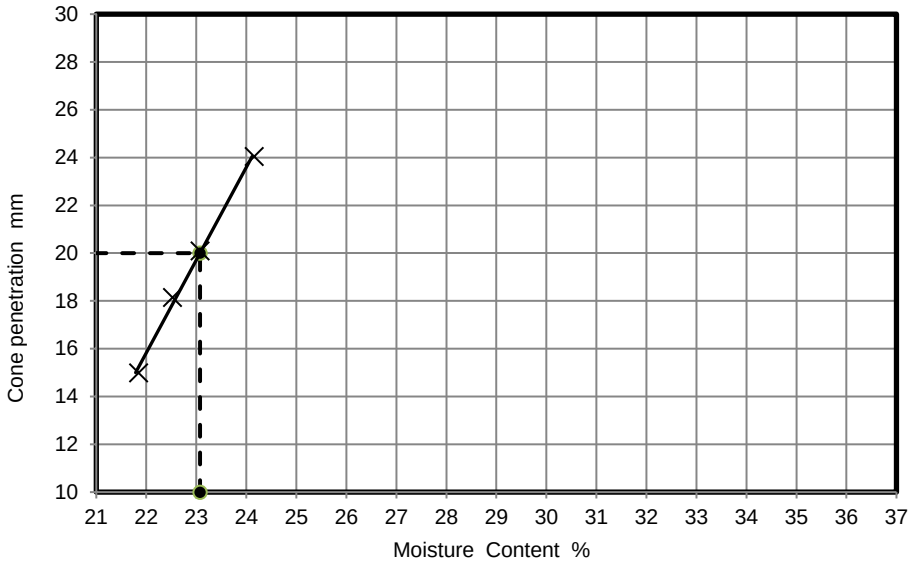
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-102528
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

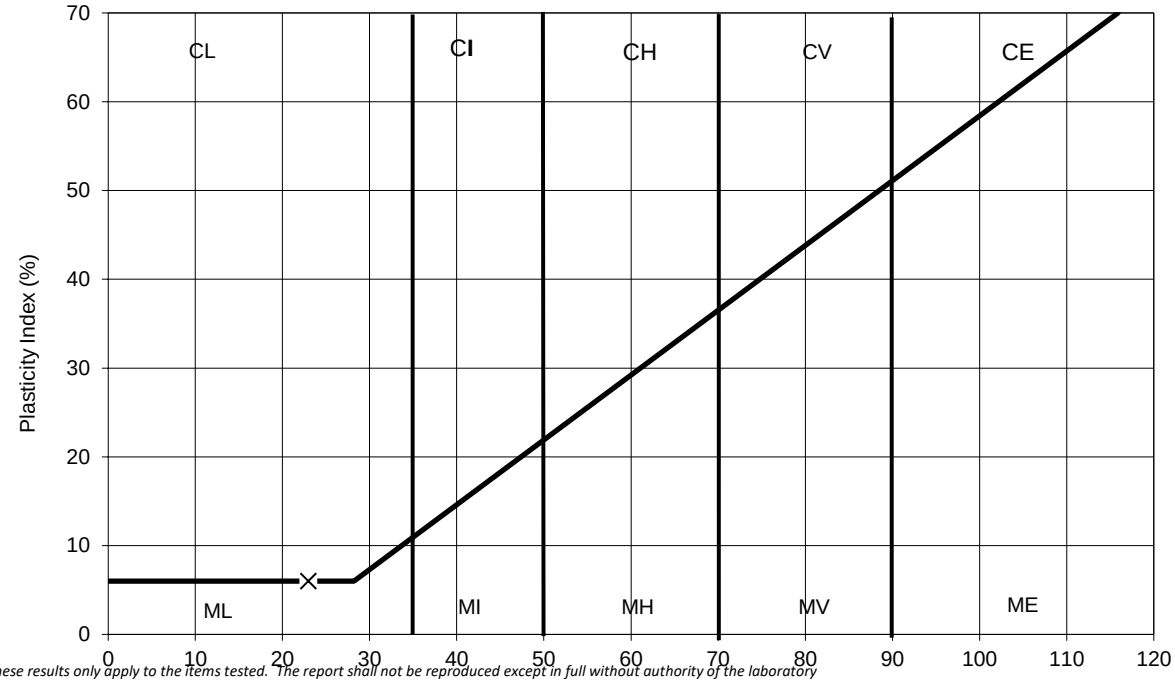


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**52**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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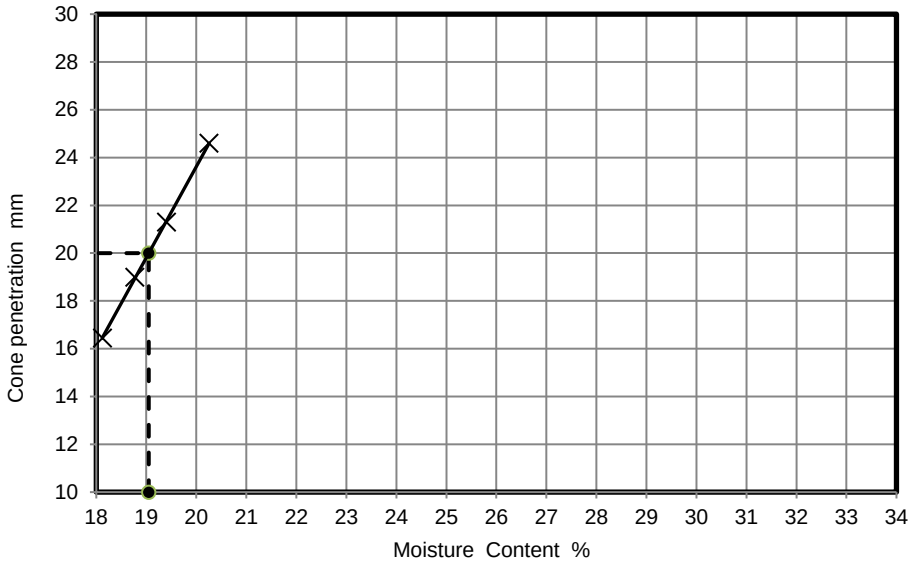
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-102528
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

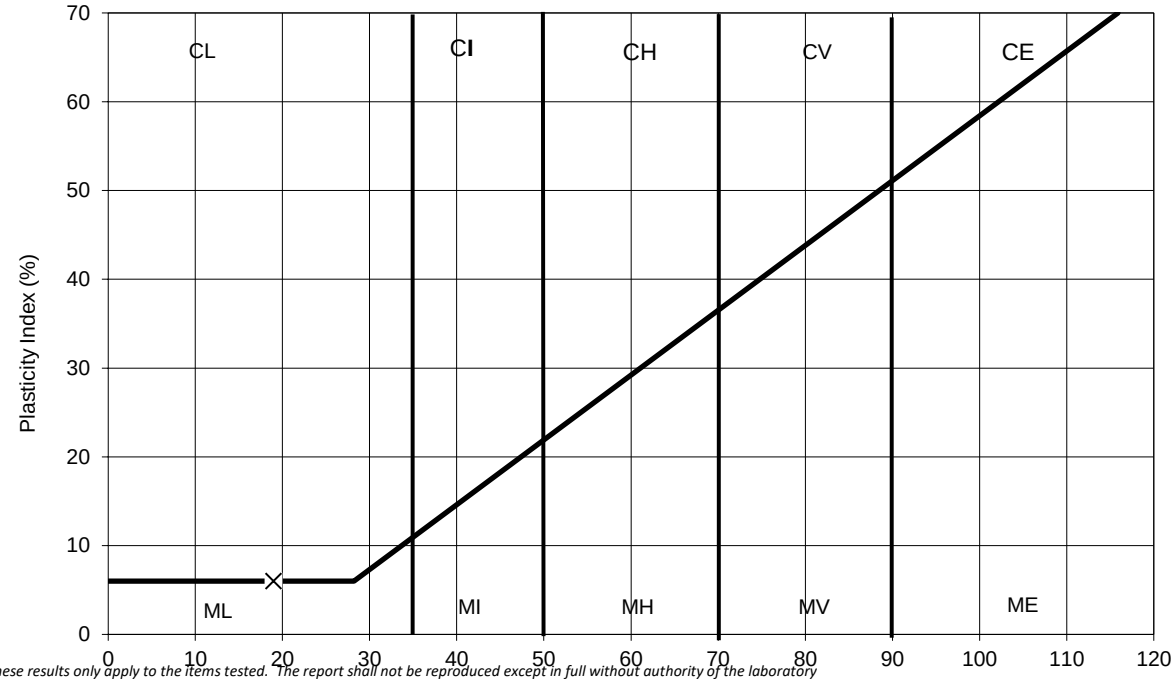


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

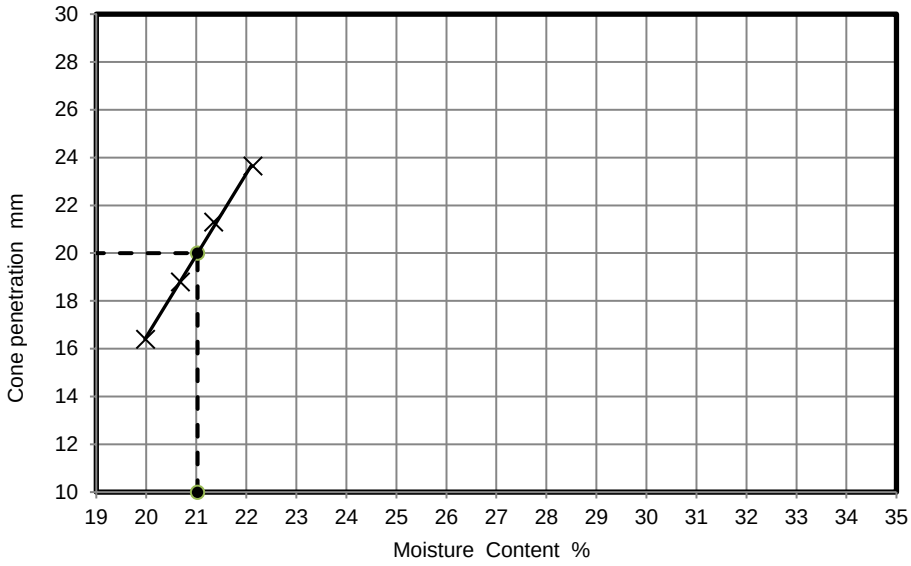
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-103234
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

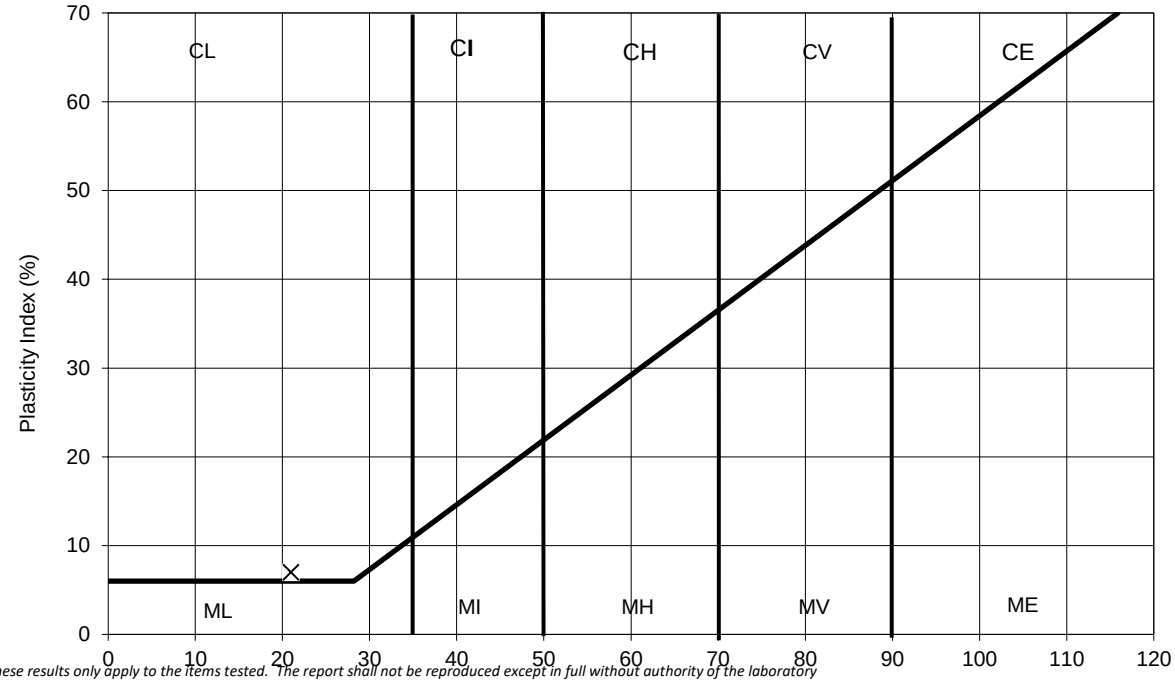


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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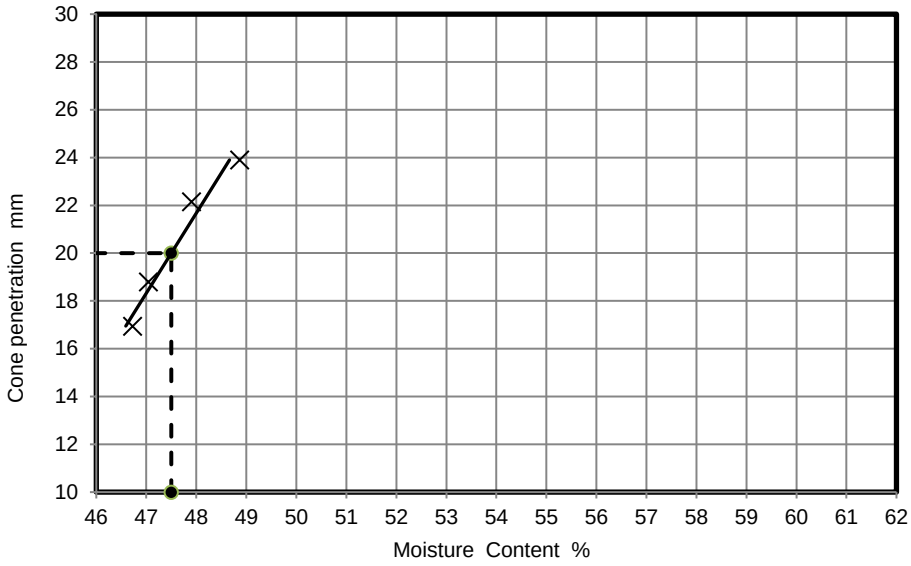
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-62806
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY with rare numerous fine roots (gravel is fine and sub-angula)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

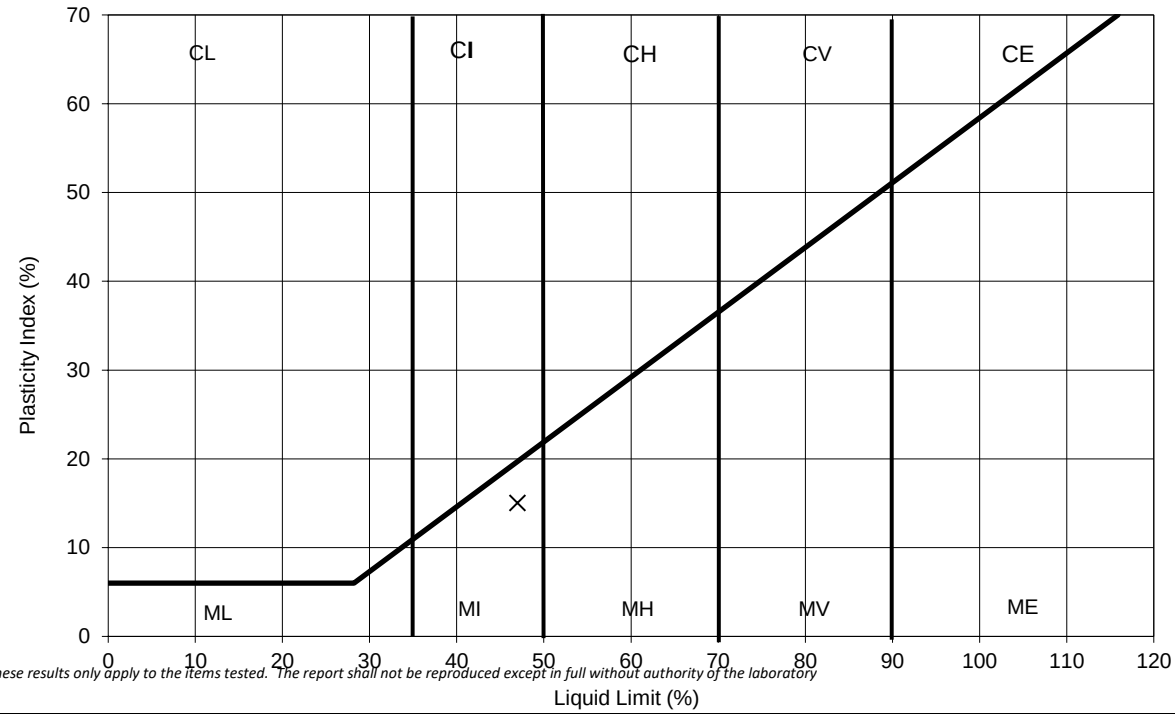


NATURAL MOISTURE CONTENT	**51**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**47**	**%**
PLASTIC LIMIT	**32**	**%**
PLASTICITY INDEX	**15**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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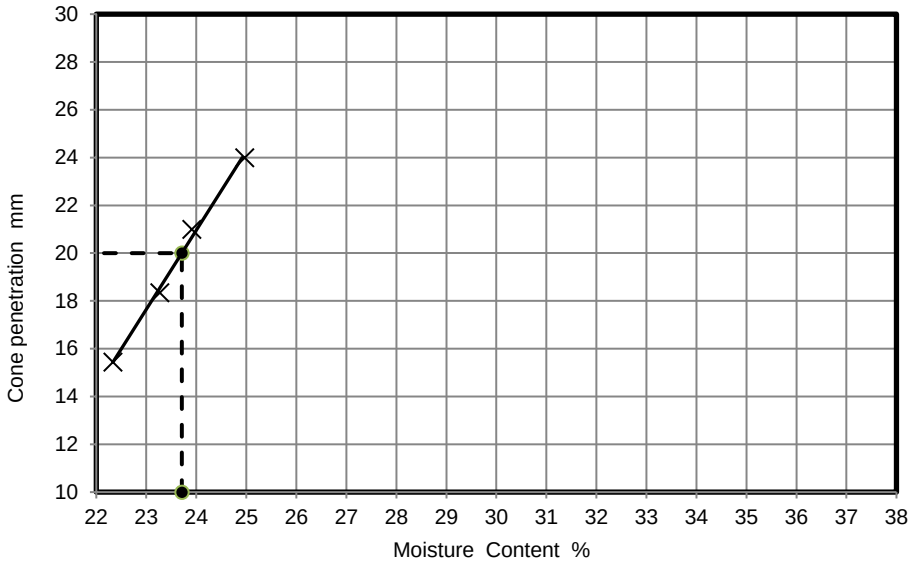
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-63008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

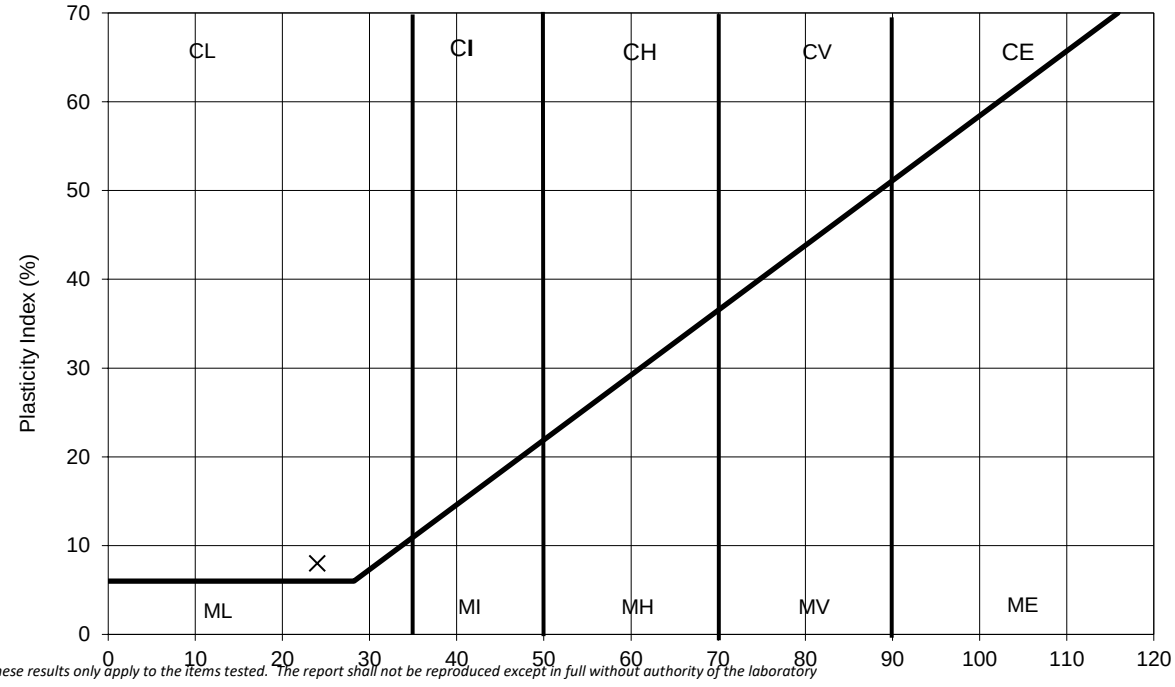


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sampe washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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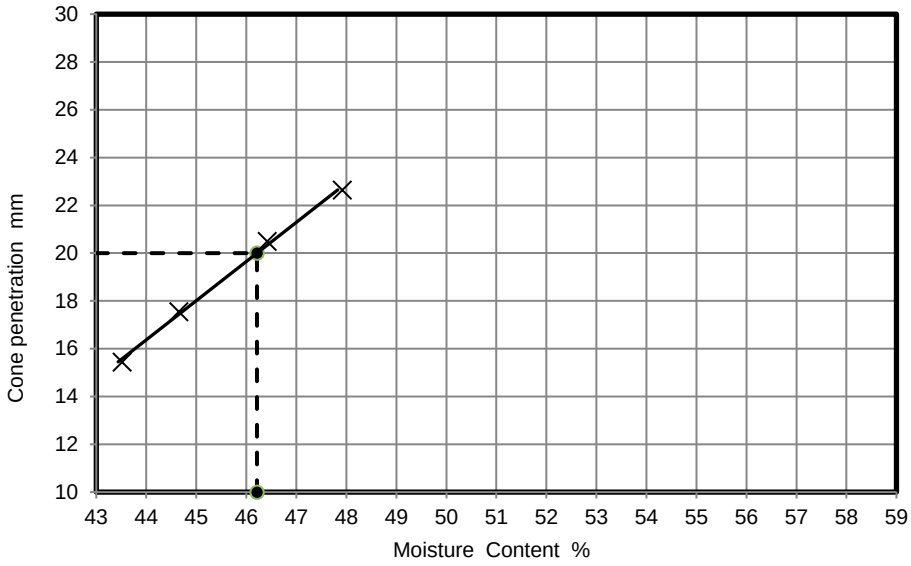
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

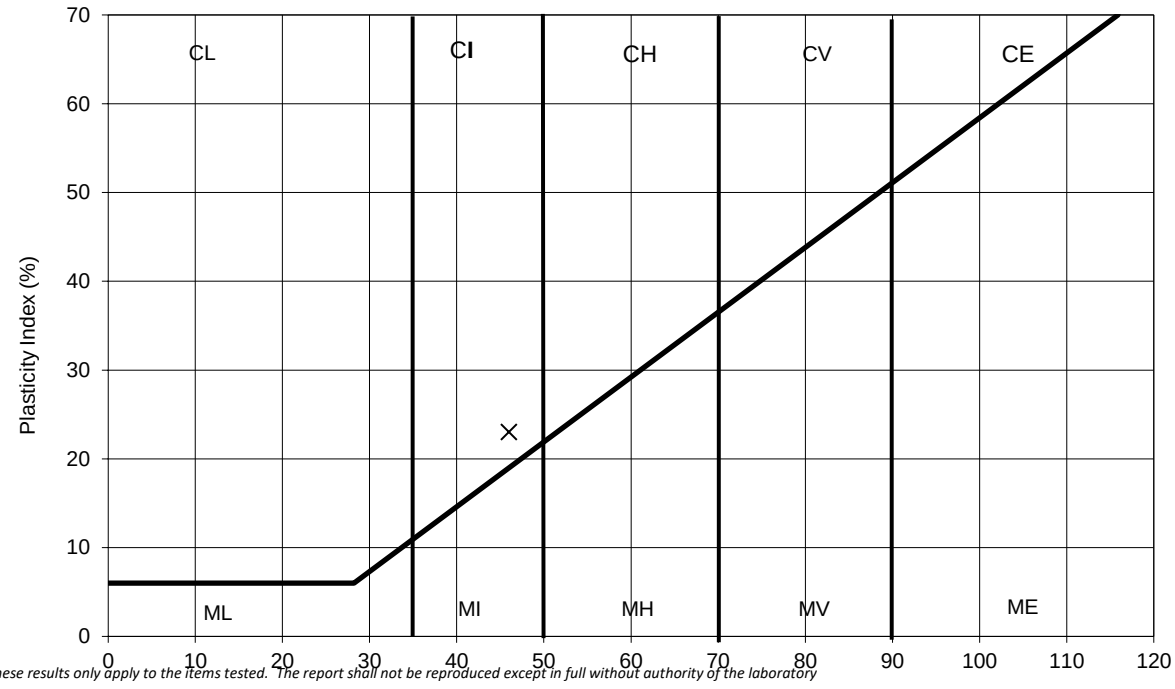
				Job No.	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown slightly sandy silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**35**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**46**	**%**
PLASTIC LIMIT	**23**	**%**
PLASTICITY INDEX	**23**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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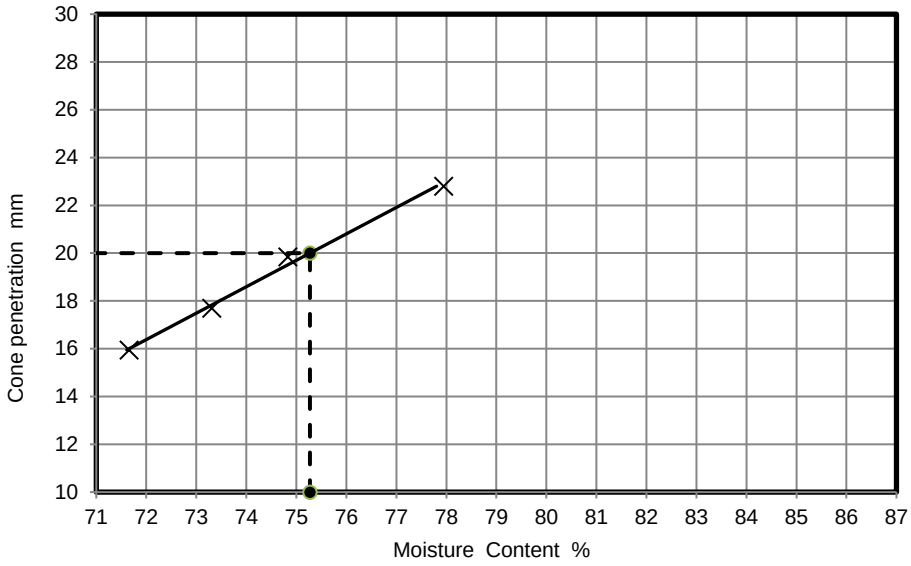
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

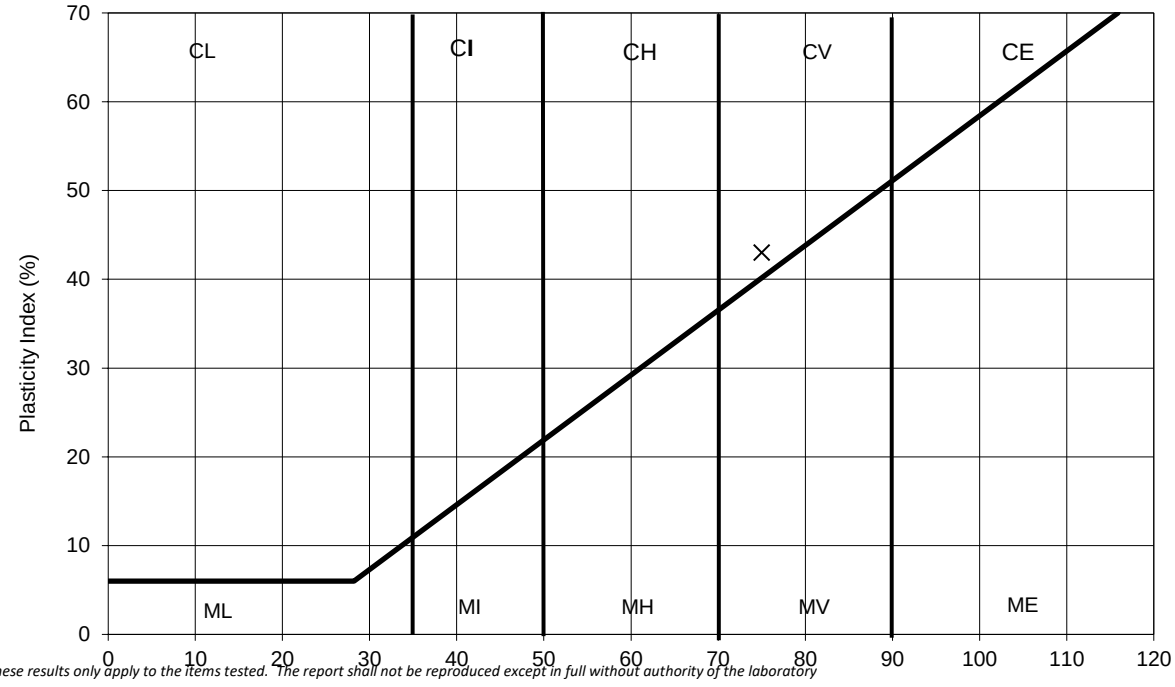
				Job No.	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**64**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**75**	**%**
PLASTIC LIMIT	**32**	**%**
PLASTICITY INDEX	**43**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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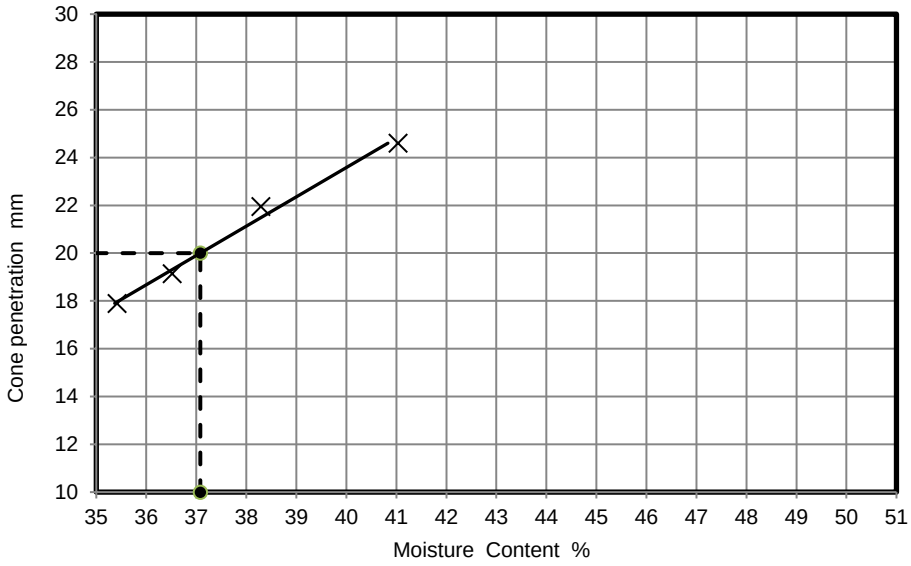
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	9.00 m
Soil Description	Dark grey slightly gravelly slightly sandy very silty CLAY (gravel is fine and anguar to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

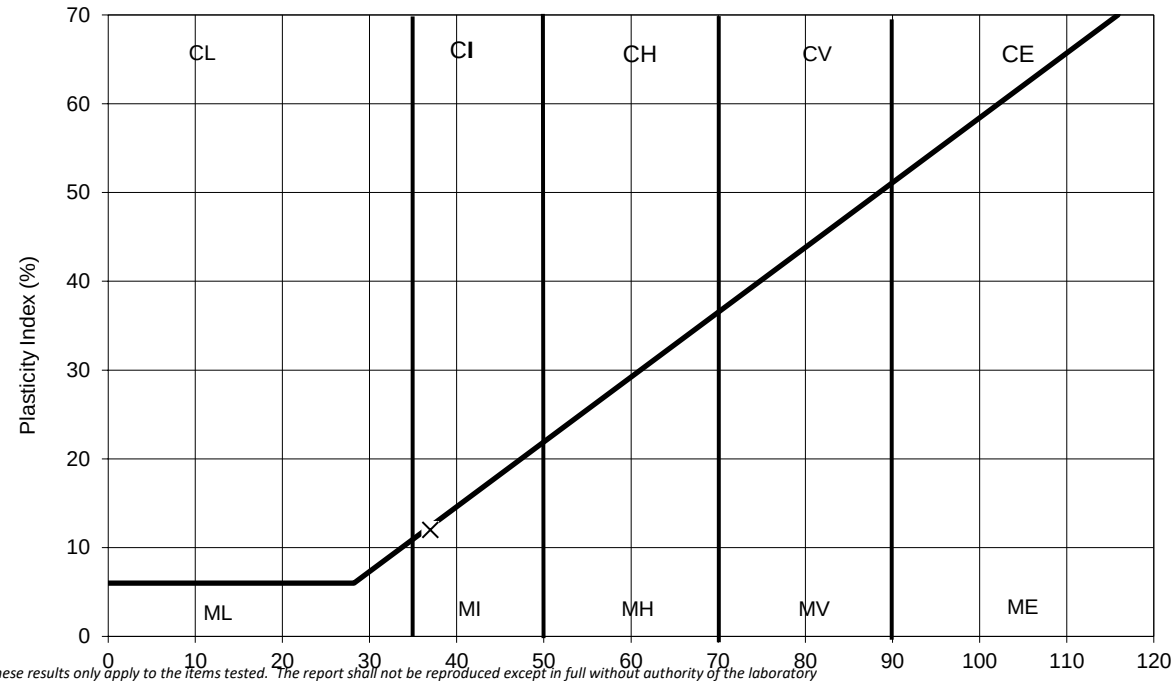


NATURAL MOISTURE CONTENT	**60**	**%**
% PASSING 425µm SIEVE	**89**	**%**
LIQUID LIMIT	**37**	**%**
PLASTIC LIMIT	**25**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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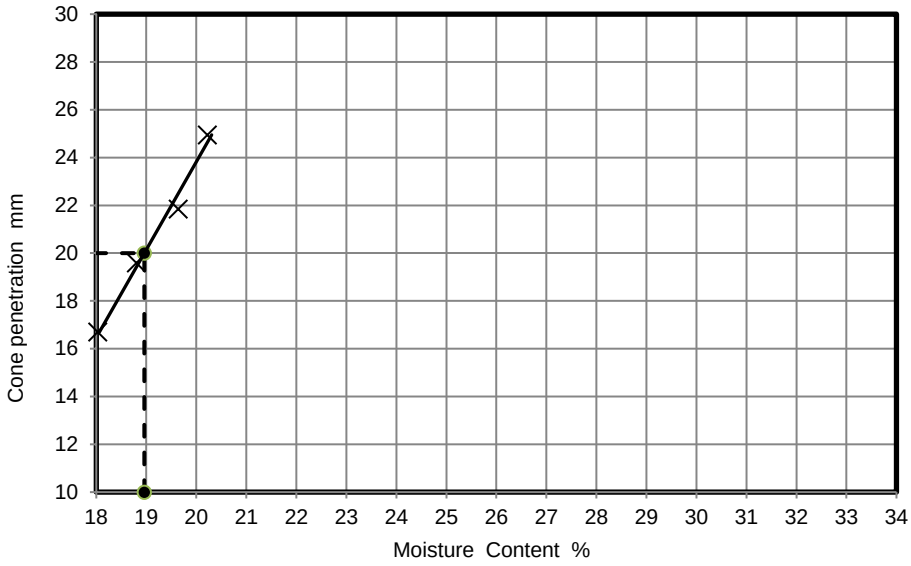
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-65612				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

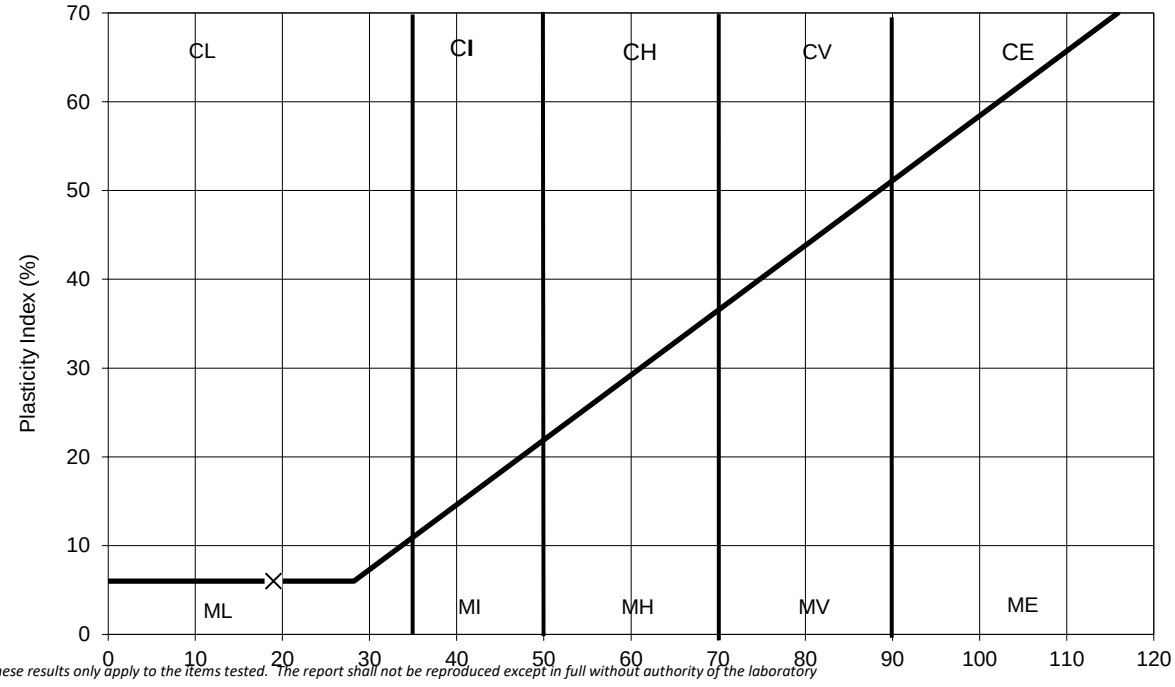


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Date: 15/12/2022

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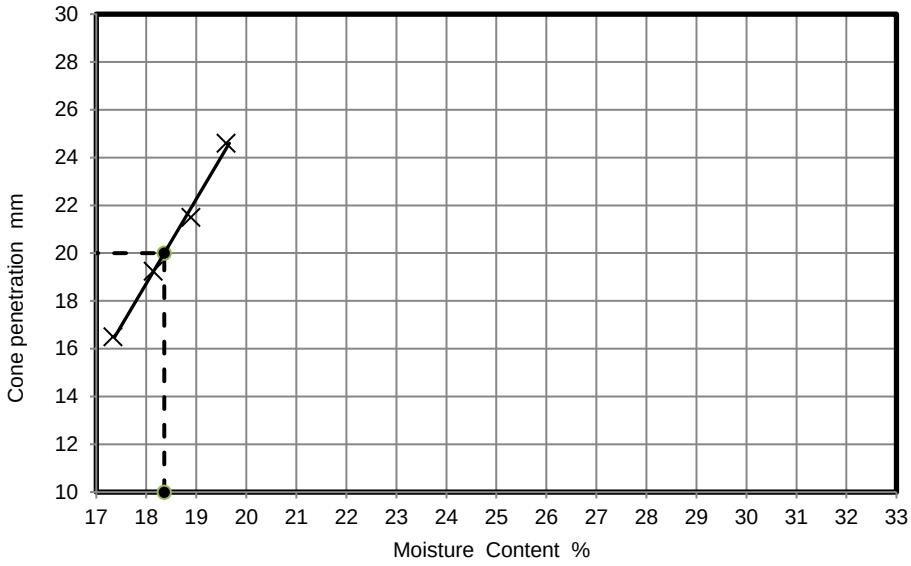
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-67338
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

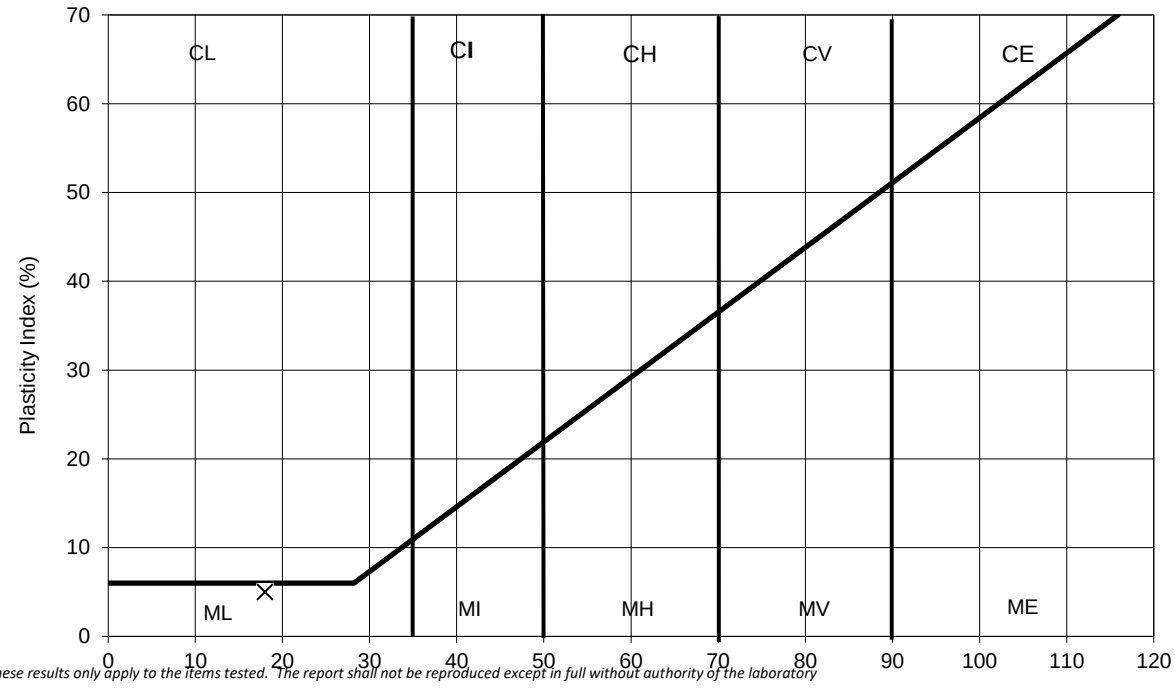


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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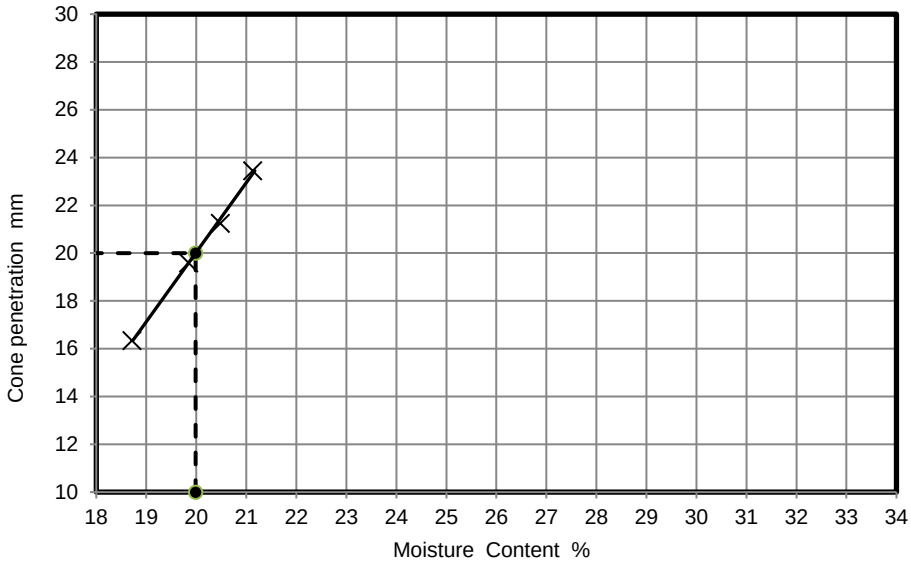
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

Job No. 32282

Borehole/Pit No. BH-67630

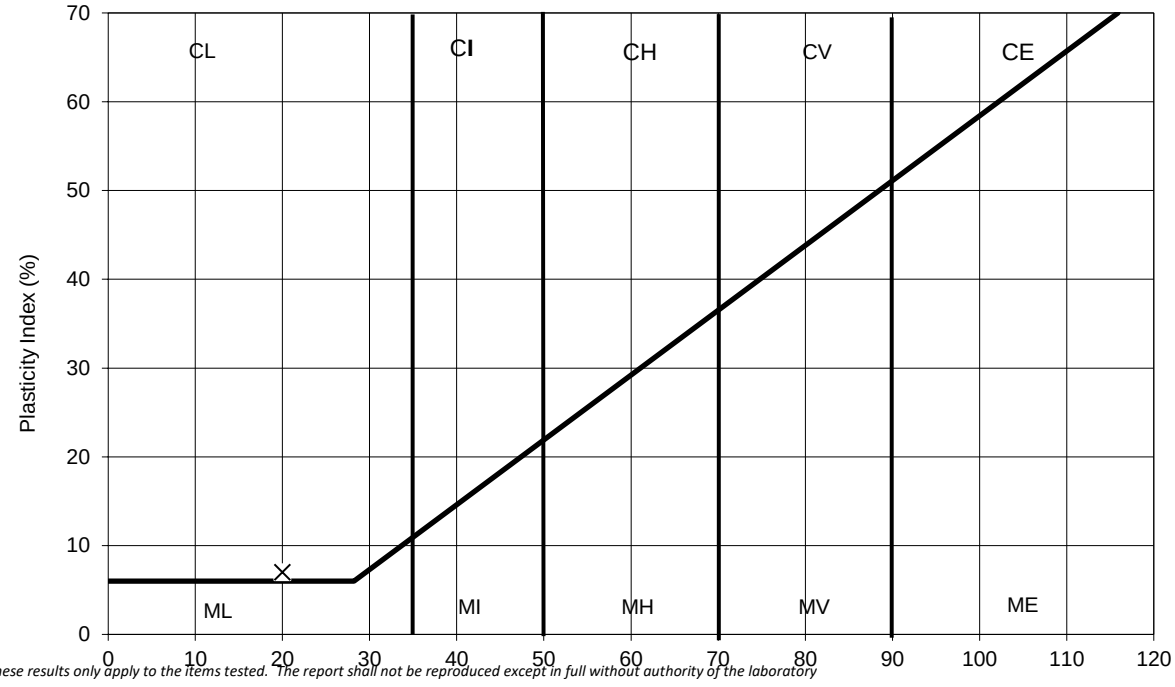


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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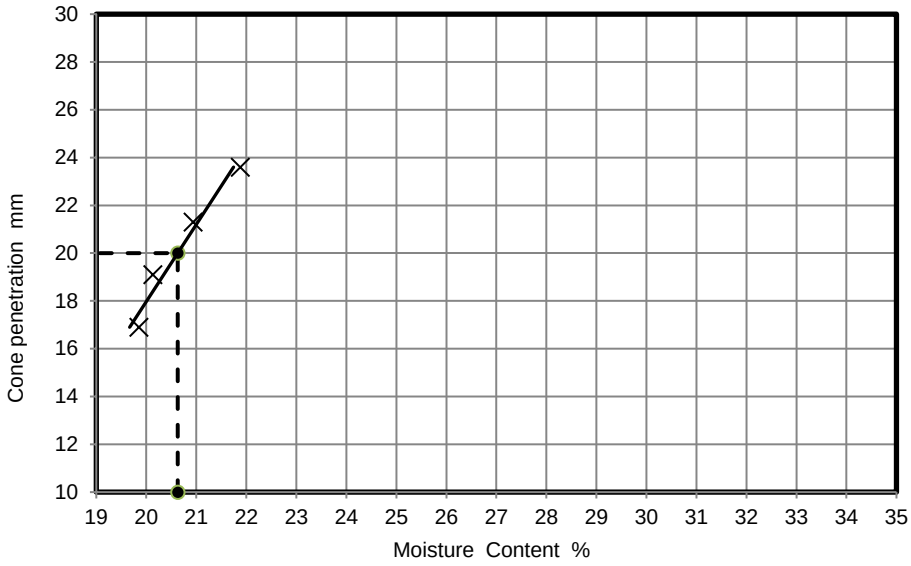
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

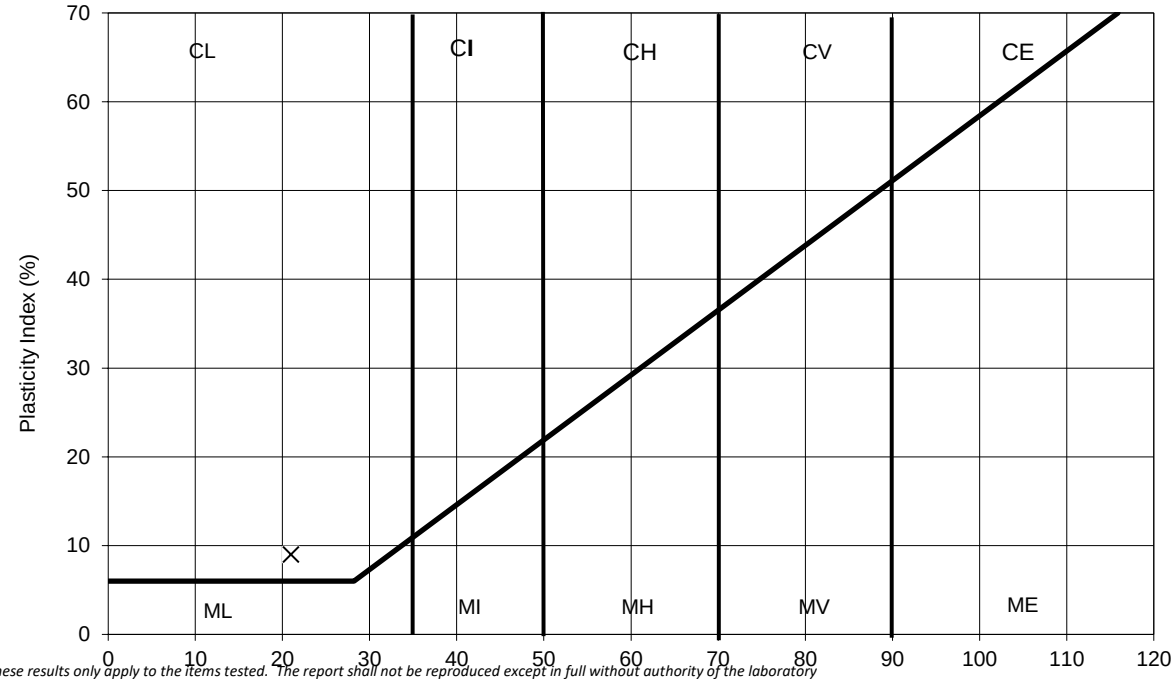


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

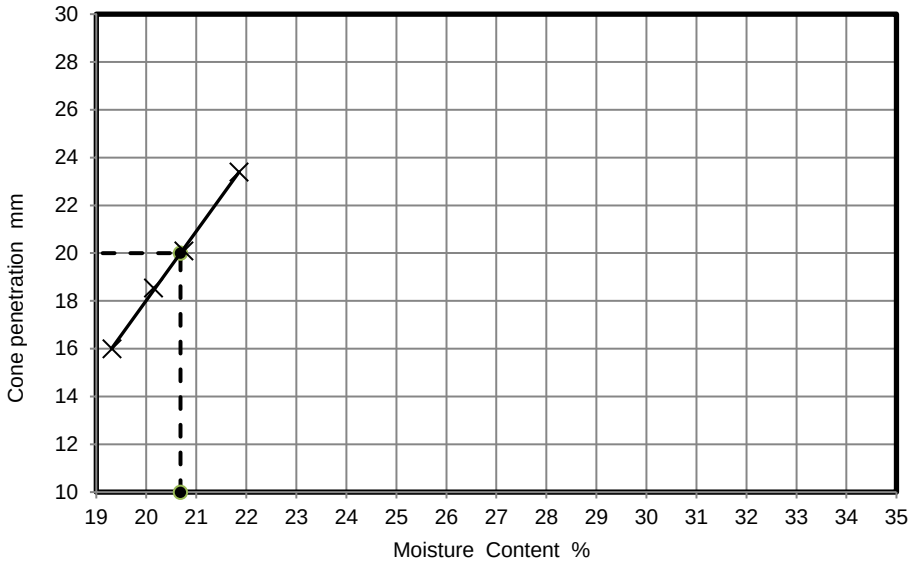
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	20
Project No.	2021OY102	Client	Irish Drilling	Depth Top	6.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

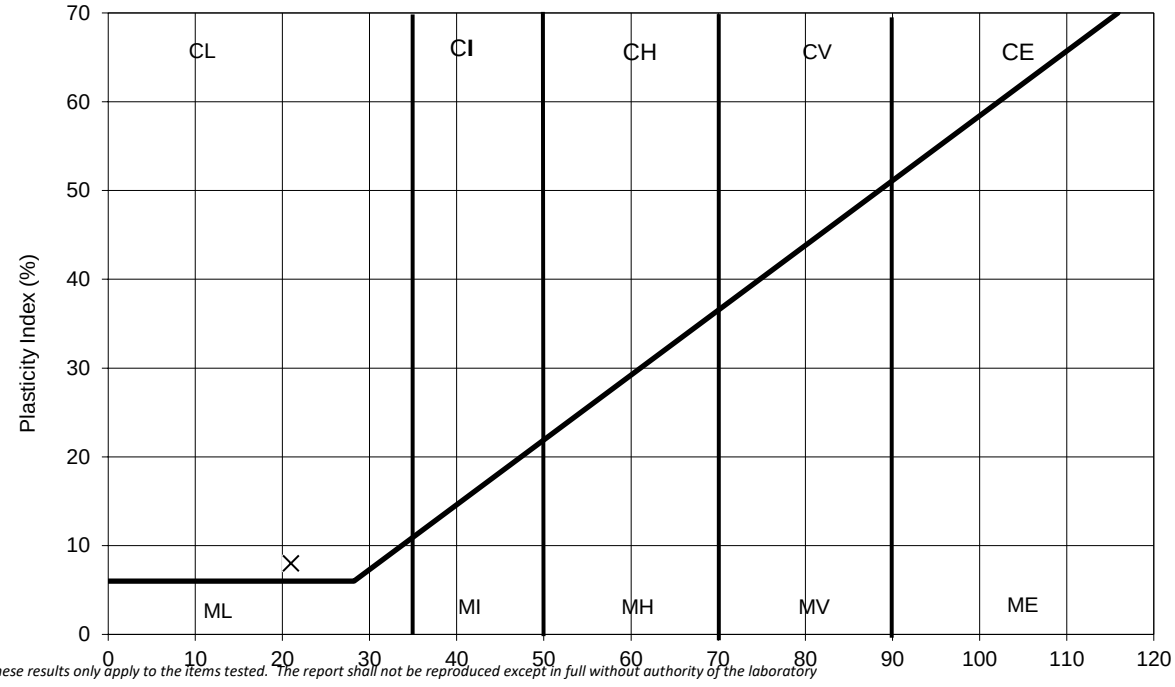


NATURAL MOISTURE CONTENT	**7.2**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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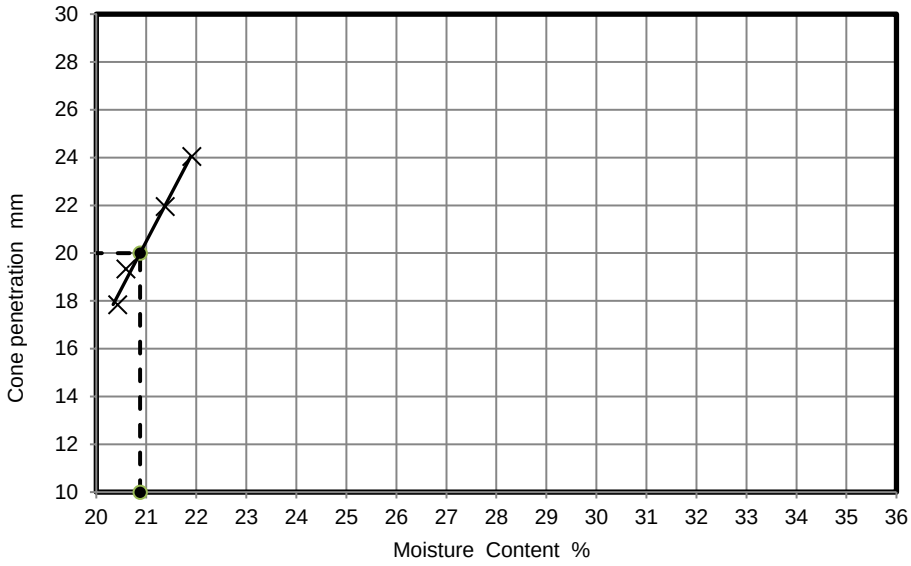
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-68009
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

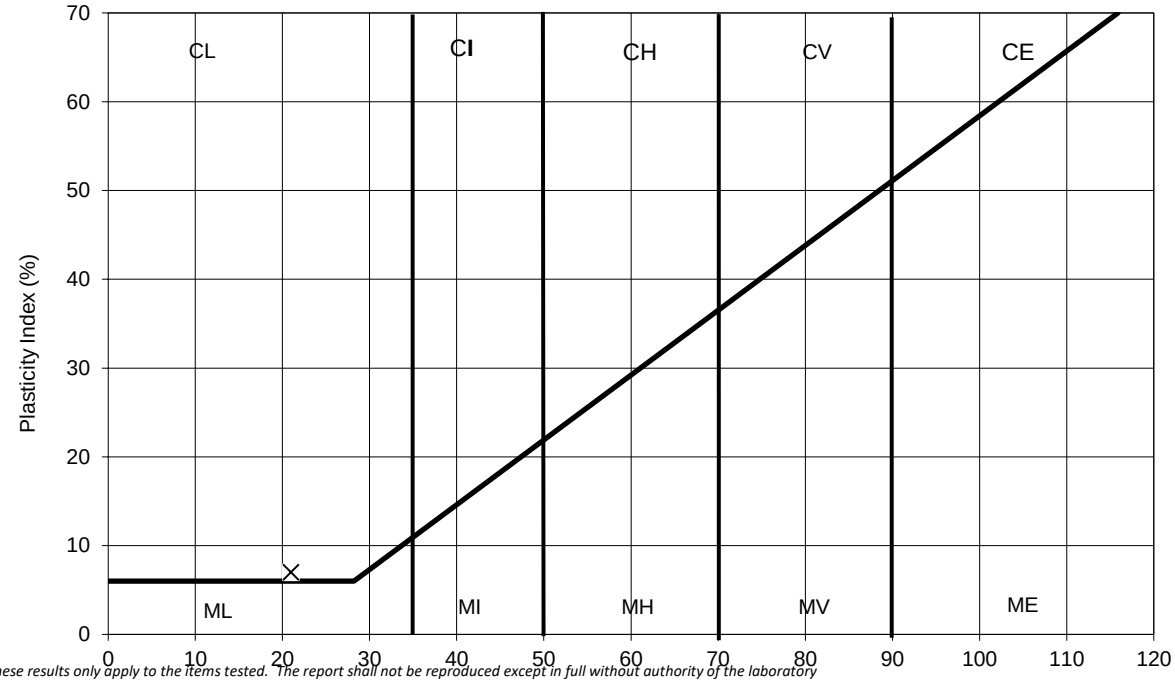


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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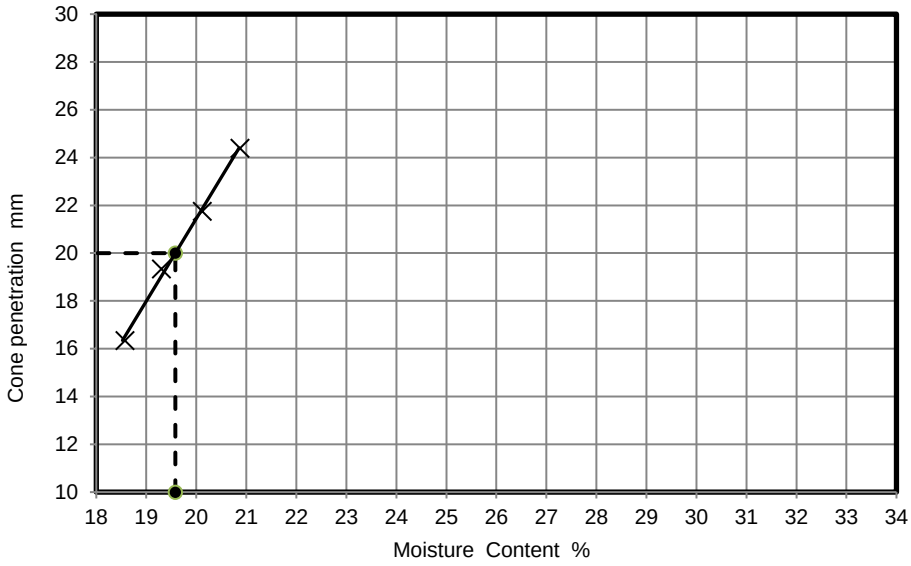
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-68306
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

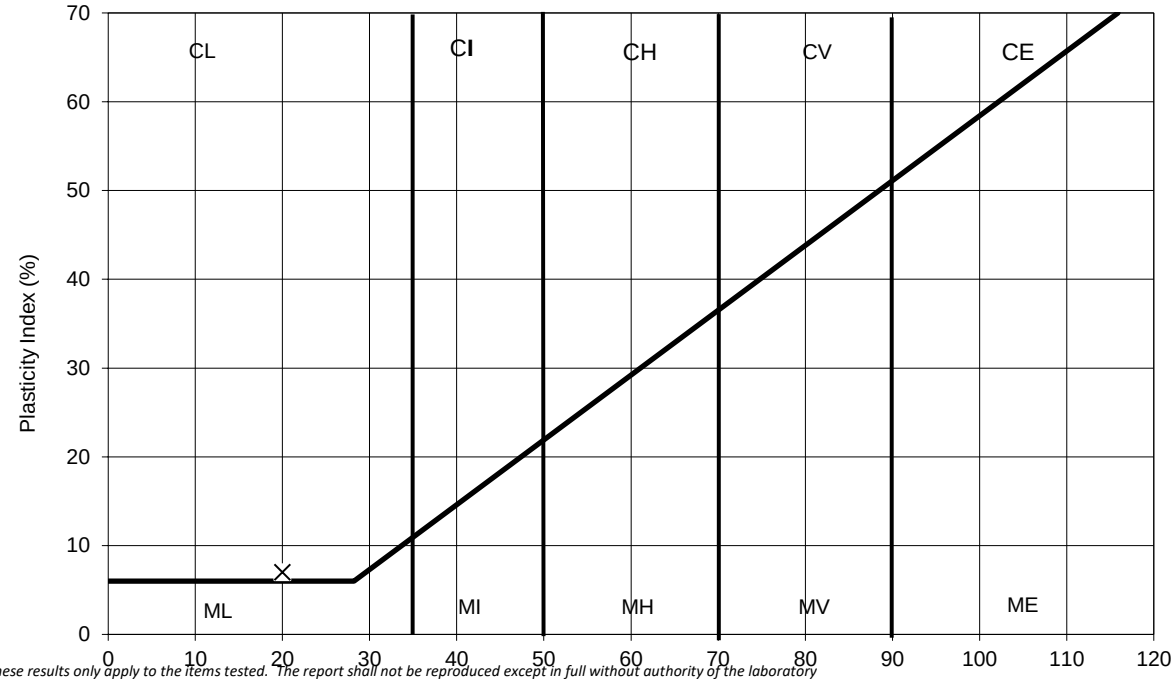


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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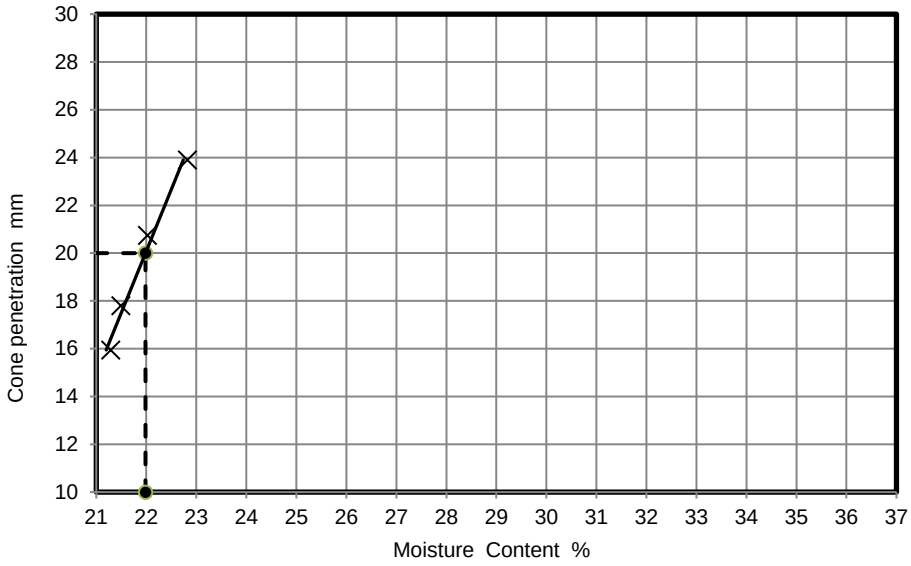
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-68804
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Brown slightly sandy very gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

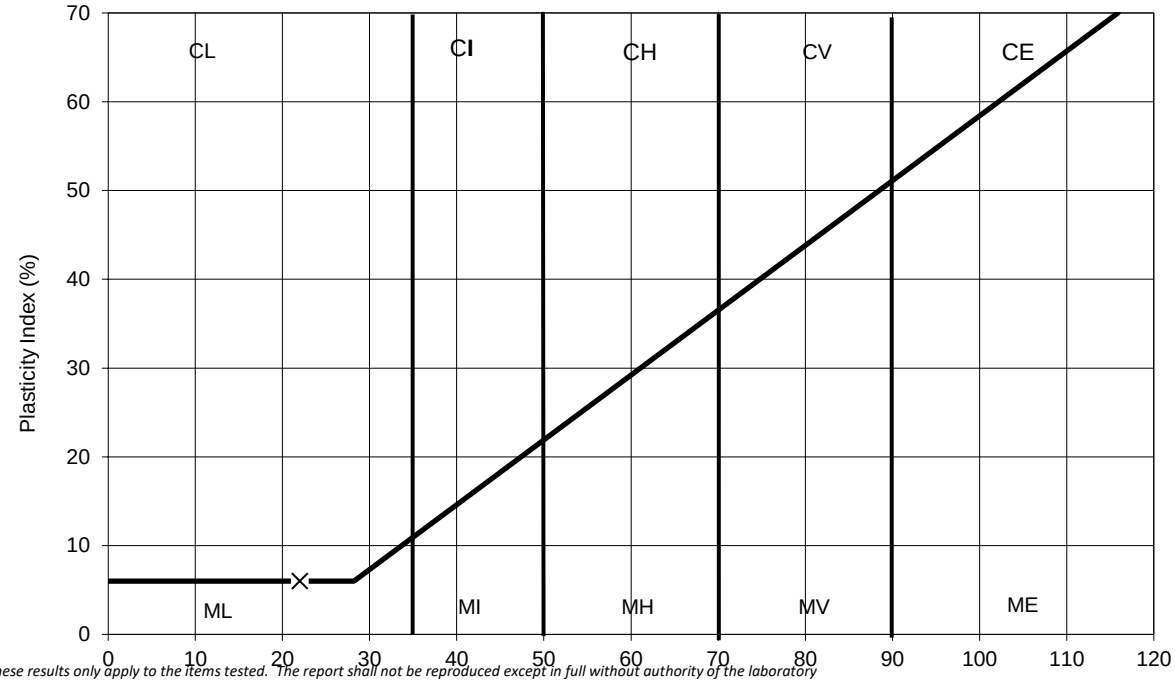


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**18**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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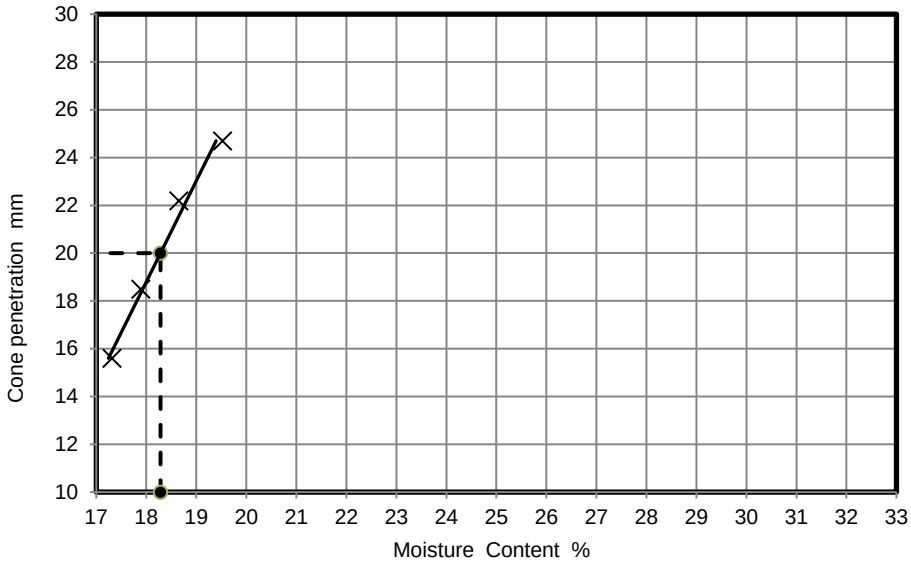
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-69405
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey fmc sub-angular to sub-rounded GRAVEL in a slightly sandy silty clay matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

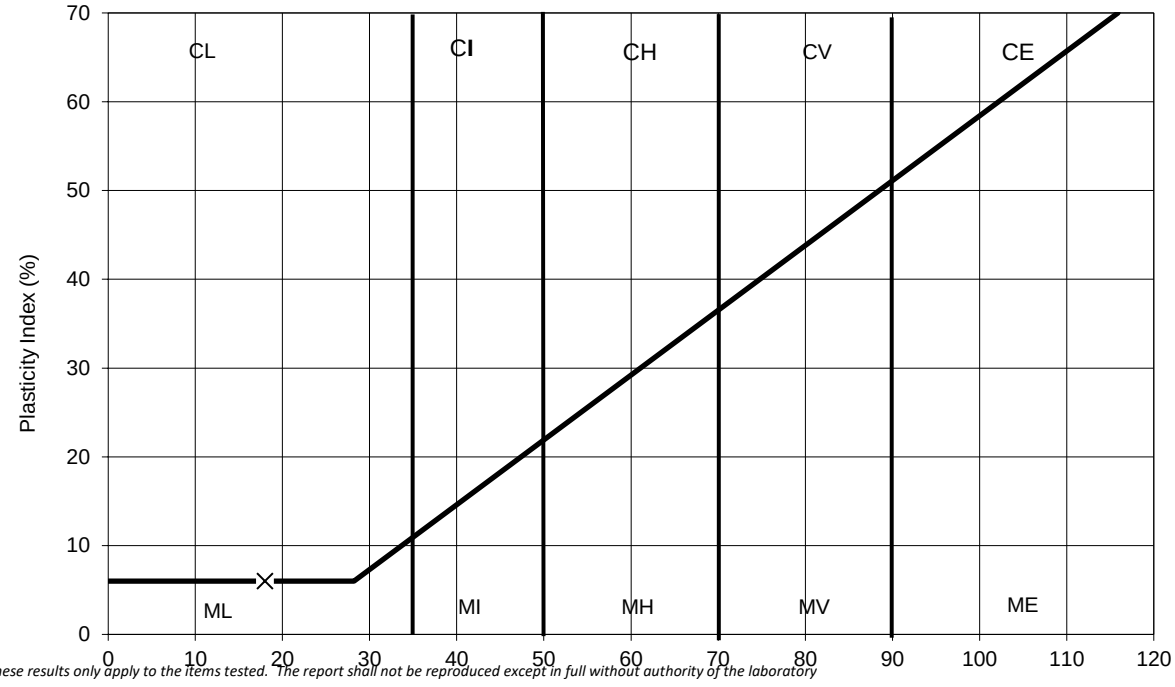


NATURAL MOISTURE CONTENT	**8.5**	**%**
% PASSING 425µm SIEVE	**18**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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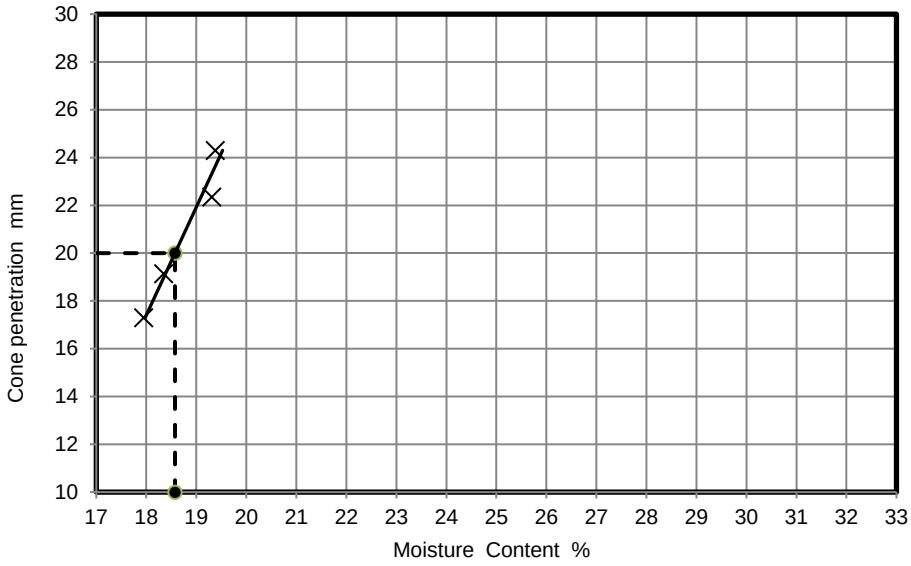
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-71124
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

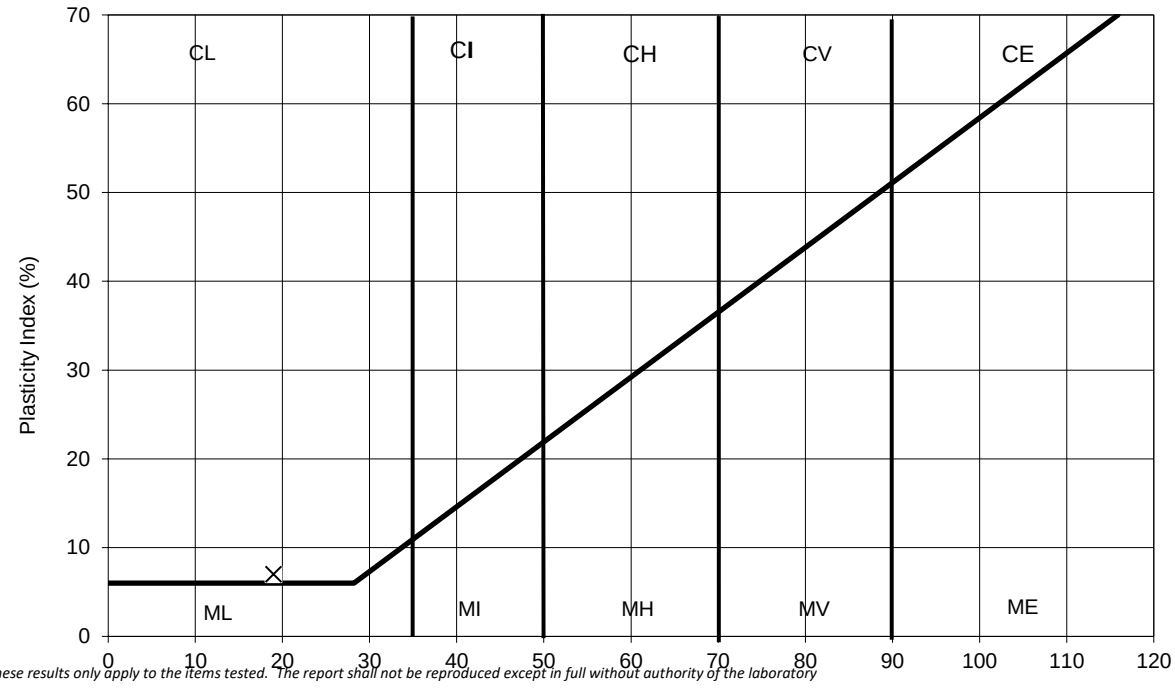


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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UKAS TESTING

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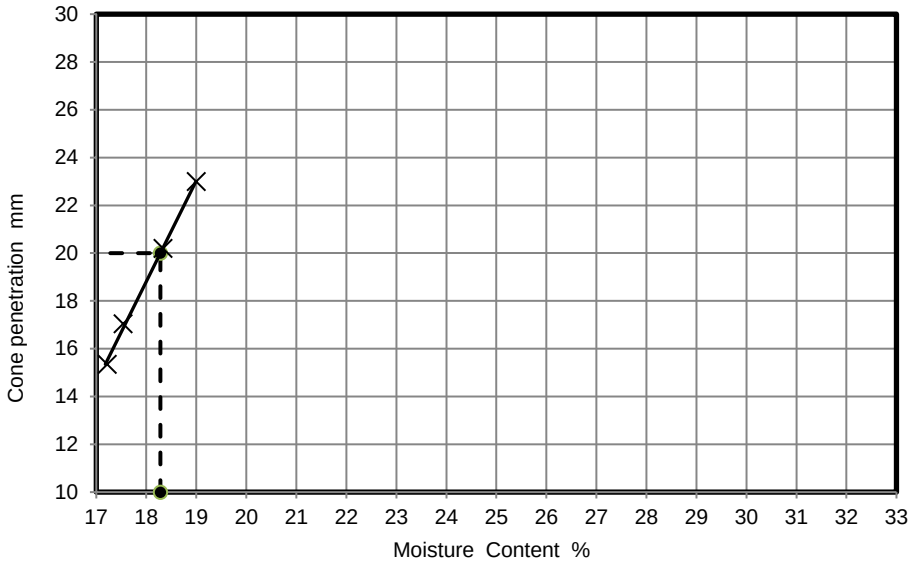
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-71124
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.50 m
Soil Description	Brownish grey slightly sandy very gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

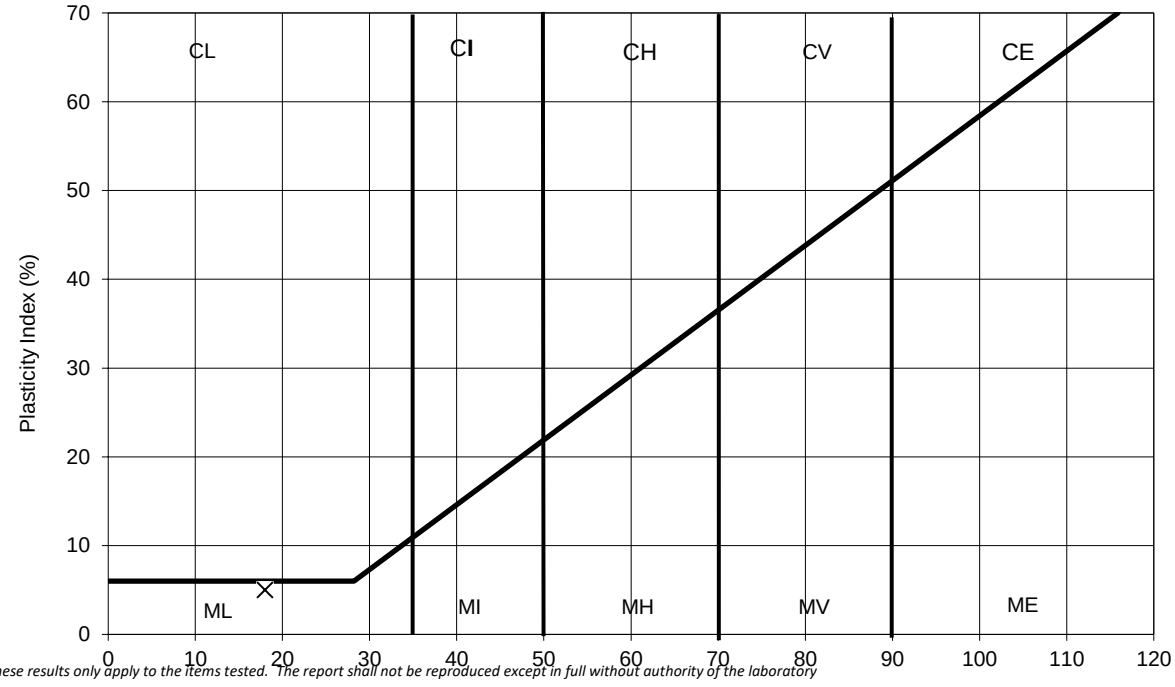


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**28**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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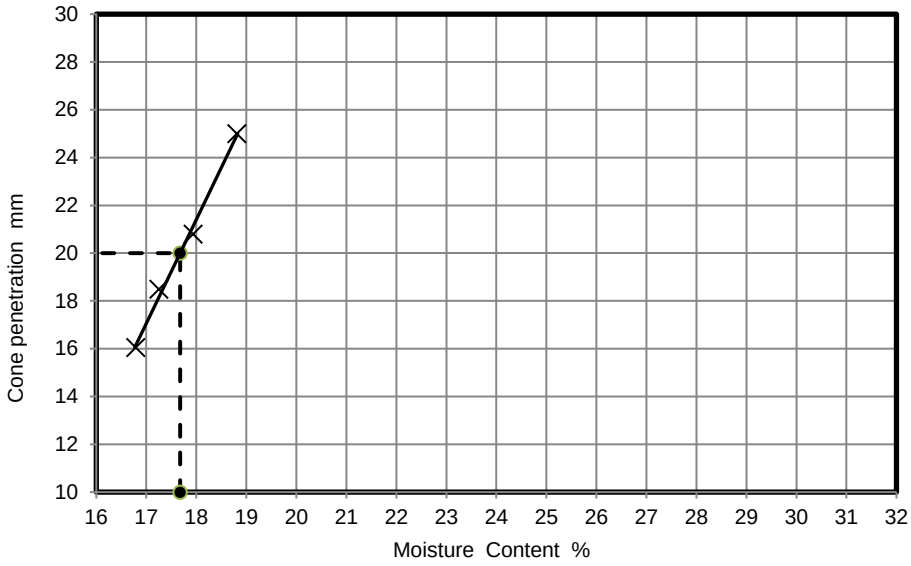
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.50 m
Soil Description	Grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

Job No. 32282

Borehole/Pit No. BH-71397

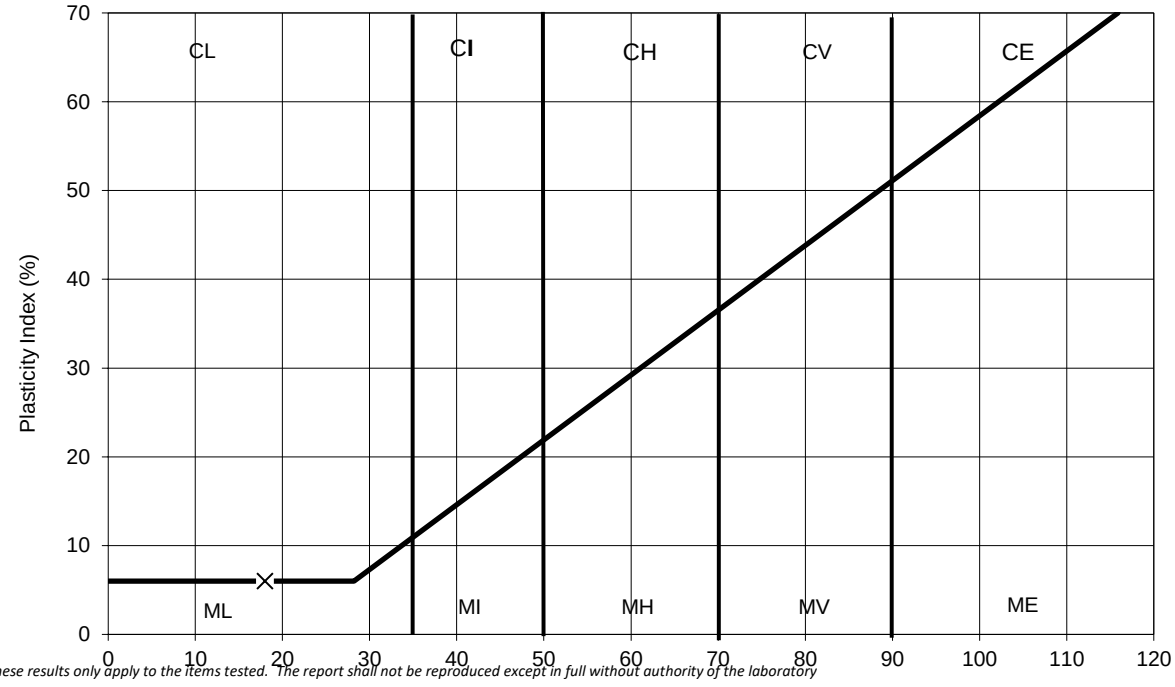


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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UKAS TESTING

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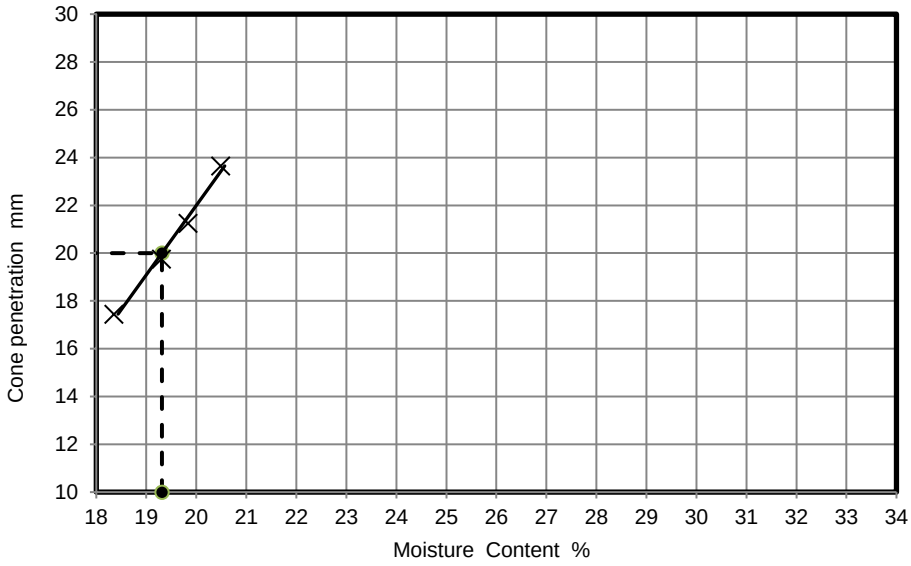
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-72207				
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

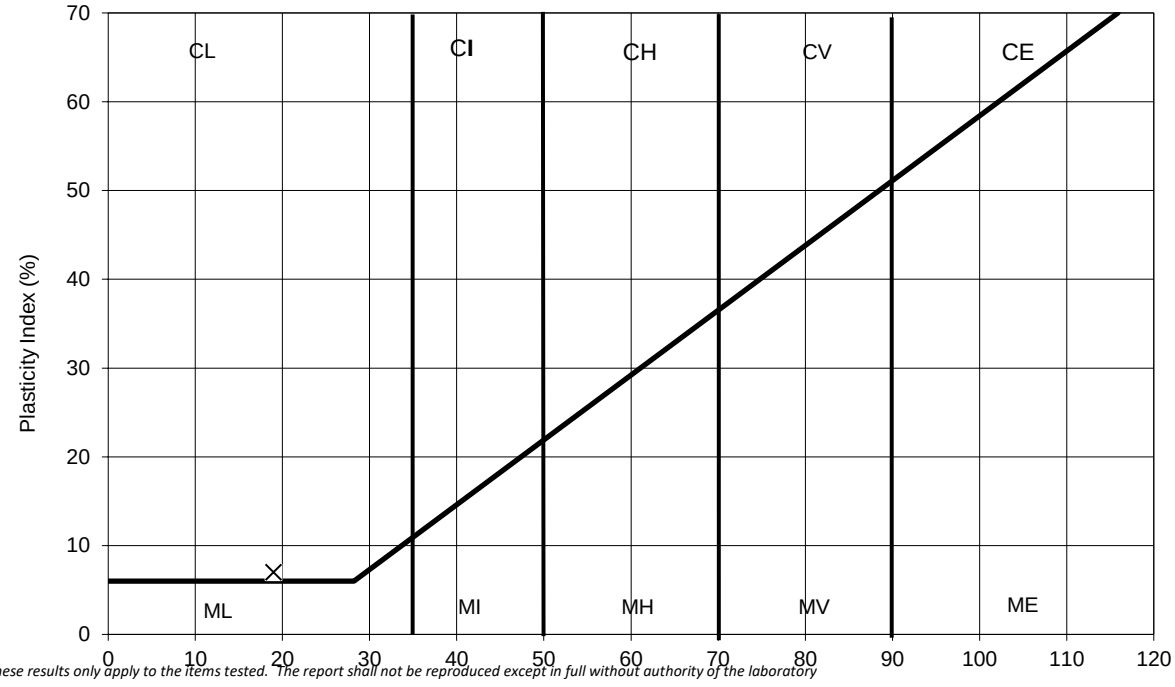


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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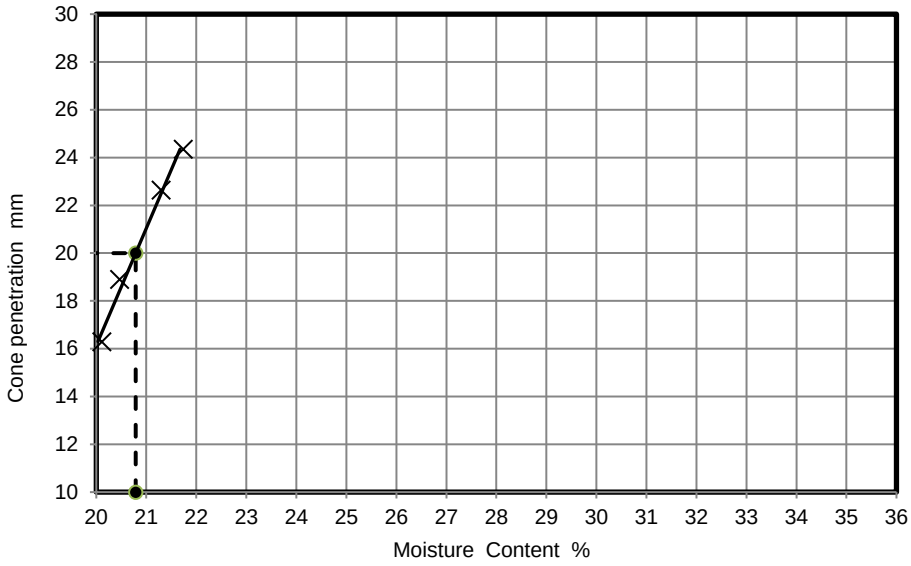
K4 SOILS	**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX**			Job No.	32282
				Borehole/Pit No.	BH-72683
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

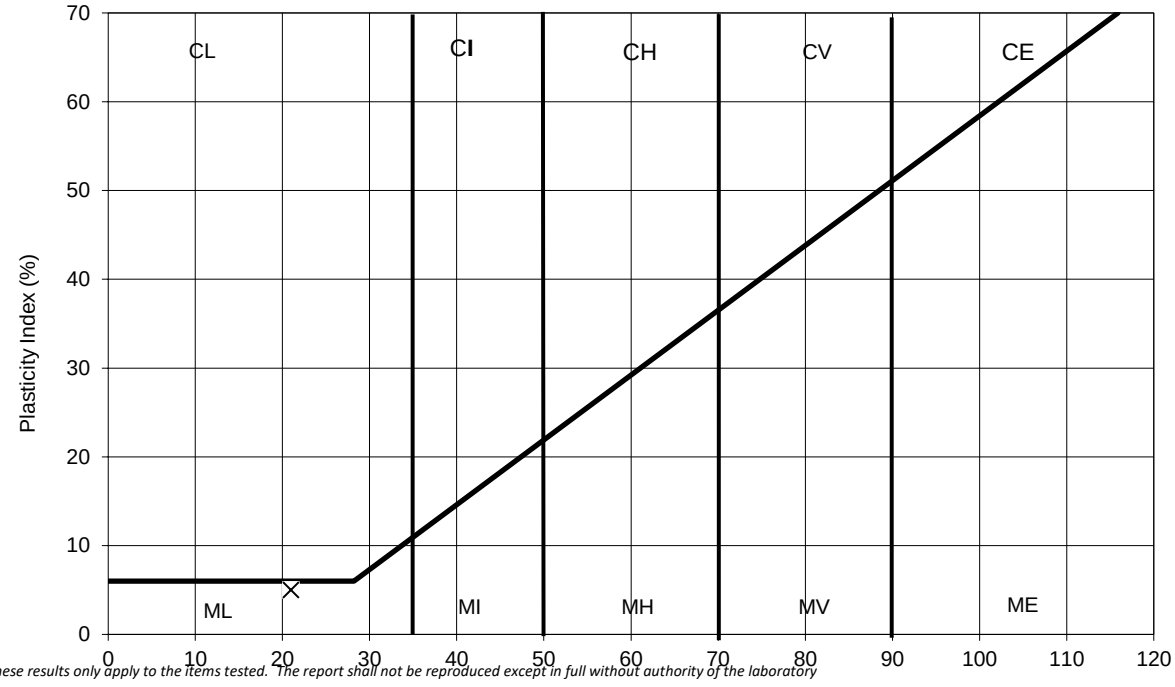


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

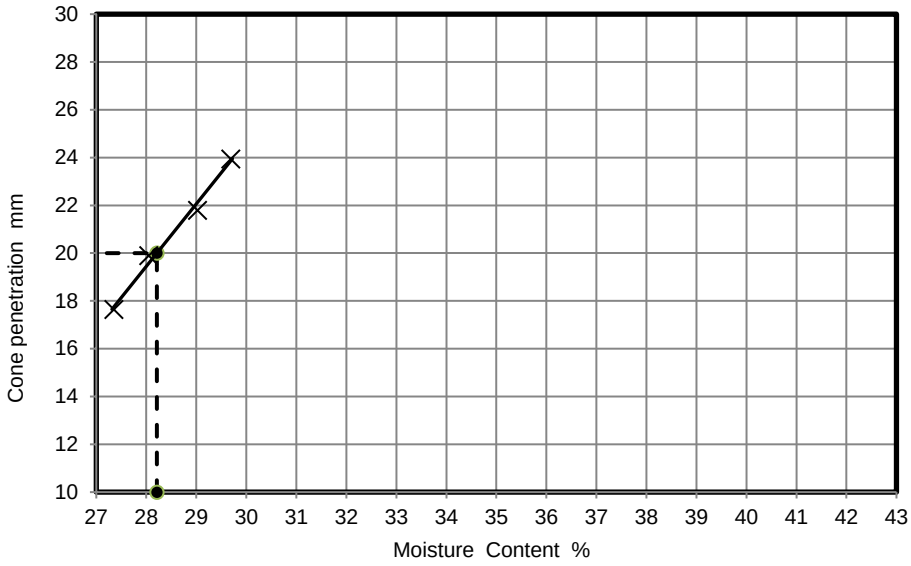
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-73135				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

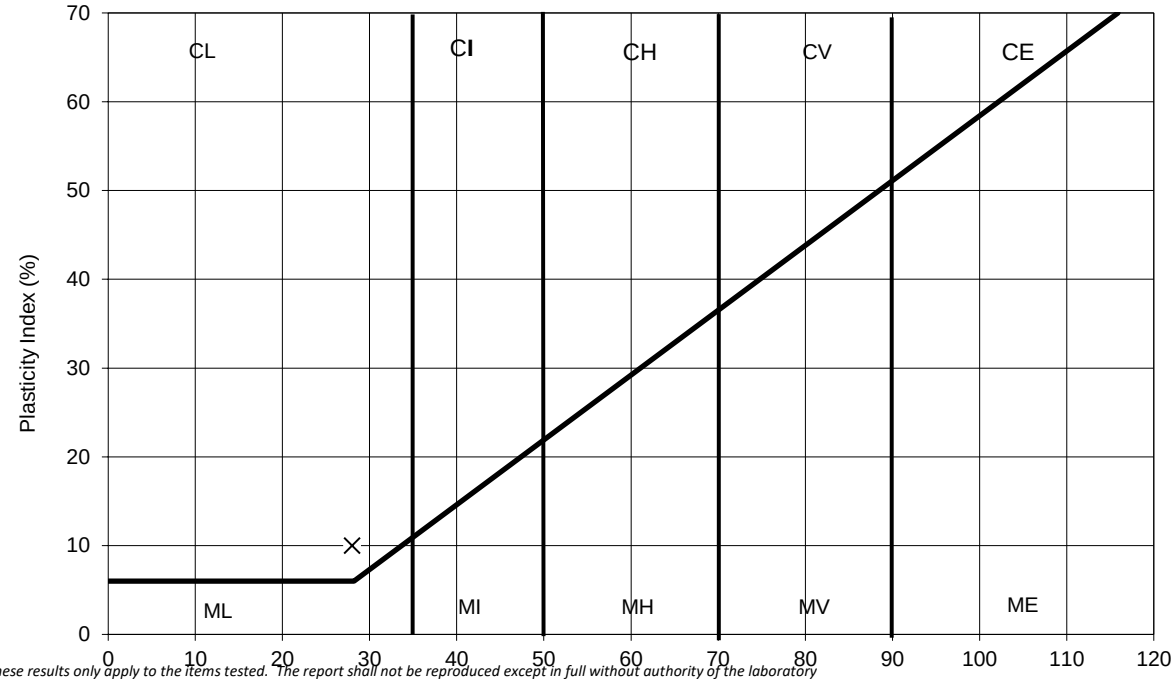


NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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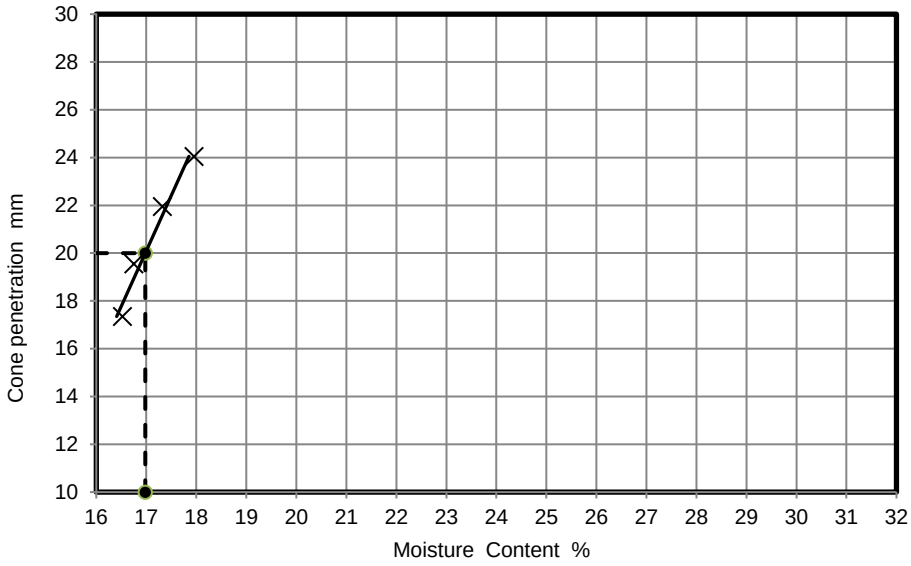
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-74100
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

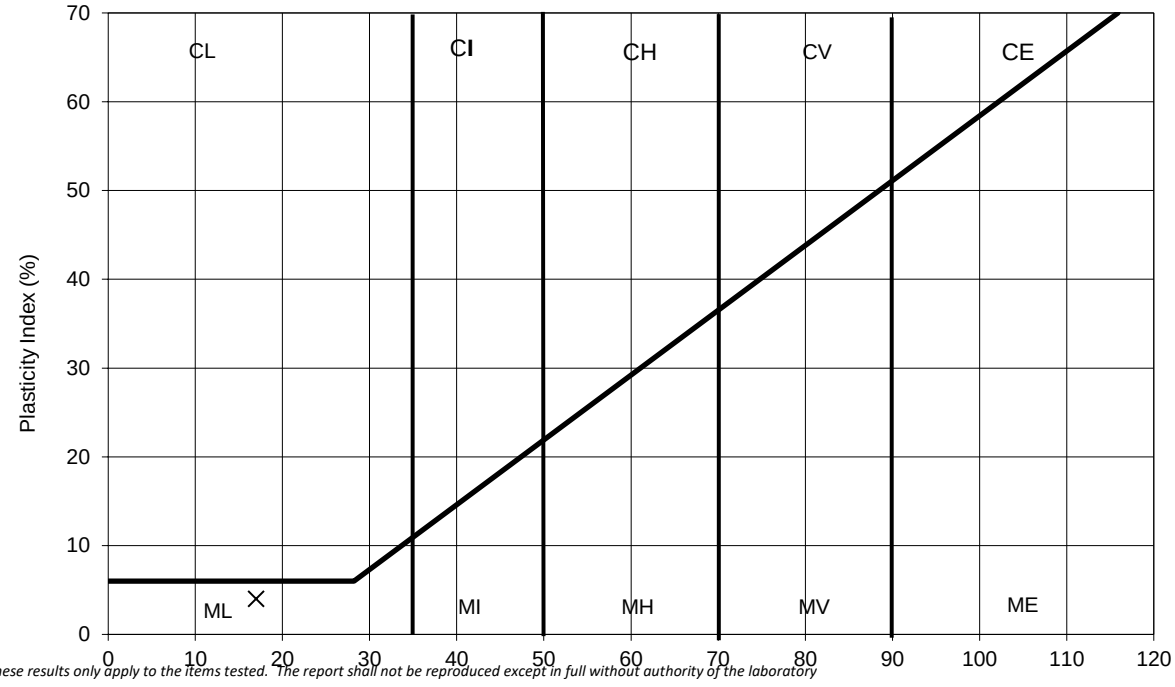


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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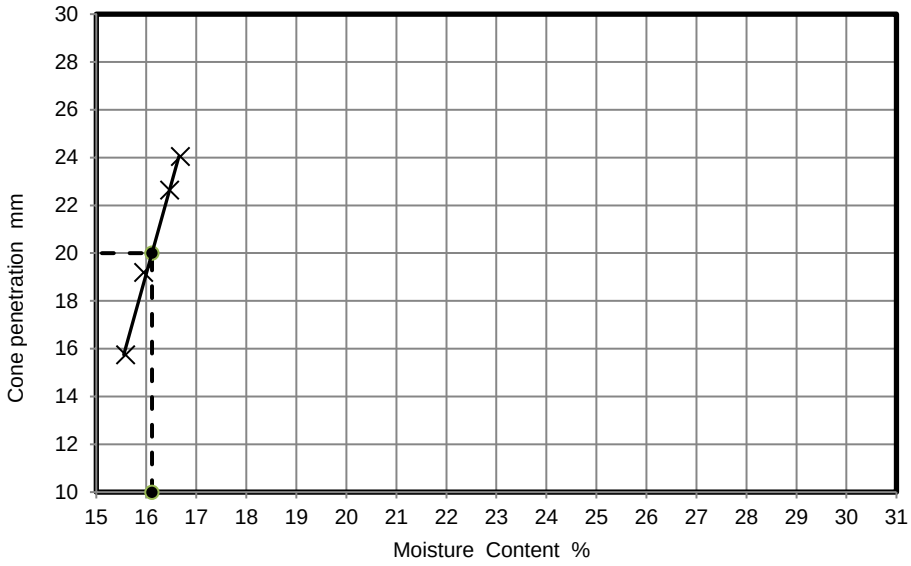
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-75808
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

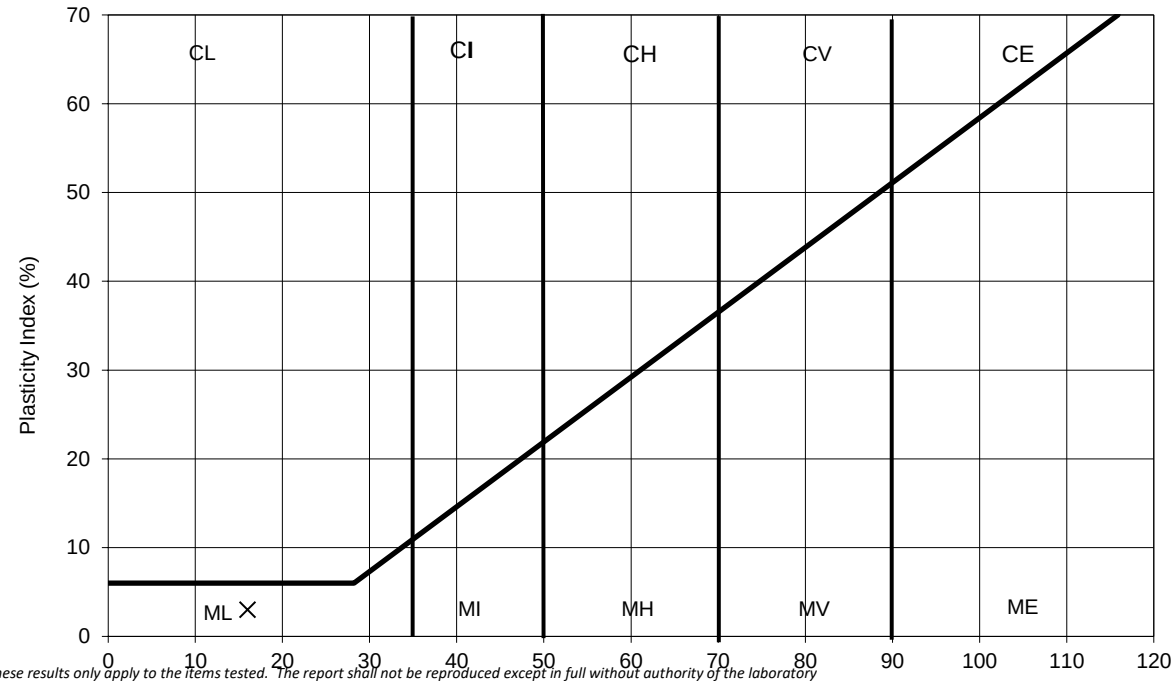


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**3**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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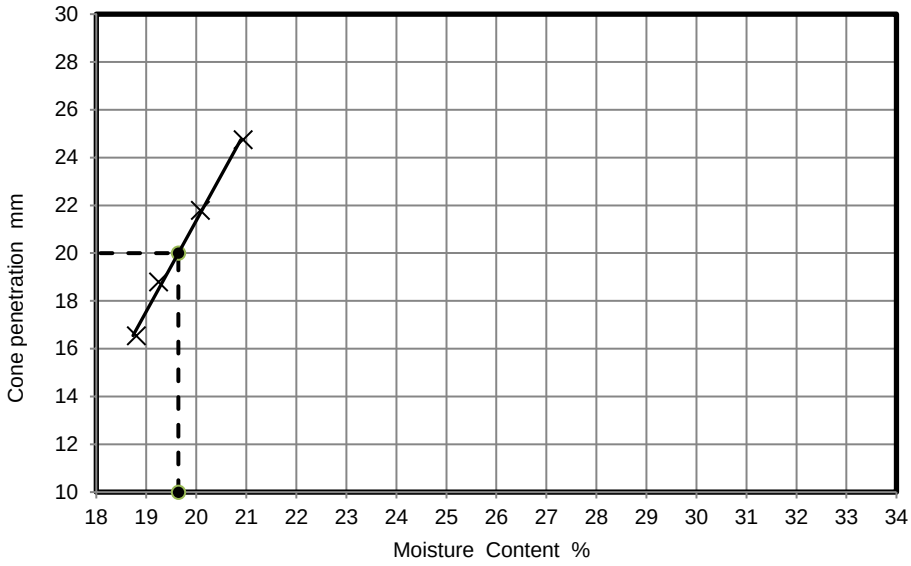
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-76085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

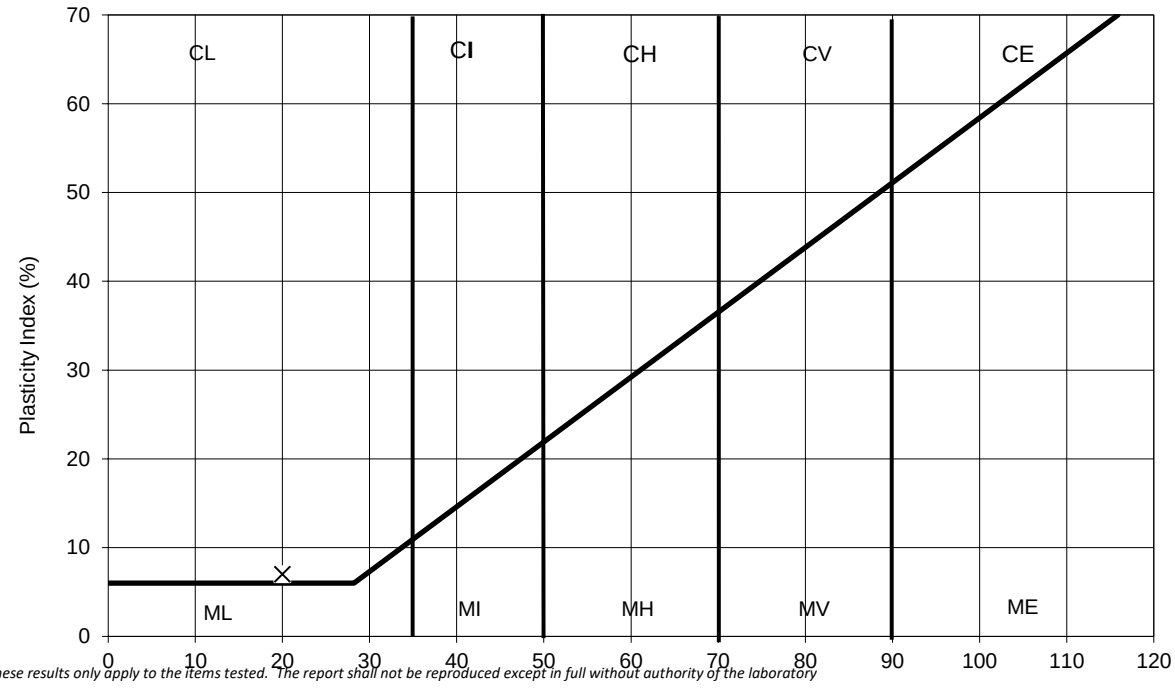


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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UKAS TESTING

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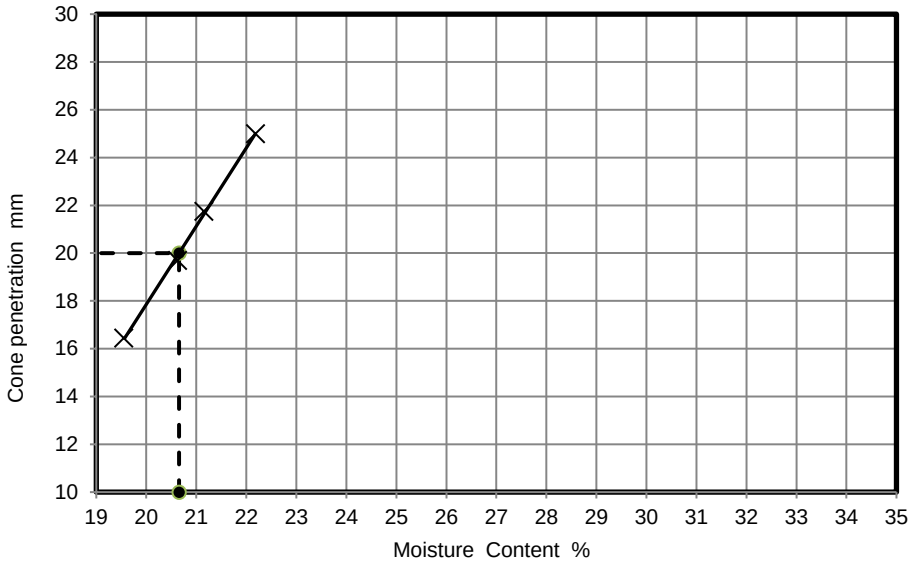
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-76545
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

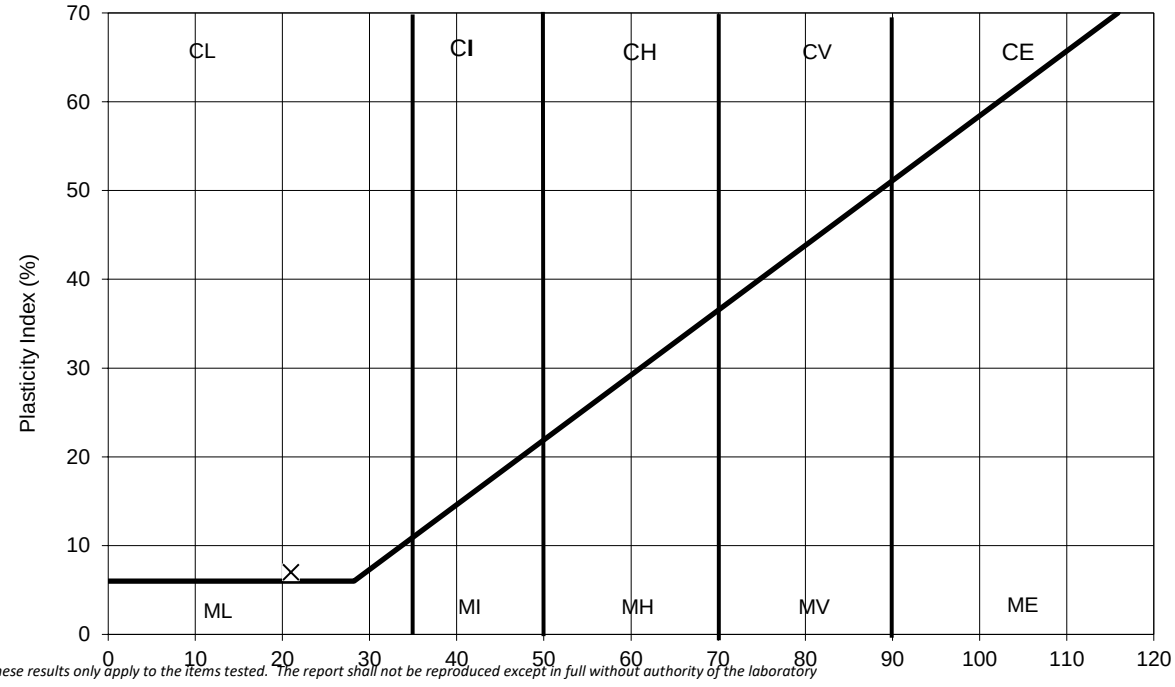


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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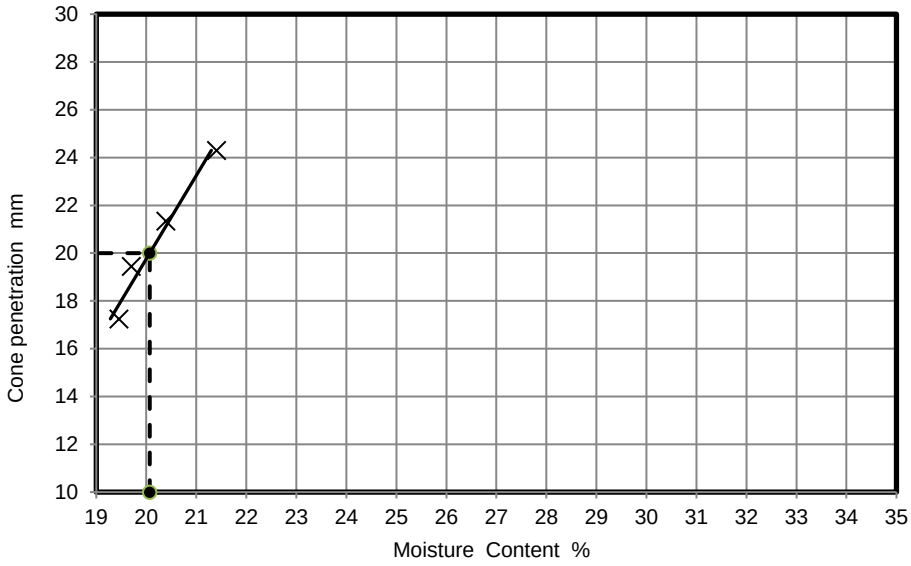
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

Job No. 32282

Borehole/Pit No. BH-76545

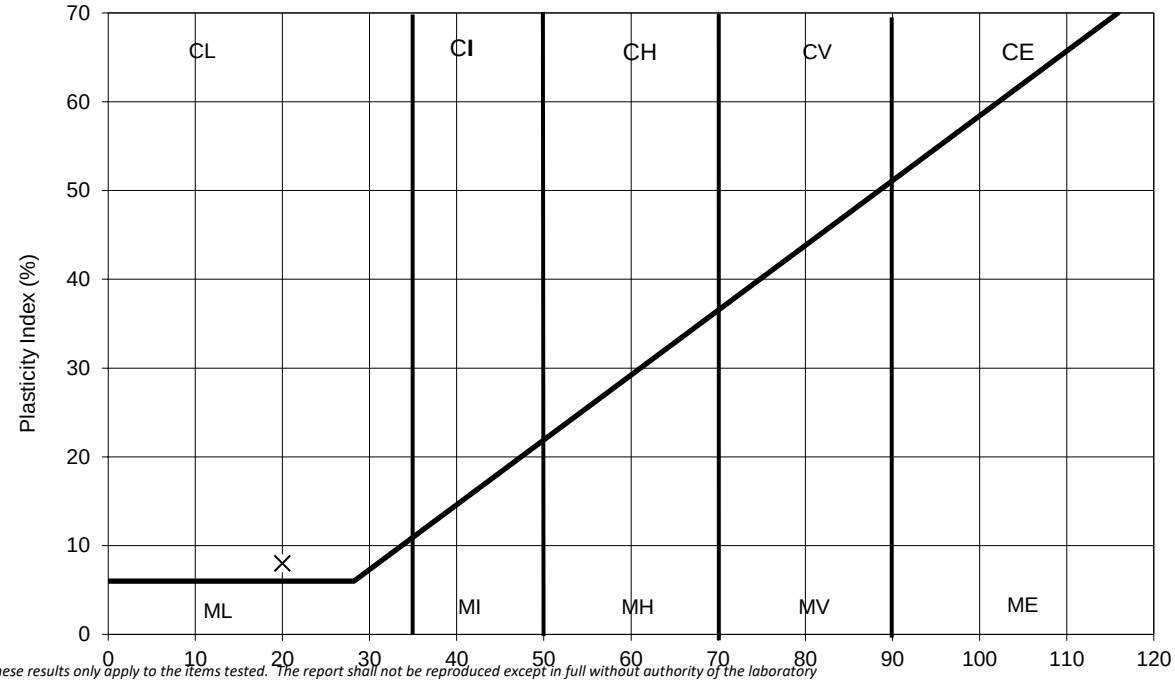


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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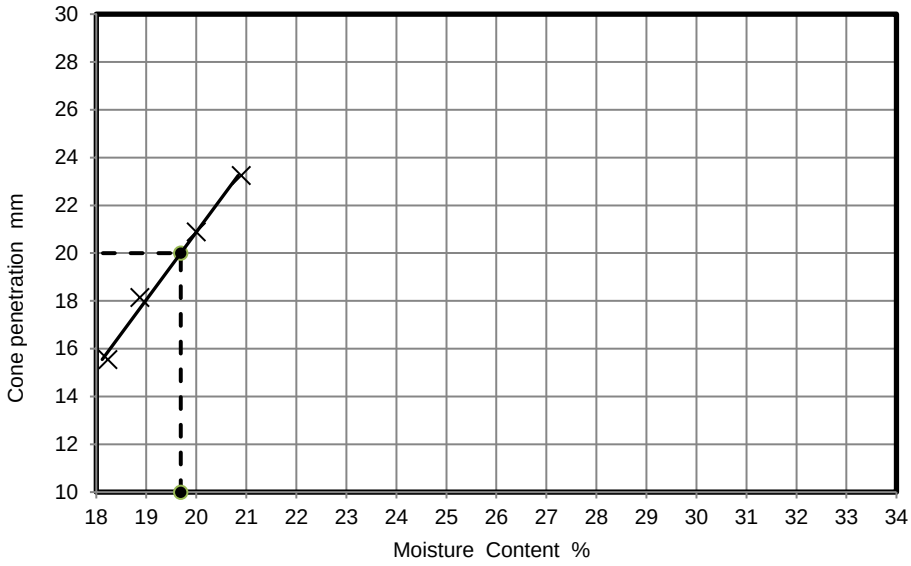
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-76718
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

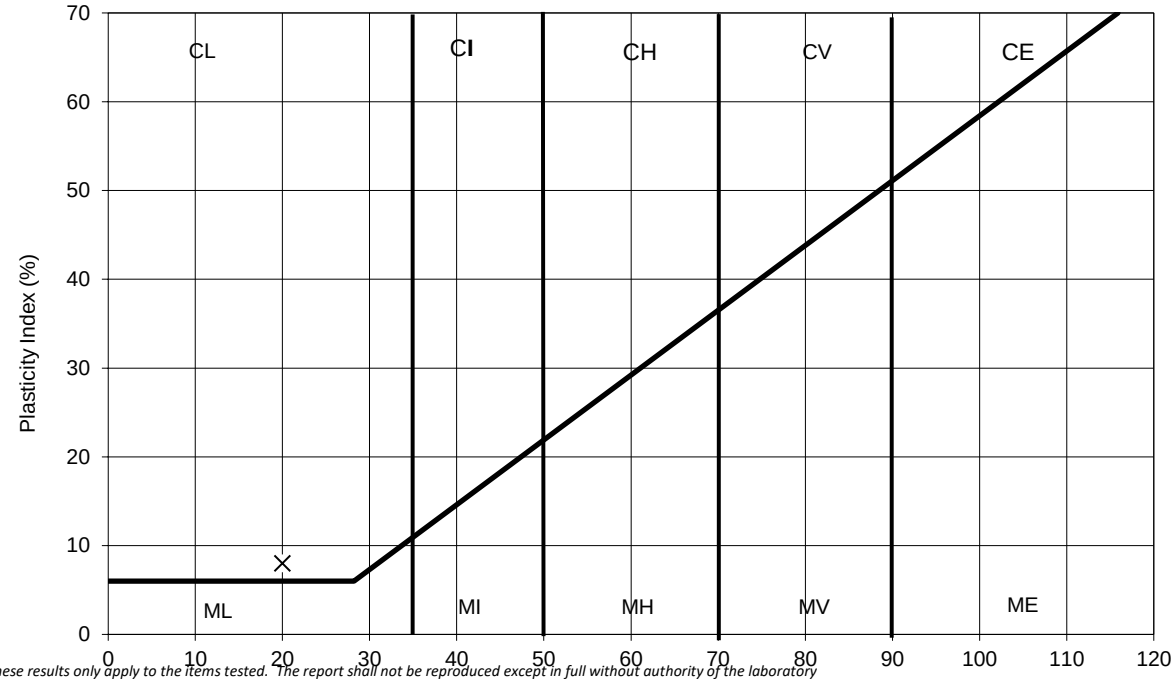


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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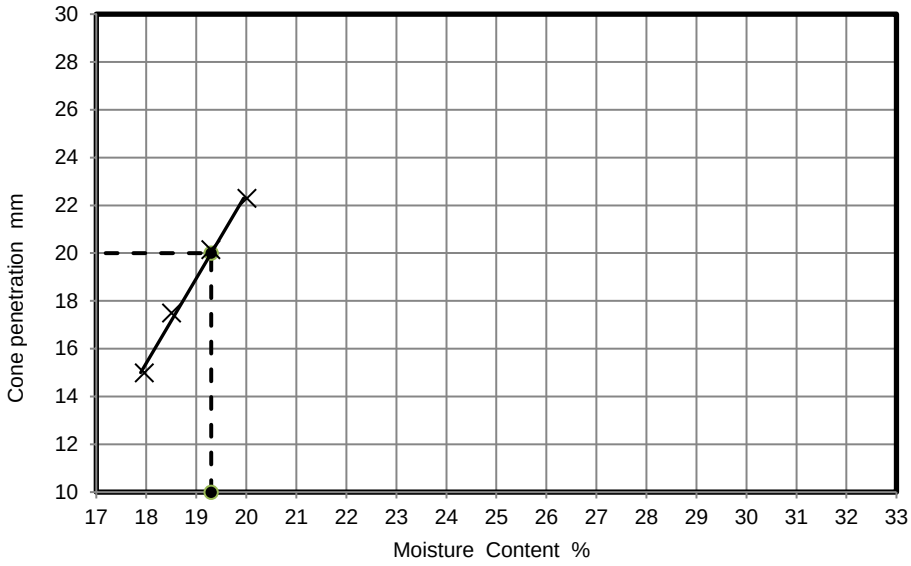
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77176
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

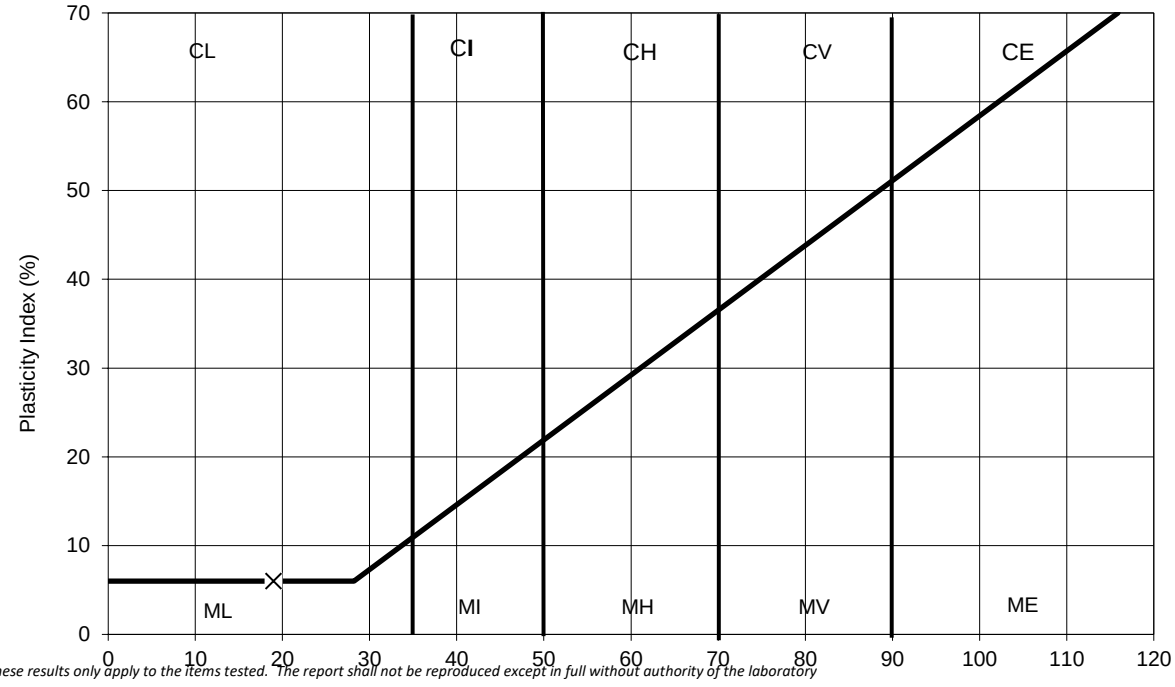


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**47**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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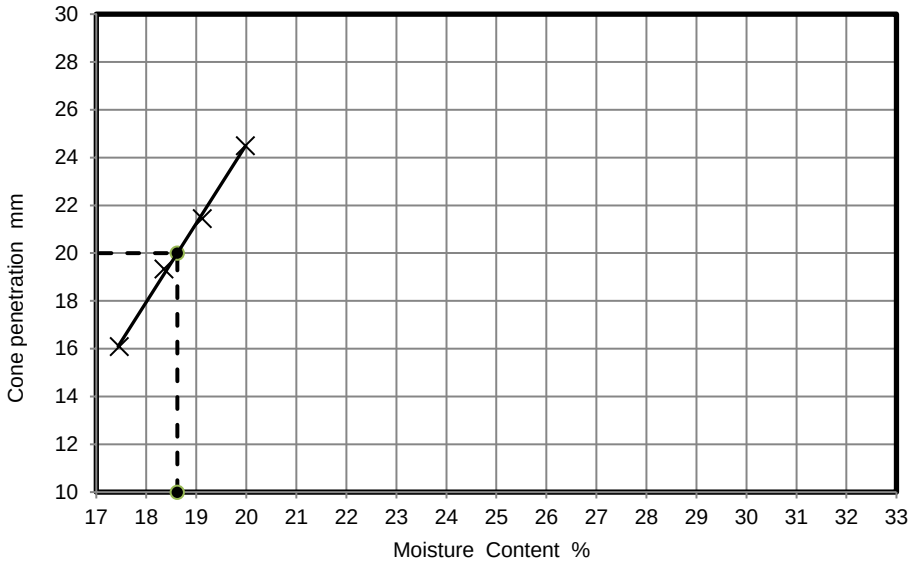
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77404
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

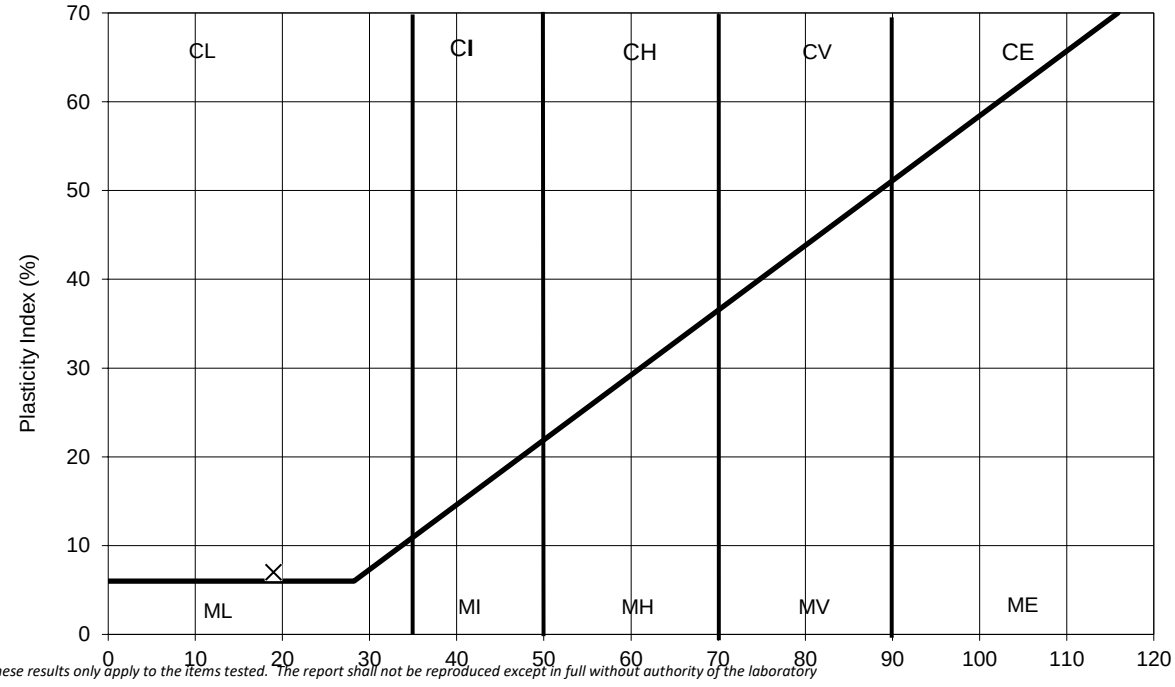


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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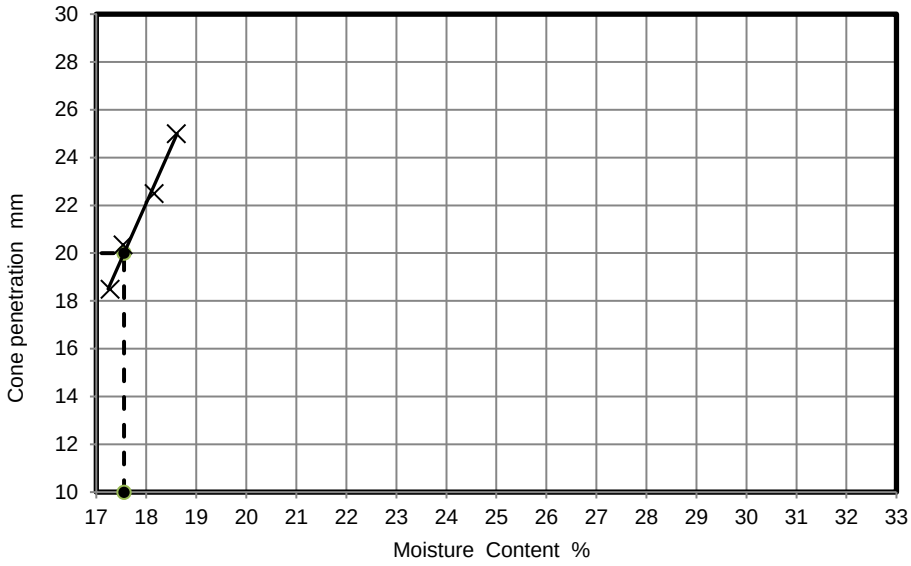
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77477
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

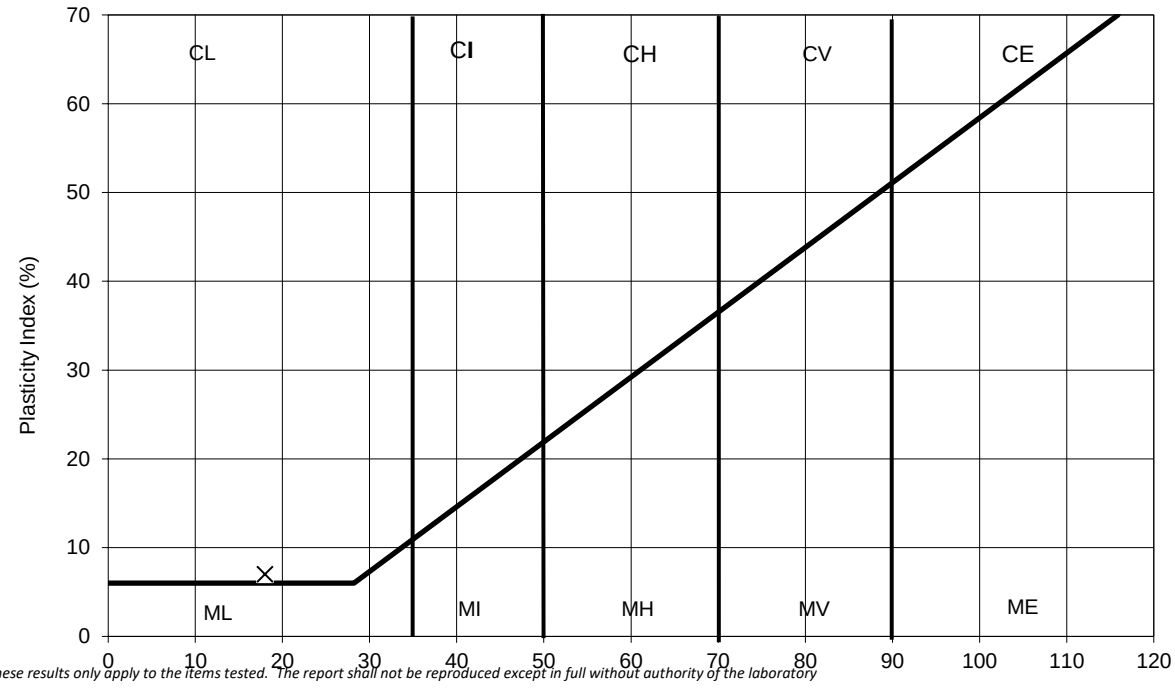


NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

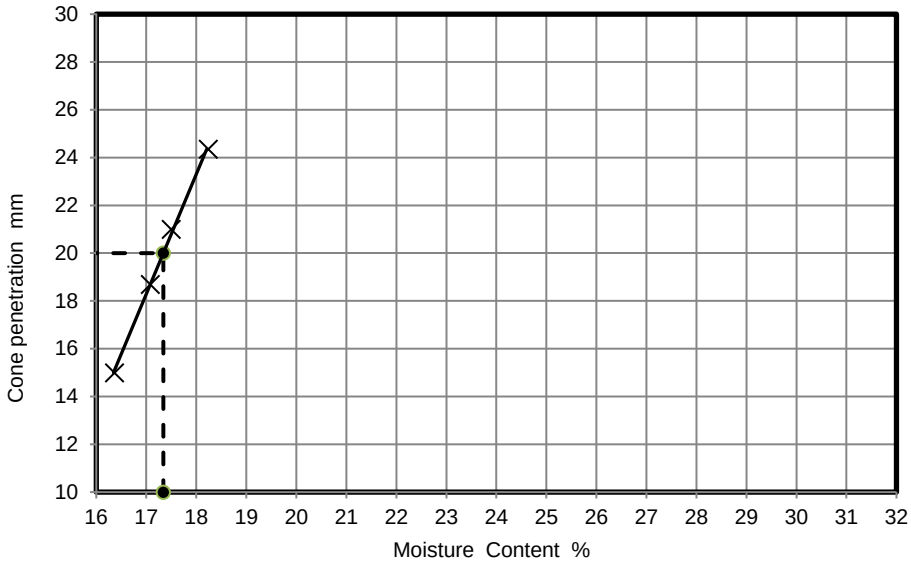
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77631
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

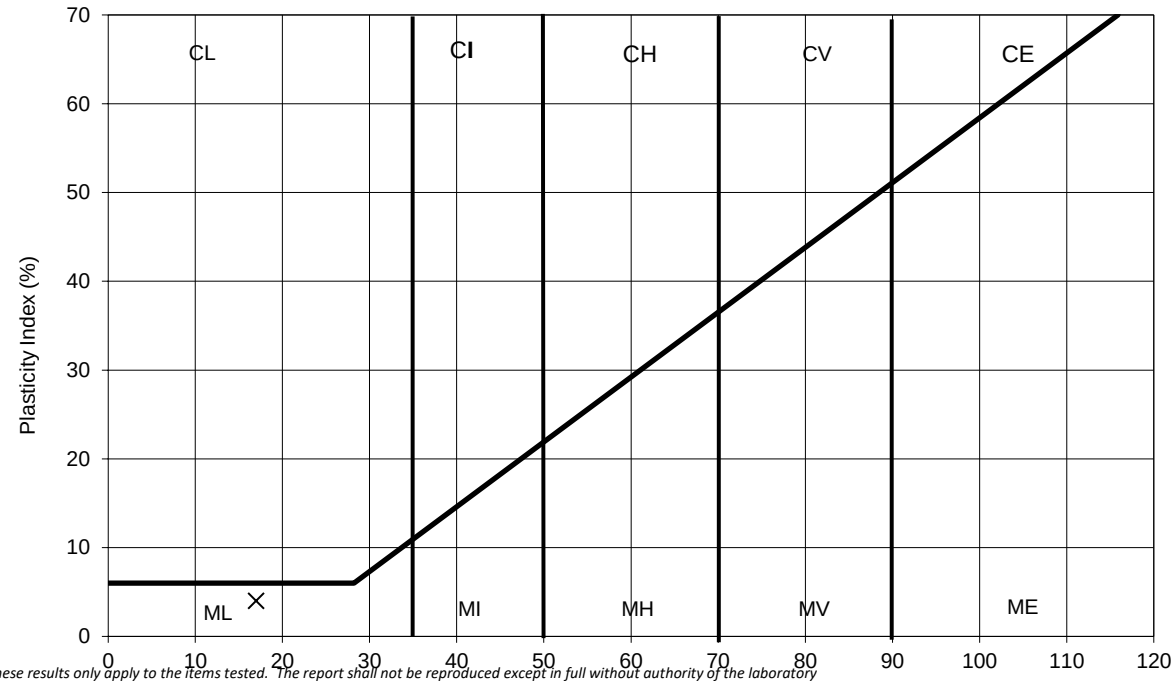


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**40**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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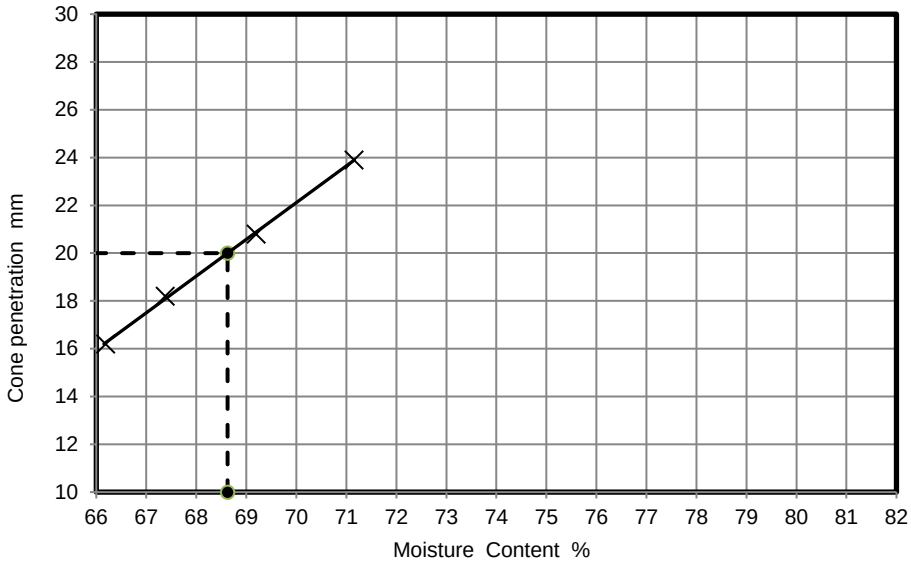
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

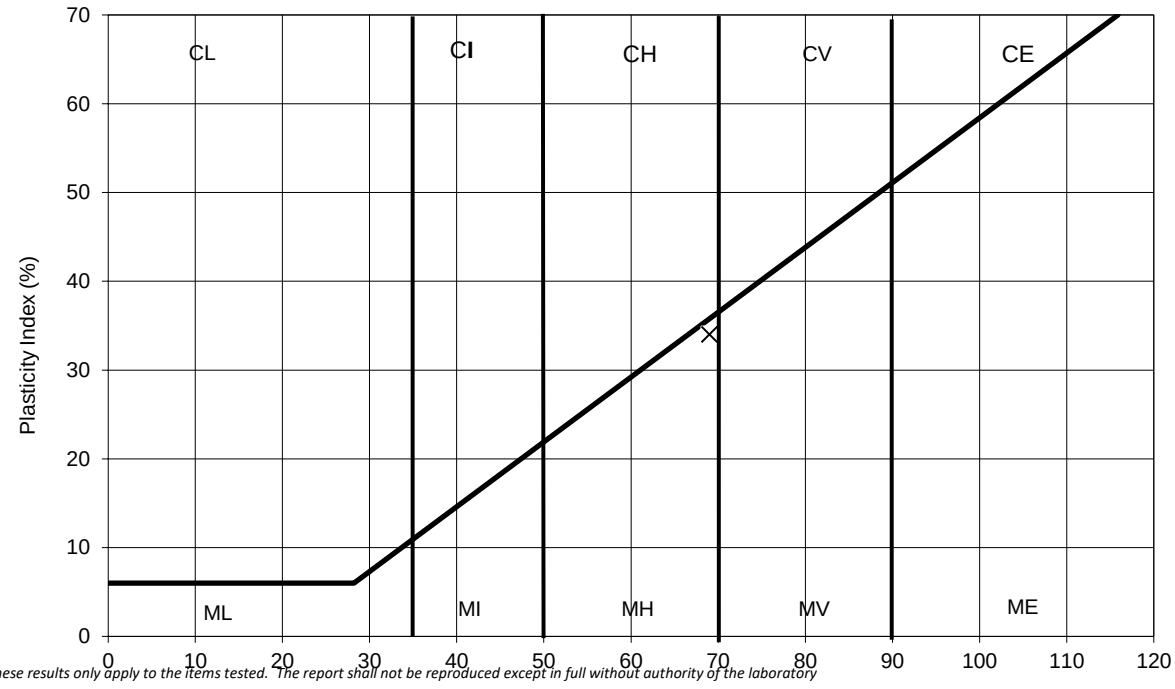
				Job No.	32282
				Borehole/Pit No.	BH-78412
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark grey slightly gravelly slightly sandy slightly organic very silty CLAY (gravel is fine and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**56**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**69**	**%**
PLASTIC LIMIT	**35**	**%**
PLASTICITY INDEX	**34**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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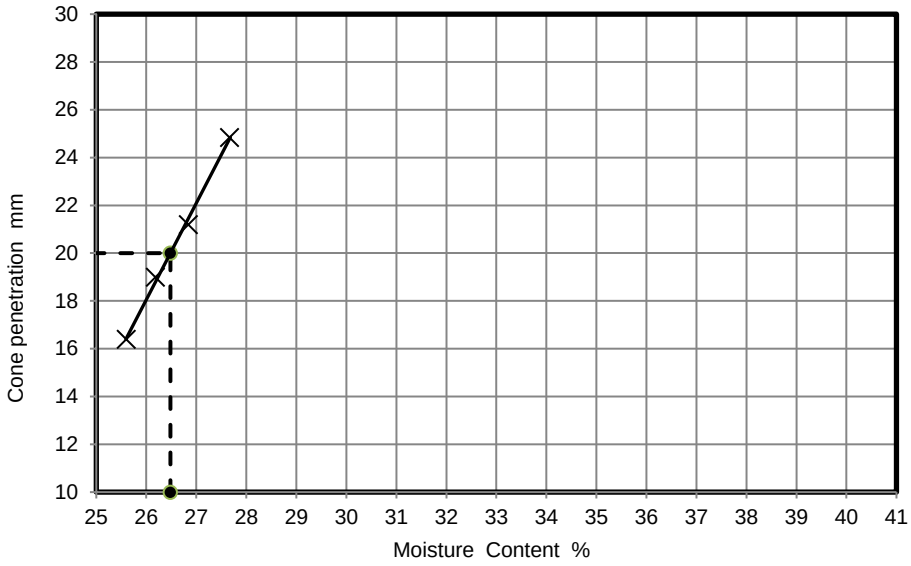
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-79026
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Dark brown and brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

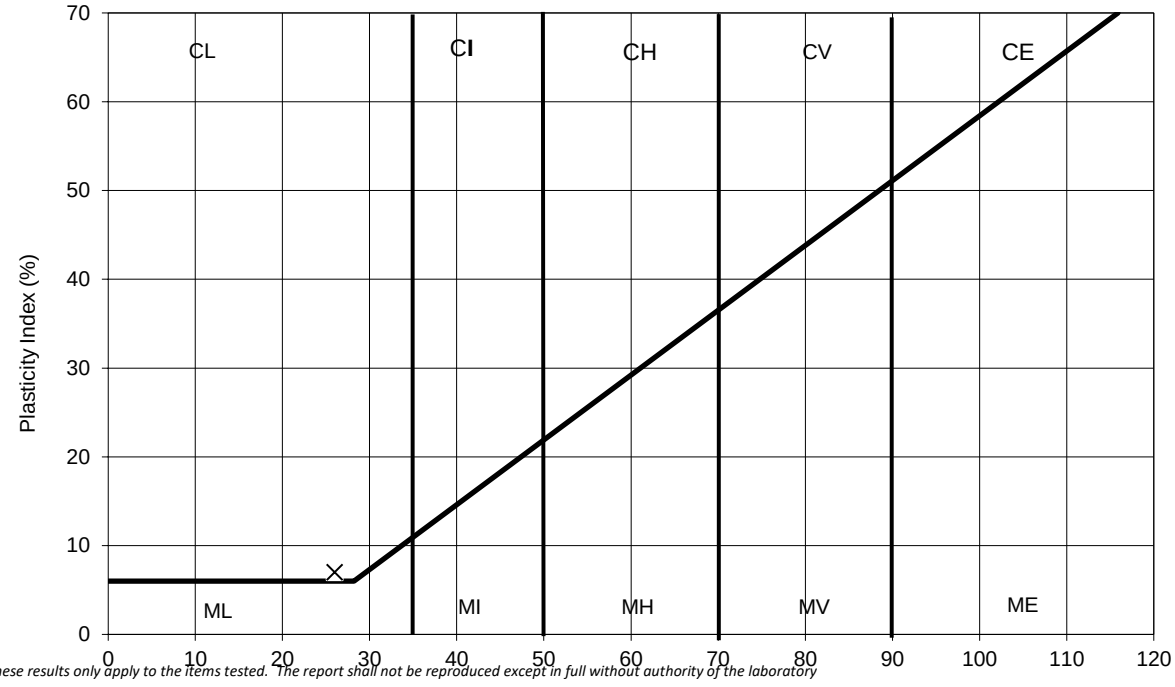


NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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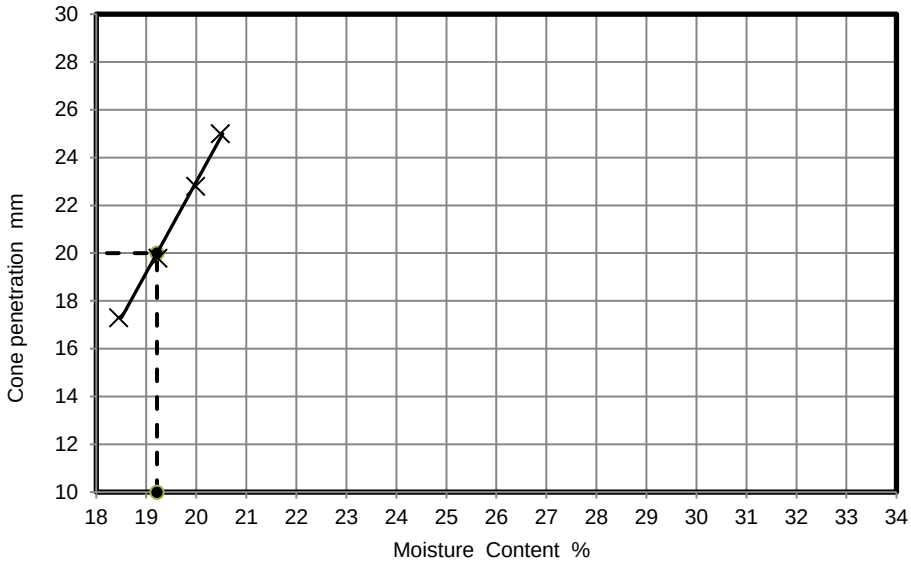
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-79209
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

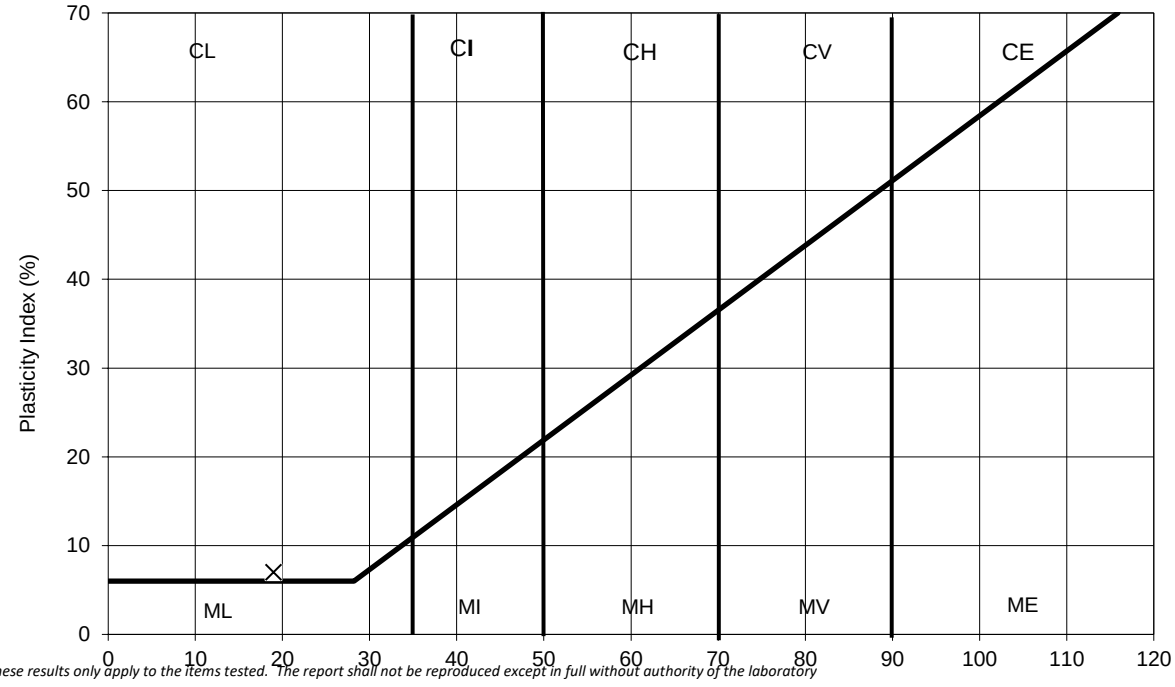


NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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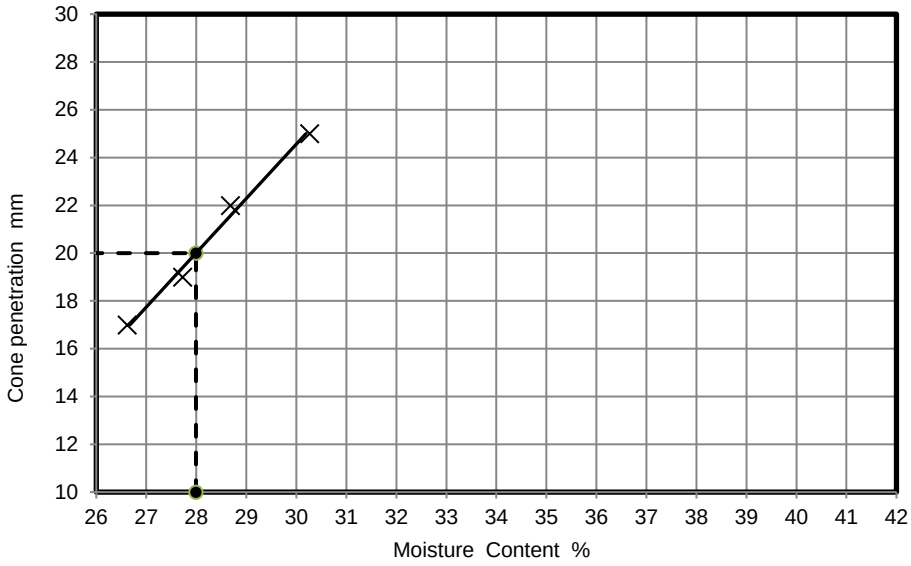
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-79273
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly sandy slightly gravelly silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

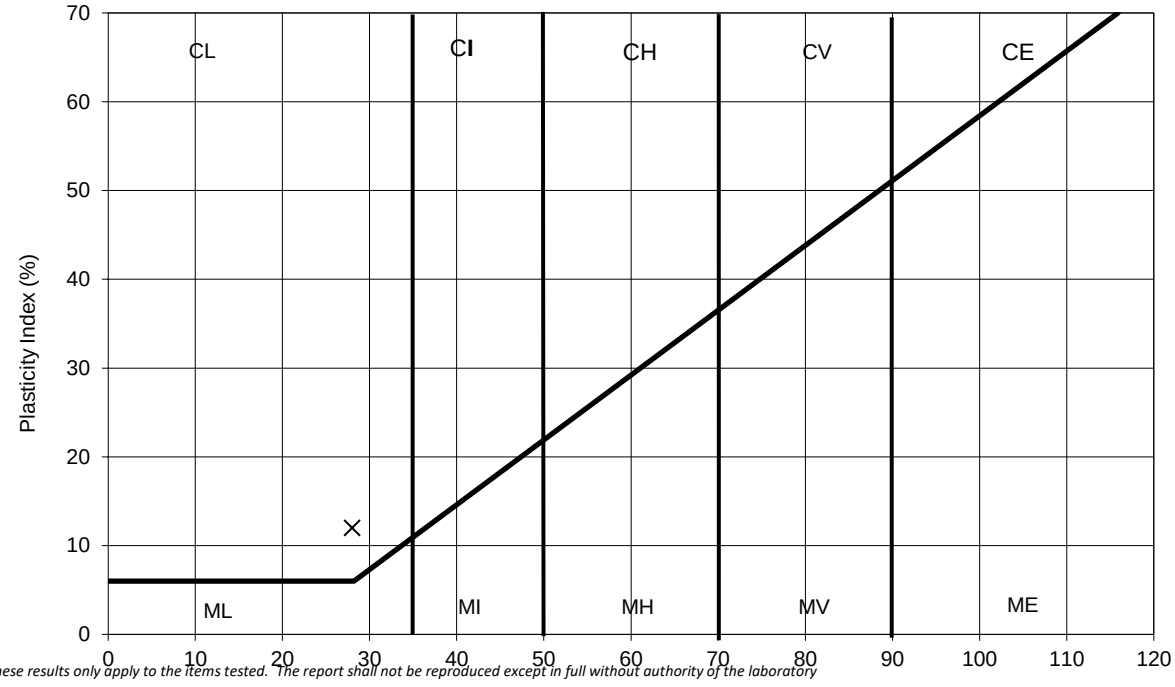


NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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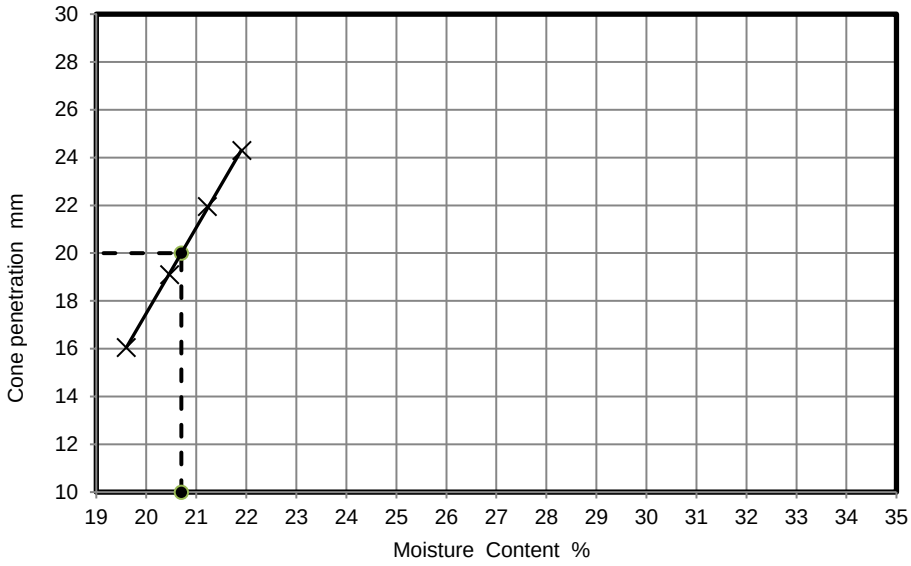
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-79441
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

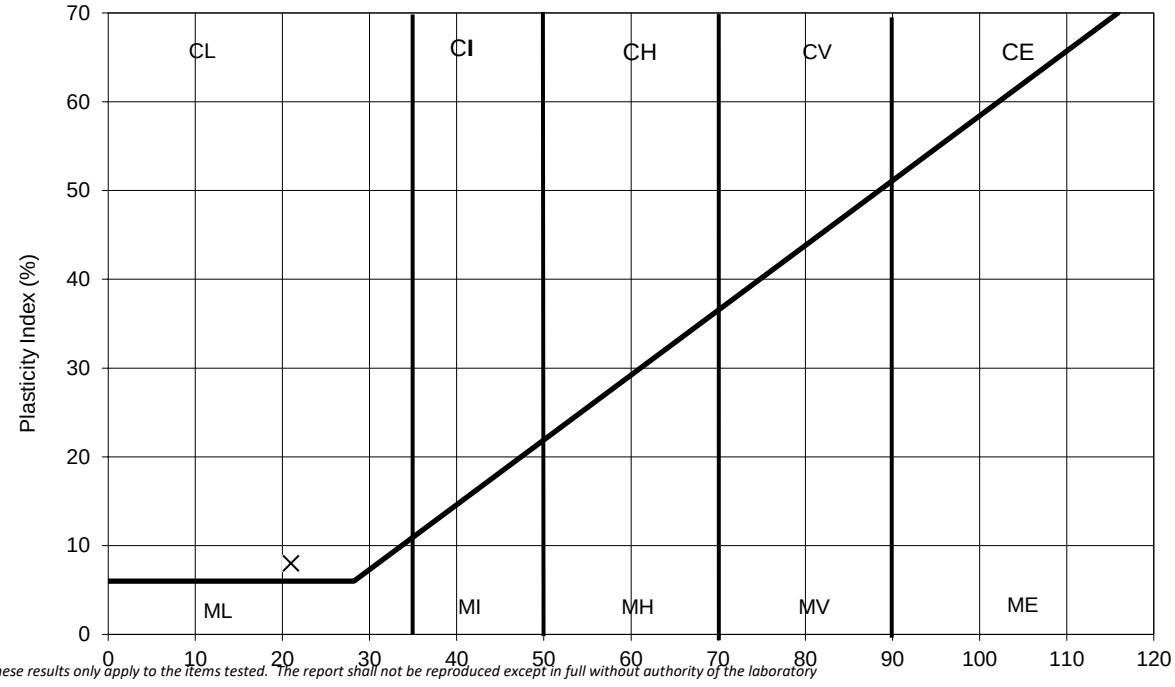


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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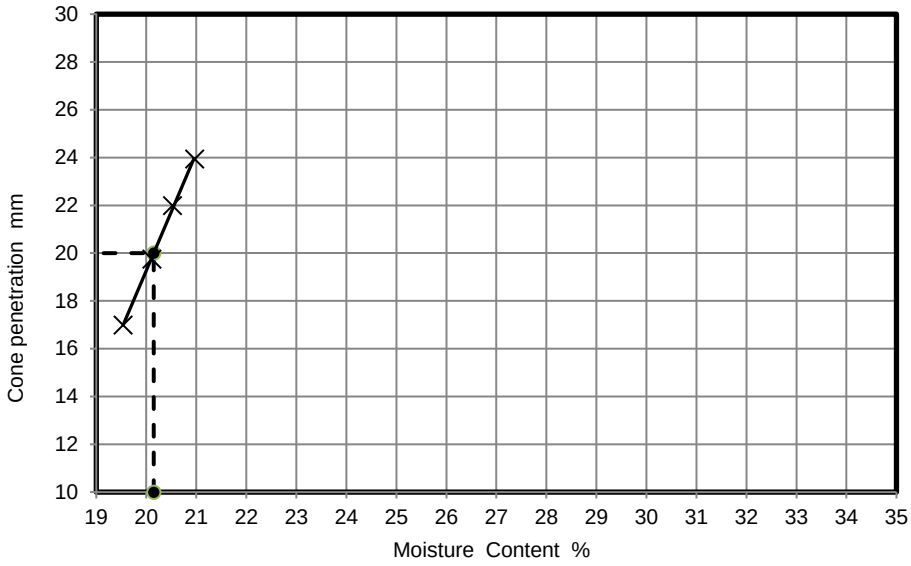
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-80024
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

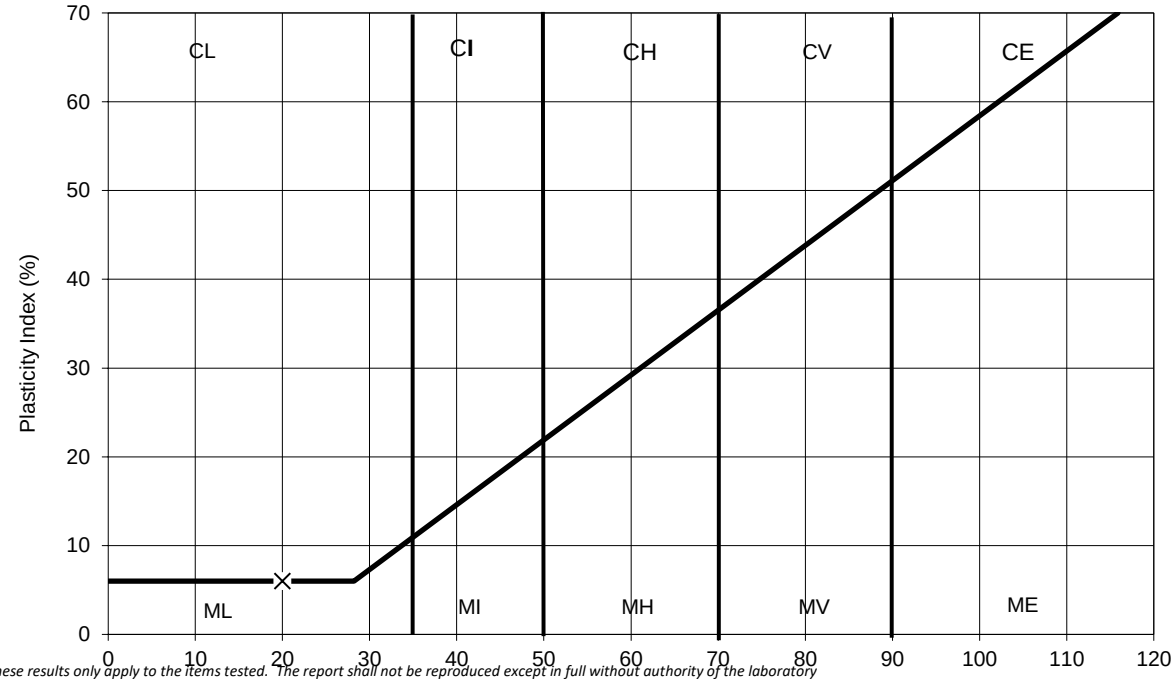


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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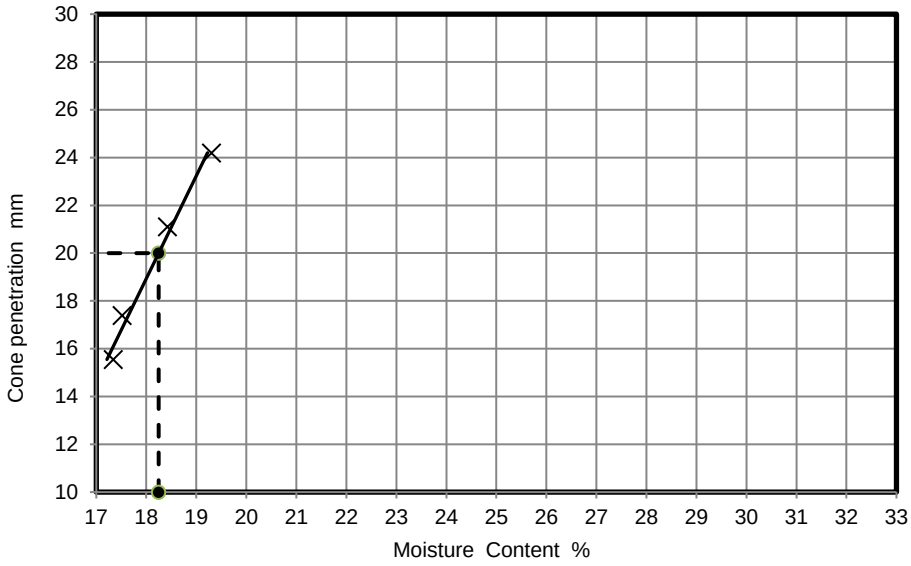
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-80024				
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

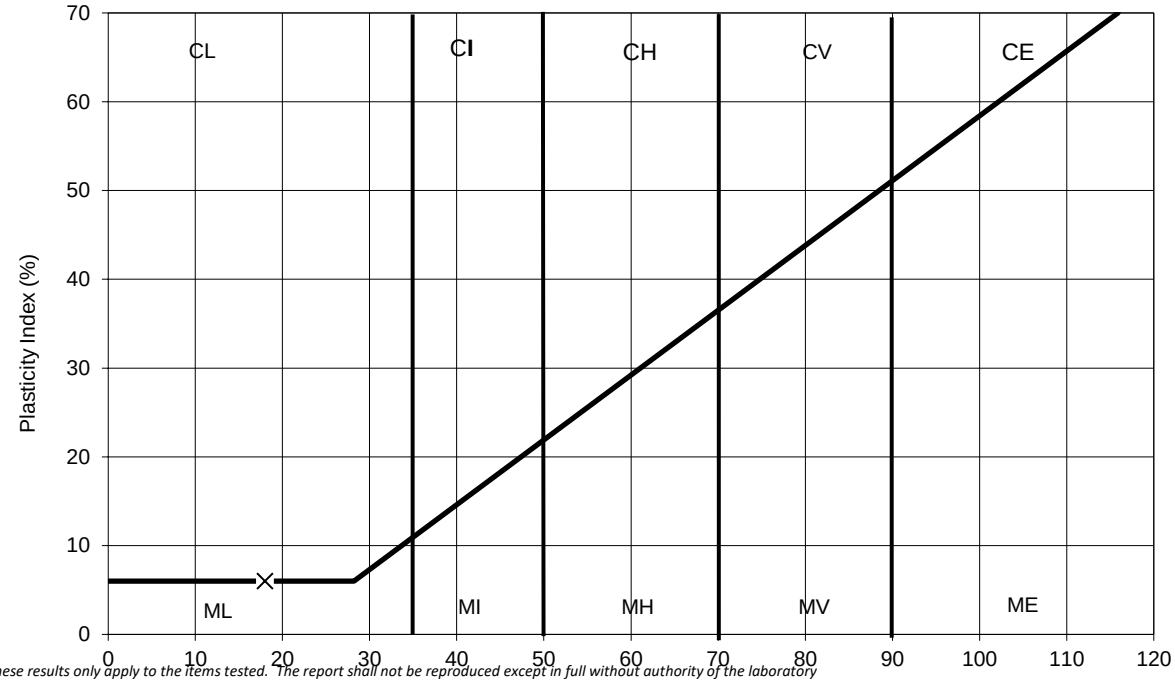


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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UKAS TESTING

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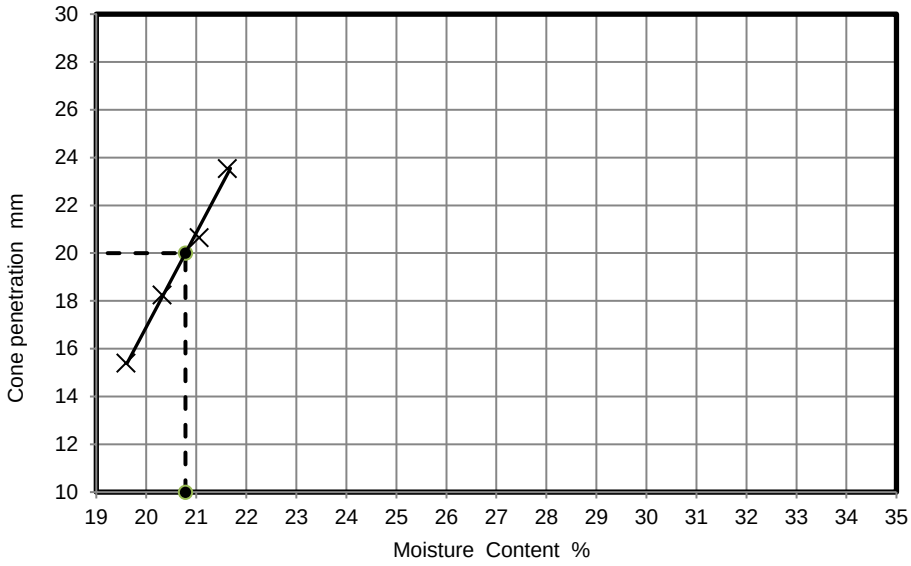
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Job No.	32282
				Borehole/Pit No.	BH-80338
Project No.	2021OY102	Client	Irish Drilling	Sample No.	2
				Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

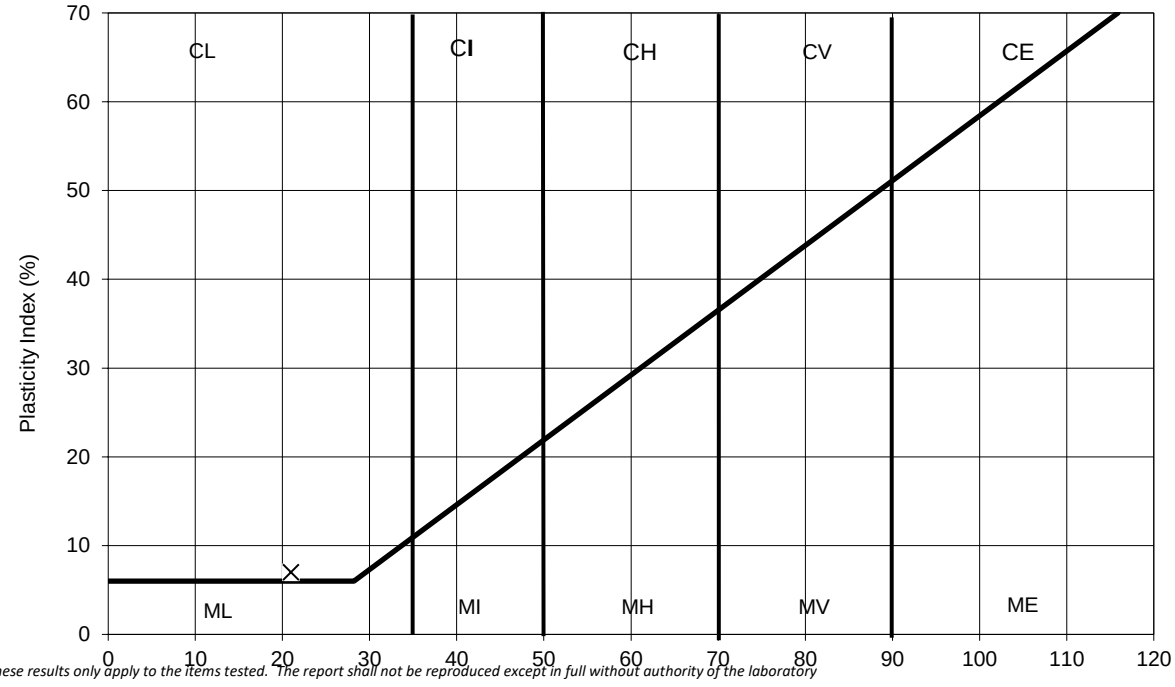


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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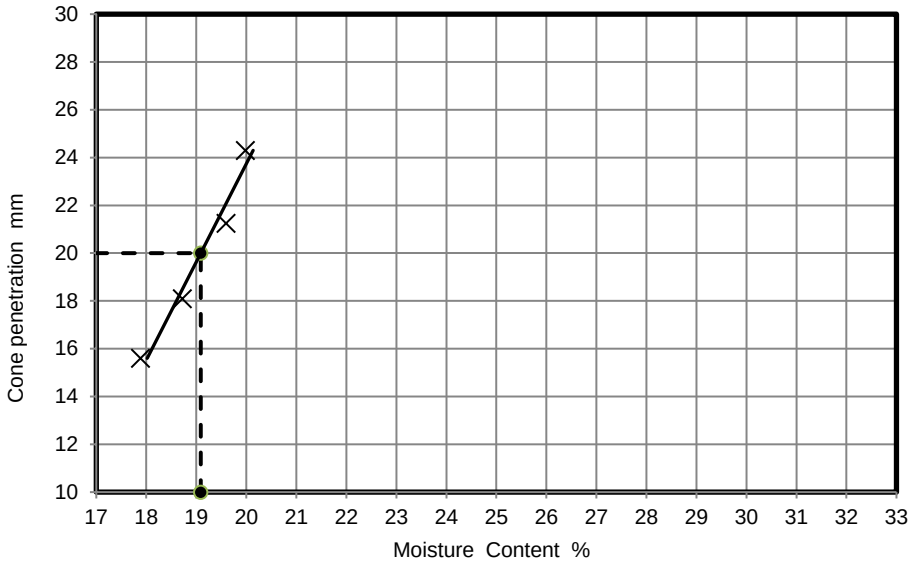
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Job No.	32282
				Borehole/Pit No.	BH-80439
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

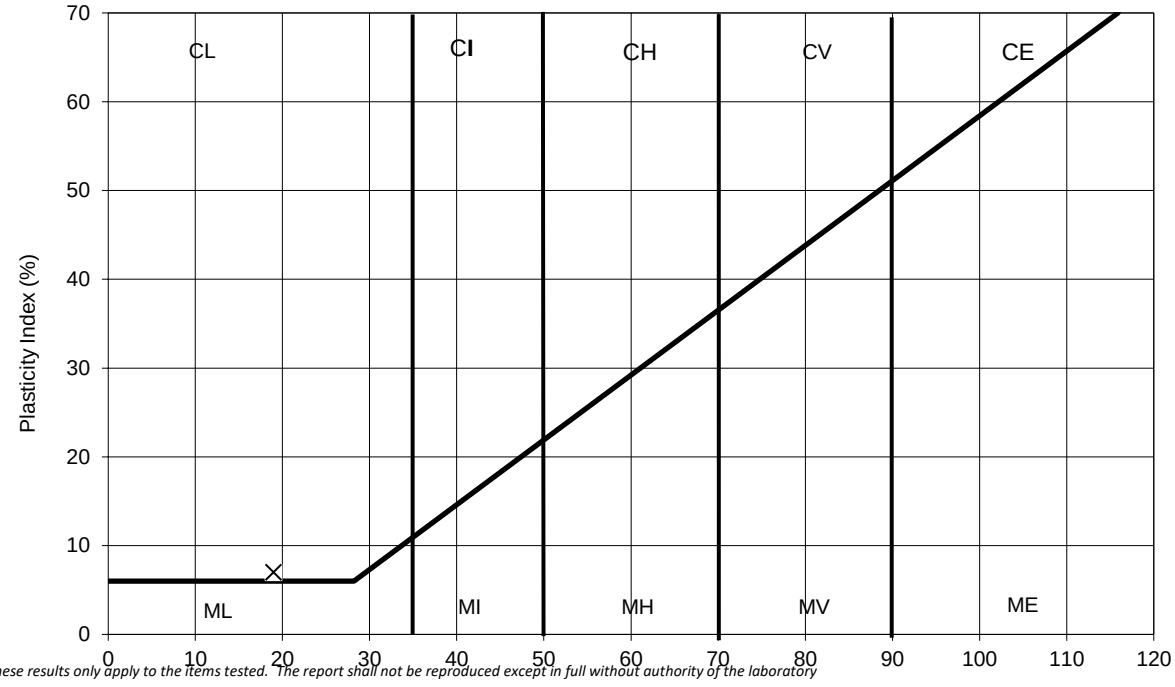


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

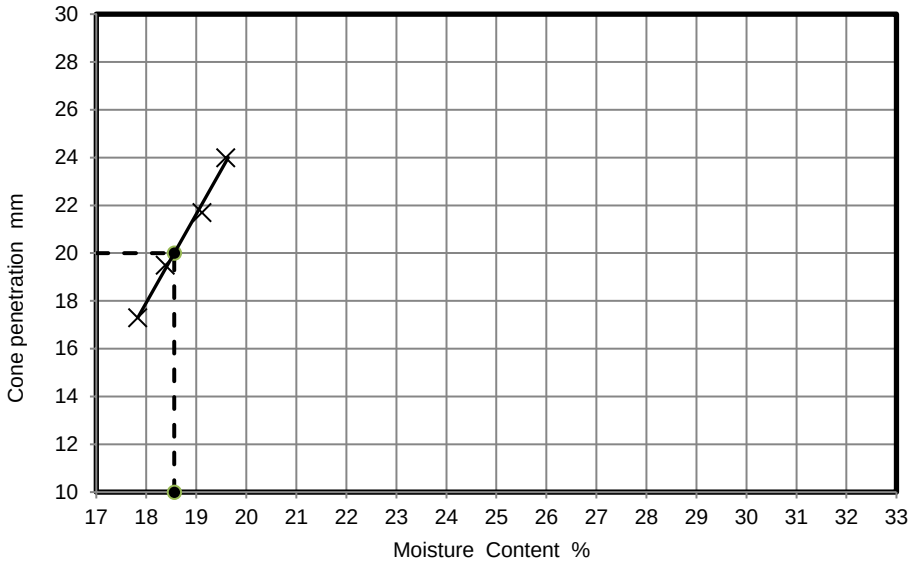
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-80960
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

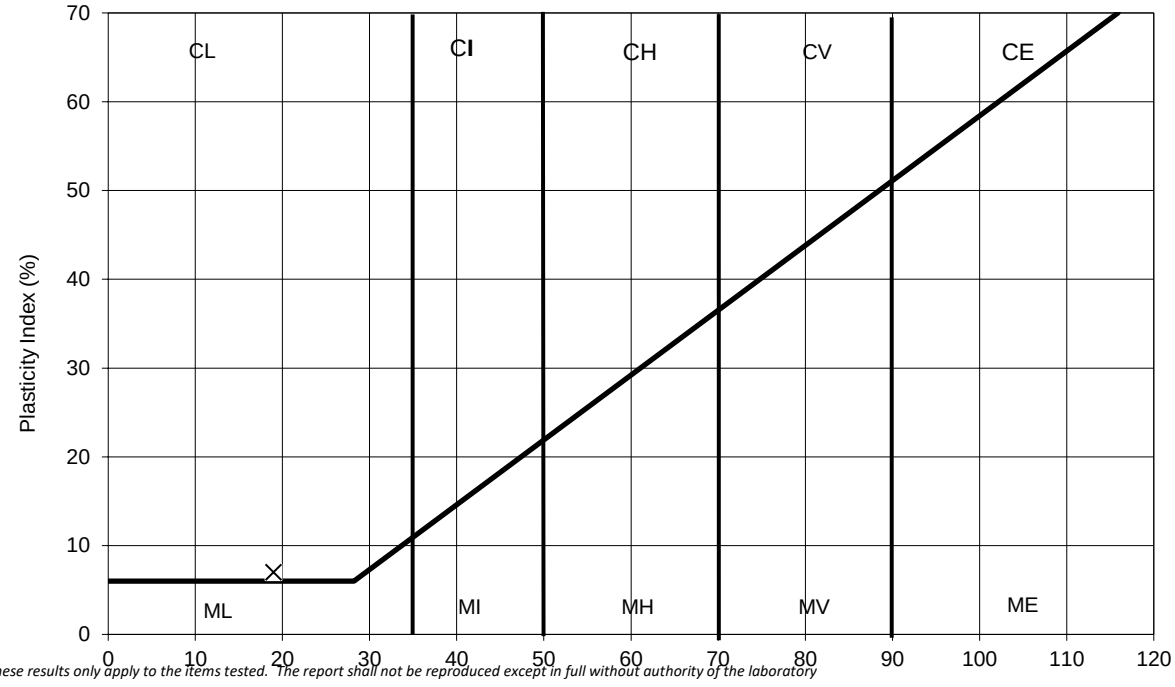


NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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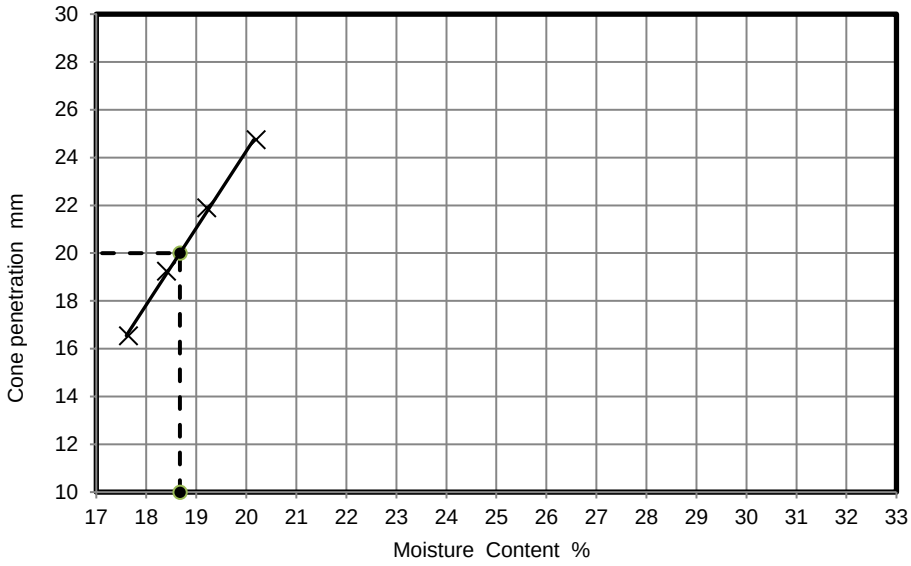
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-80960
Site Name	WSP Eastern & Midlands Region			Sample No.	20
Project No.	2021OY102	Client	Irish Drilling	Depth Top	7.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

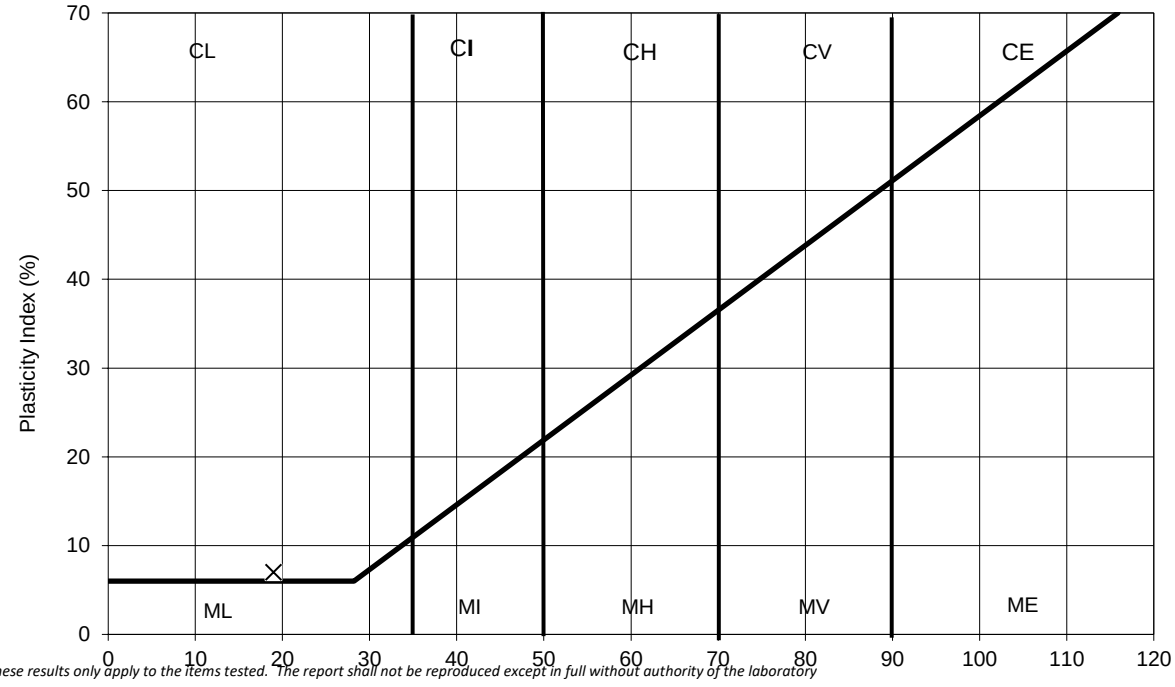


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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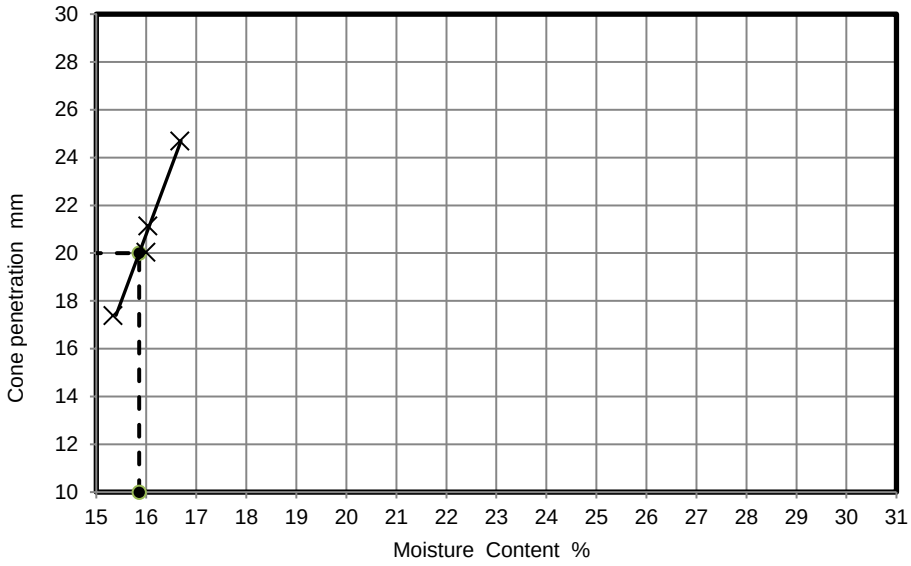
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-82974
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

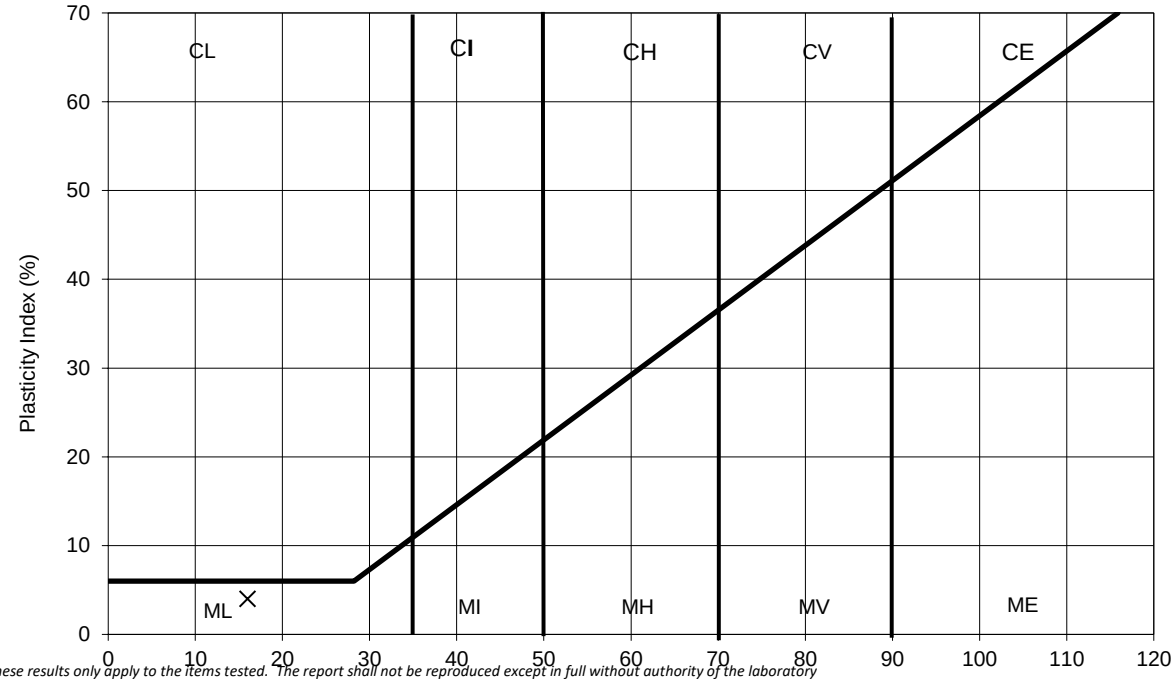


NATURAL MOISTURE CONTENT	**7.1**	**%**
% PASSING 425µm SIEVE	**35**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Date: 15/12/2022

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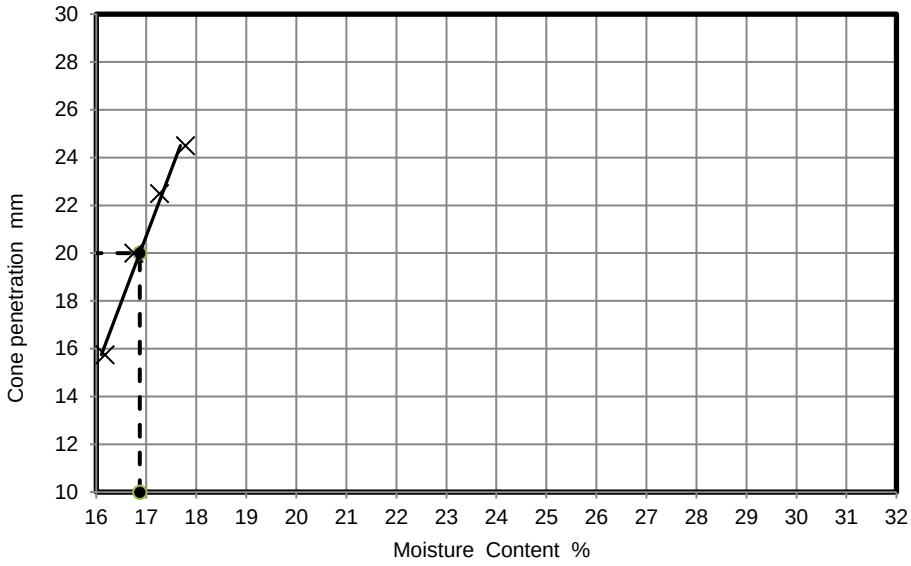
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-84800
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

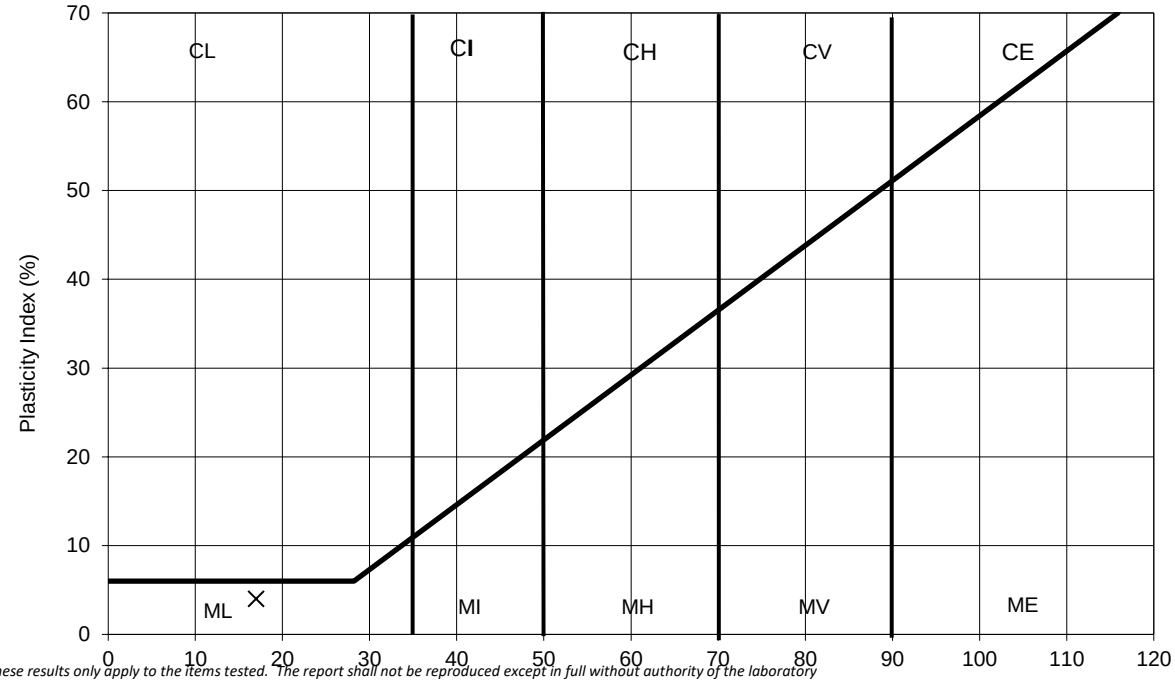


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**43**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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Tel: 01923 711 288 Email: James@k4soils.com

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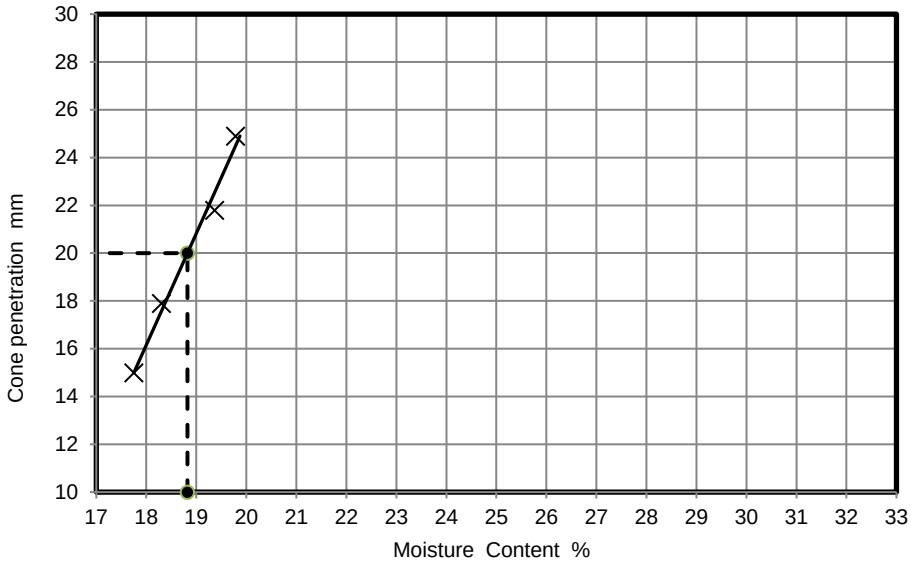
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

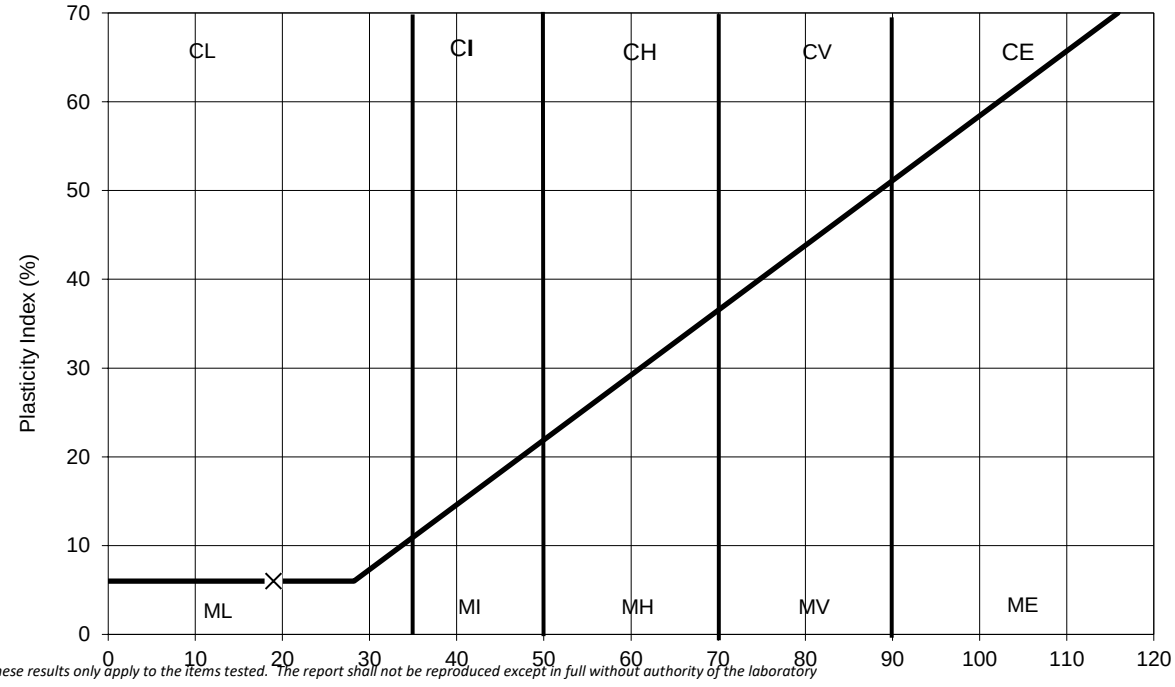


NATURAL MOISTURE CONTENT	**7.2**	**%**
% PASSING 425µm SIEVE	**38**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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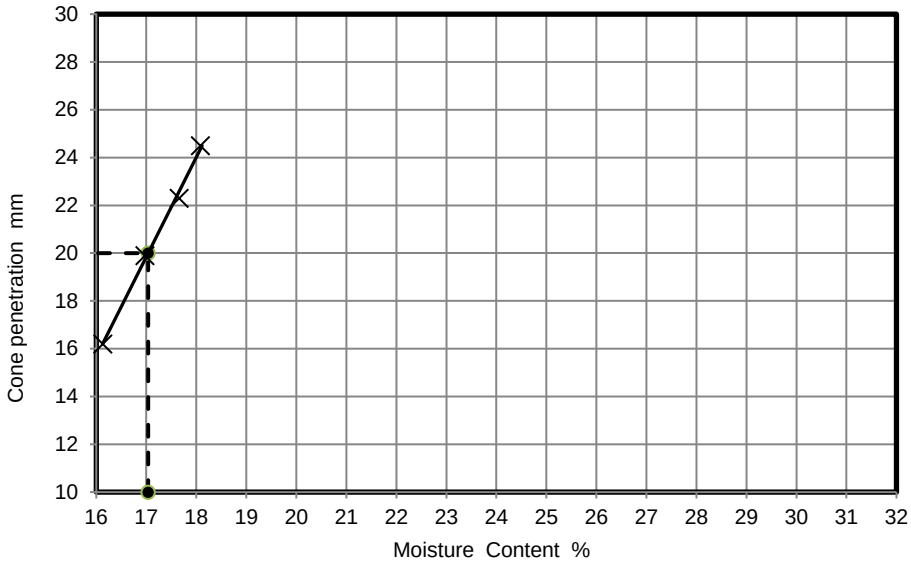
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-85791
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

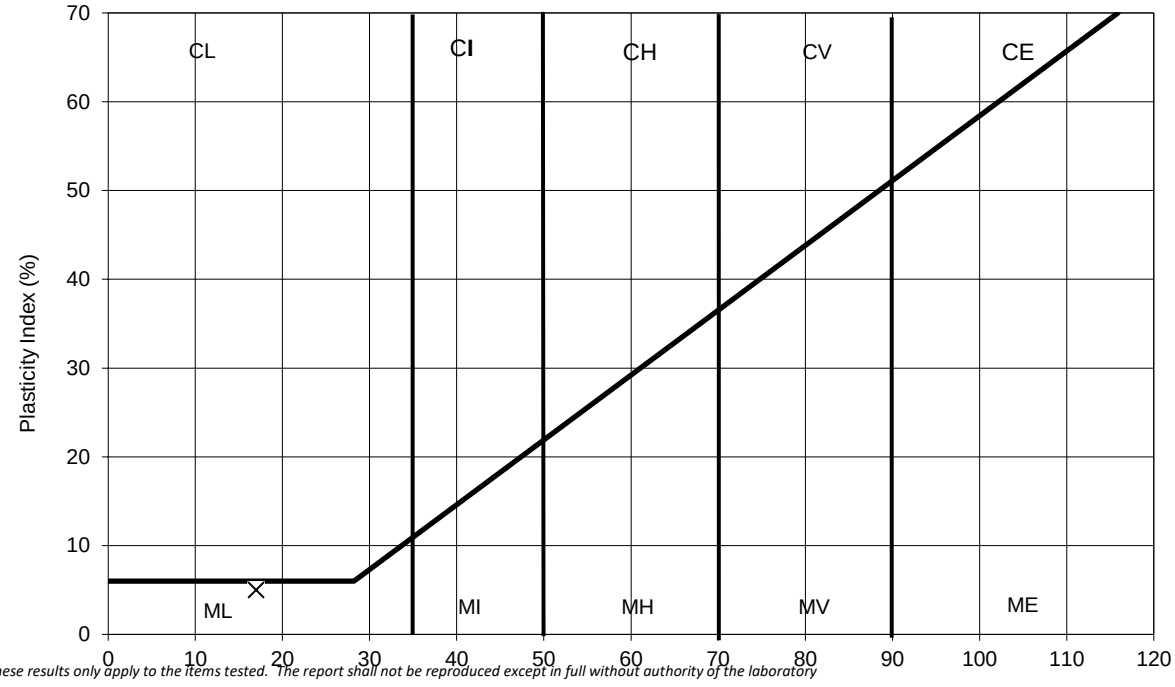


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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UKAS TESTING

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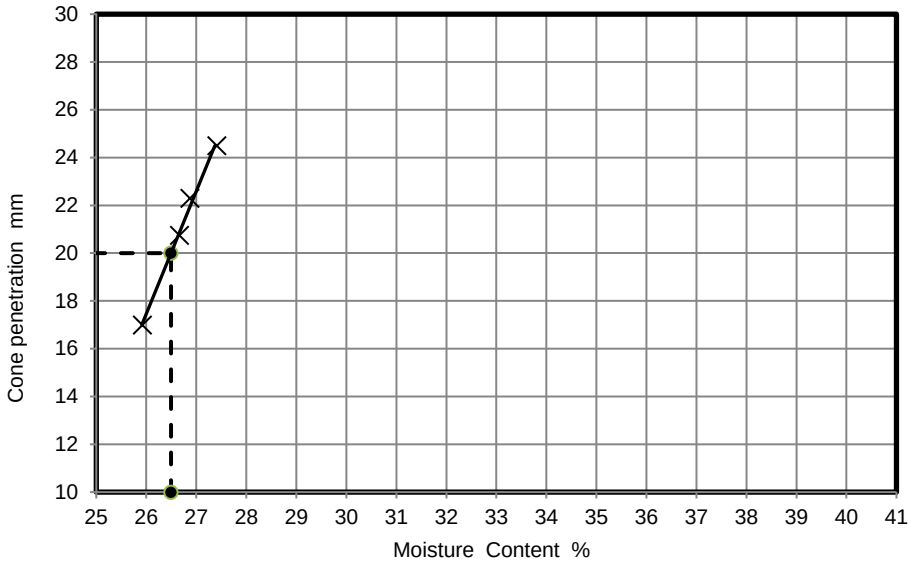
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-86203
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

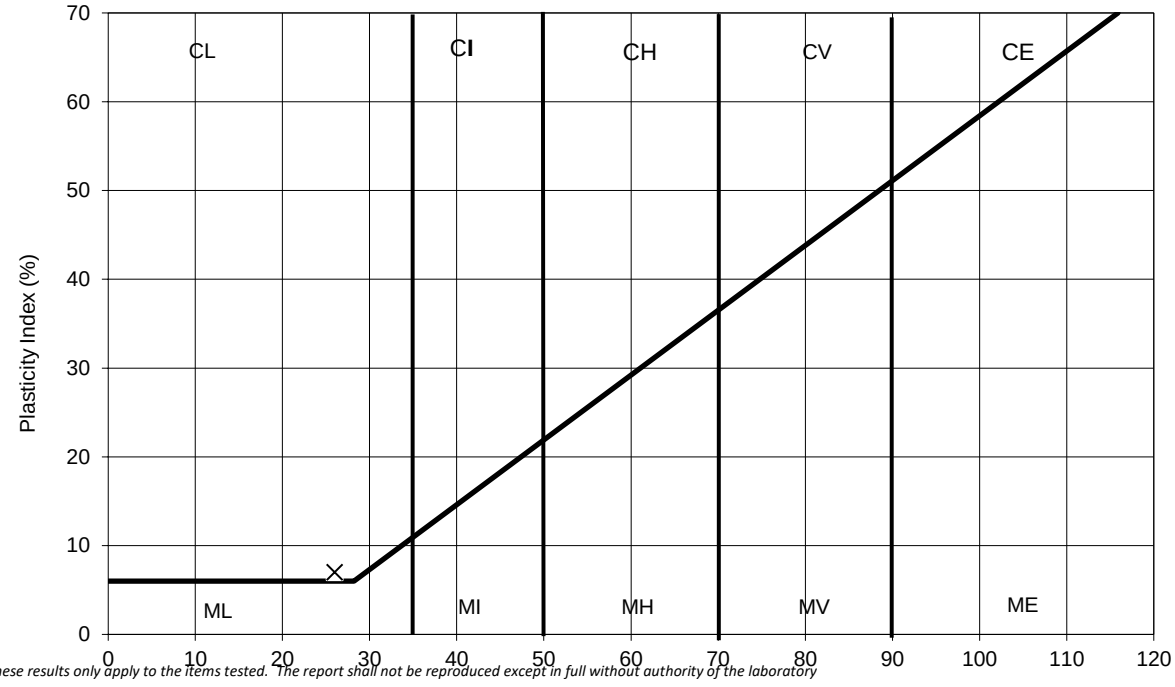


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**38**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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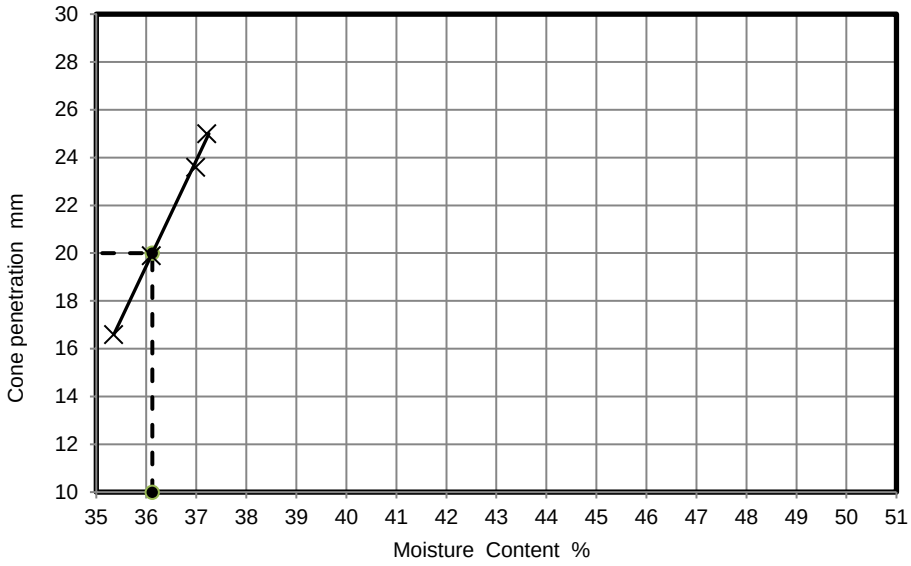
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-86592
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark brown gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

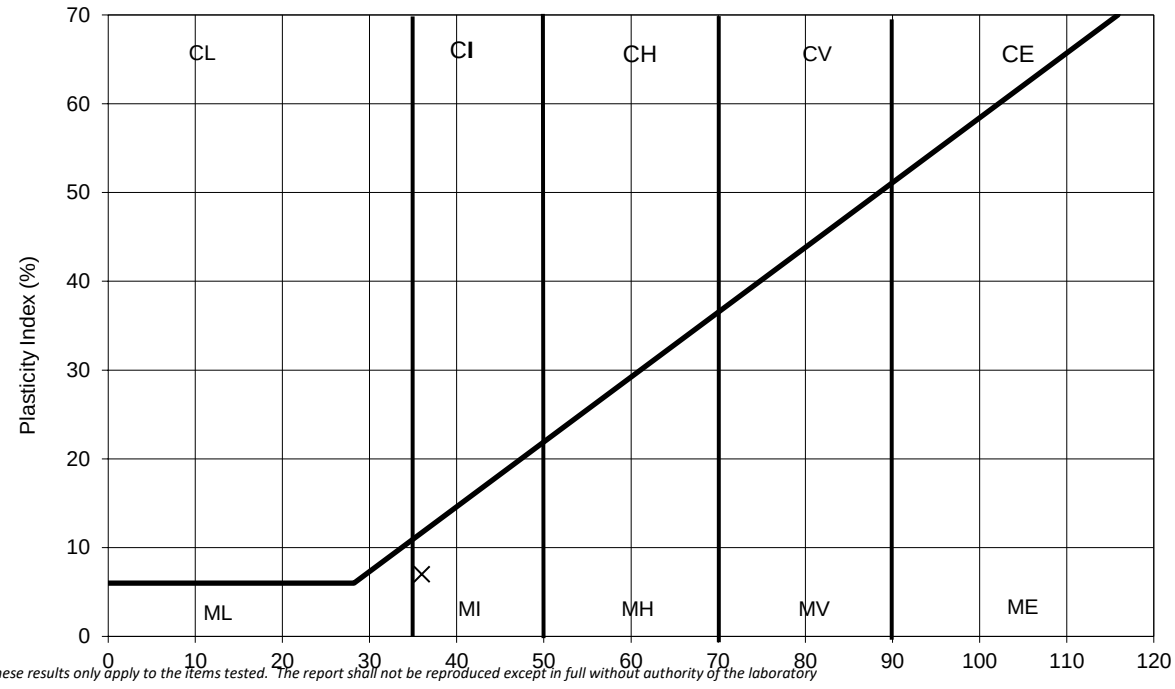


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**46**	**%**
LIQUID LIMIT	**36**	**%**
PLASTIC LIMIT	**29**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

2519

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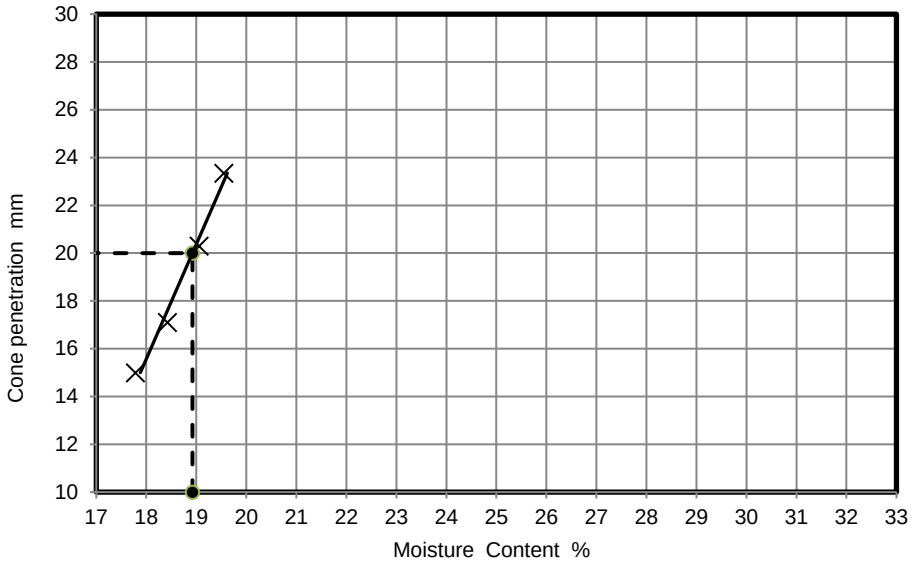
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey very silty GRAVEL in a sandy silty clay matrix (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

Job No. 32282

Borehole/Pit No. BH-86592

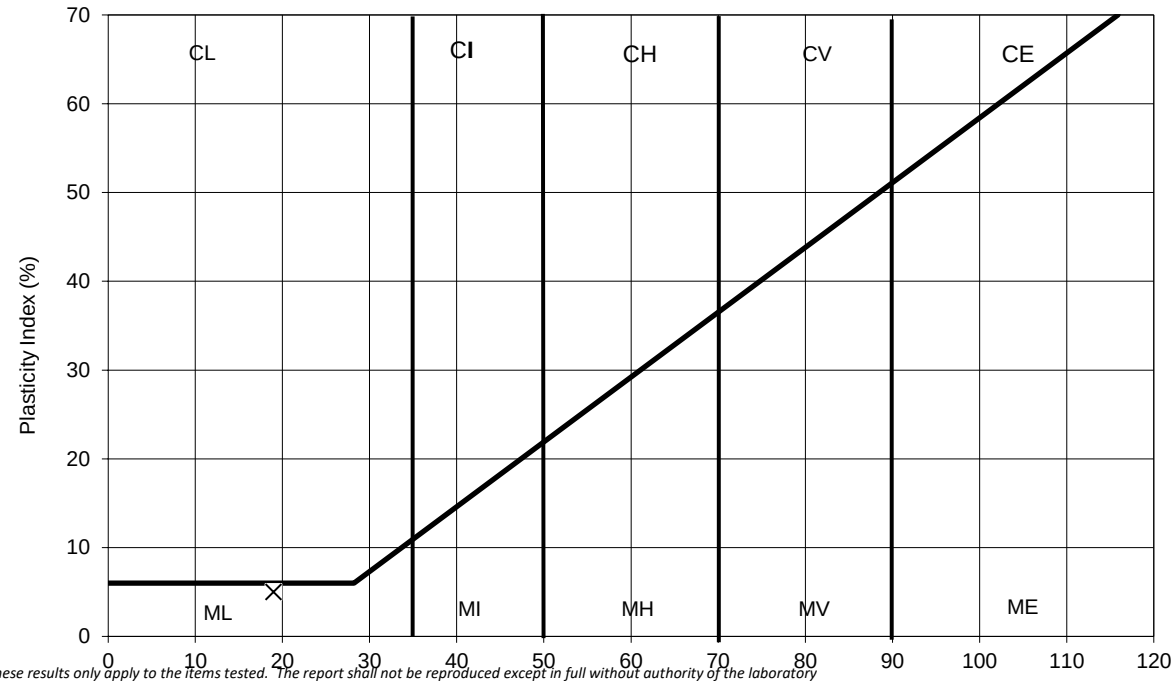


NATURAL MOISTURE CONTENT	**6.5**	**%**
% PASSING 425µm SIEVE	**26**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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UKAS TESTING

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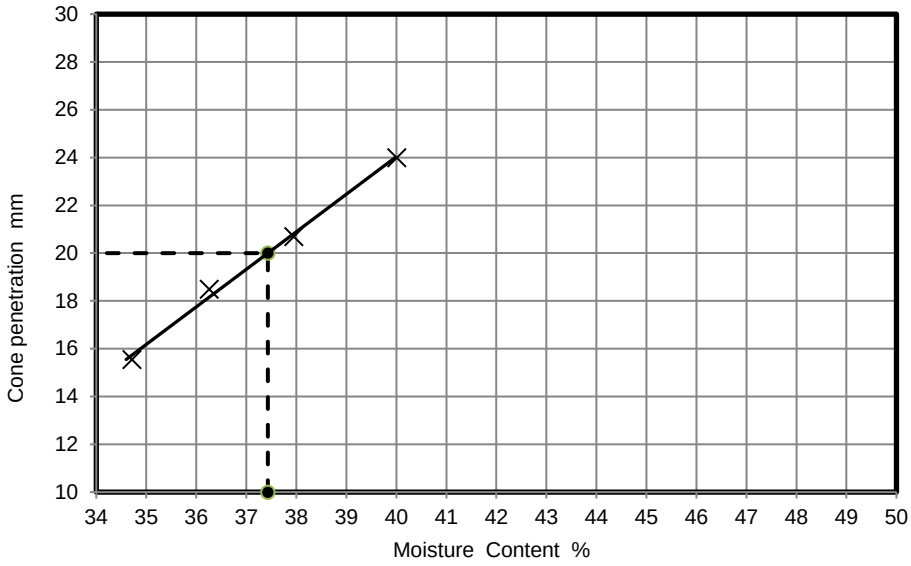
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

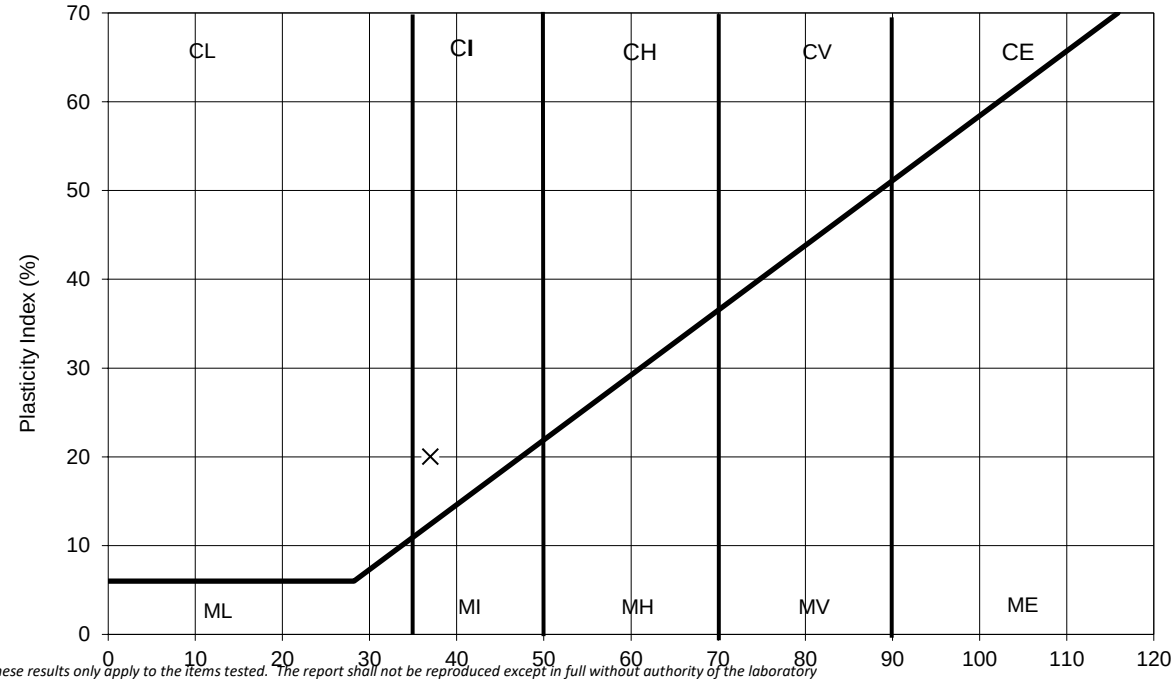
				Job No.	32282
				Borehole/Pit No.	BH-87806
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey and dark grey slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**26**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**37**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**20**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

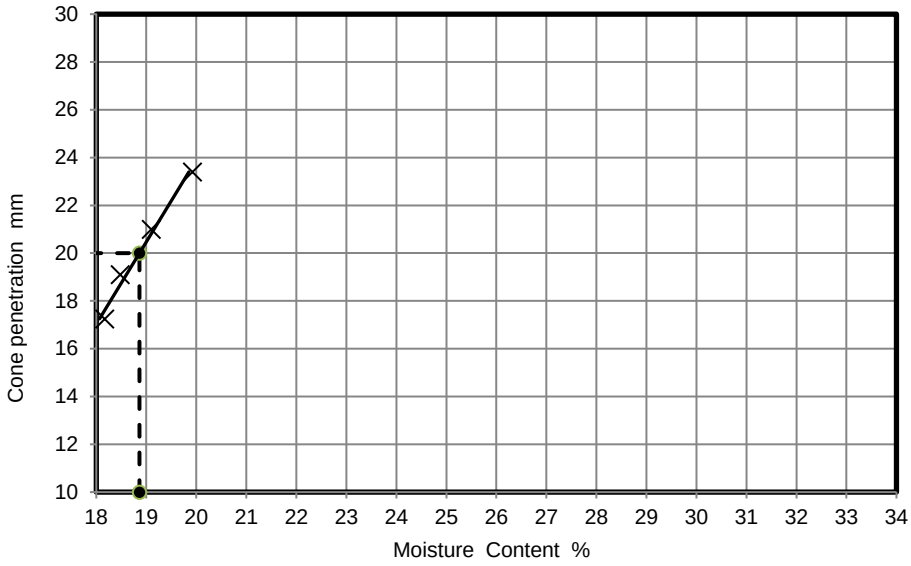
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-87999
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

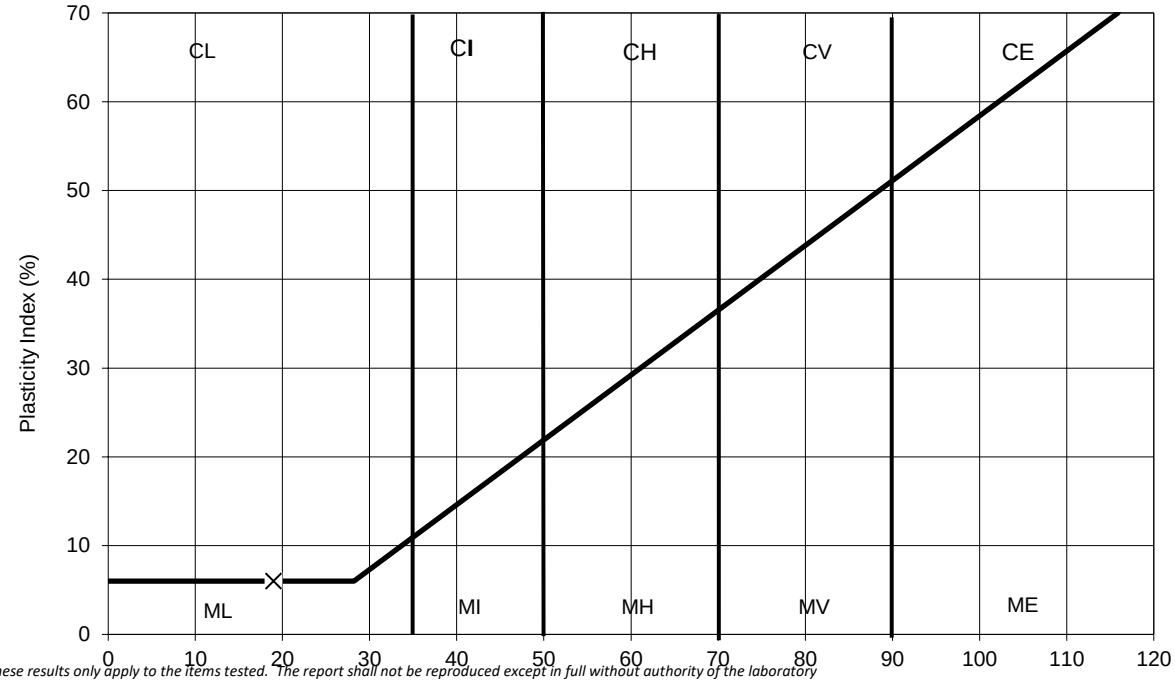


NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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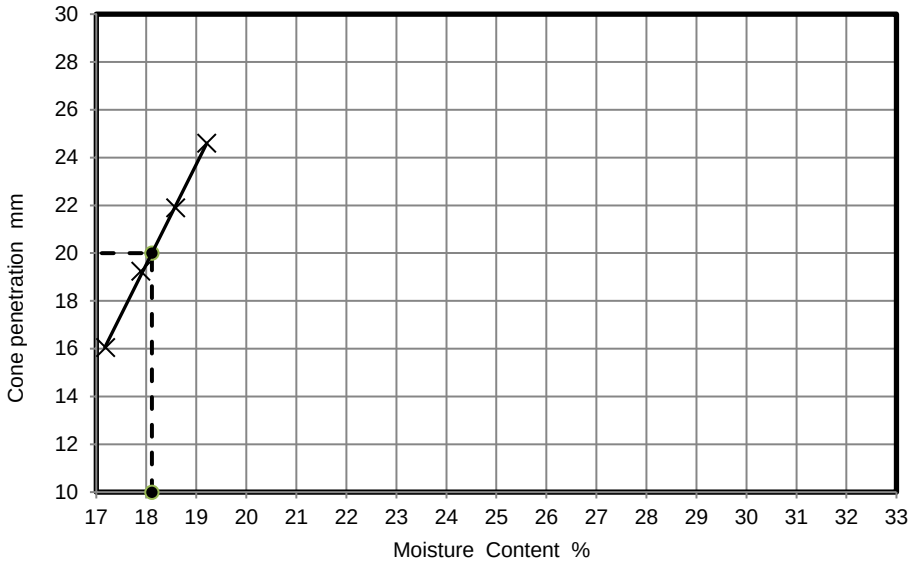
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-88759
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

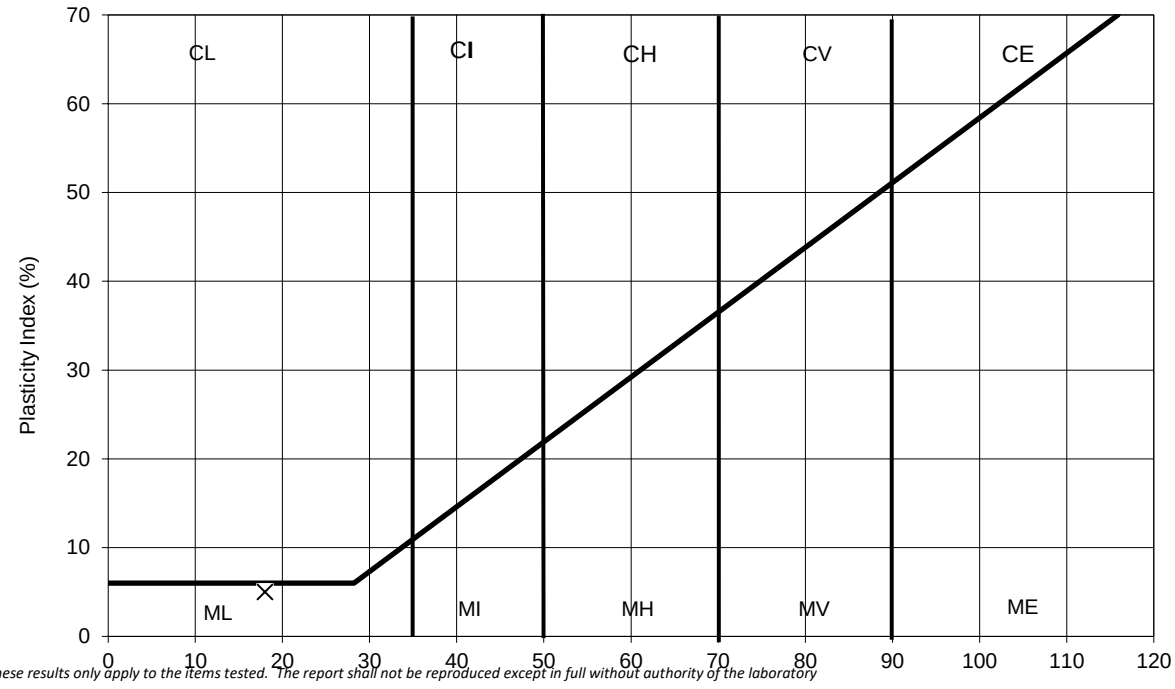


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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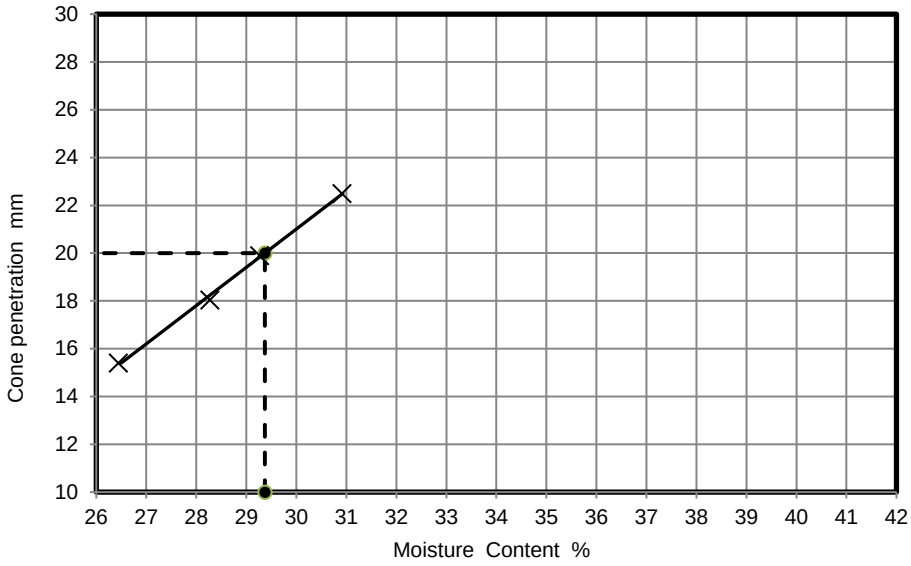
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

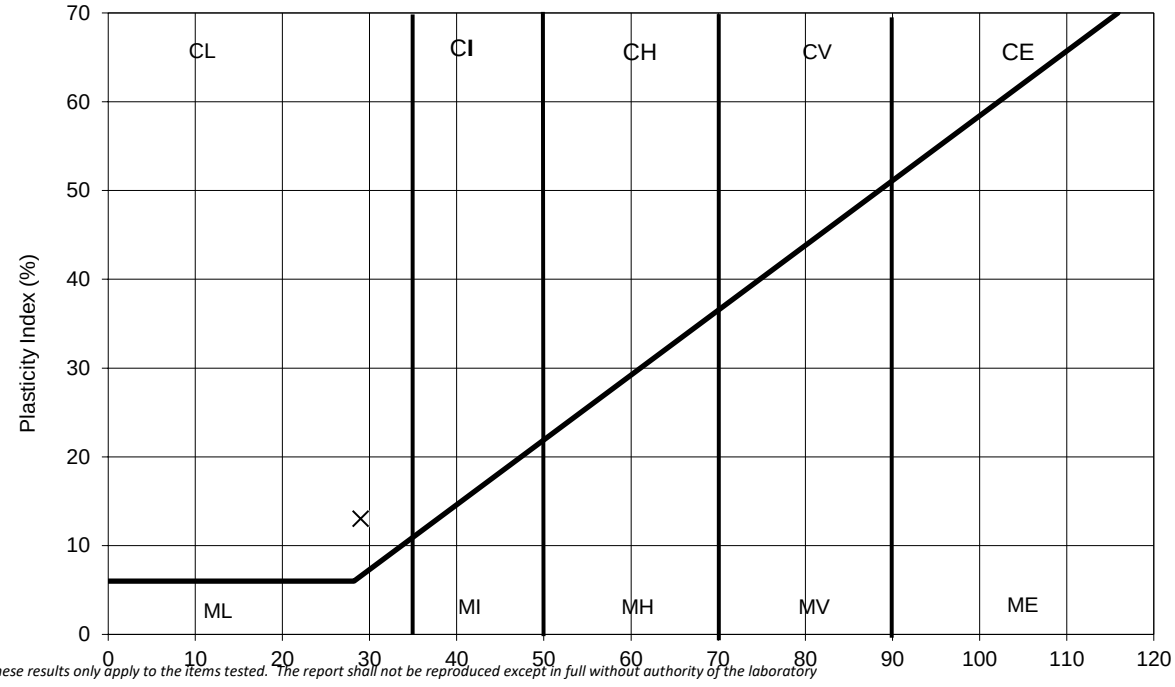
				Job No.	32282
				Borehole/Pit No.	BH-89604
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	6.00 m
Soil Description	Dark grey slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**29**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**13**	**%**

Remarks

PLASTICITY INDEX



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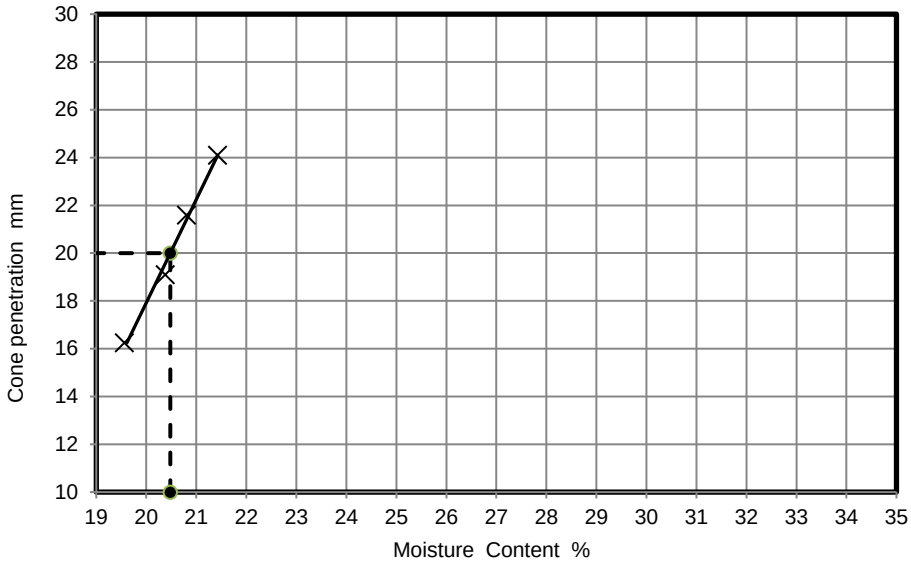
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-89662
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

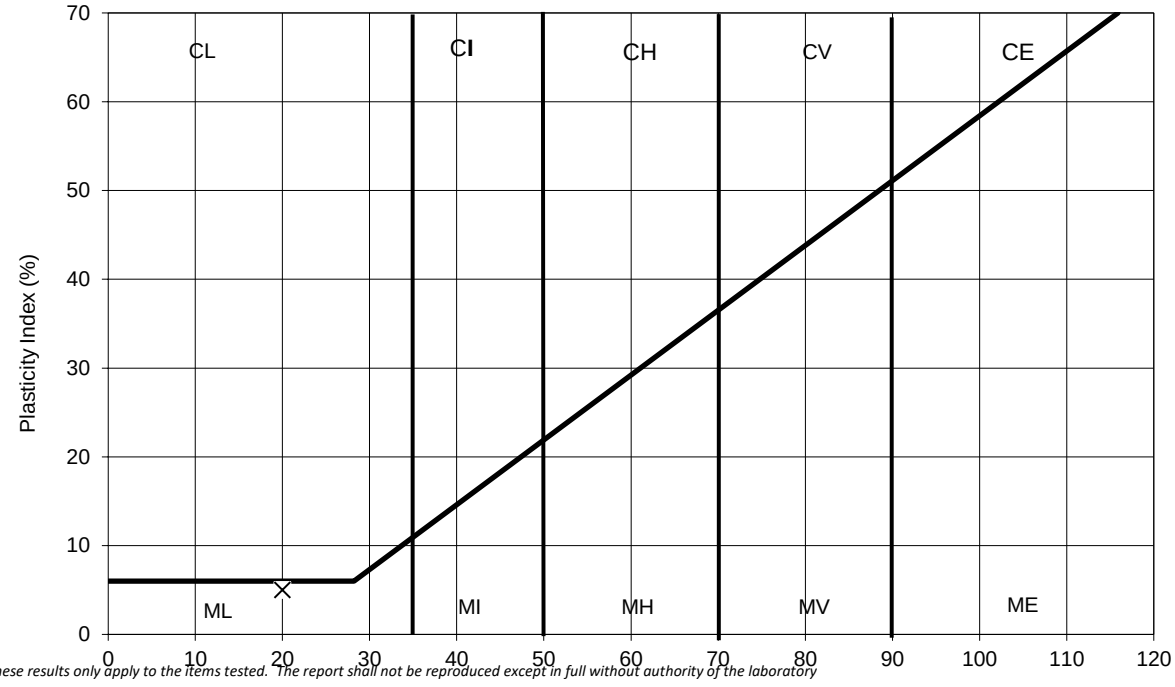


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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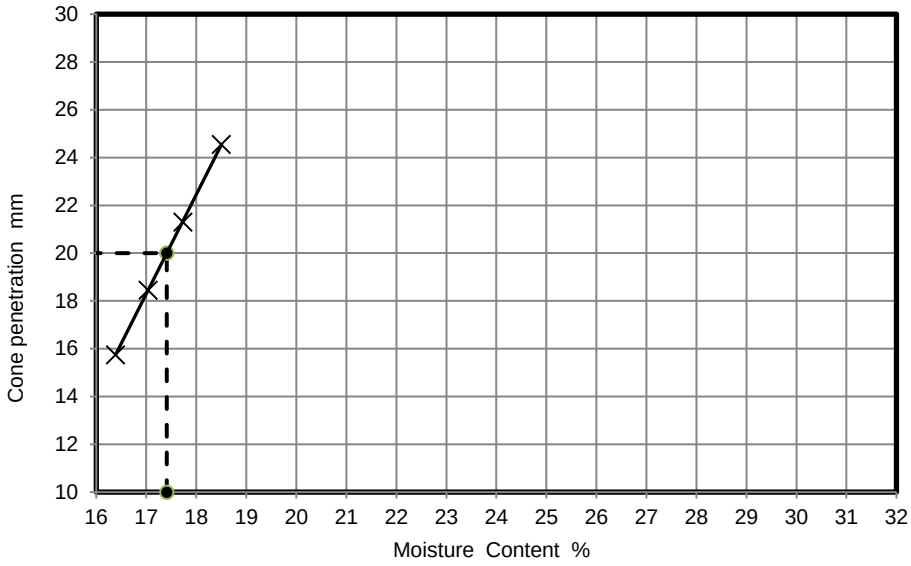
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-89690
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

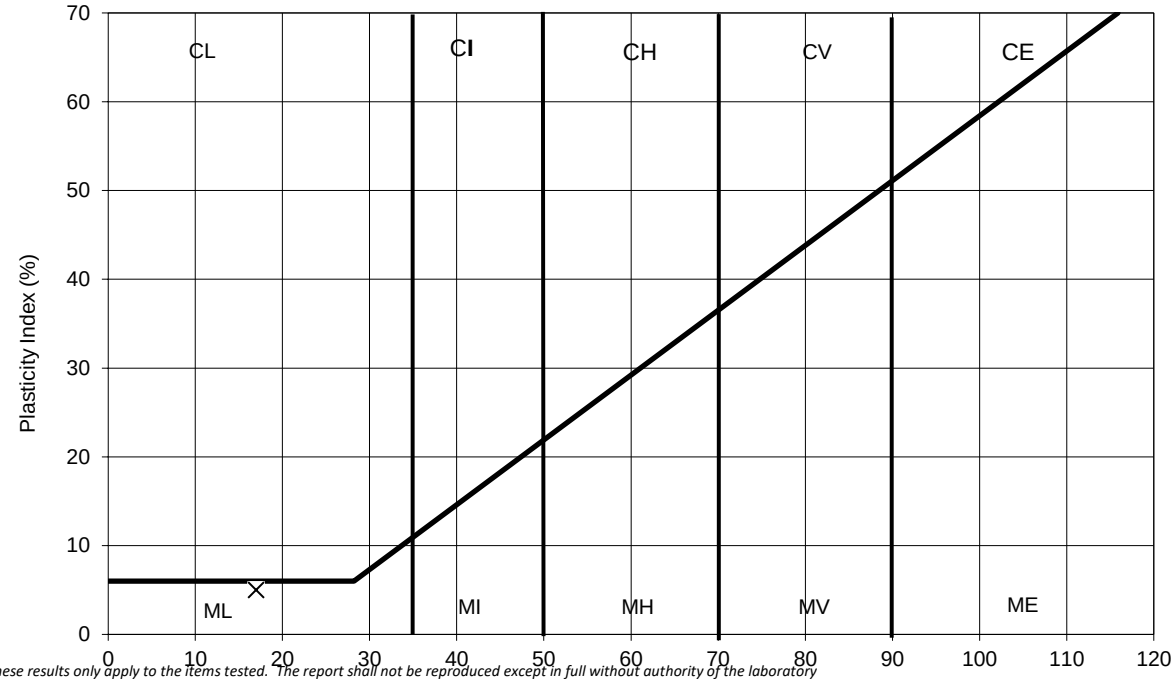


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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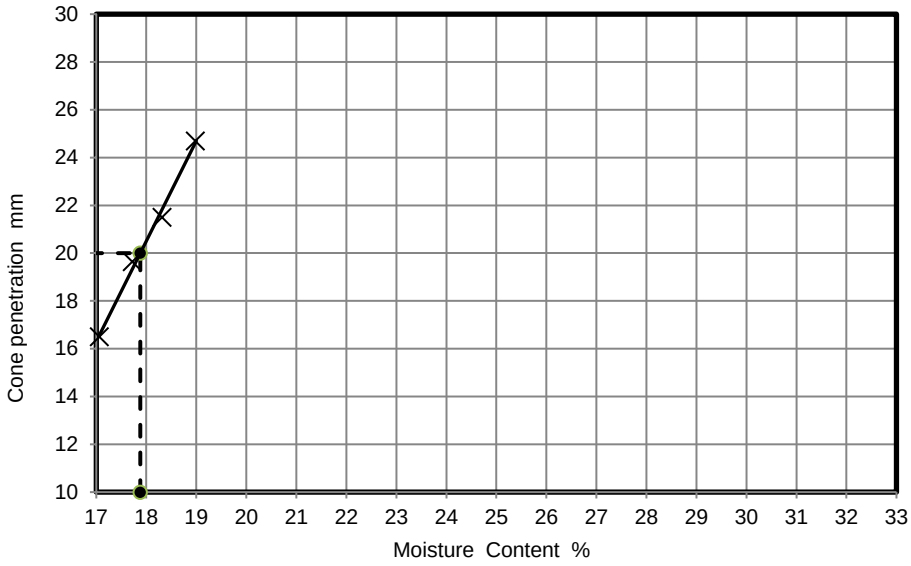
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-89747
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

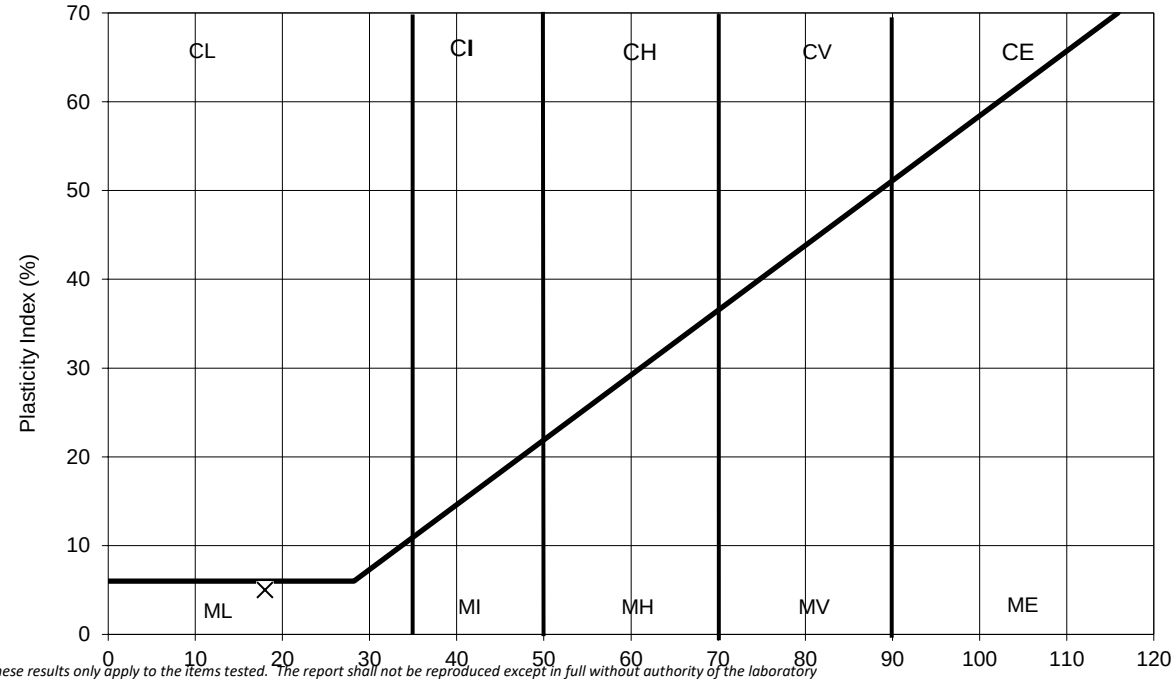


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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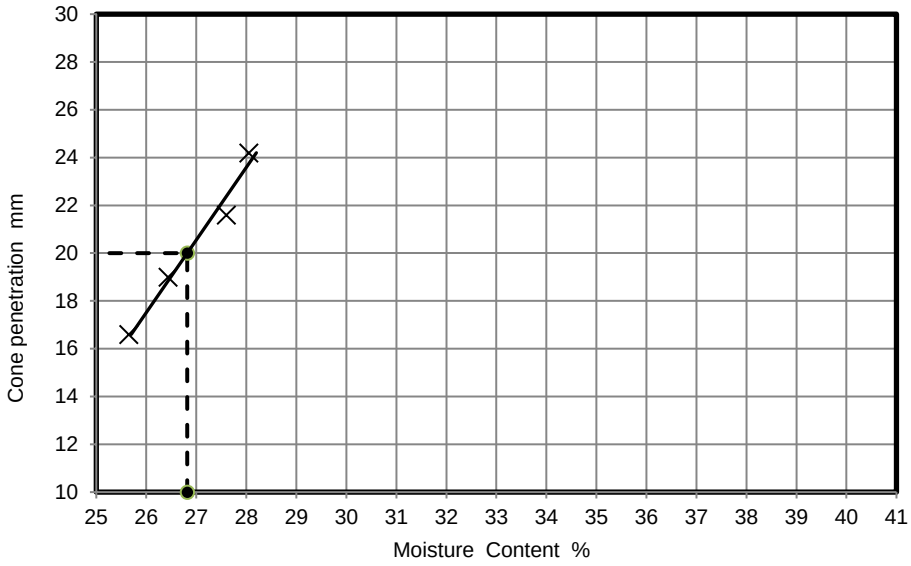
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-90003
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey and dark greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

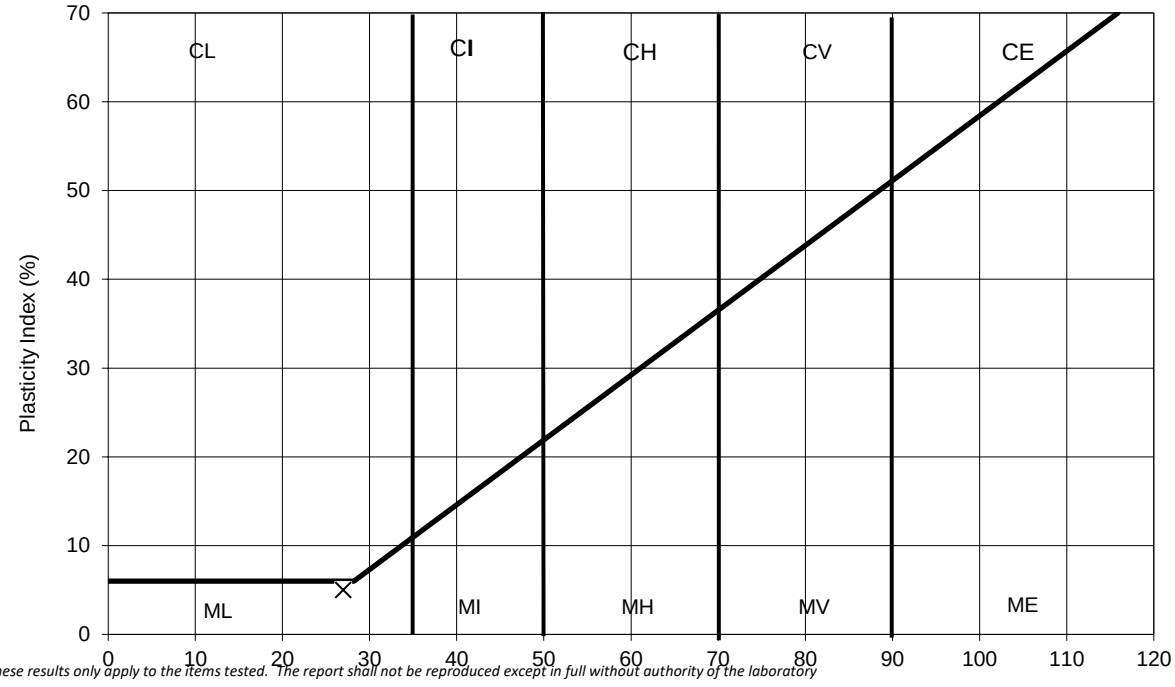


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**22**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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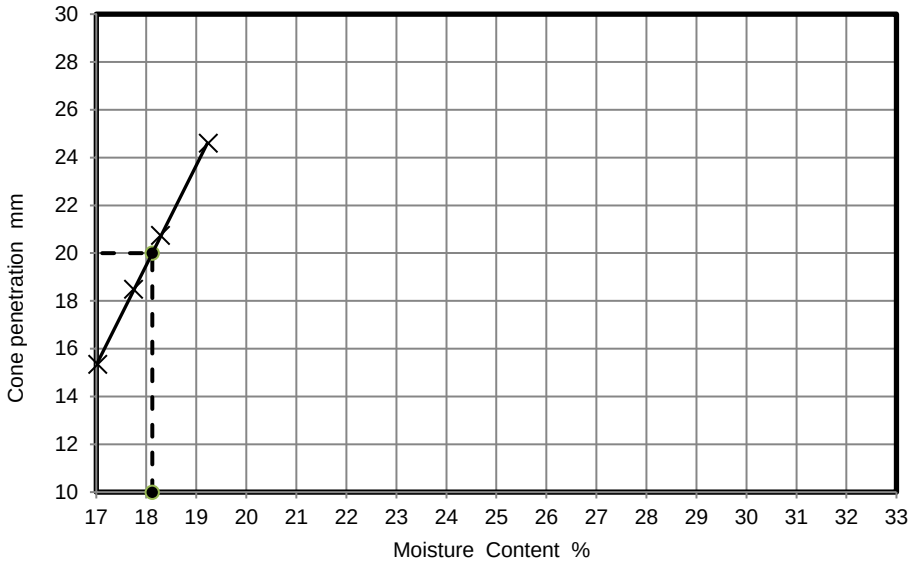
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-90003
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

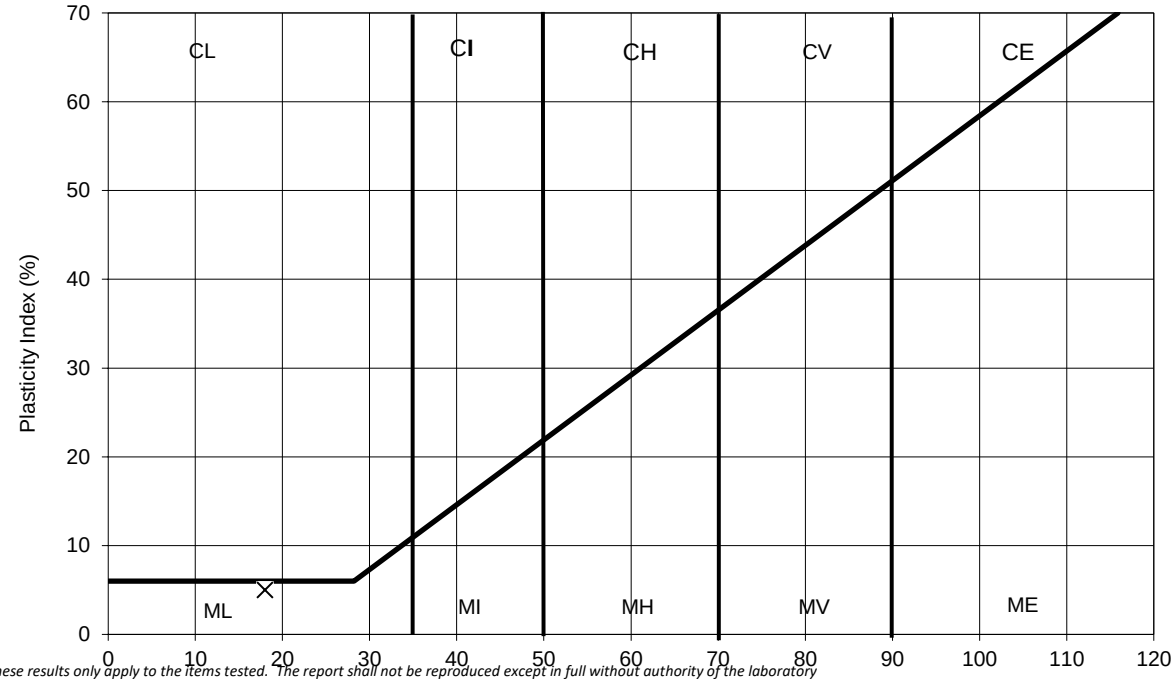


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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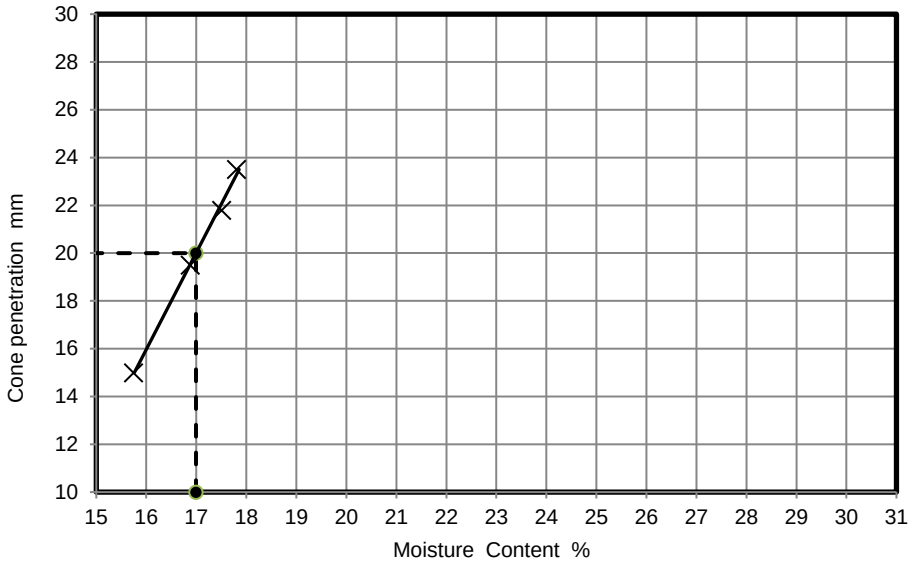
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-90402
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

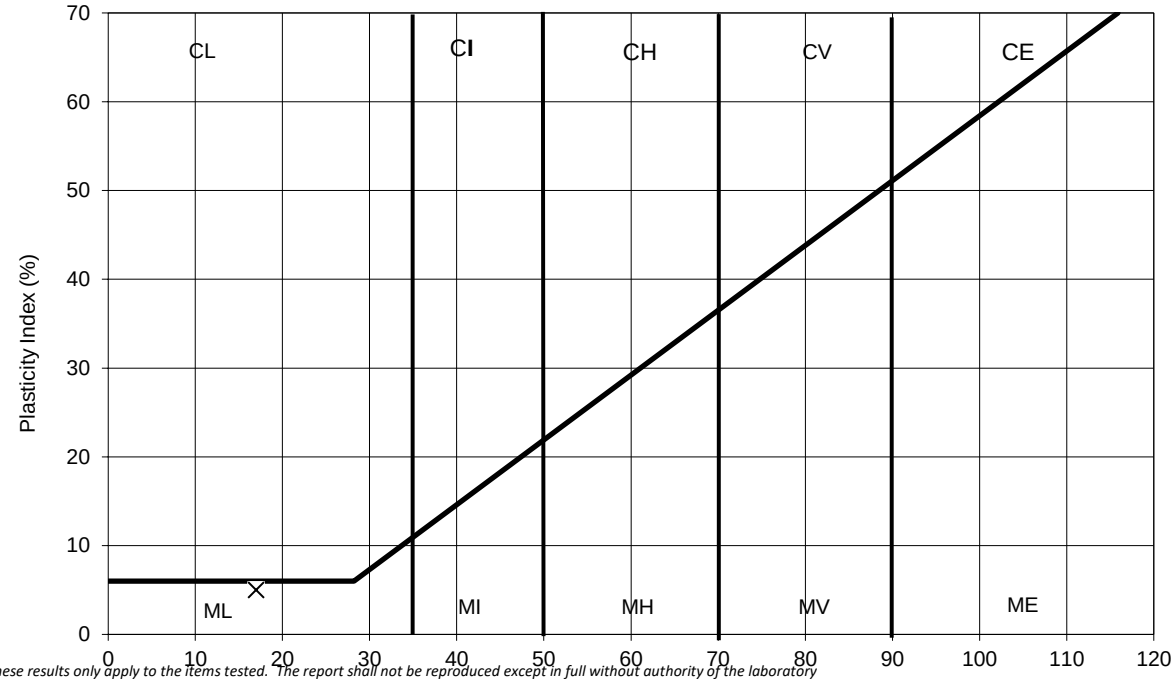


NATURAL MOISTURE CONTENT	**8.0**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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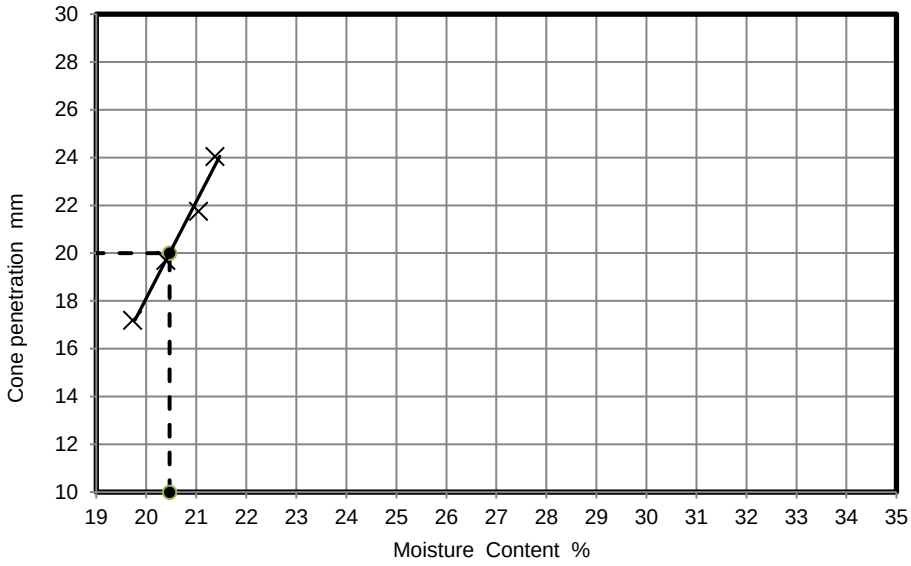
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-91011
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

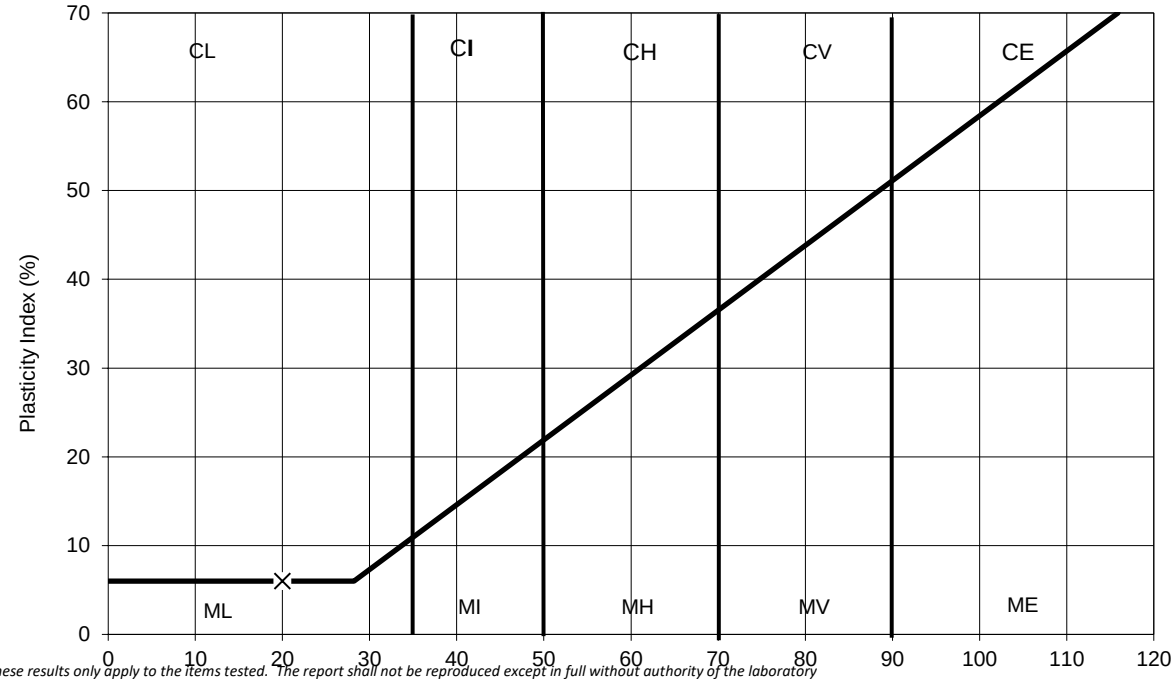


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

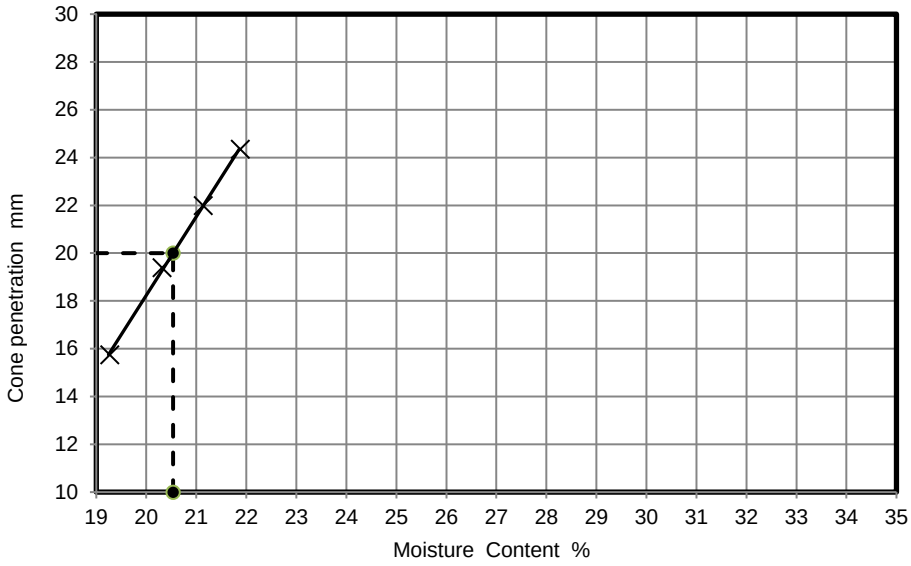
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-92206
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

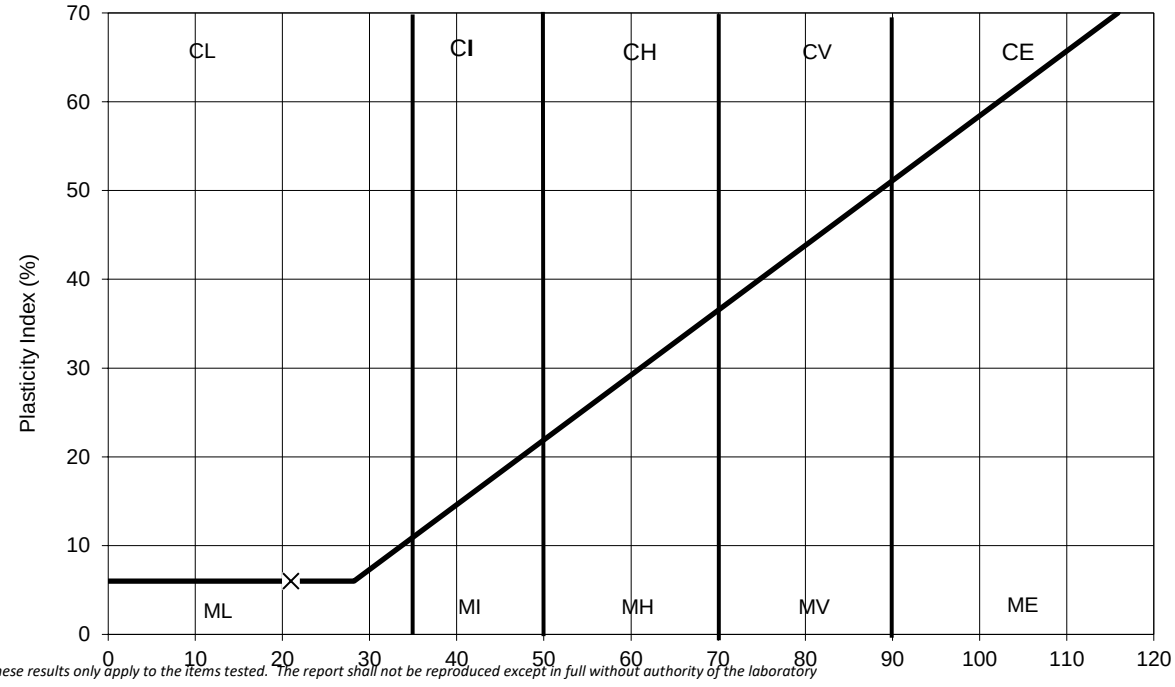


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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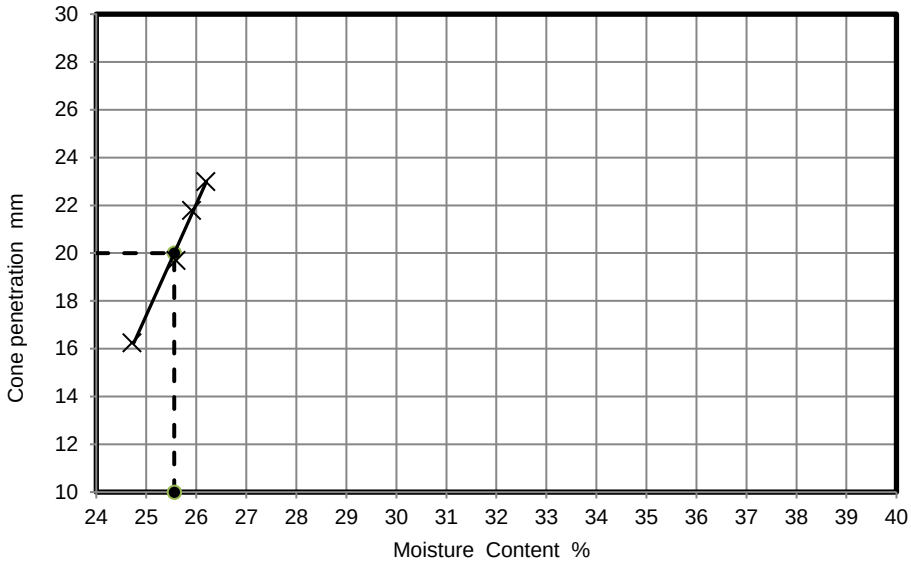
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-93391
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

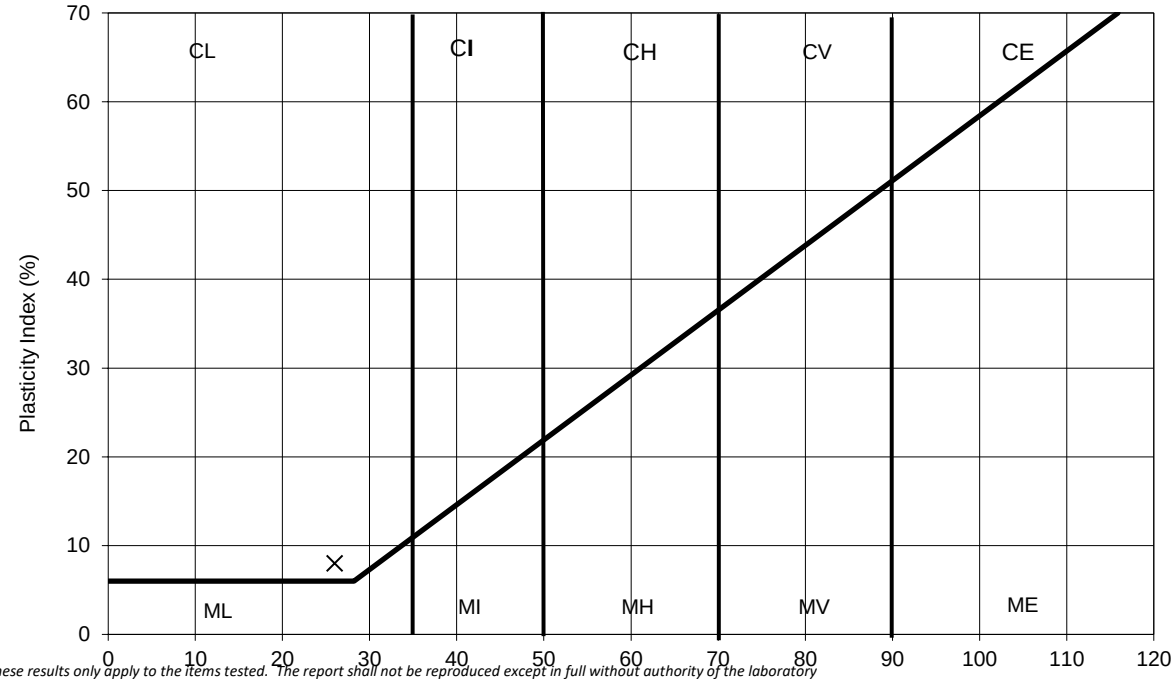


NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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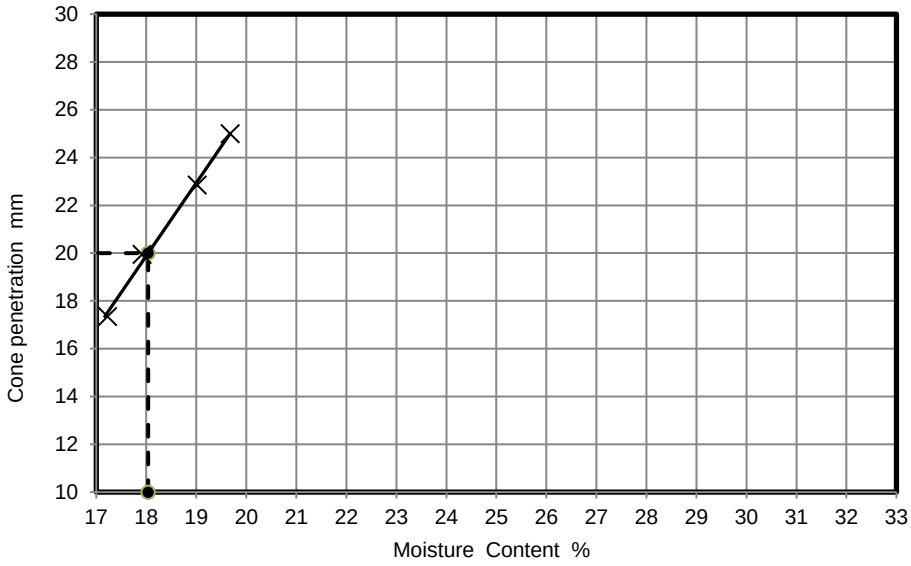
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-93391
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

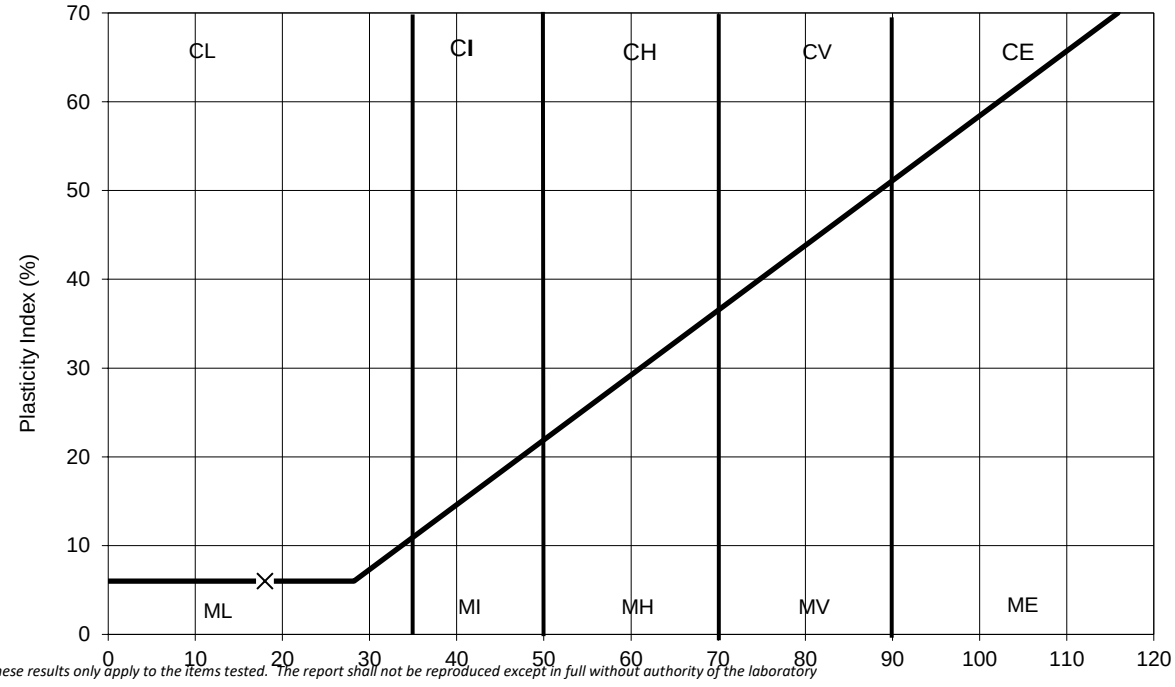


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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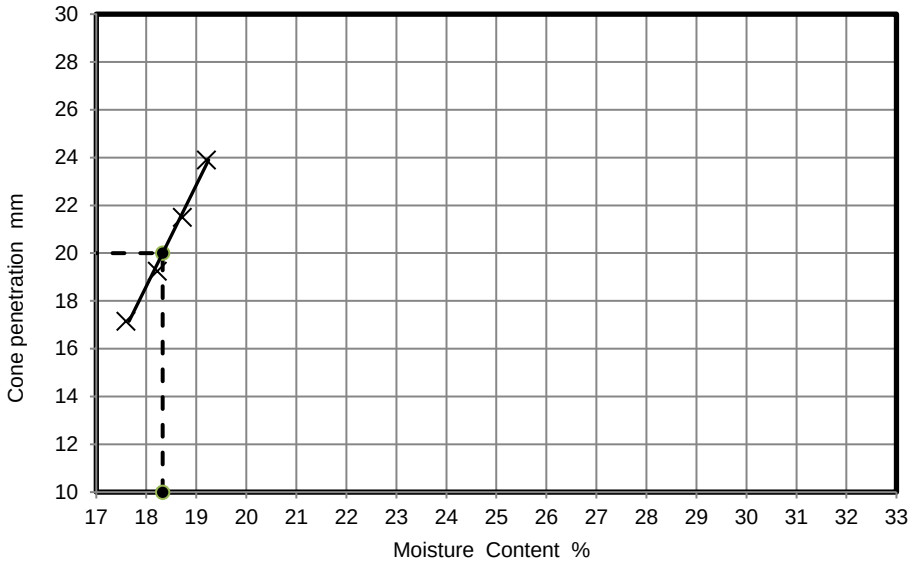
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-94403
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

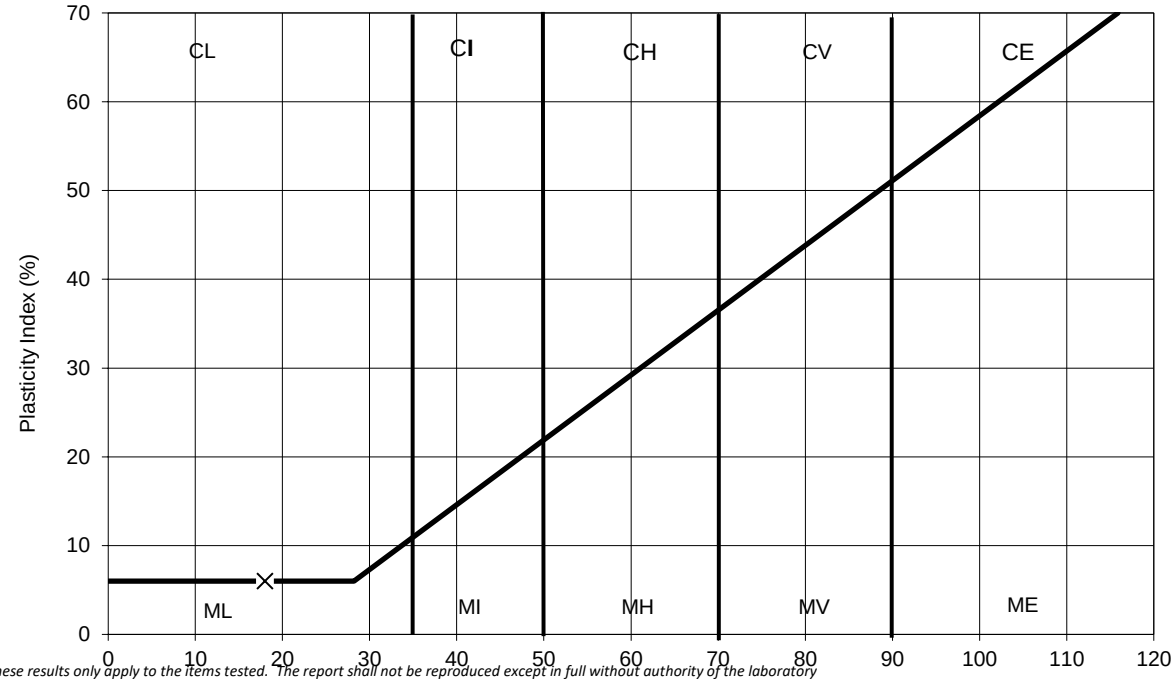


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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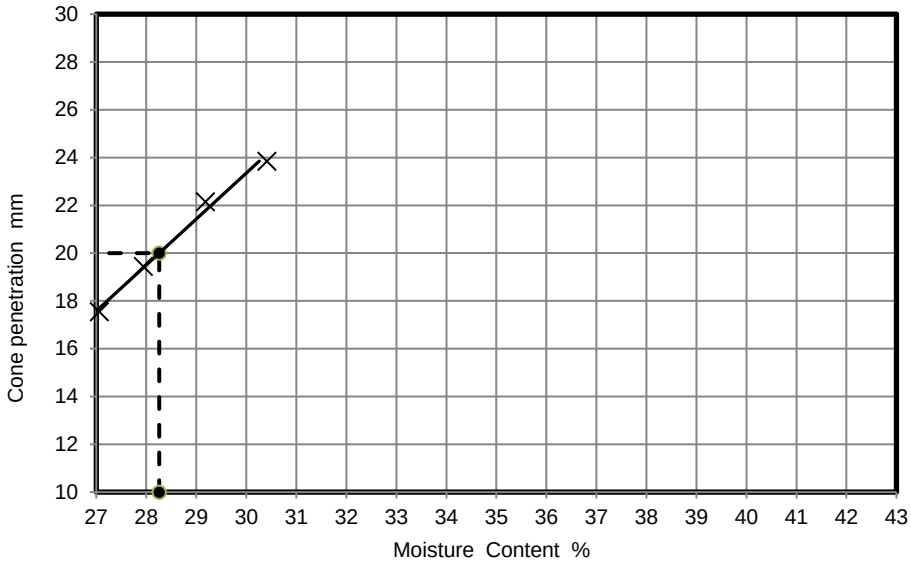
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-95064
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

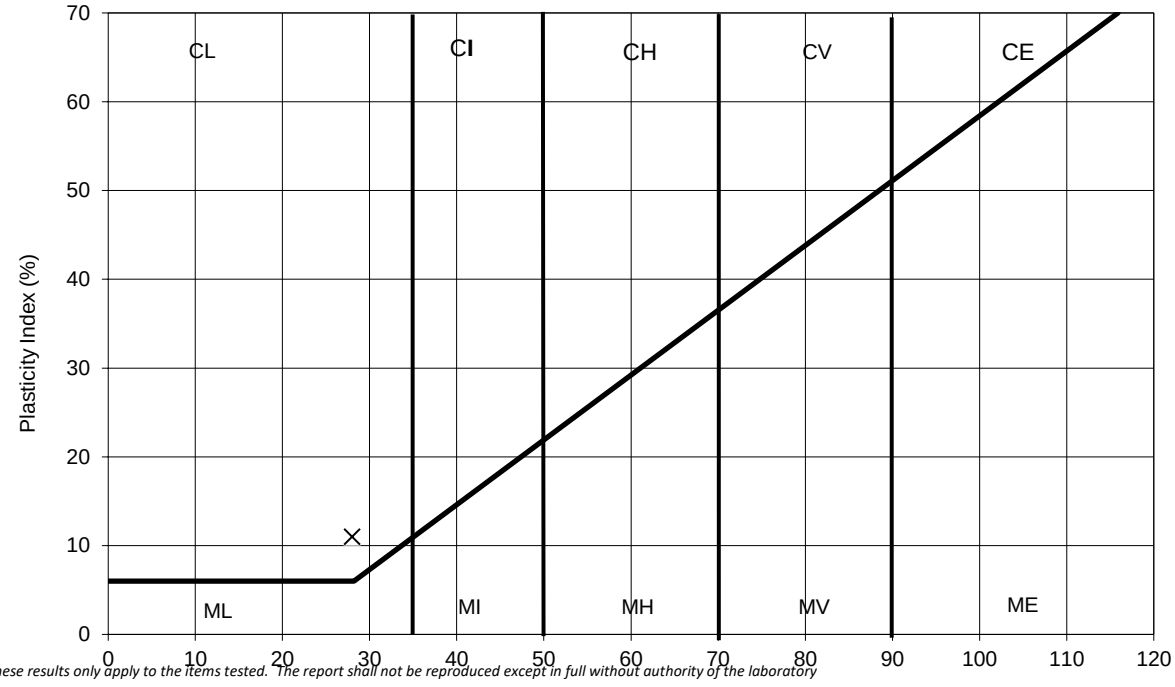


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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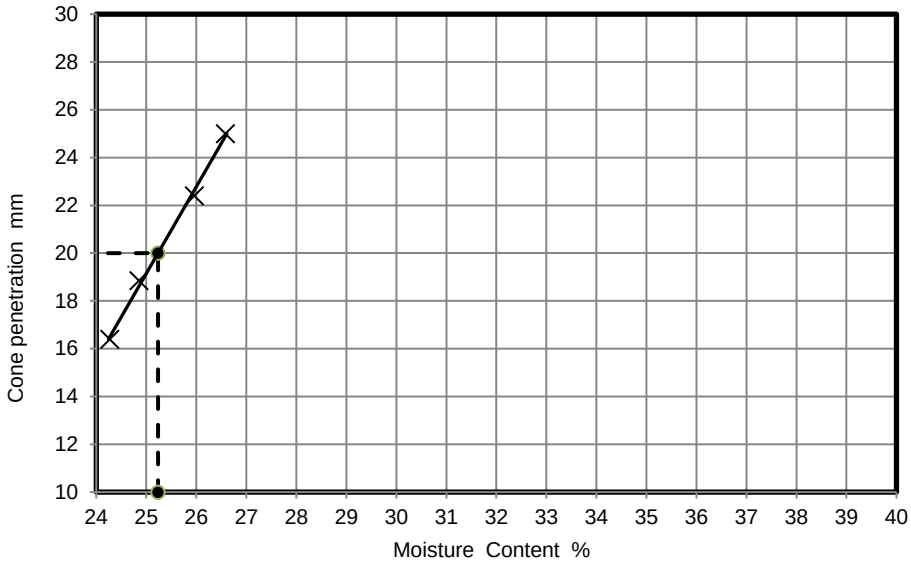
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-96005
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

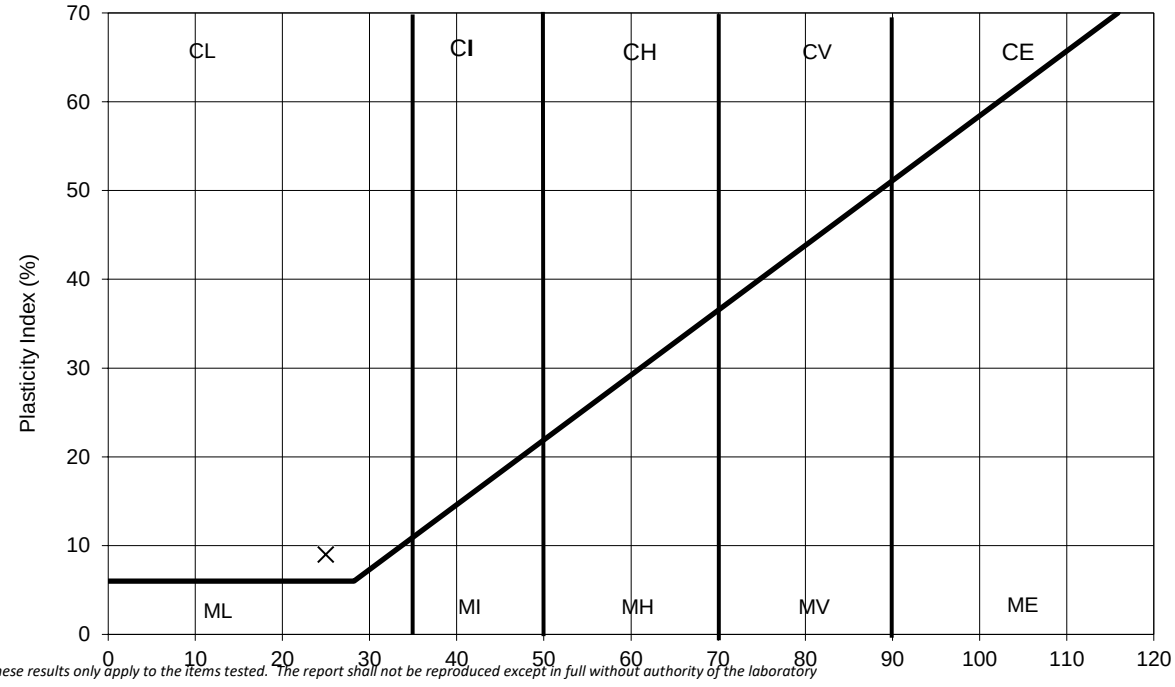


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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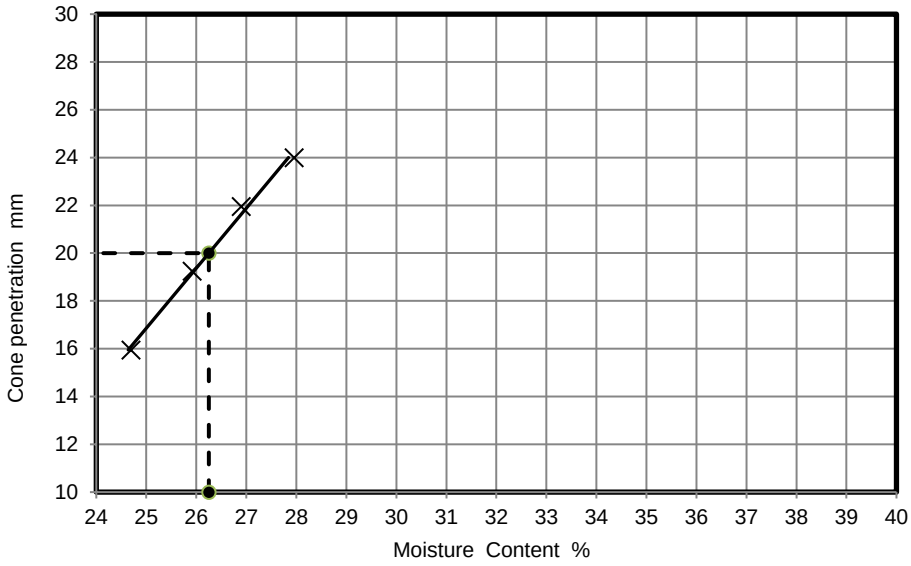
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

Job No. 32282

Borehole/Pit No. BH-96364

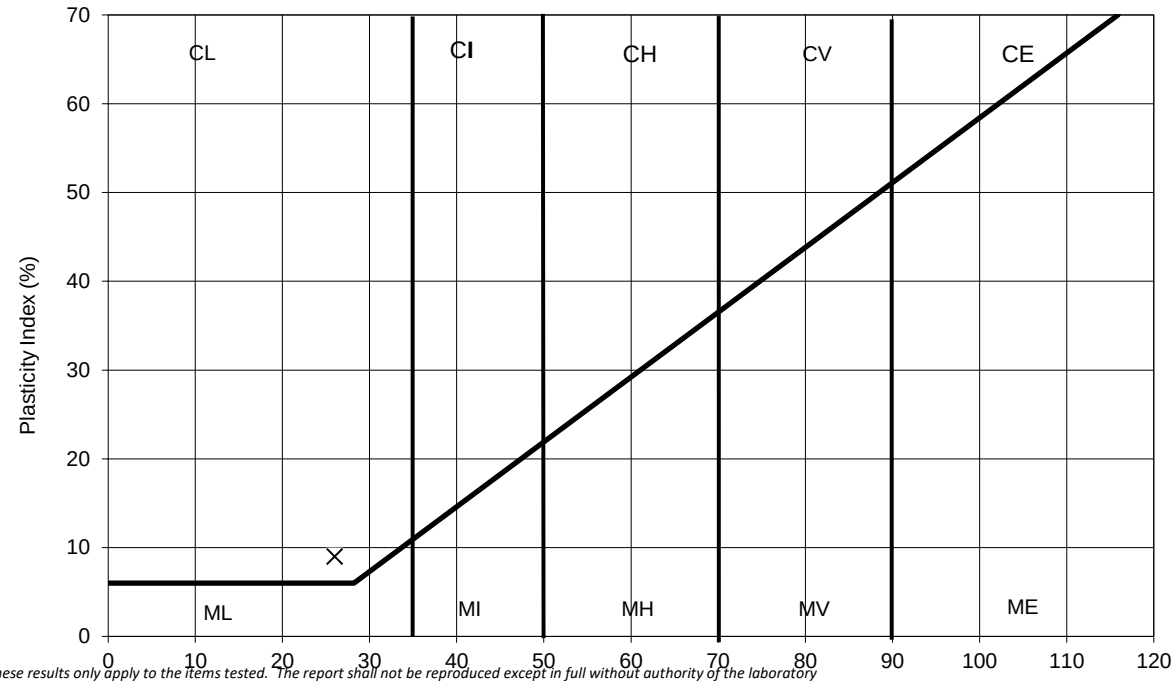


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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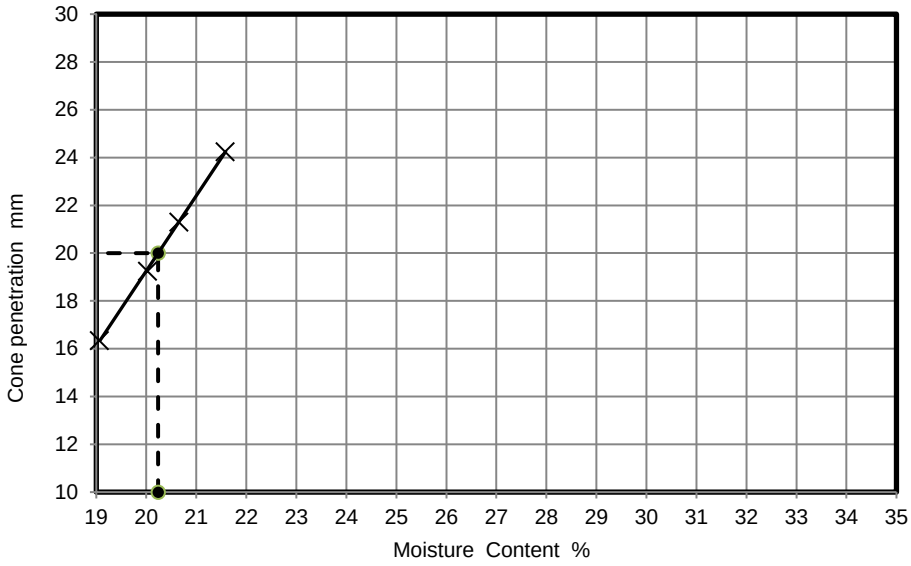
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-96858
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

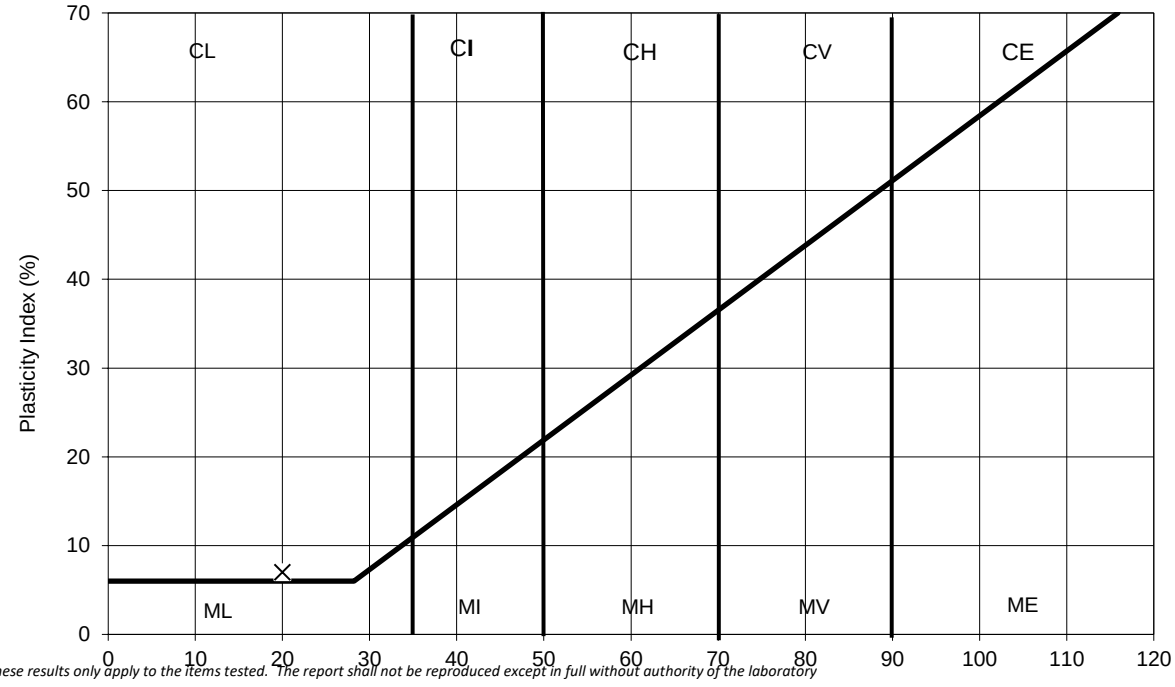


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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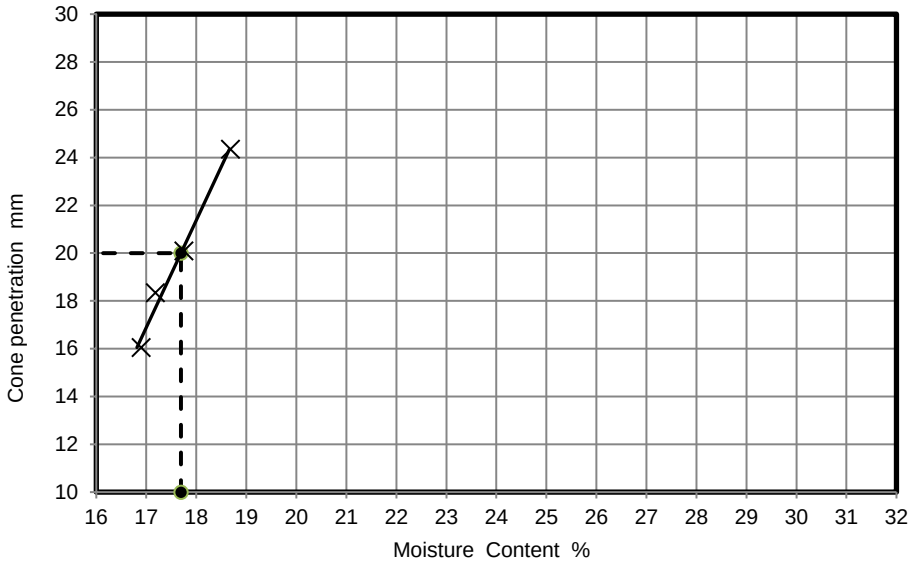
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-97788
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

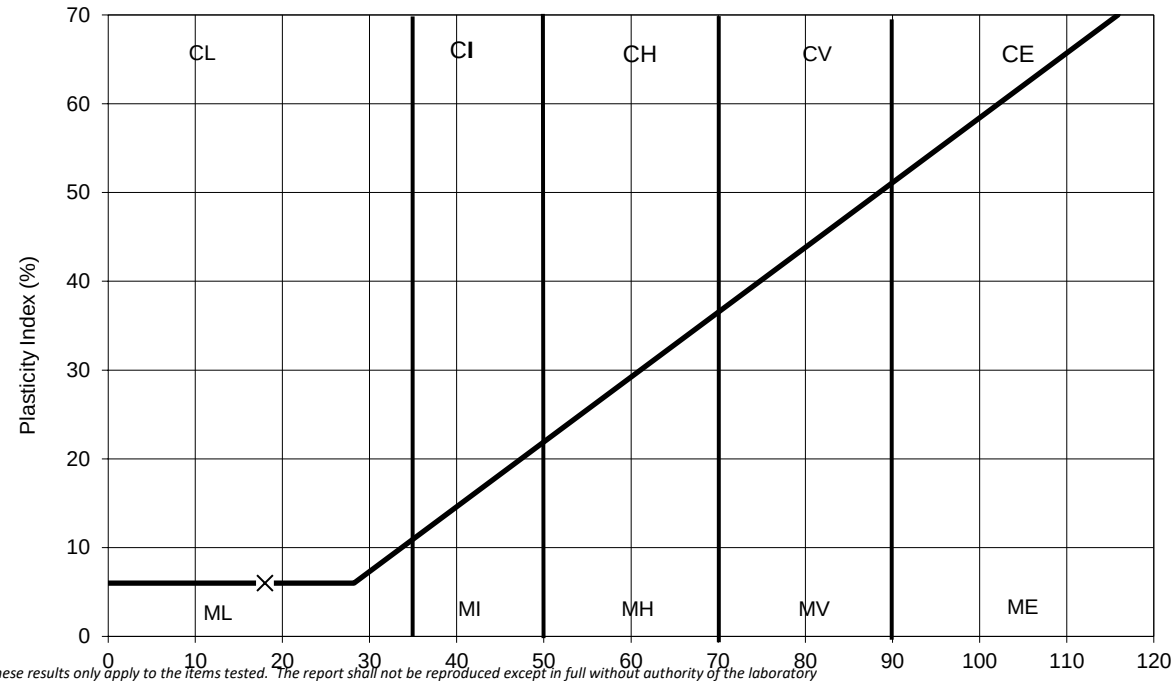


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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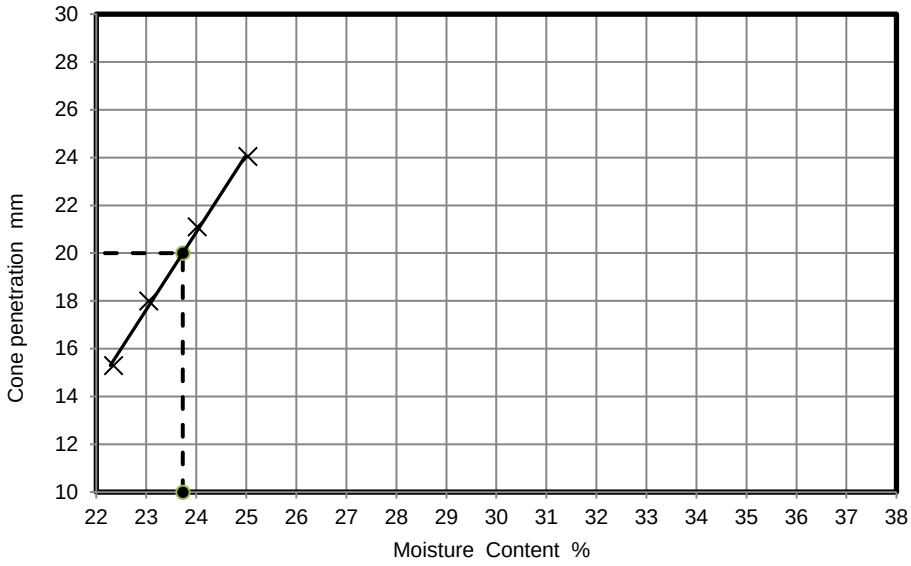
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-97837
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

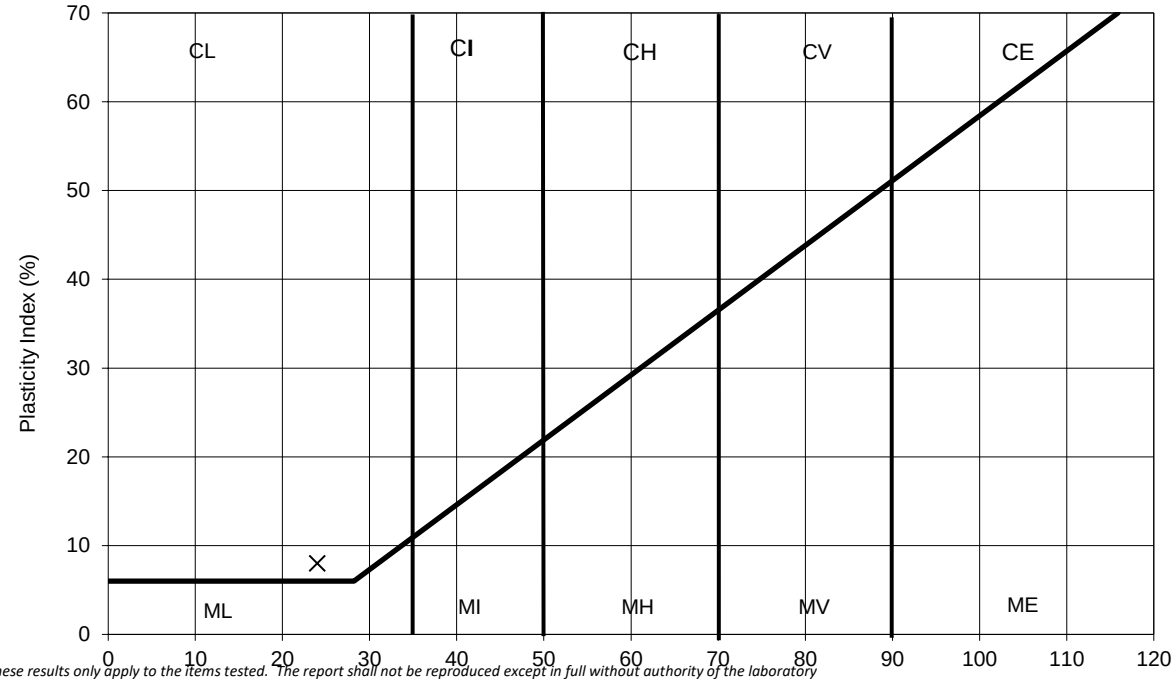


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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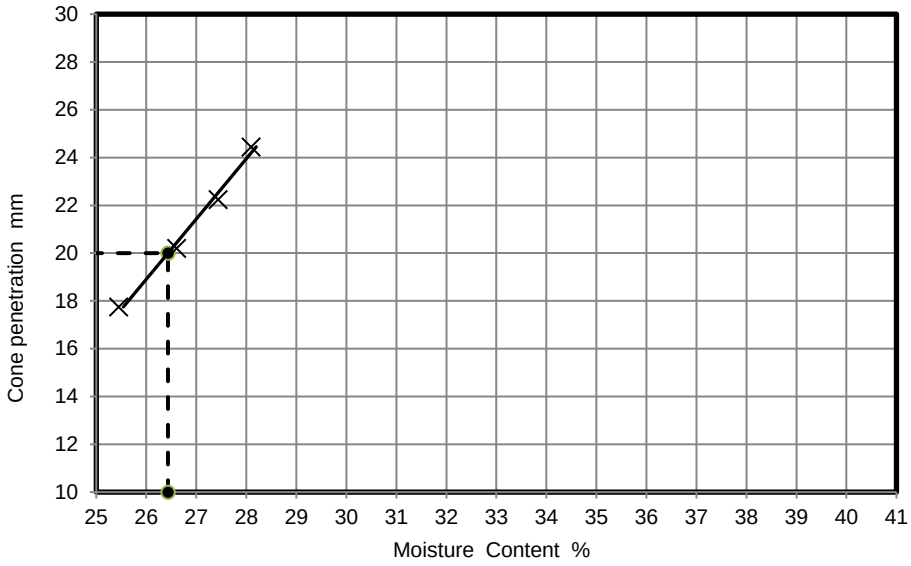
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

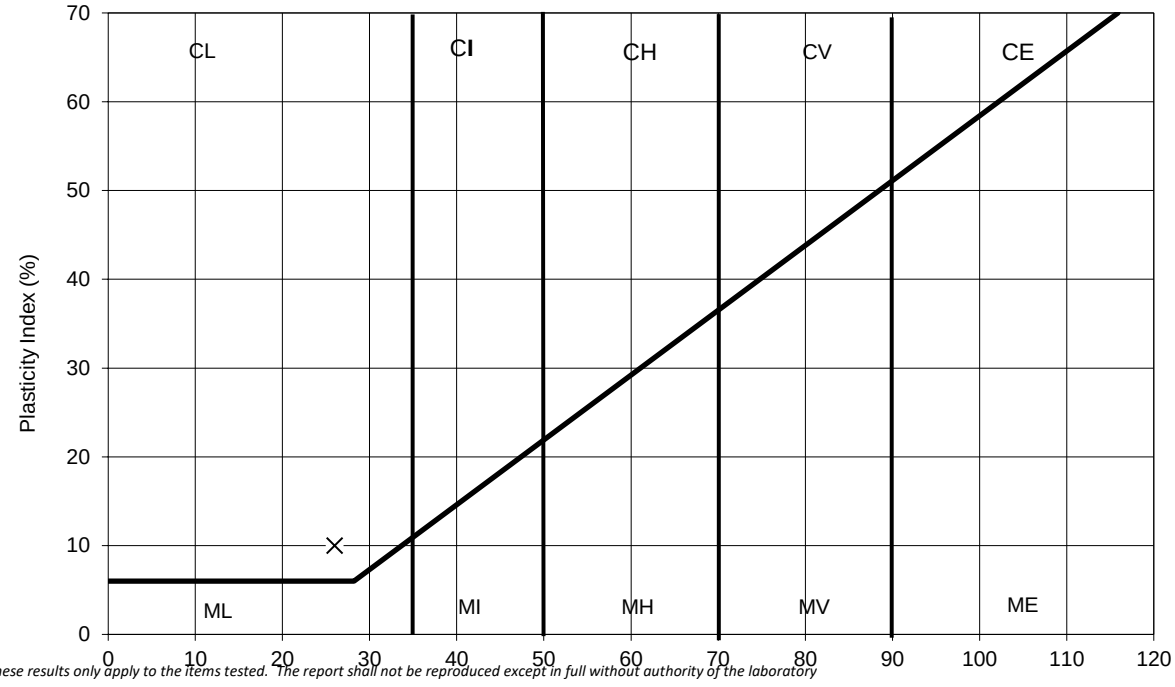
Job No.	32282				
Borehole/Pit No.	BH-97837				
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey slightly sandy clayey SILT			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

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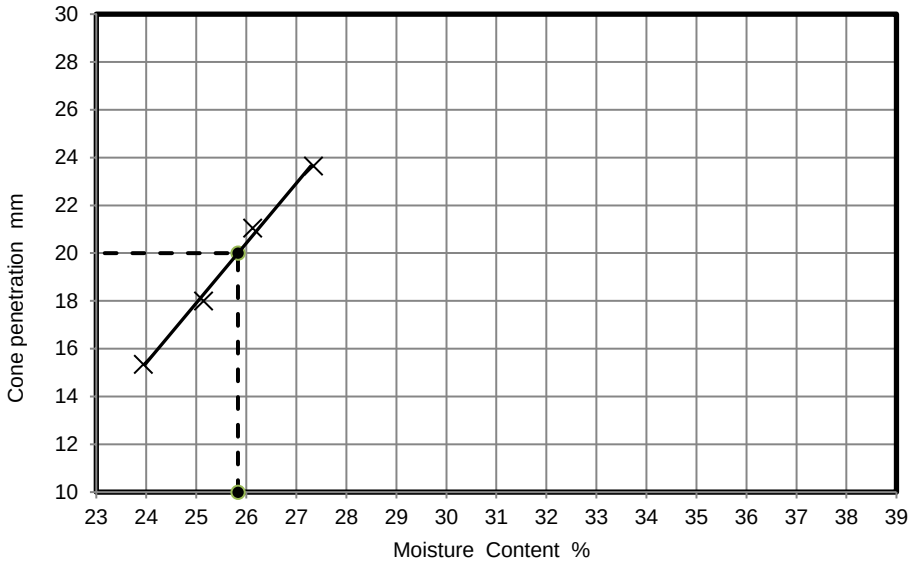
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

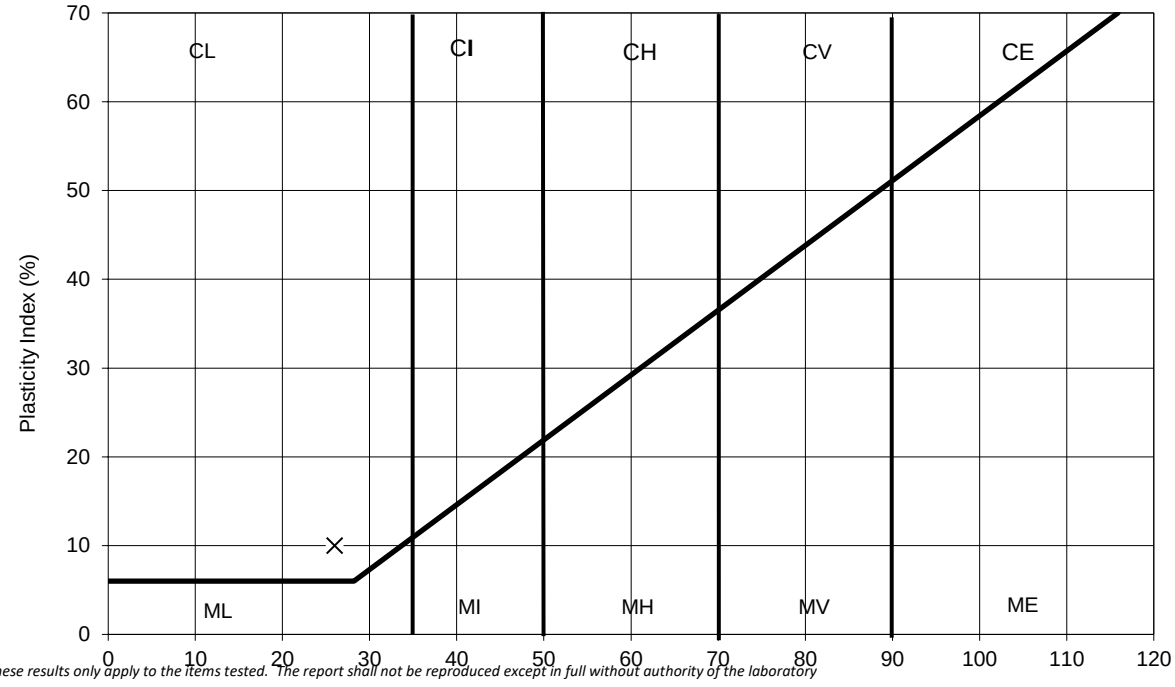
				Job No.	32282
				Borehole/Pit No.	BH-97881
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown and yellowish brown mottled slightly sandy very silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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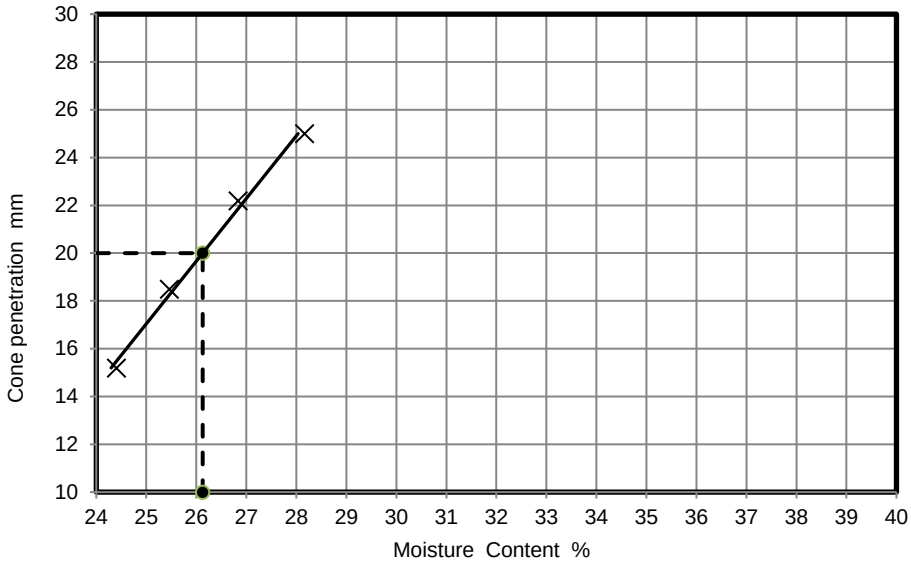
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

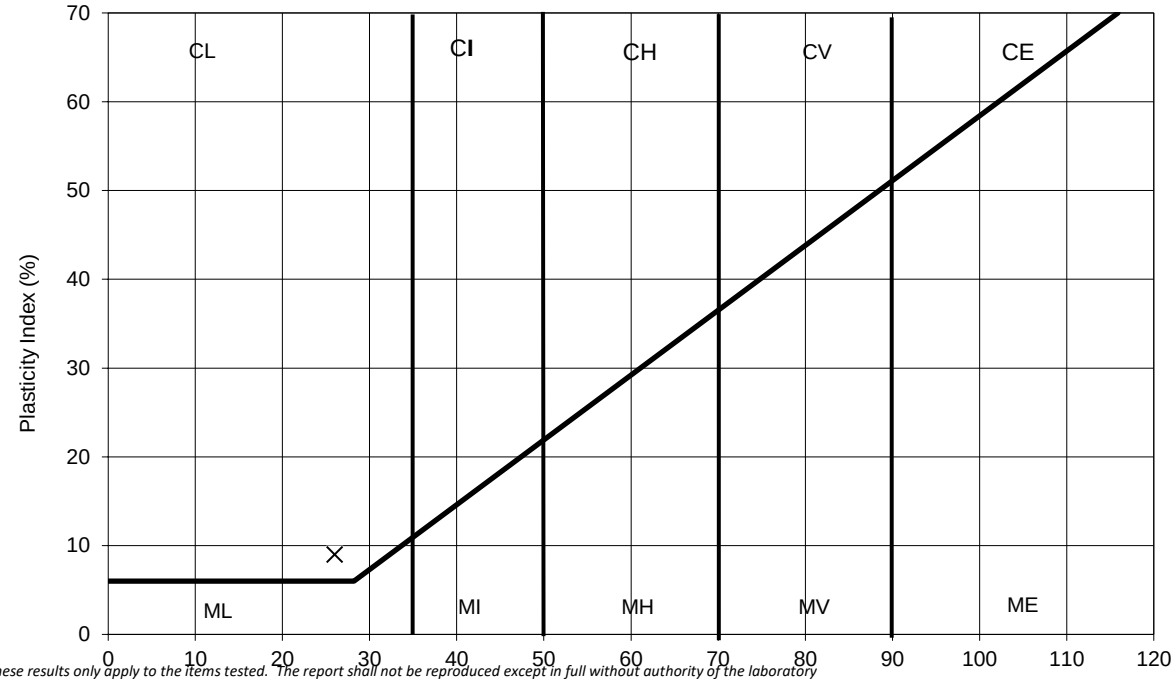
				Job No.	32282
				Borehole/Pit No.	BH-97881
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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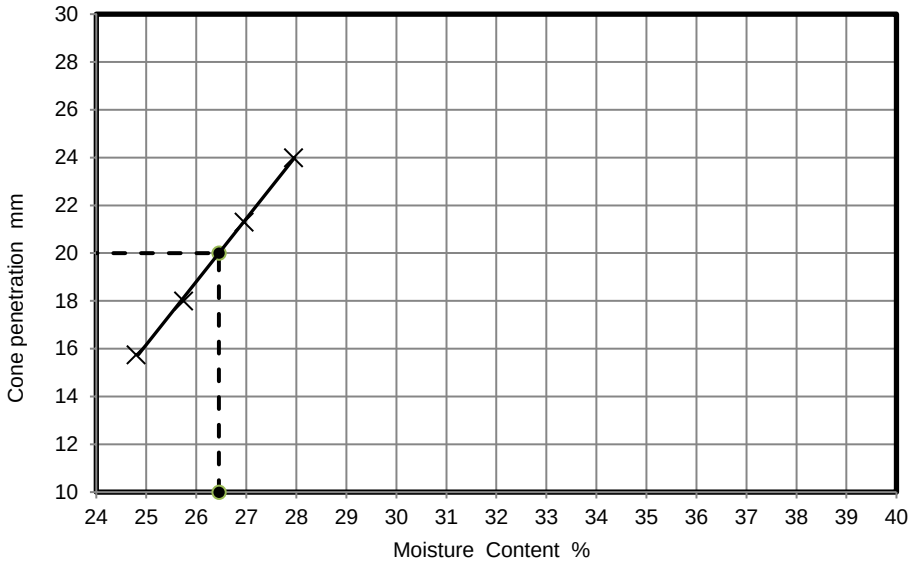
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

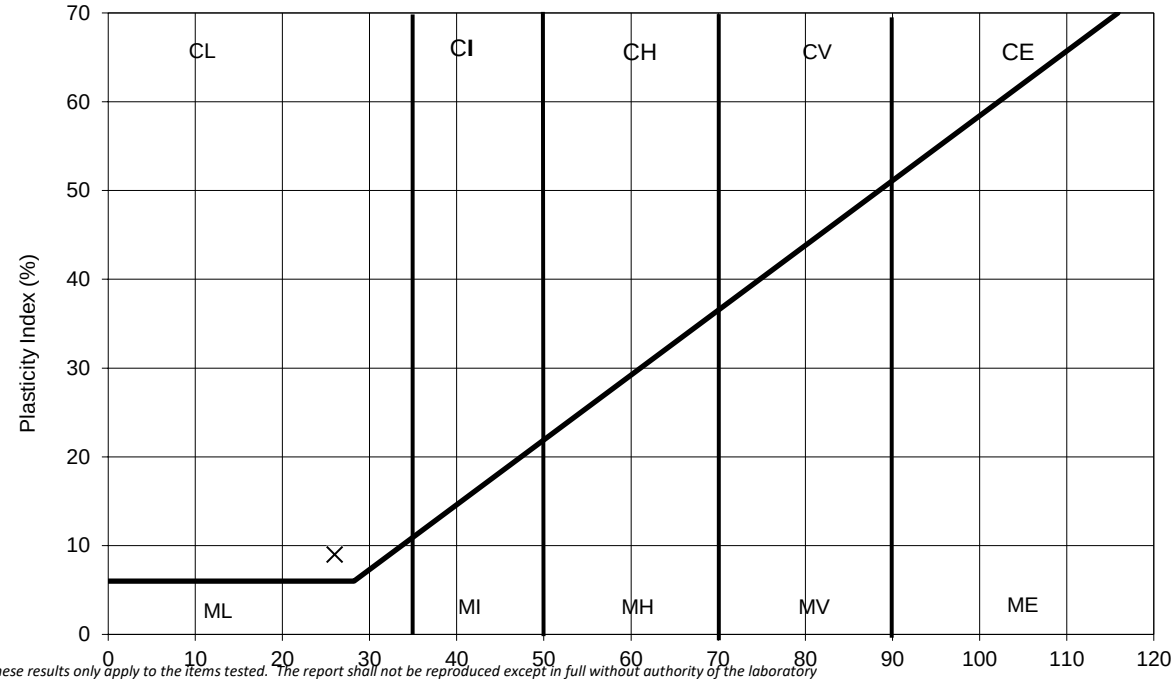
				Job No.	32282
				Borehole/Pit No.	BH-97914
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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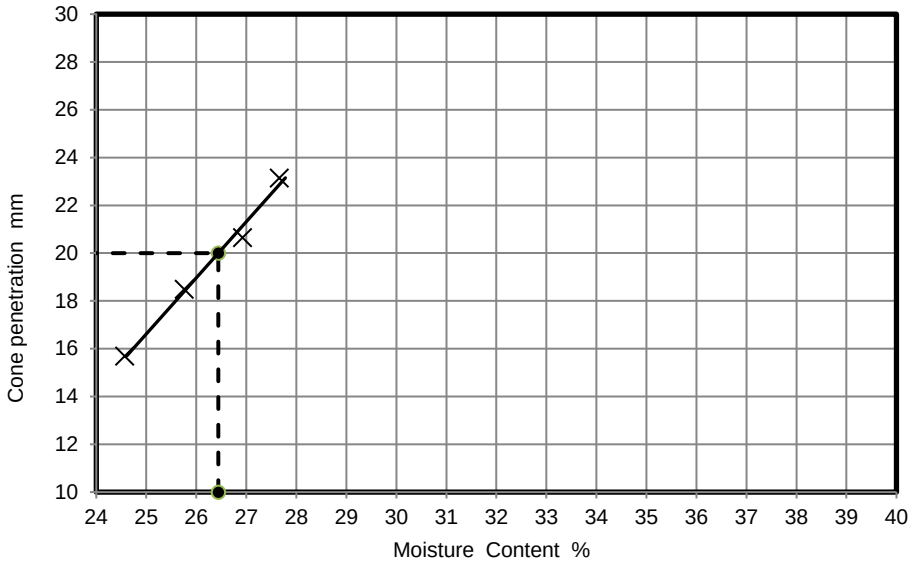
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

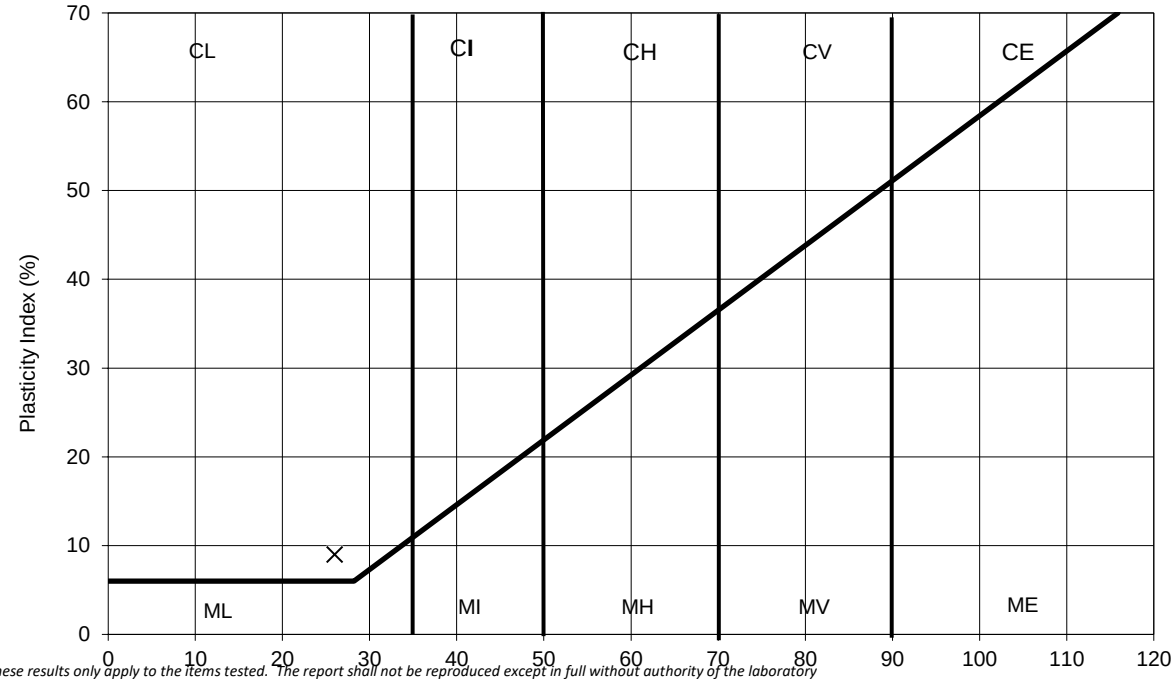
				Job No.	32282
				Borehole/Pit No.	BH-97914
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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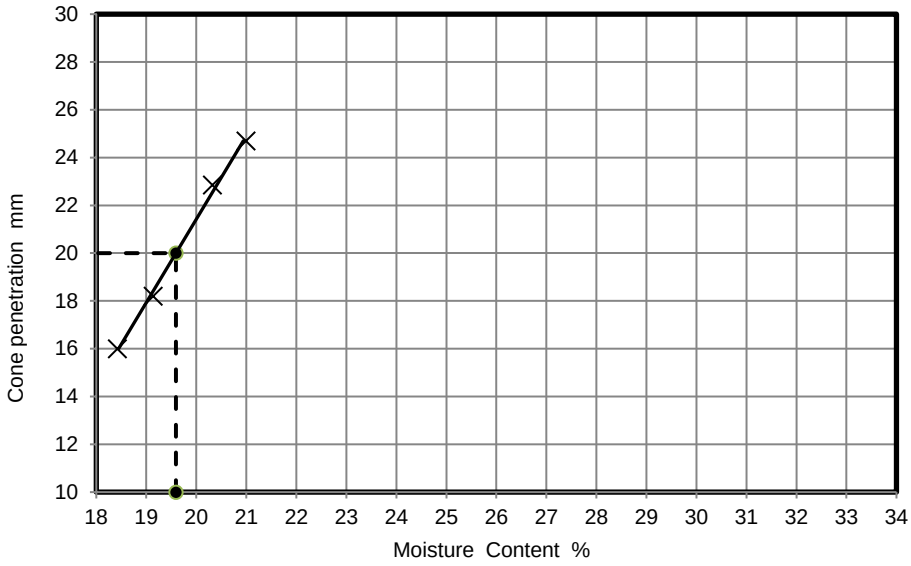
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-98002
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

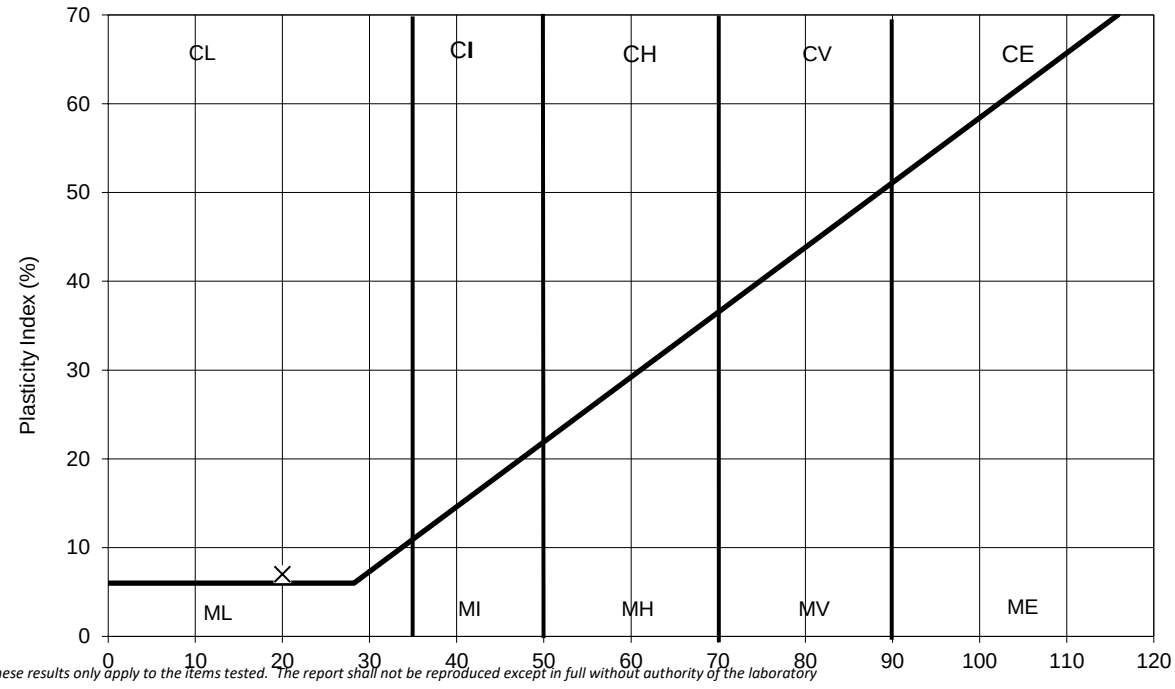


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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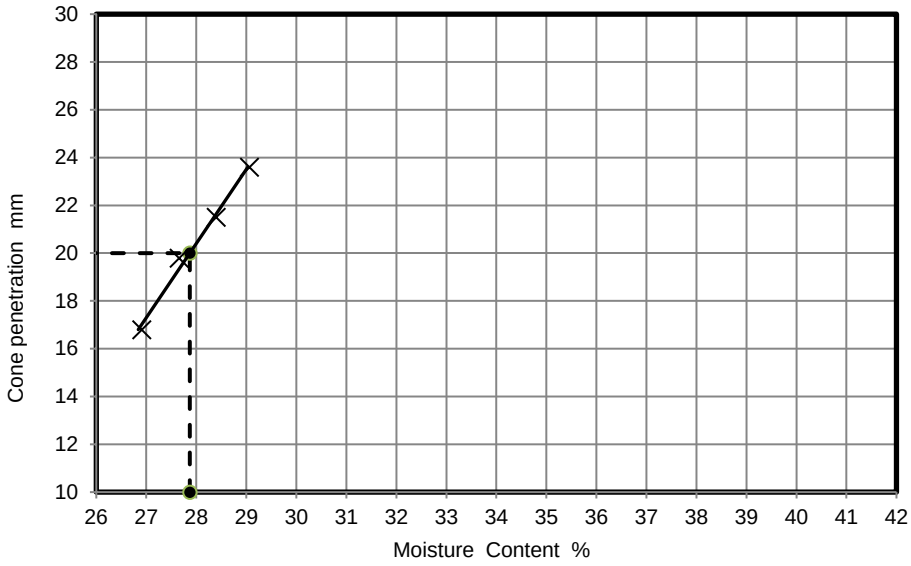
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey and dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

Job No. 32282

Borehole/Pit No. BH-98314

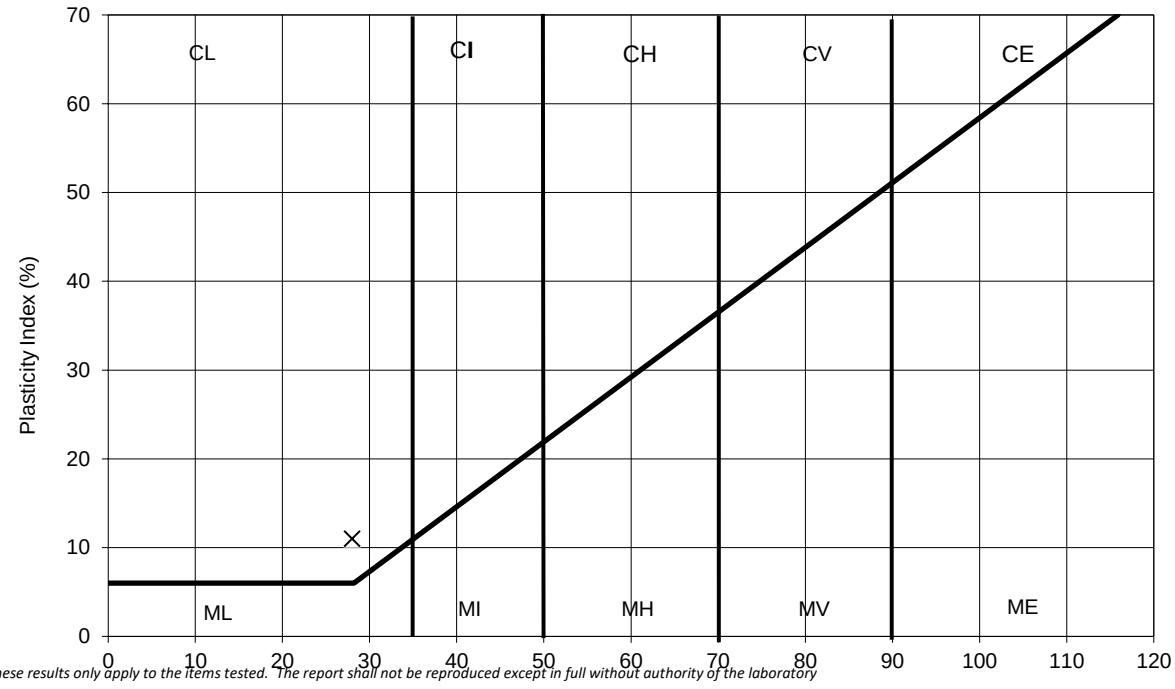


NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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Checked and Approved

Initials: J.P

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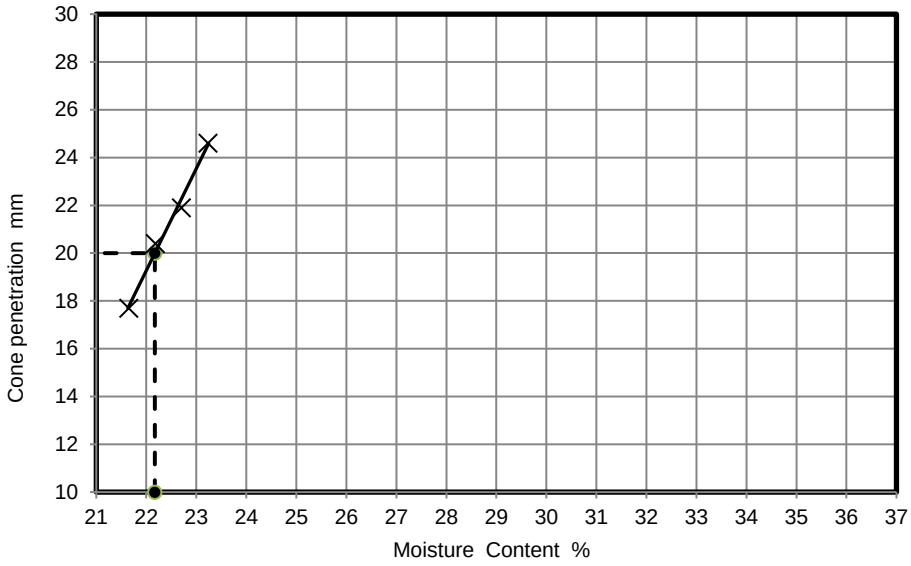
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-98314
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown and dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

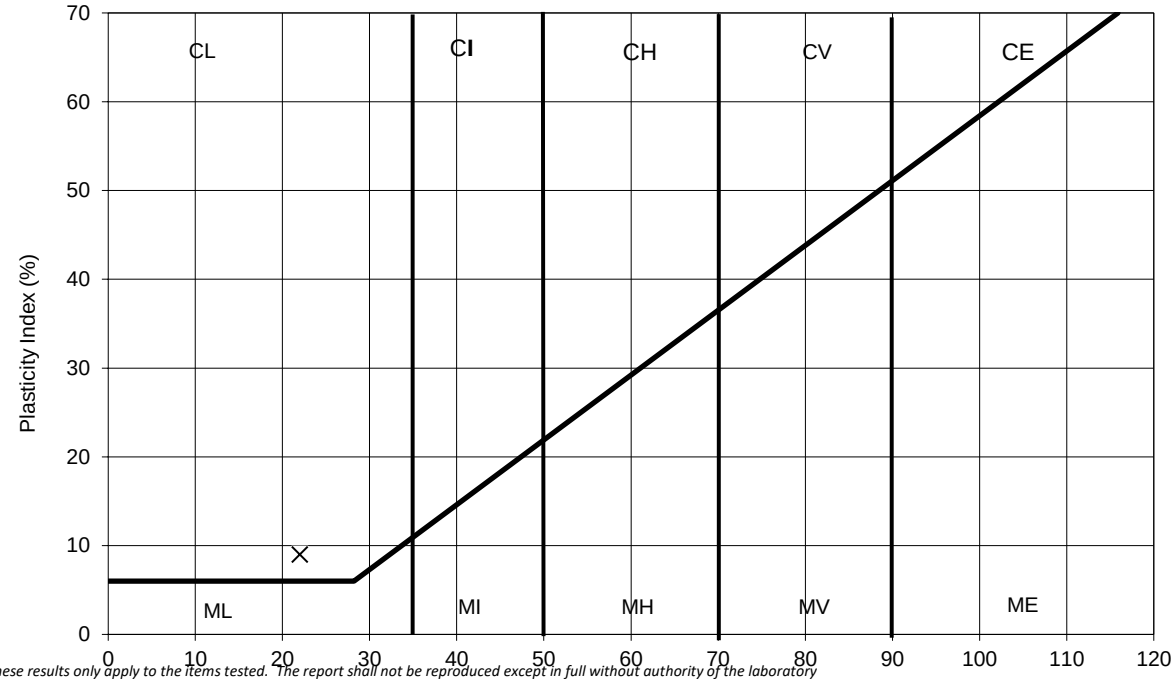


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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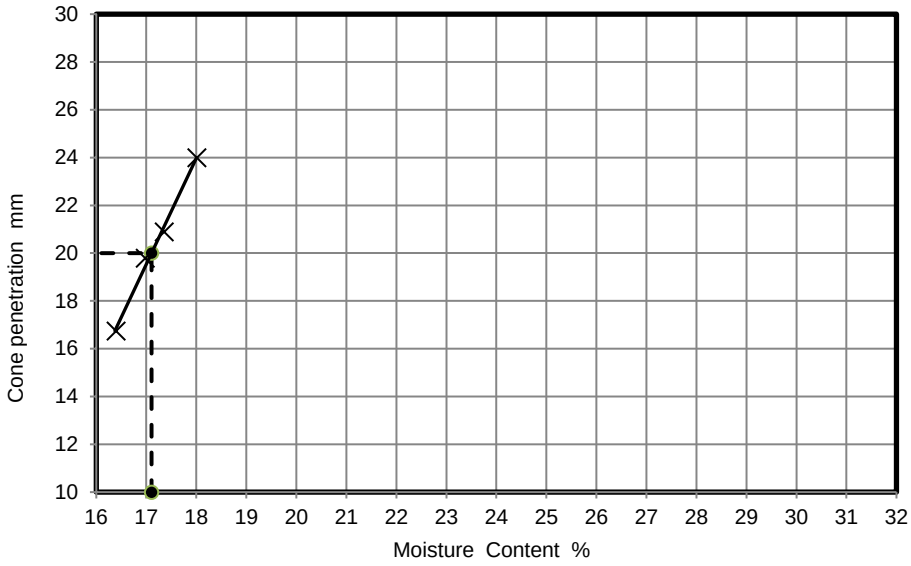
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

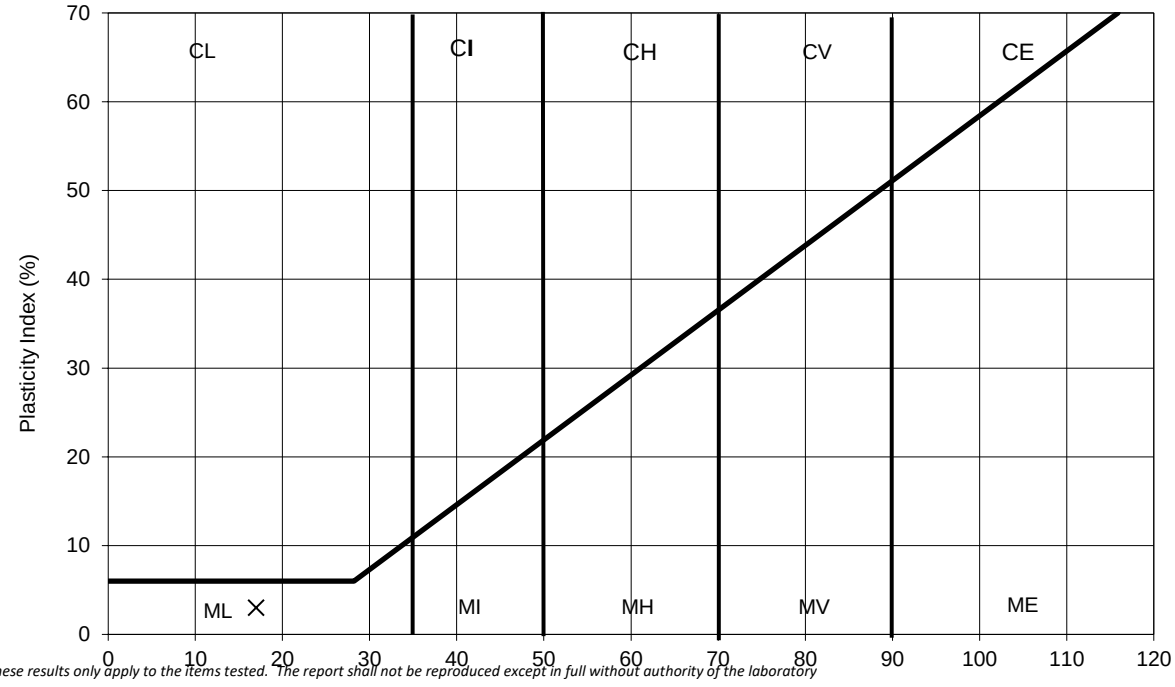


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**44**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**3**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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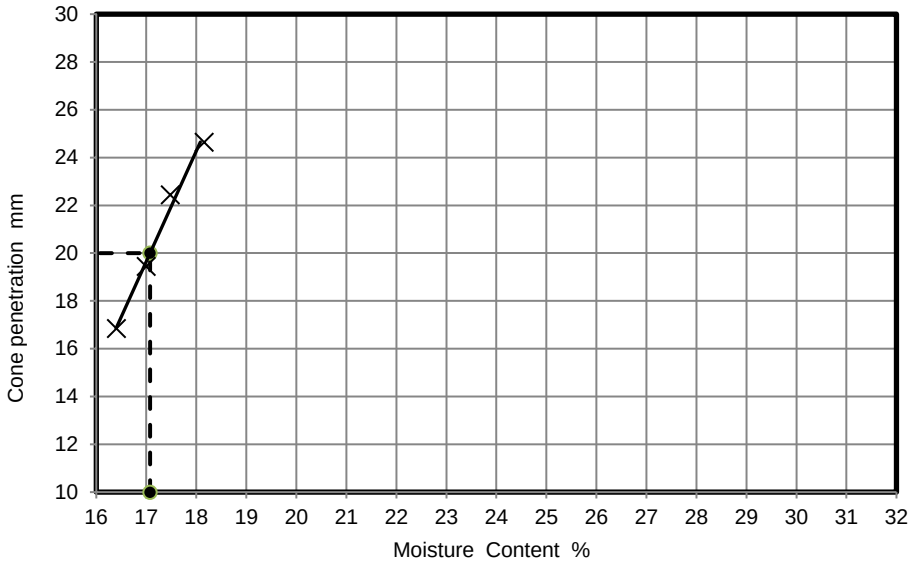
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark grey and brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

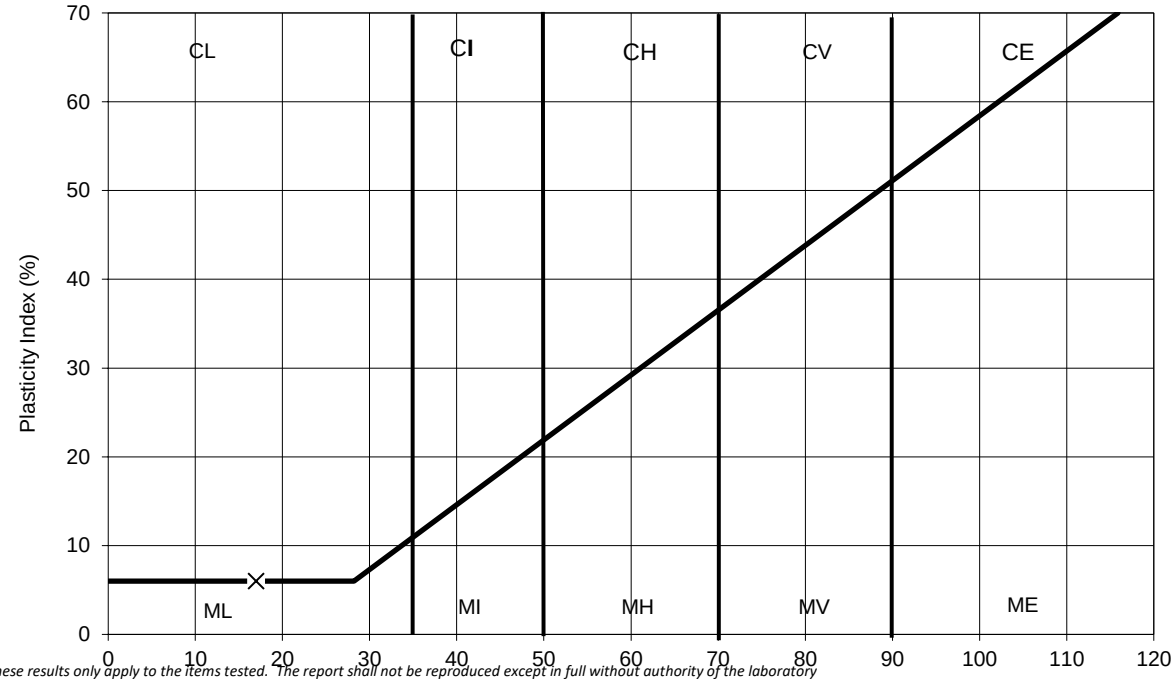


NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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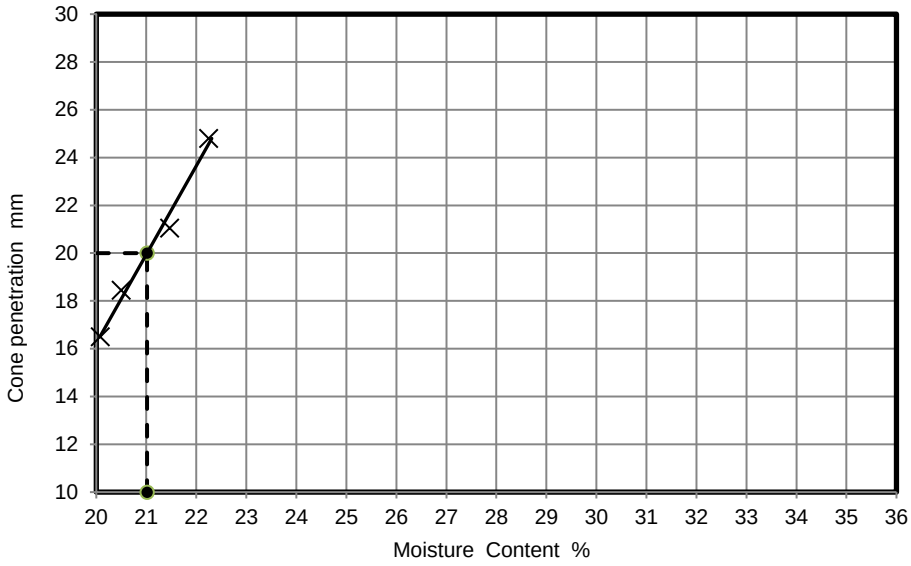
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99204
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

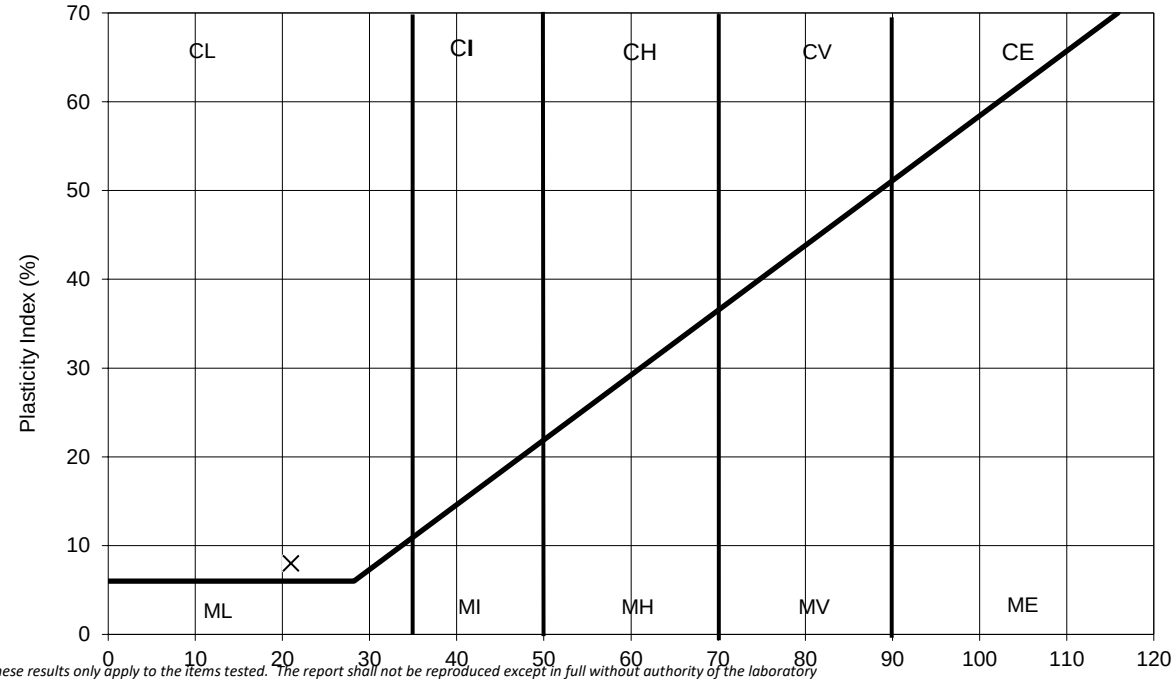


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**42**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

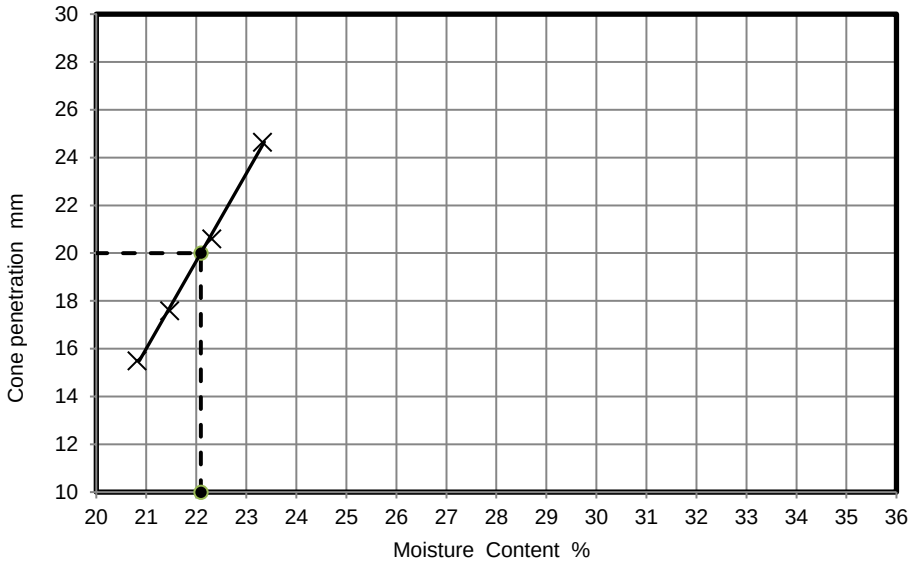
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99204
Site Name	WSP Eastern & Midlands Region			Sample No.	20
Project No.	2021OY102	Client	Irish Drilling	Depth Top	7.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

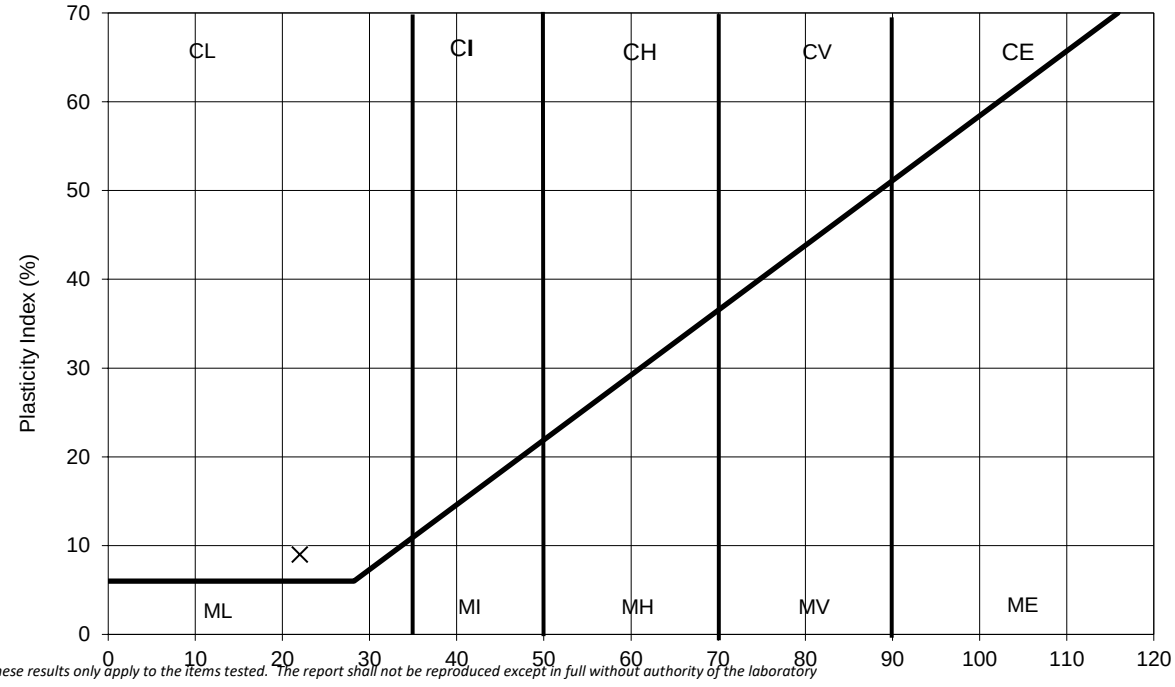


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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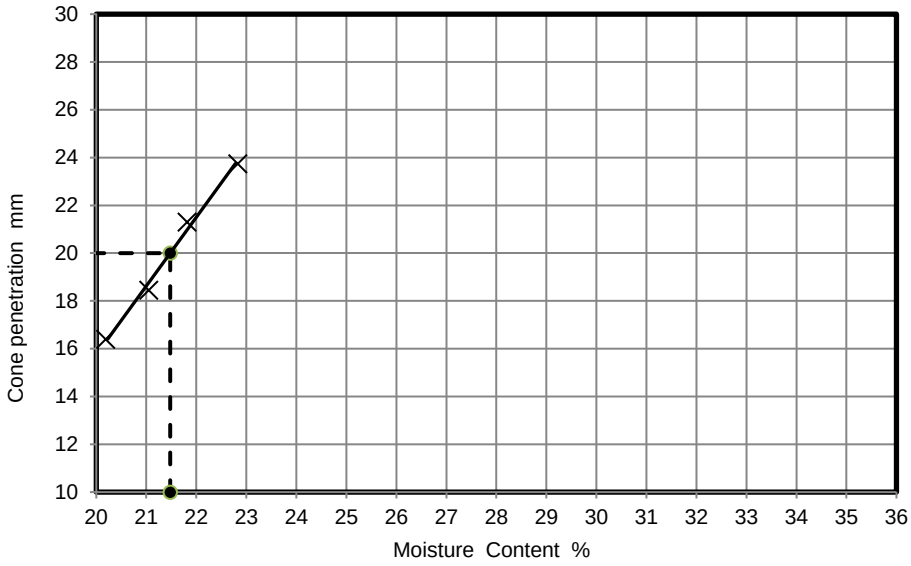
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99777
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

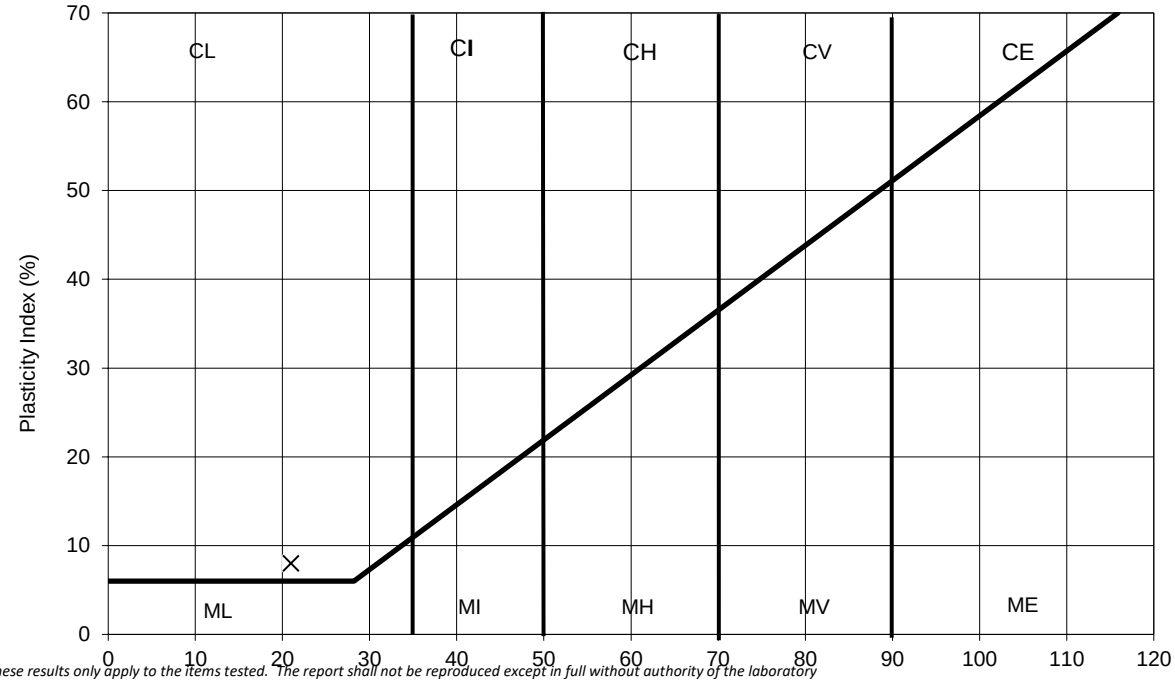


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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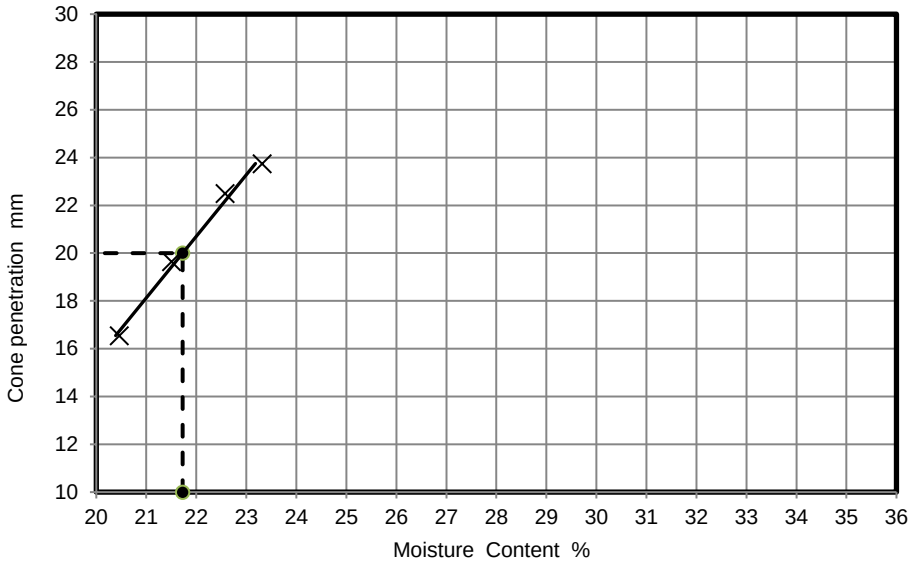
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99777
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark grey and greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

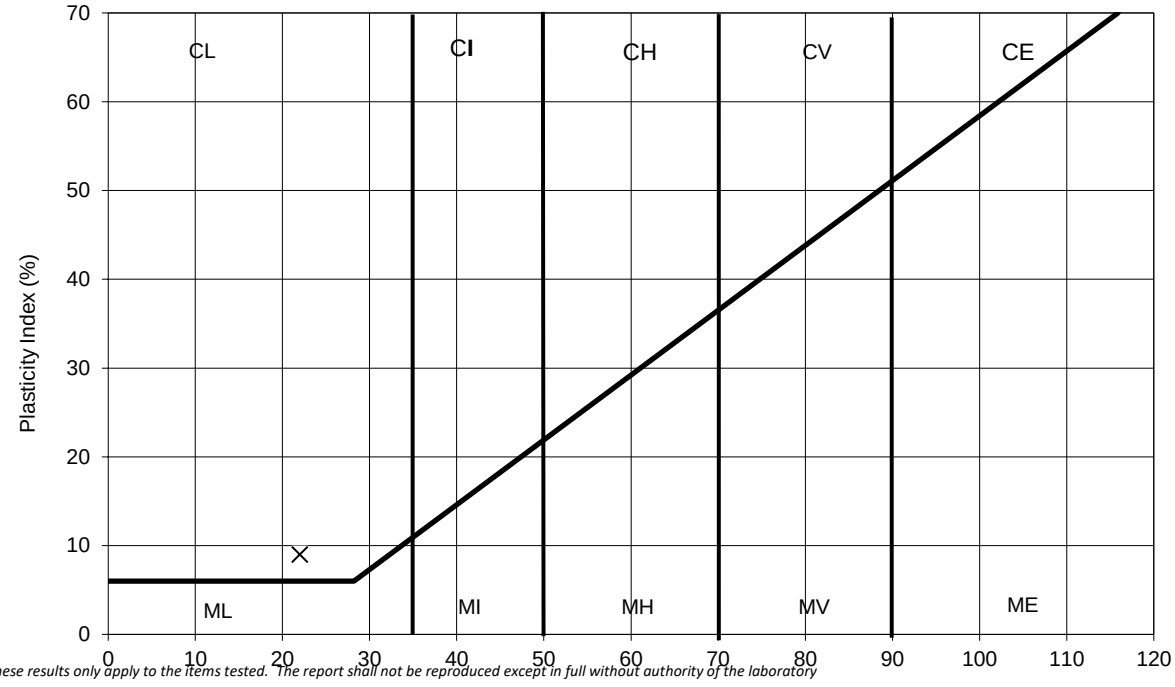


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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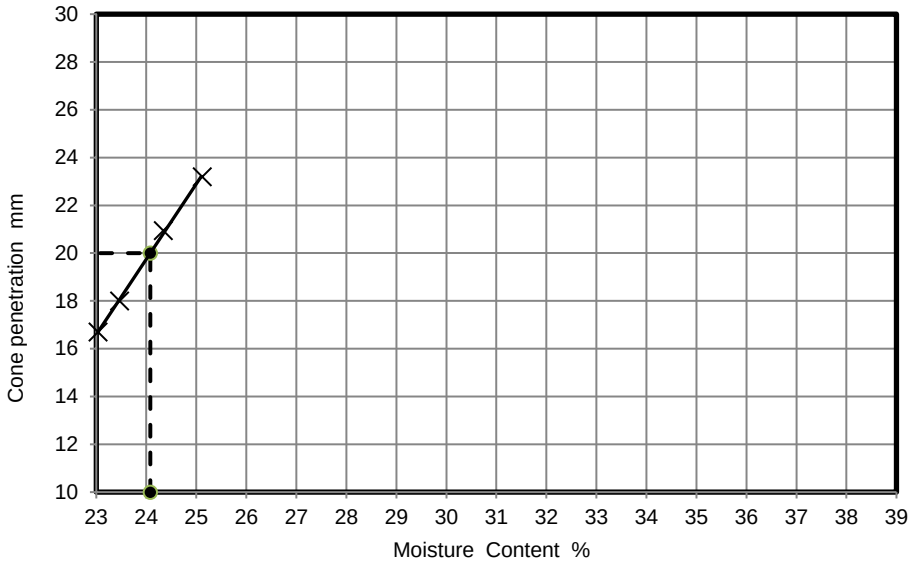
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

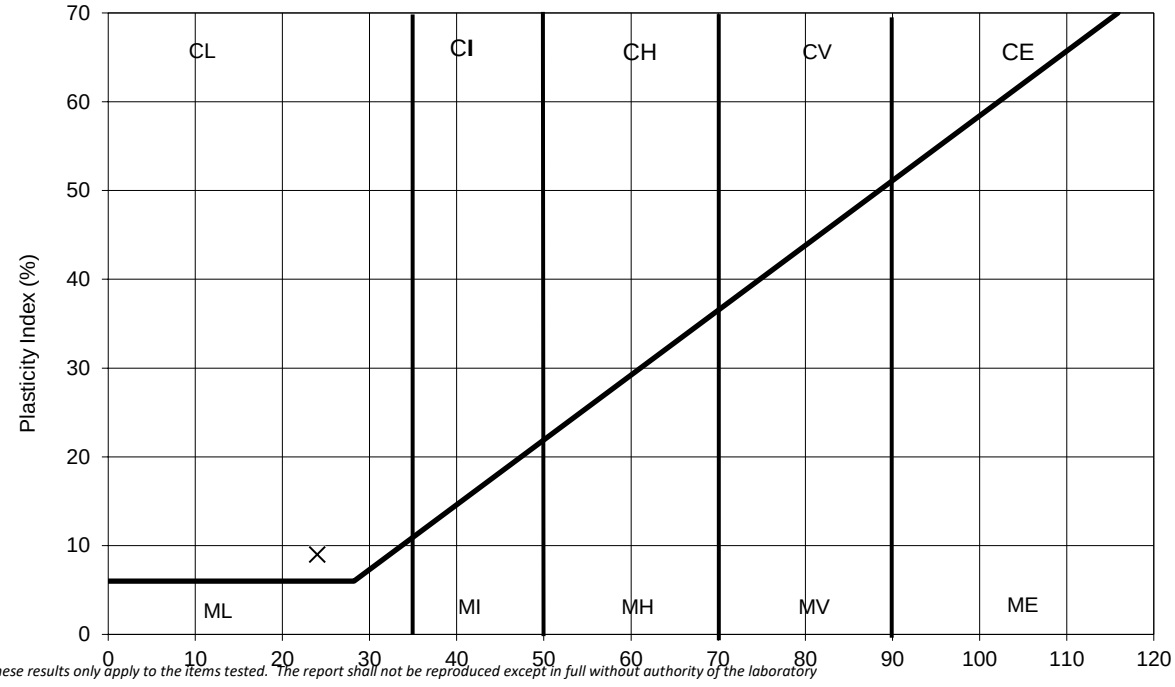
Job No.	32282				
Borehole/Pit No.	TP-100304				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey sandy silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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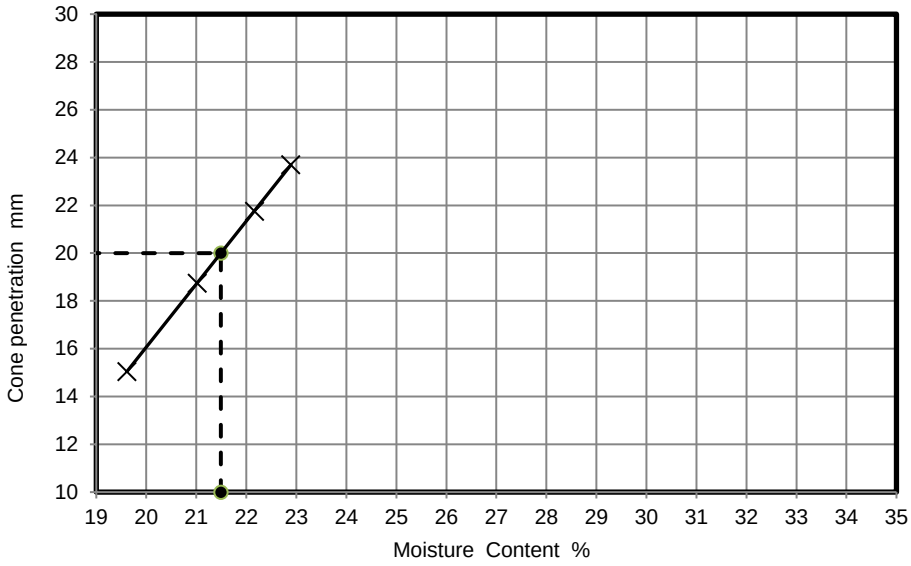
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

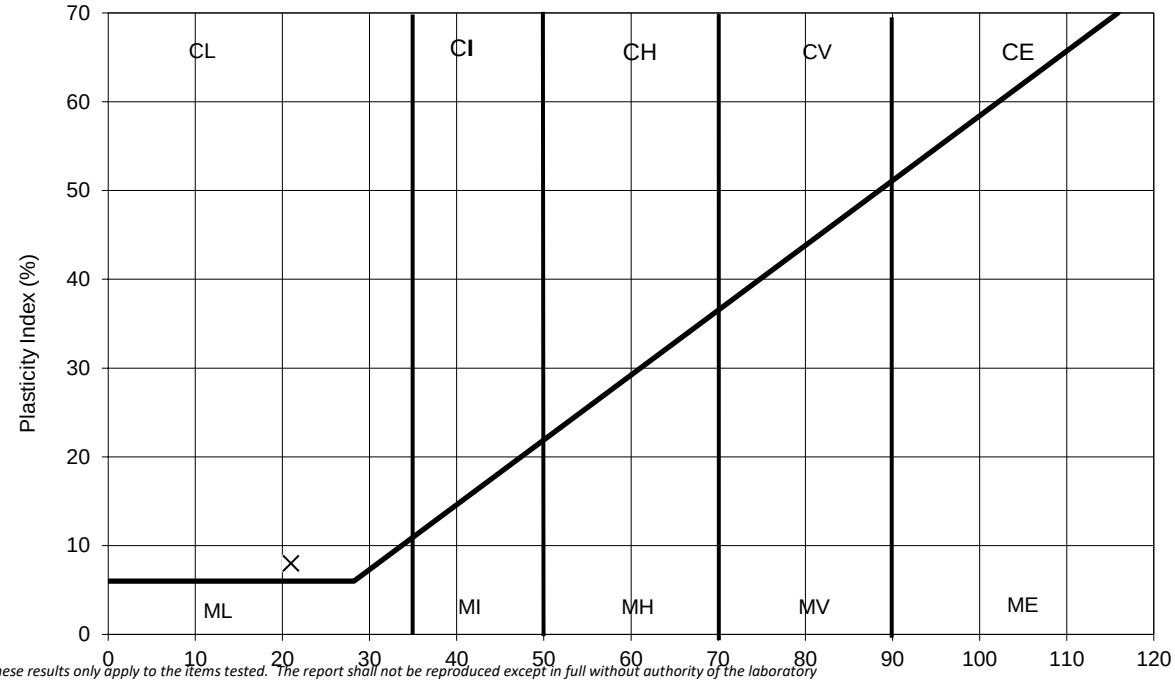
Job No.	32282				
Borehole/Pit No.	TP-100304				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Bluish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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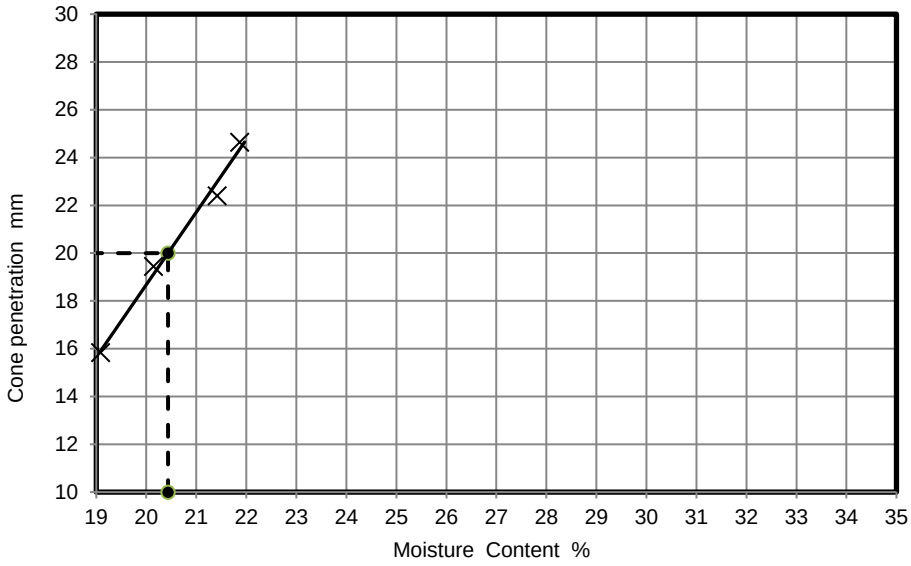
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

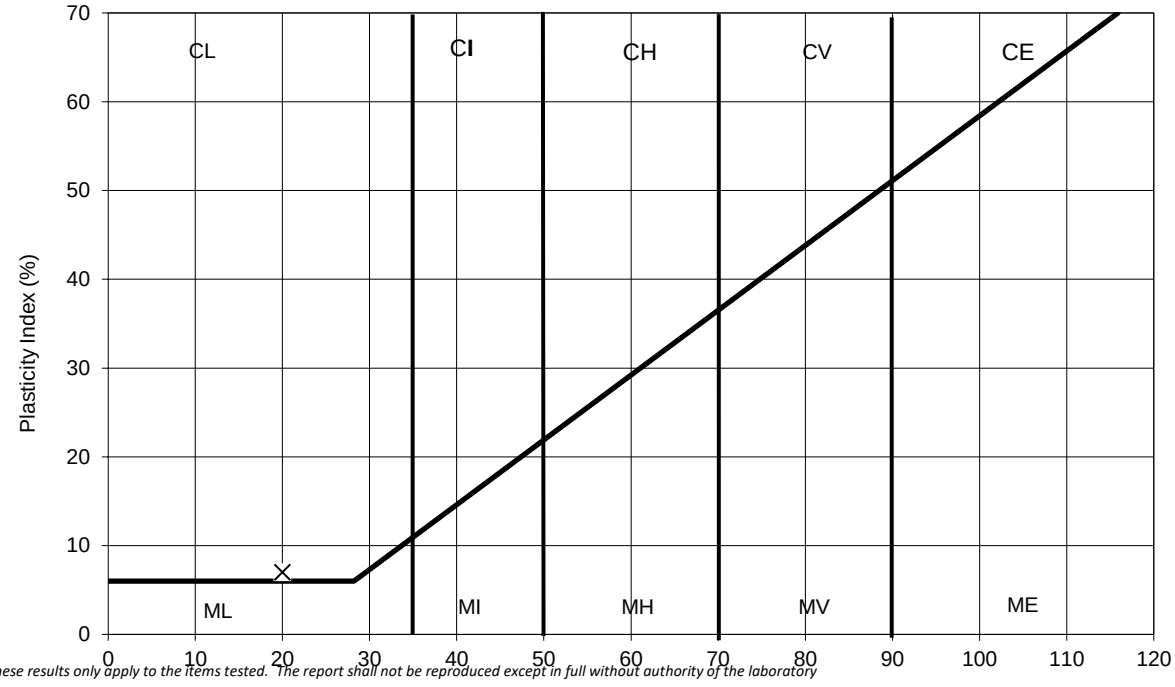
				Job No.	32282
				Borehole/Pit No.	TP-100304
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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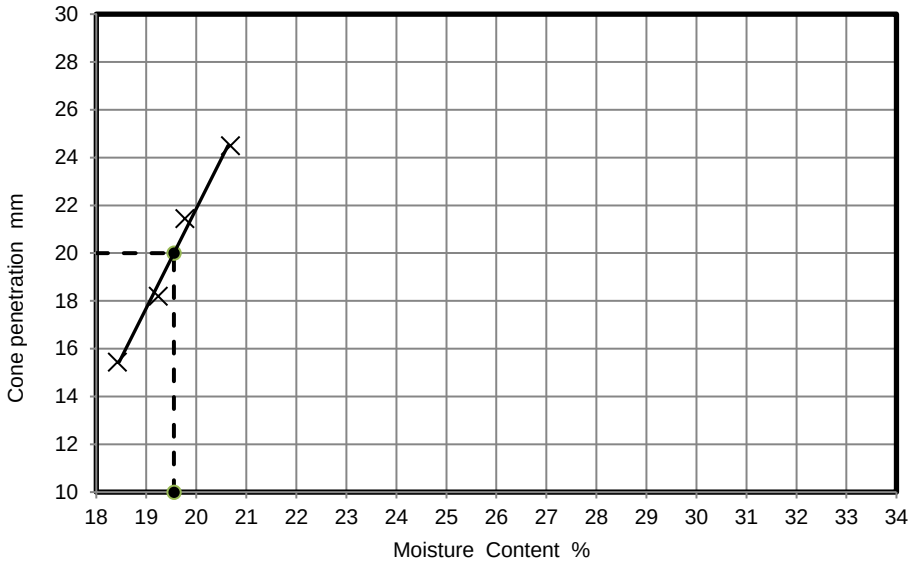
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-100407
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brownish grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

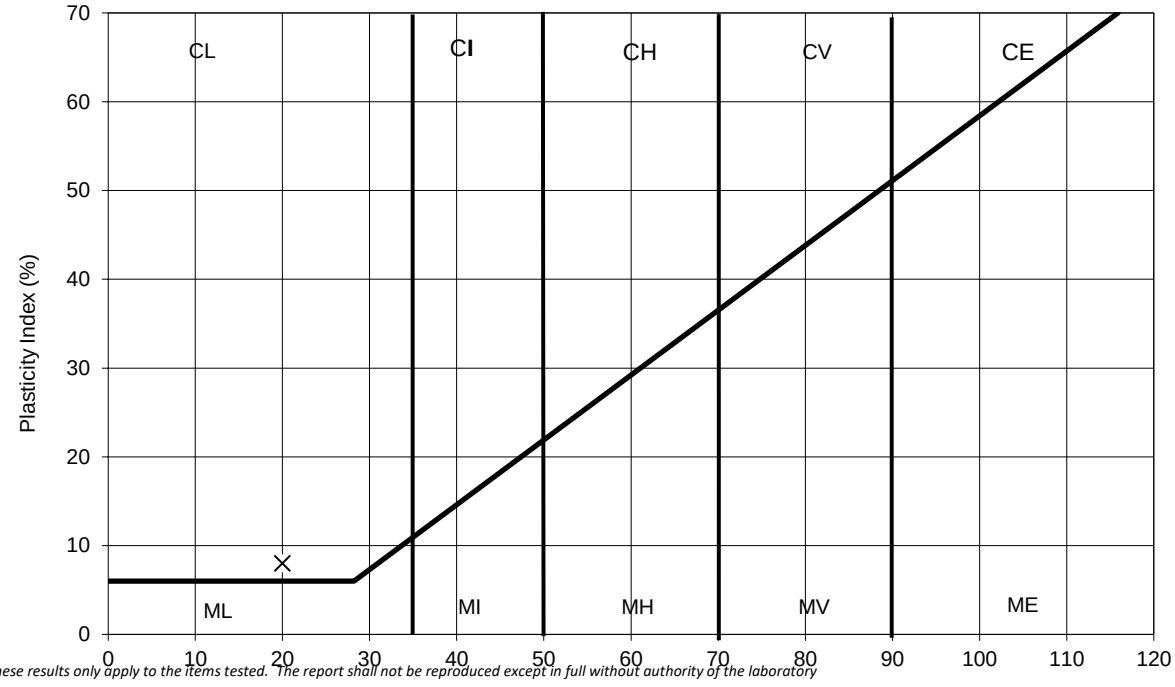


NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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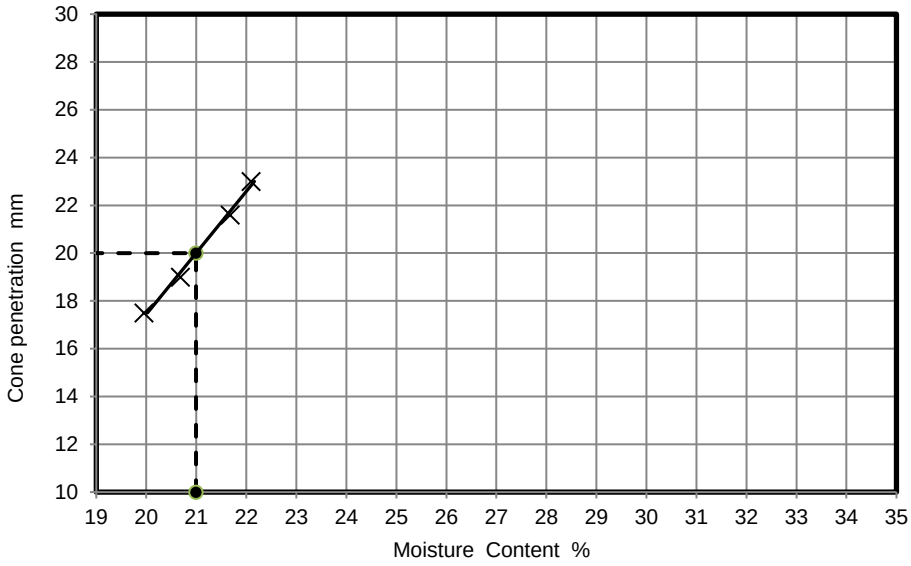
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-100407				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

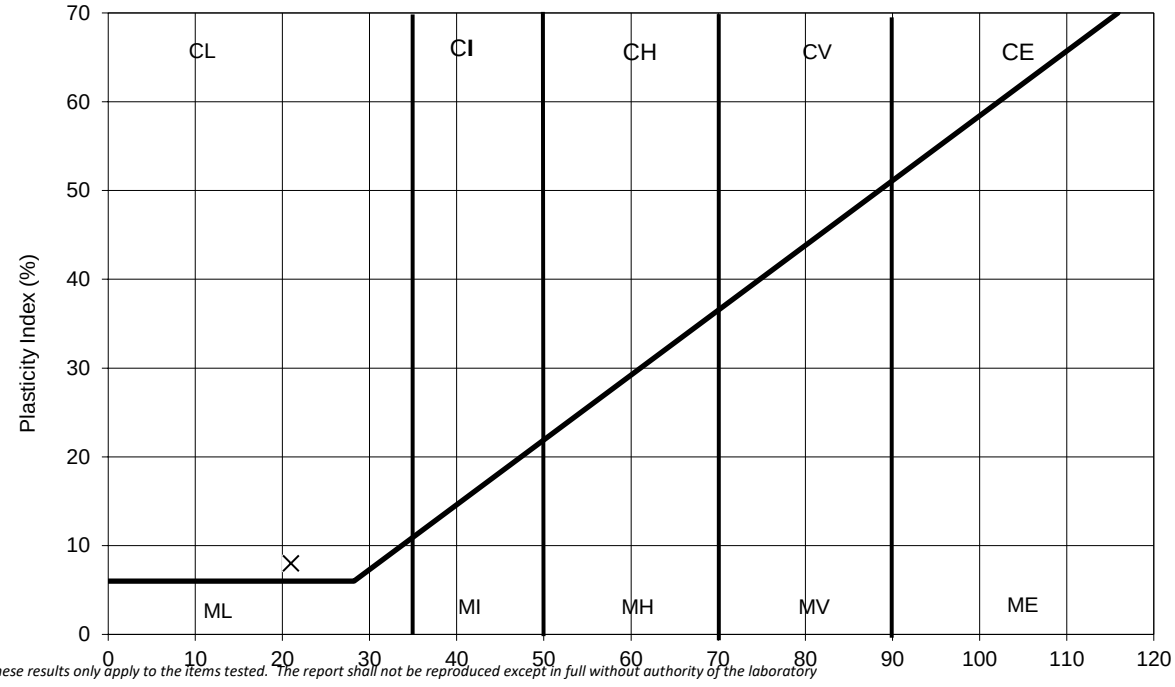


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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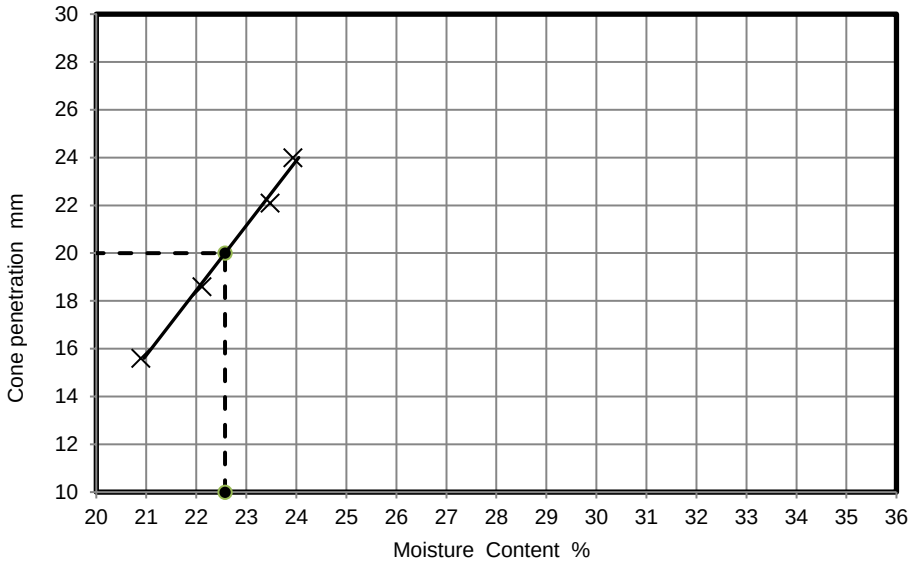
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

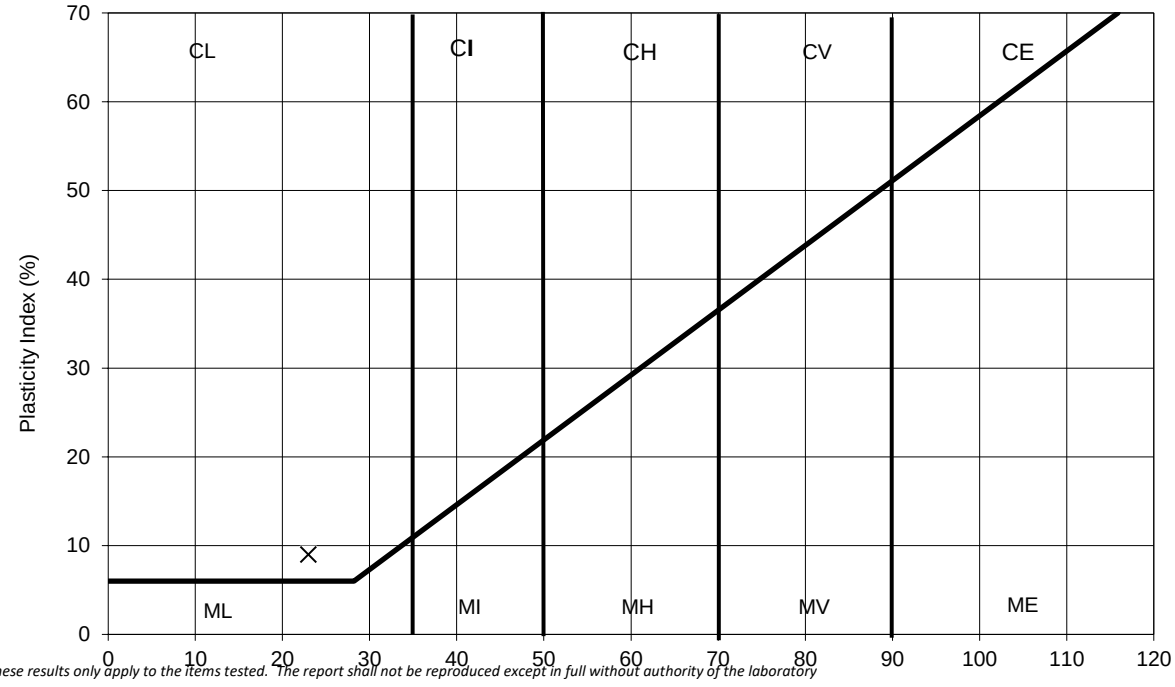
				Job No.	32282
				Borehole/Pit No.	TP-100449
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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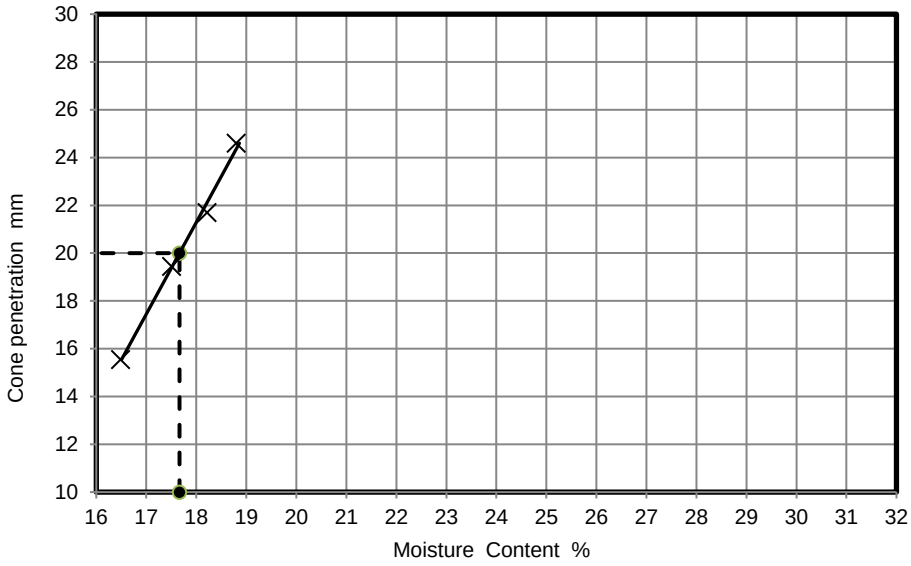
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

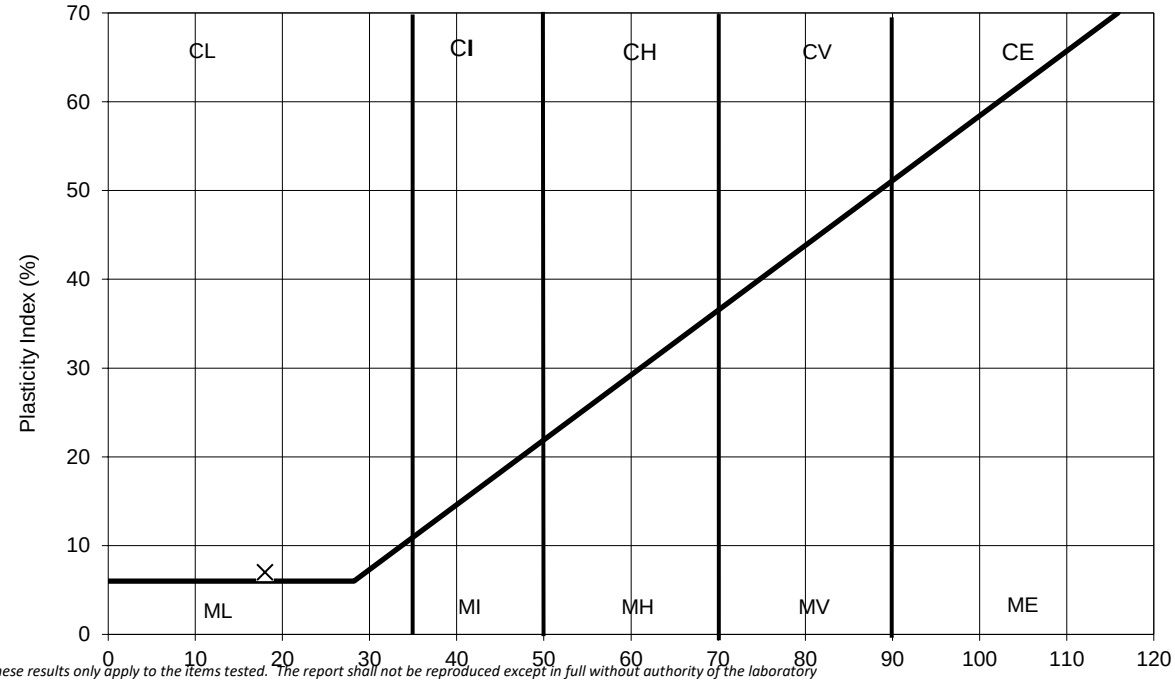
Job No.	32282				
Borehole/Pit No.	TP-100449				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Light brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

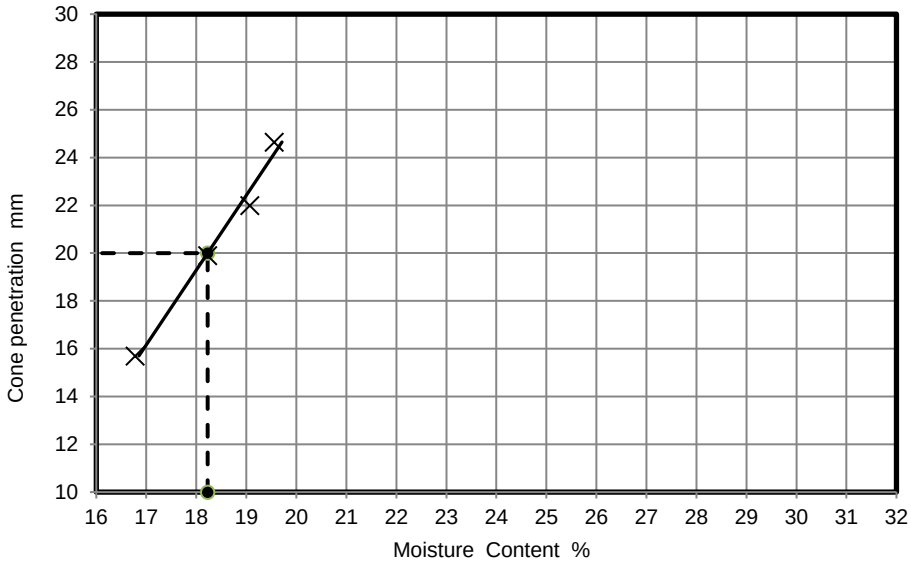
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

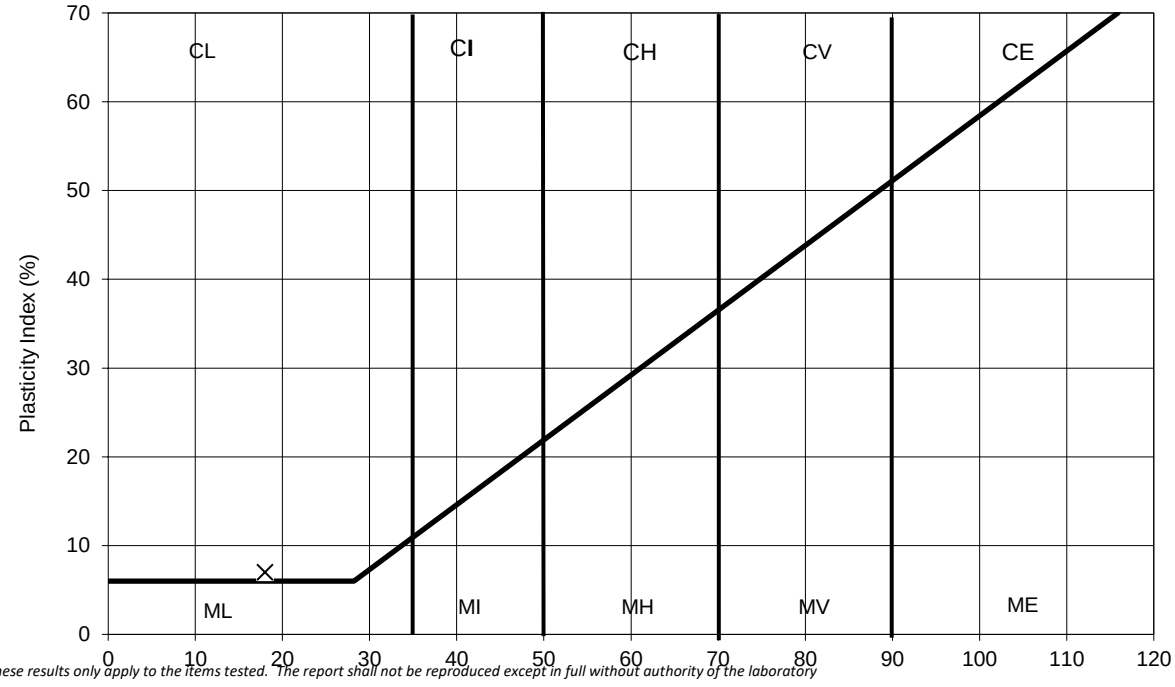
Borehole/Pit No. TP-100449



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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UKAS TESTING

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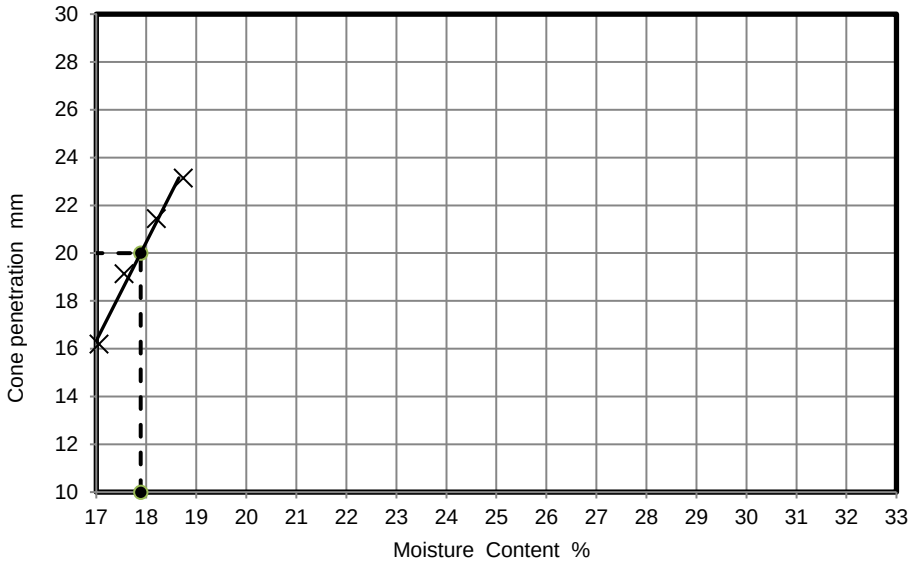
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

Job No. 32282

Borehole/Pit No. TP-100485

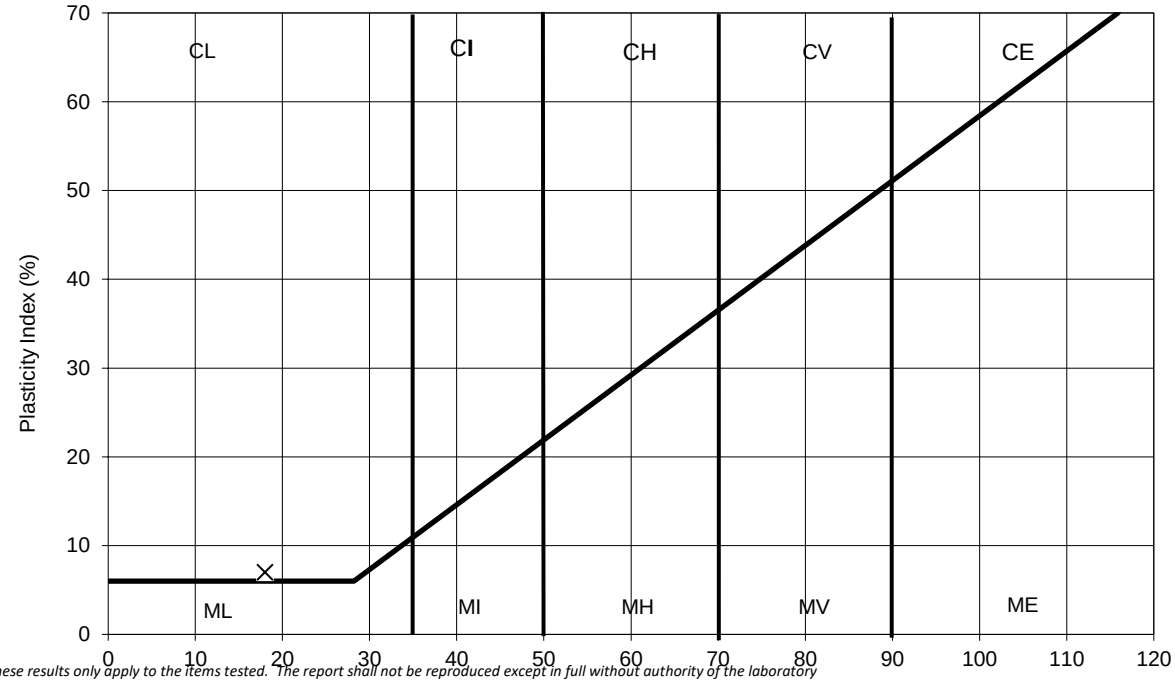


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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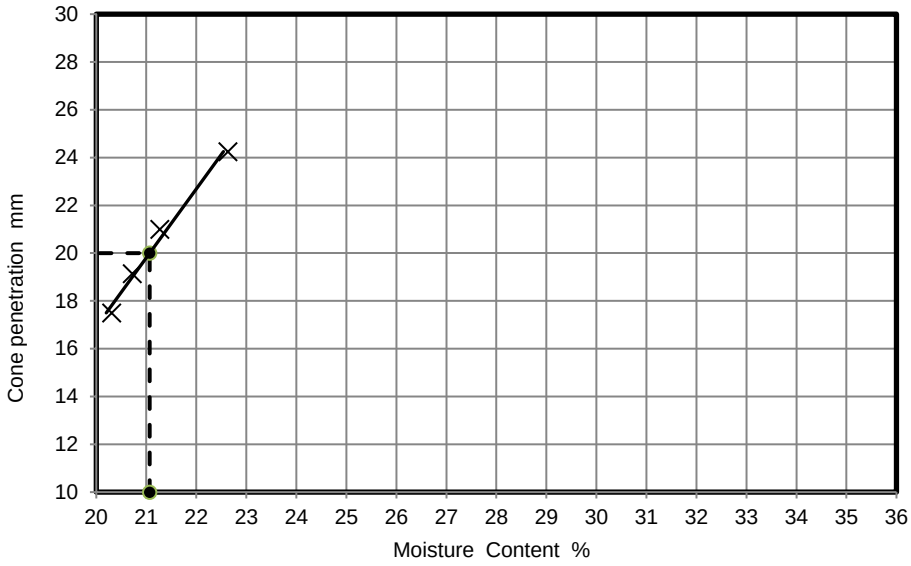
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-100485
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

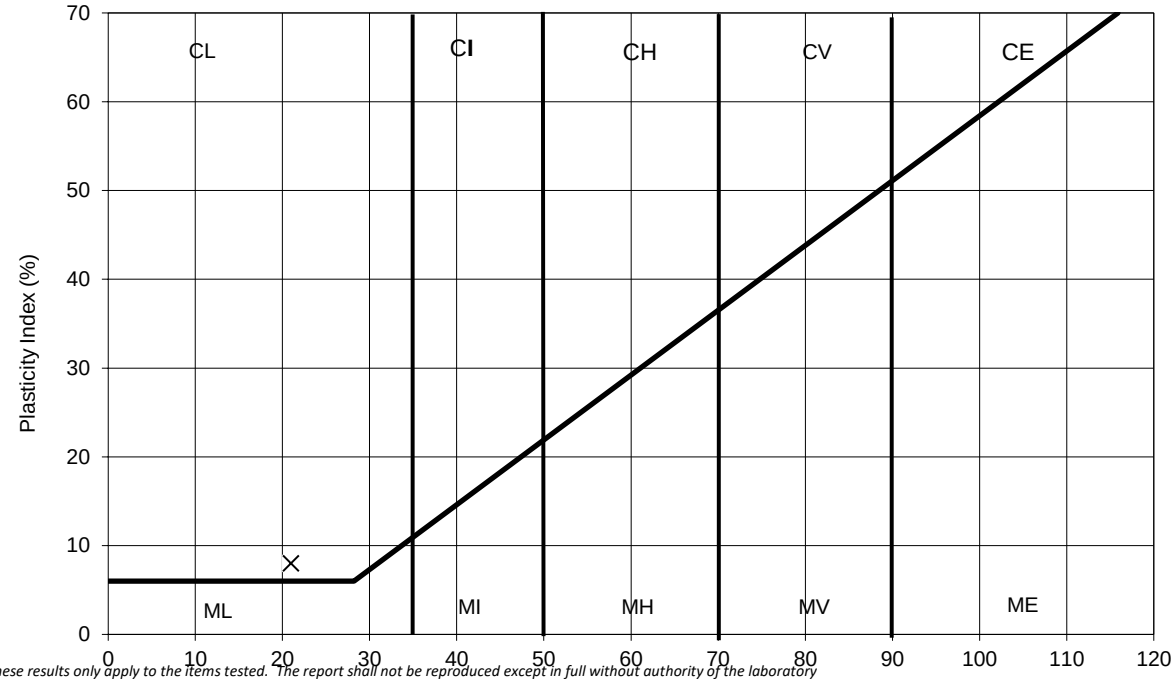


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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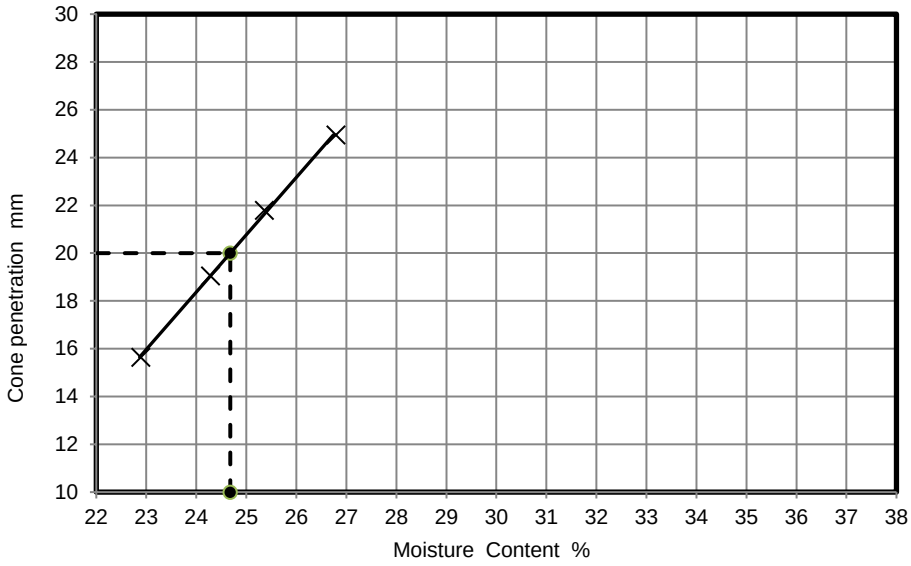
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly gravelly sandy silty CLAY with traces of roots (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

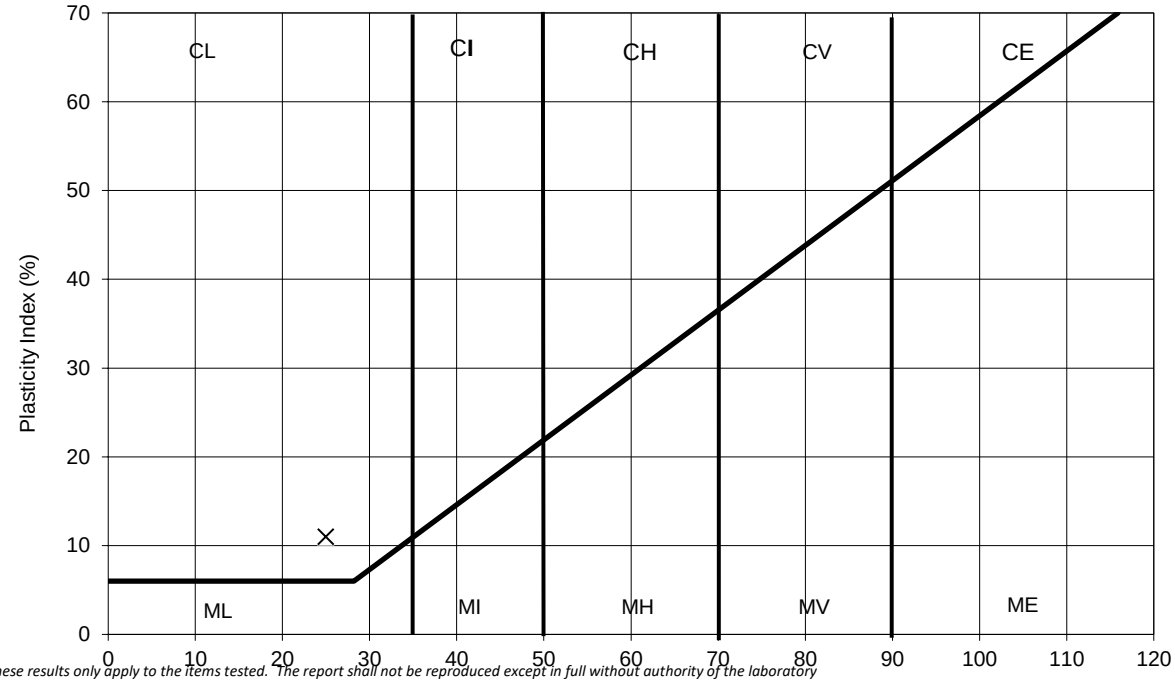
Borehole/Pit No. TP-100503



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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UKAS TESTING

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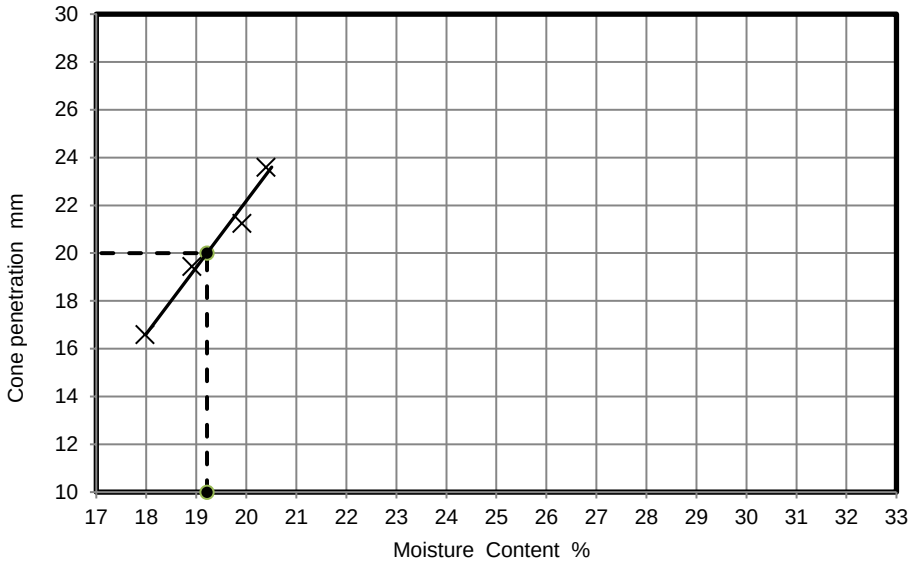
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-100503
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

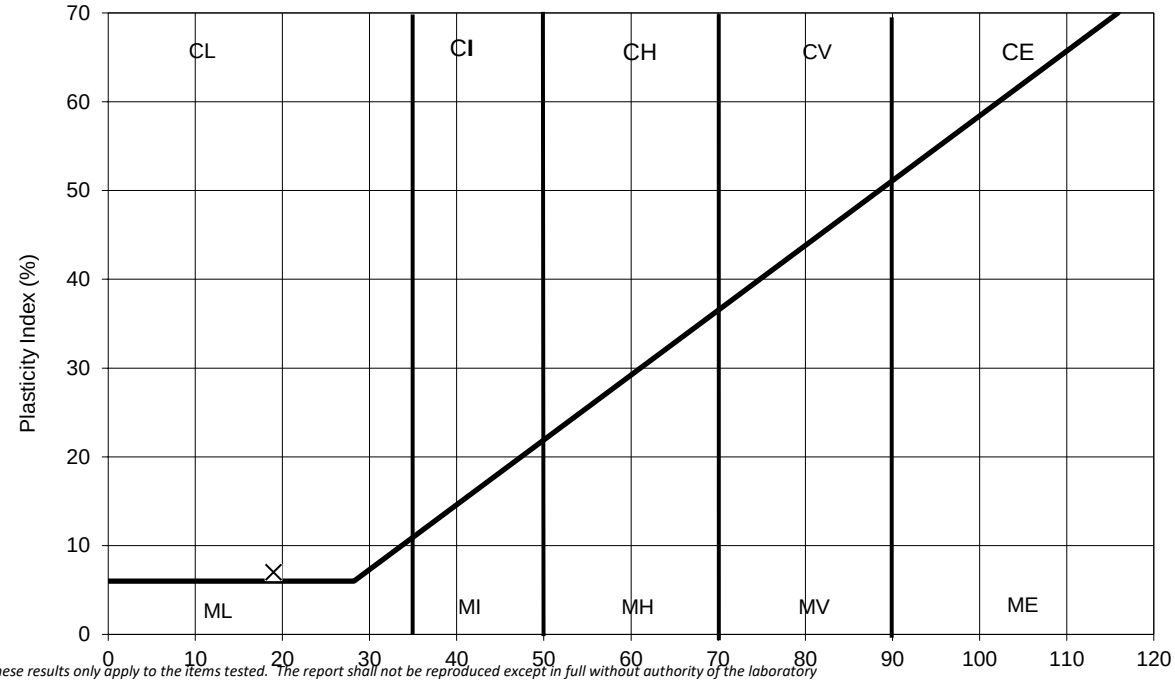


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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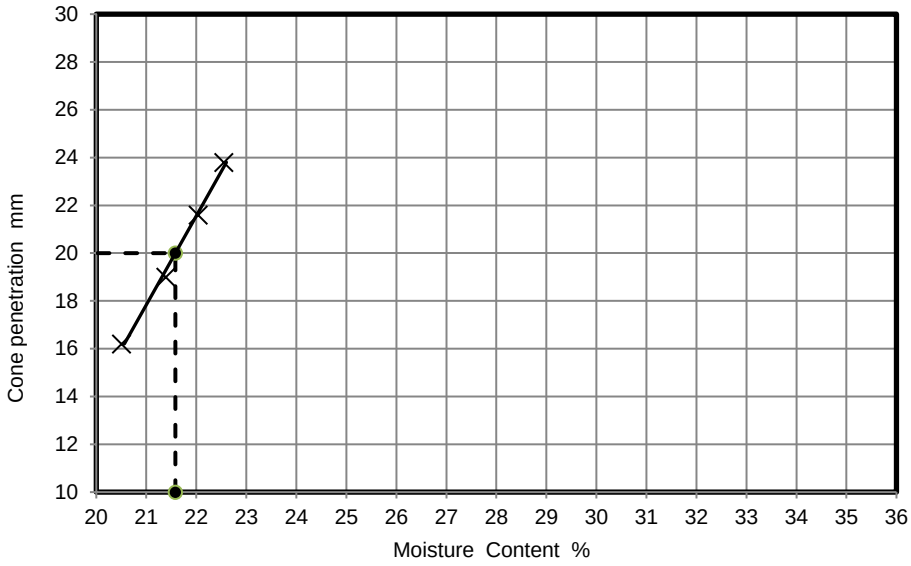
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

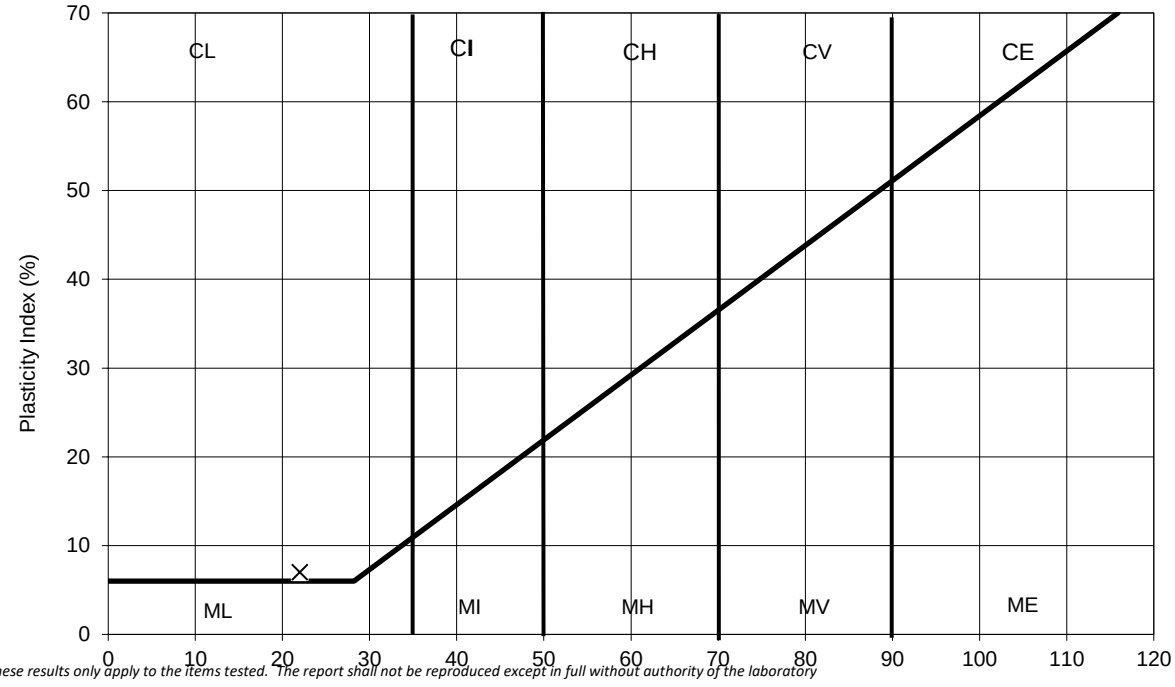
				Job No.	32282
				Borehole/Pit No.	TP-100517
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**72**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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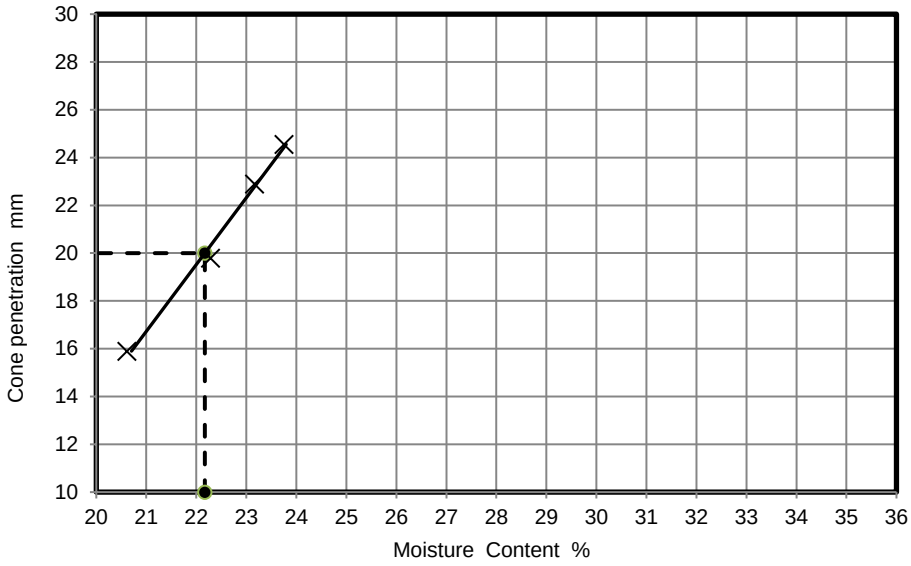
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

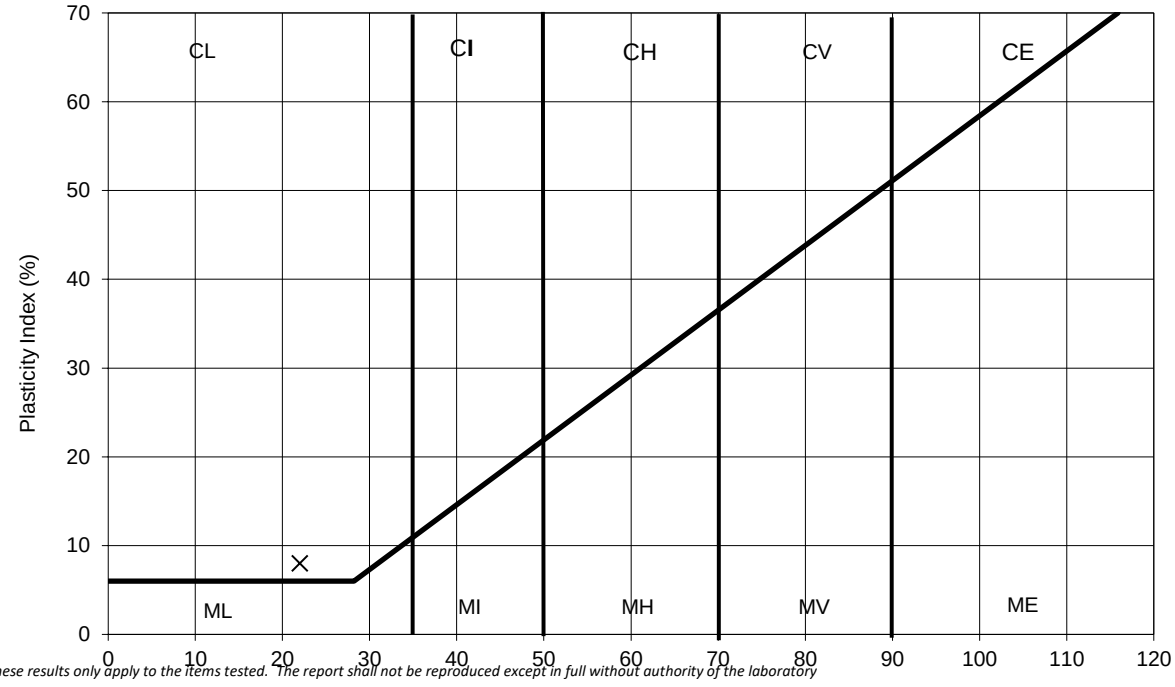
Job No.	32282				
Borehole/Pit No.	TP-100517				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Orangish brown and grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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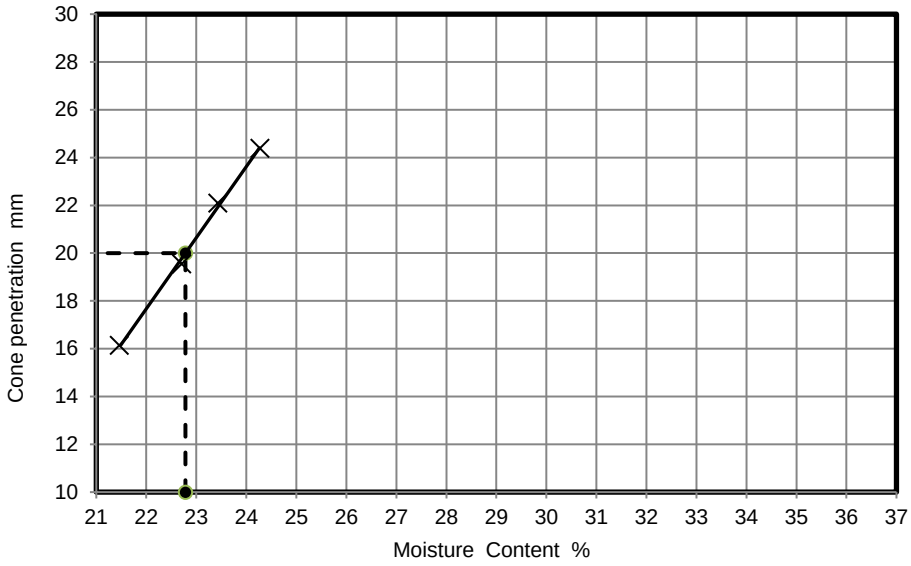
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

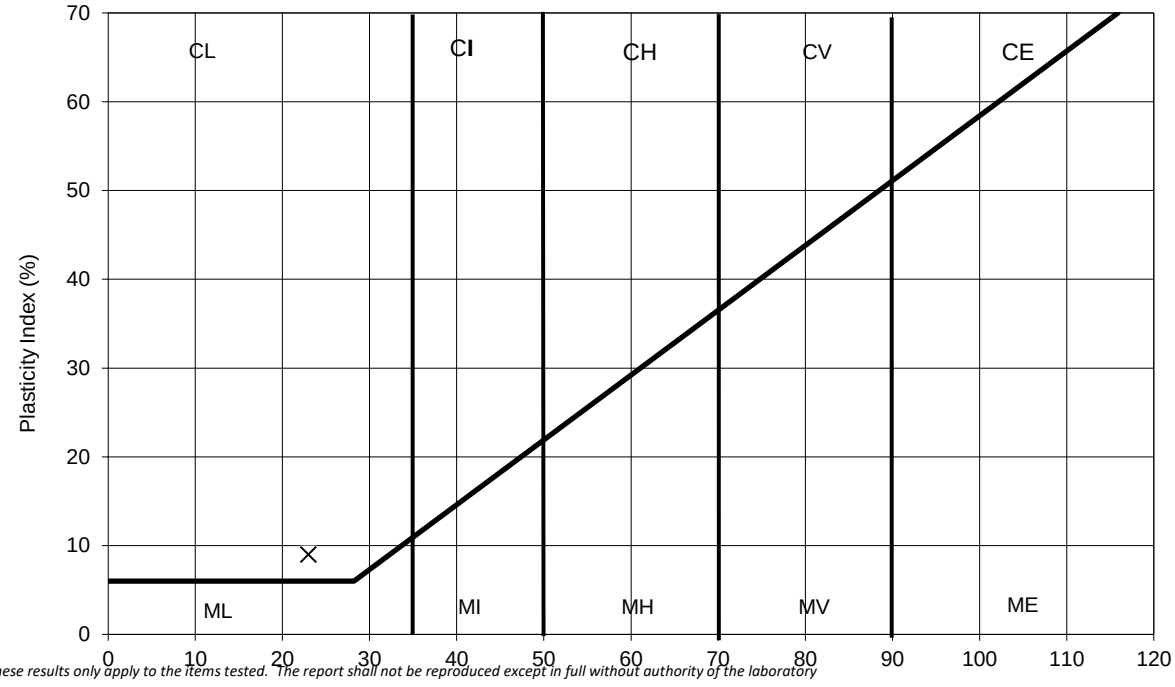
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-100517
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/11/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**93**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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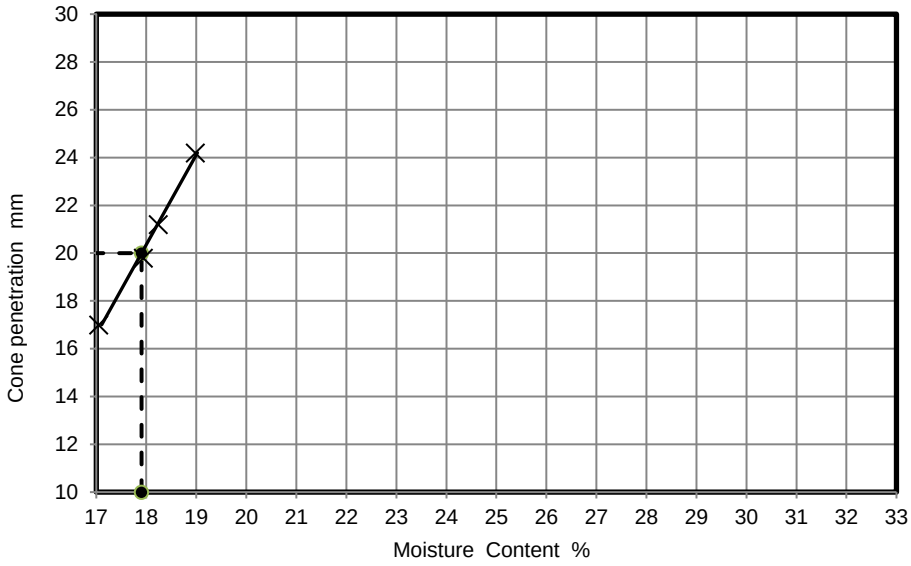
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

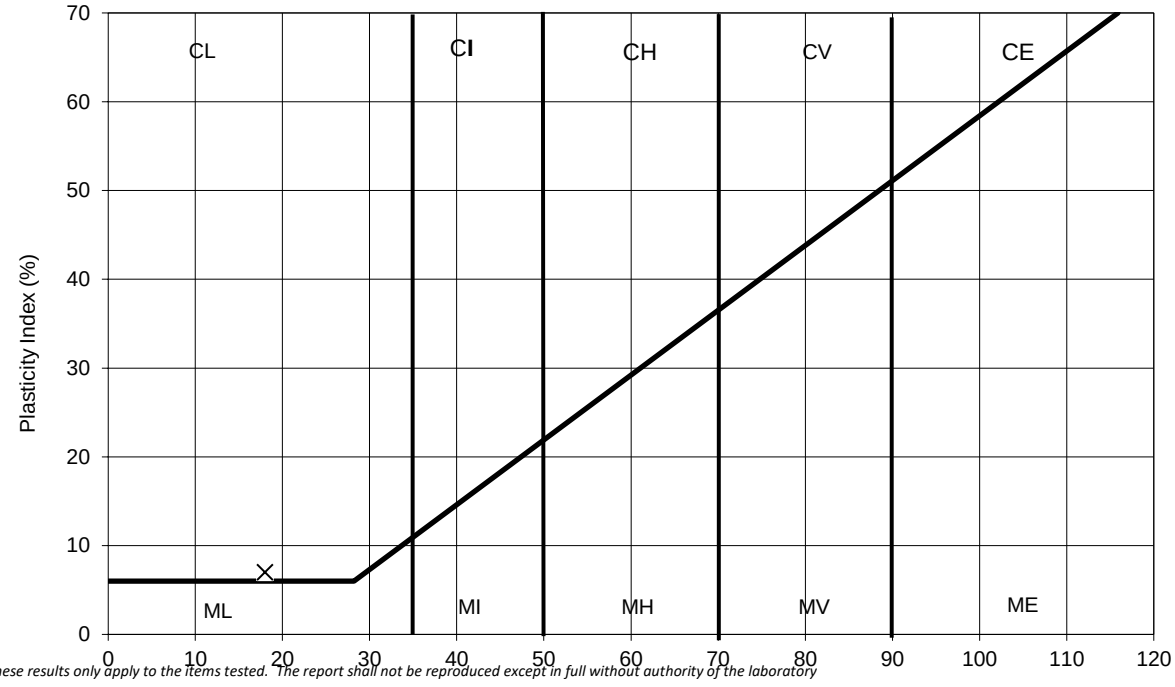
				Job No.	32282
				Borehole/Pit No.	TP-100605
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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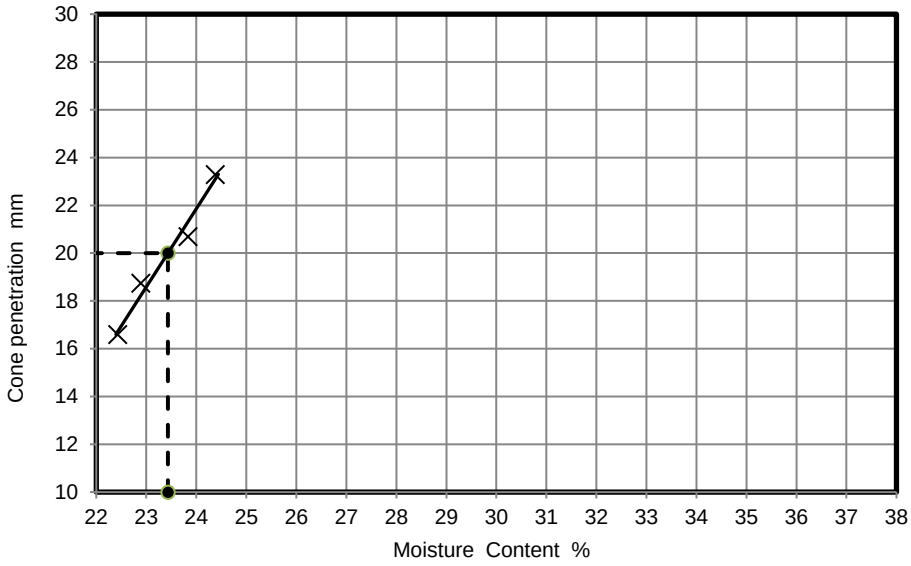
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

Job No. 32282

Borehole/Pit No. TP-101206

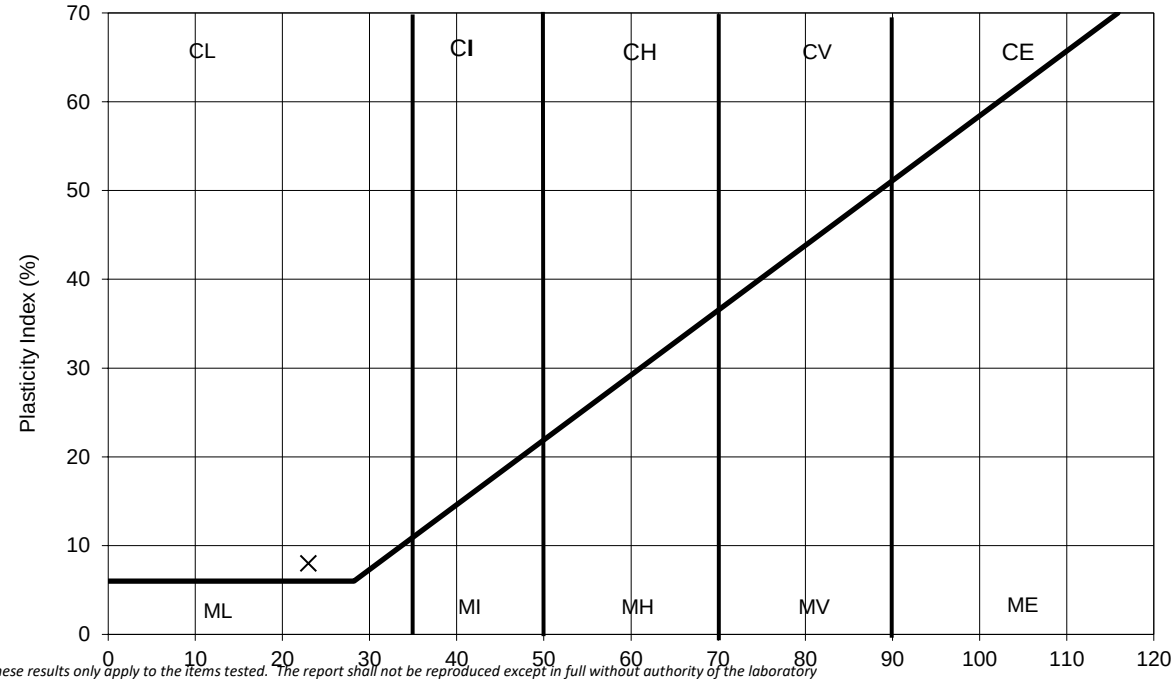


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

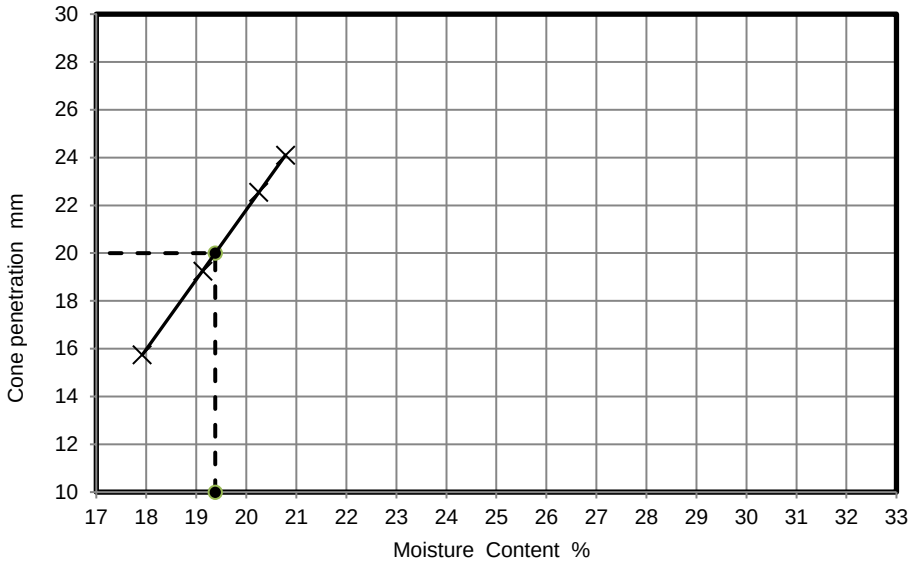
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

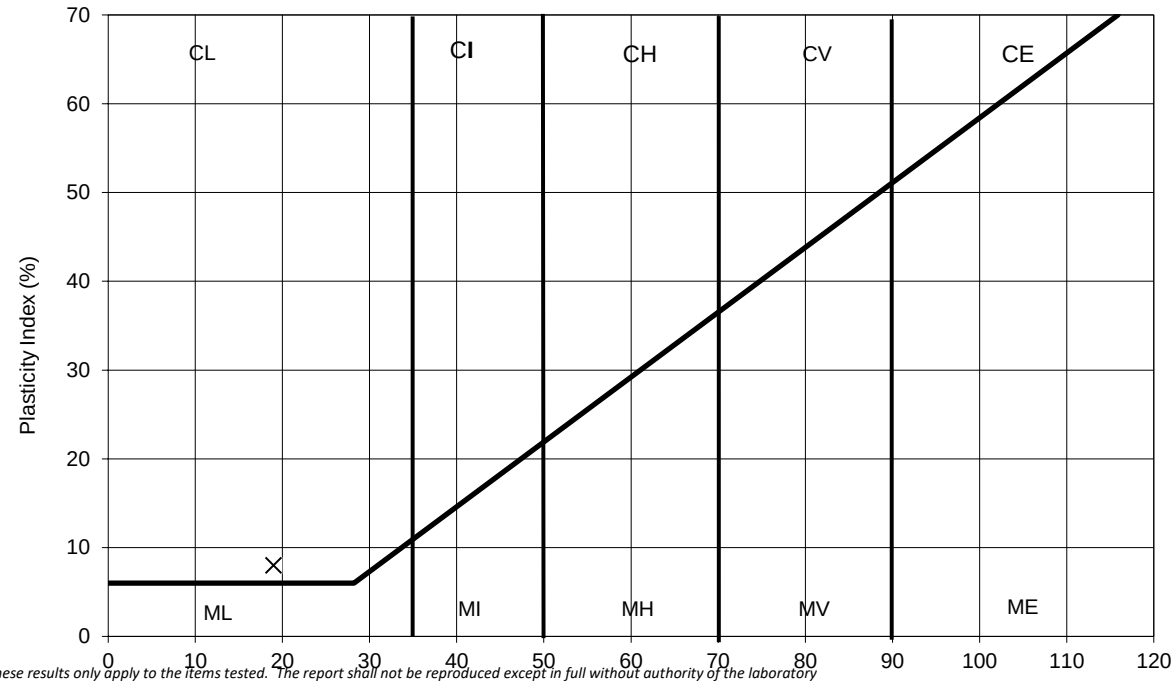
				Job No.	32282
				Borehole/Pit No.	TP-101206
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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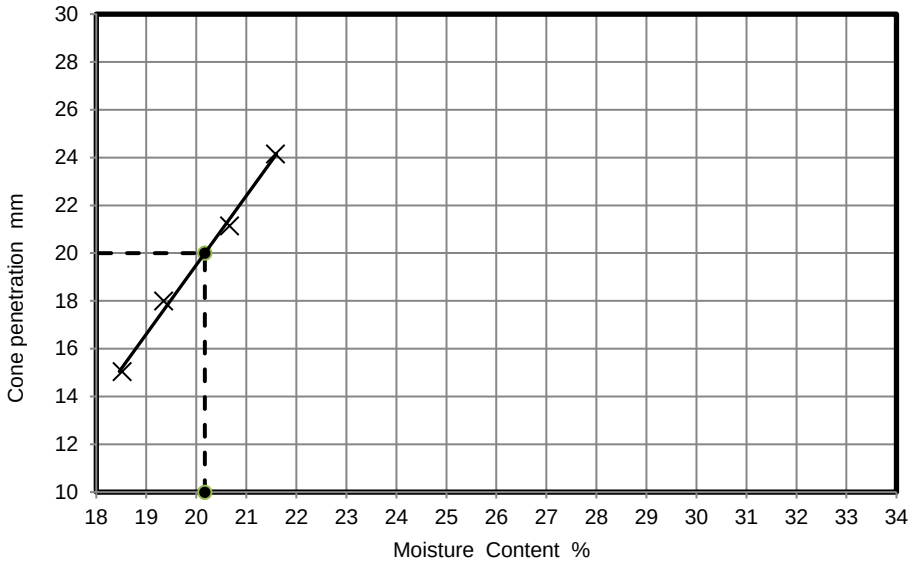
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

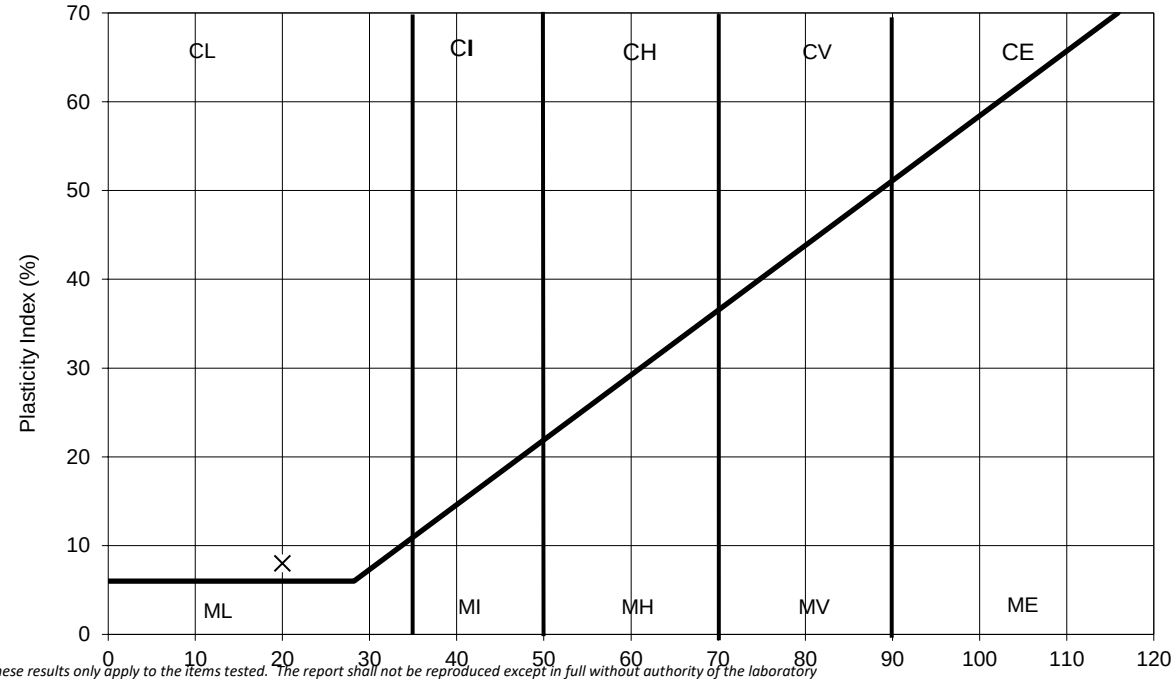
Borehole/Pit No. TP-101304



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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UKAS TESTING

2519

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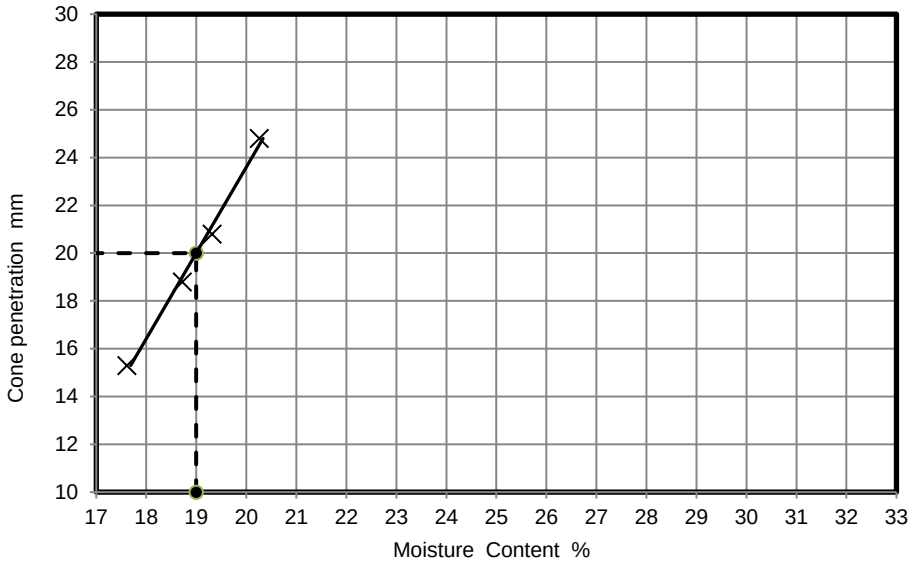
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022

Job No. 32282

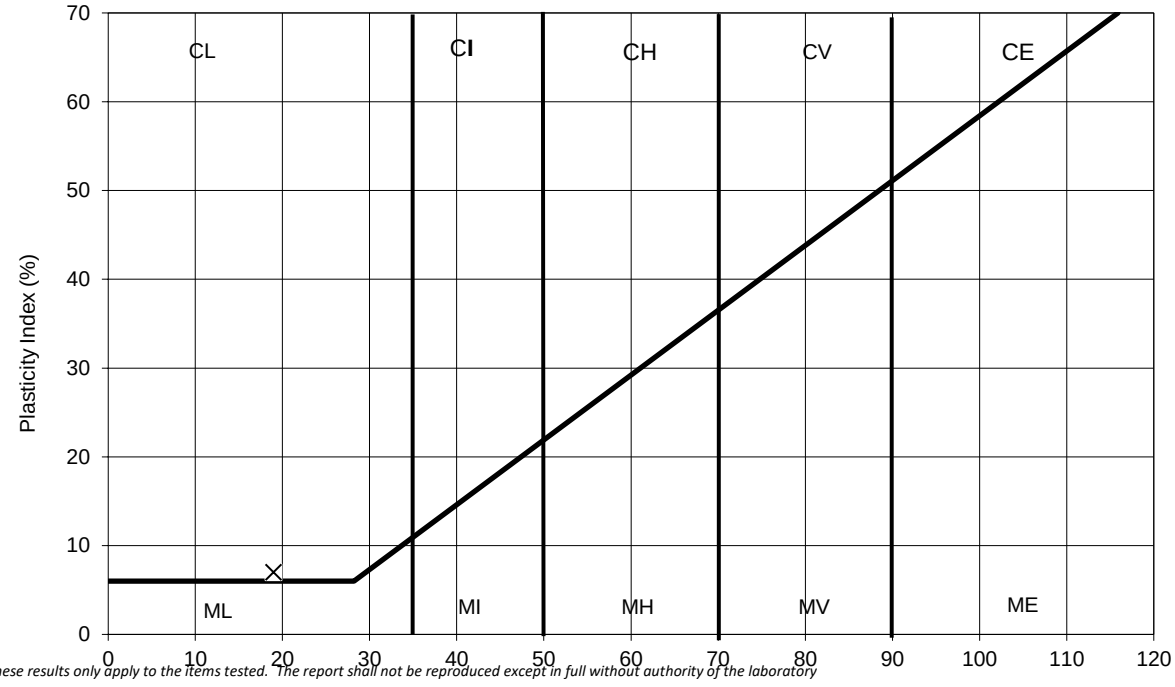
Borehole/Pit No. TP-101407



NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

Date: 15/12/2022

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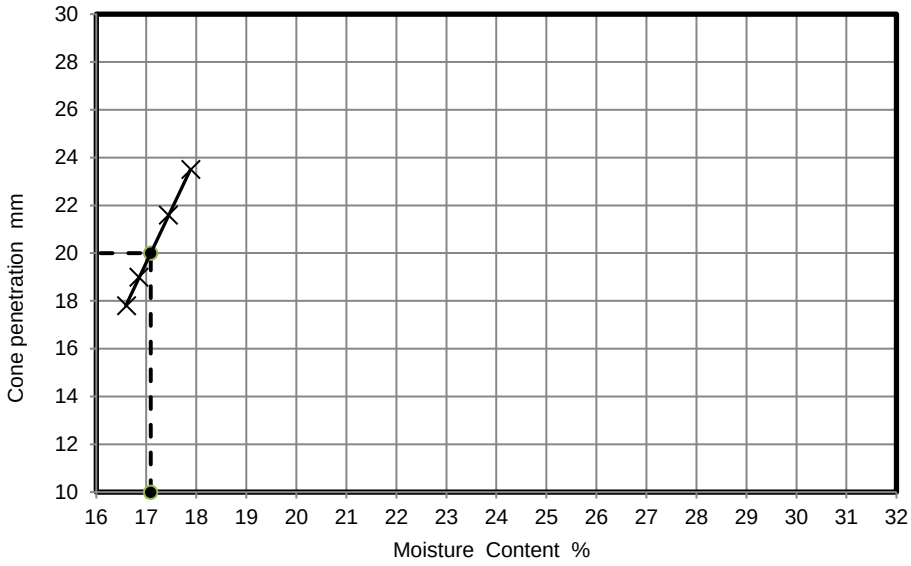
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

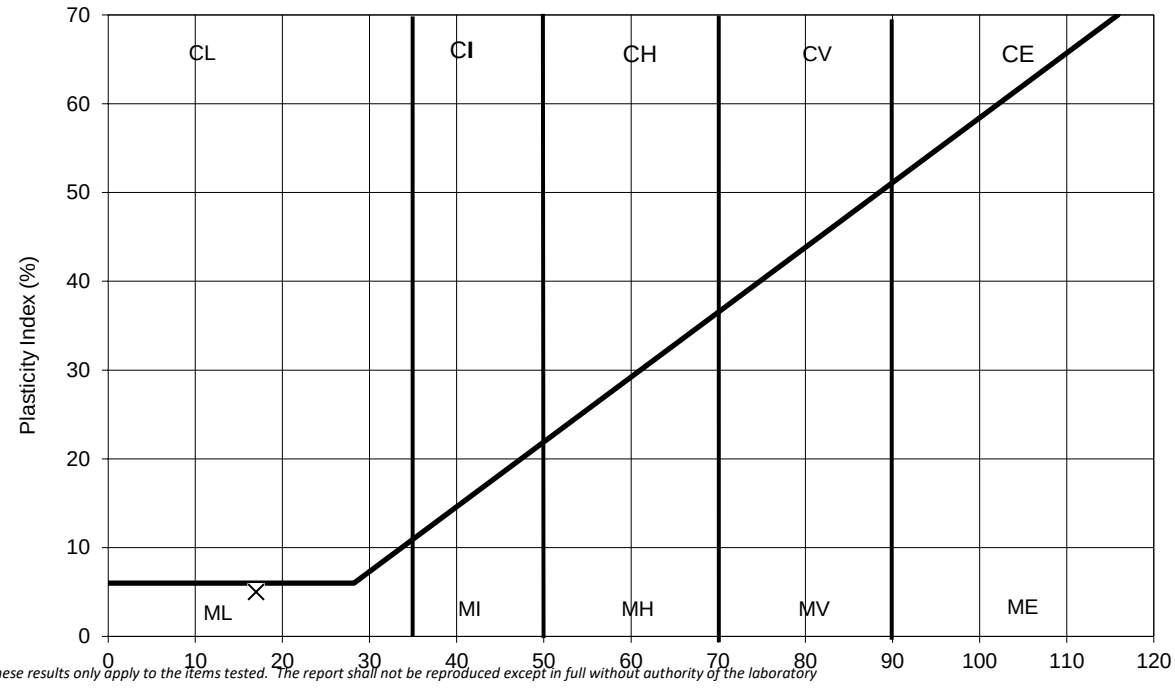
Borehole/Pit No. TP-101407



NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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UKAS TESTING

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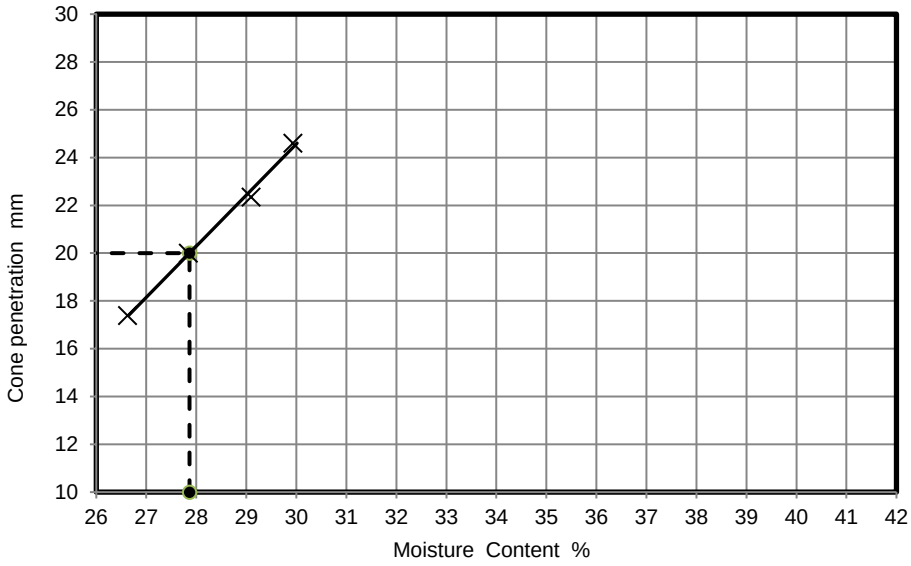
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

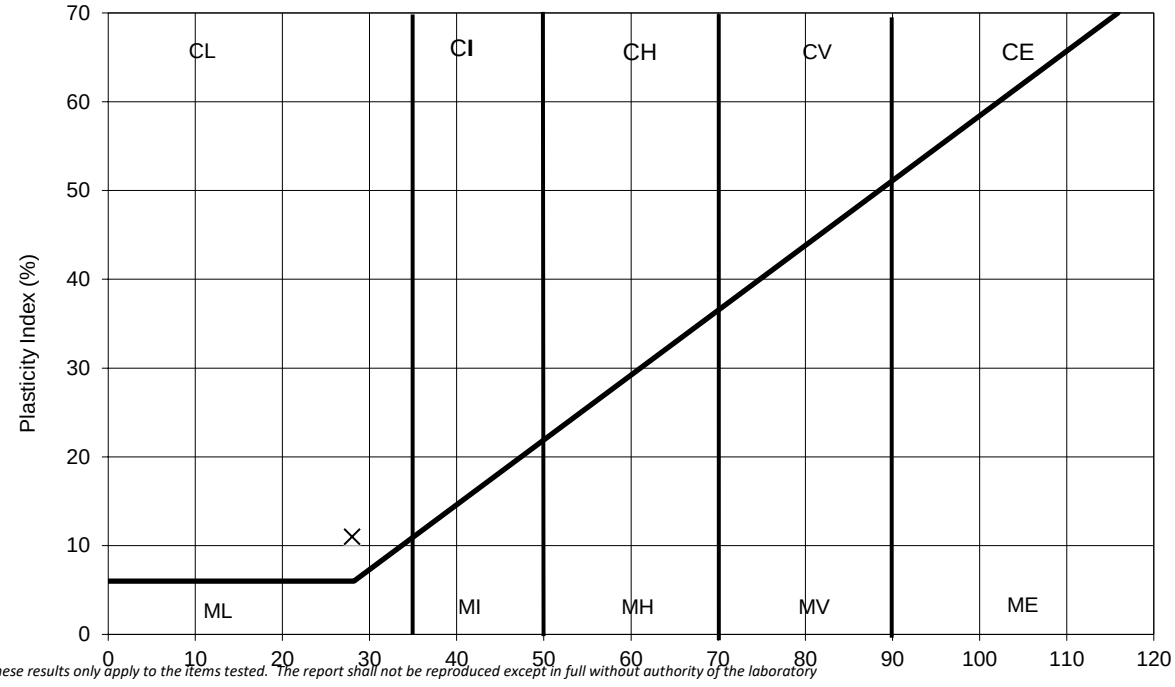
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown fine sandy very silty CLAY with rare fine sub-angular gravel and traces of fine rootlets			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022
				Job No.	32282
				Borehole/Pit No.	TP-101503



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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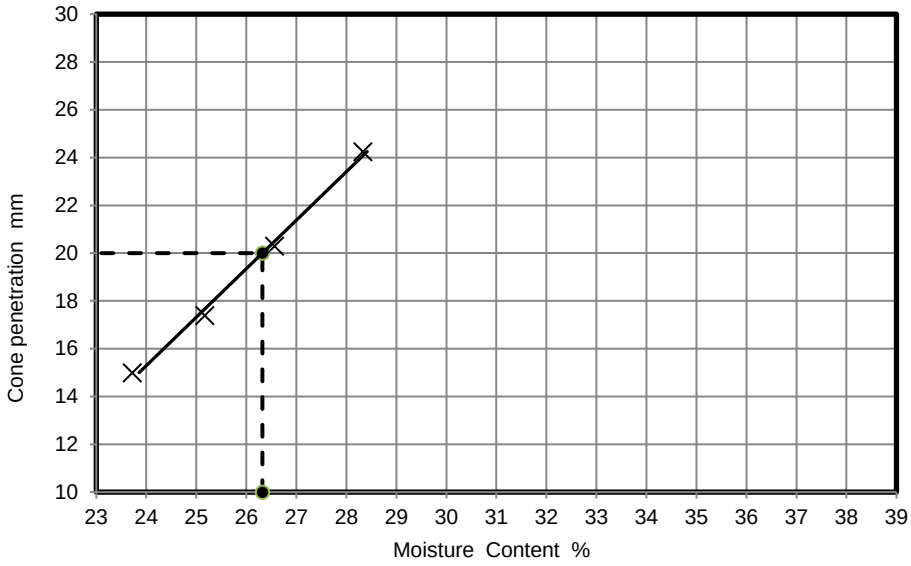
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

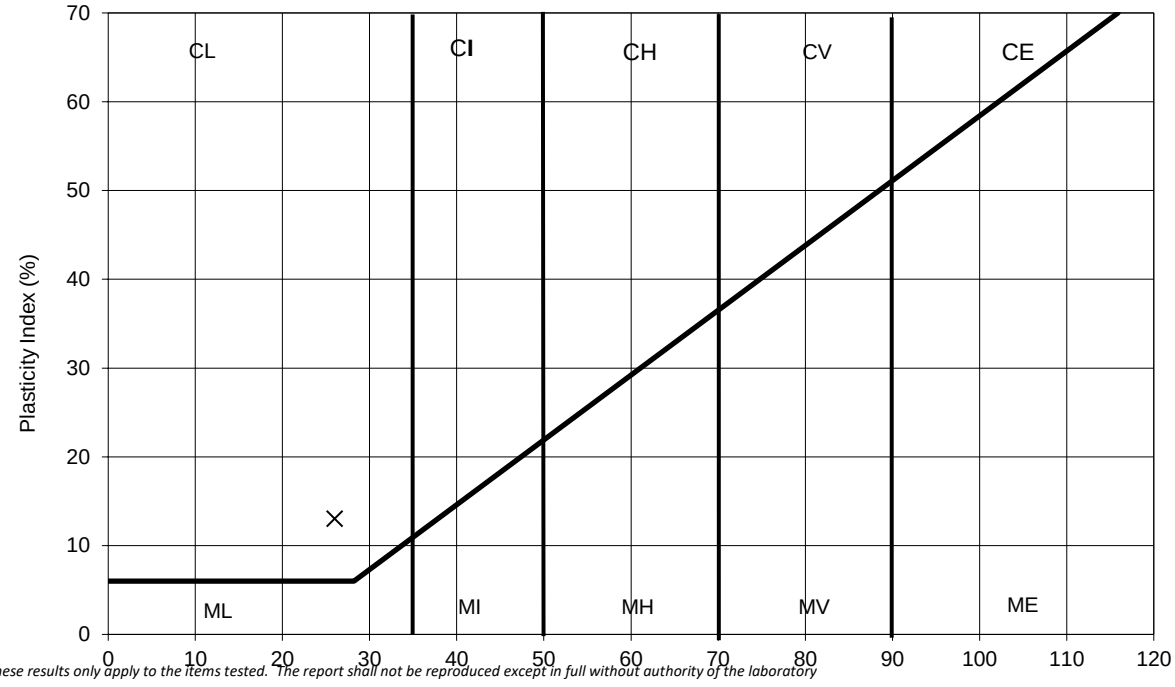
Job No.	32282				
Borehole/Pit No.	TP-101503				
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**13**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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Tel: 01923 711 288 Email: James@k4soils.com

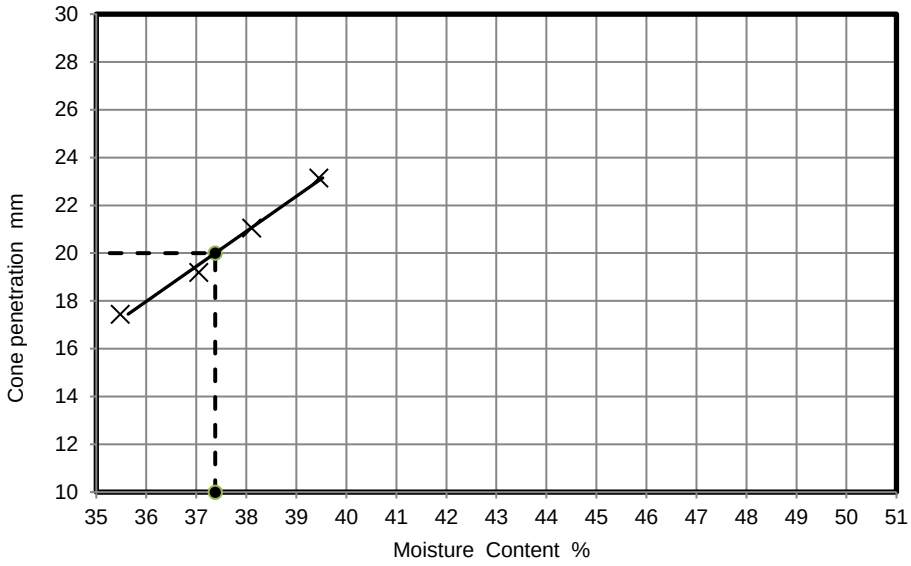
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

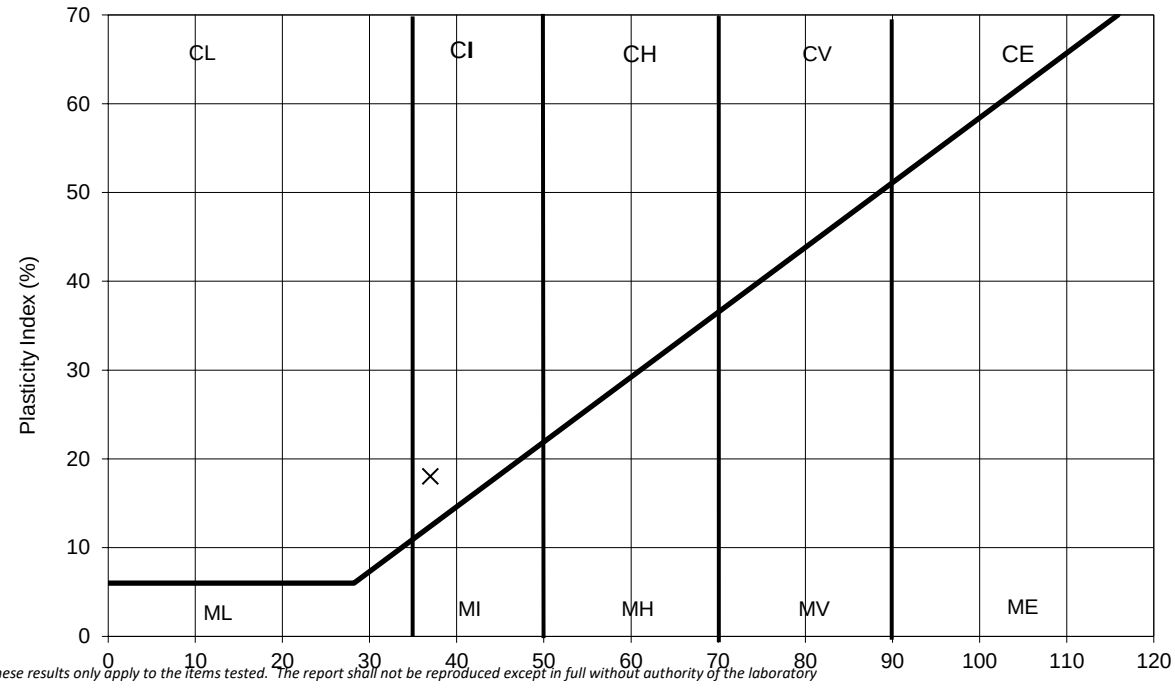
				Job No.	32282
				Borehole/Pit No.	TP-101600
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**22**	**%**
% PASSING 425µm SIEVE	**95**	**%**
LIQUID LIMIT	**37**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**18**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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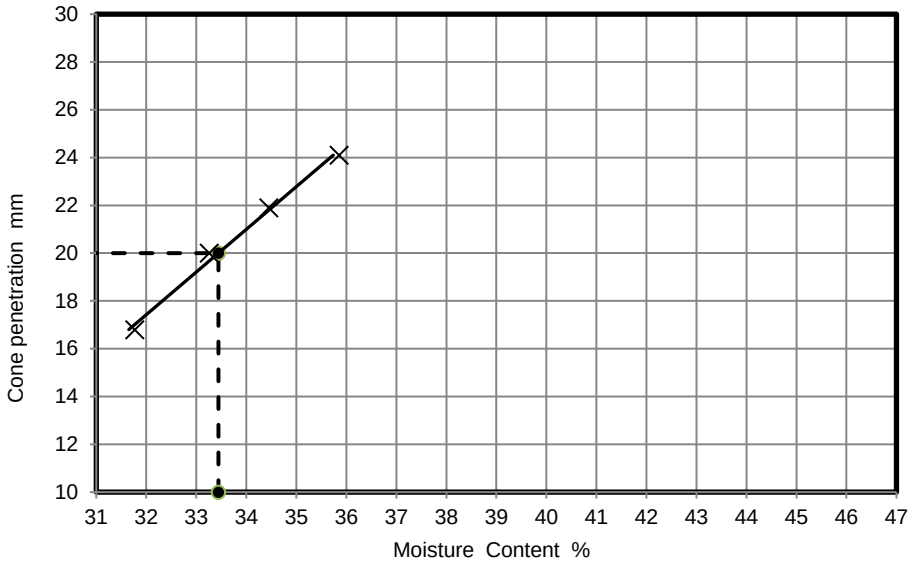
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

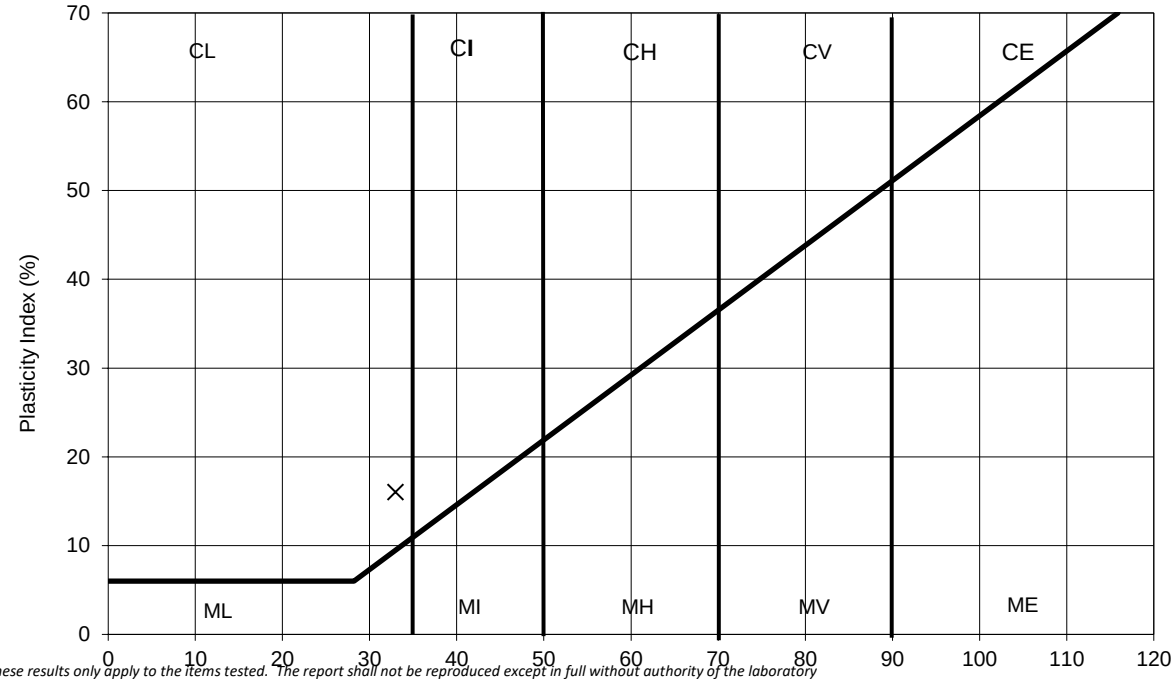
				Job No.	32282
				Borehole/Pit No.	TP-101600
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**33**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**16**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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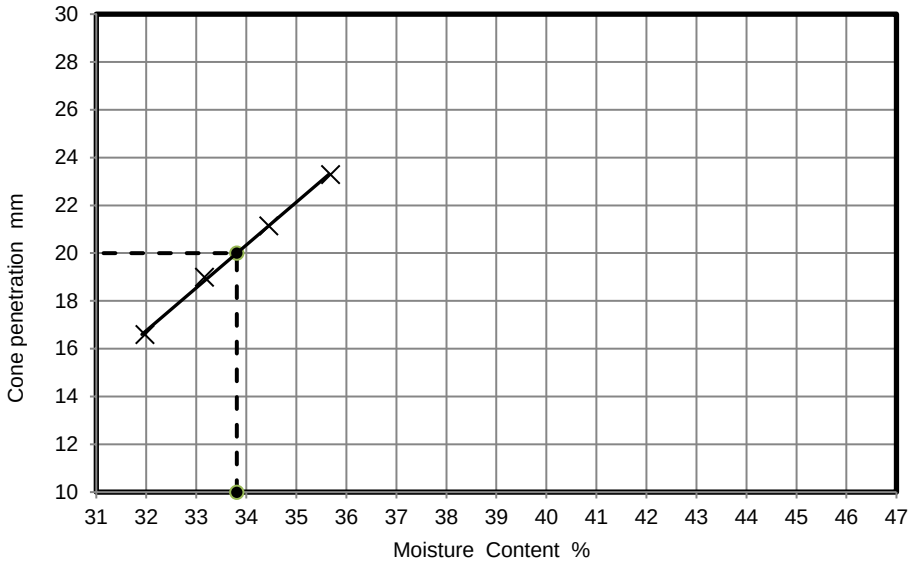
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

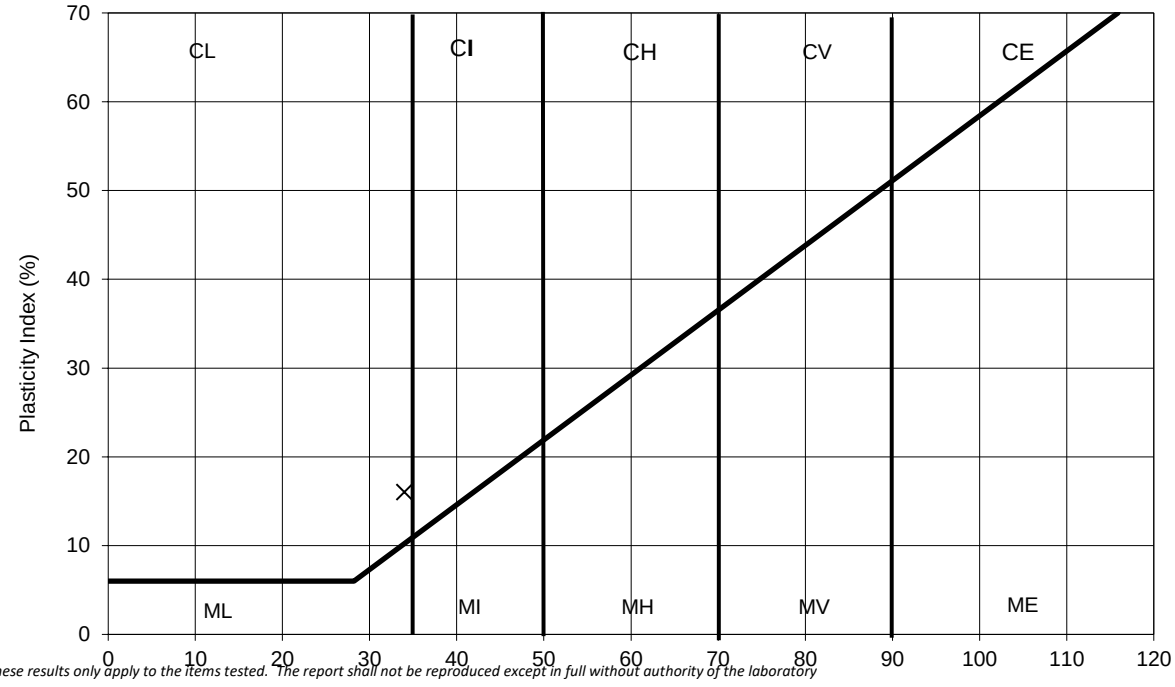
Job No.	32282				
Borehole/Pit No.	TP-101704				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**22**	**%**
% PASSING 425µm SIEVE	**94**	**%**
LIQUID LIMIT	**34**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**16**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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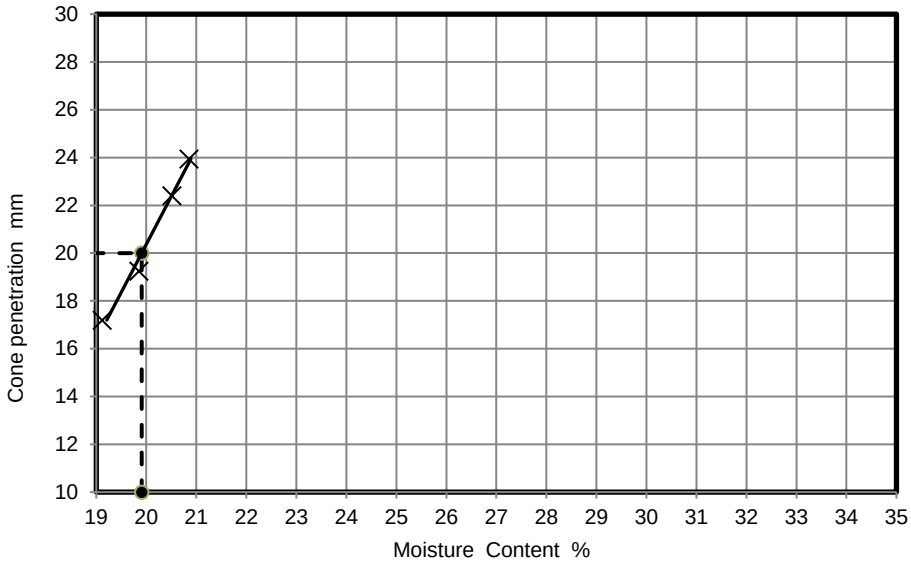
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

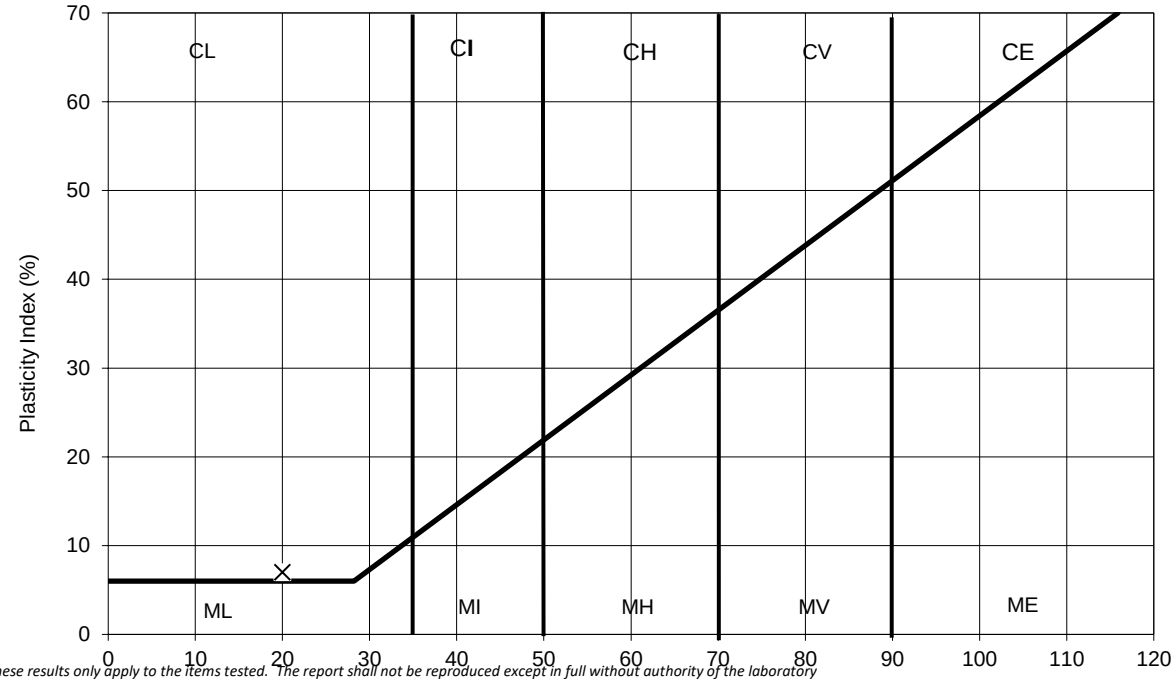
				Job No.	32282
				Borehole/Pit No.	TP-101704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**90**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

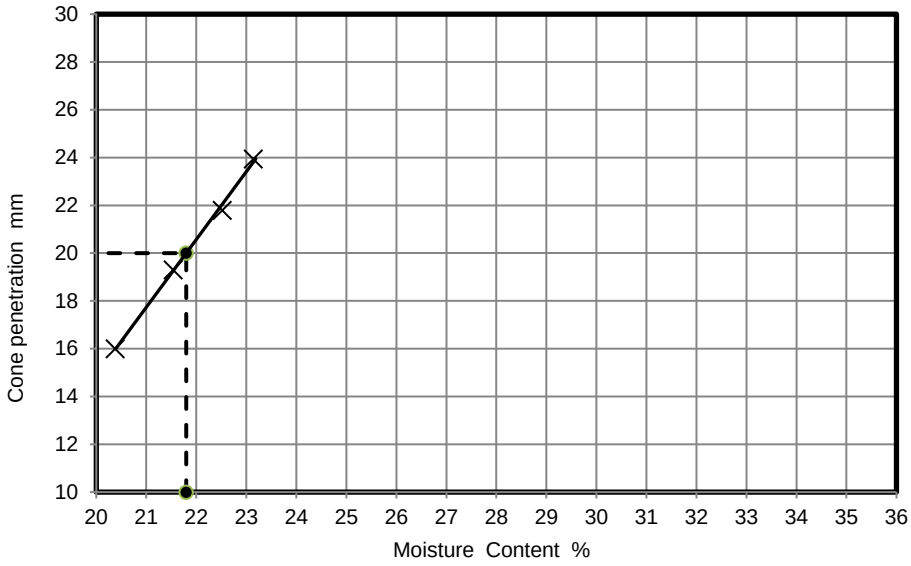
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

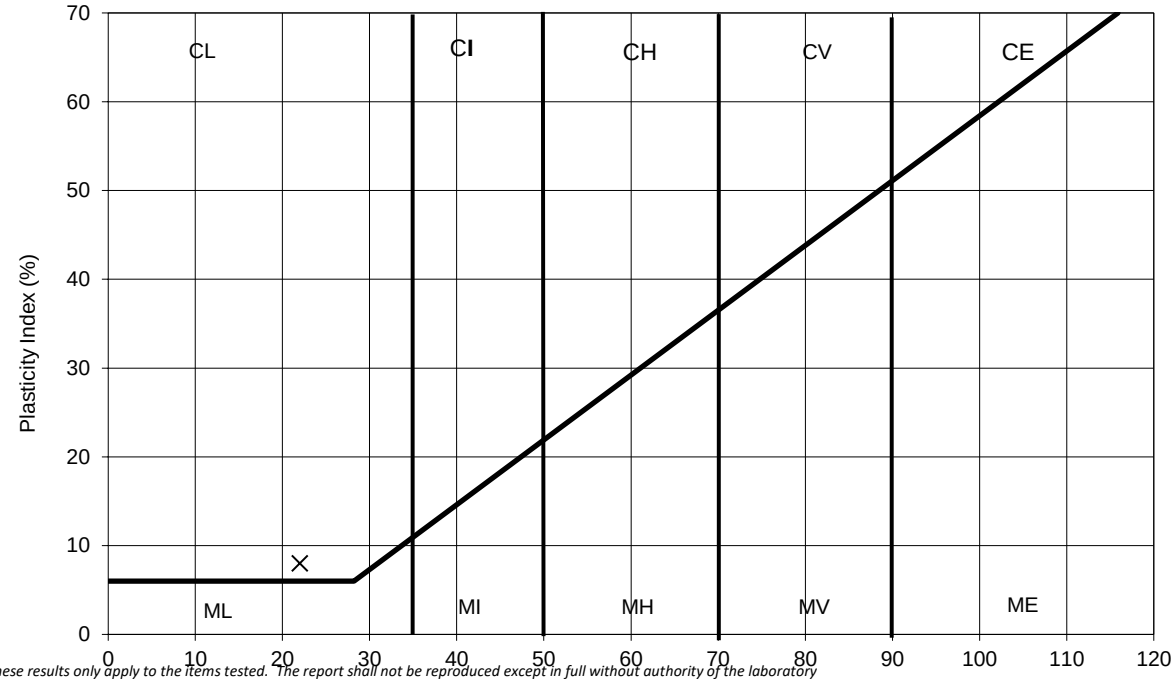
				Job No.	32282
				Borehole/Pit No.	TP-101804
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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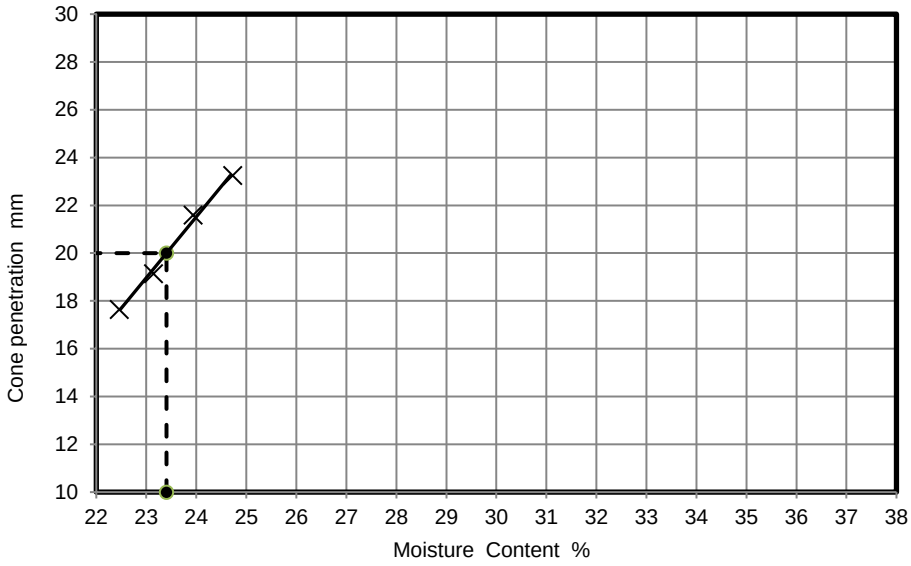
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

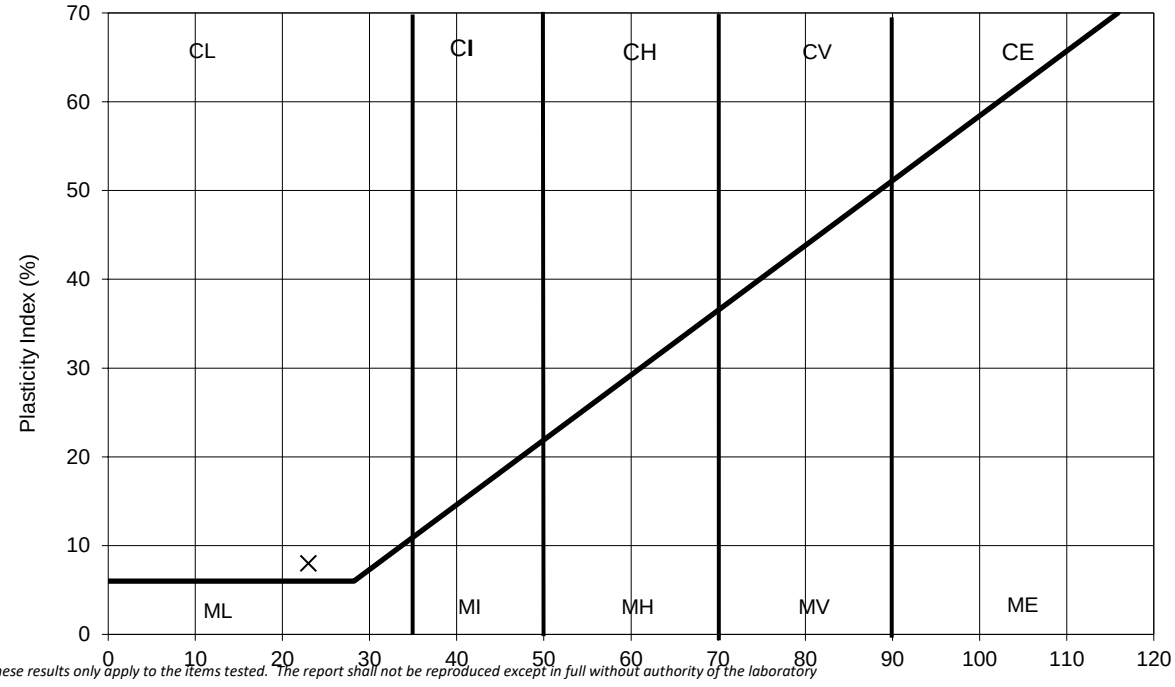
				Job No.	32282
				Borehole/Pit No.	TP-101804
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Dark grey fine sandy very silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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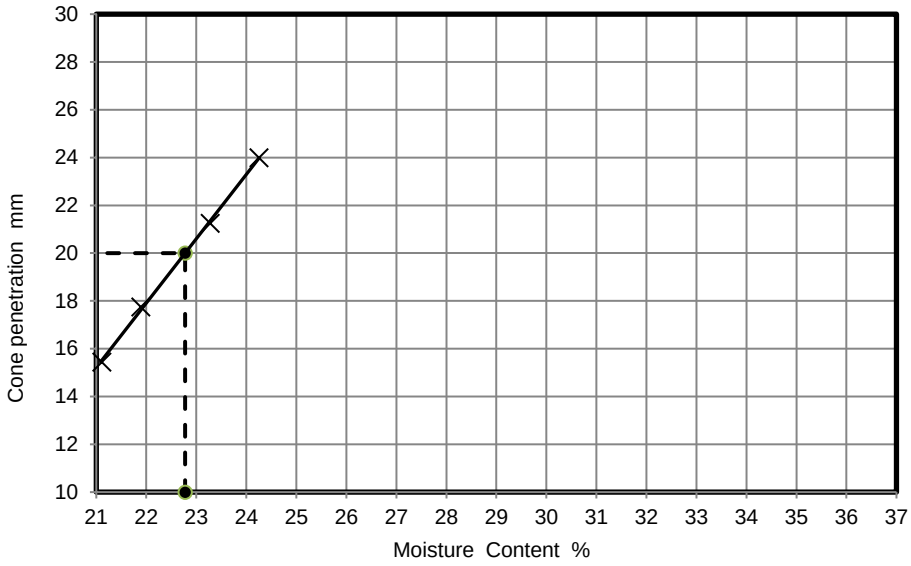
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

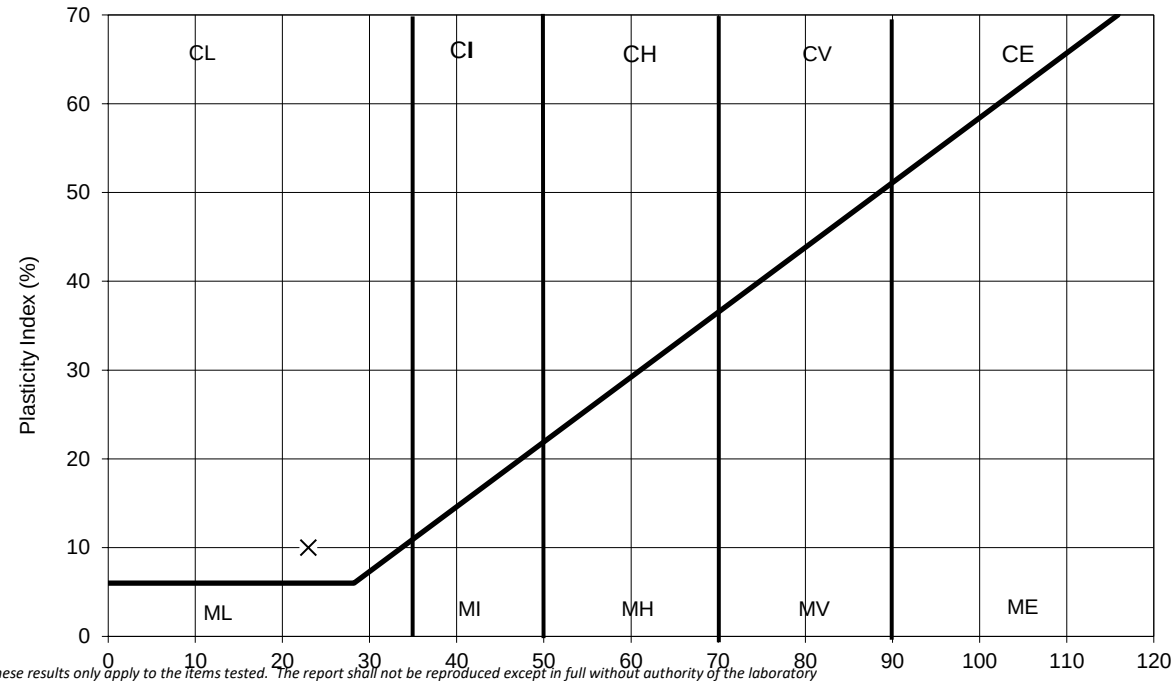
Borehole/Pit No. TP-102105



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**92**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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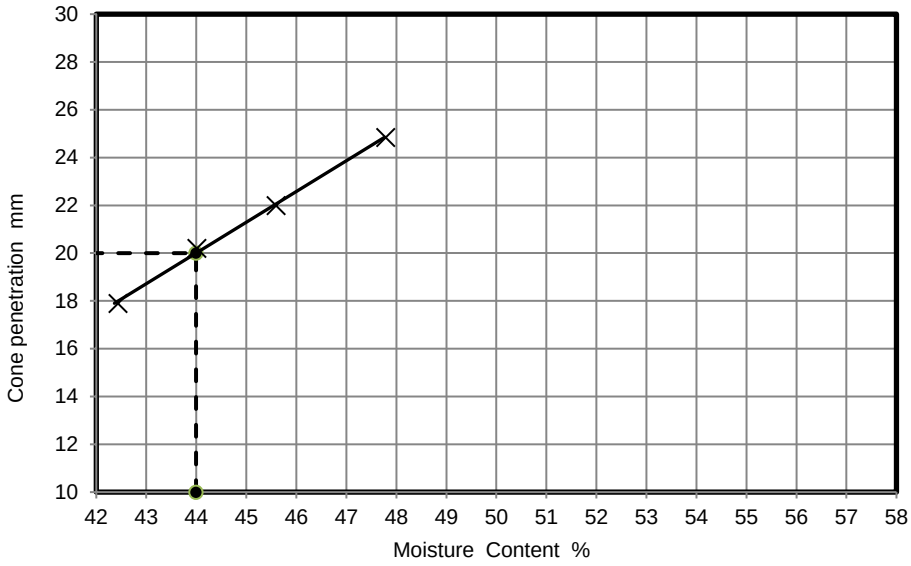
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

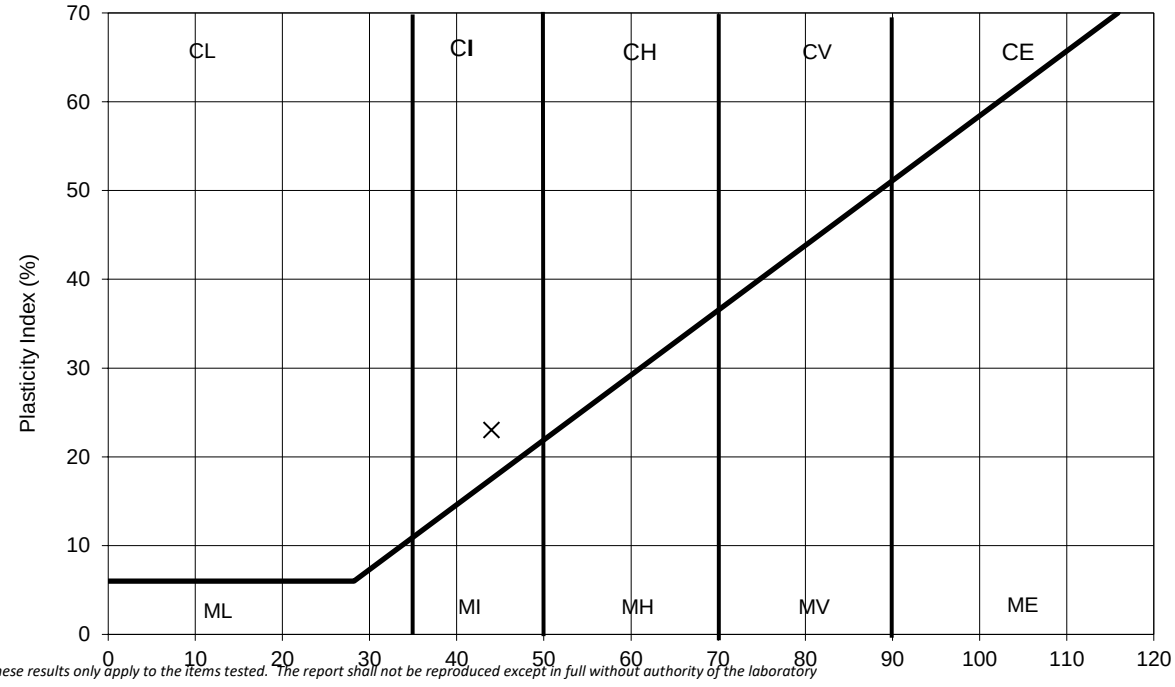
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly sandy silty CLAY with rare fm sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022
				Job No.	32282
				Borehole/Pit No.	TP-102204



NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**44**	**%**
PLASTIC LIMIT	**21**	**%**
PLASTICITY INDEX	**23**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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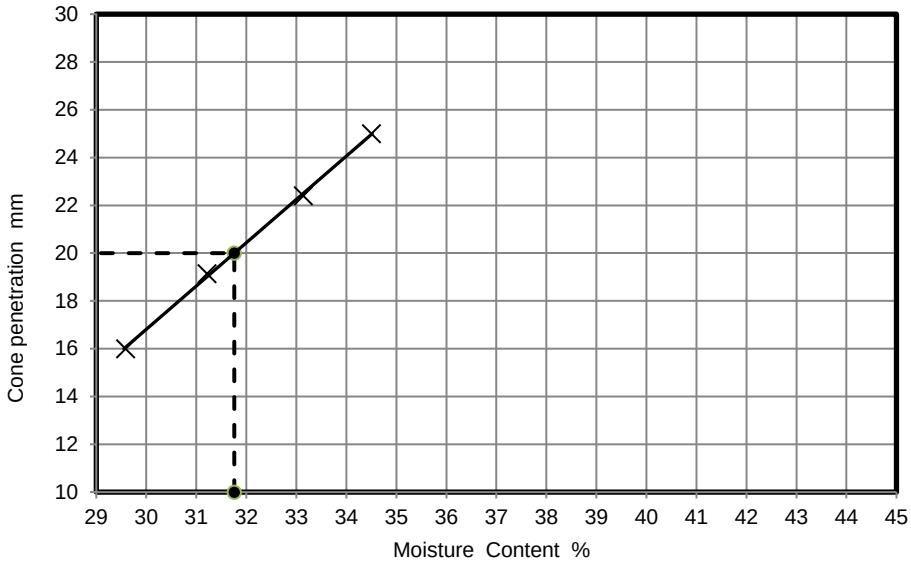
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

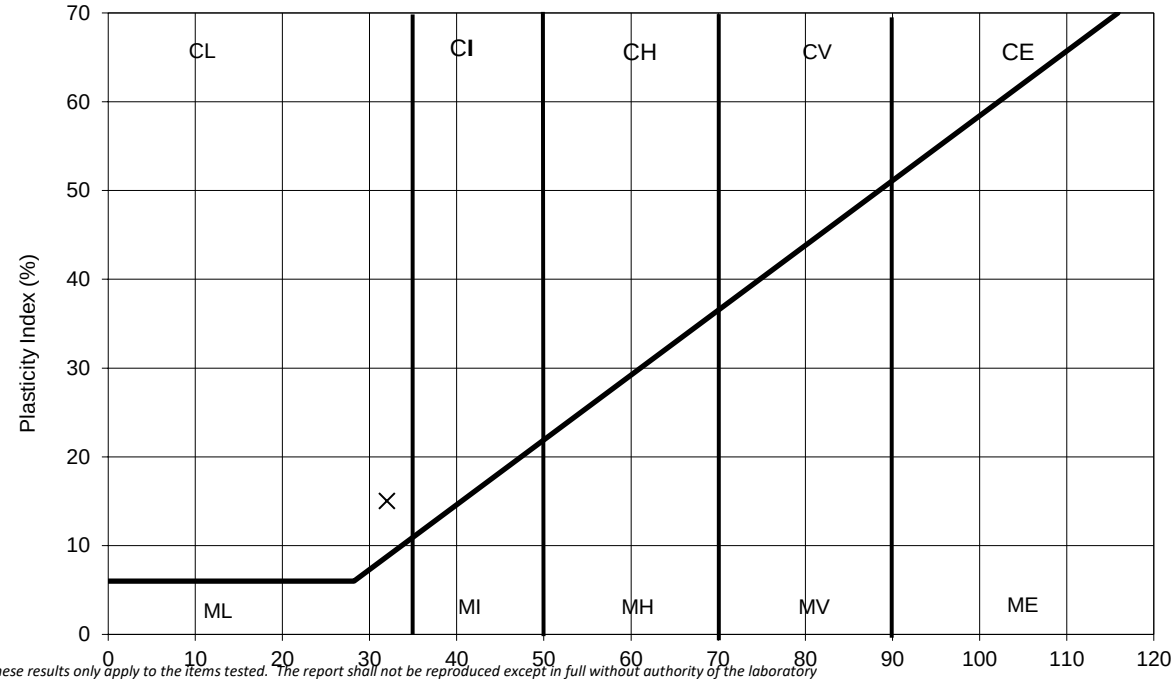
				Job No.	32282
				Borehole/Pit No.	TP-102204
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**92**	**%**
LIQUID LIMIT	**32**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**15**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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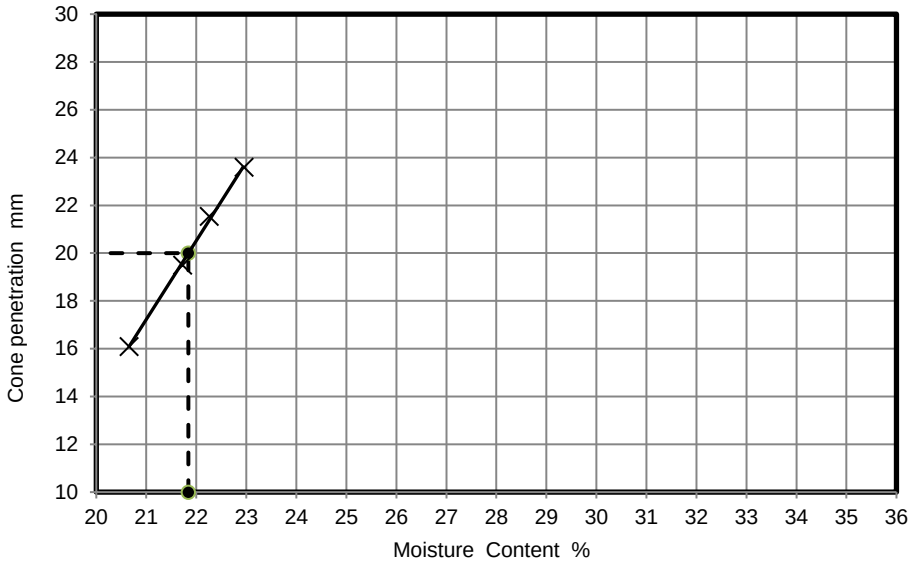
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

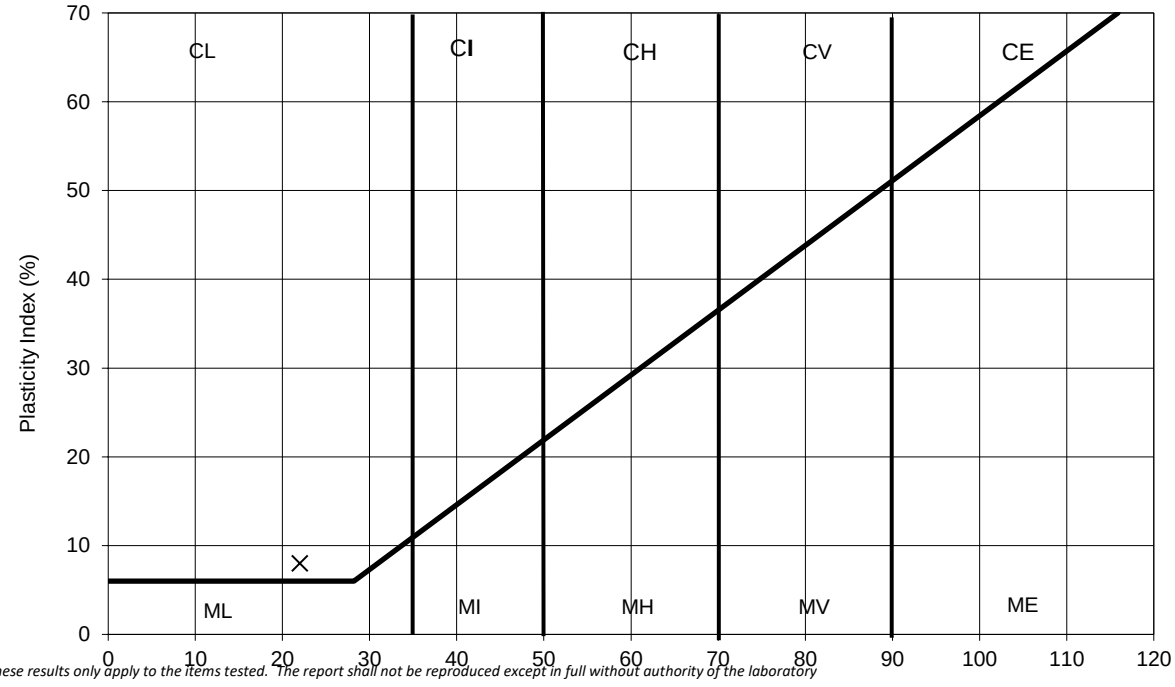
Job No.	32282				
Borehole/Pit No.	TP-102303				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly gravelly fine sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**85**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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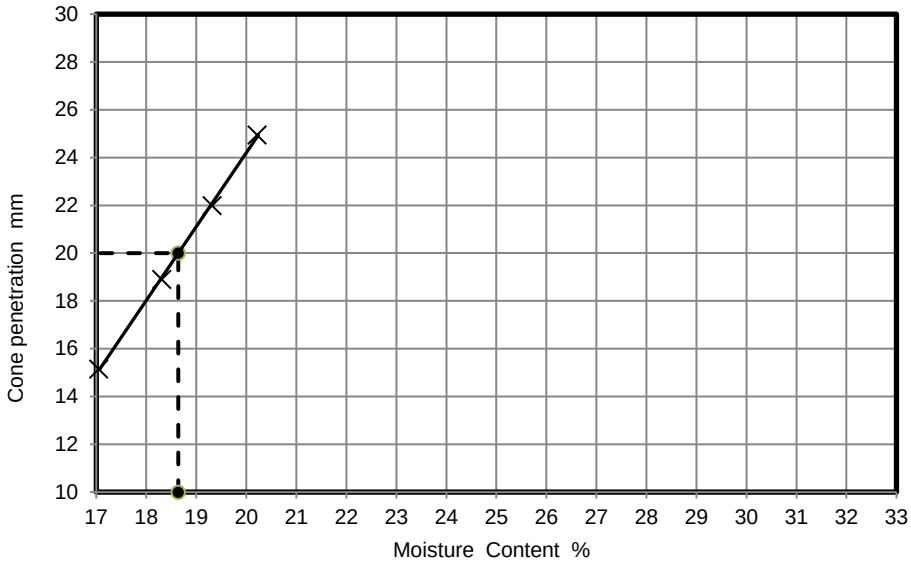
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

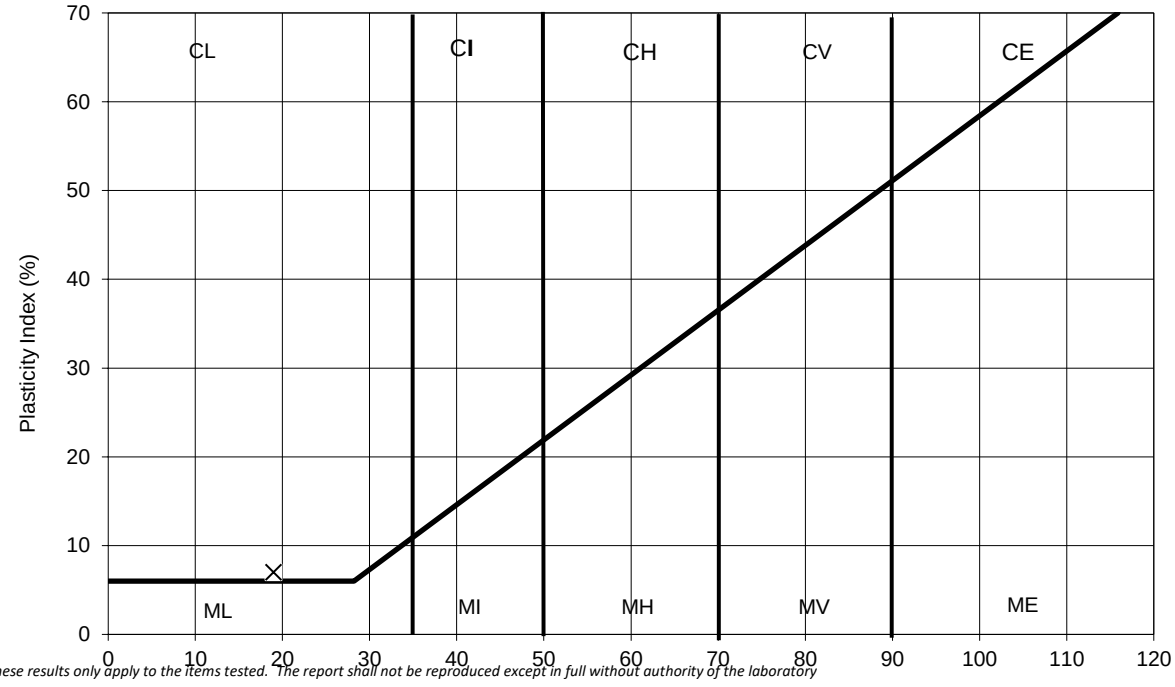
Job No.	32282				
Borehole/Pit No.	TP-102303				
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**8.9**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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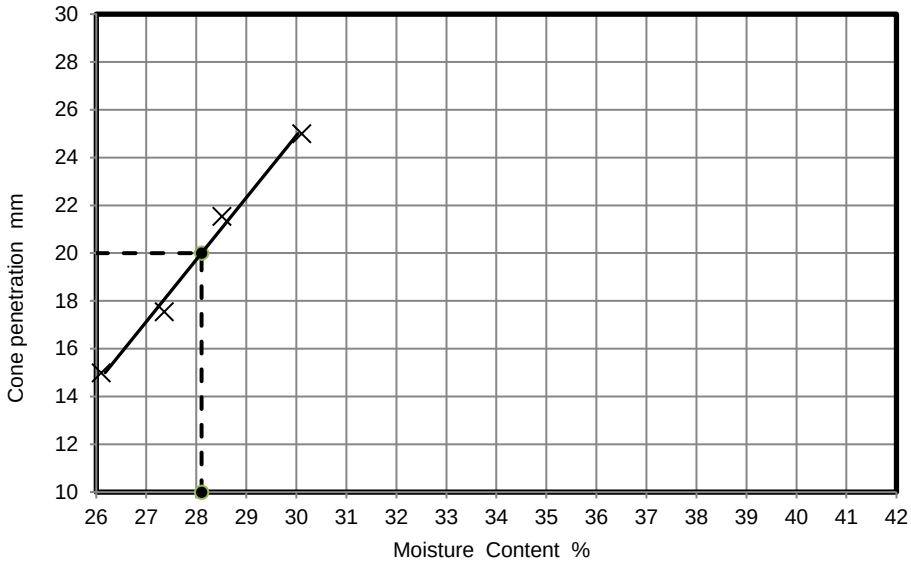
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

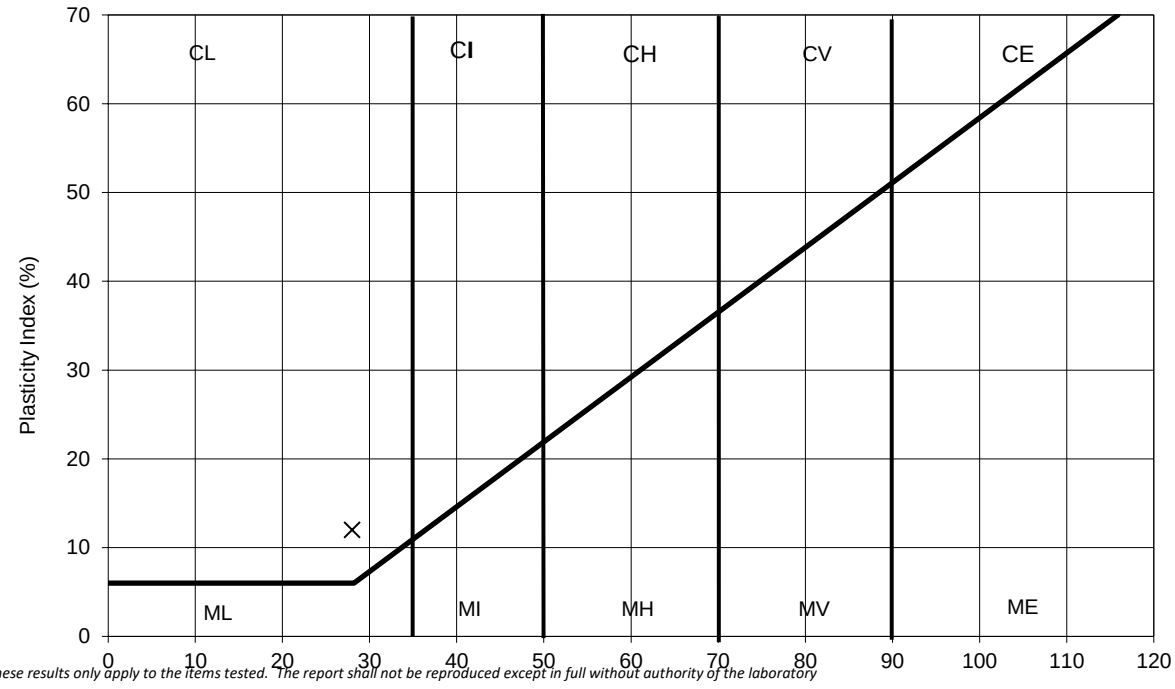
Borehole/Pit No. TP-102488



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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Checked and Approved

Initials: J.P

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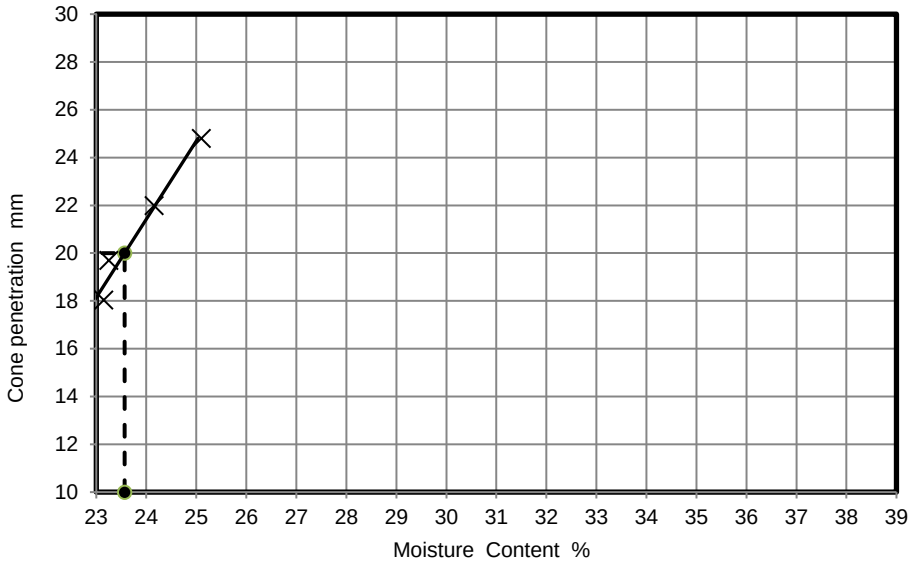
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-102617
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

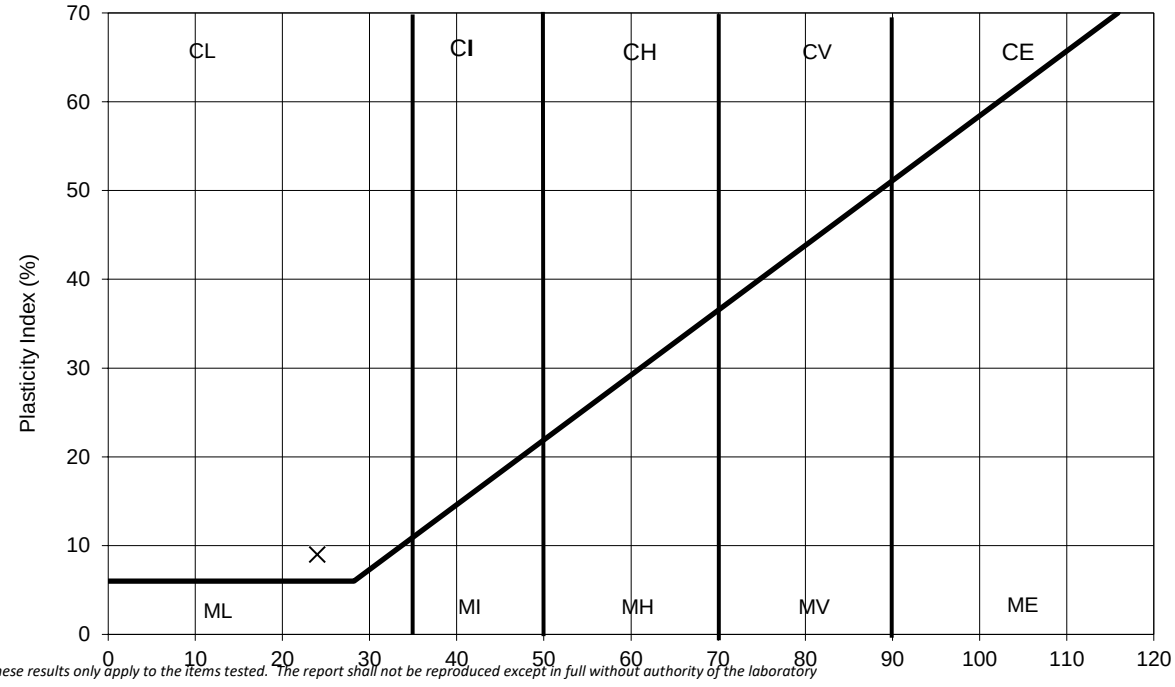


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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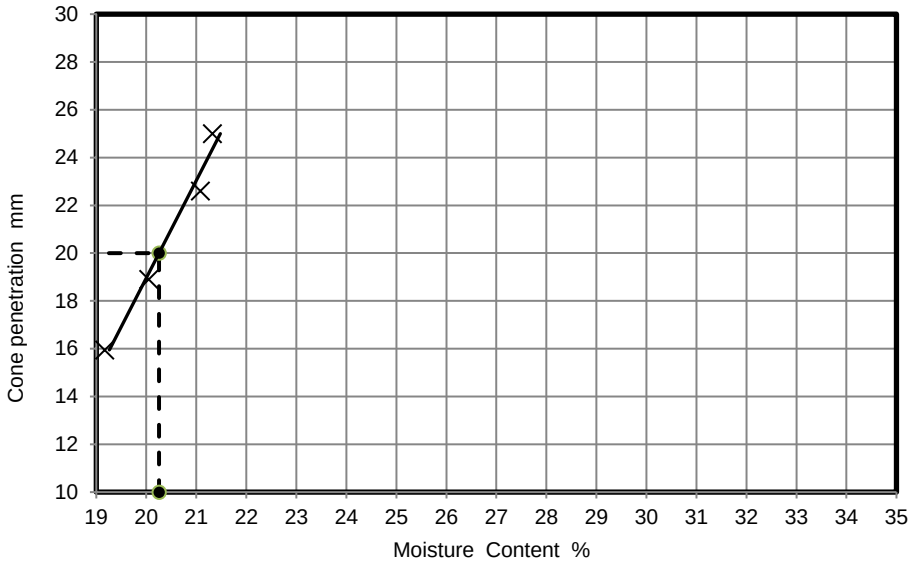
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

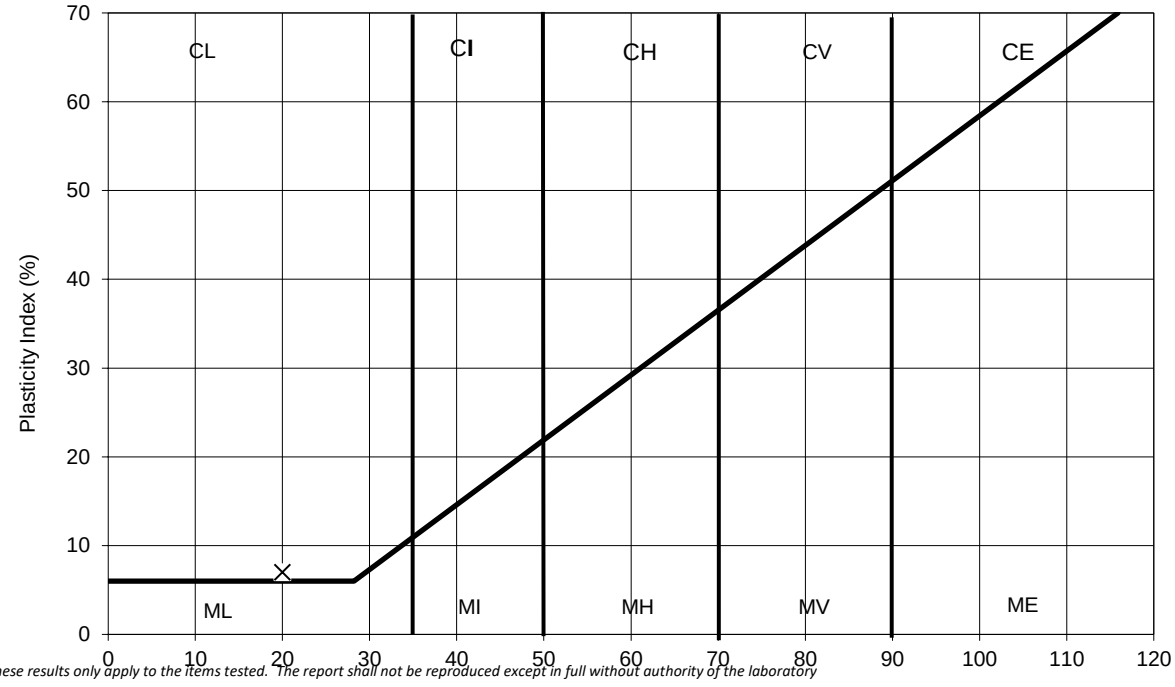
				Job No.	32282
				Borehole/Pit No.	TP-102617
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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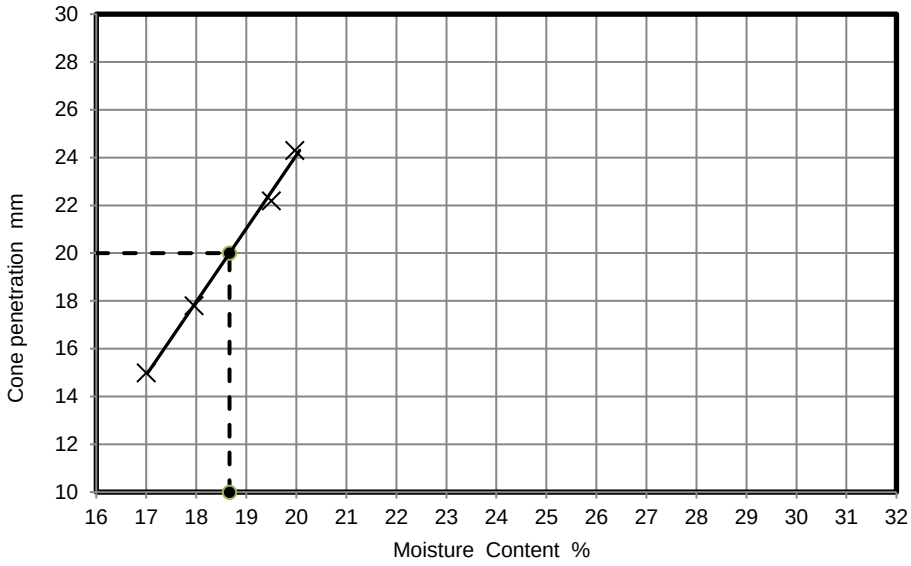
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

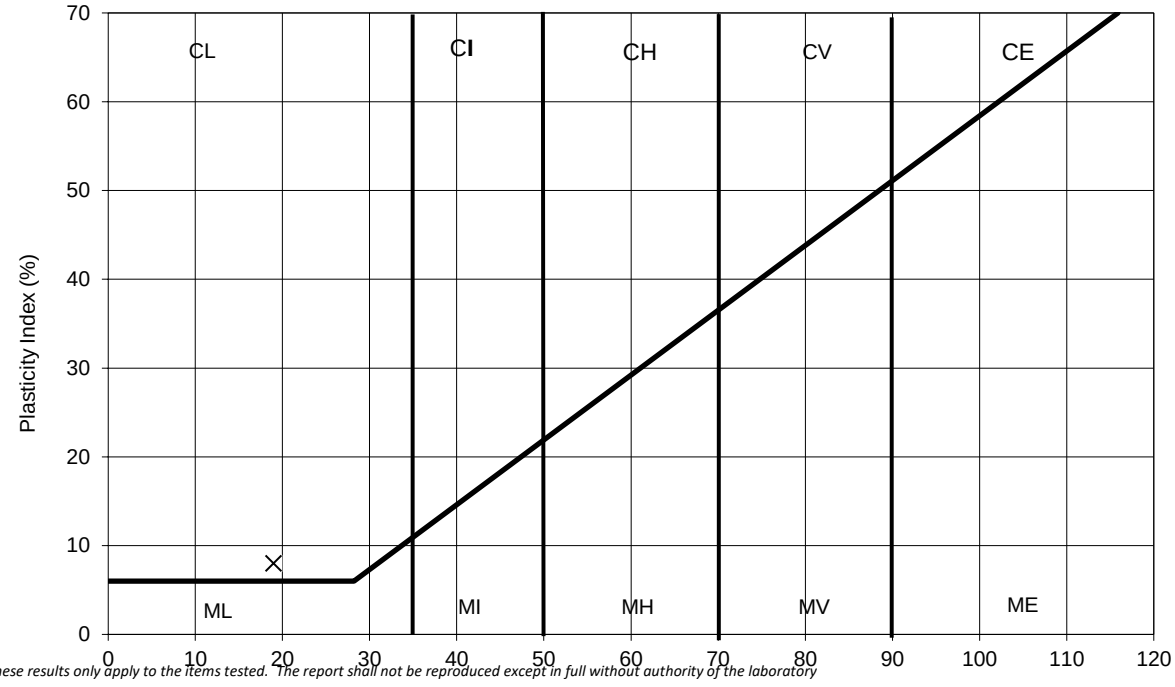
				Job No.	32282
				Borehole/Pit No.	TP-102704
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Dark grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**82**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

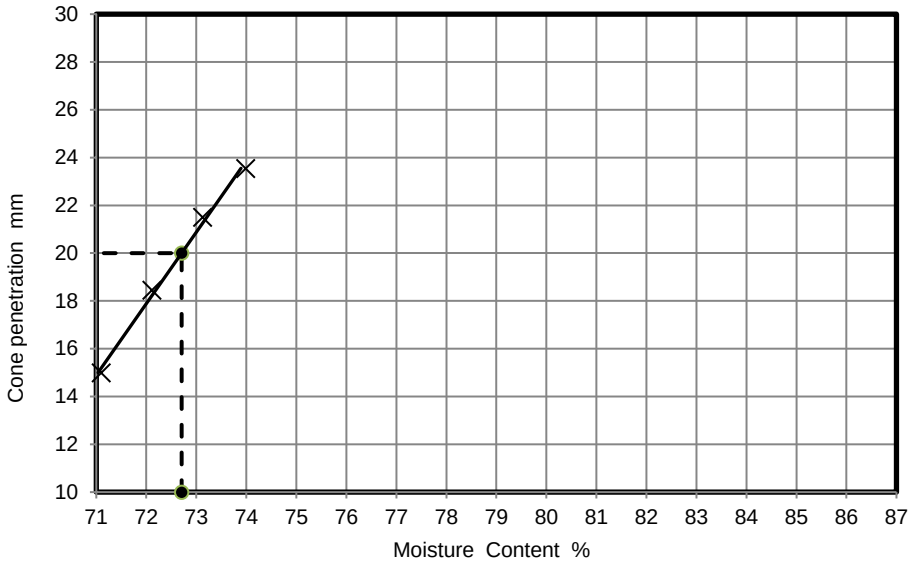
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-56220
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Dark grey slightly sandy gravelly clayey very PEAT with rootlets (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

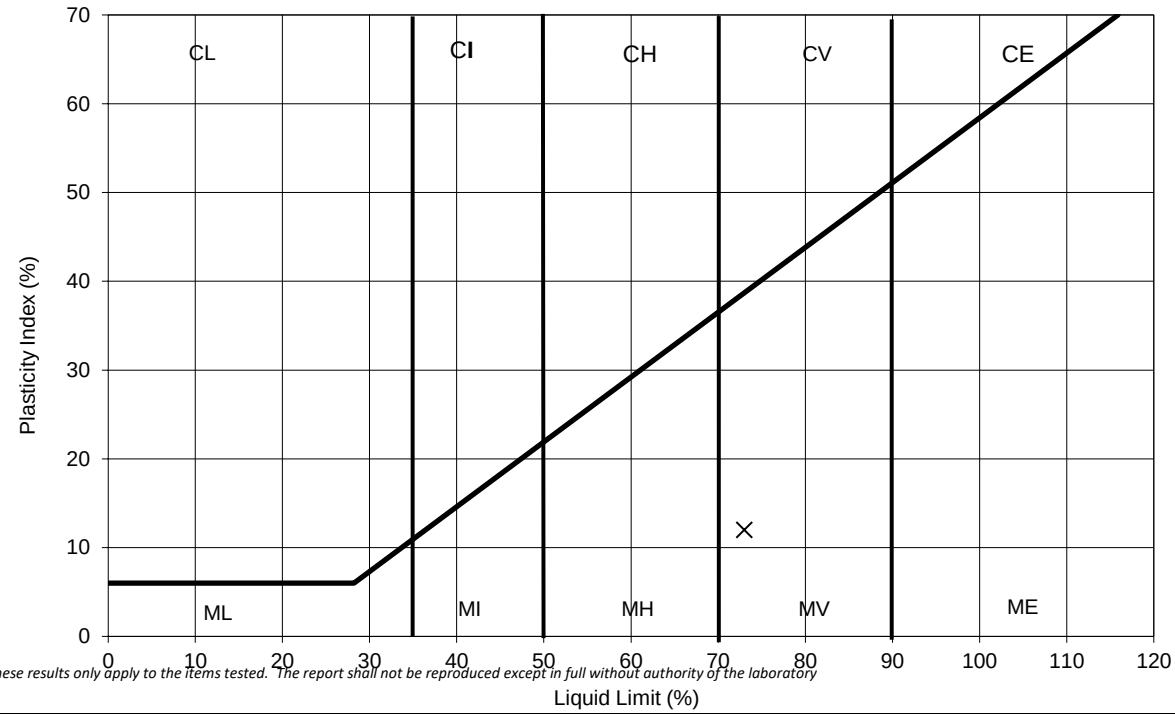


NATURAL MOISTURE CONTENT	**82**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**73**	**%**
PLASTIC LIMIT	**61**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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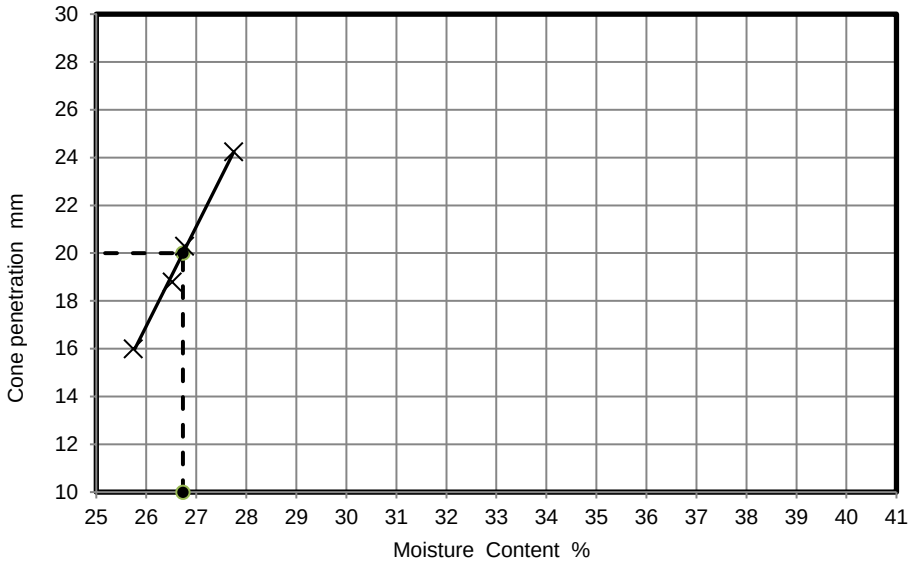
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brown gravelly clayey very silty SAND (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

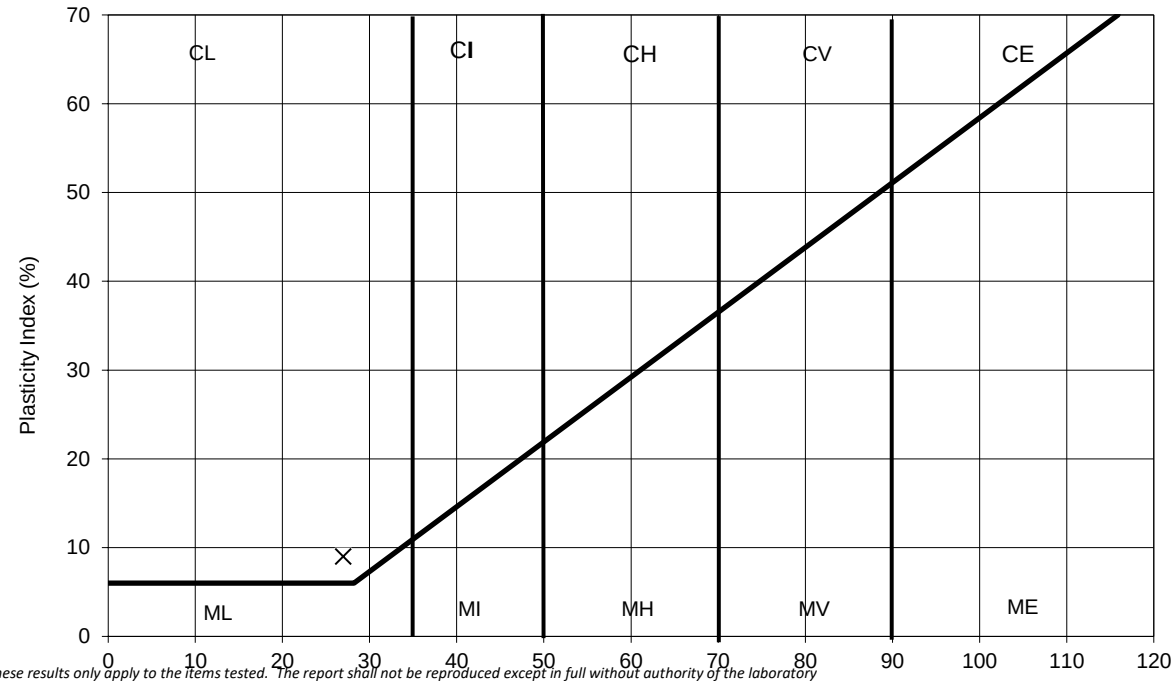


NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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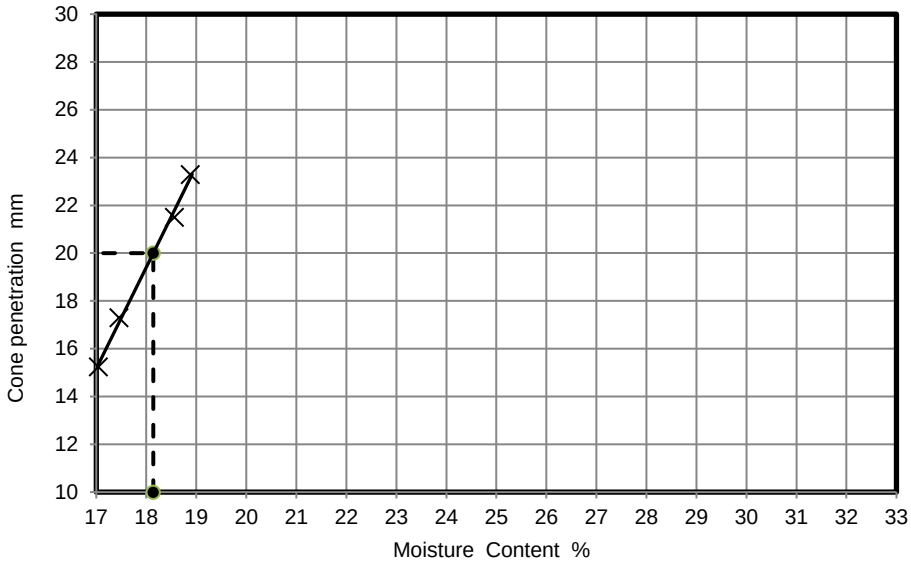
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Dark greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

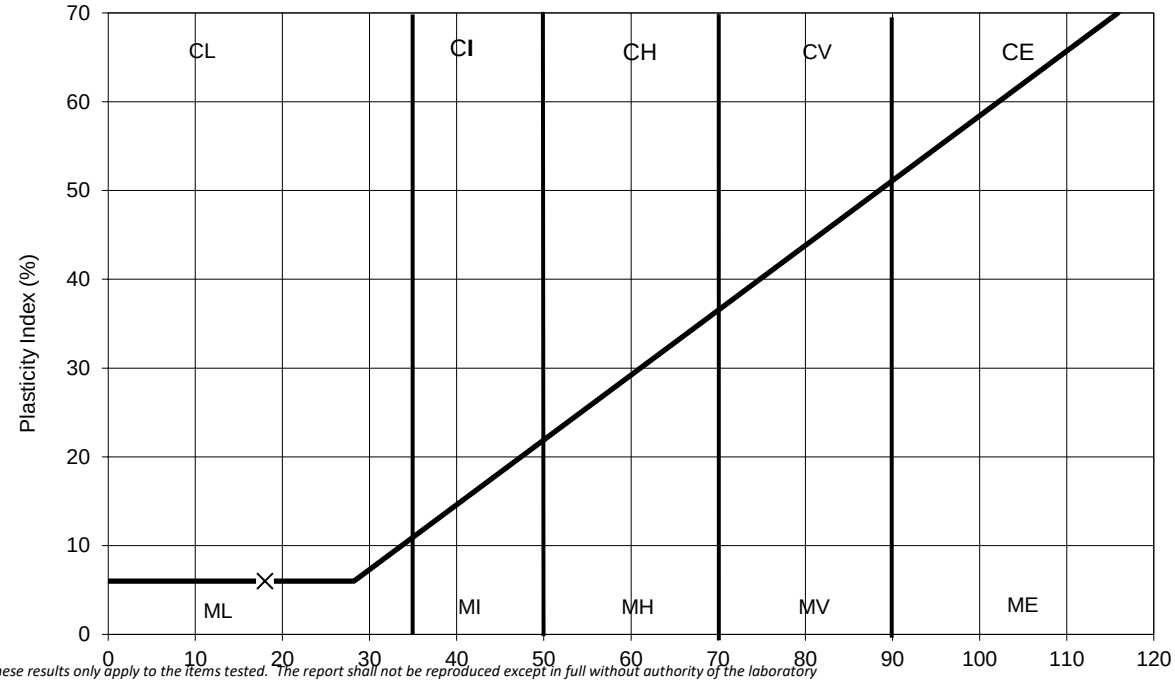


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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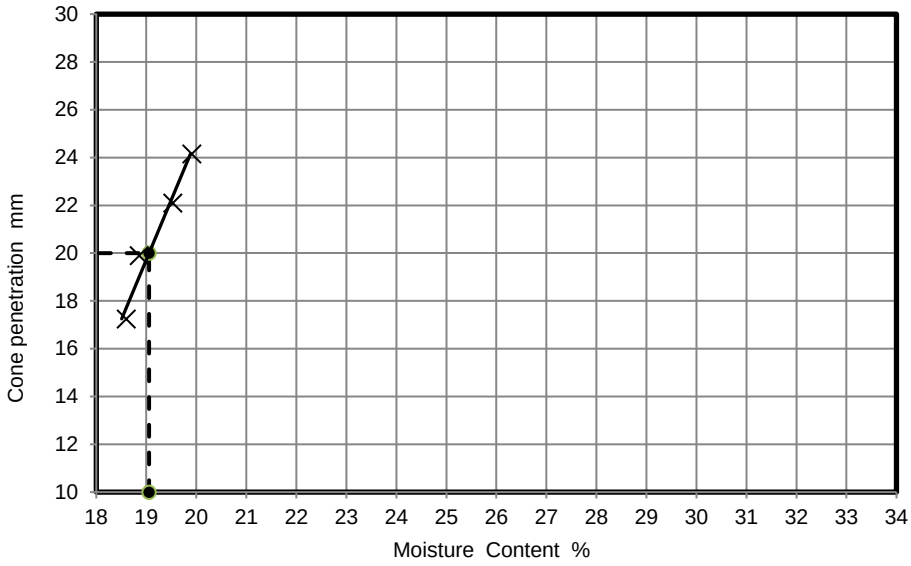
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

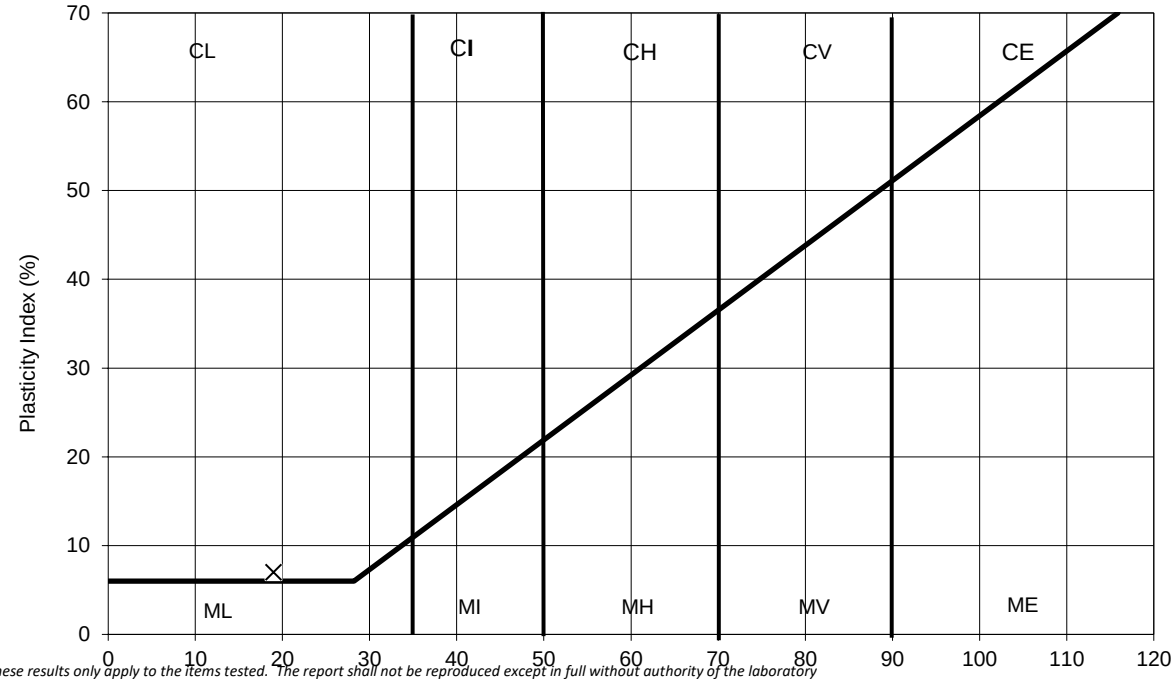


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**46**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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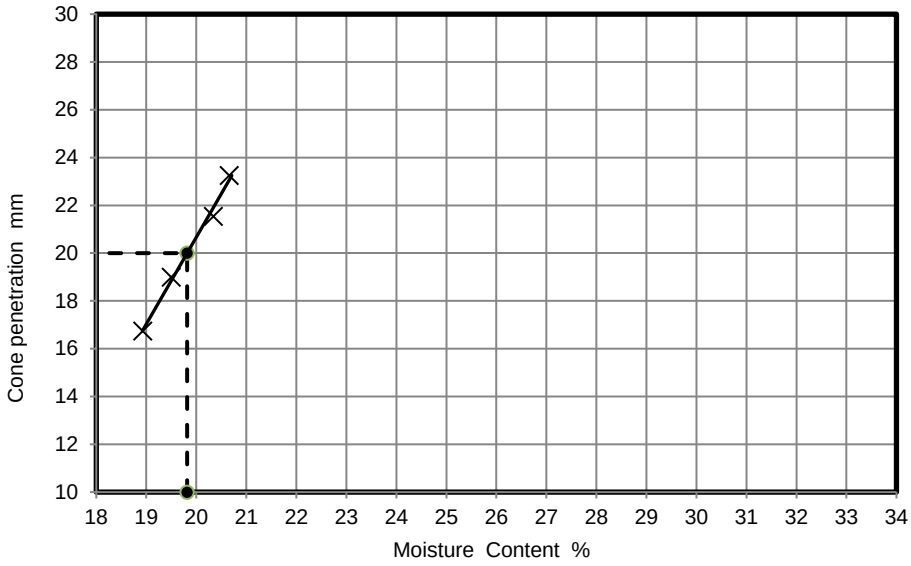
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

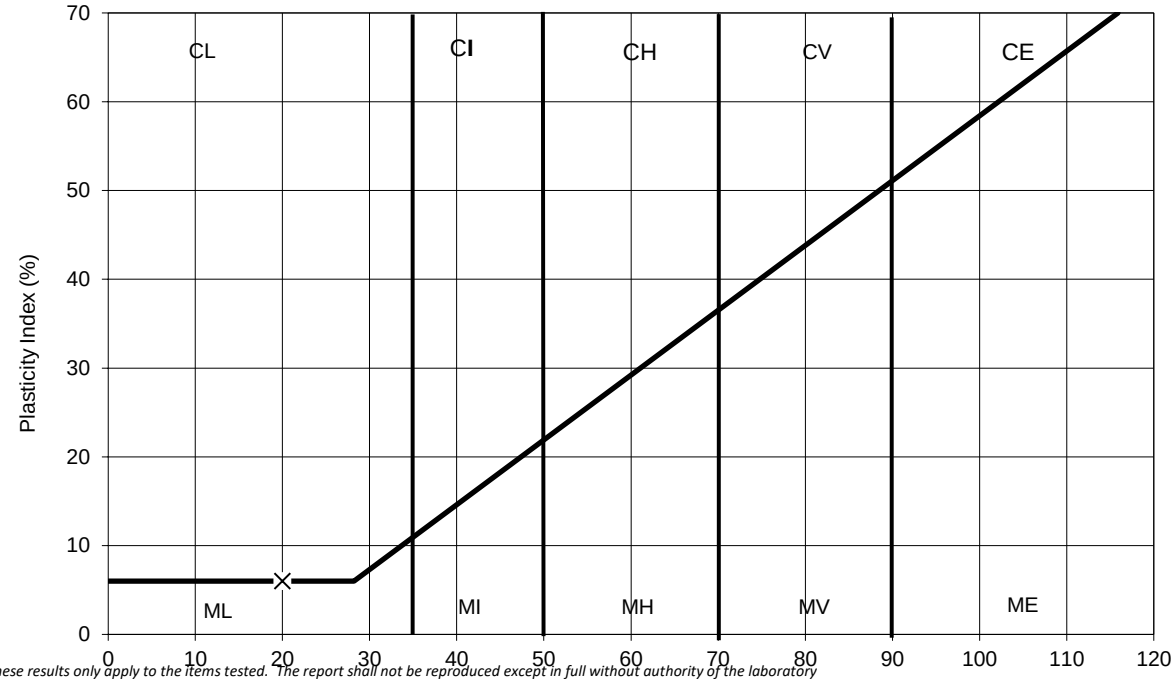


NATURAL MOISTURE CONTENT	**9.1**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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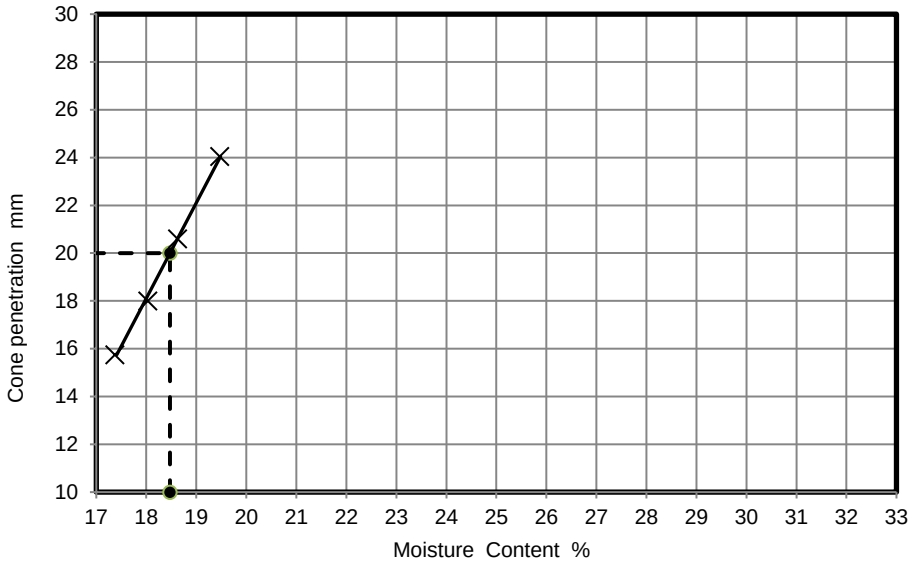
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73504
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

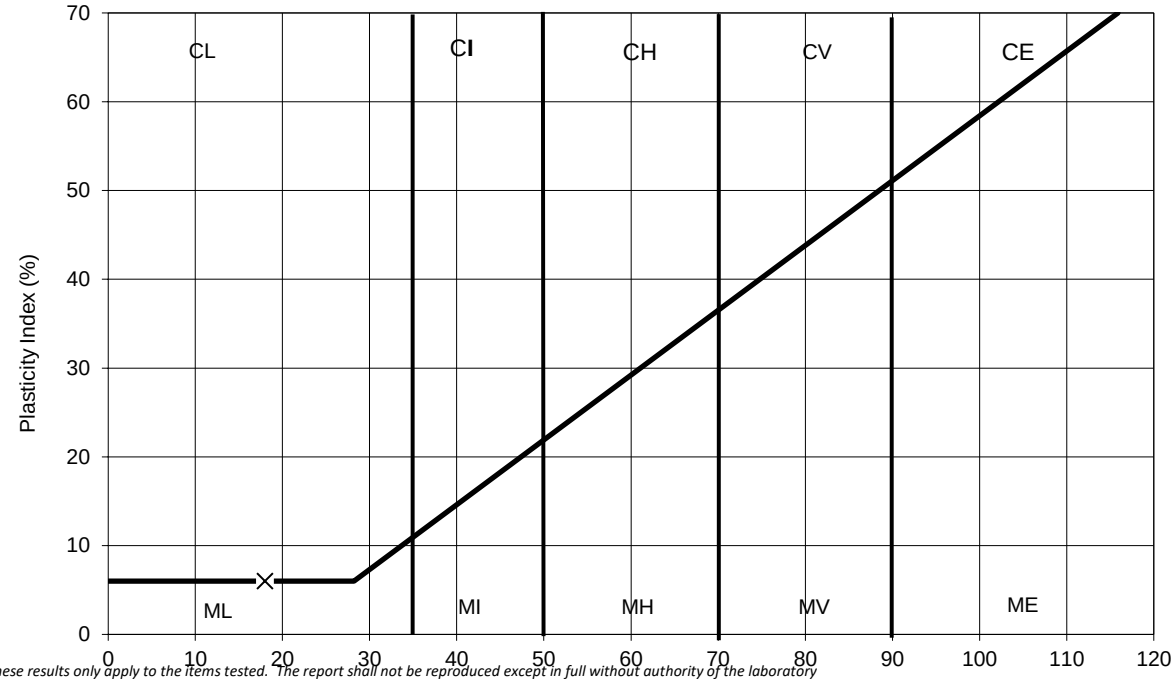


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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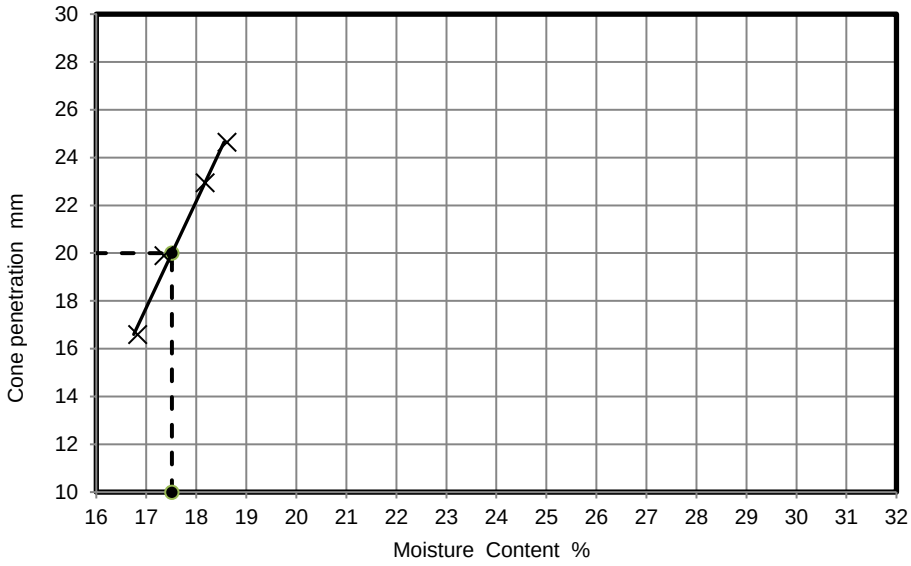
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82812
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly clayey gravelly very silty SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

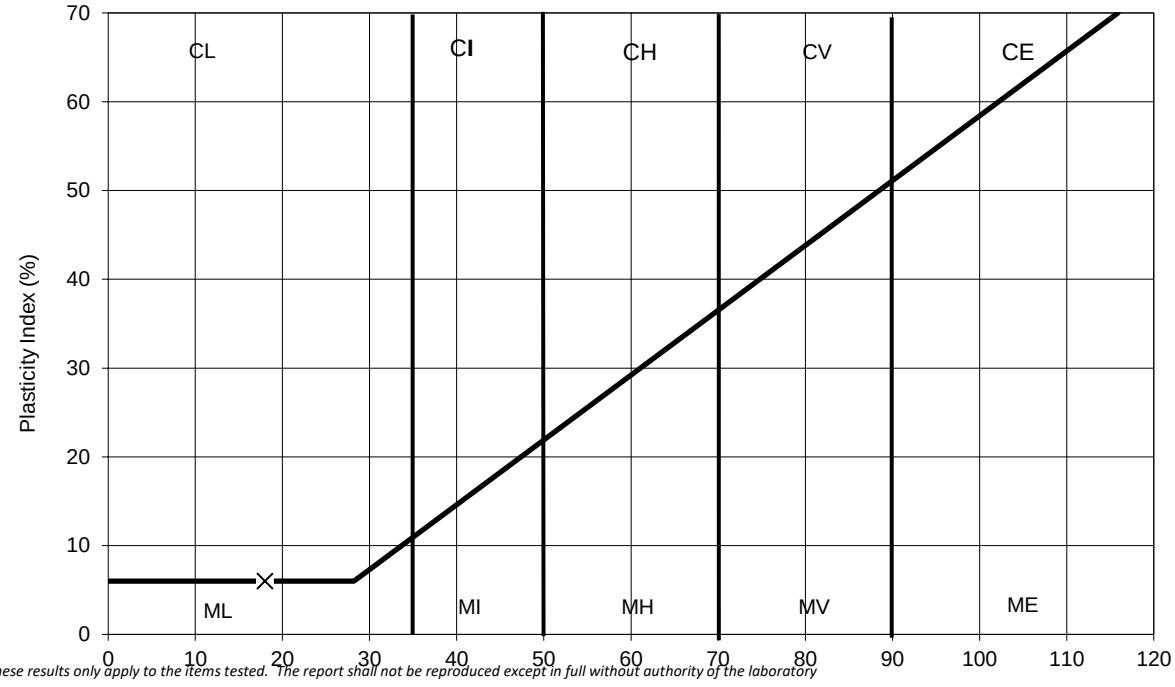


NATURAL MOISTURE CONTENT	**6.2**	**%**
% PASSING 425µm SIEVE	**36**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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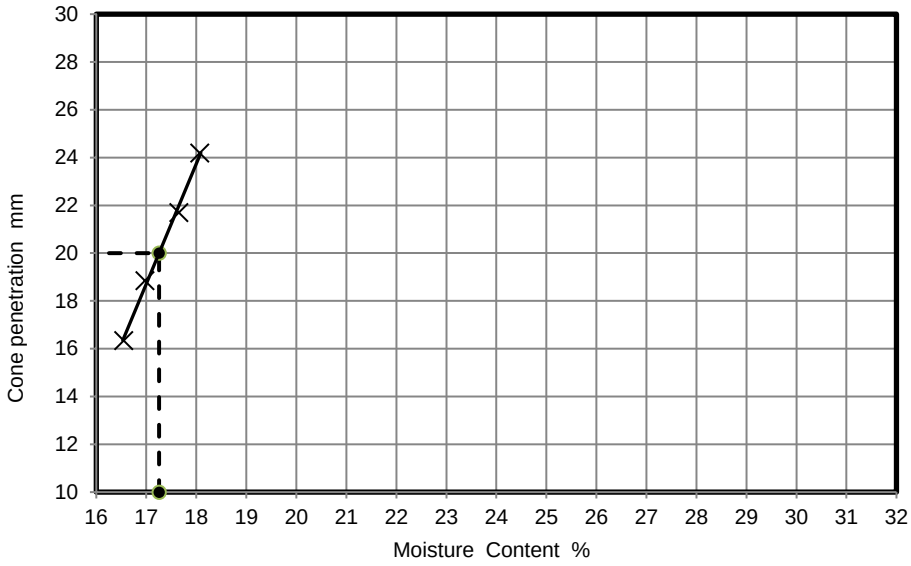
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82902
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

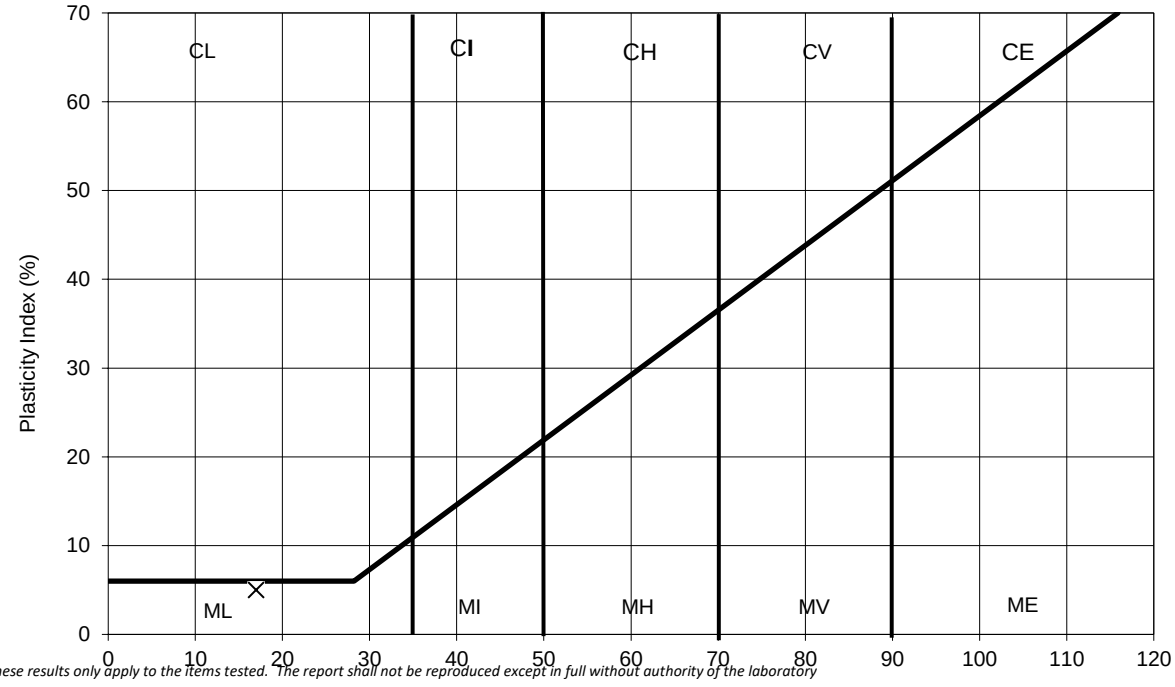


NATURAL MOISTURE CONTENT	**8.3**	**%**
% PASSING 425µm SIEVE	**44**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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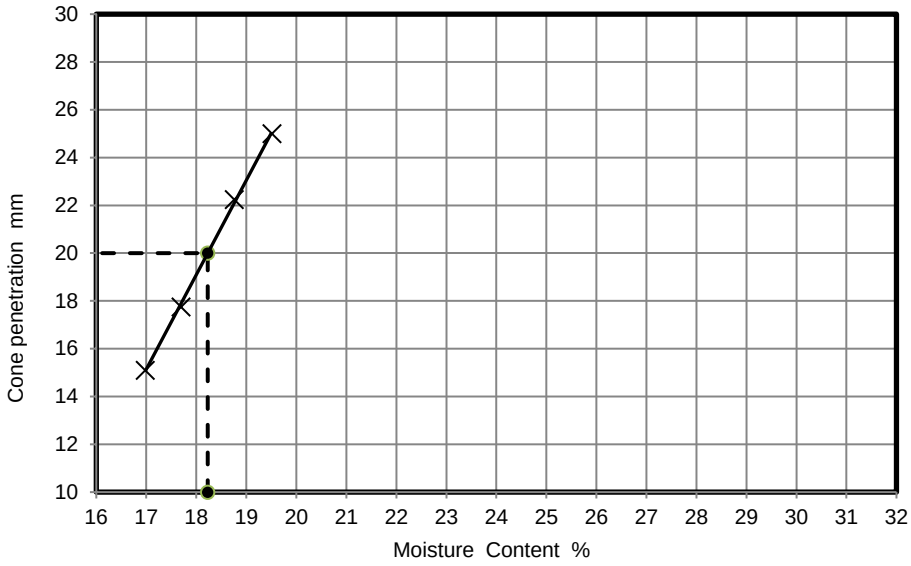
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82902
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

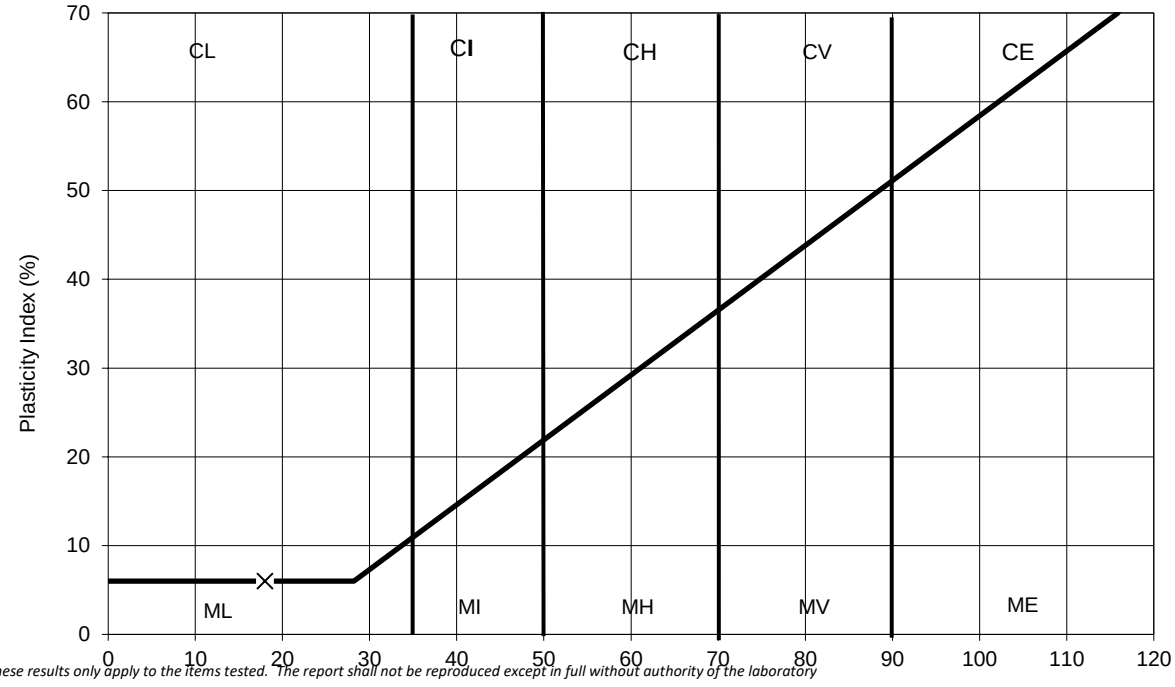


NATURAL MOISTURE CONTENT	**8.9**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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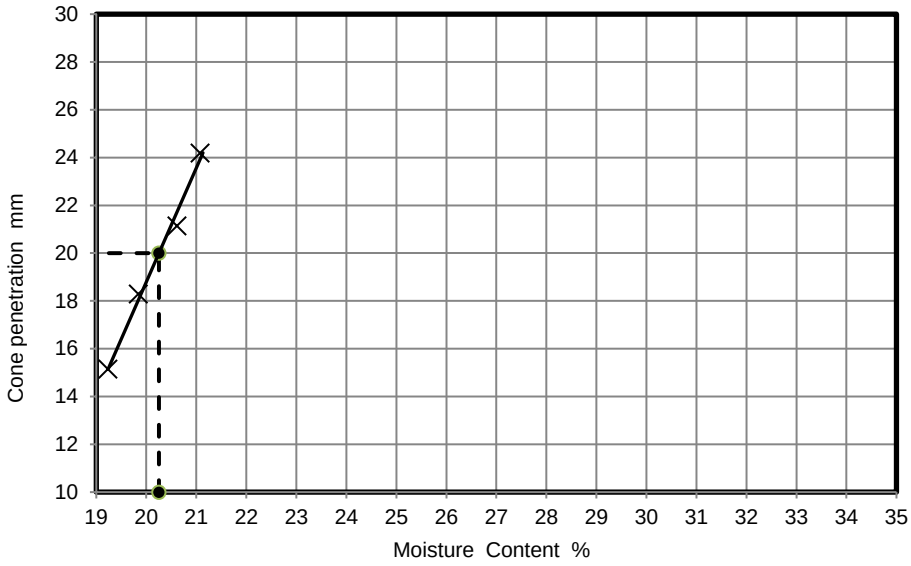
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82979
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

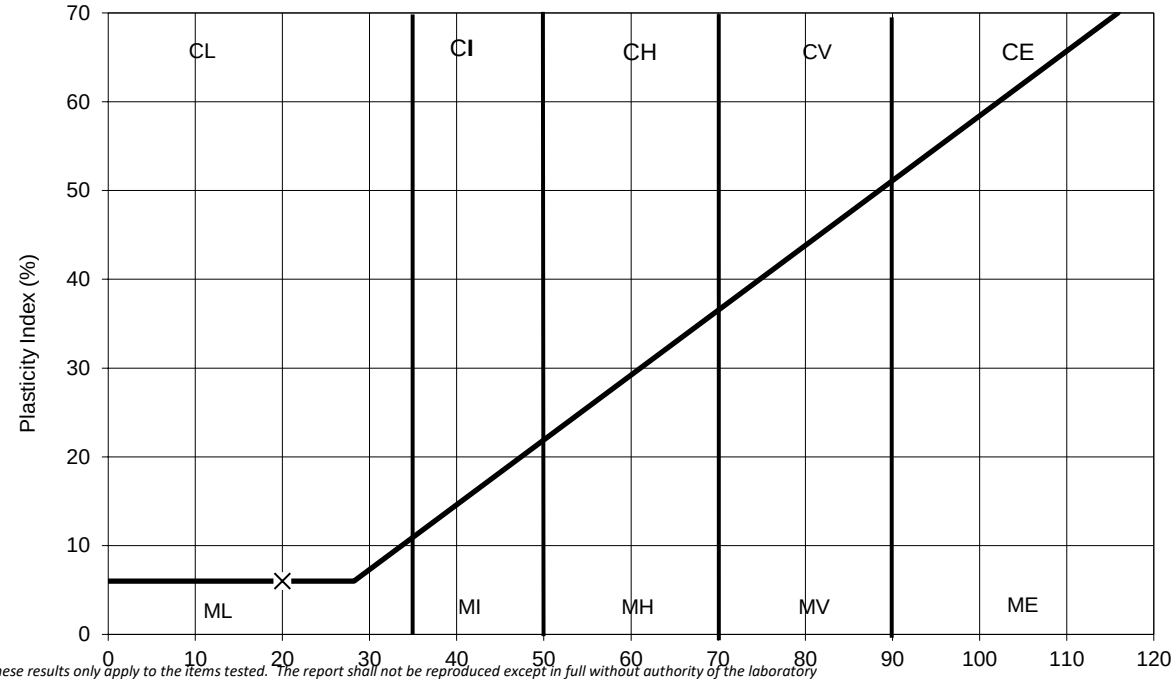


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**47**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

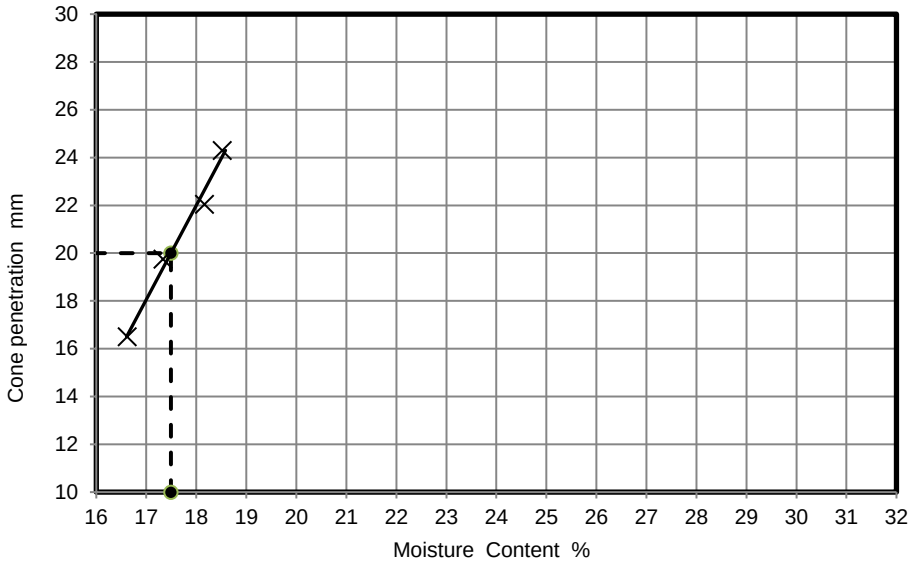
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82979
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

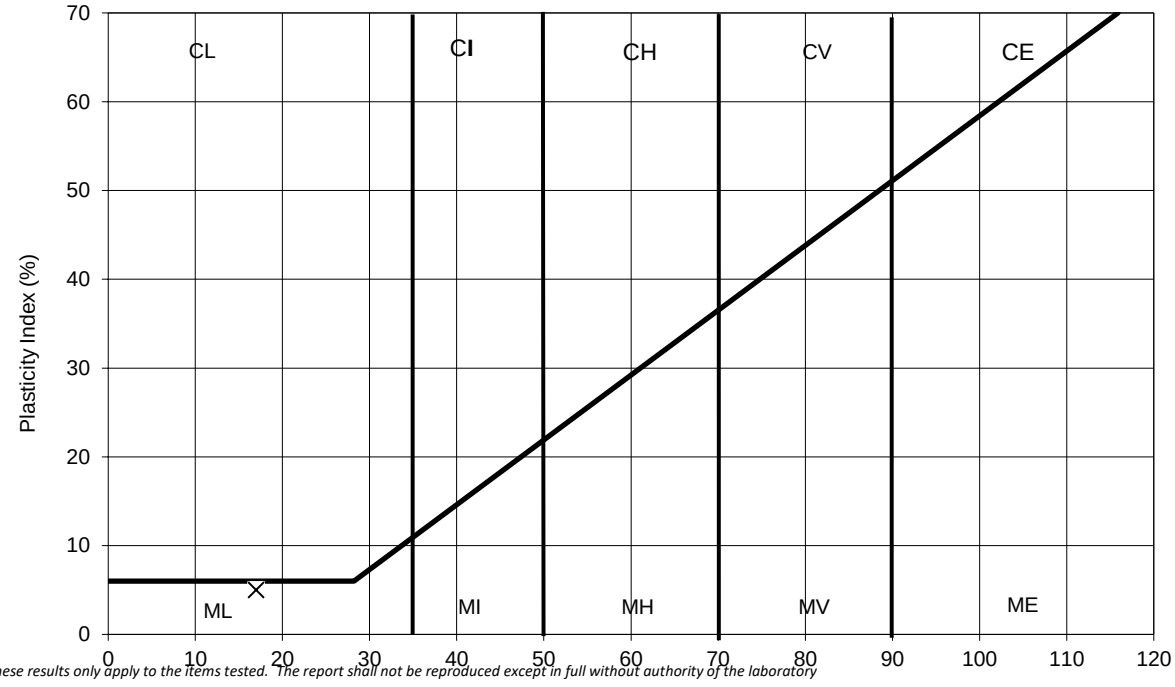


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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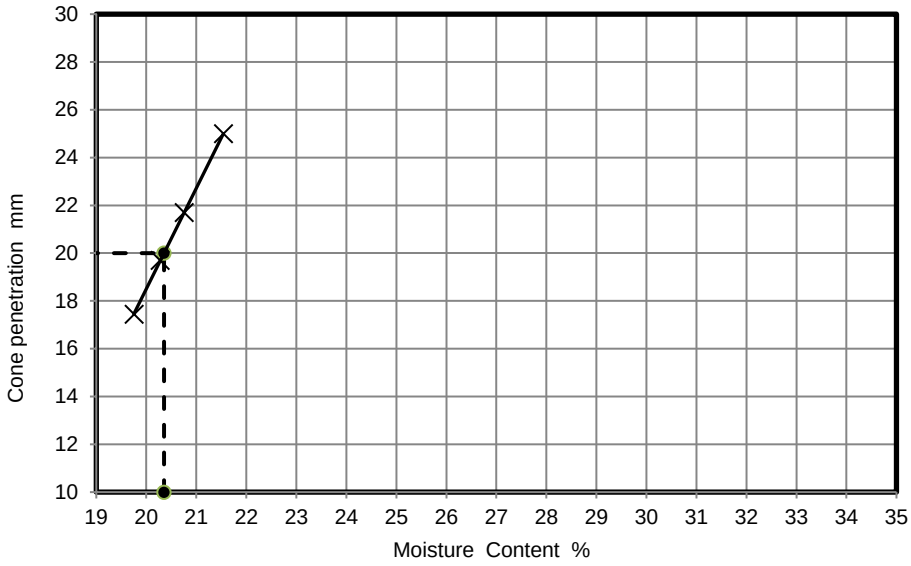
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

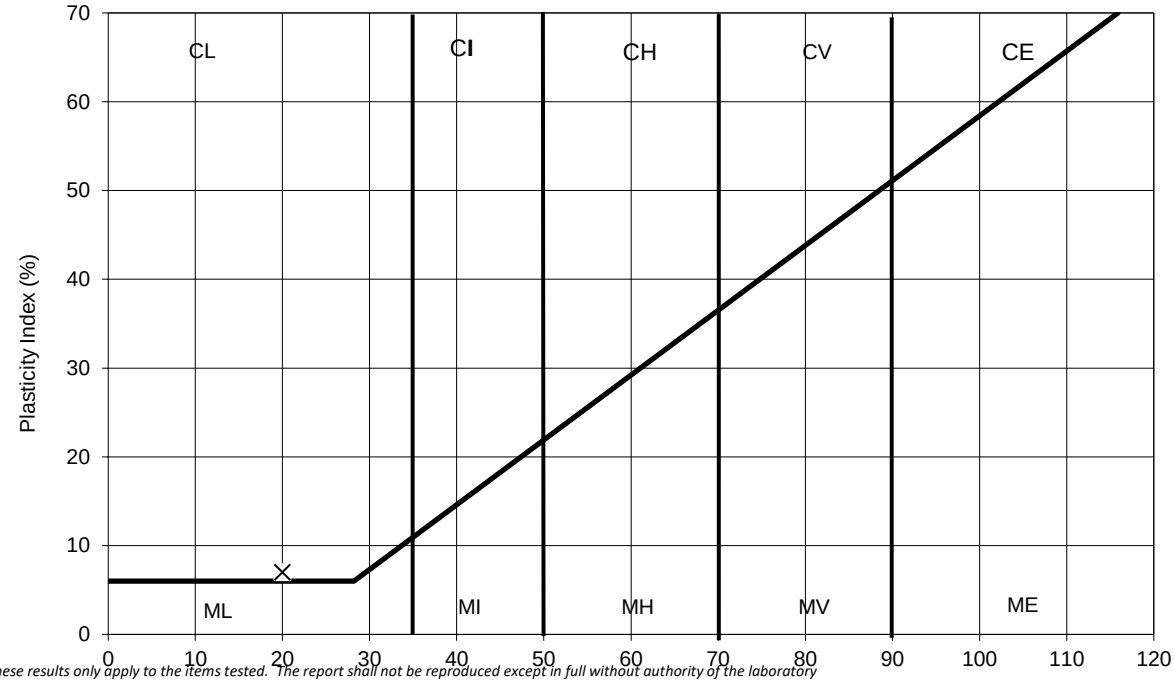


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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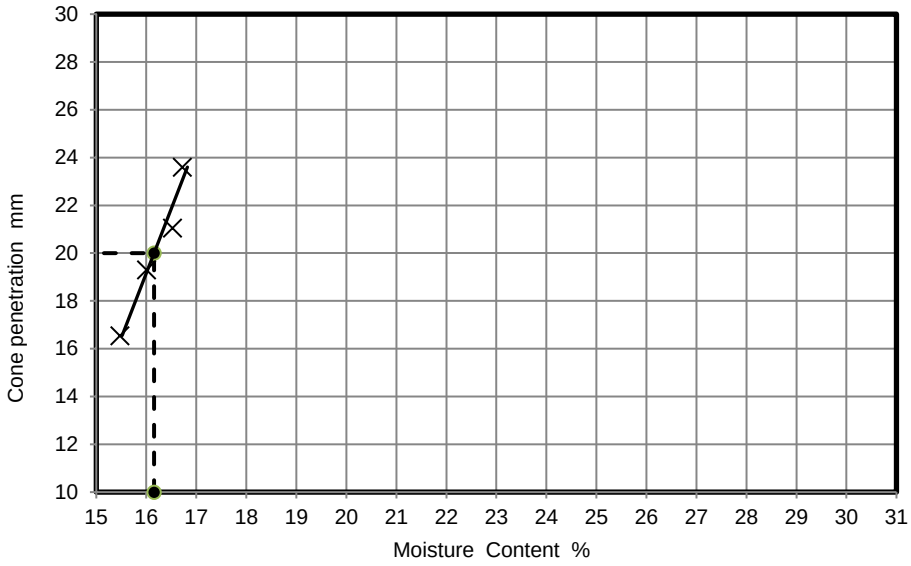
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

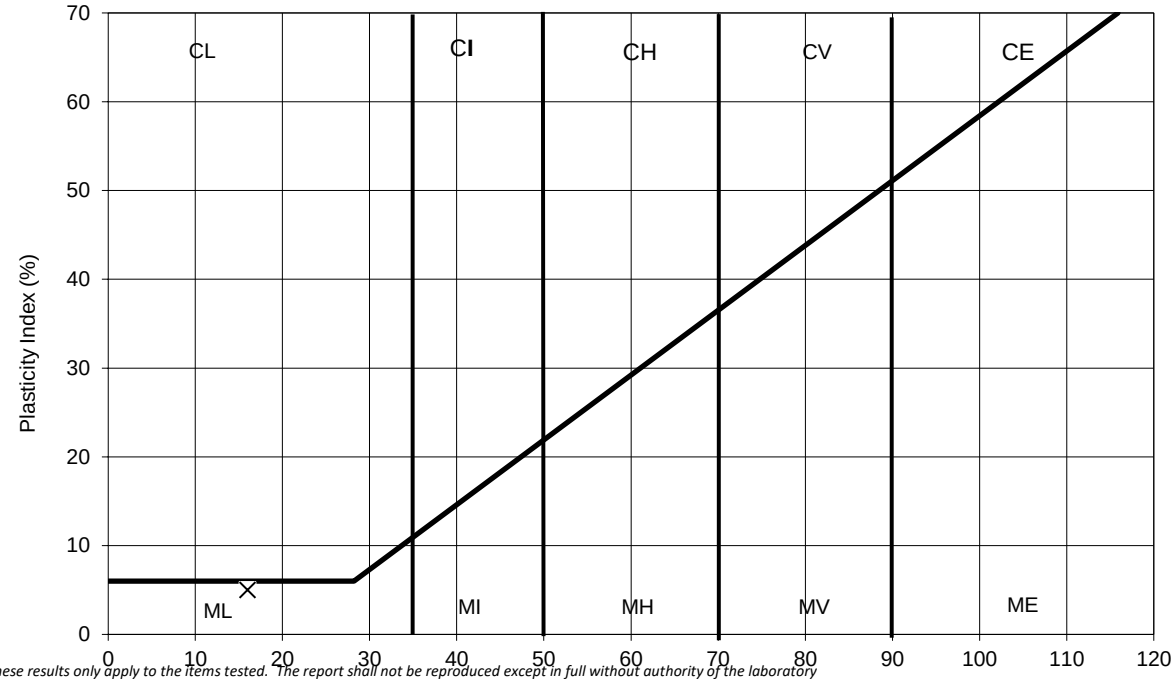


NATURAL MOISTURE CONTENT	**7.8**	**%**
% PASSING 425µm SIEVE	**46**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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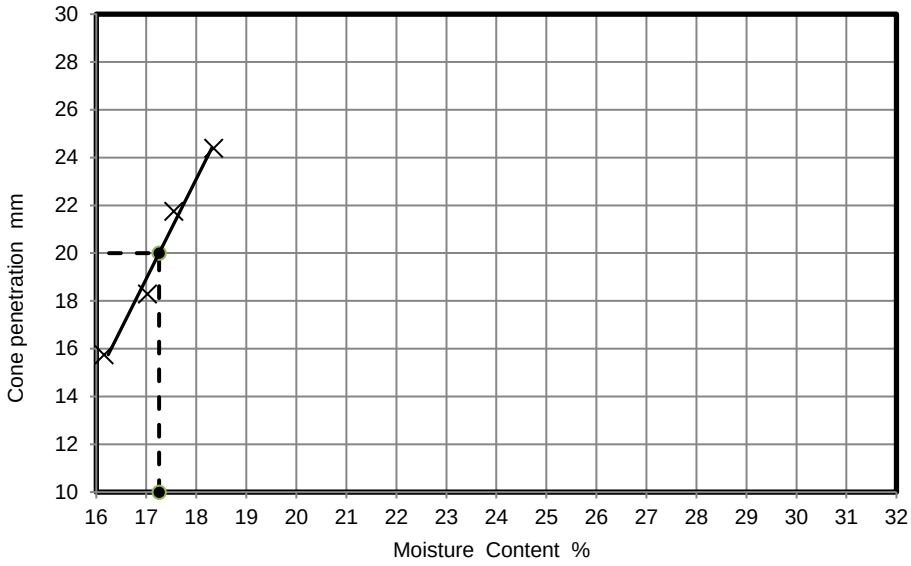
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.40 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

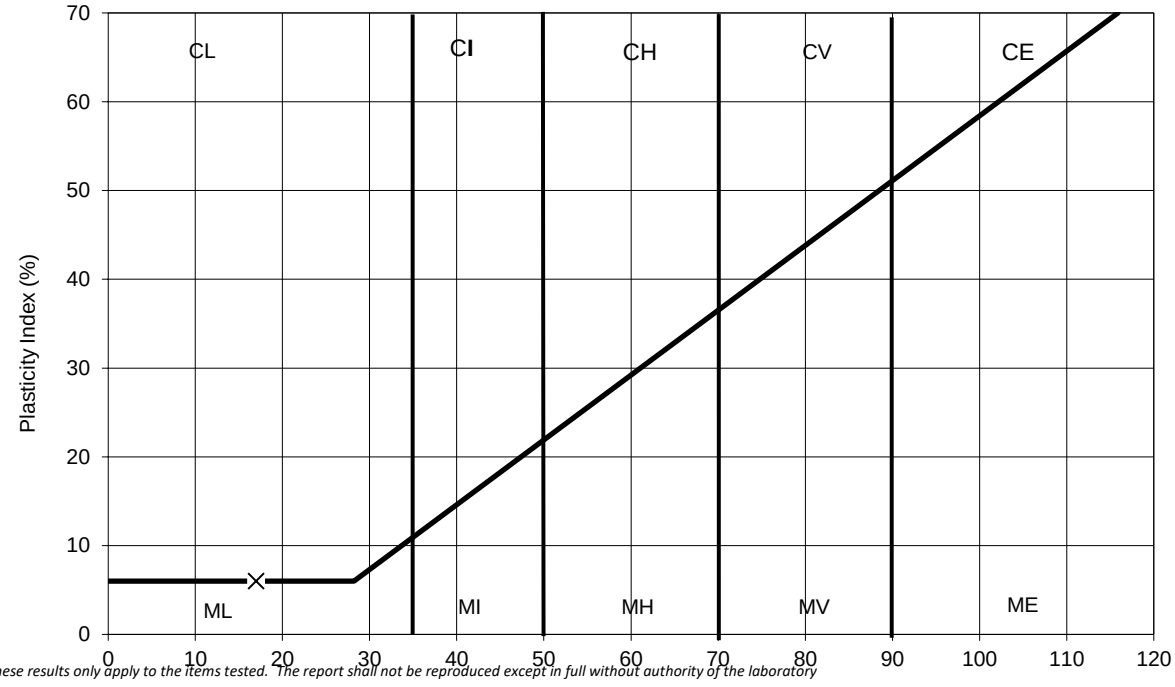


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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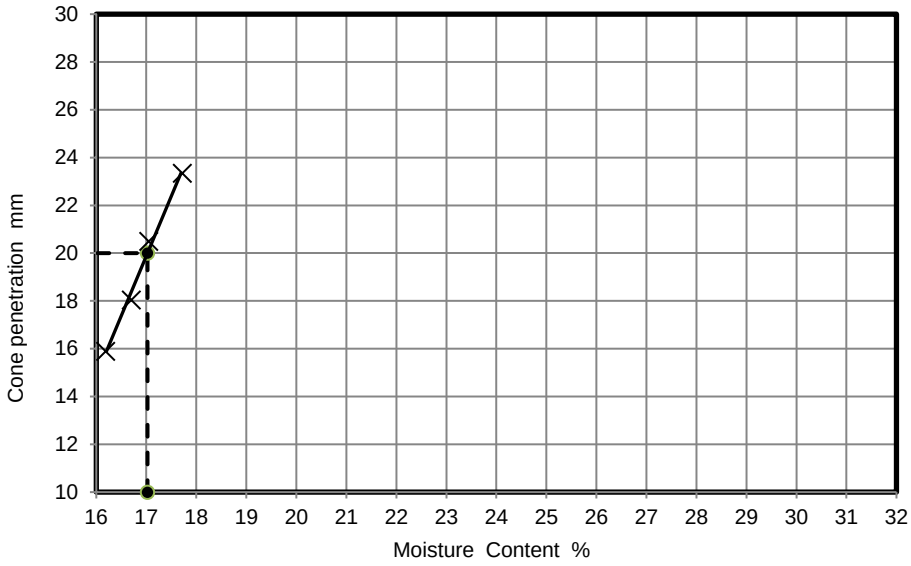
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83303
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown gravelly very sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

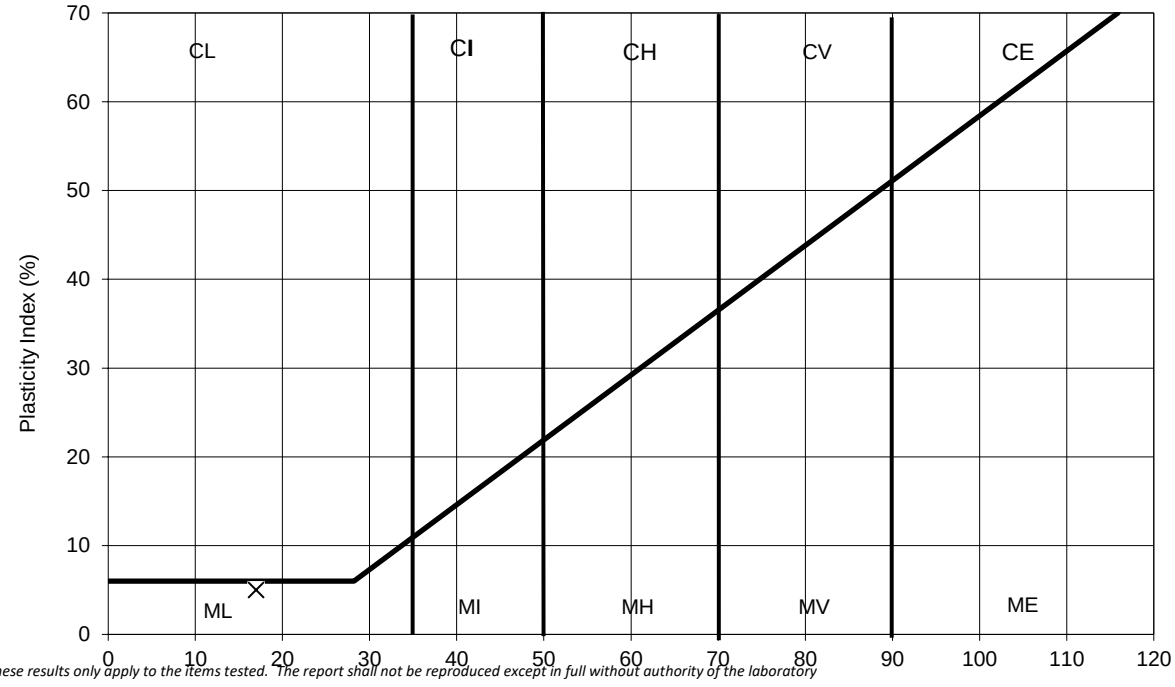


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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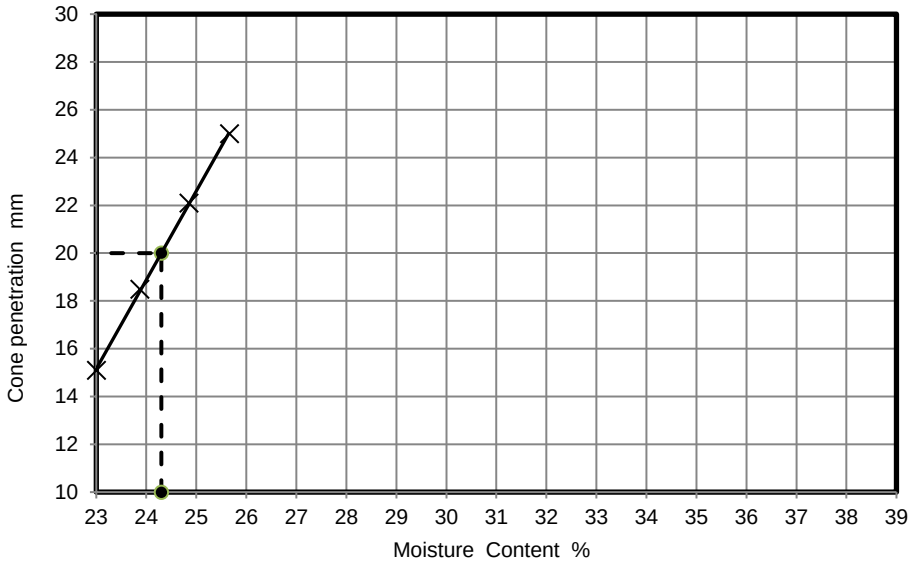
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-84901
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

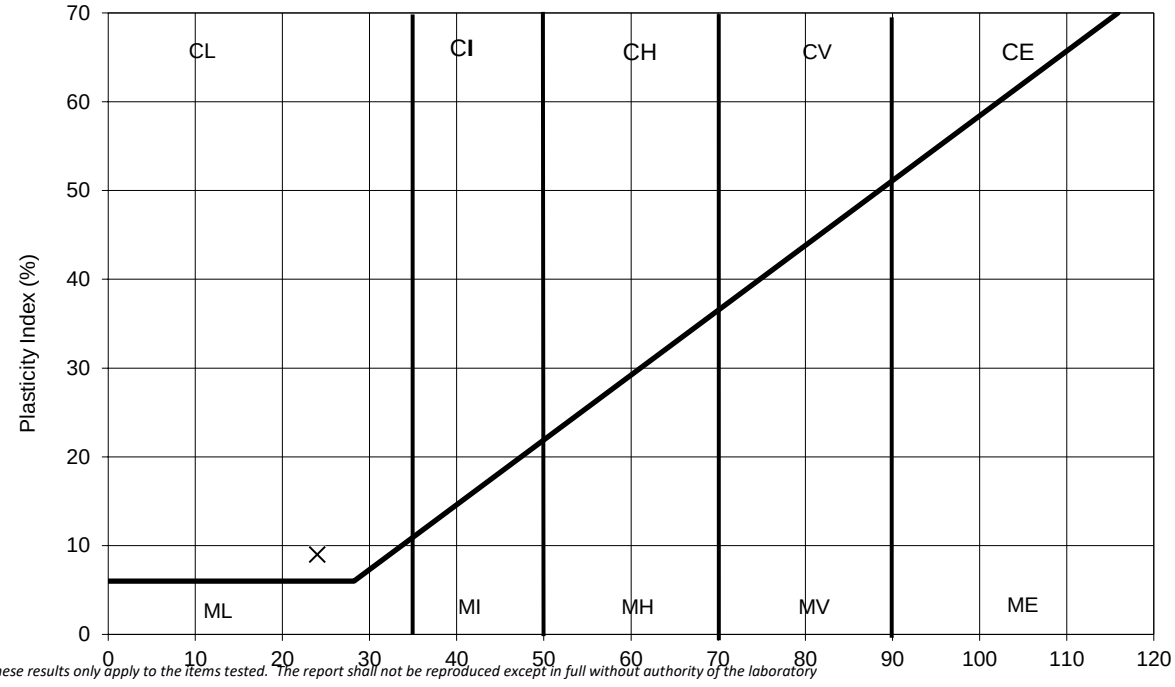


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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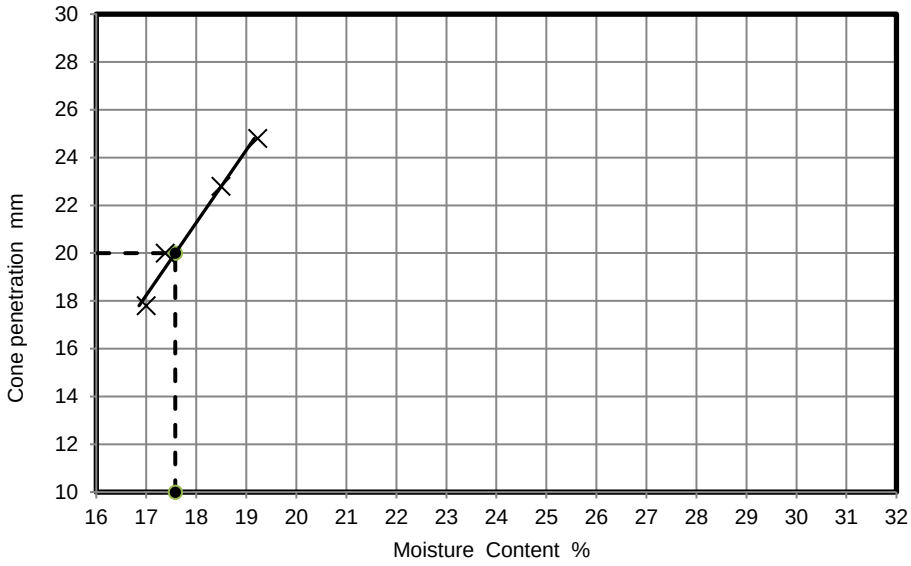
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-84901
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

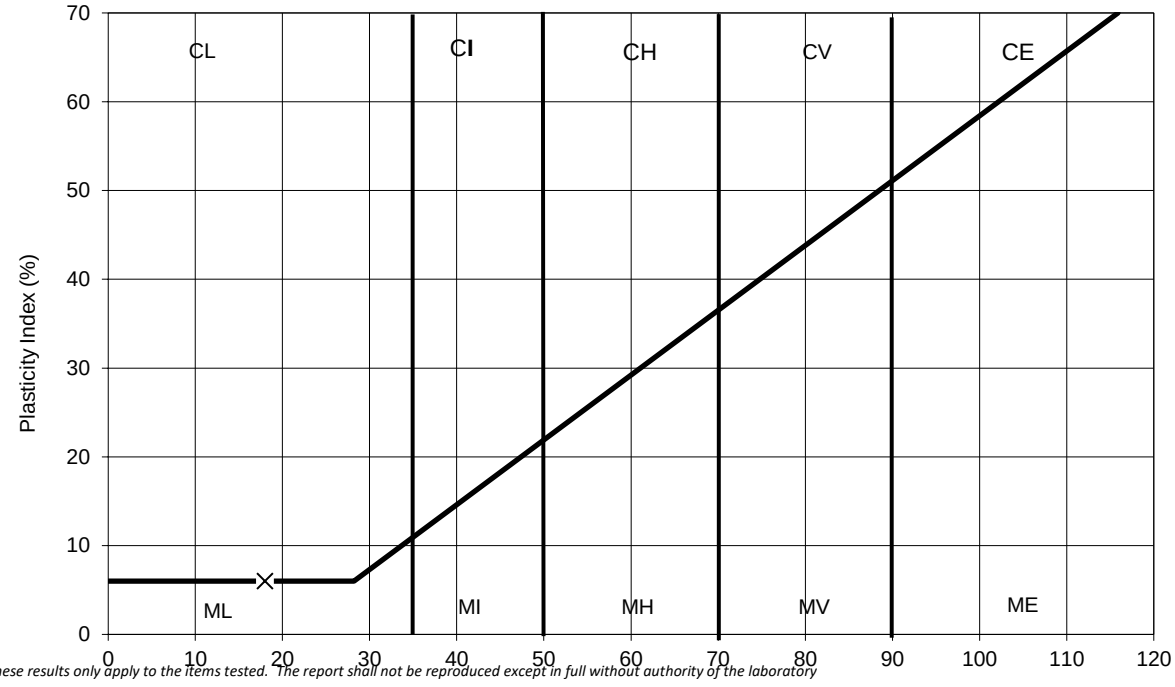


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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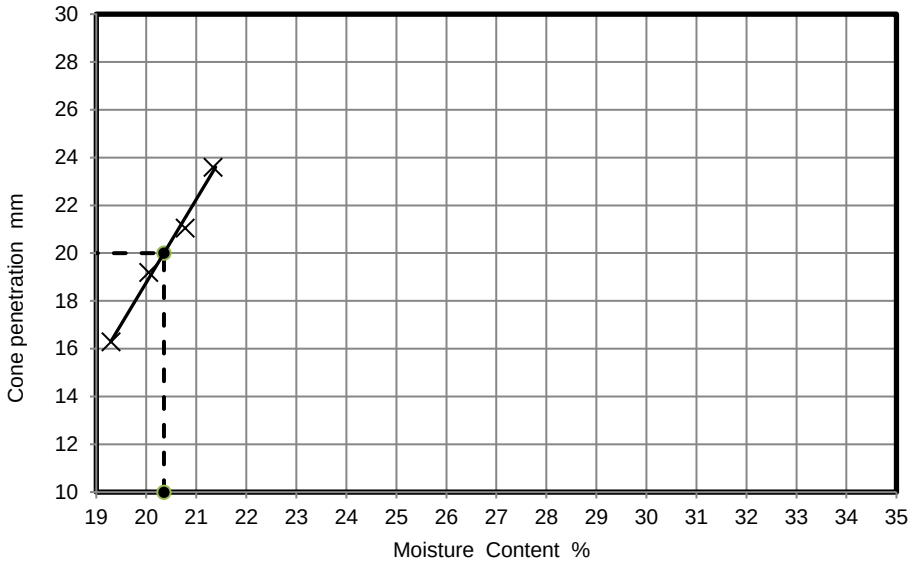
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

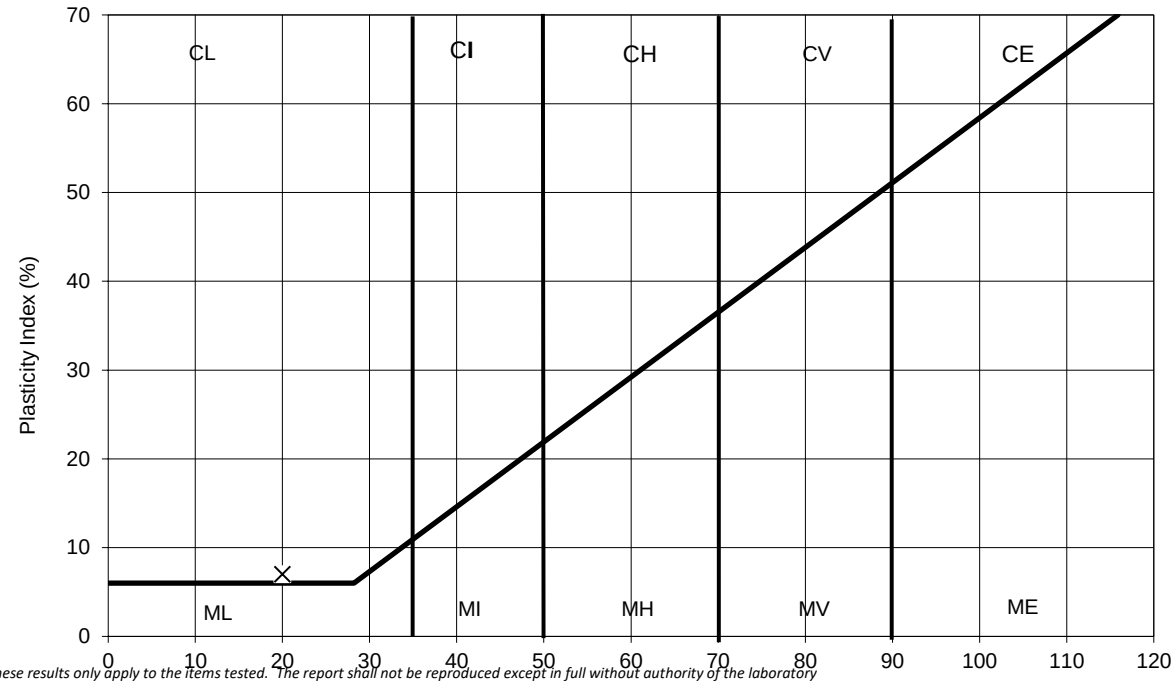
				Job No.	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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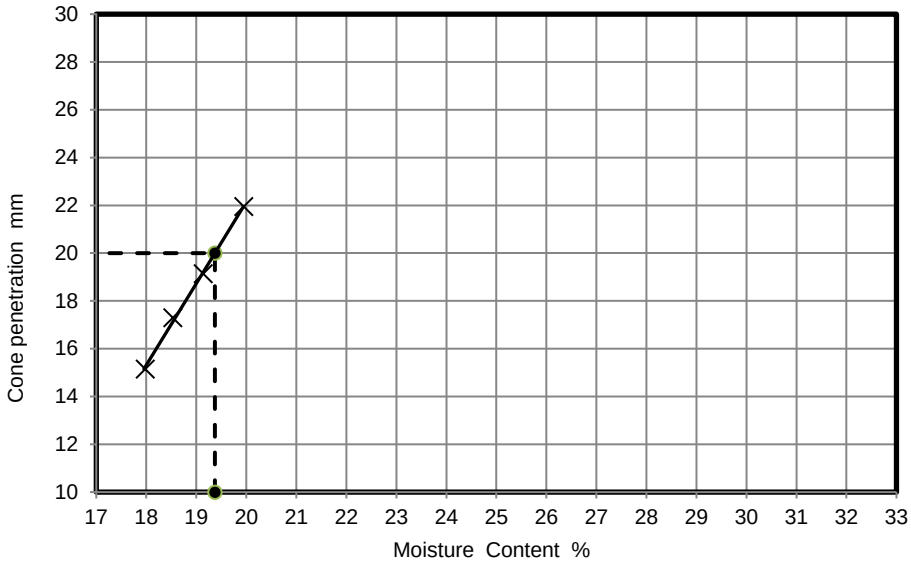
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

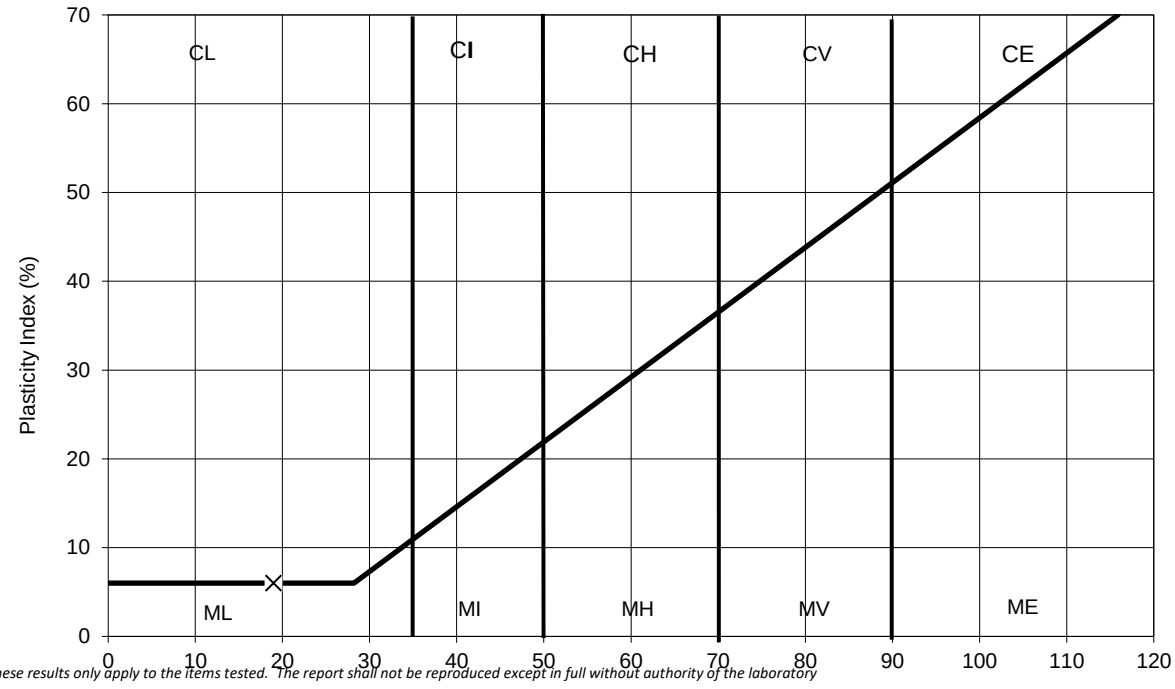


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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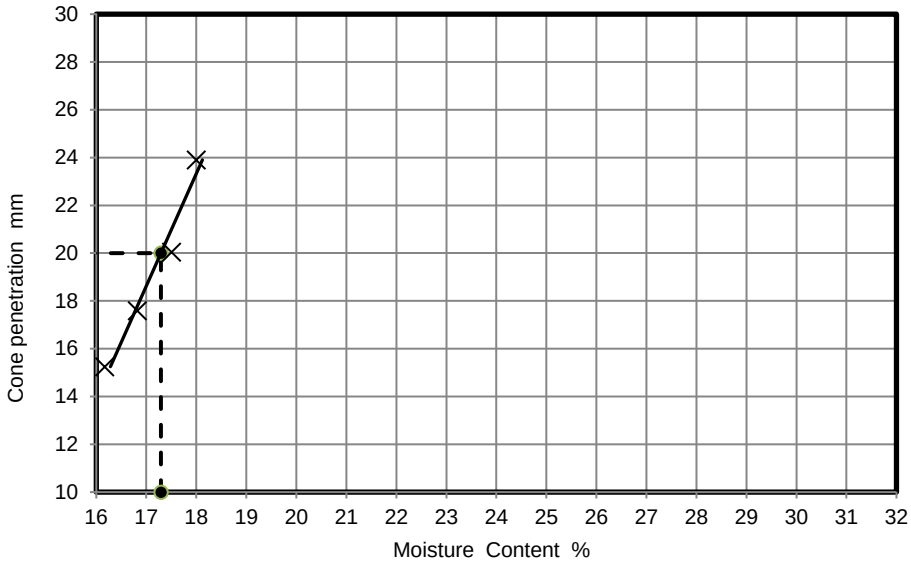
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

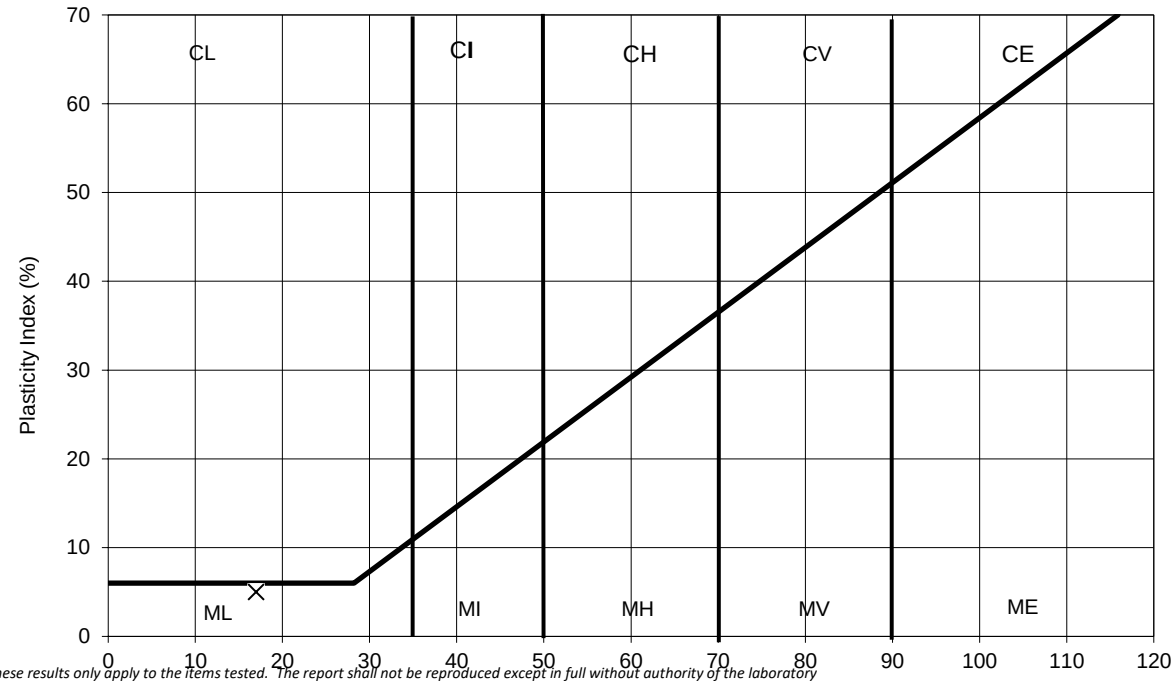


NATURAL MOISTURE CONTENT	**6.1**	**%**
% PASSING 425µm SIEVE	**37**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

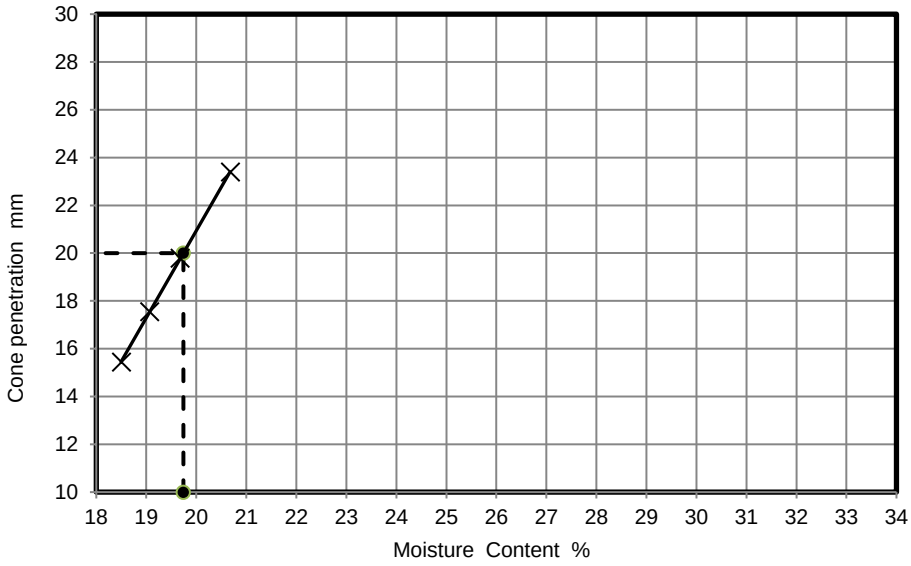
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85102
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

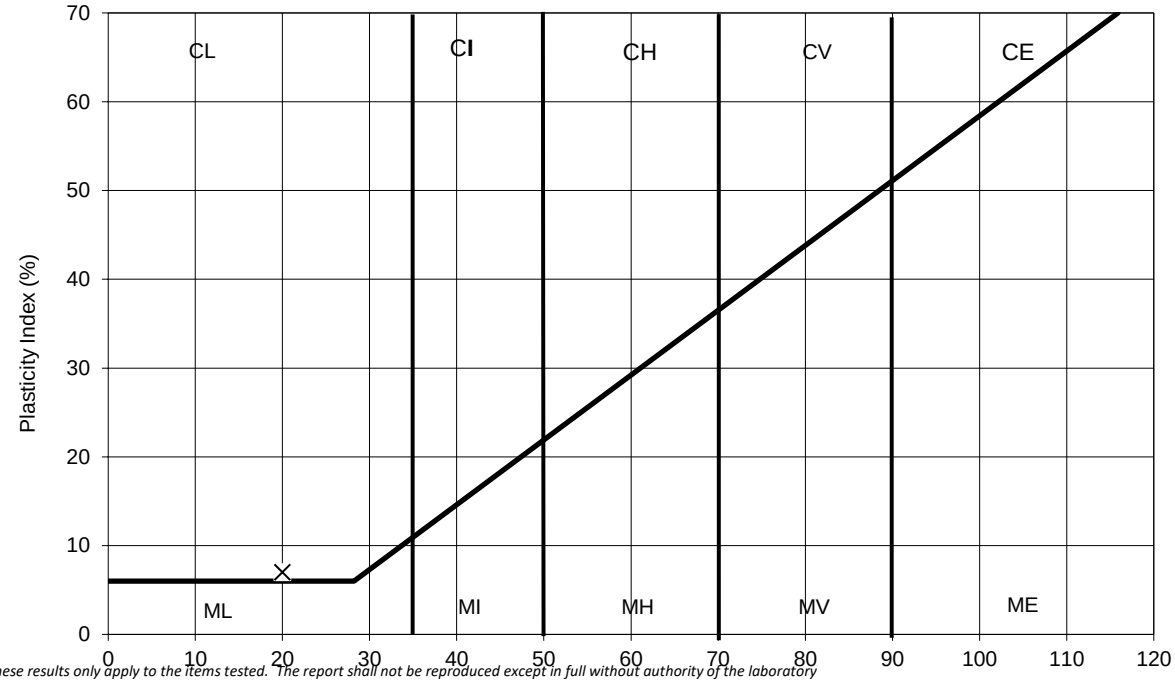


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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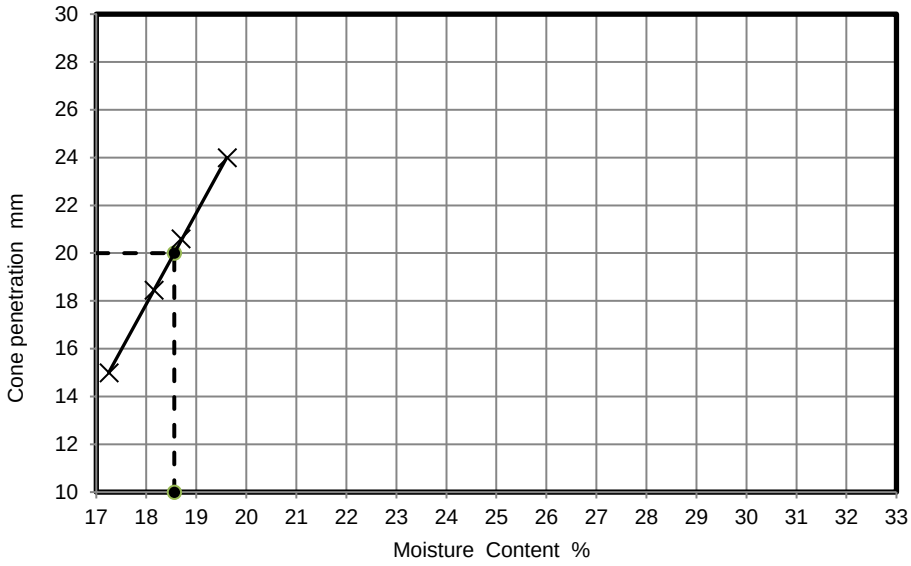
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85102
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.90 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

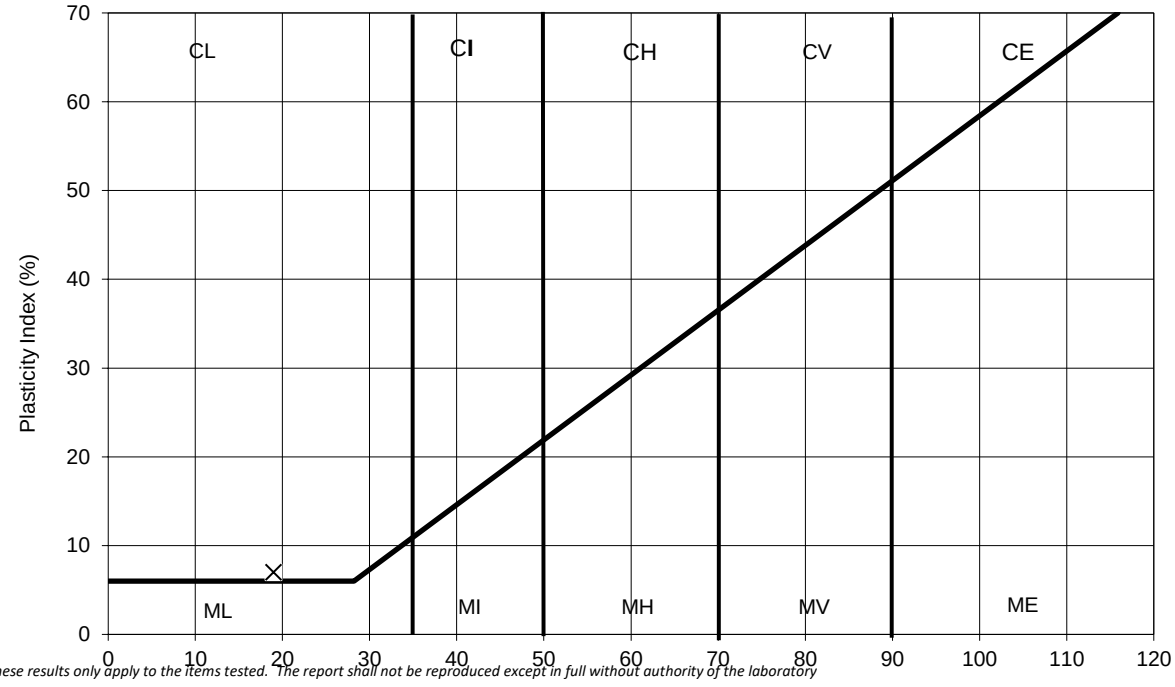


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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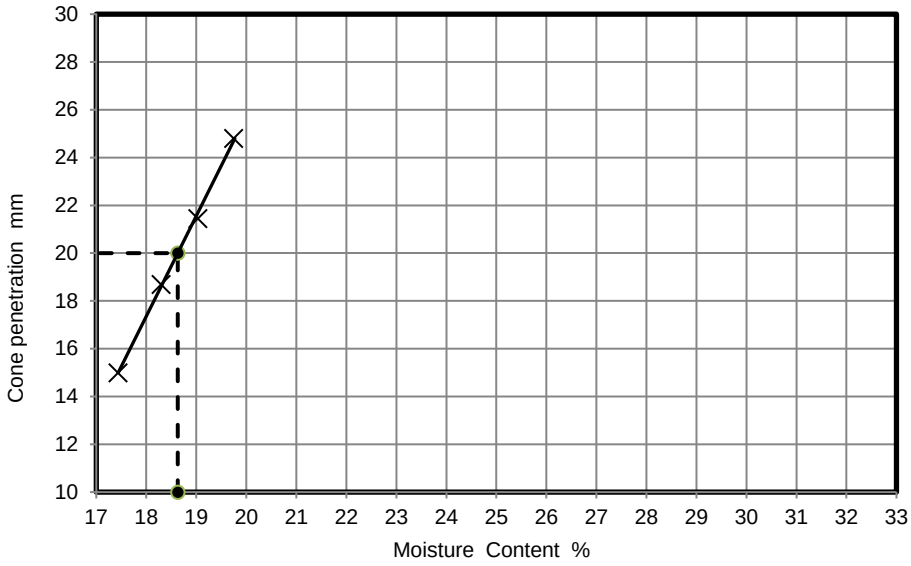
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85302
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

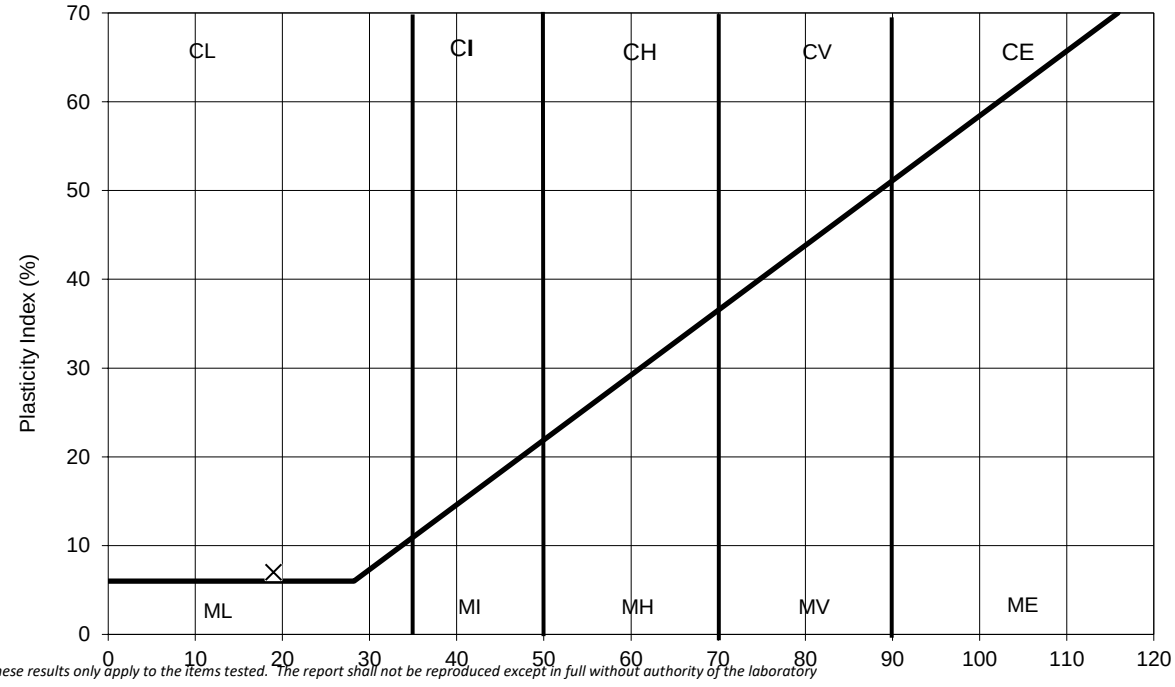


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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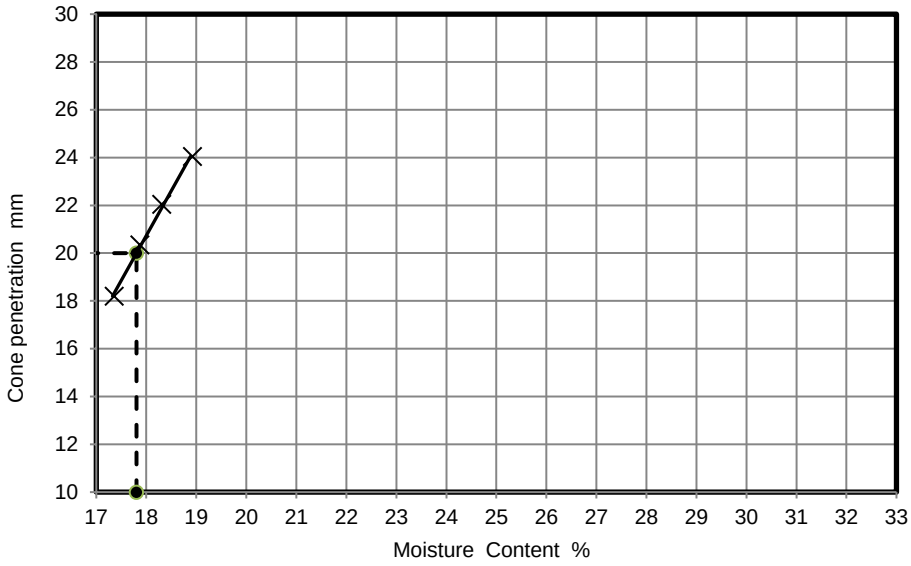
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85302
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

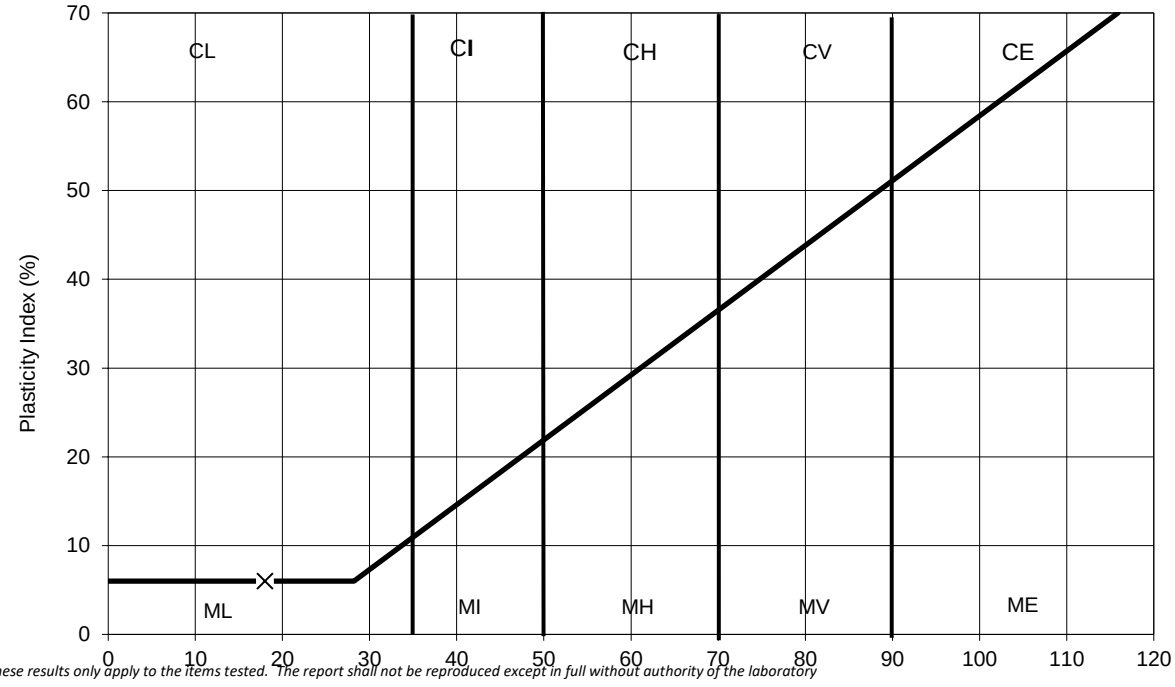


NATURAL MOISTURE CONTENT	**8.7**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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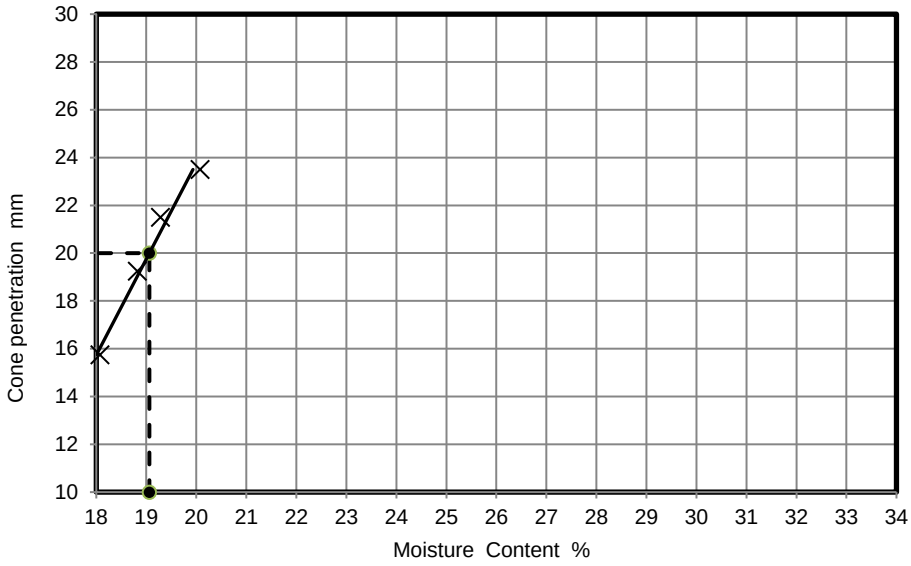
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

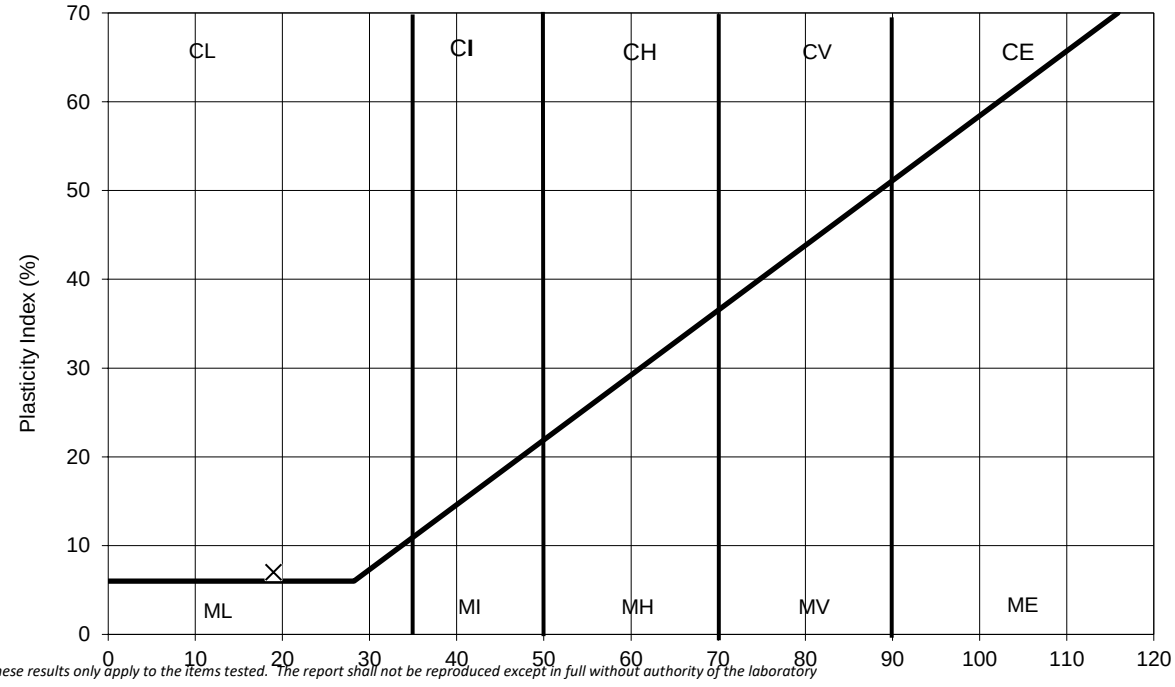


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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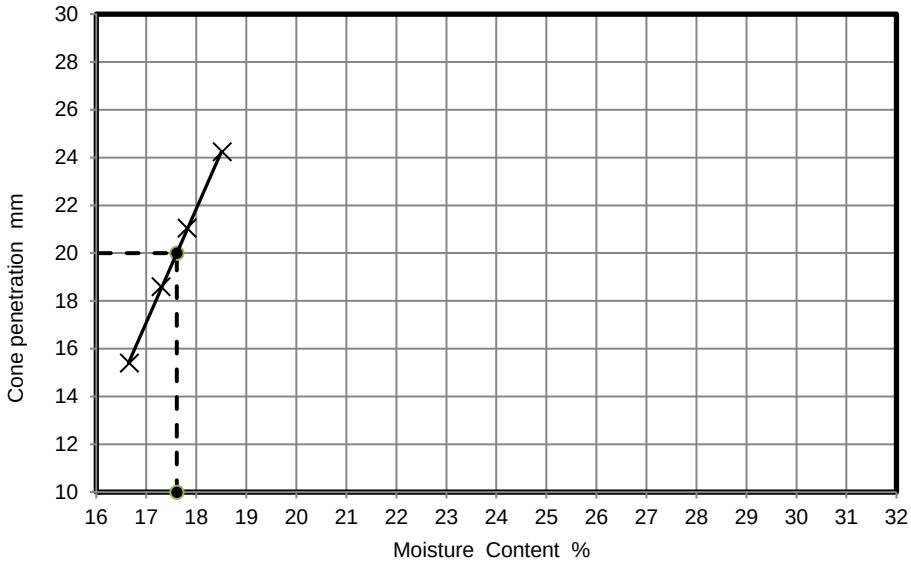
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

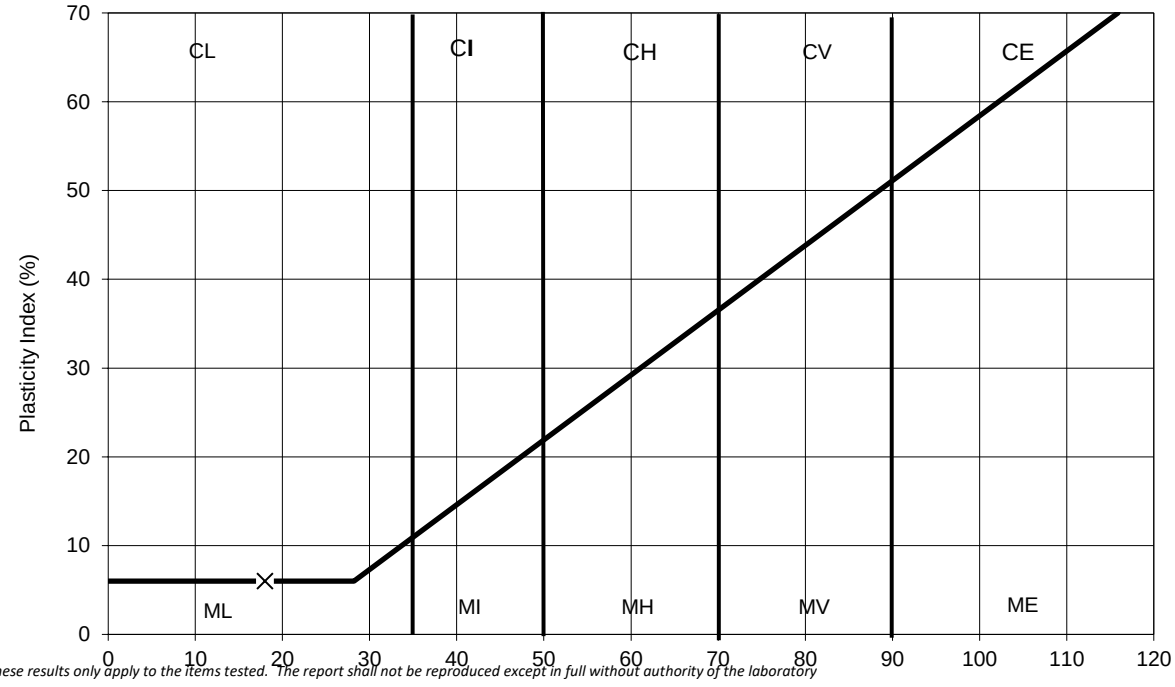


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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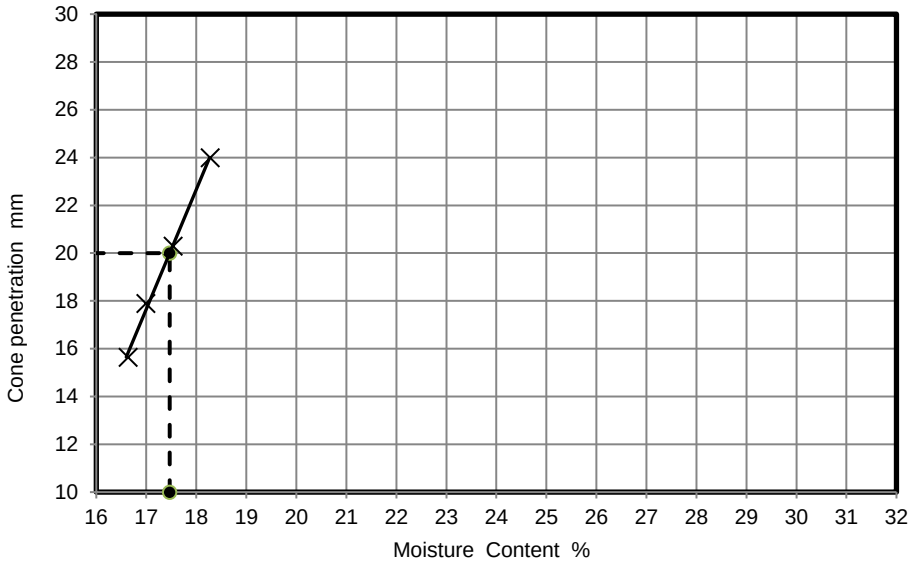
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-87206
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

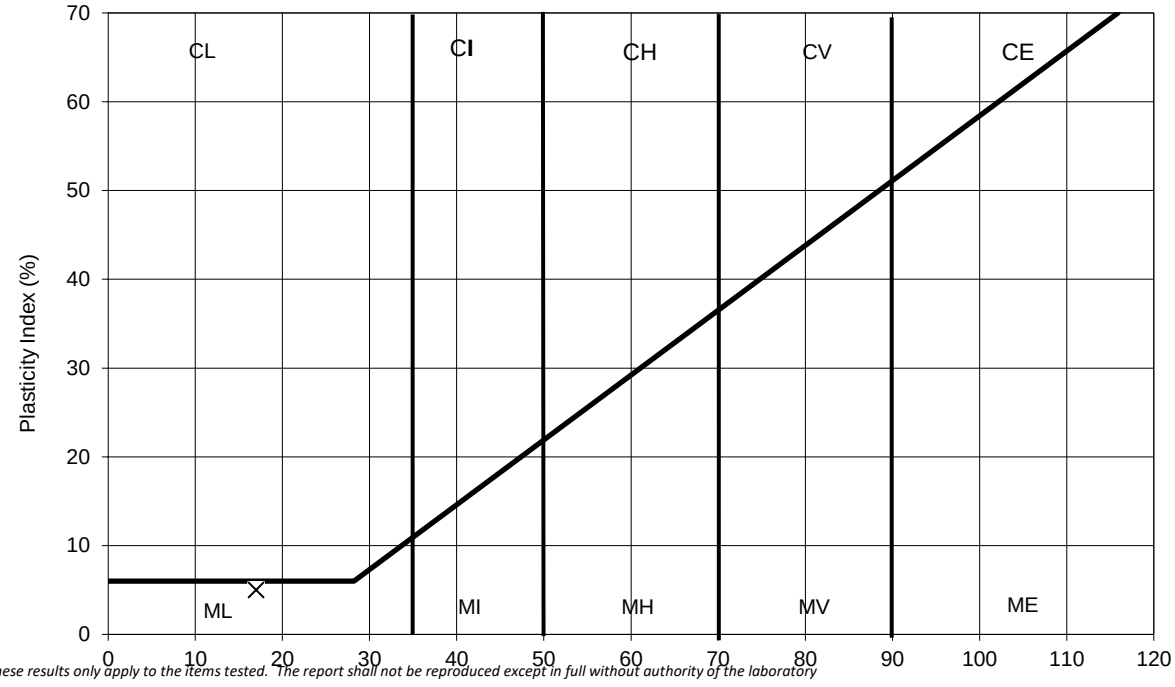


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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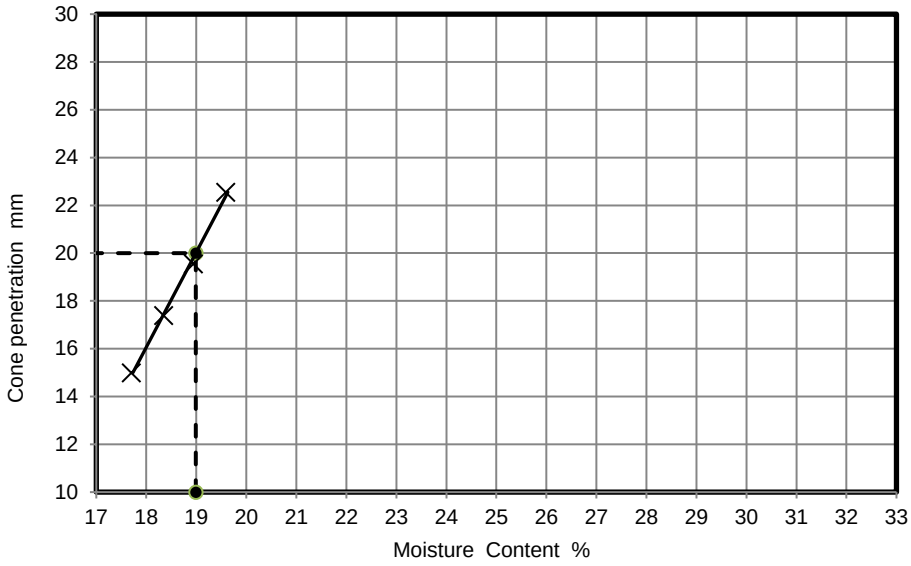
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-87304
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

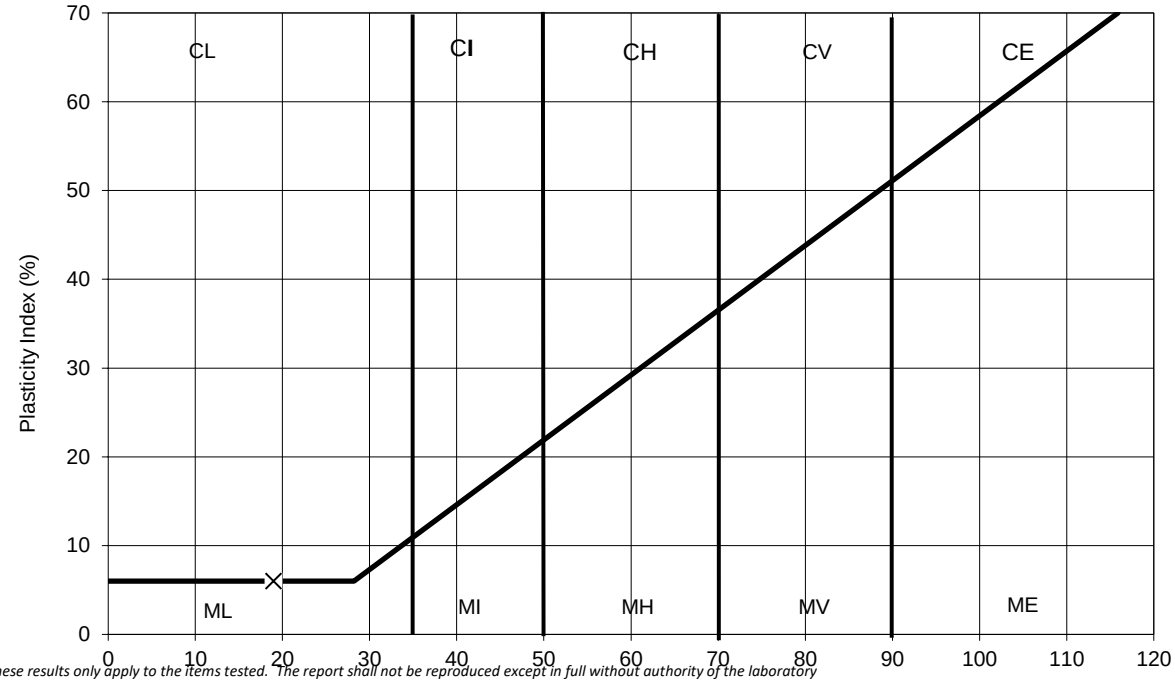


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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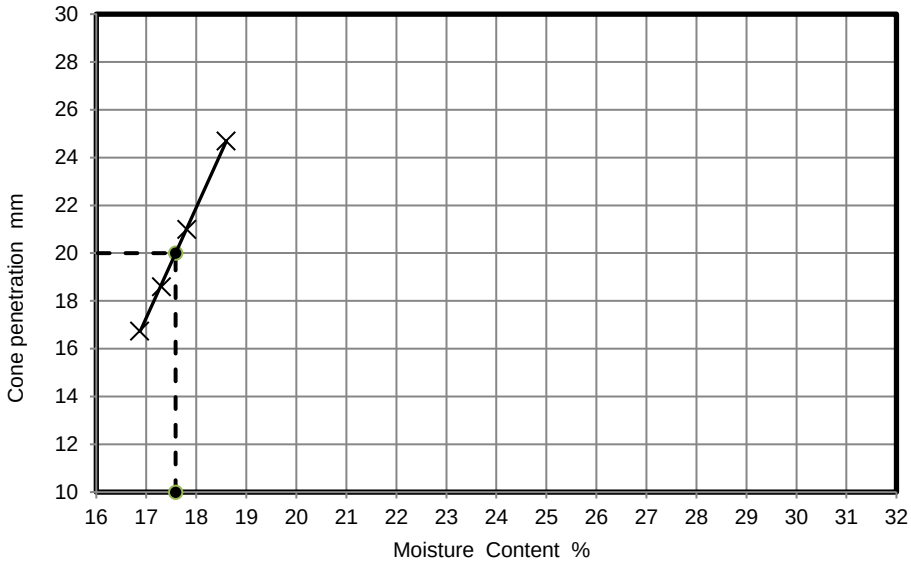
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

Job No. 32282

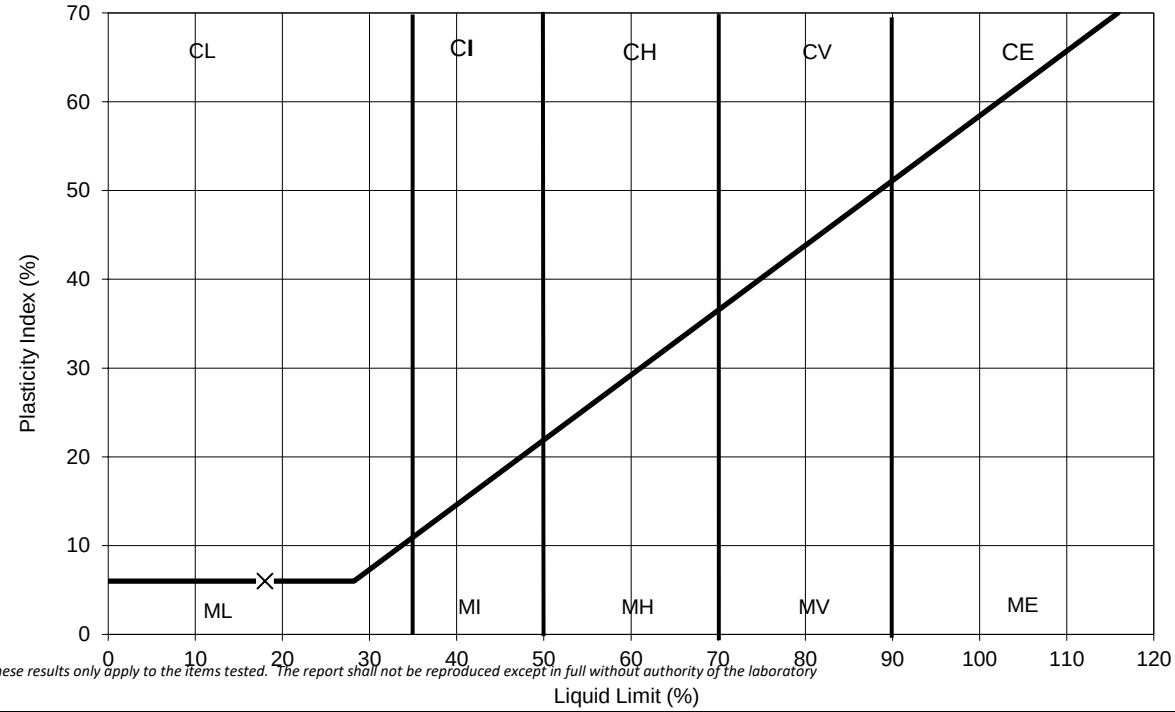
Borehole/Pit No. TP-87803



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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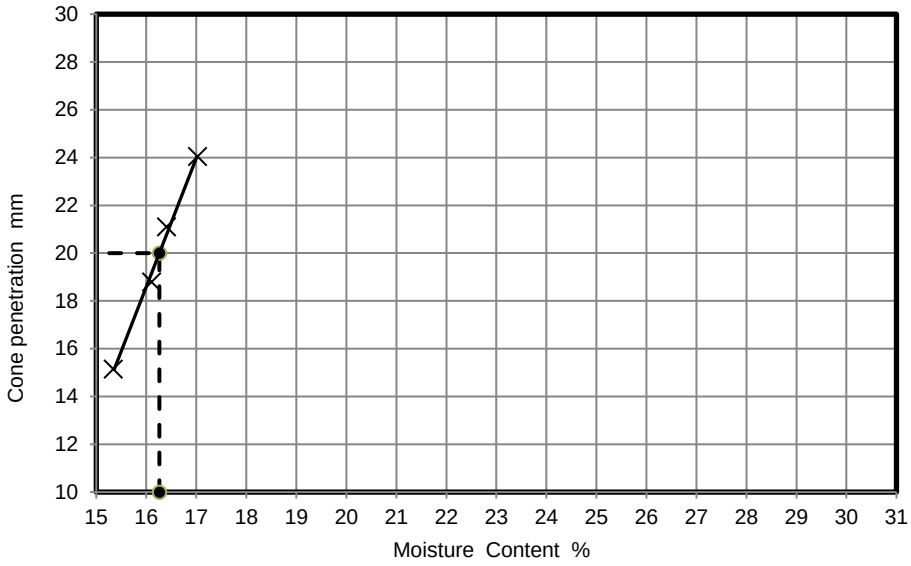
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

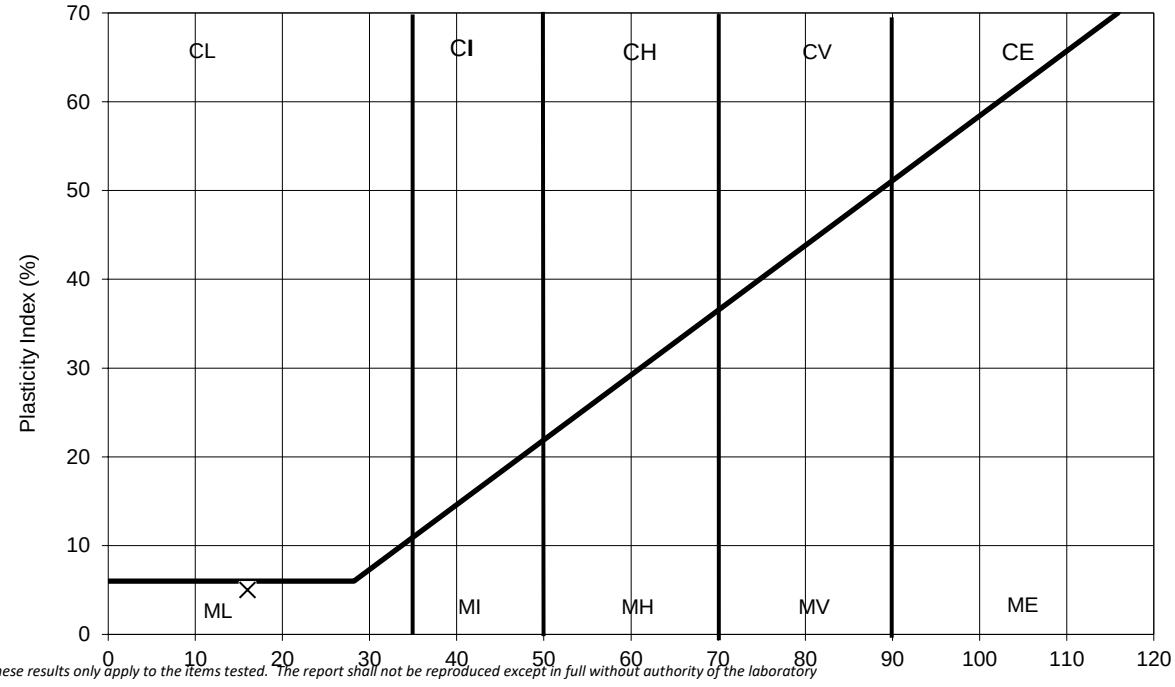
				Job No.	32282
				Borehole/Pit No.	TP-88303
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

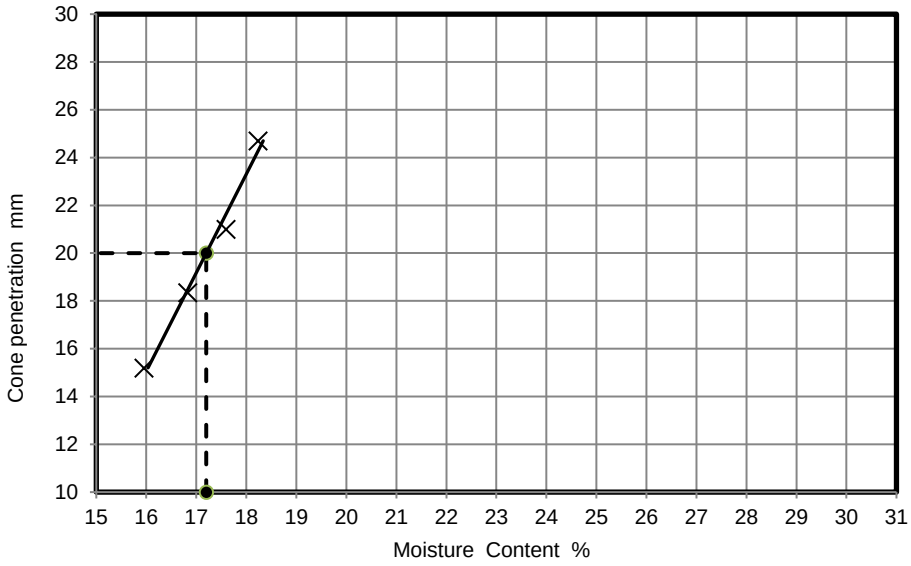
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88303
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

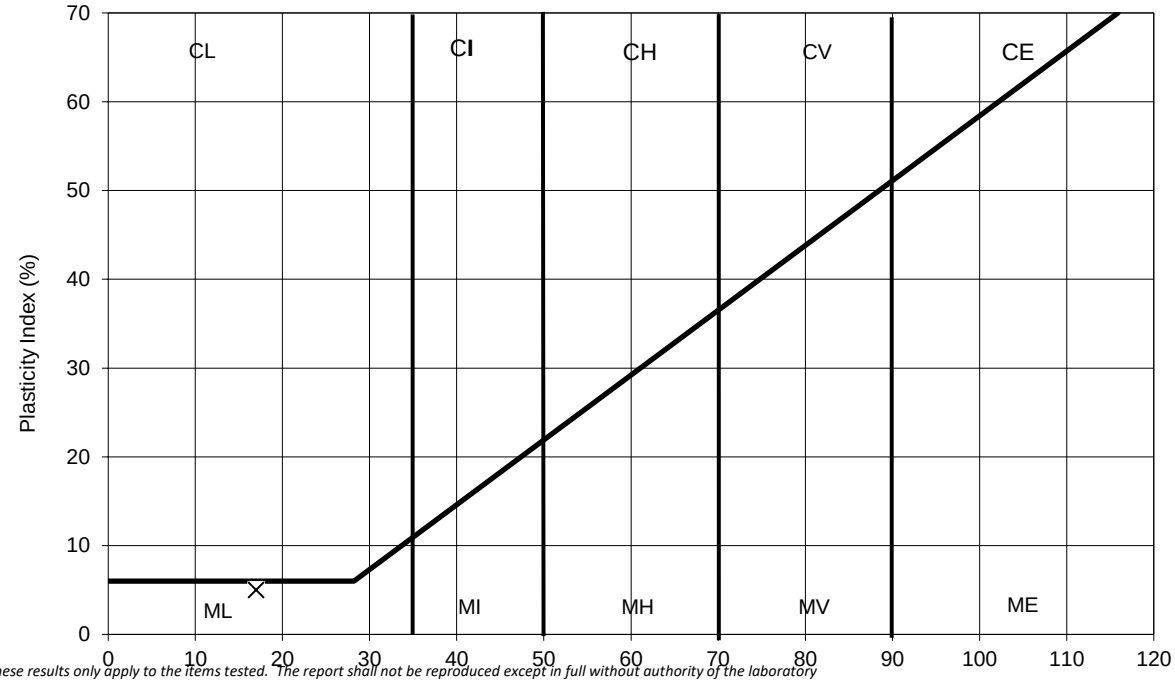


NATURAL MOISTURE CONTENT	**8.5**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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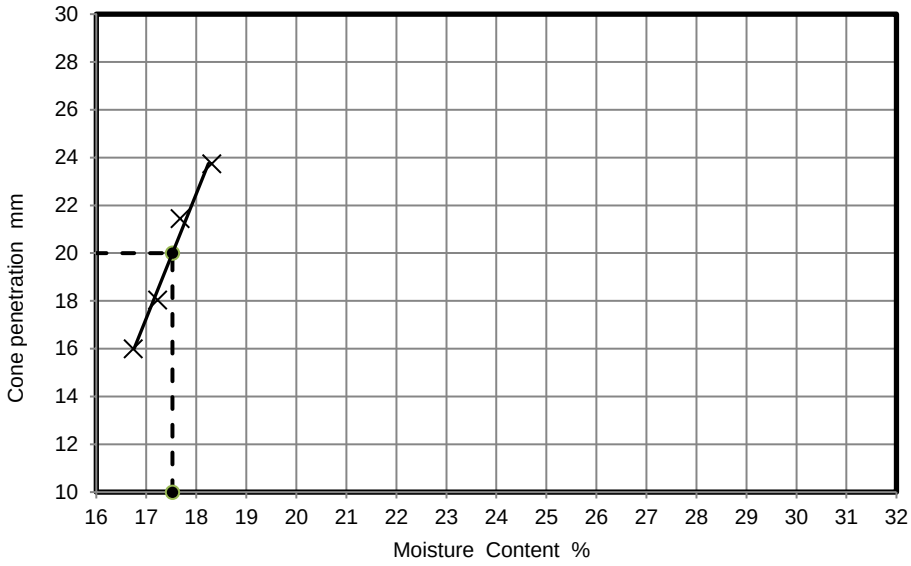
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022
				Job No.	32282
				Borehole/Pit No.	TP-88402

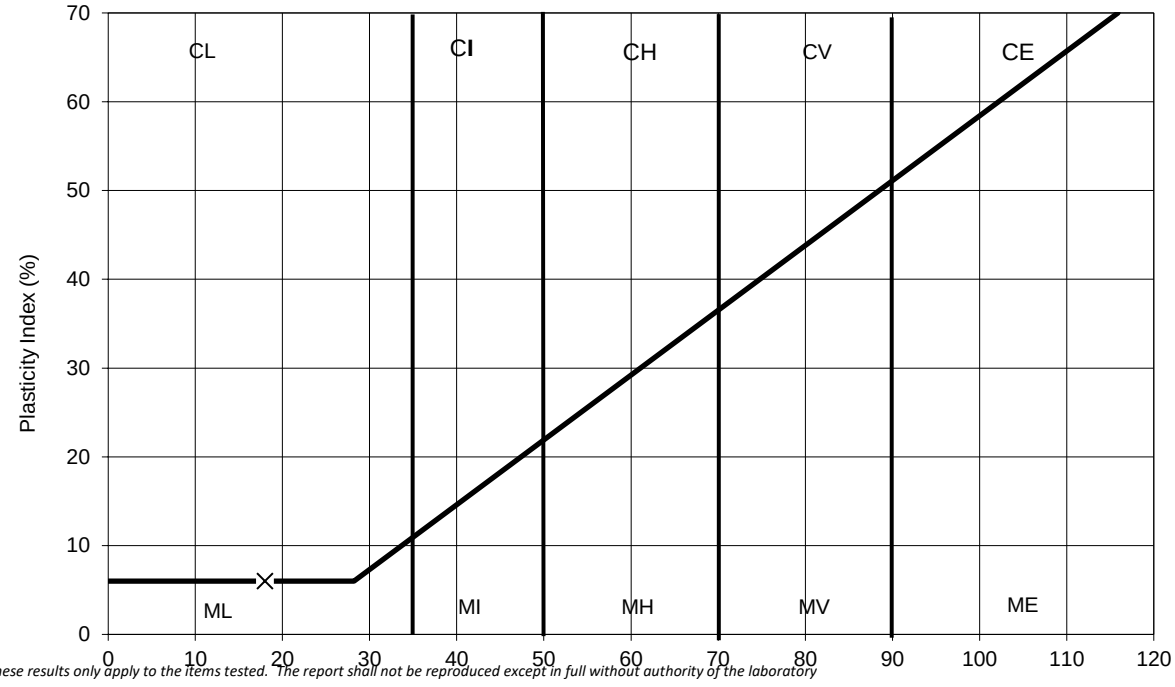


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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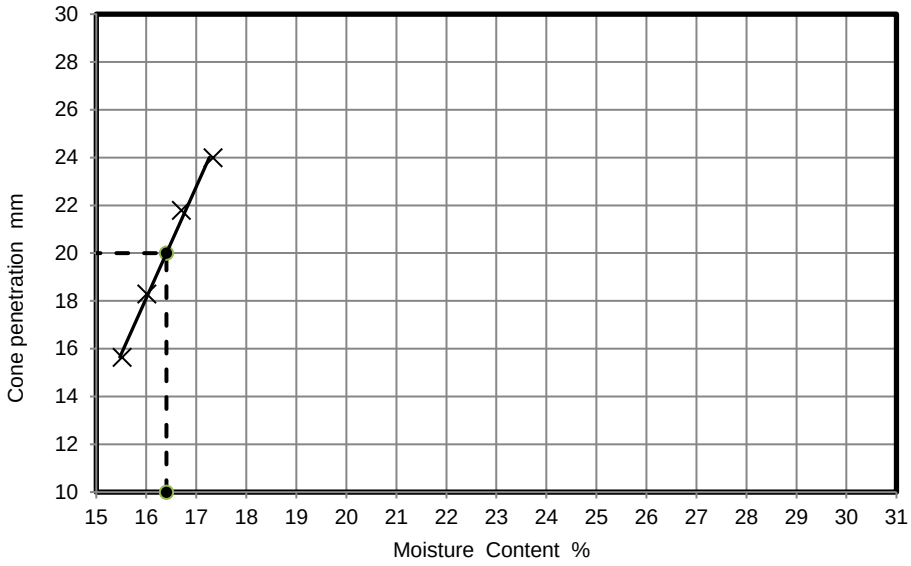
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

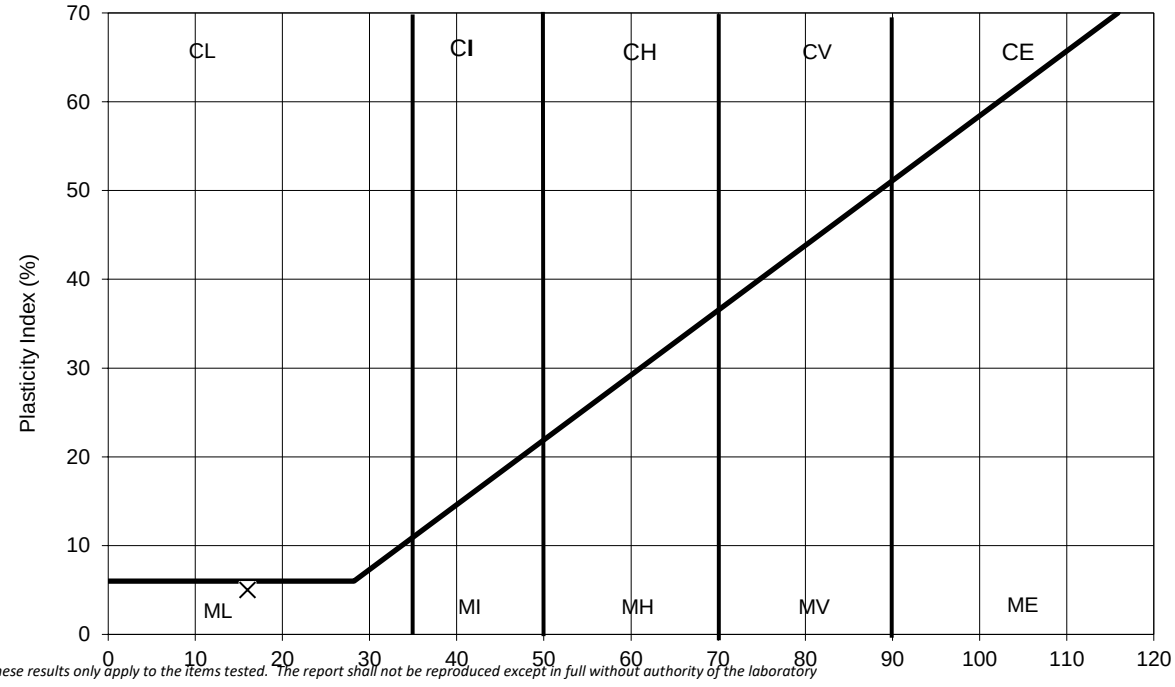


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**34**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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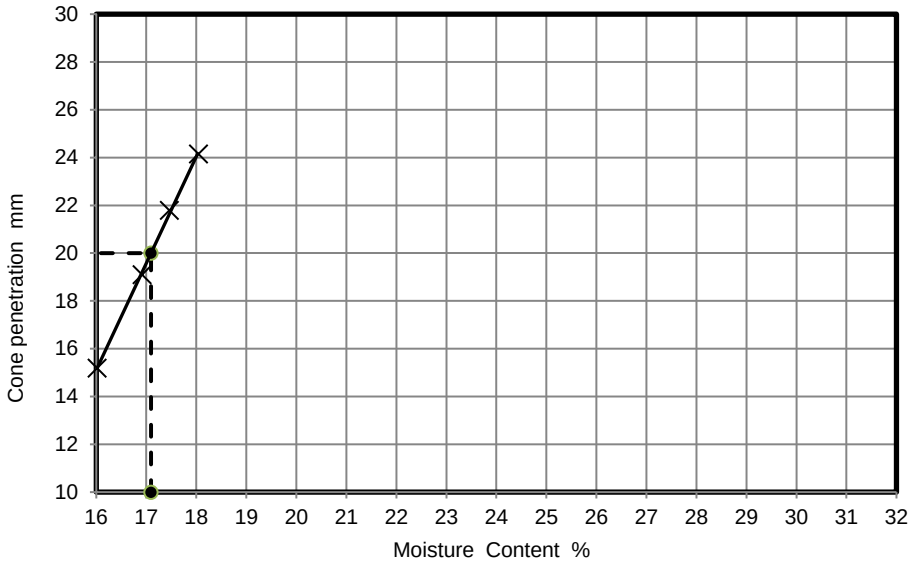
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-88703
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

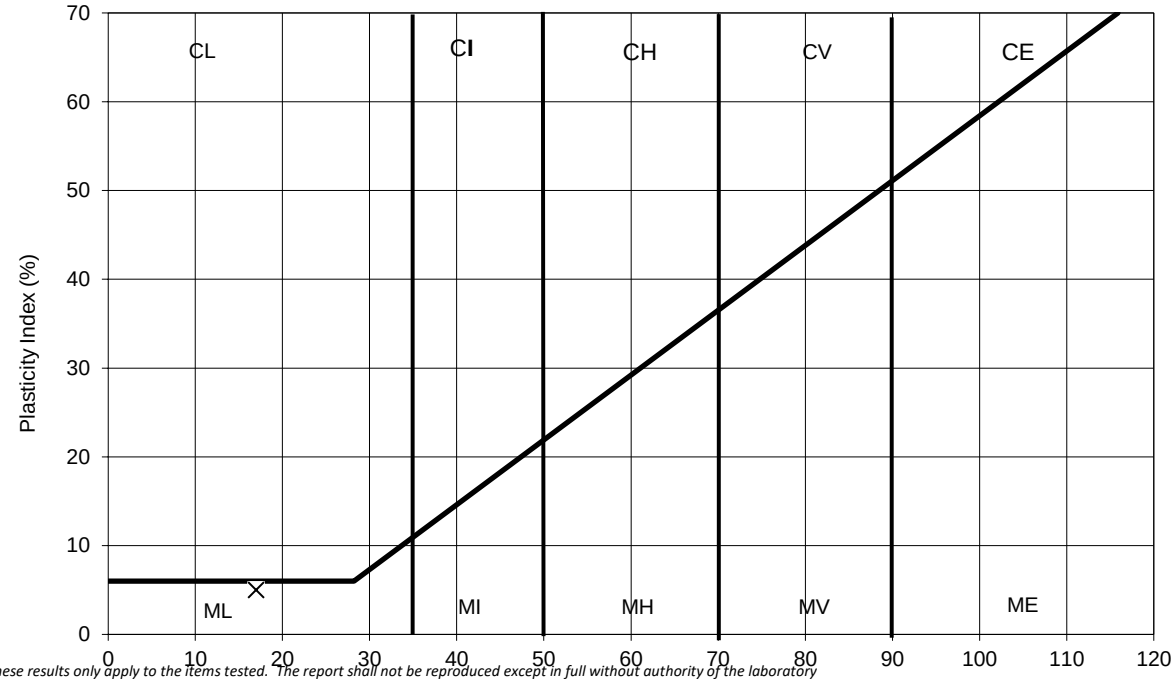


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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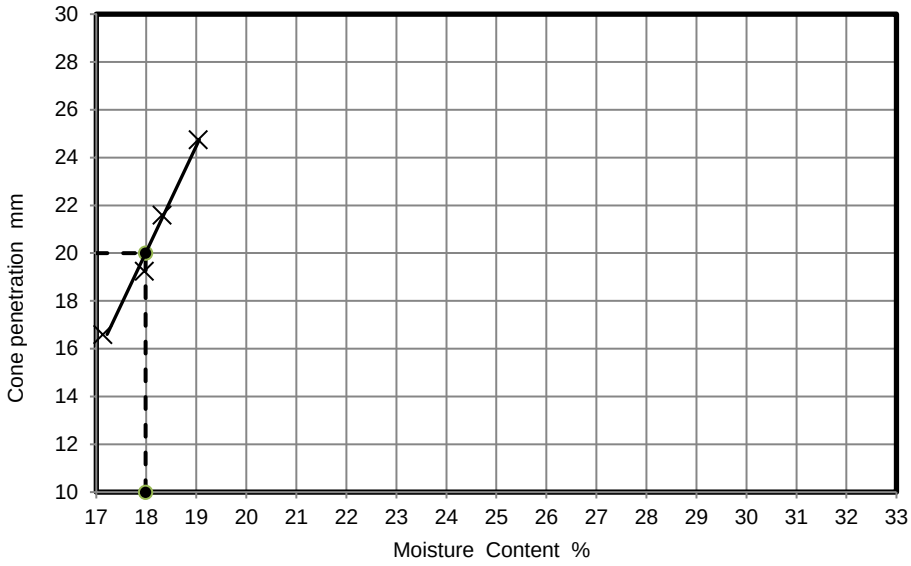
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Brownish grey gravelly clayey very silty SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

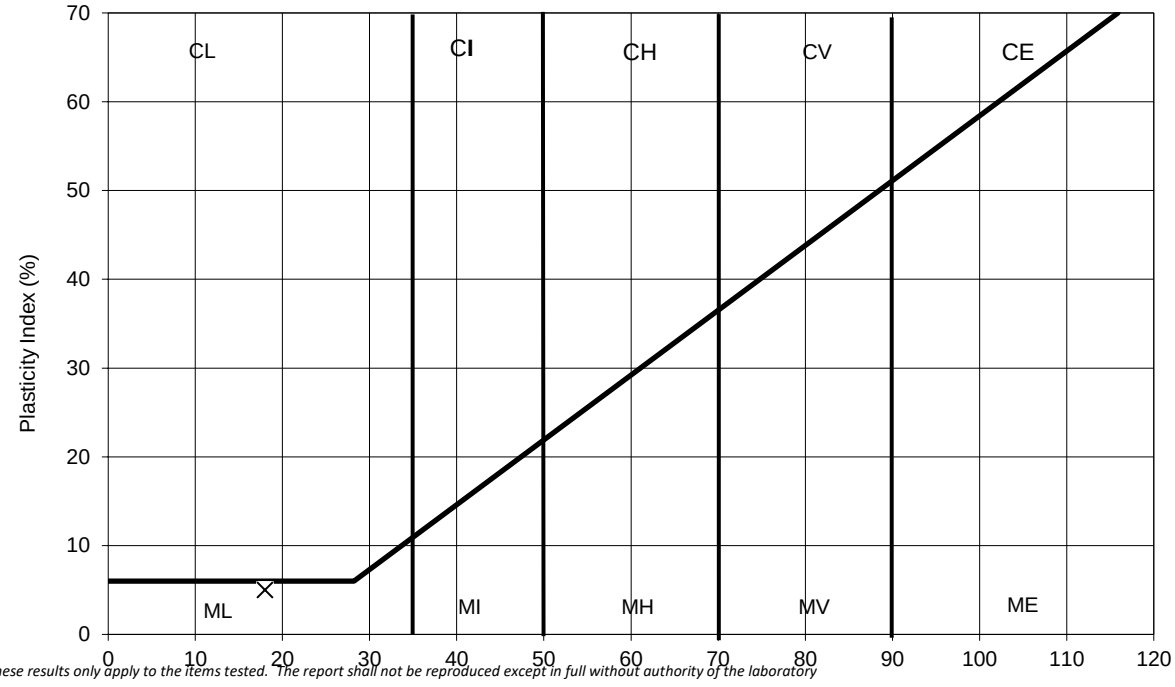


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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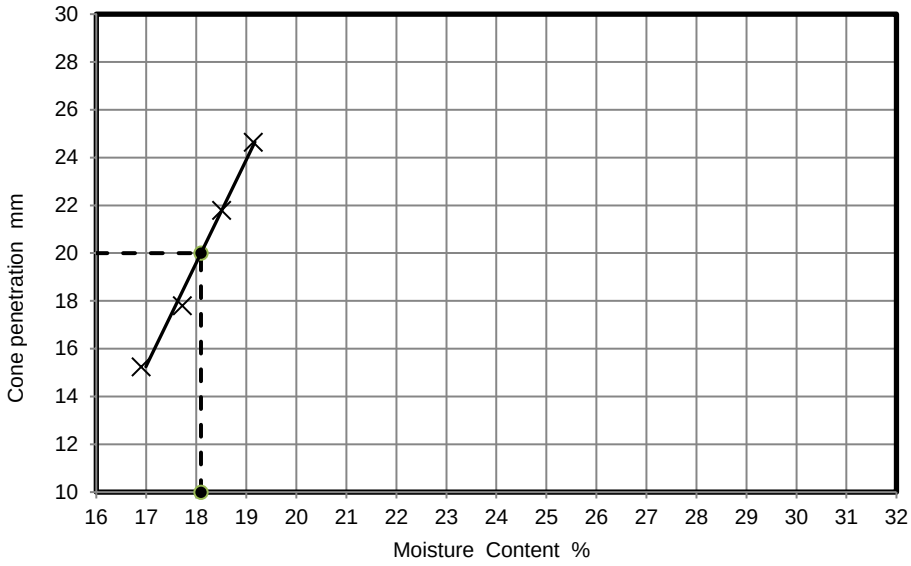
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

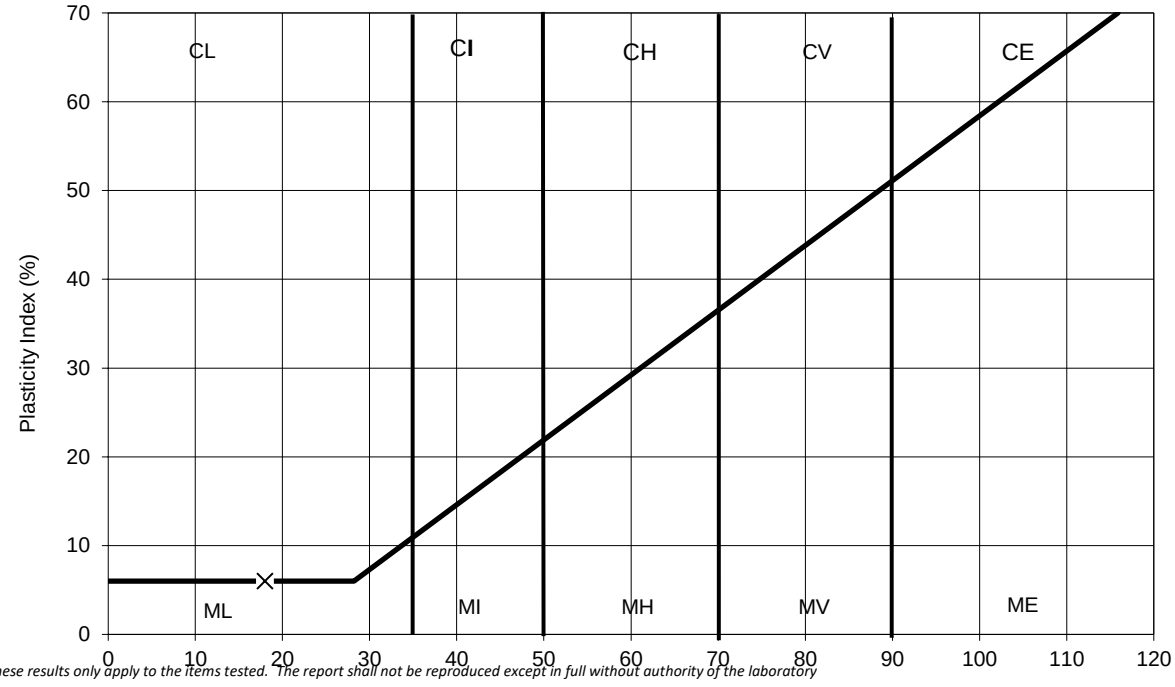


NATURAL MOISTURE CONTENT	**5.8**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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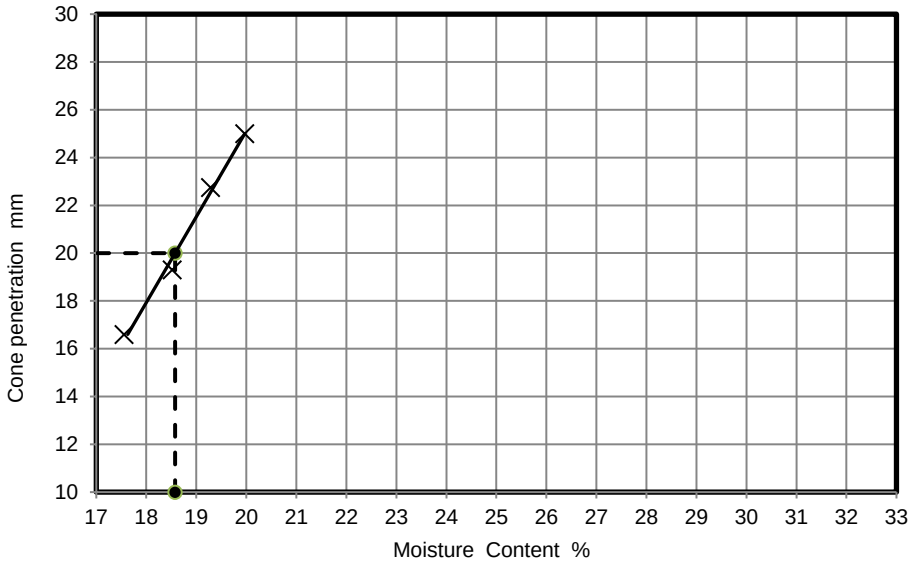
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

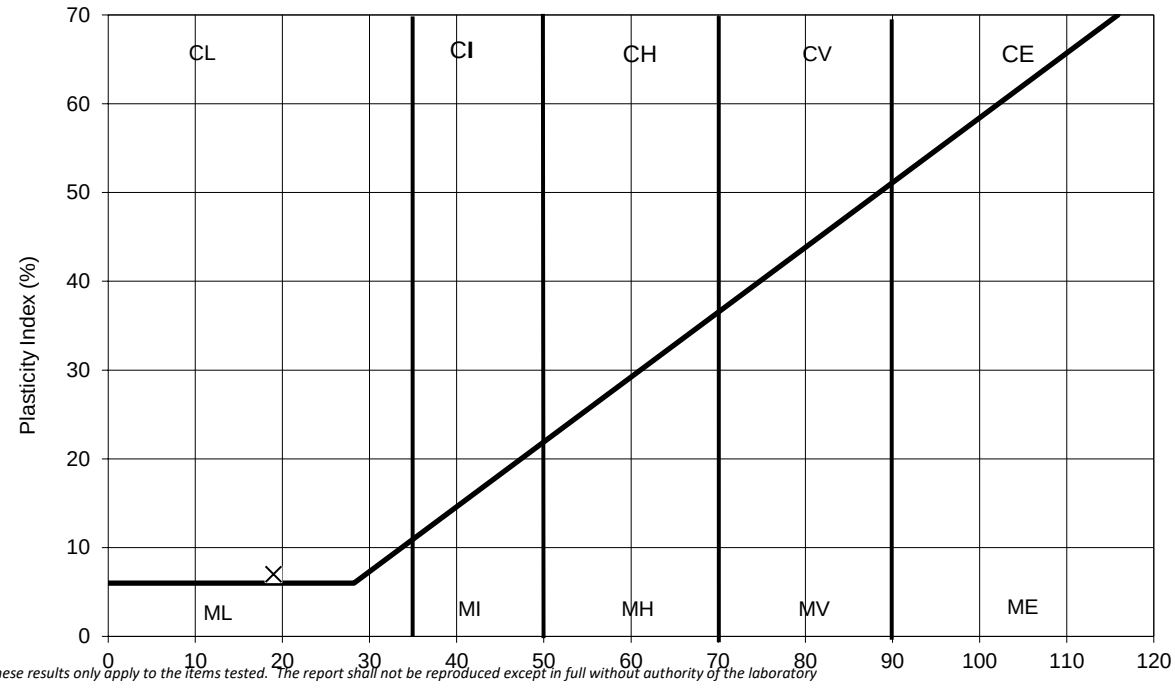


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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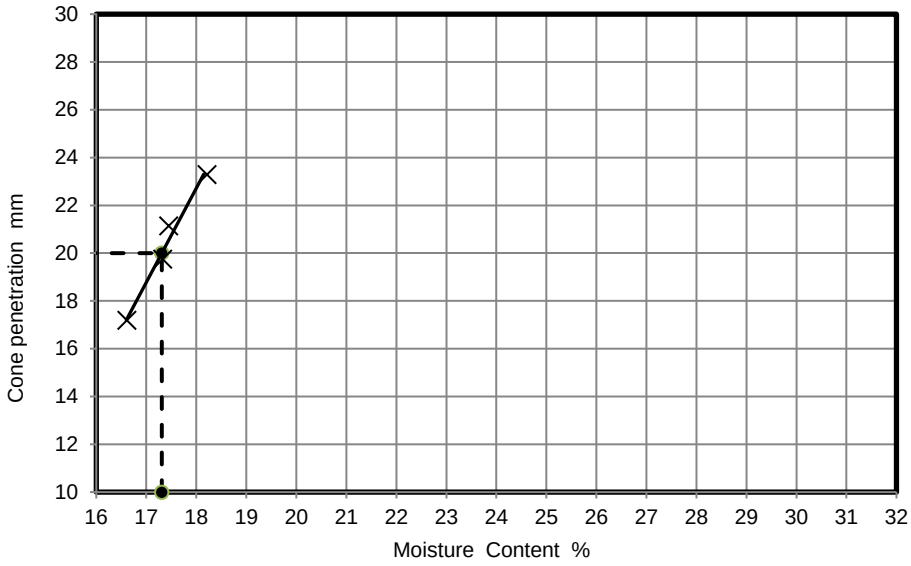
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89003
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

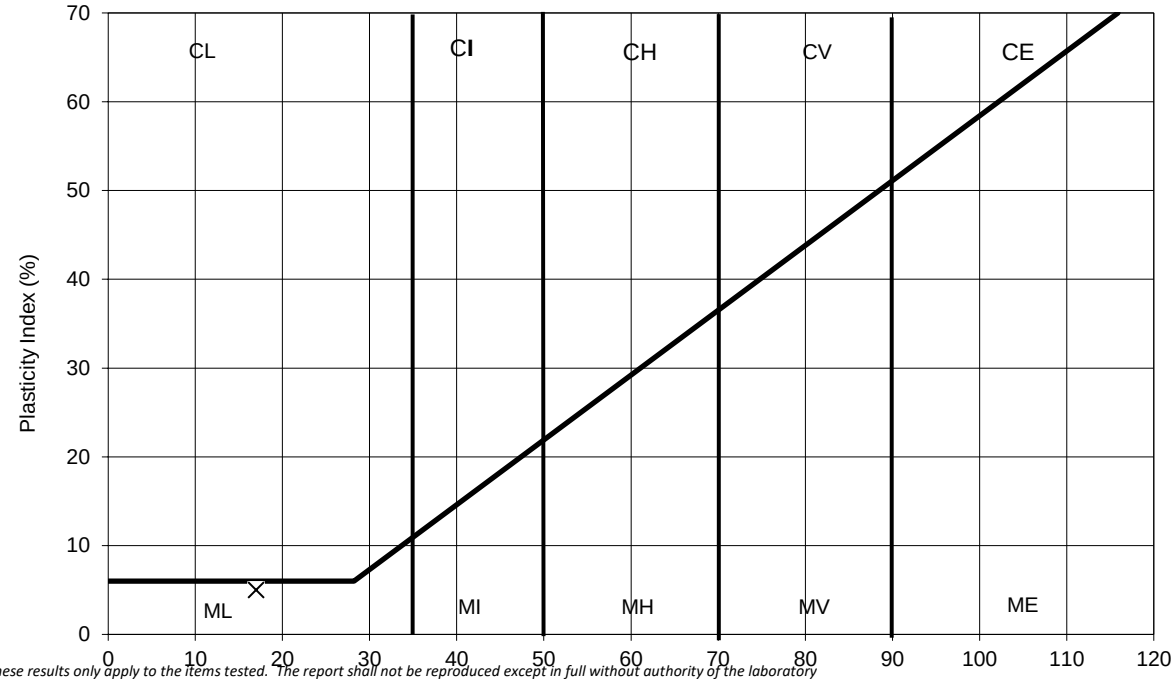


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**69**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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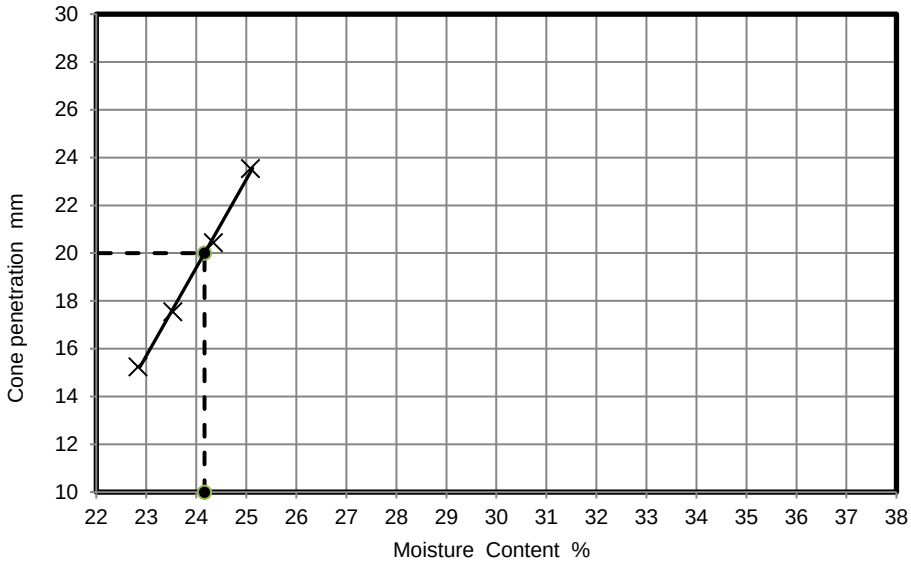
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89104
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

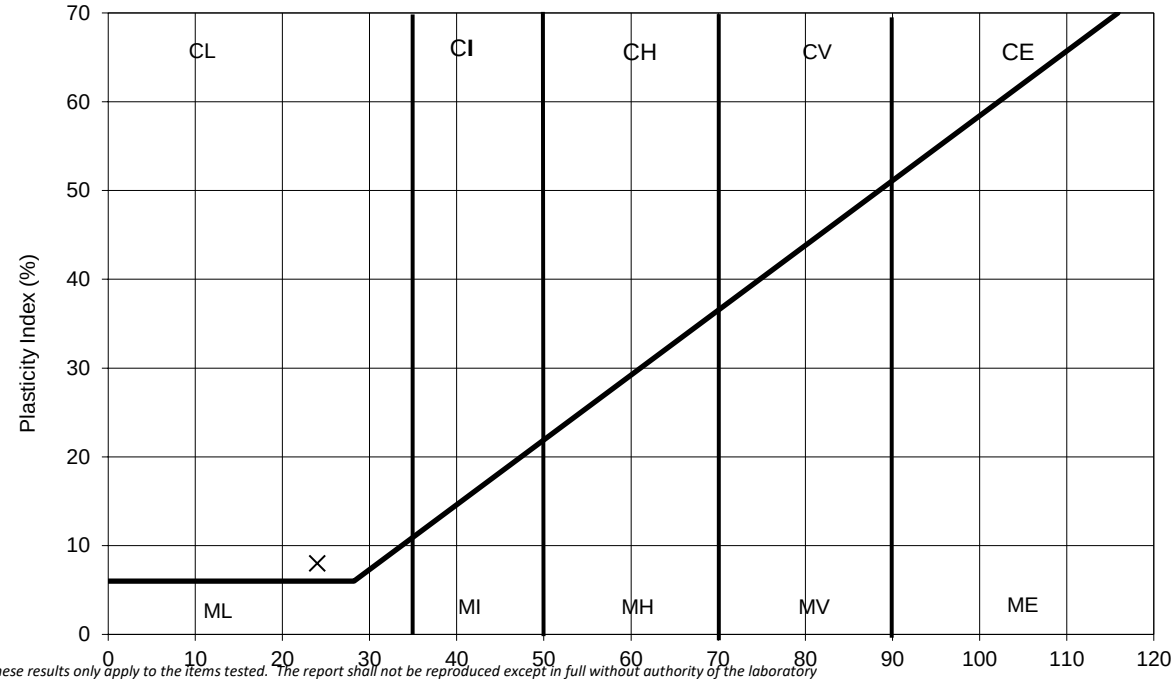


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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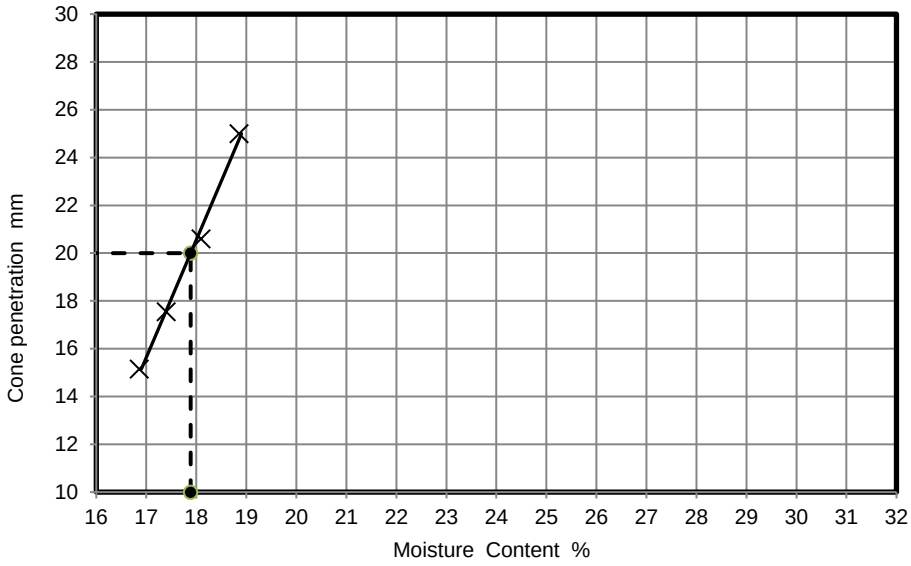
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-89205				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

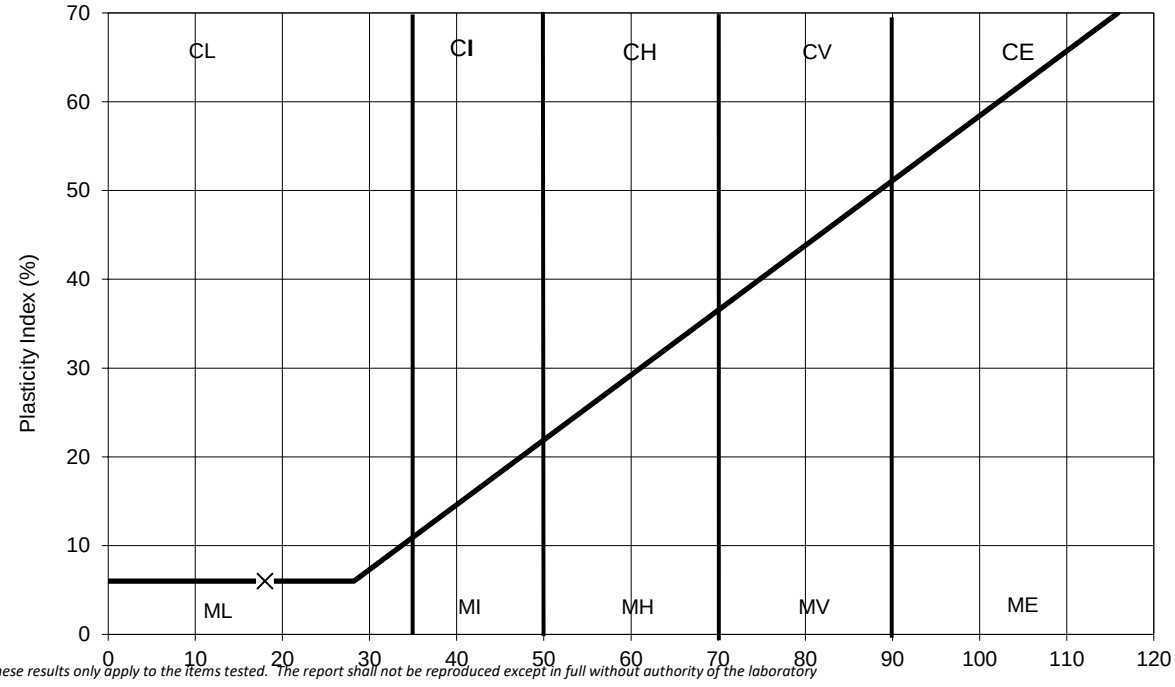


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

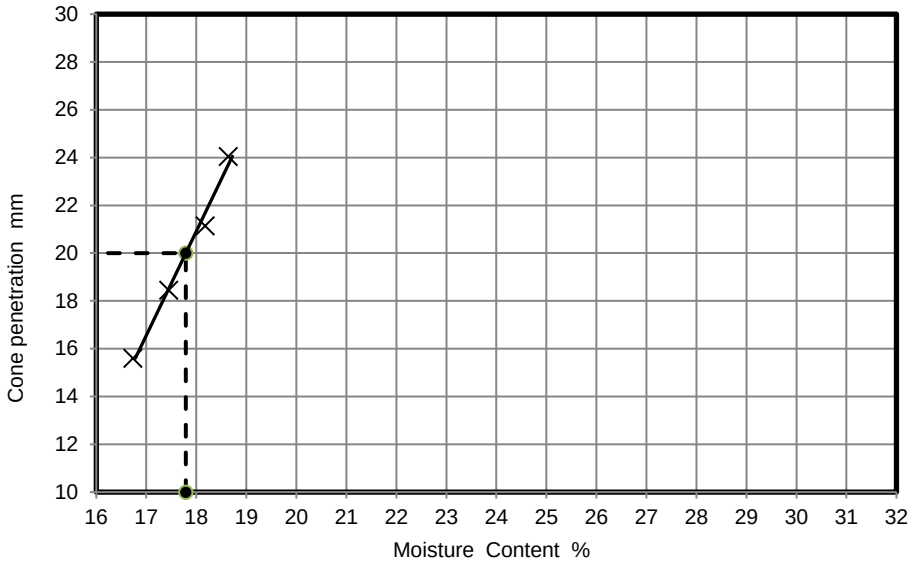
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89303
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

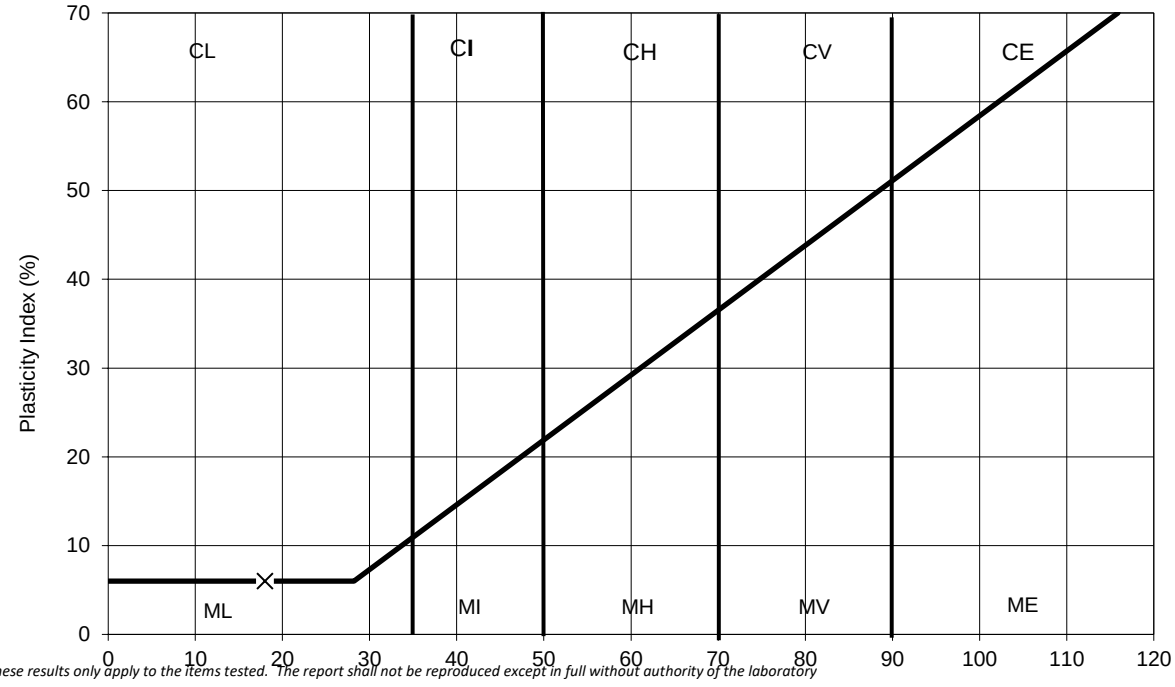


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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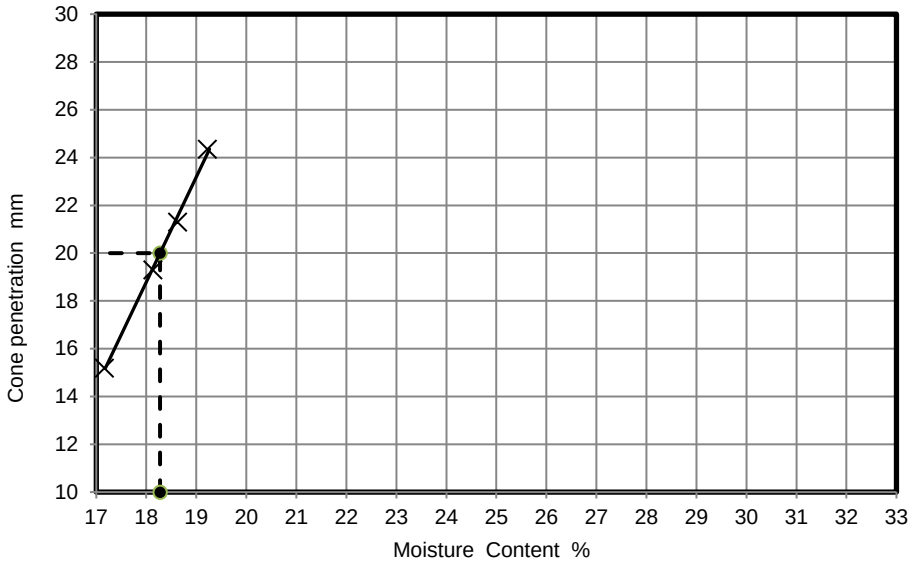
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89405
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

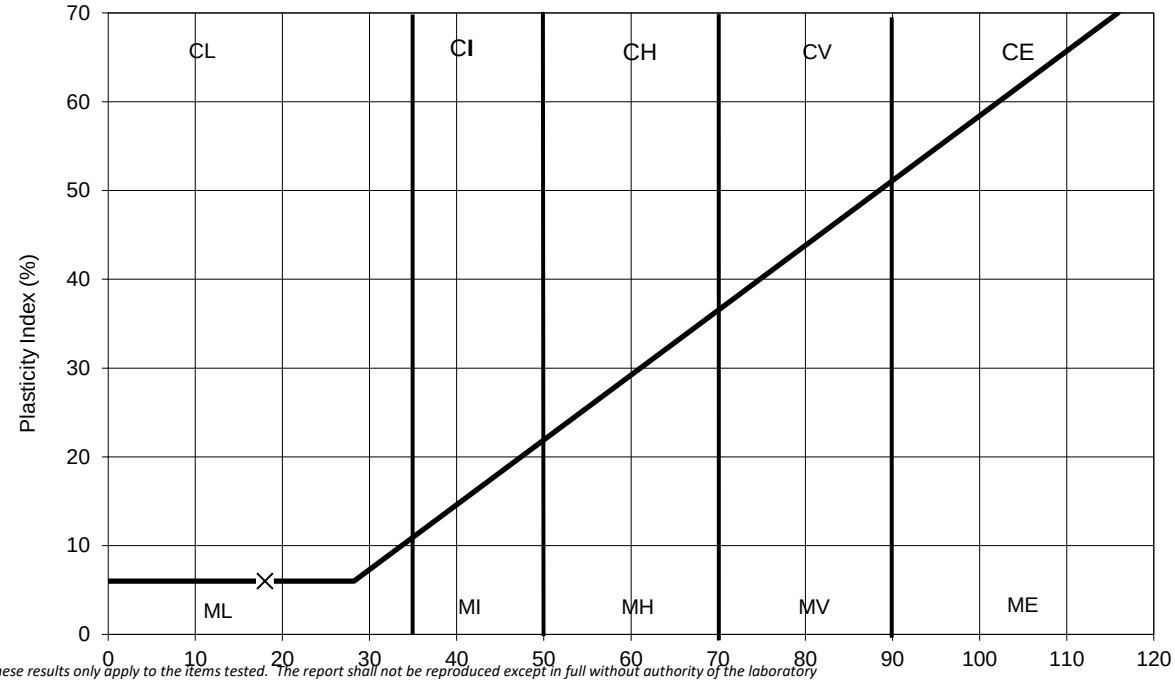


NATURAL MOISTURE CONTENT	**8.2**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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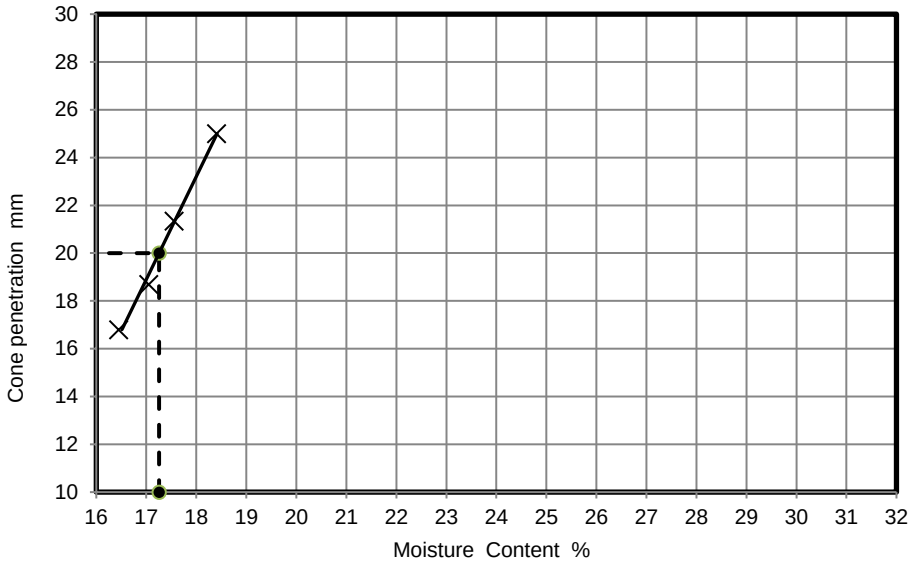
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-89555				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

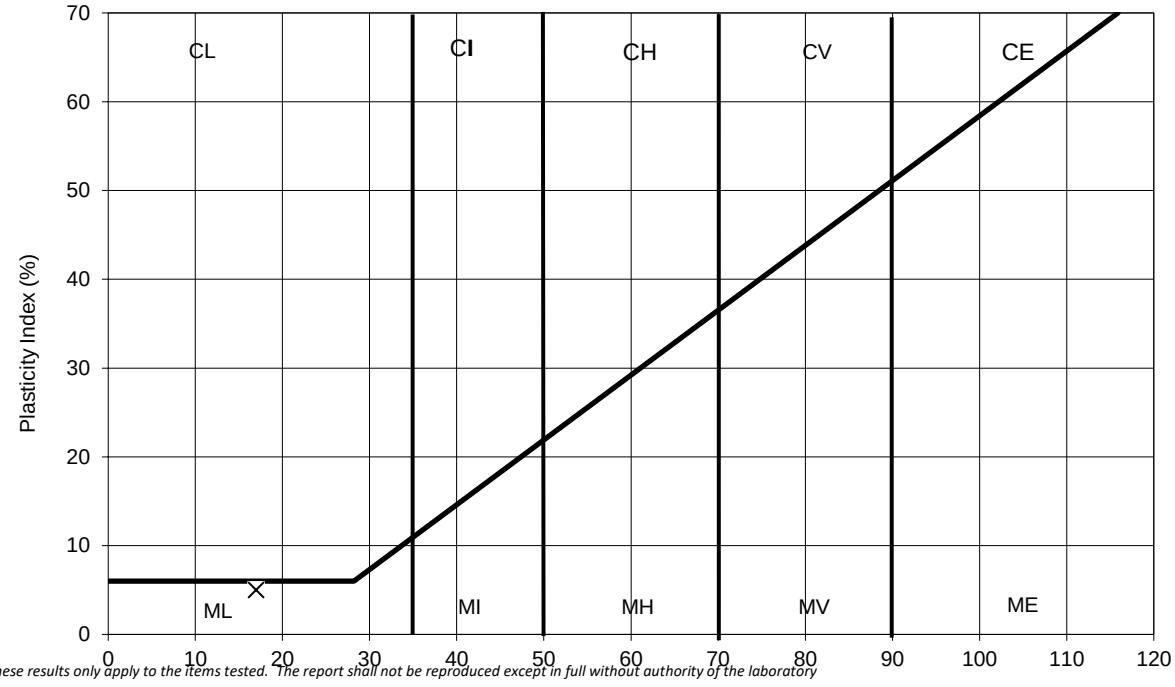


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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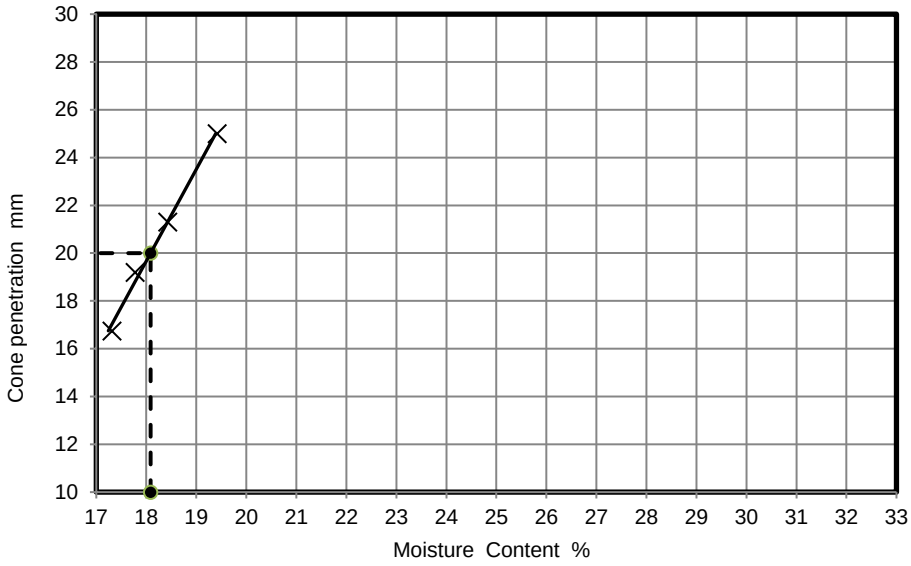
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-90401				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

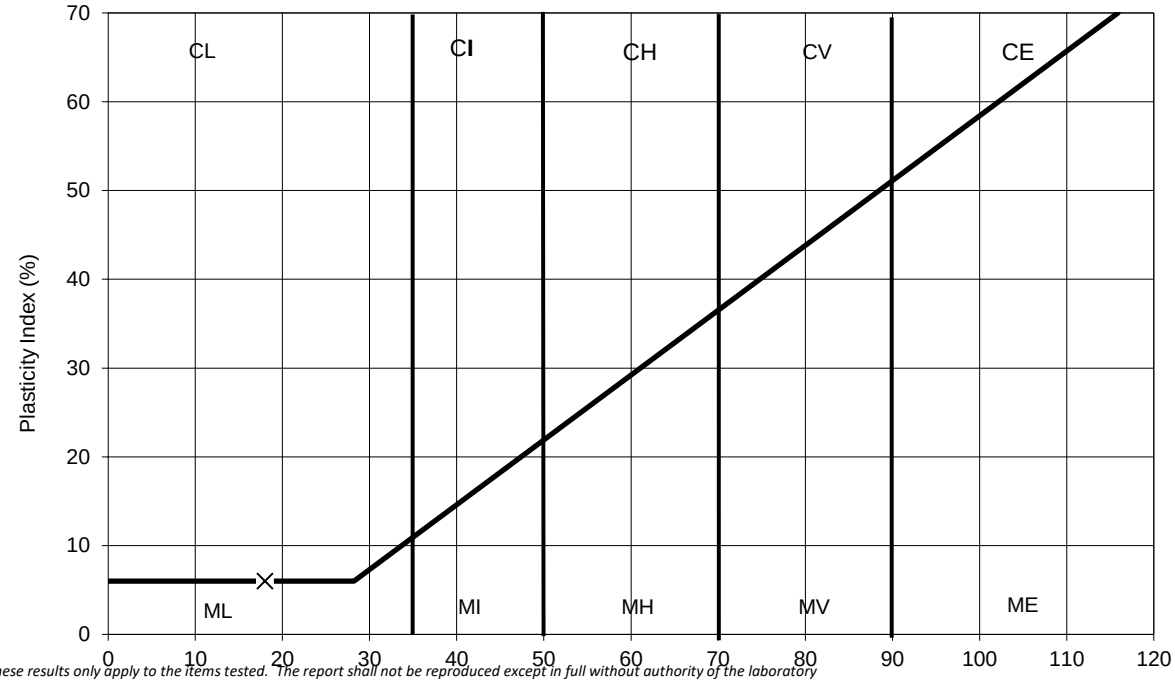


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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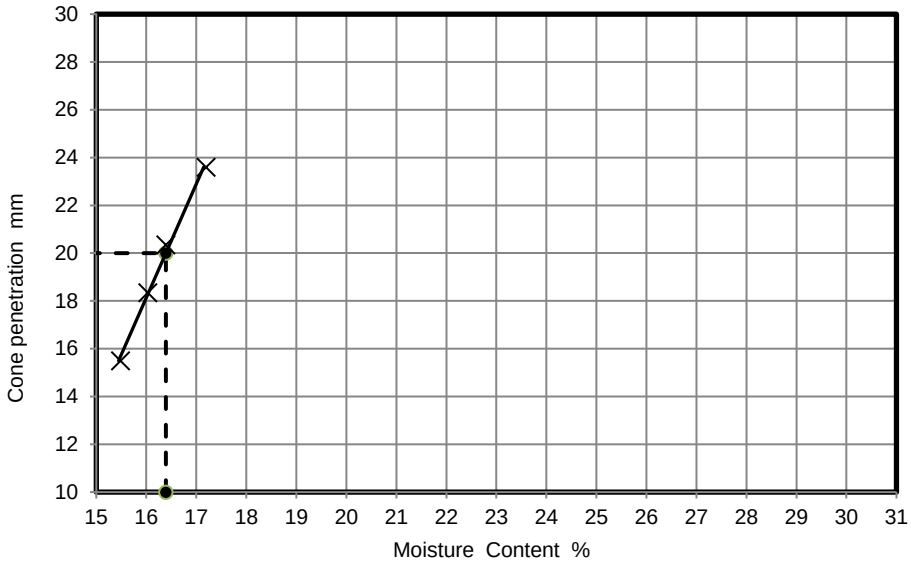
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D

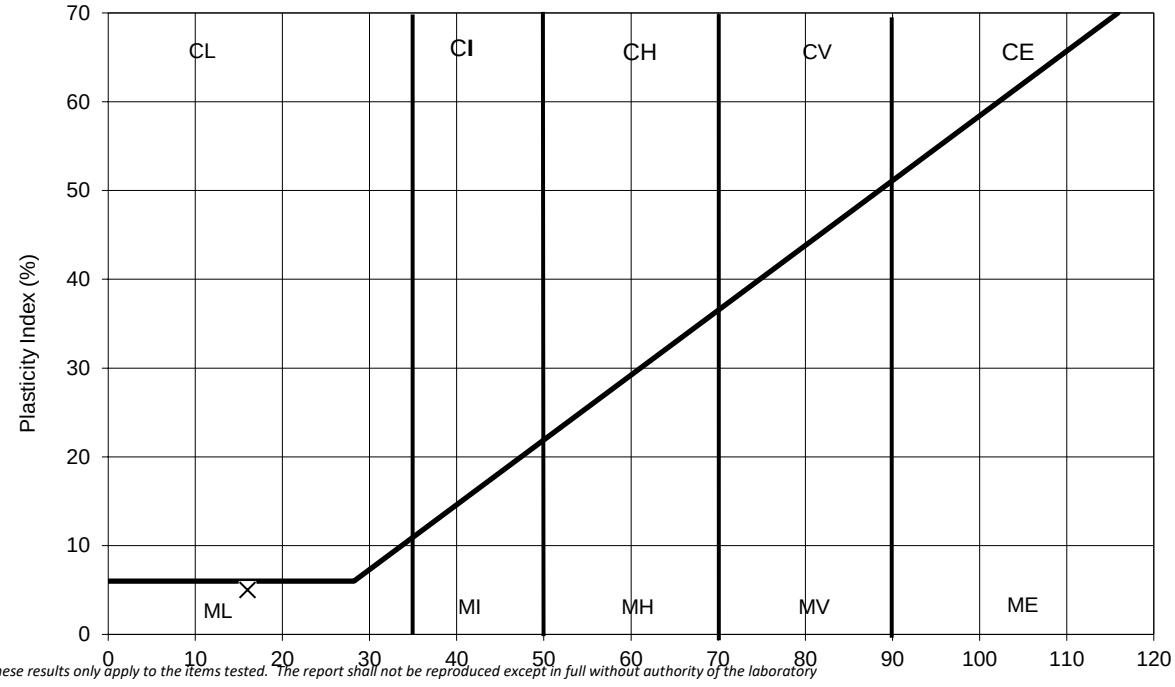
Job No.	32282
Borehole/Pit No.	TP-90401
Samples received	16/08/2022
Schedules received	11/08/2022
Project Started	17/08/2022
Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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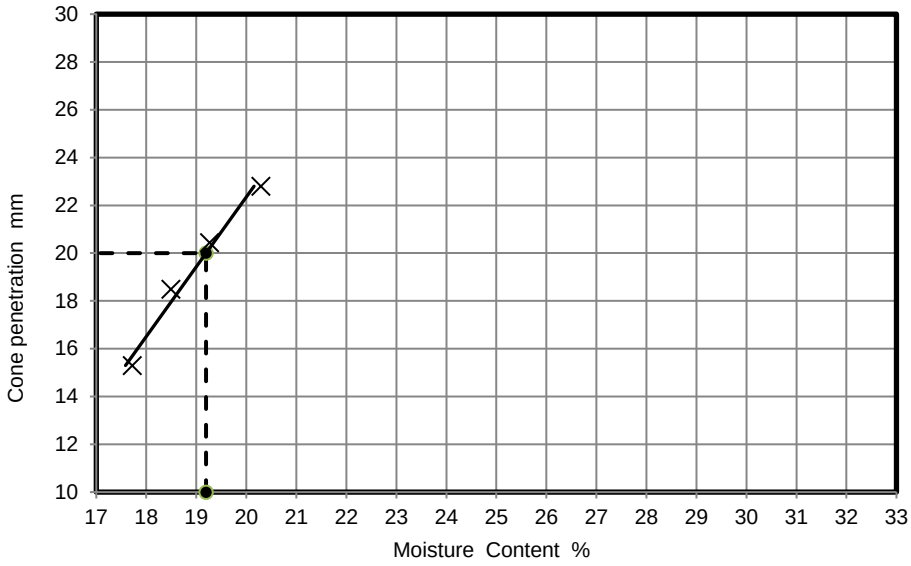
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

Job No. 32282

Borehole/Pit No. TP-90401

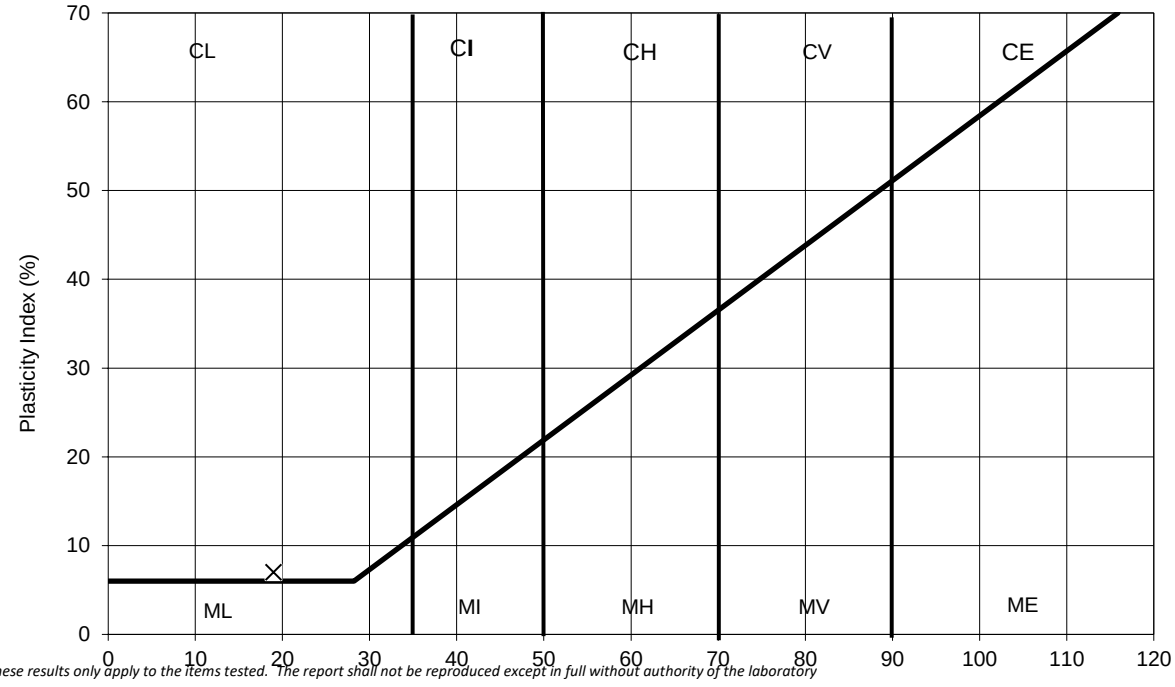


NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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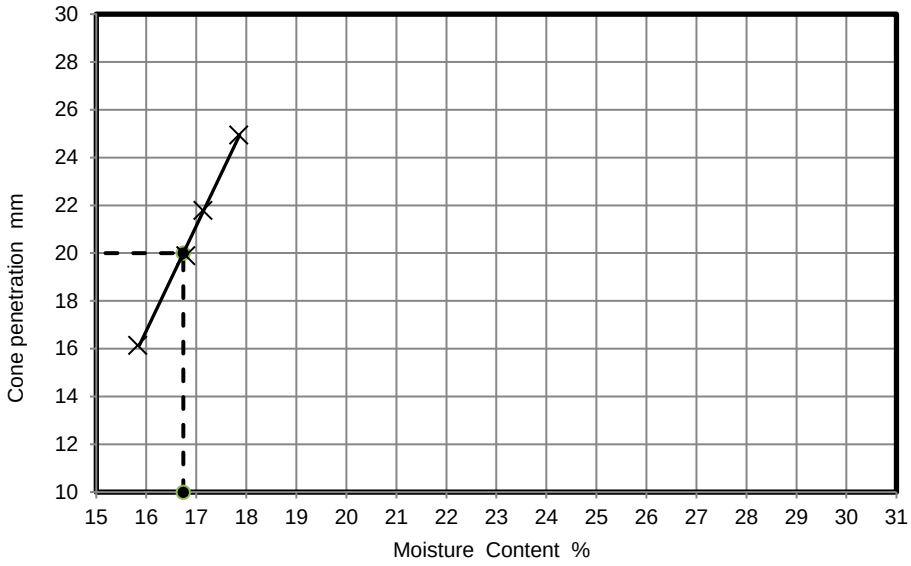
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

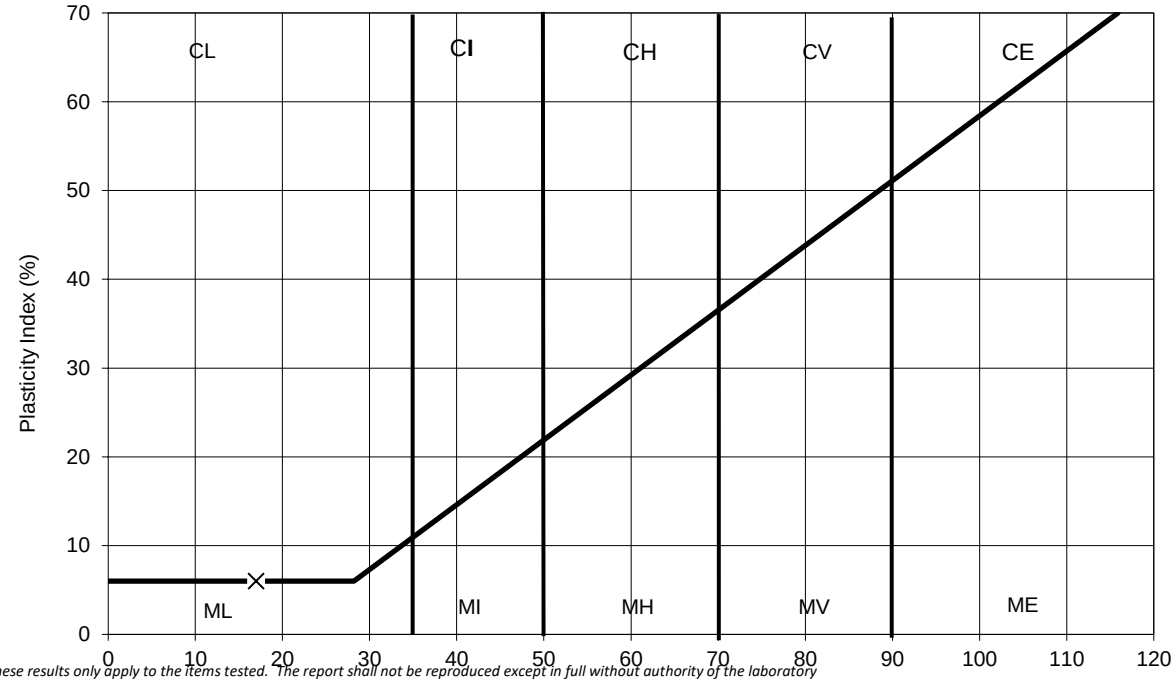
				Job No.	32282
				Borehole/Pit No.	TP-90503
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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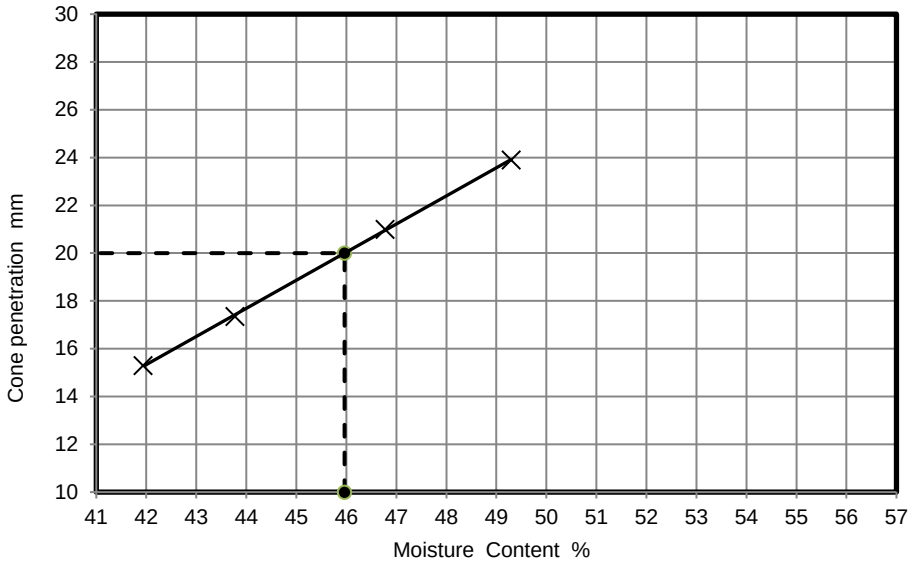
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-90604				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown and brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

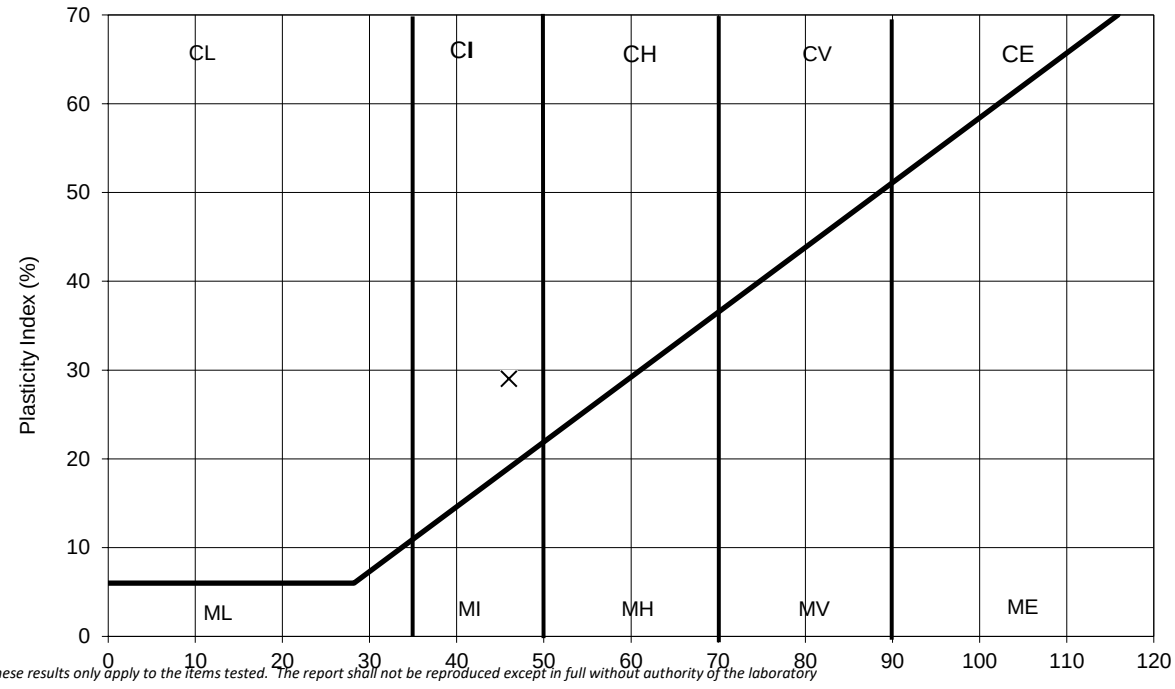


NATURAL MOISTURE CONTENT	**27**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**46**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**29**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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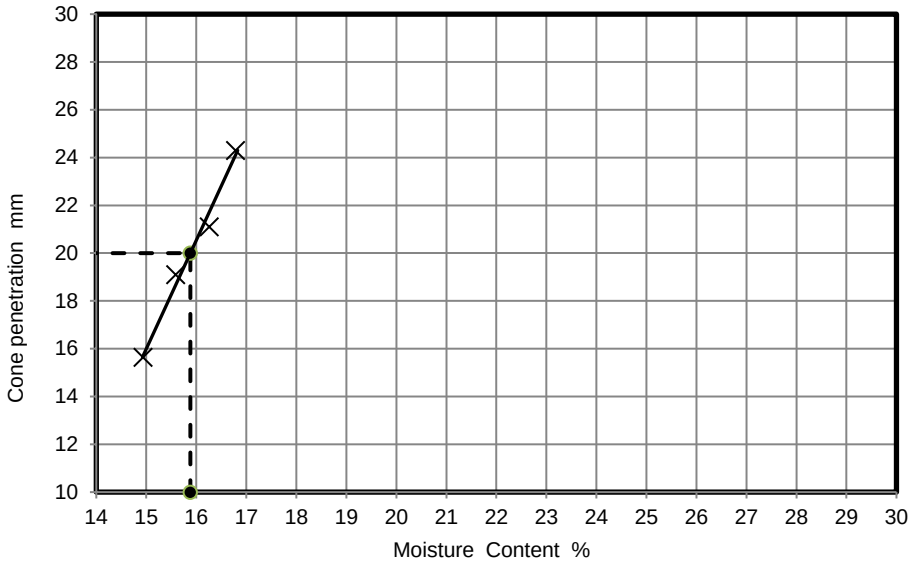
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

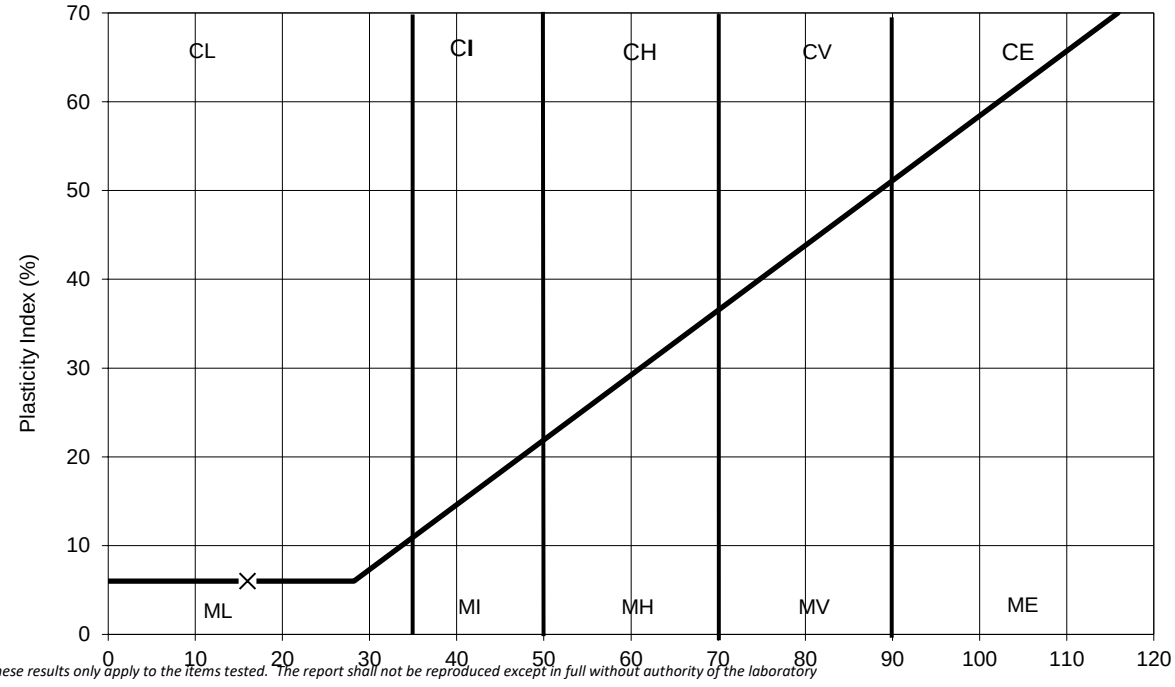
Job No.	32282				
Borehole/Pit No.	TP-90604				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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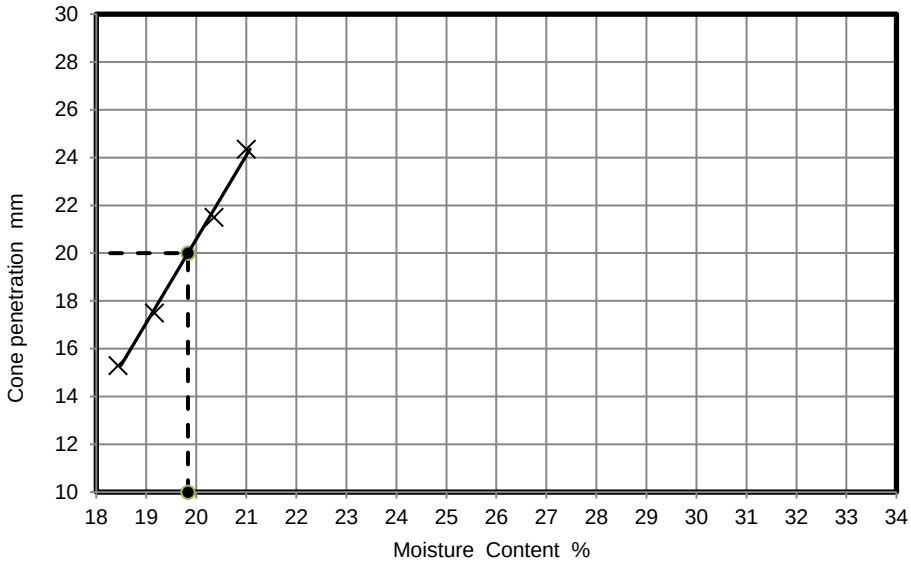
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90704
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

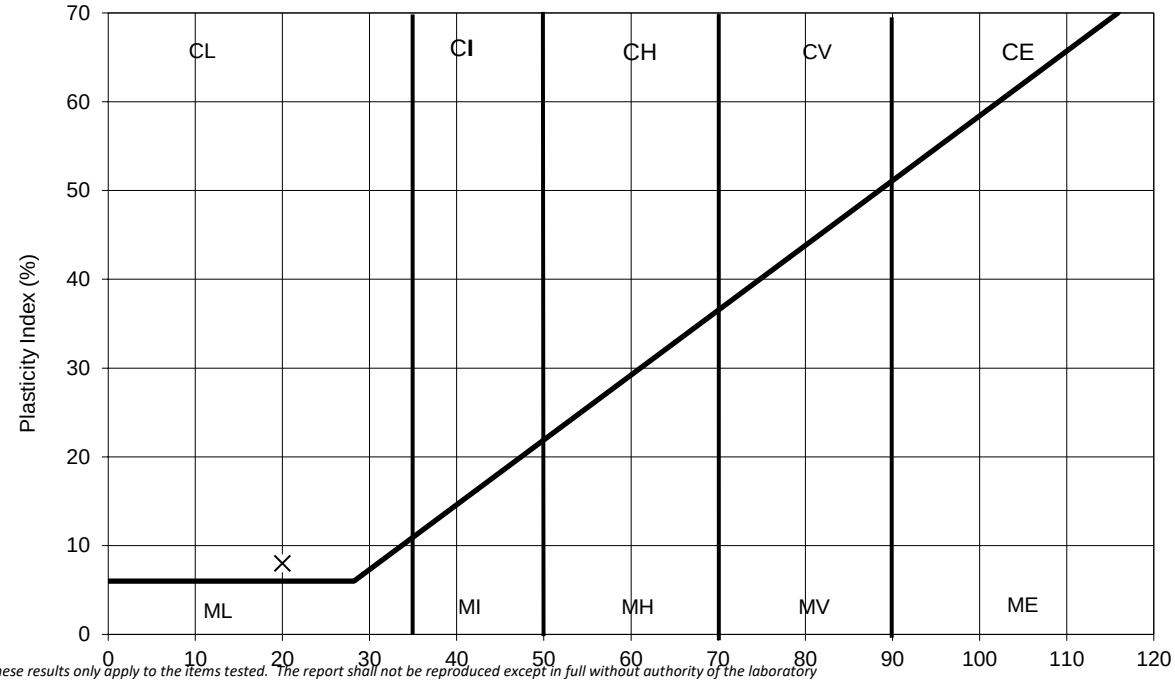


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

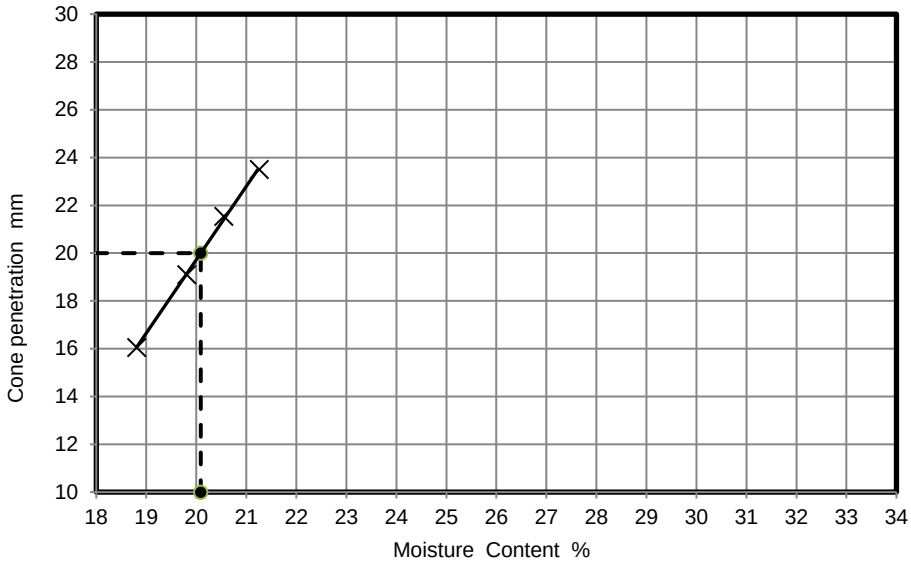
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

Job No. 32282

Borehole/Pit No. TP-90800

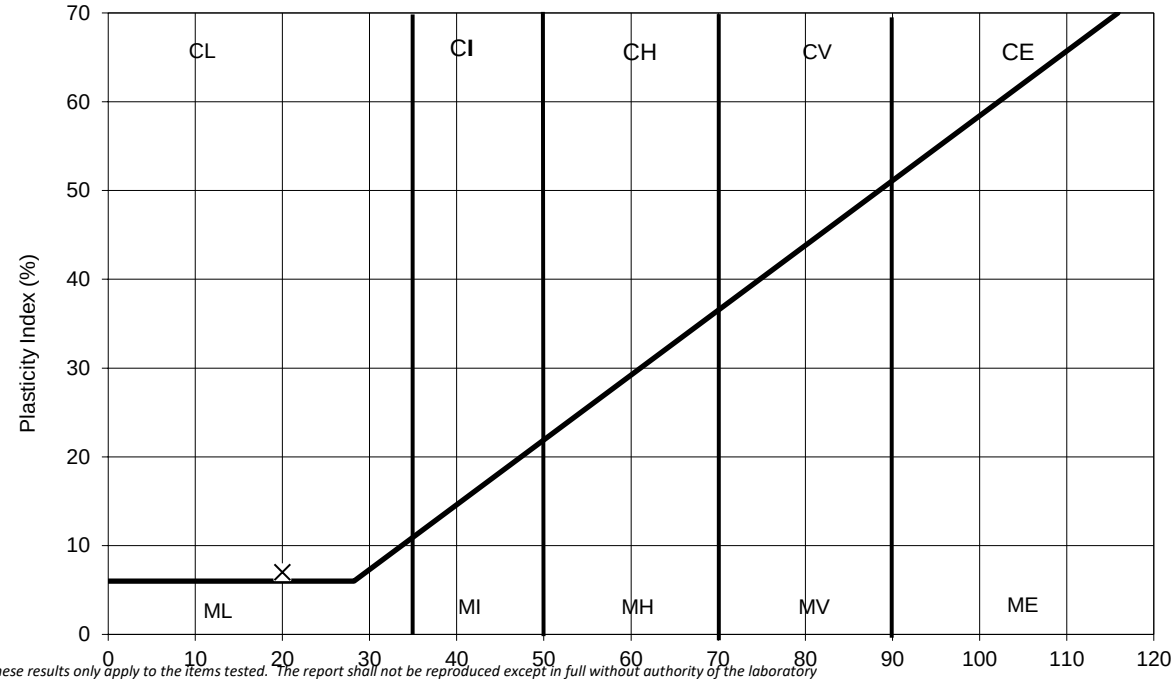


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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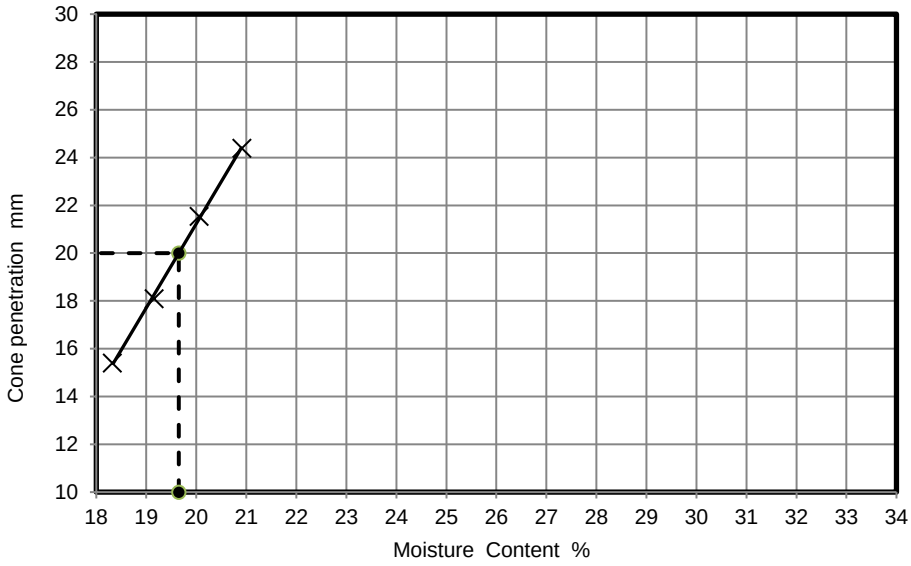
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90800
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

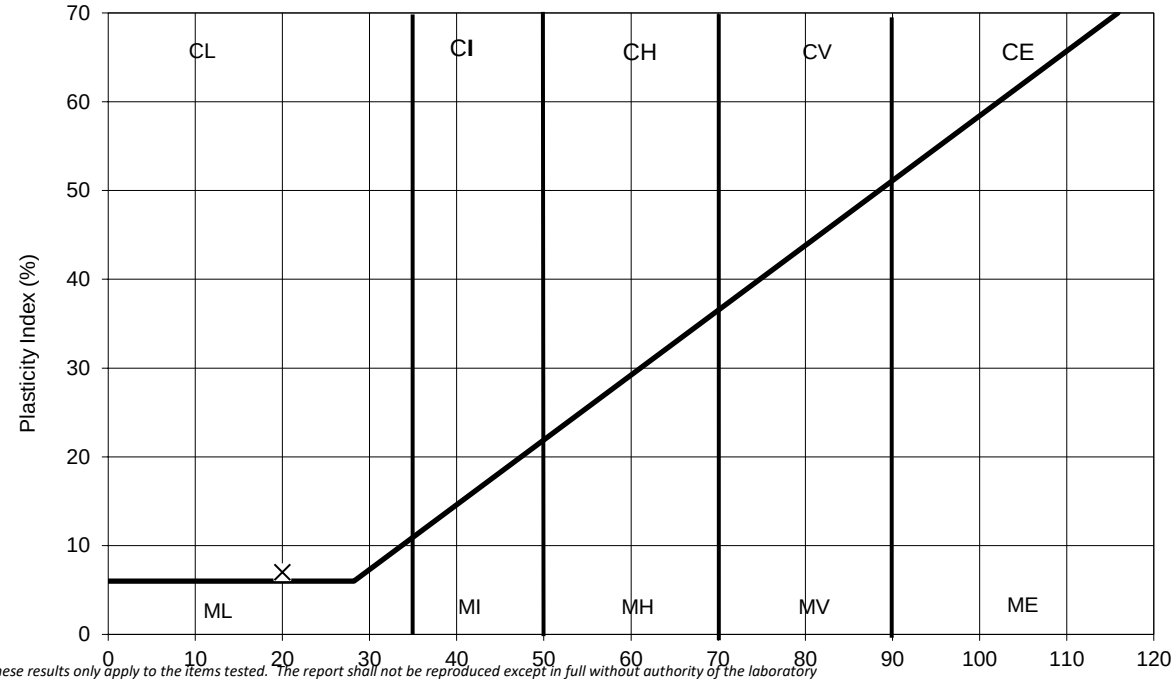


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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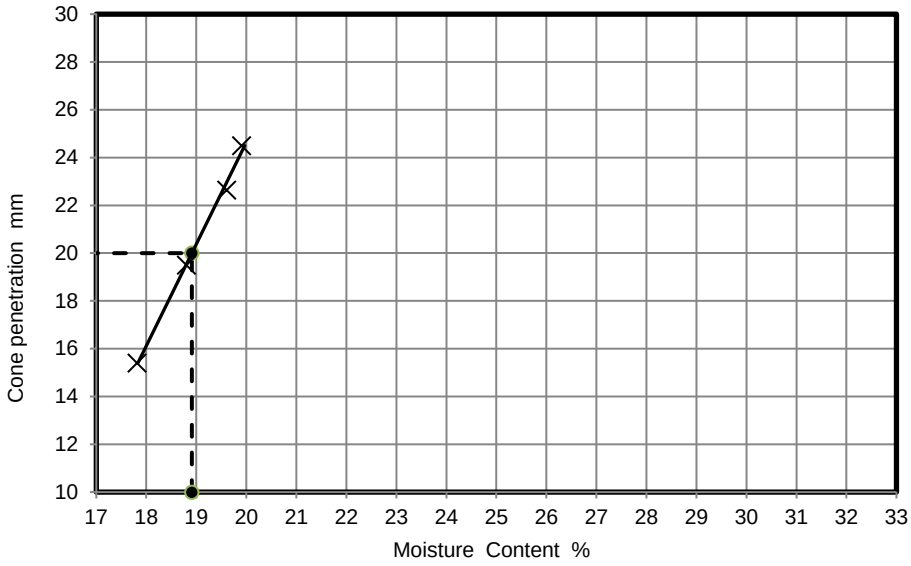
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90894
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

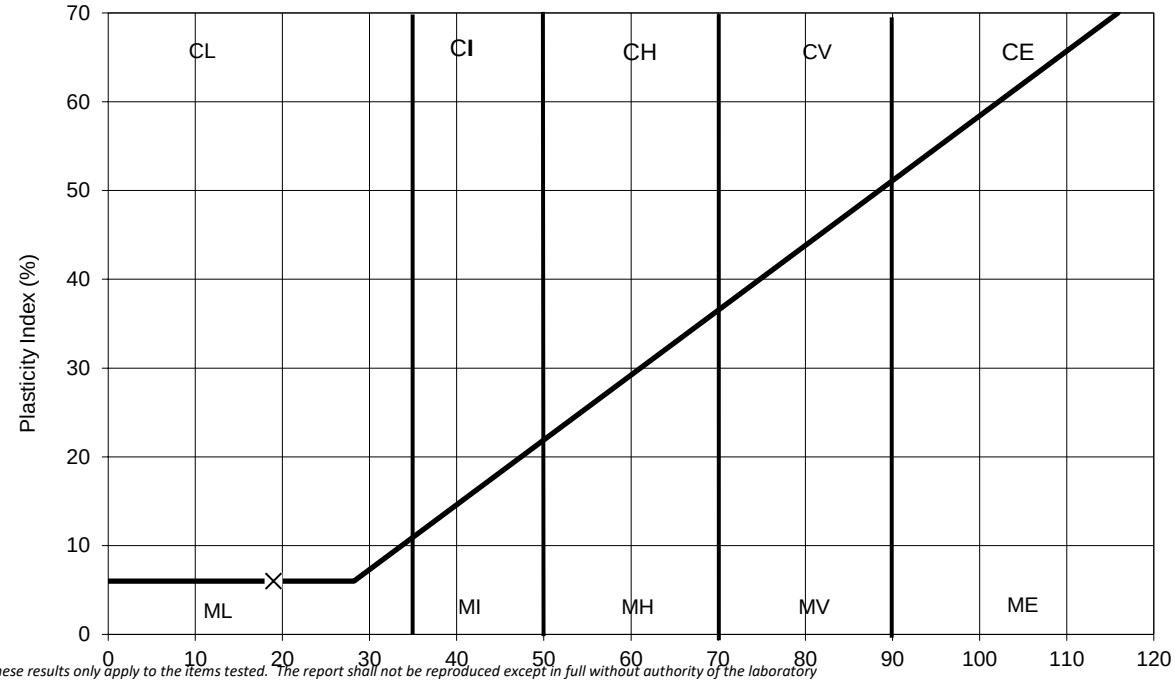


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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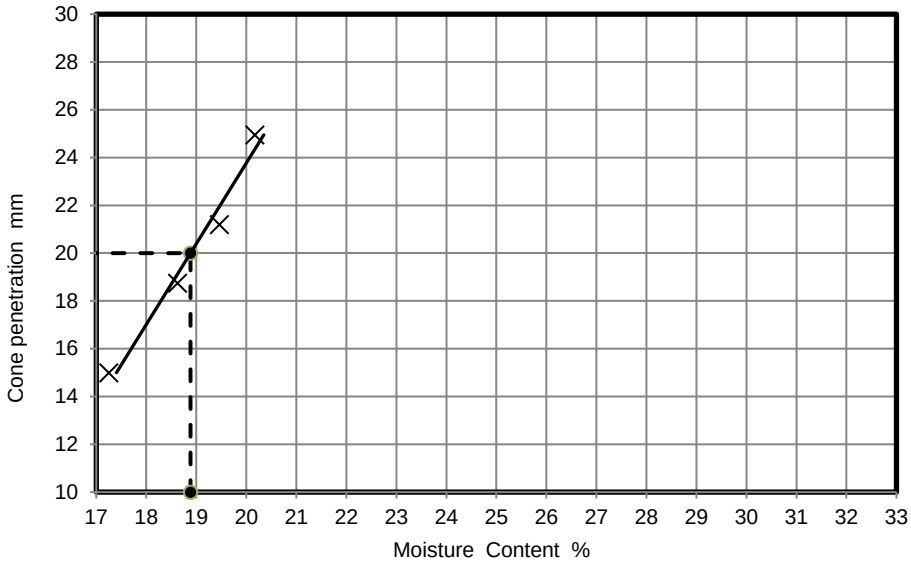
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90894
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

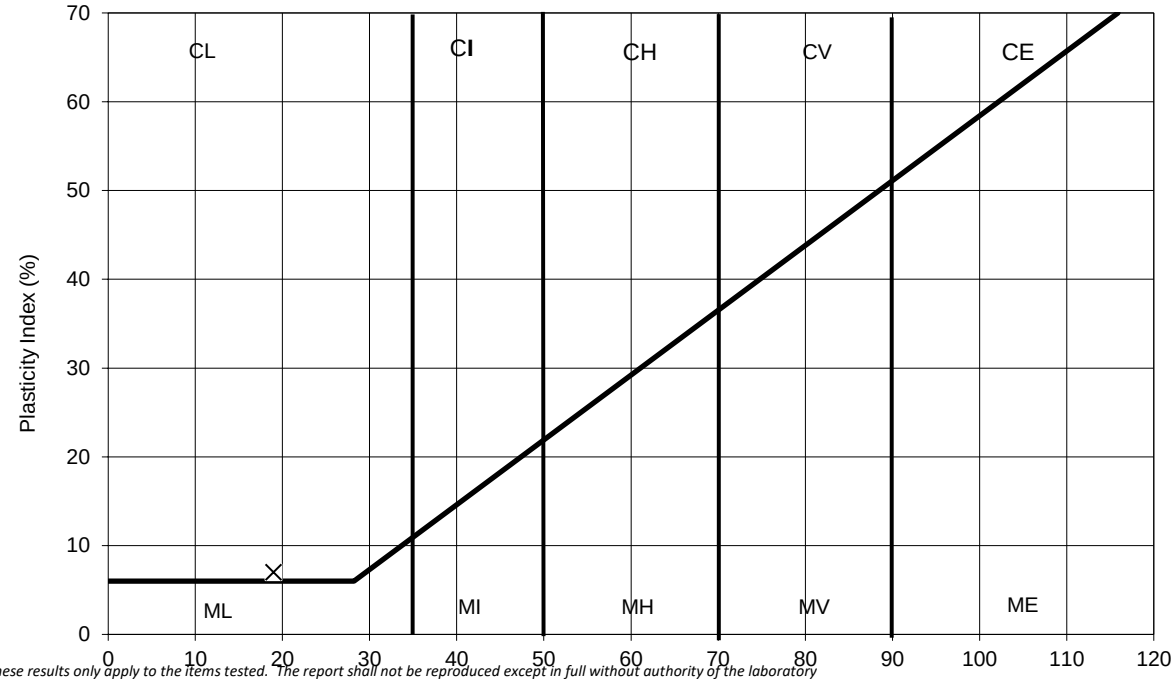


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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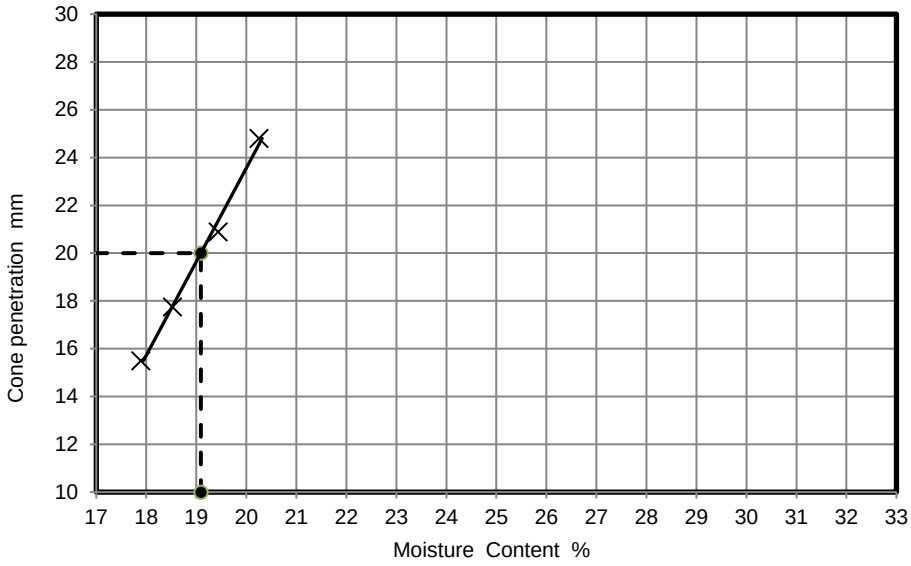
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

Job No. 32282

Borehole/Pit No. TP-91012

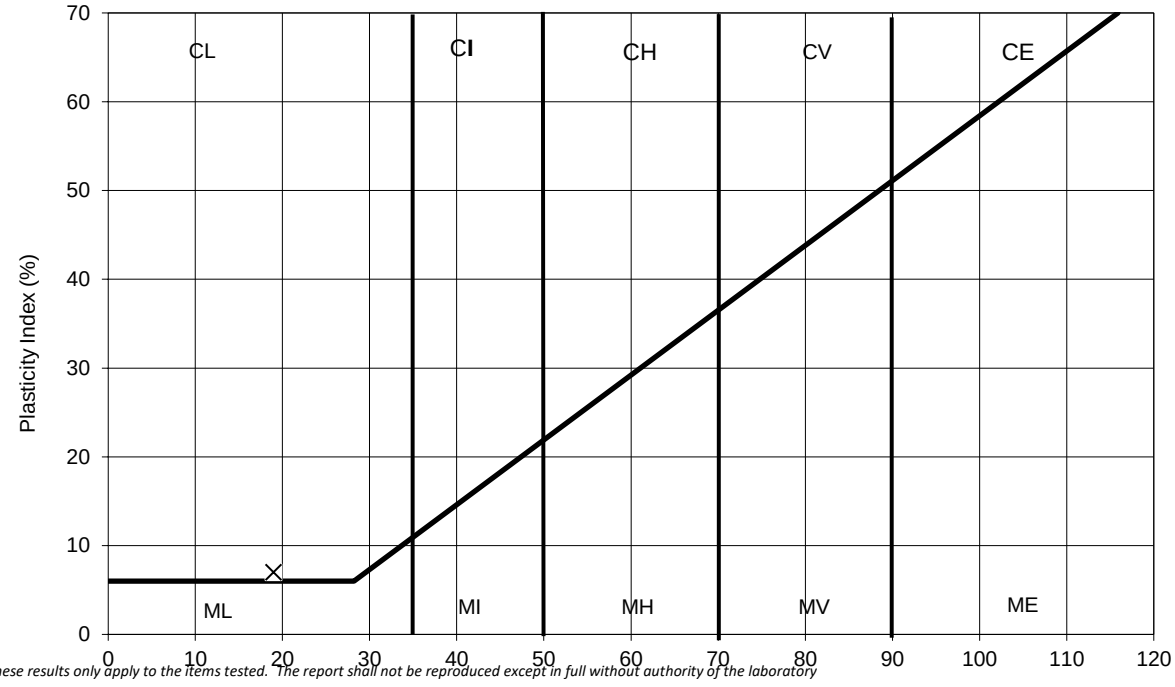


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

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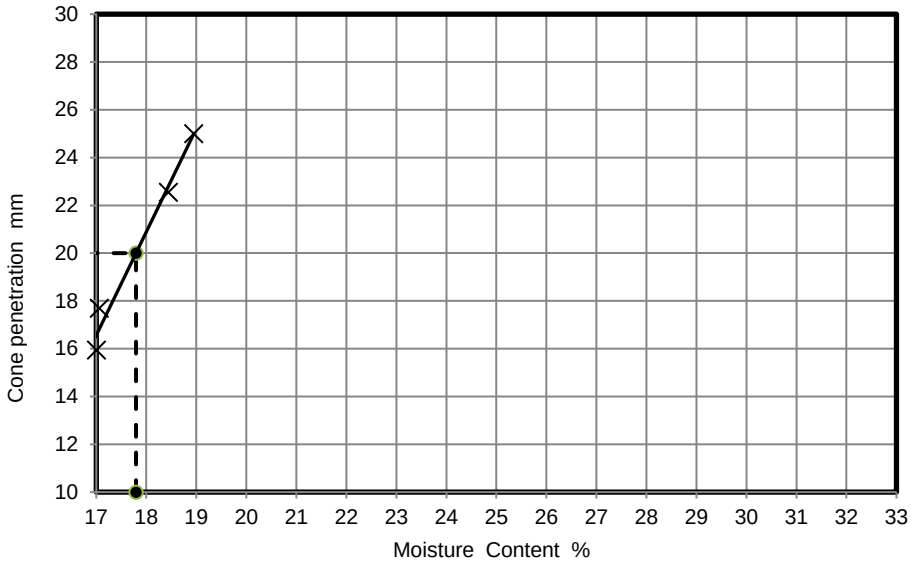
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

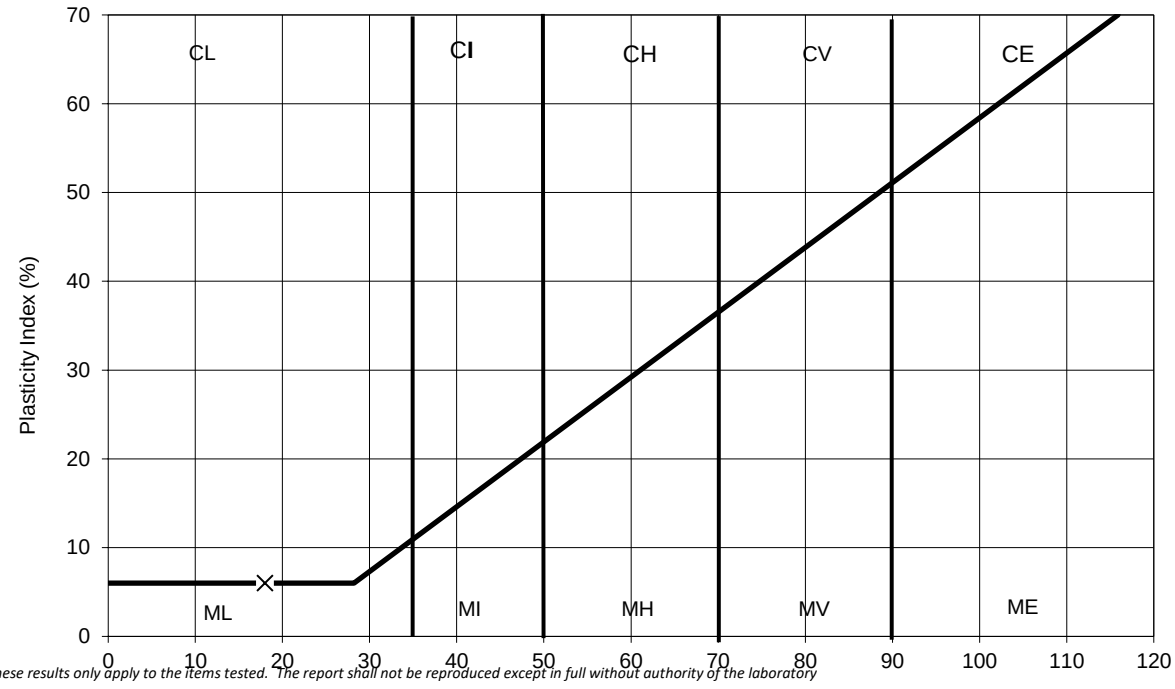
				Job No.	32282
				Borehole/Pit No.	TP-91012
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**72**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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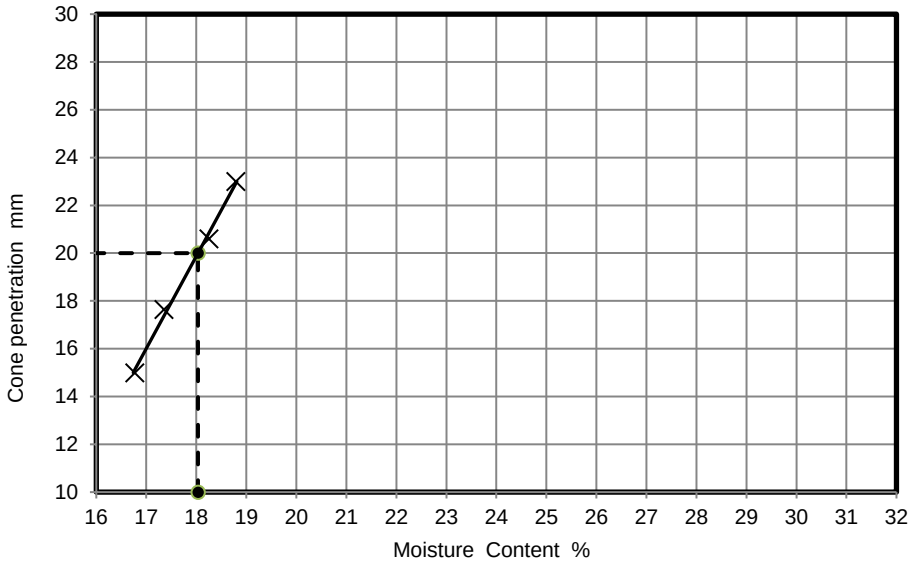
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91104
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

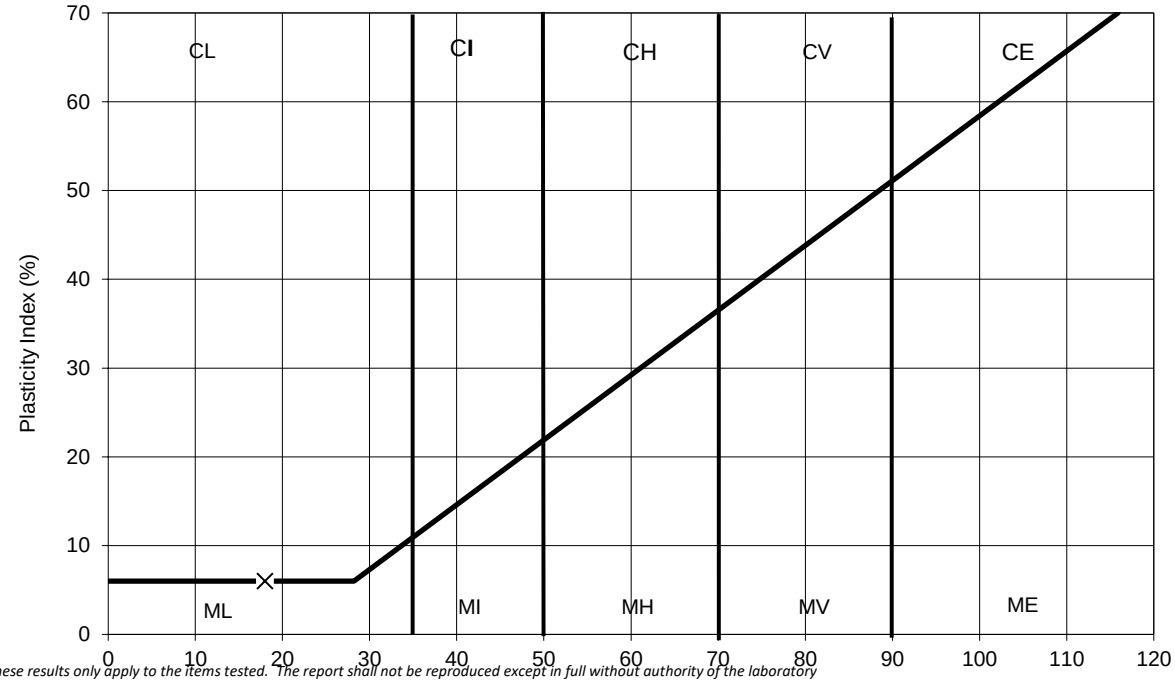


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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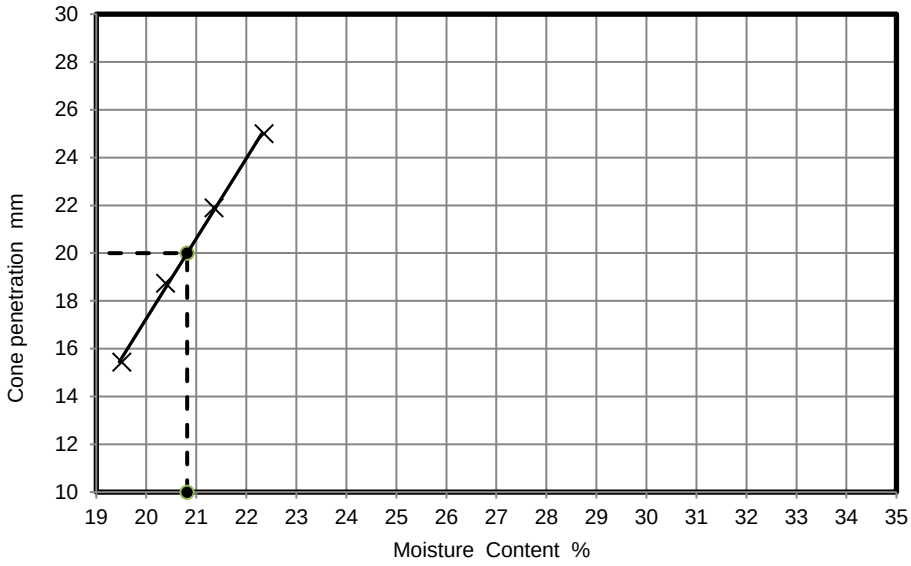
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91193
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

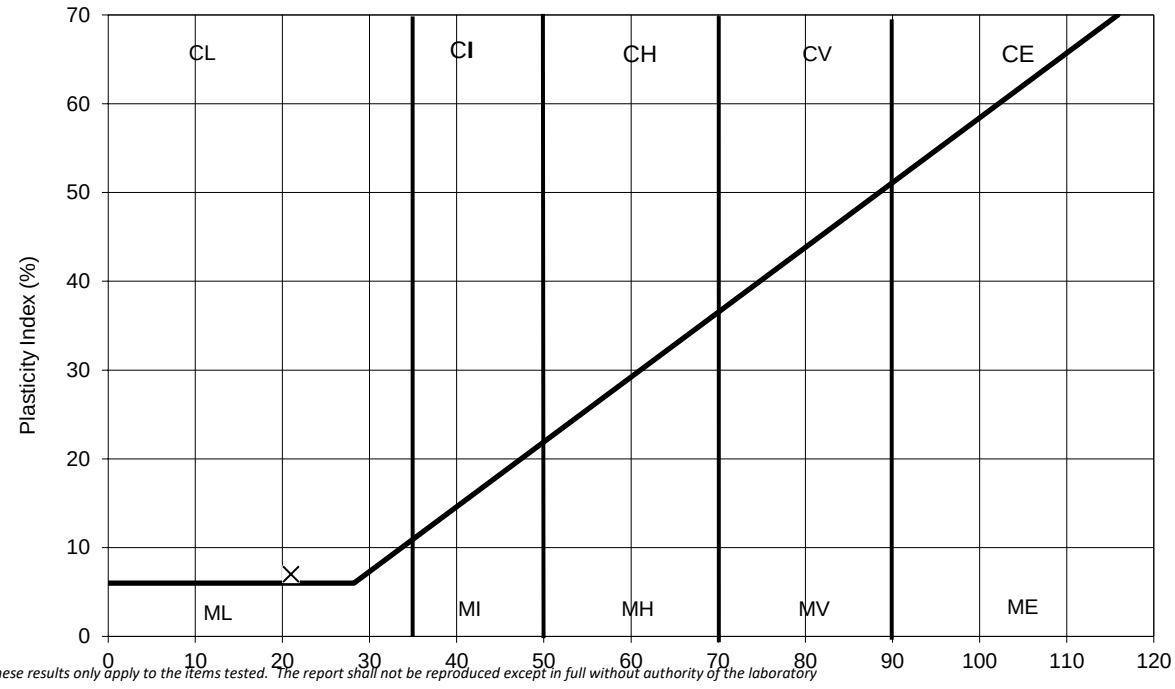


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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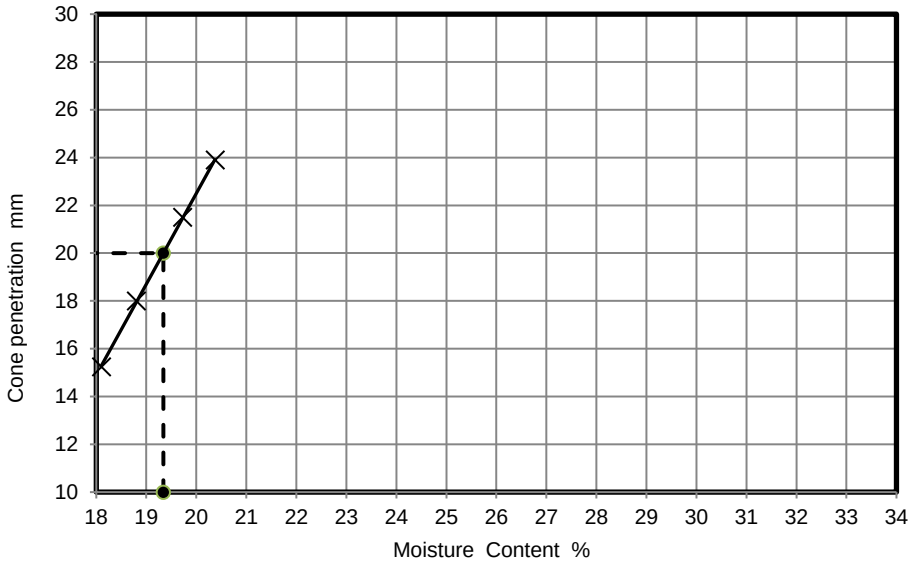
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91193
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

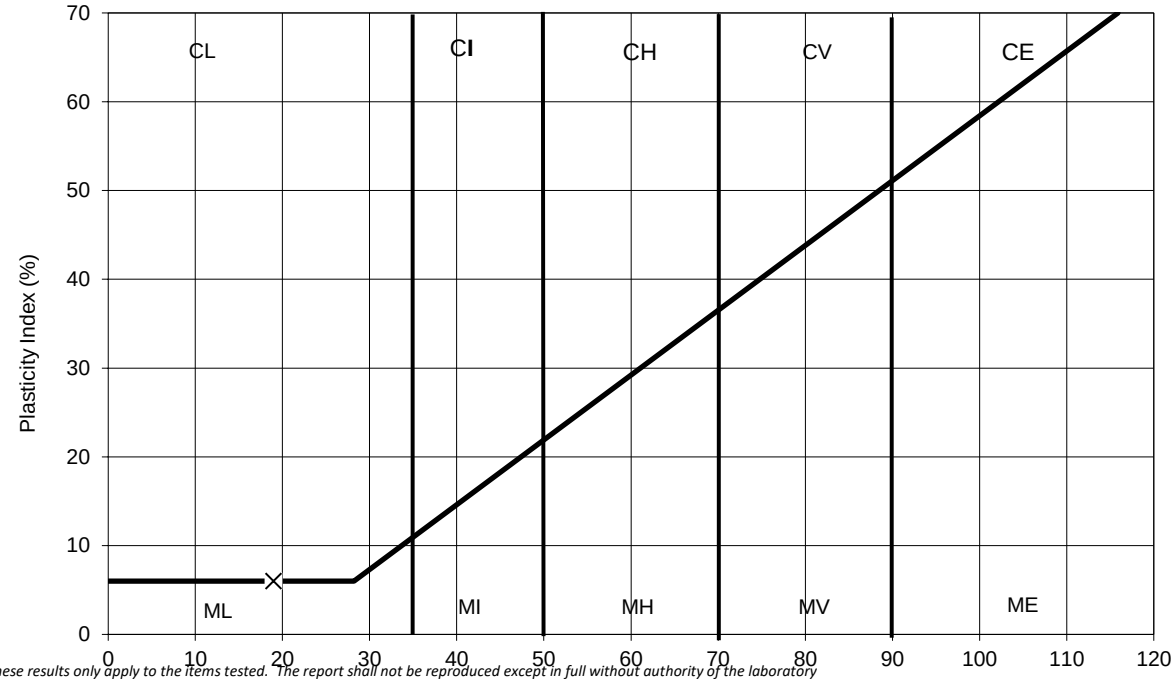


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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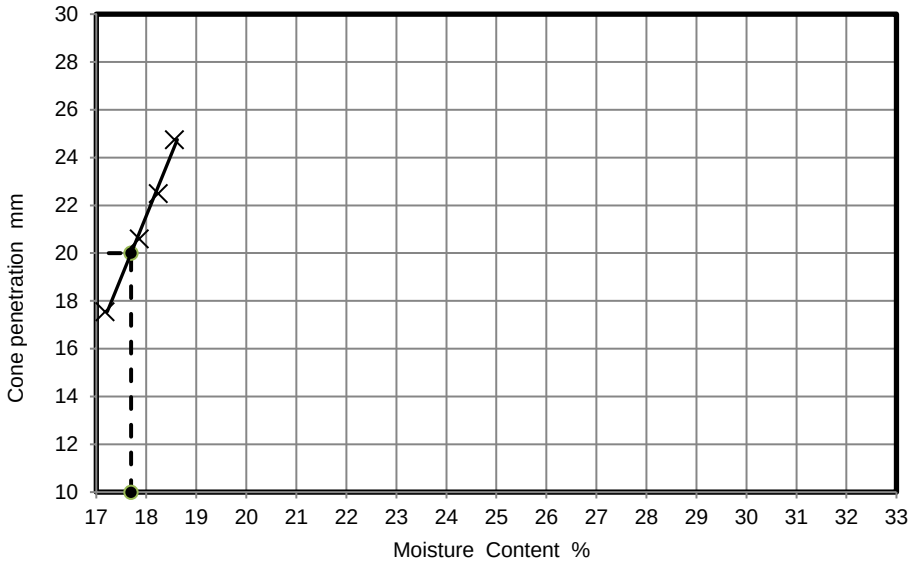
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

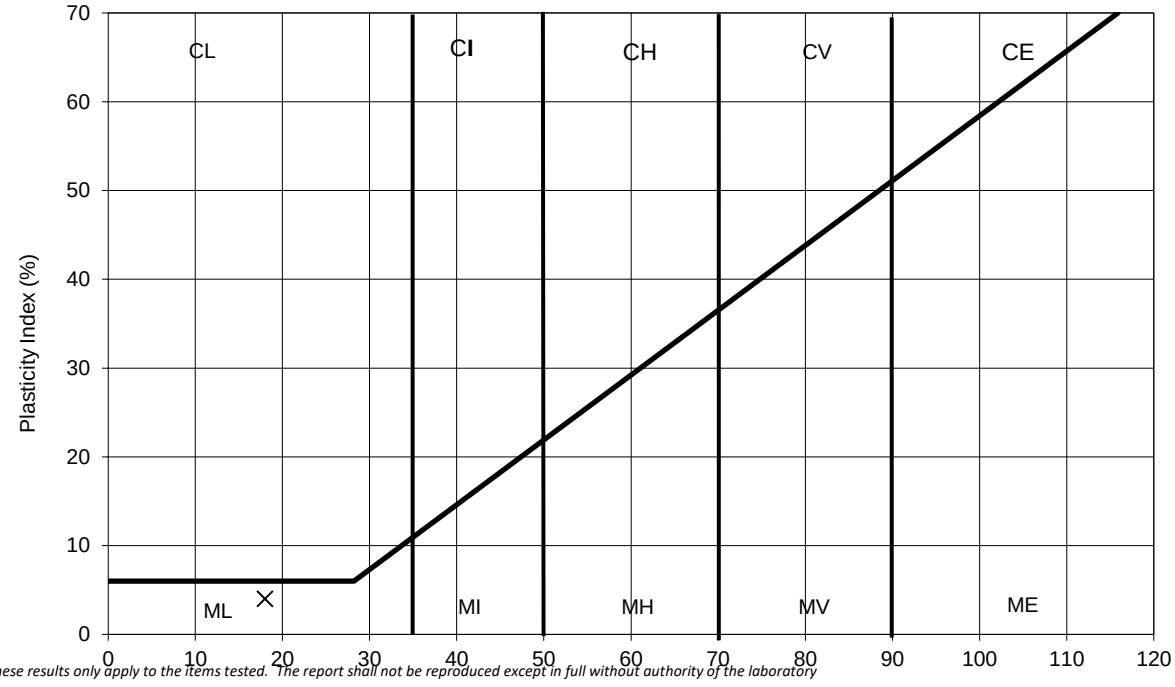


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

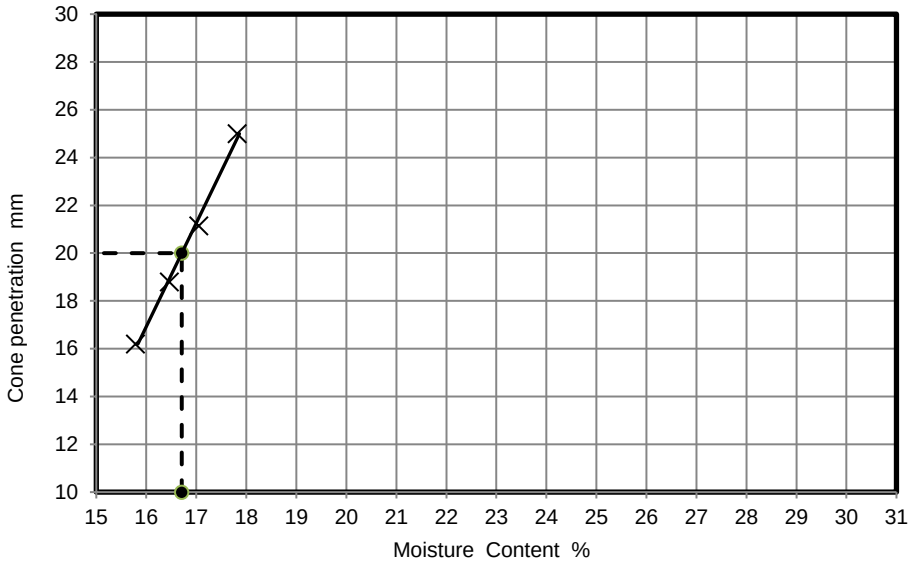
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

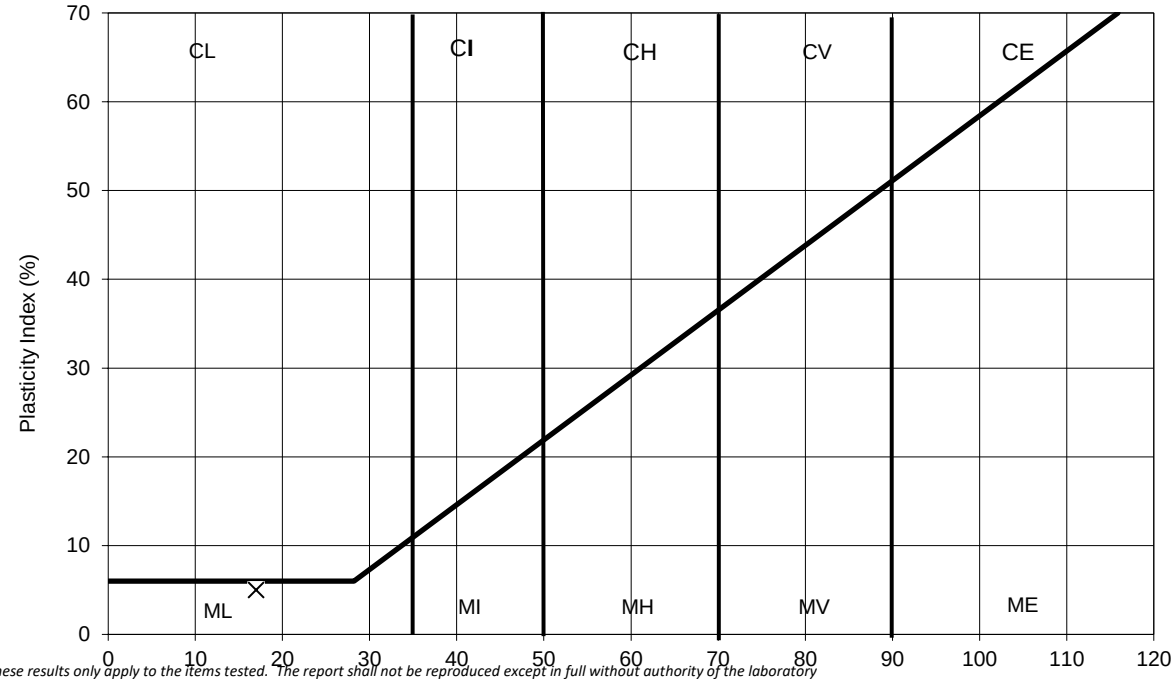


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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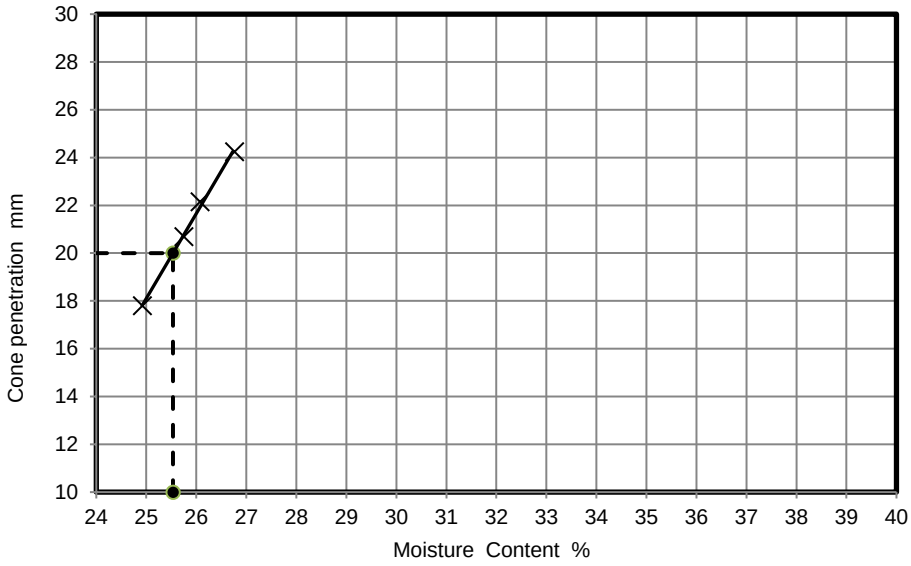
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91406
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

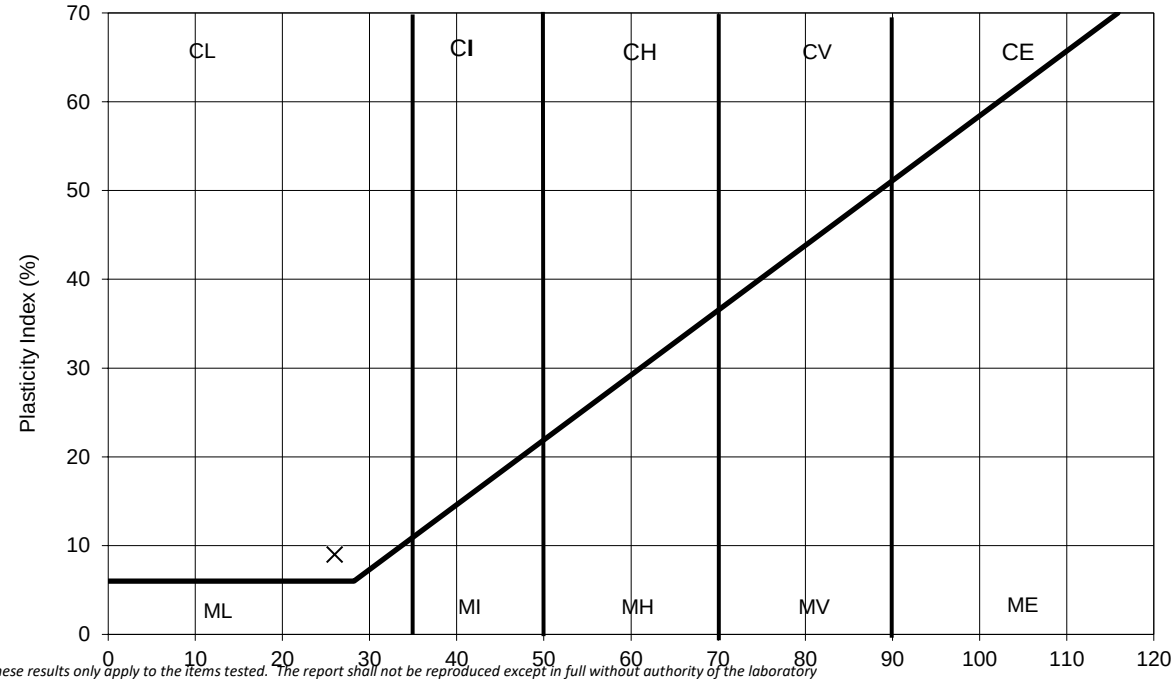


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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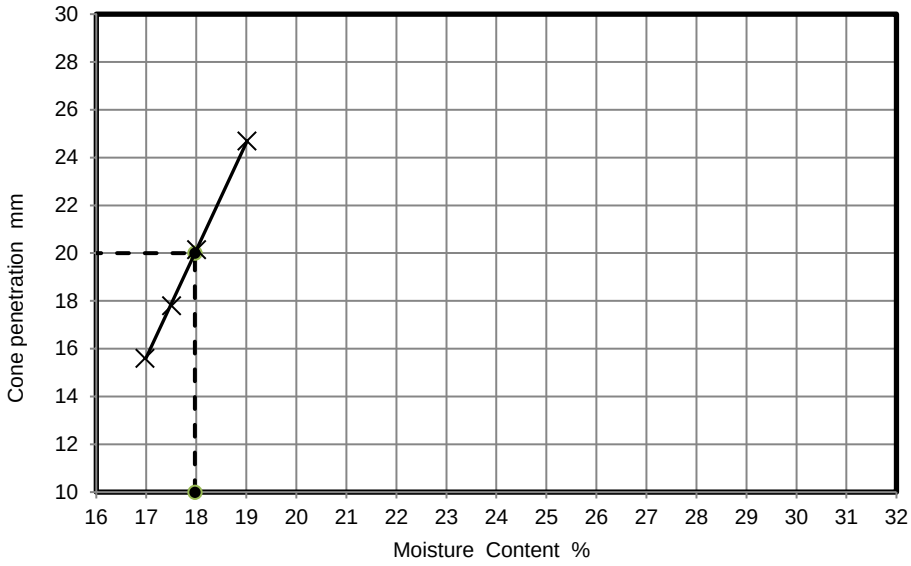
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91406
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

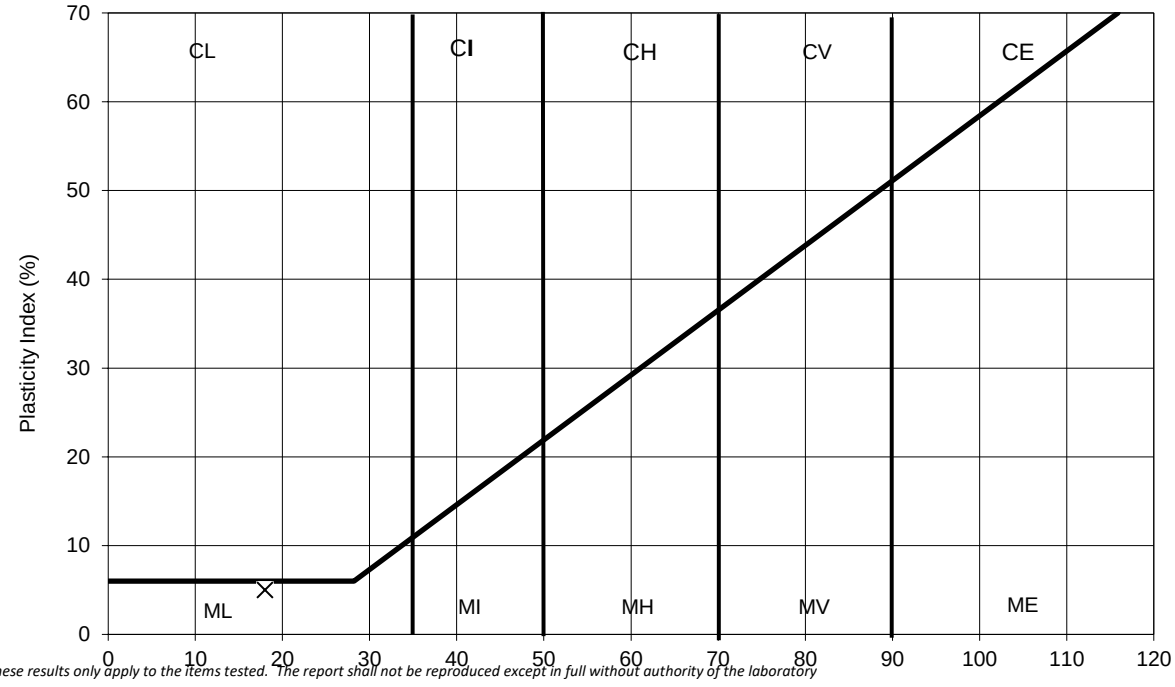


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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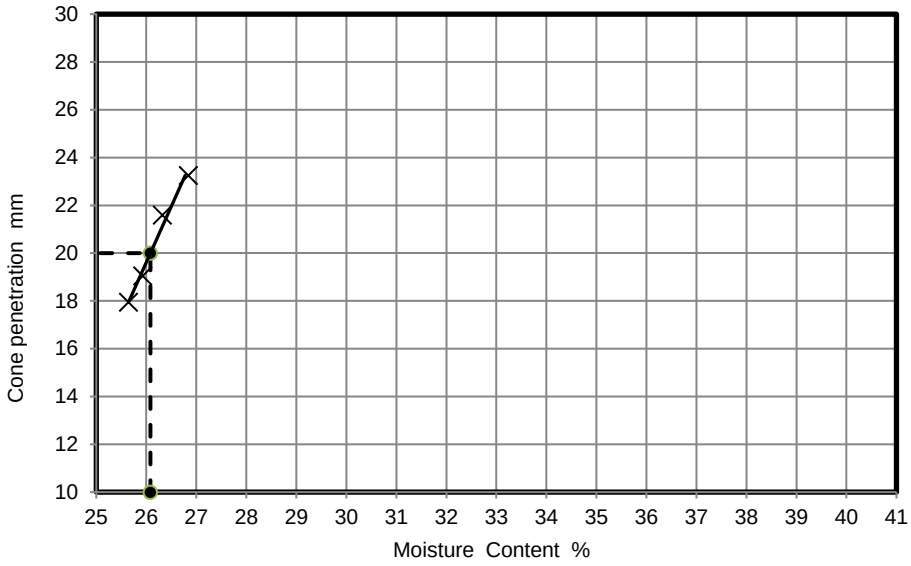
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly clayey gravelly silty SAND (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

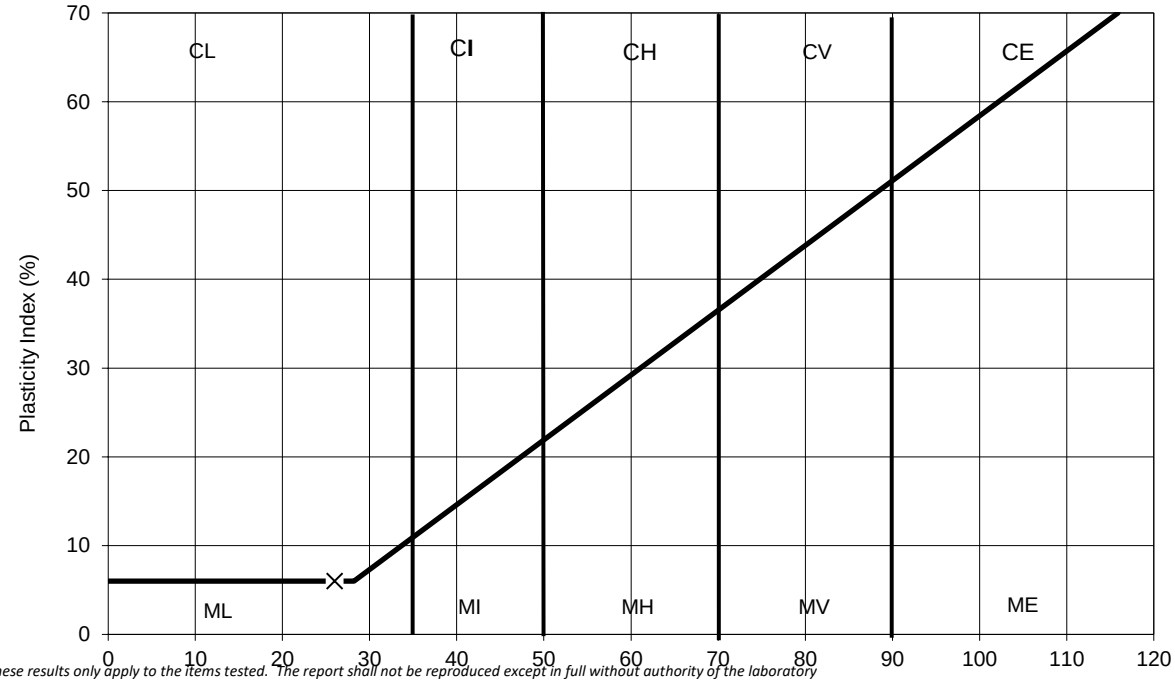


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**20**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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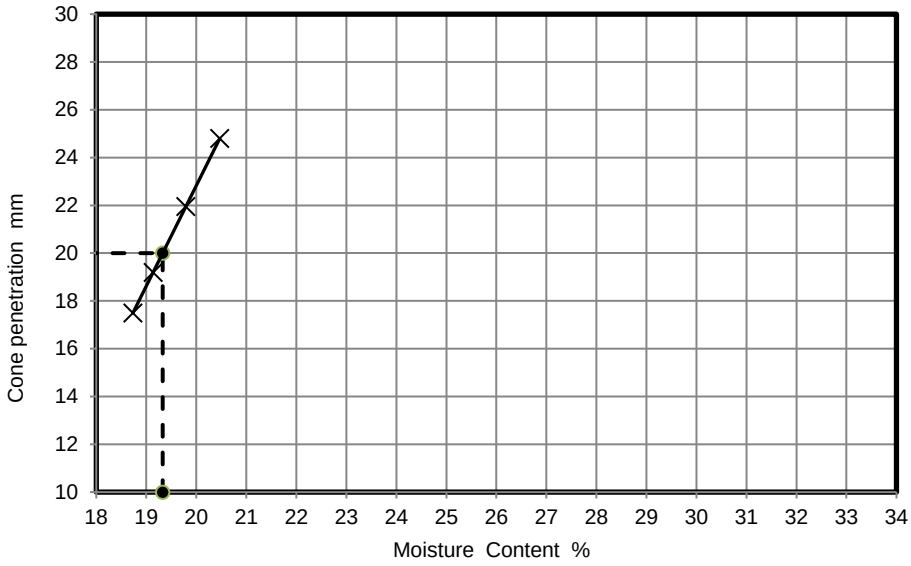
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-91705
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

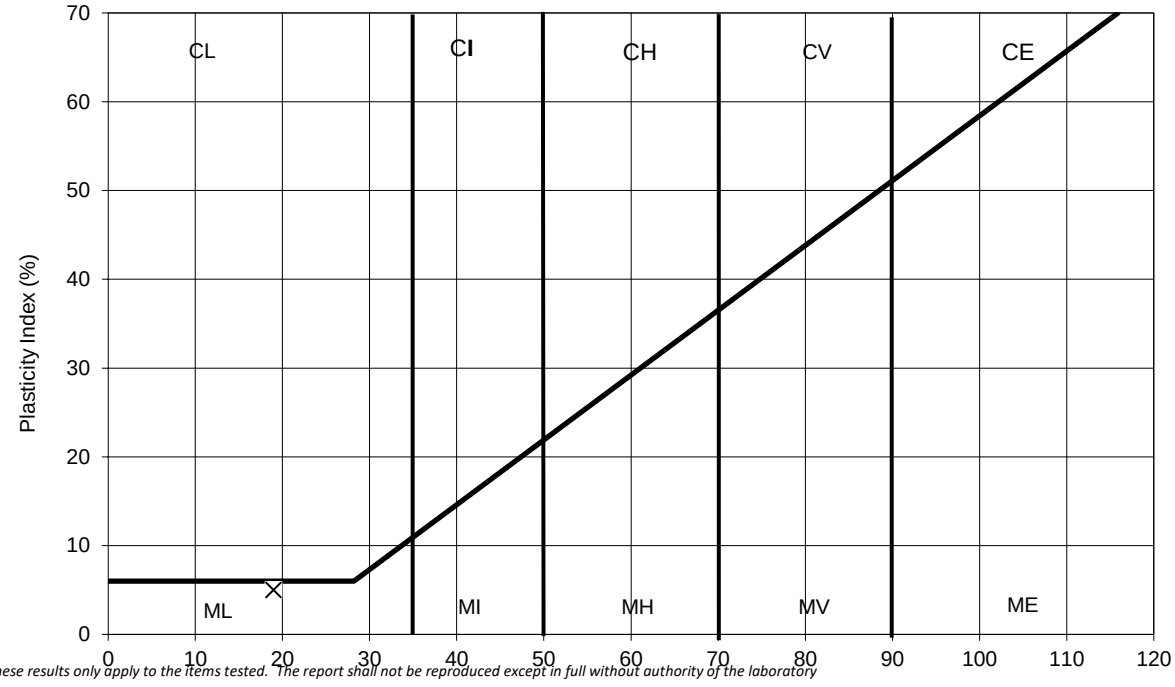


NATURAL MOISTURE CONTENT	**8.7**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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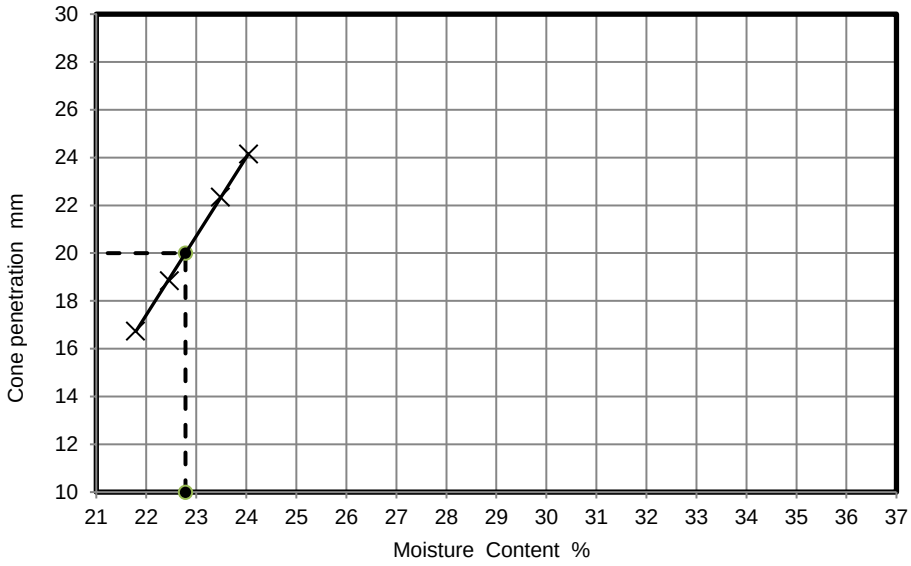
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91805
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

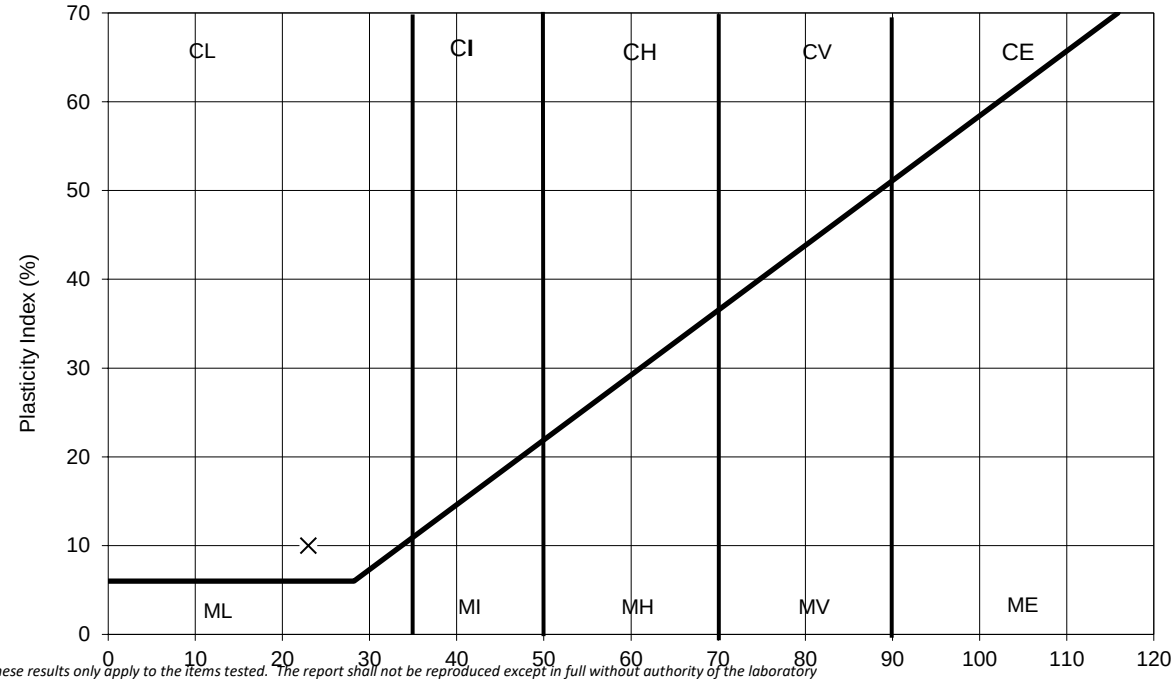


NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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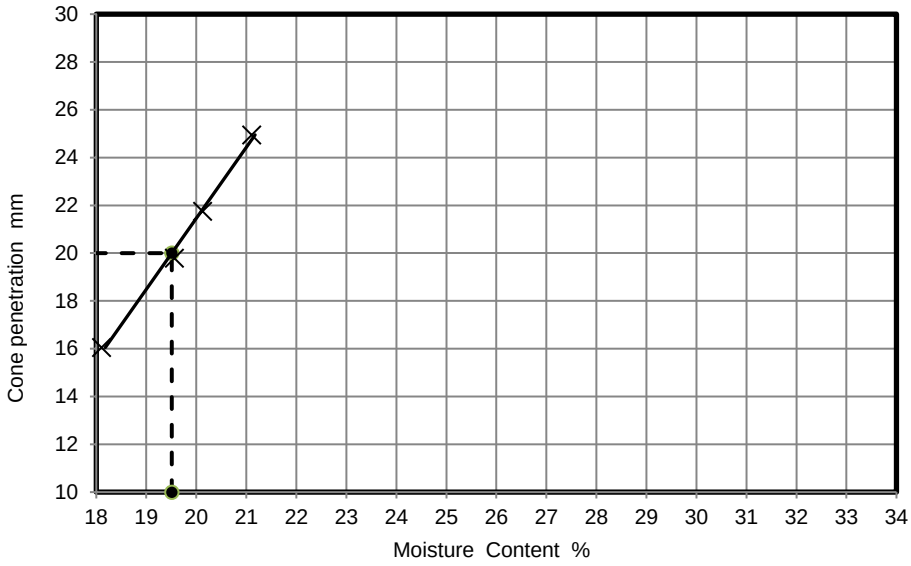
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

Job No. 32282

Borehole/Pit No. TP-91805

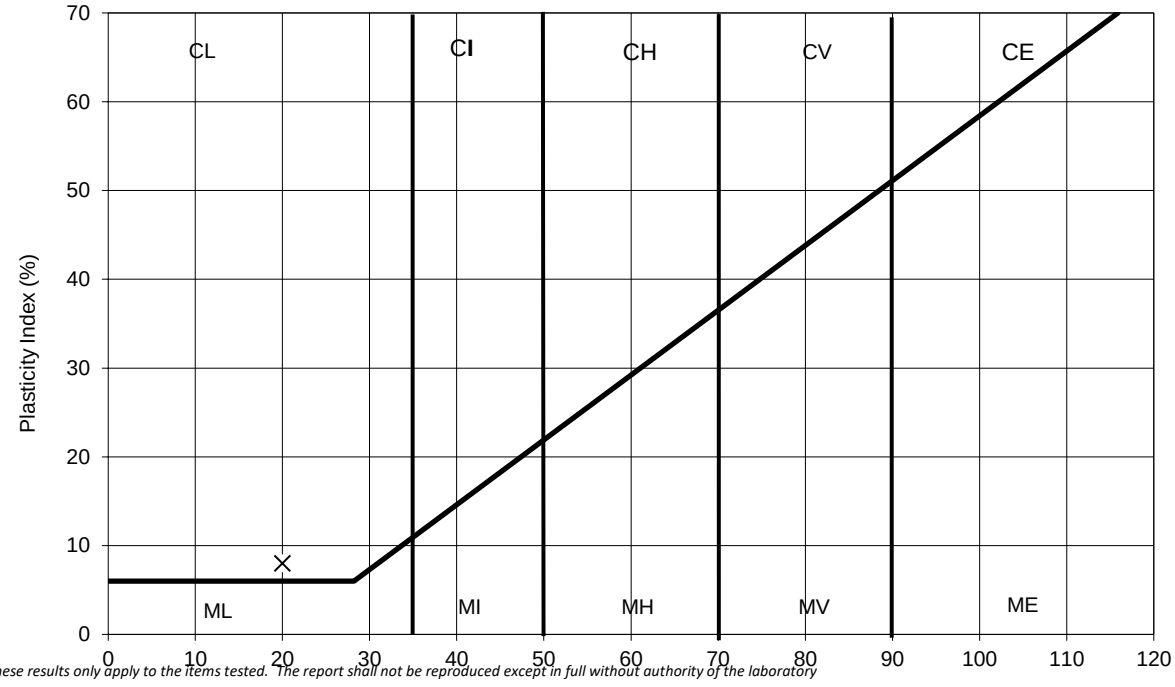


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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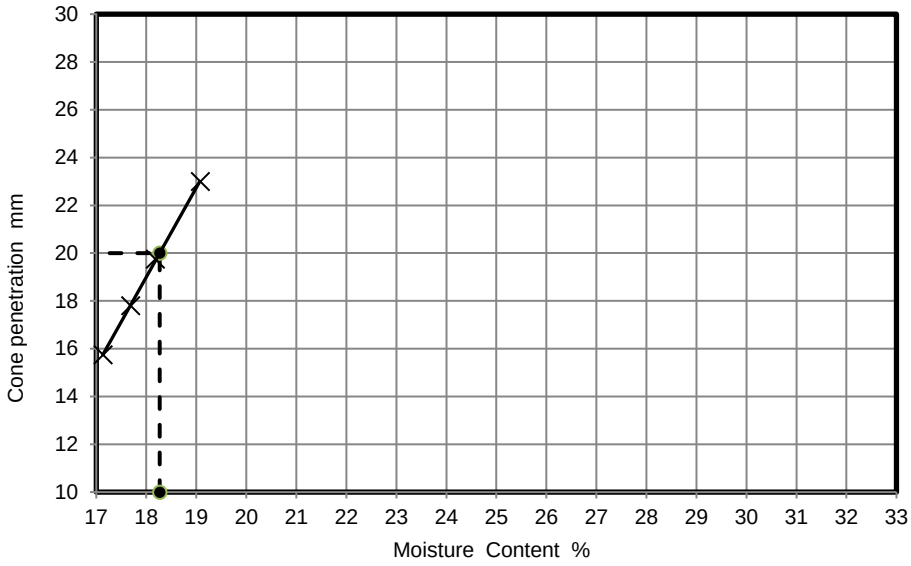
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

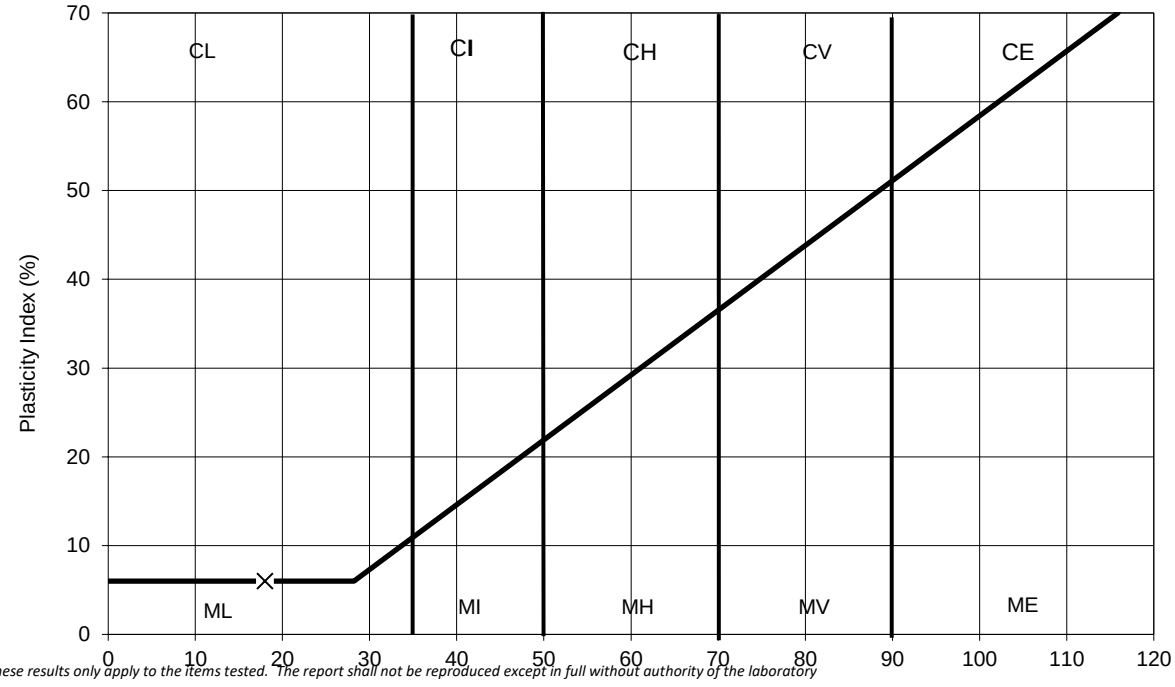
Job No.	32282				
Borehole/Pit No.	TP-91905				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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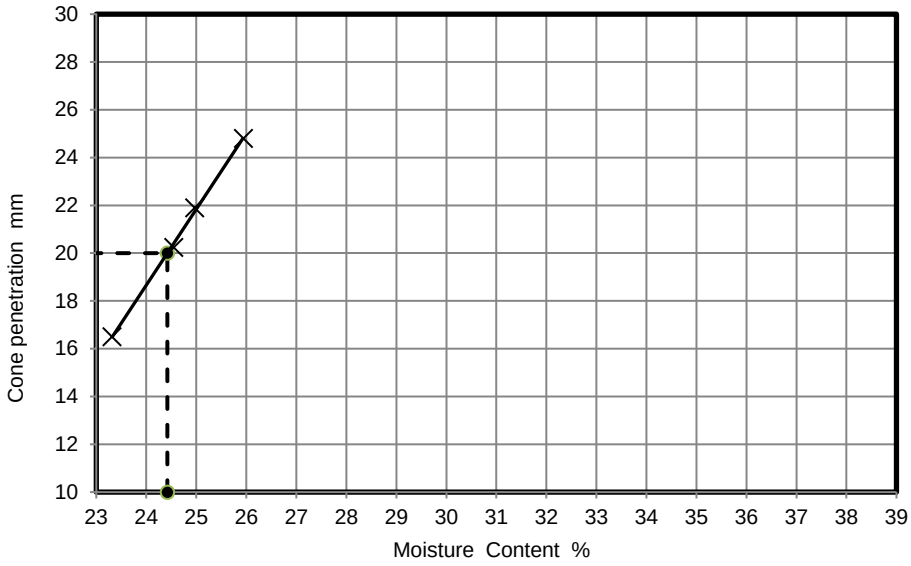
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

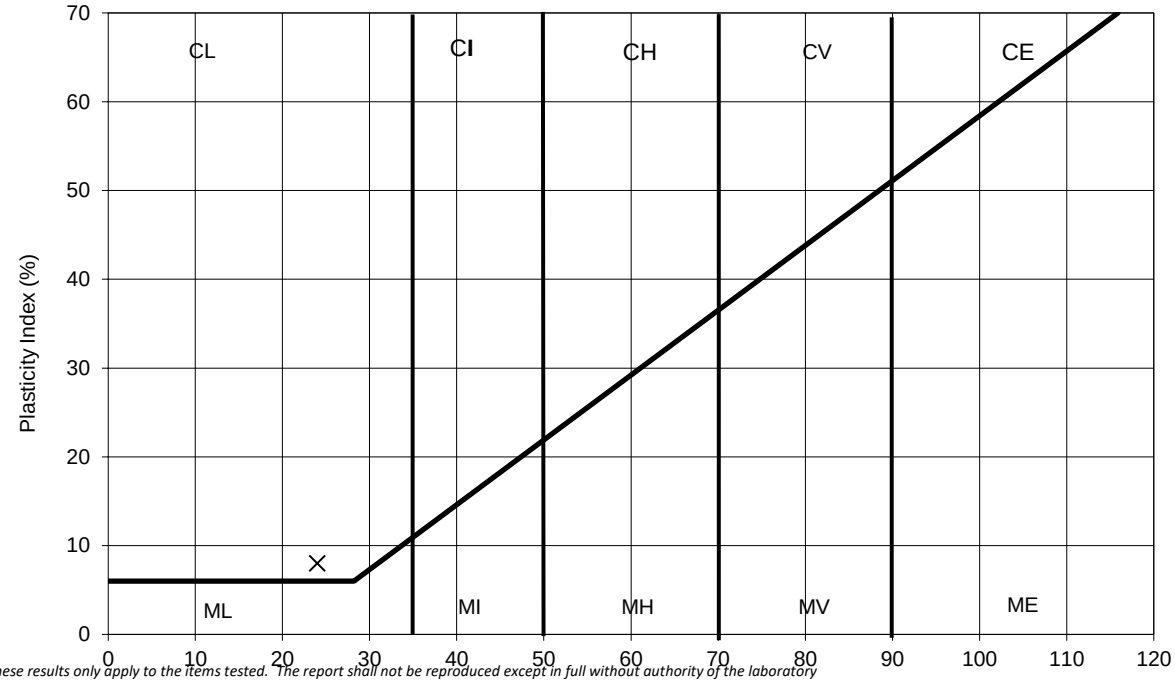
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022
				Job No.	32282
				Borehole/Pit No.	TP-92029



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**79**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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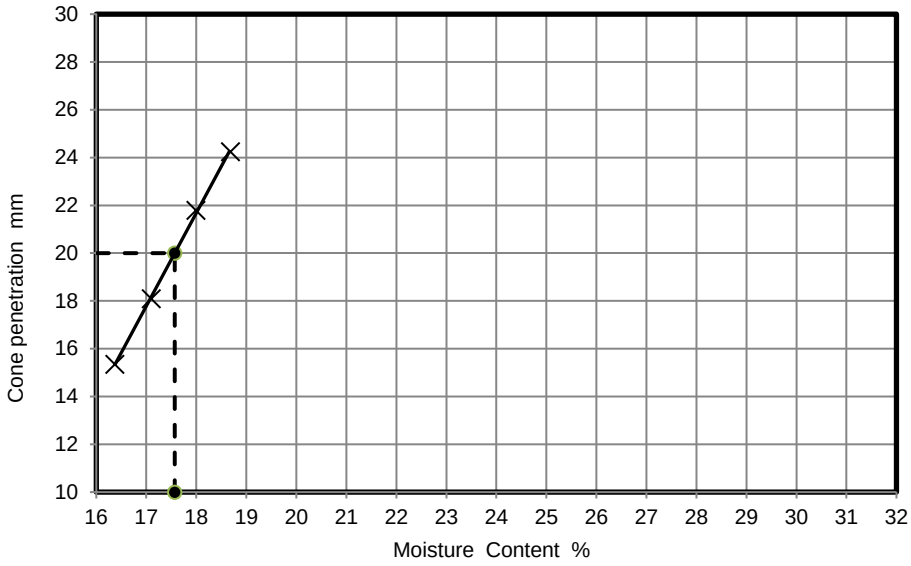
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

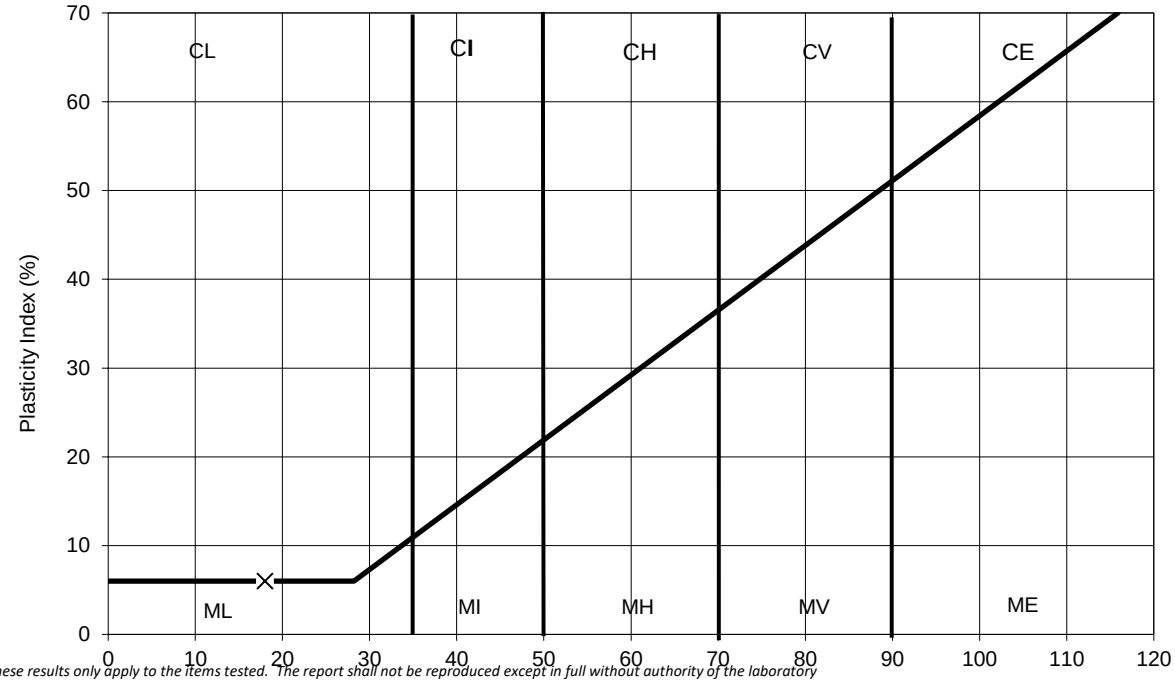
				Job No.	32282
				Borehole/Pit No.	TP-92029
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

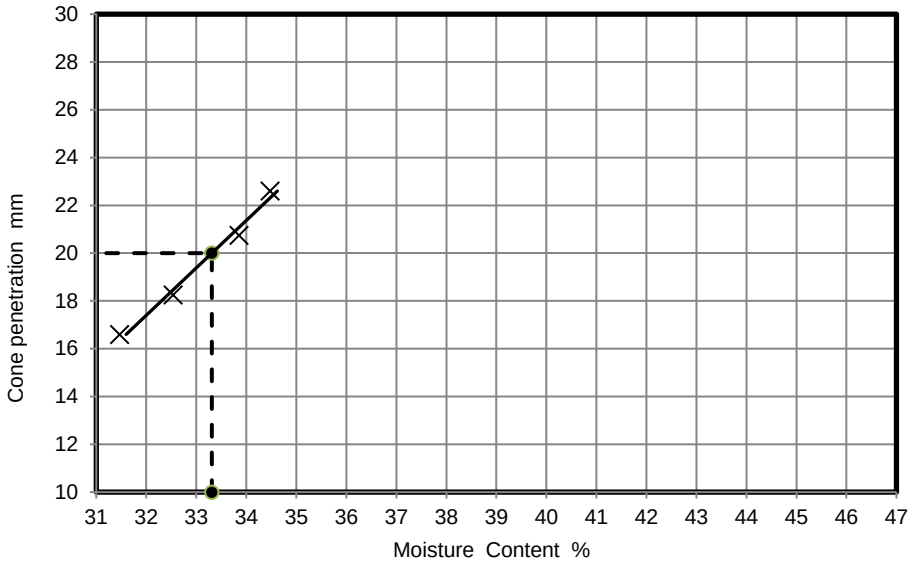
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

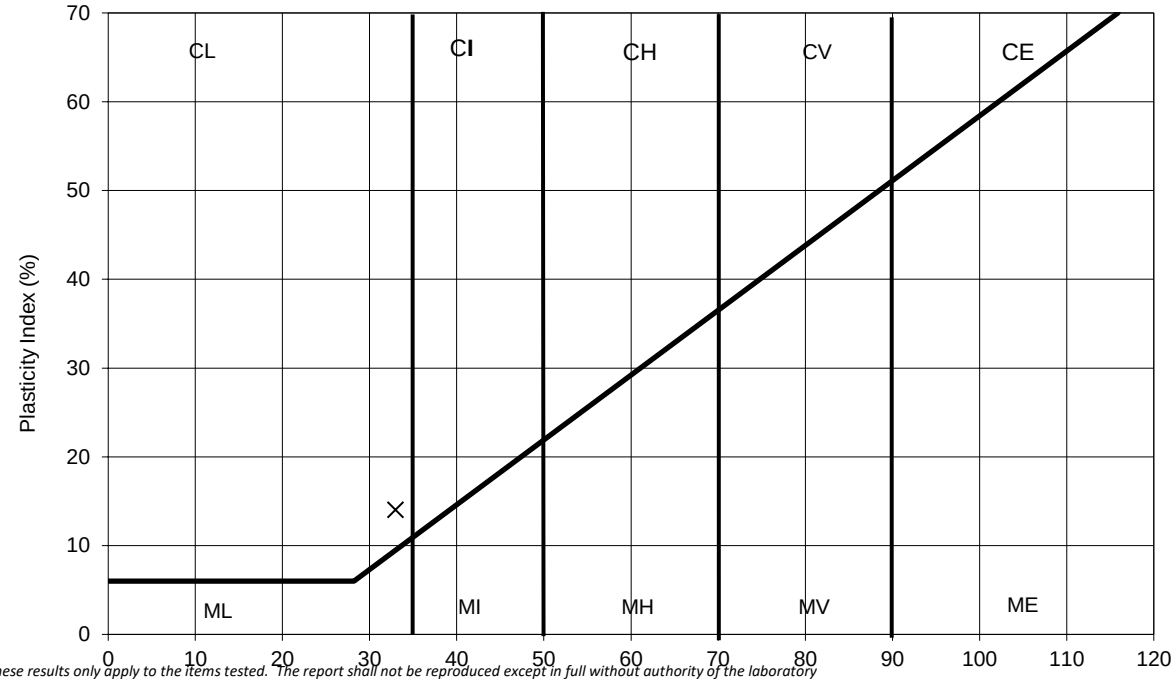
				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**33**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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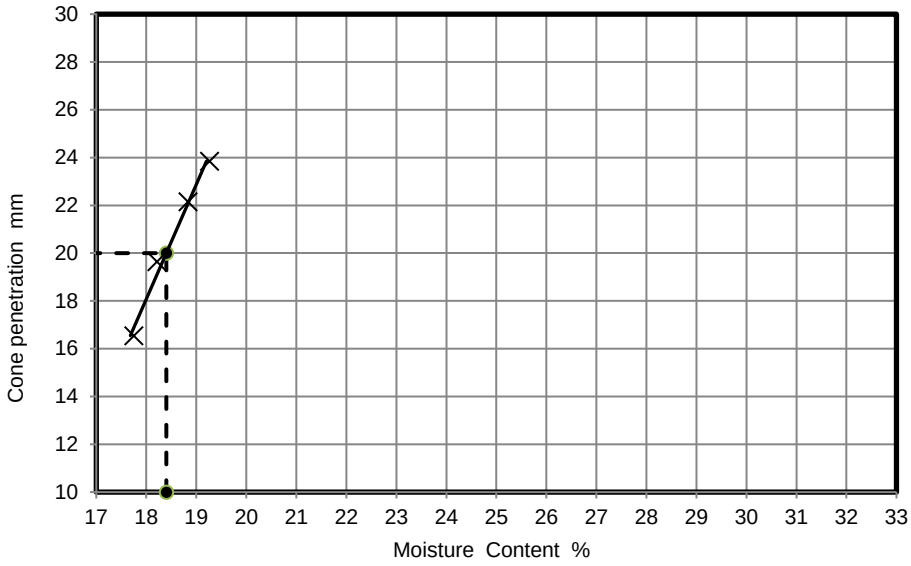
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Light brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

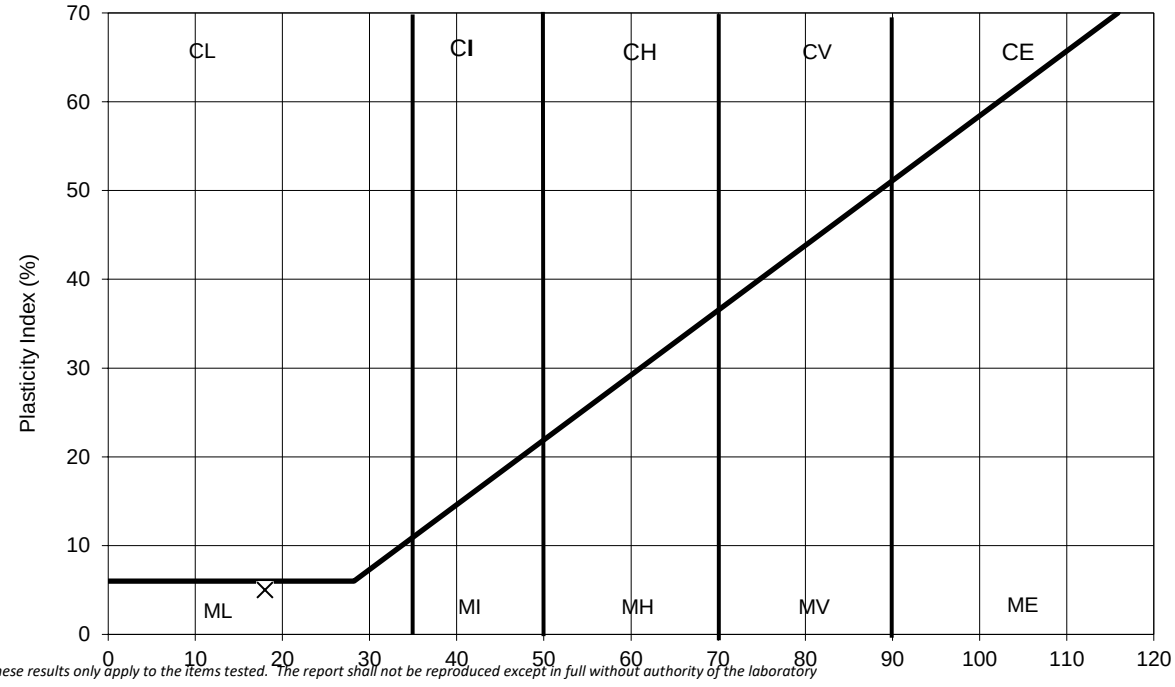


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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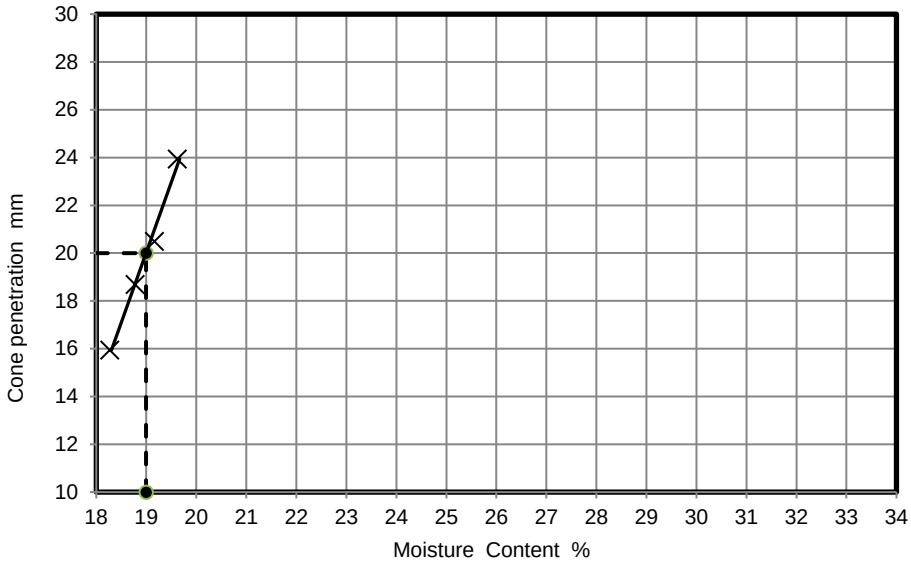
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/09/2022

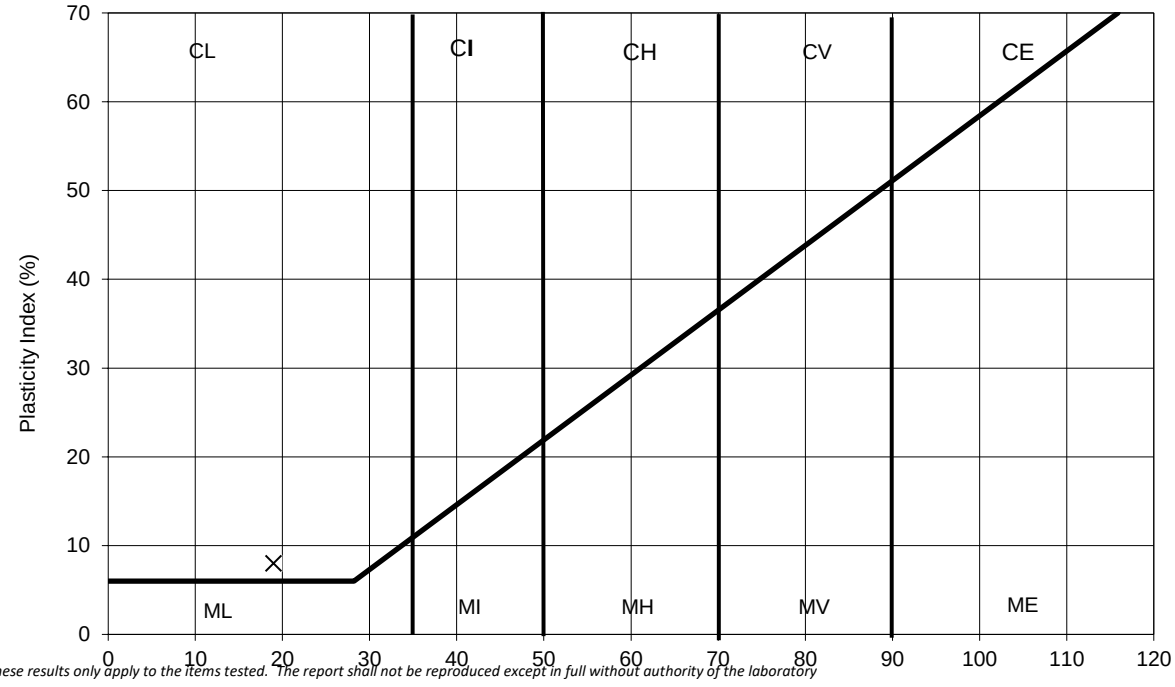


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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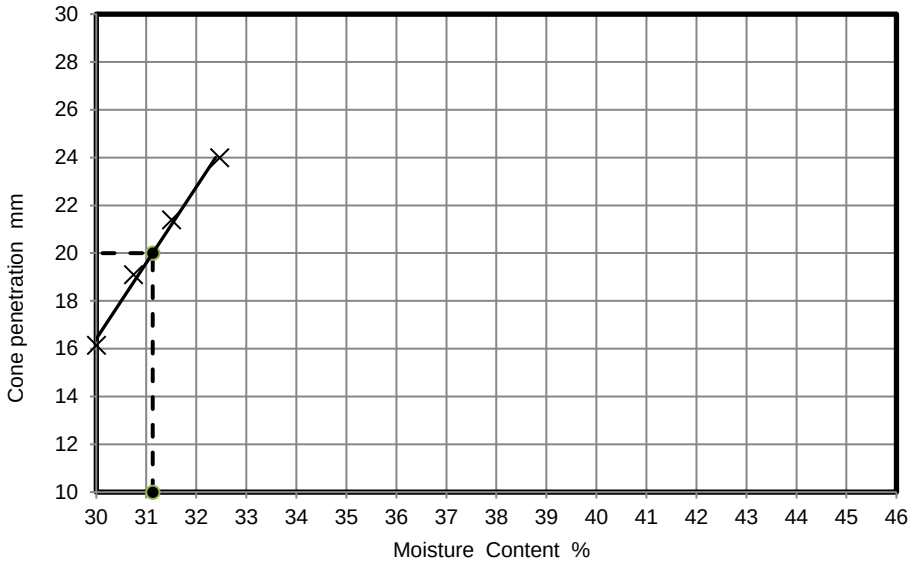
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D

Job No.	32282
Borehole/Pit No.	TP-92306
Samples received	16/08/2022
Schedules received	11/08/2022
Project Started	17/08/2022
Date Tested	22/11/2022

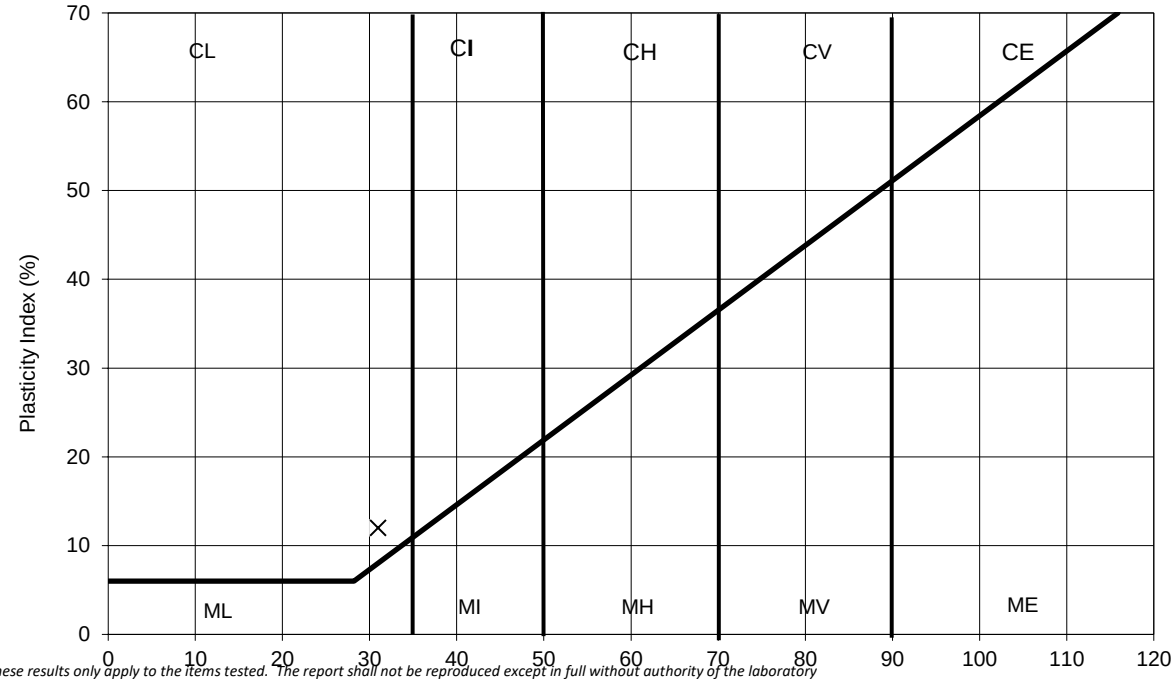


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**31**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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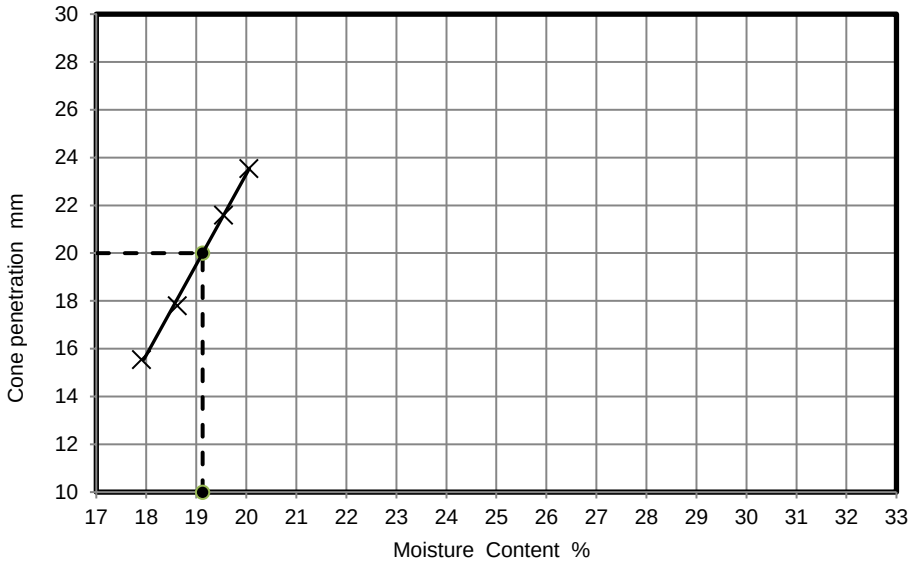
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92306
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

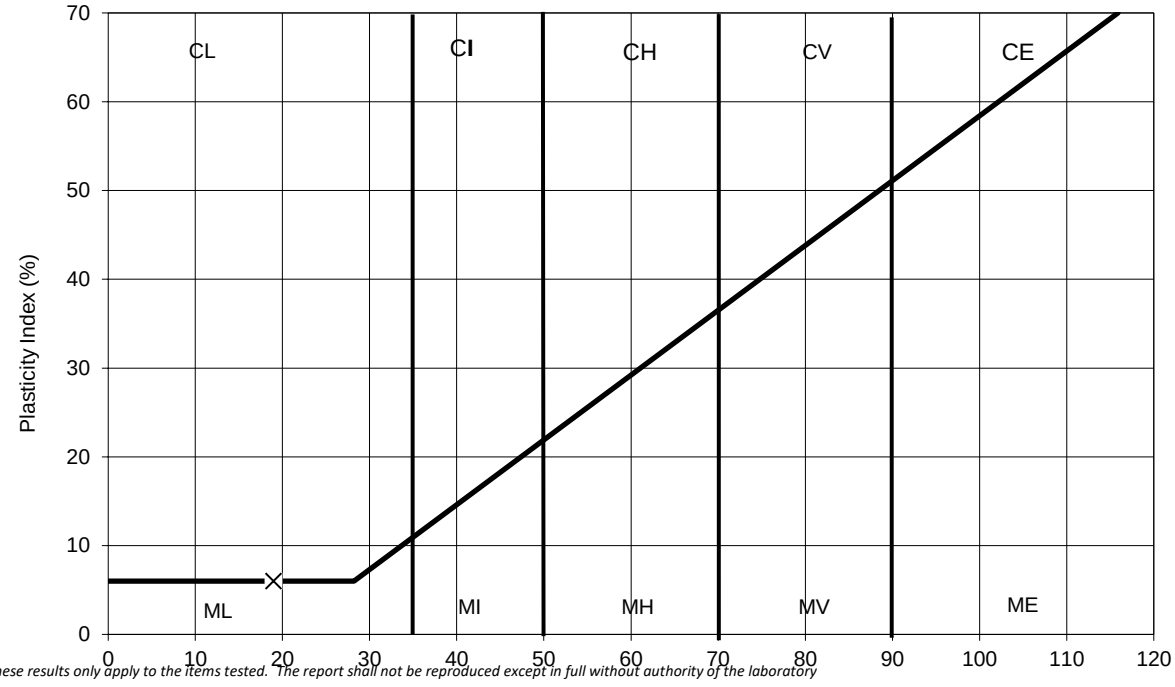


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**72**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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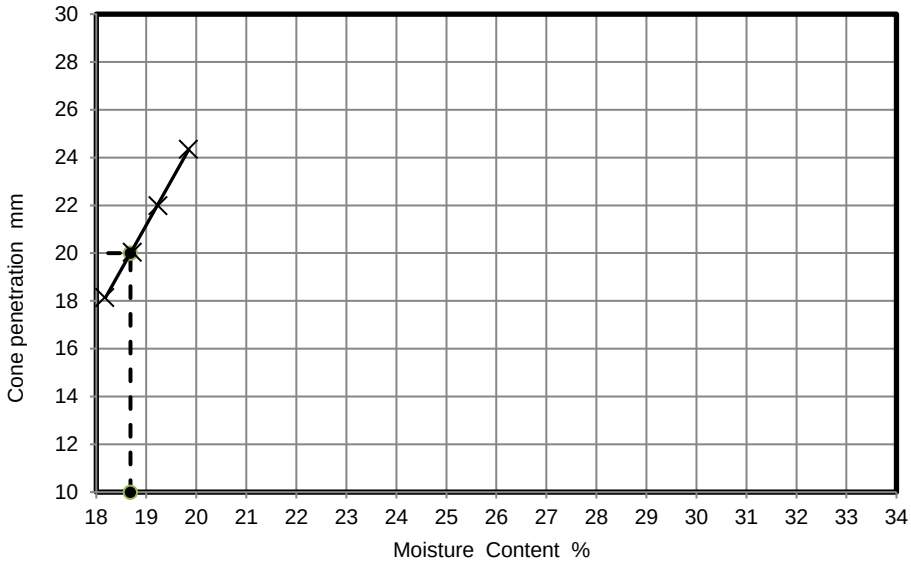
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-92306
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

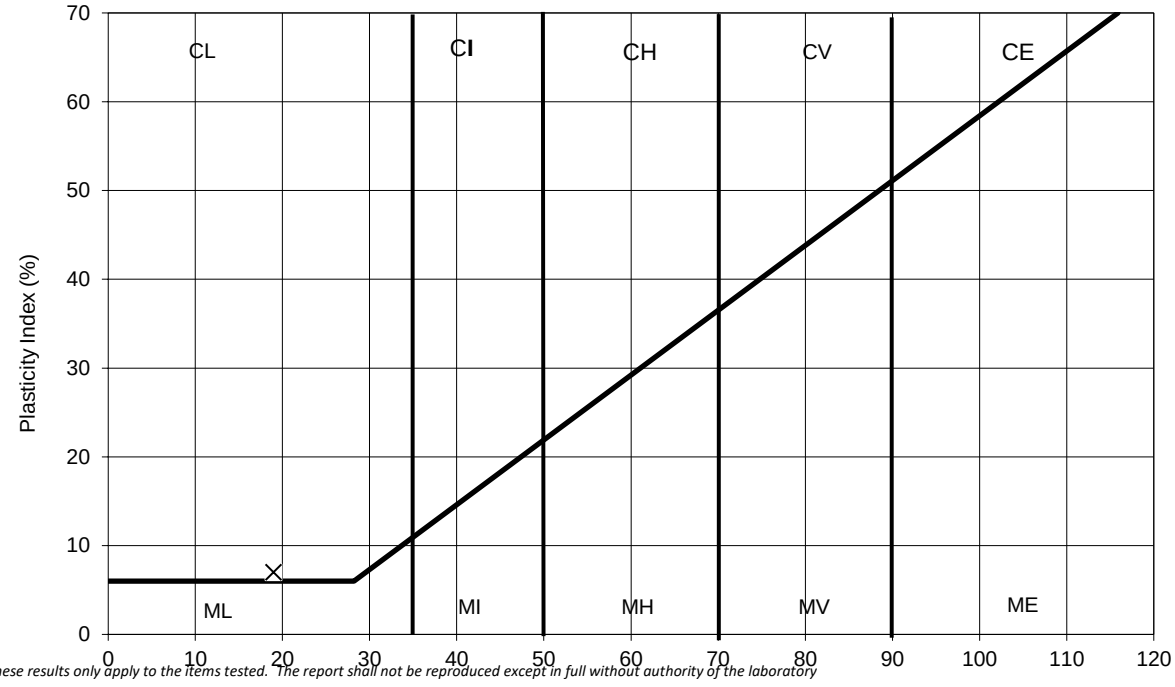


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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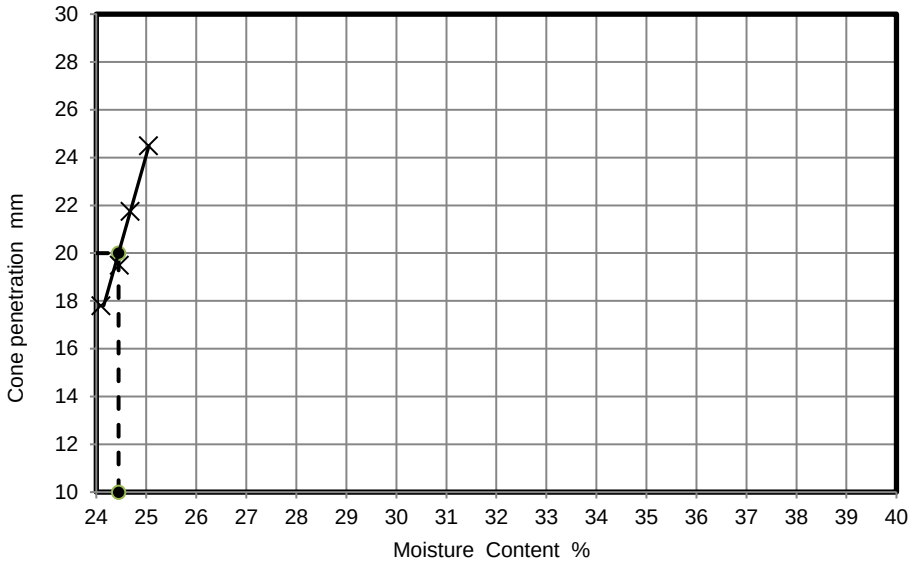
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly clayey very silty SAND (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

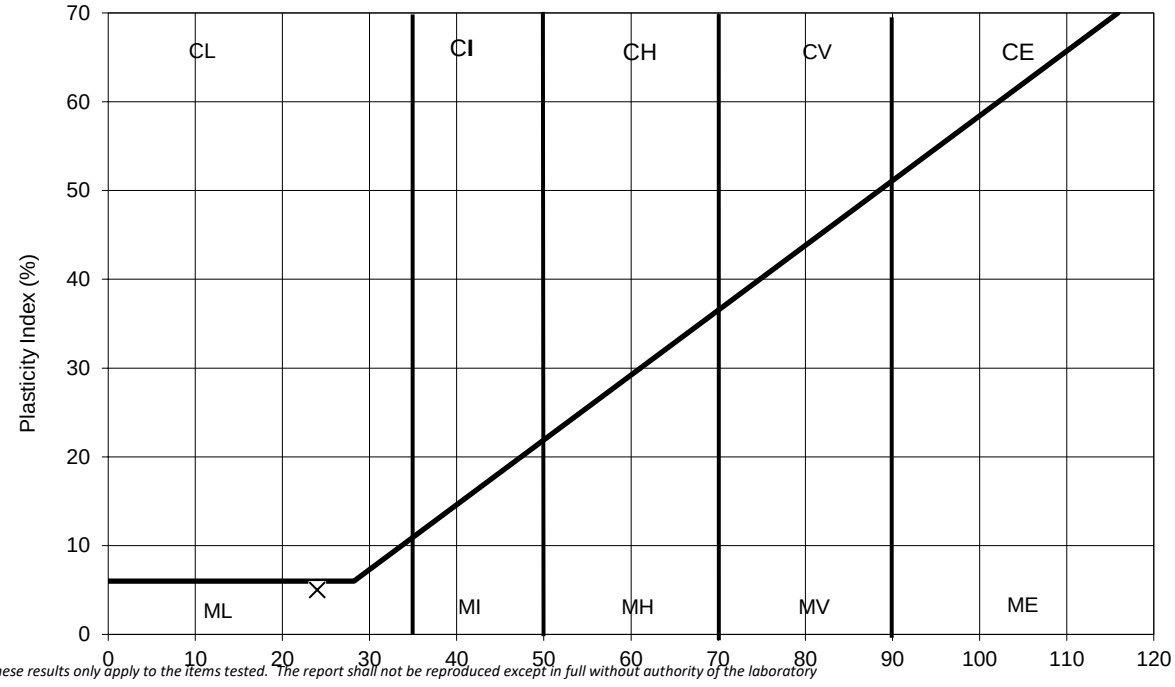


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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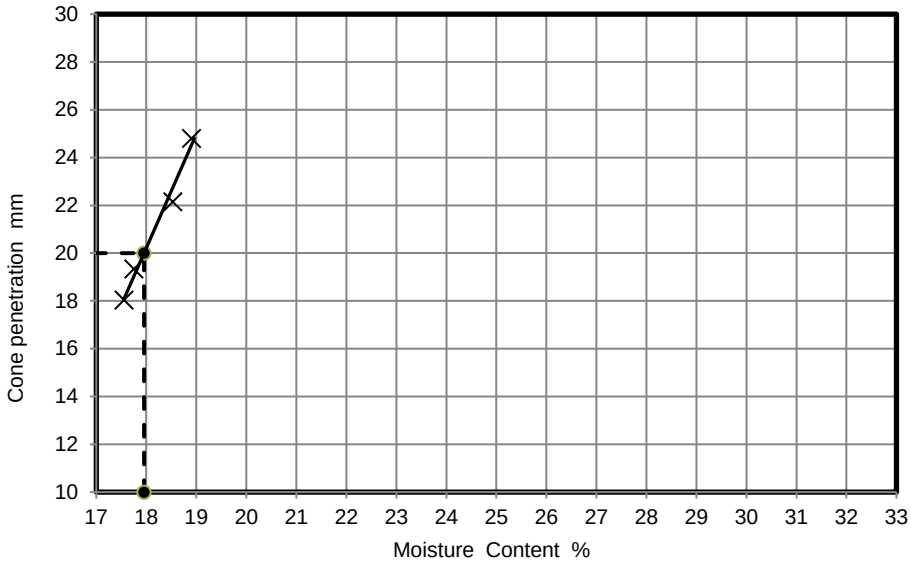
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

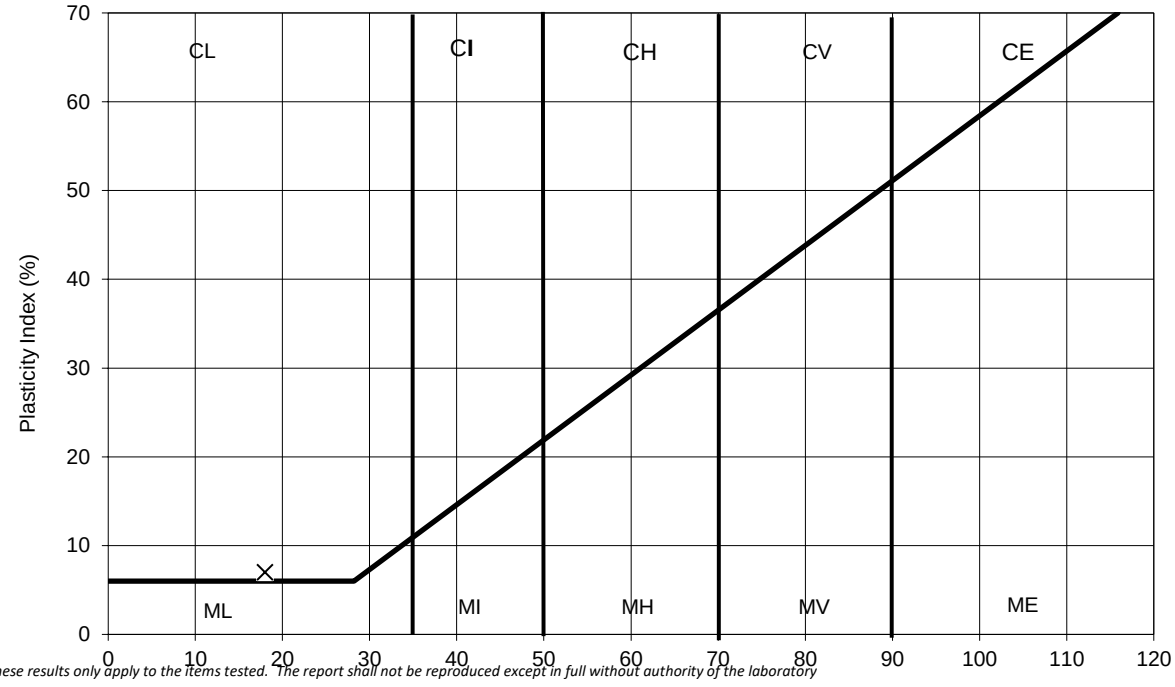


NATURAL MOISTURE CONTENT	**7.3**	**%**
% PASSING 425µm SIEVE	**52**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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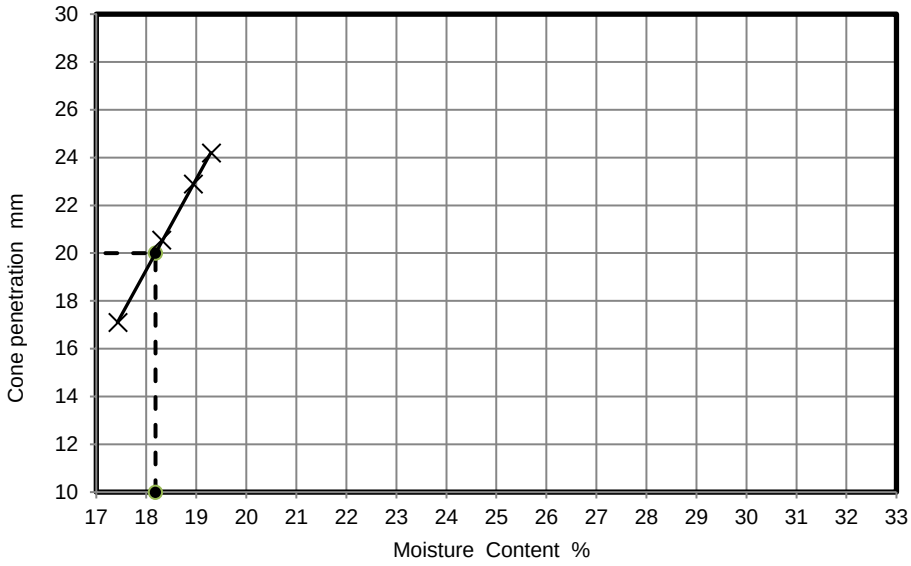
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

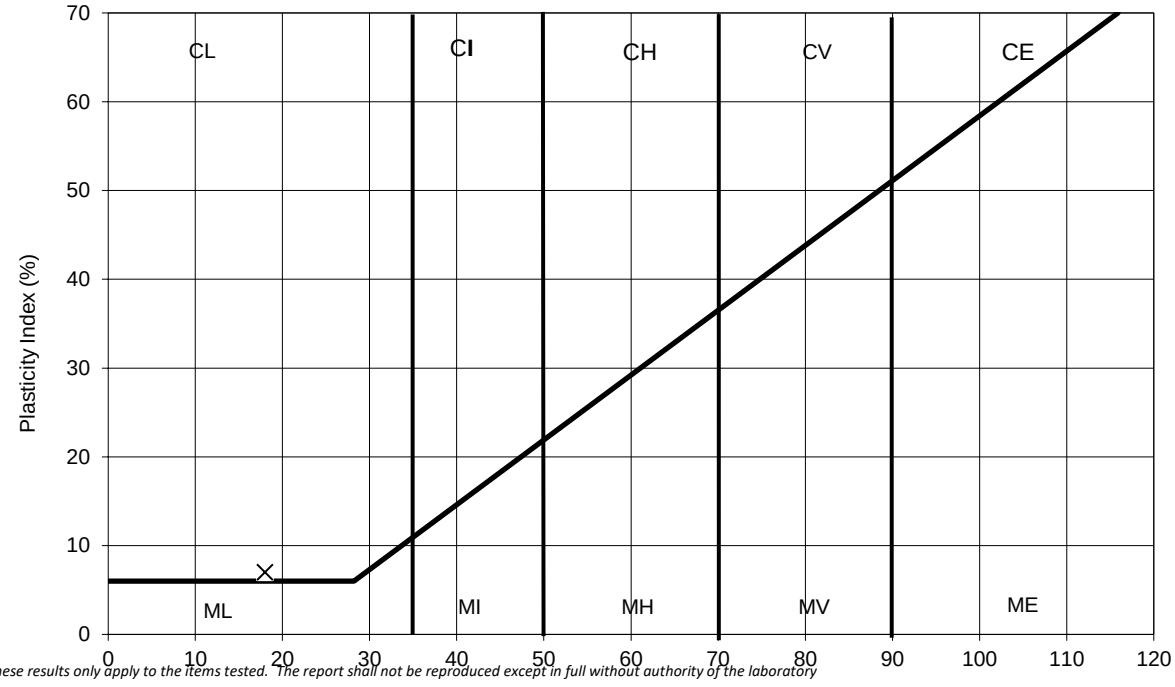


NATURAL MOISTURE CONTENT	**7.8**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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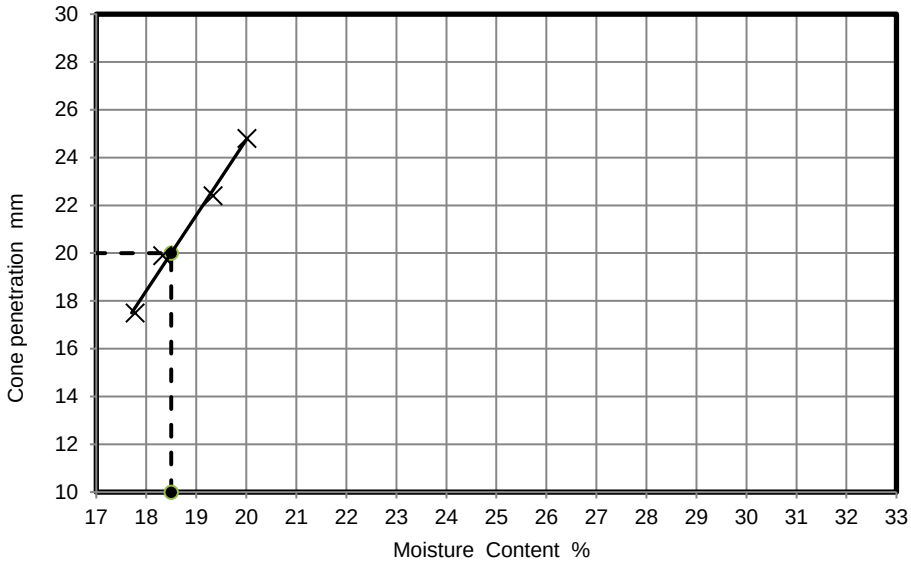
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92506
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

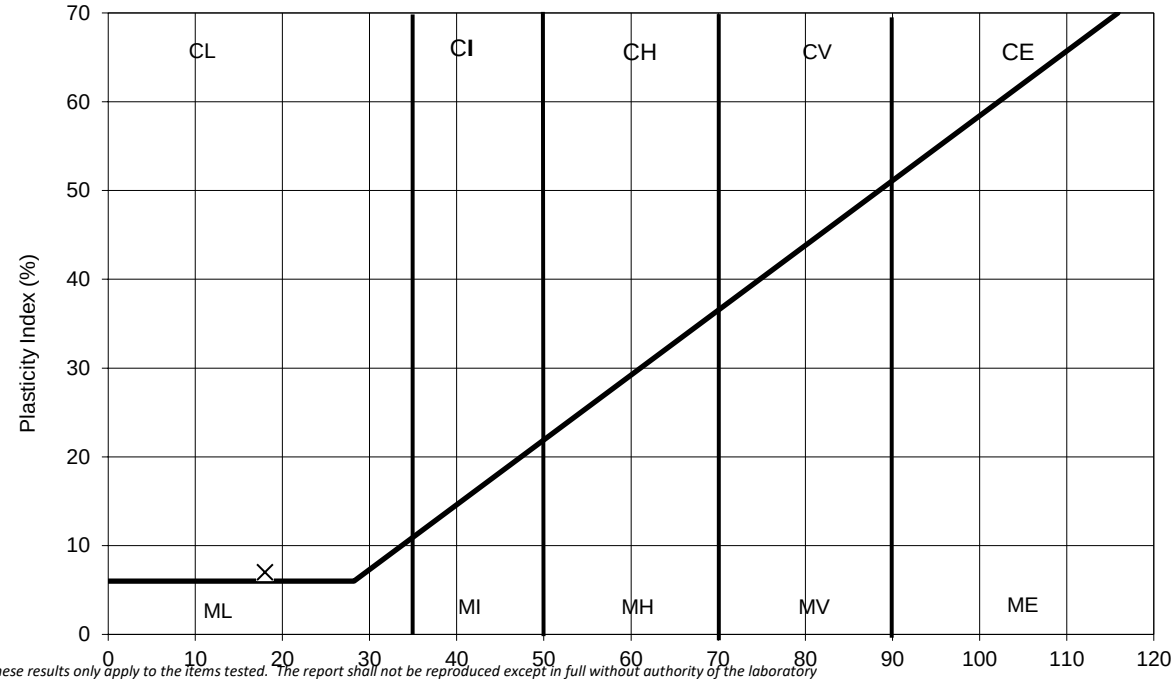


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

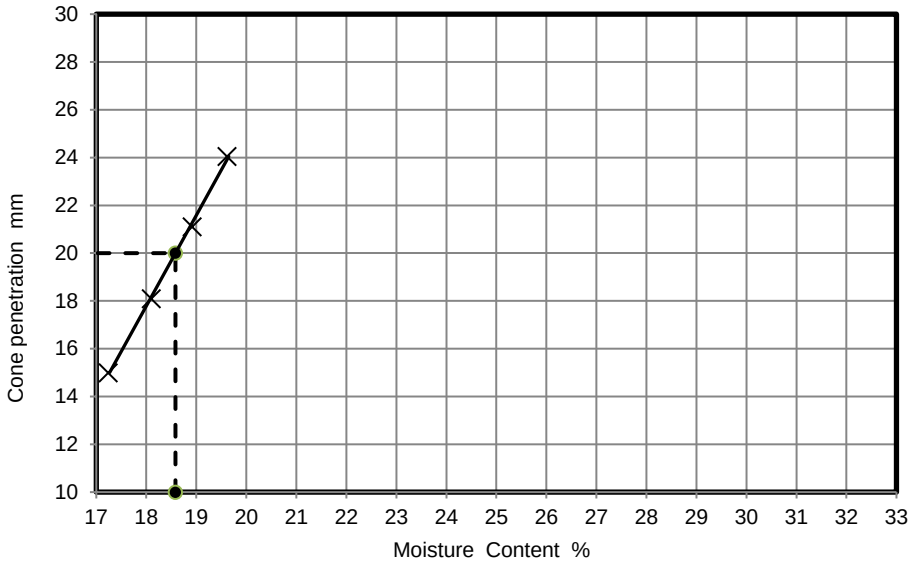
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Dark greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

Job No. 32282

Borehole/Pit No. TP-92506

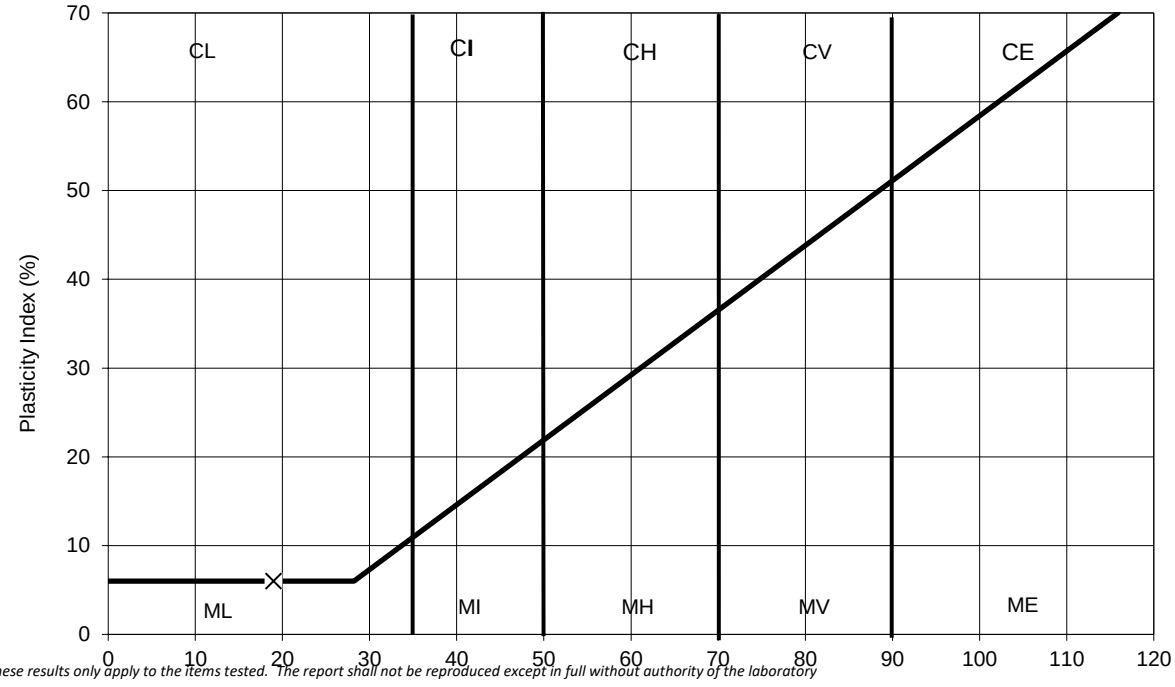


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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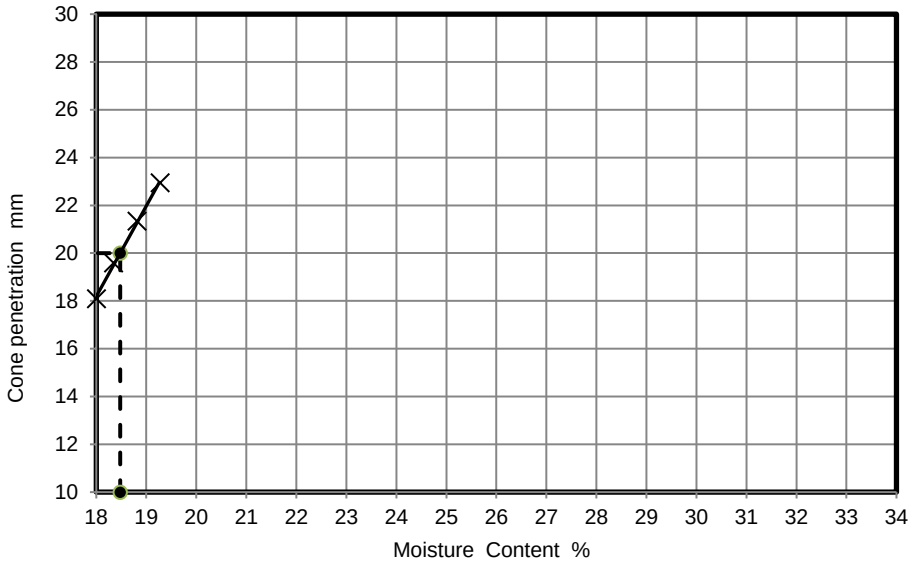
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92506
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

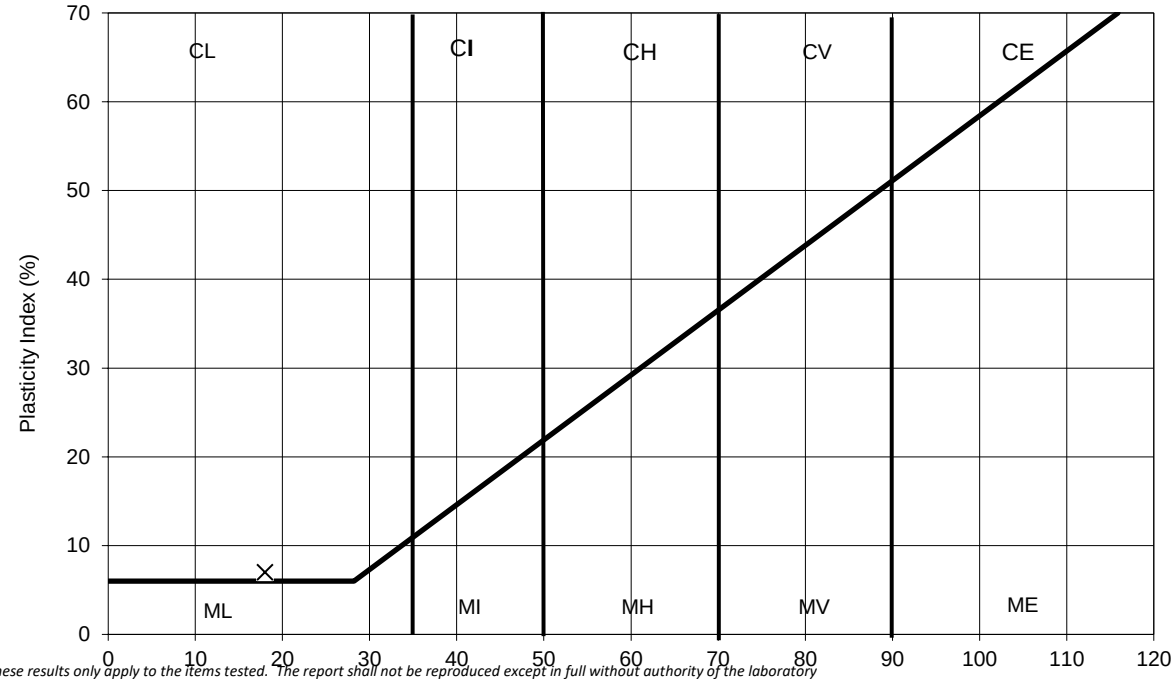


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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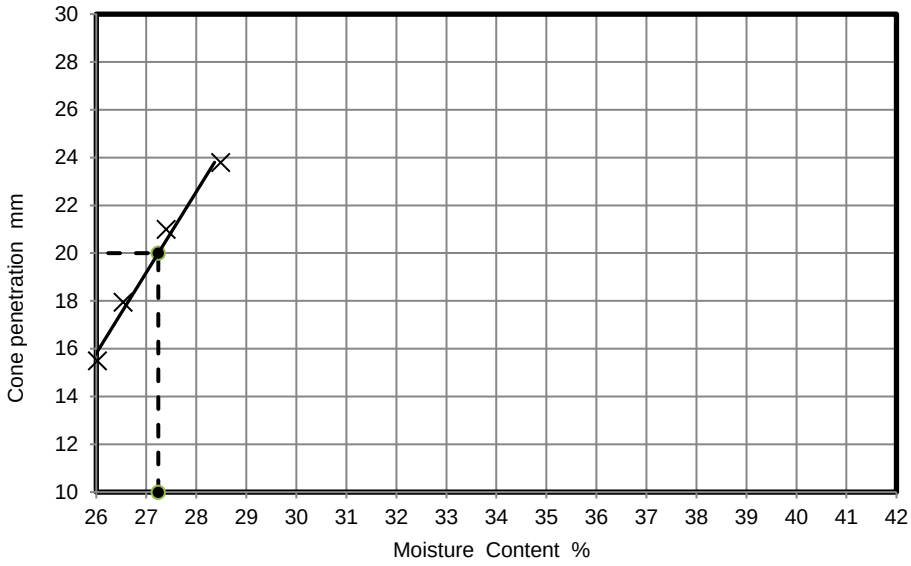
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

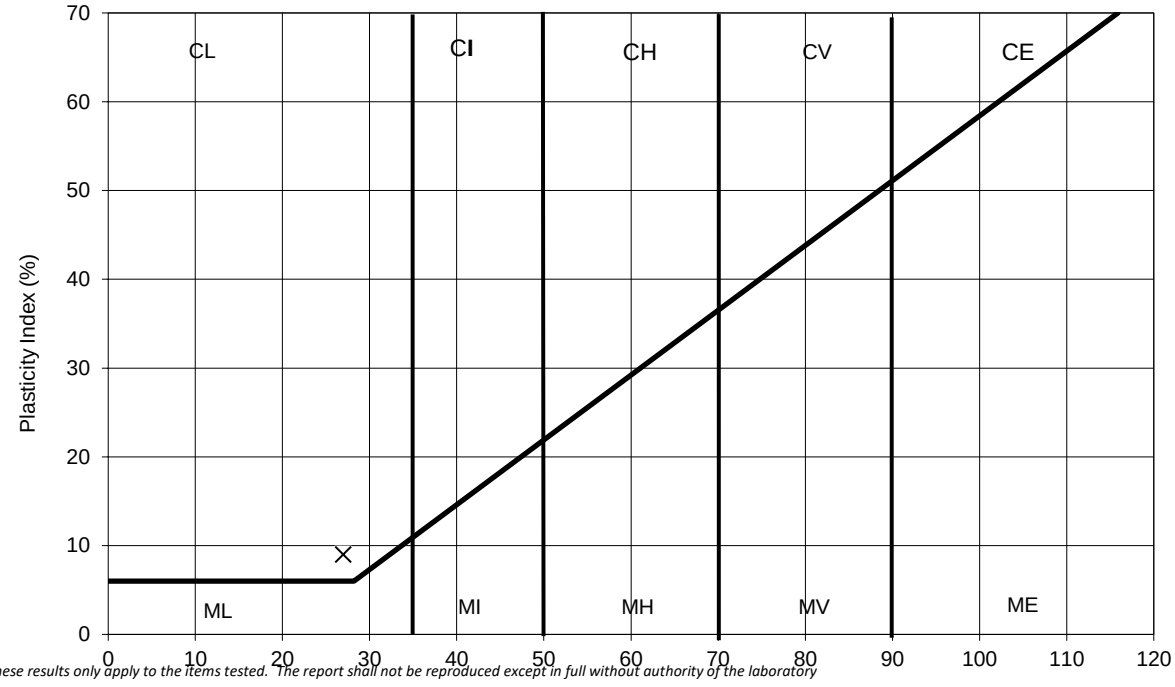


NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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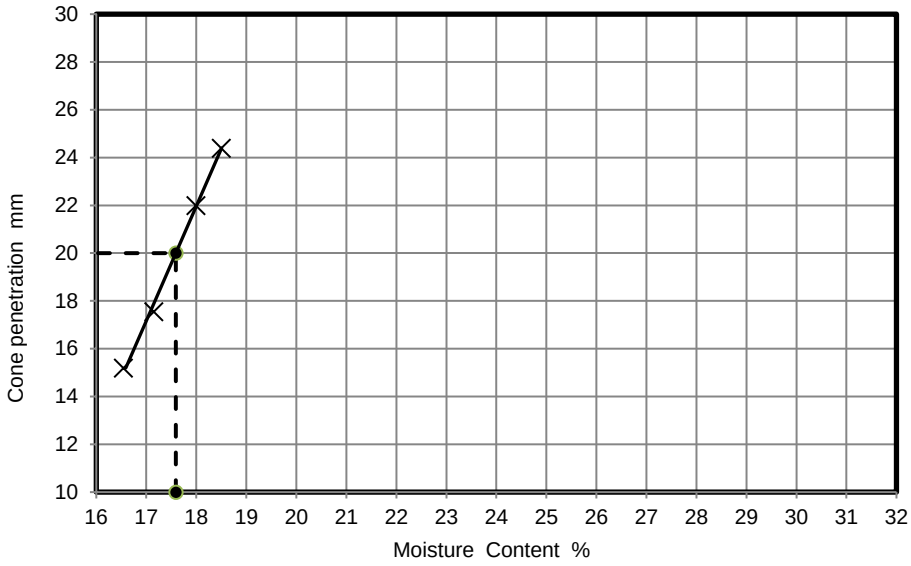
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

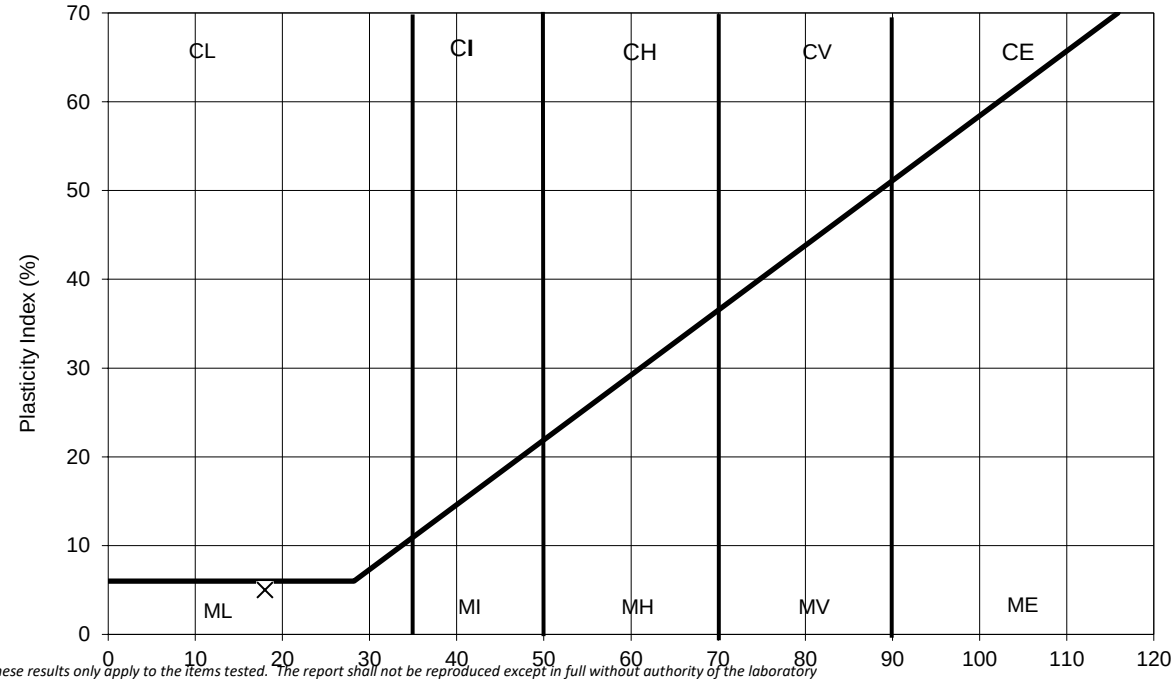


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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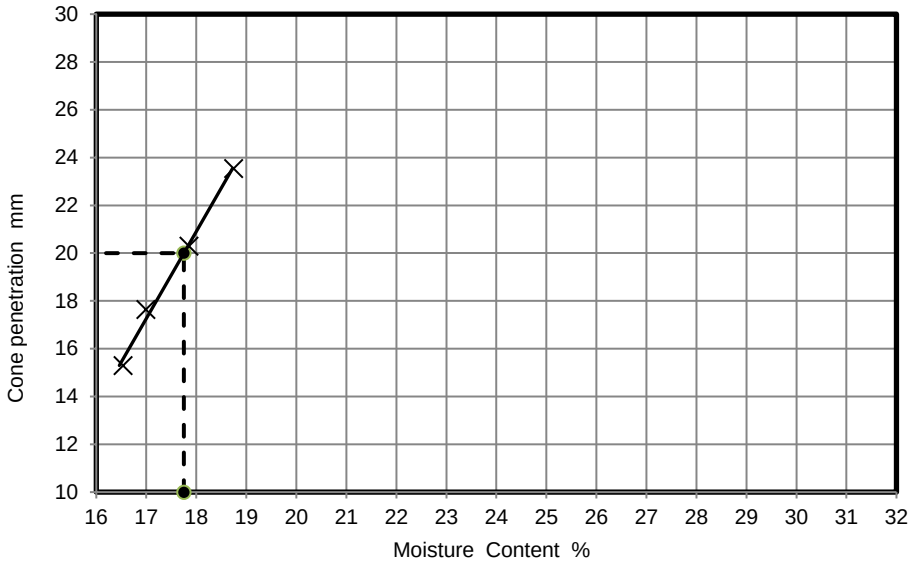
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

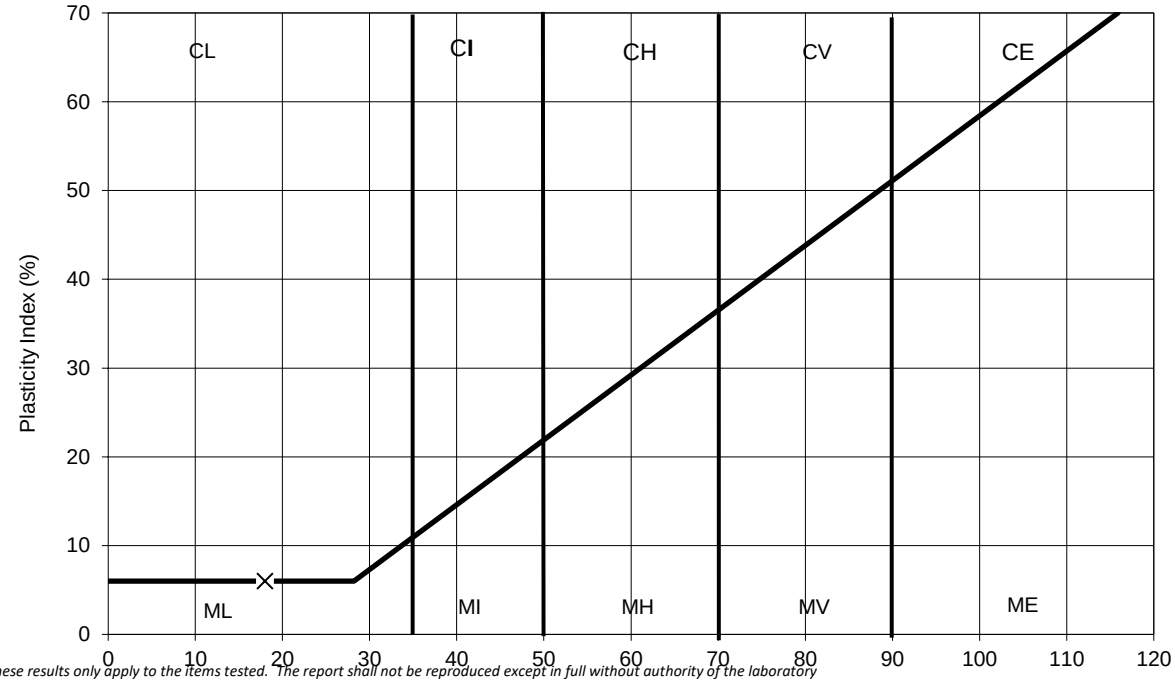


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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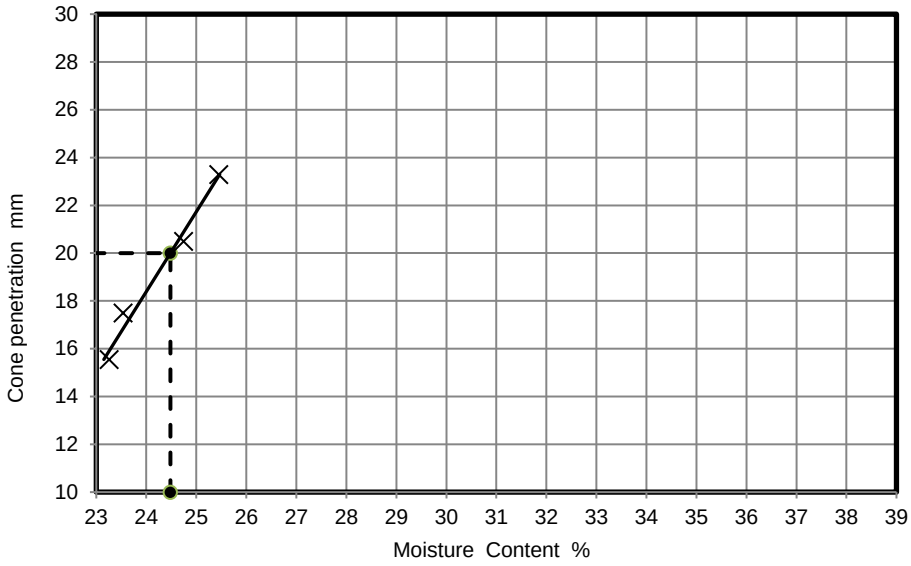
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92706
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

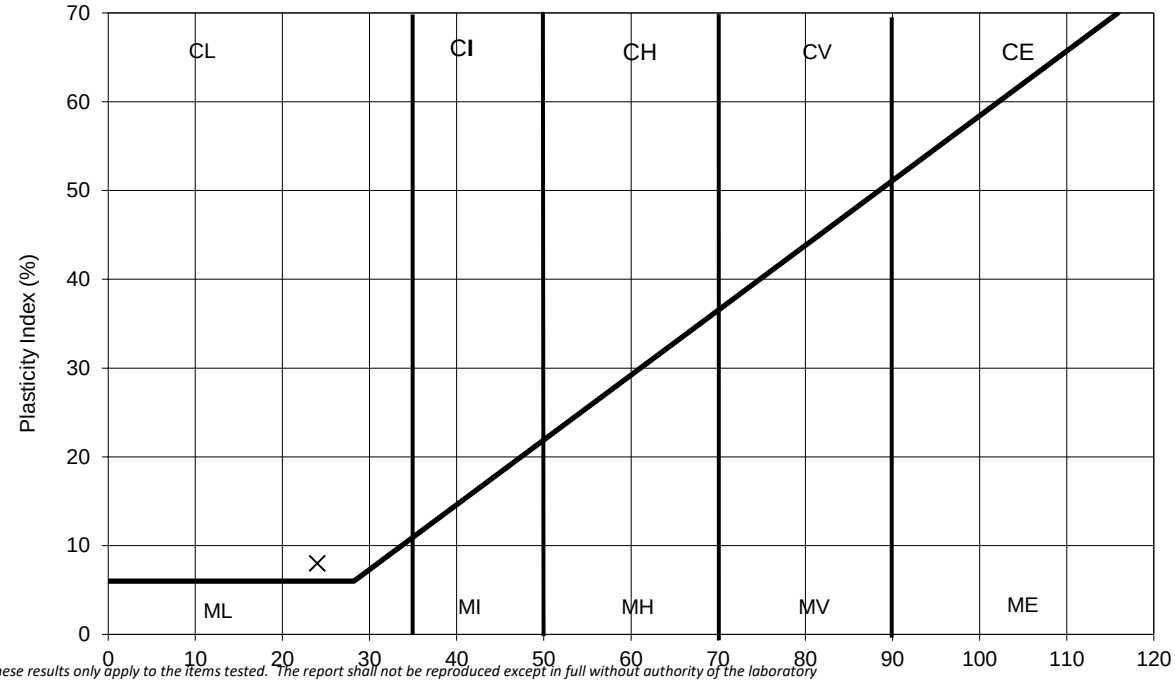


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**78**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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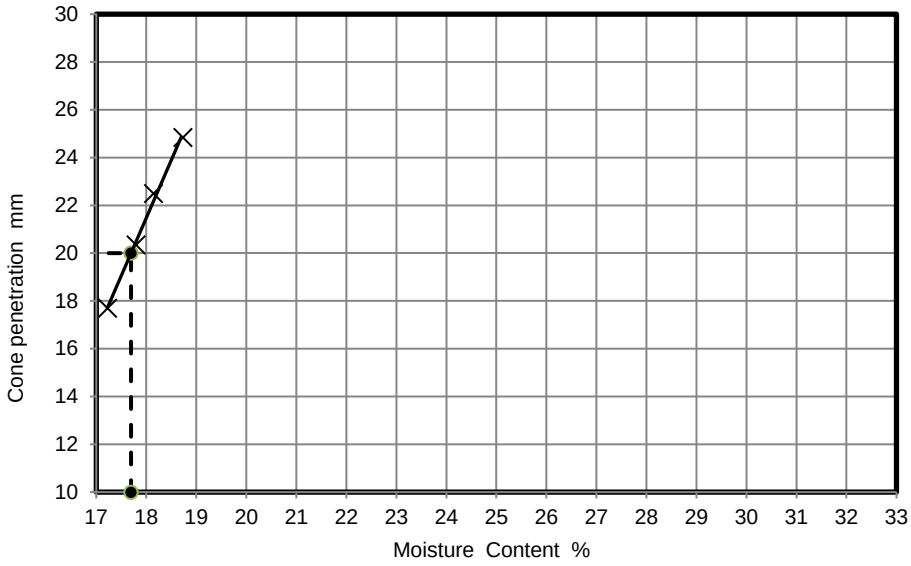
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92706
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

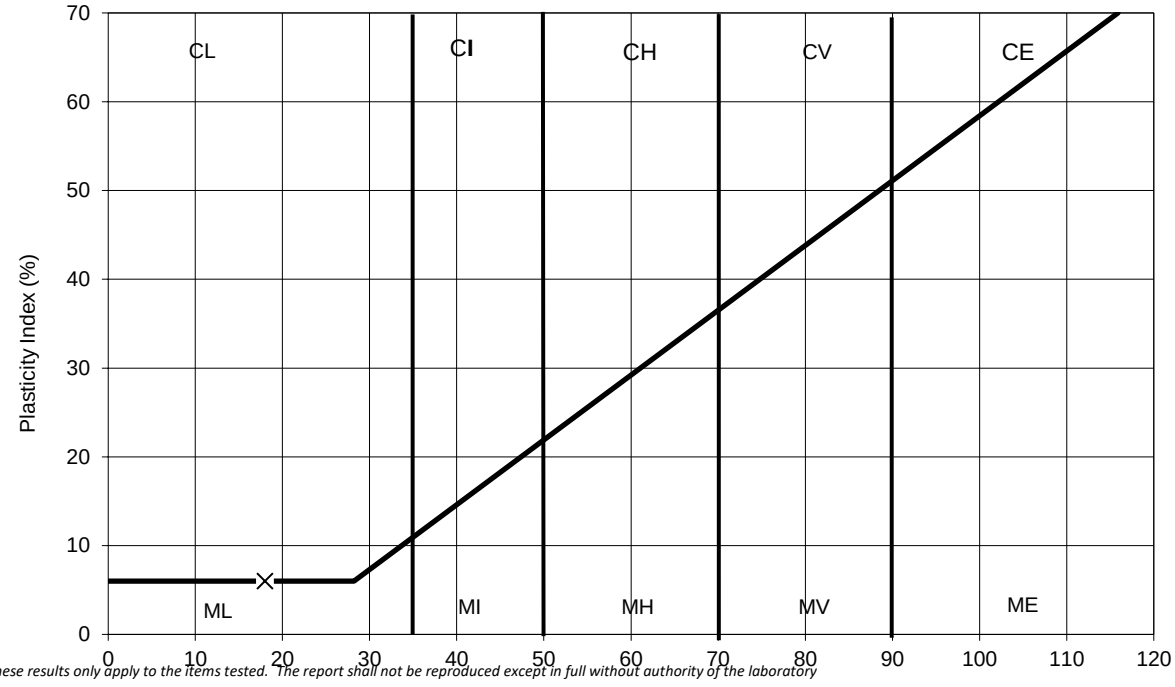


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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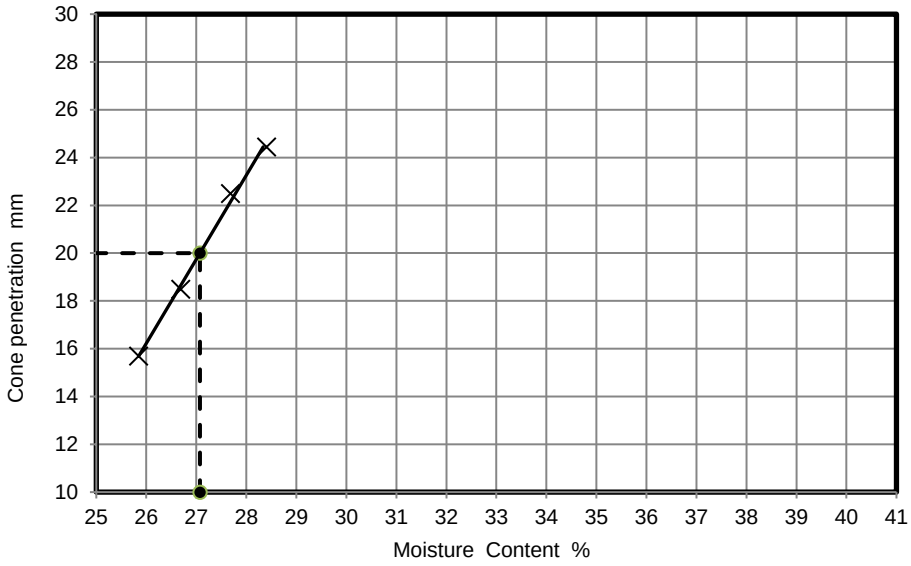
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92804
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

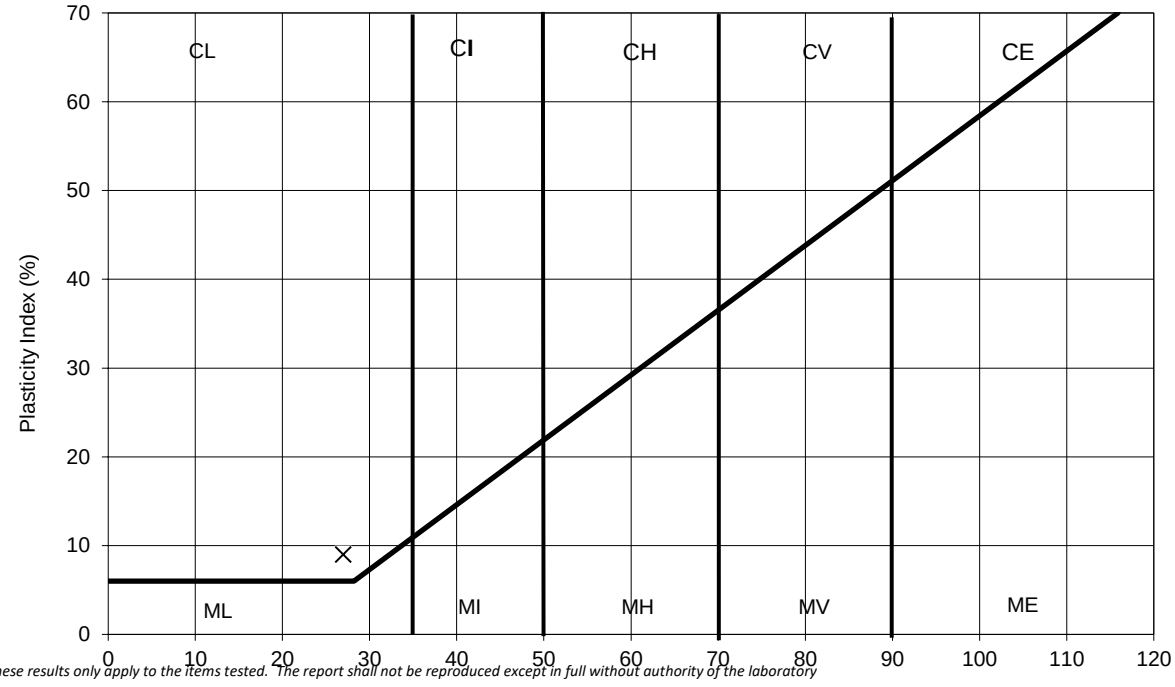


NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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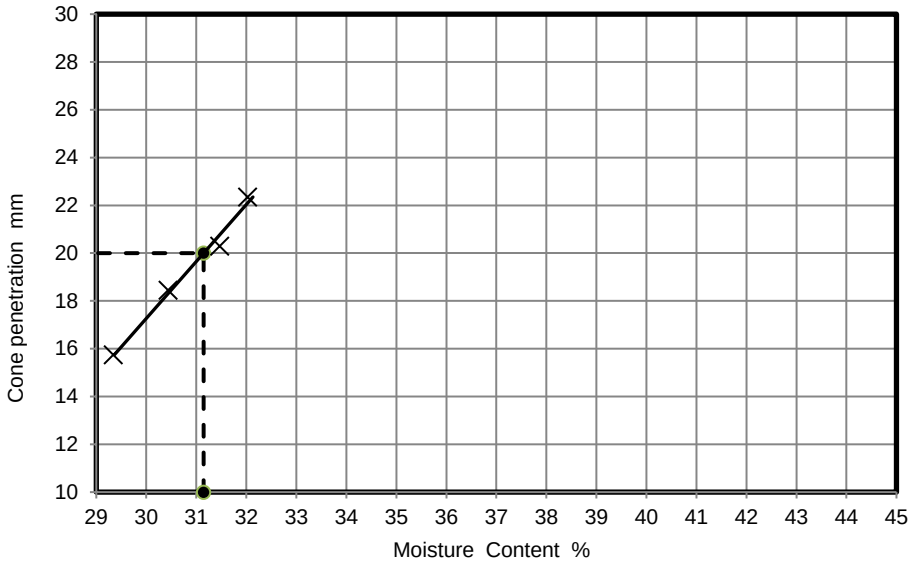
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

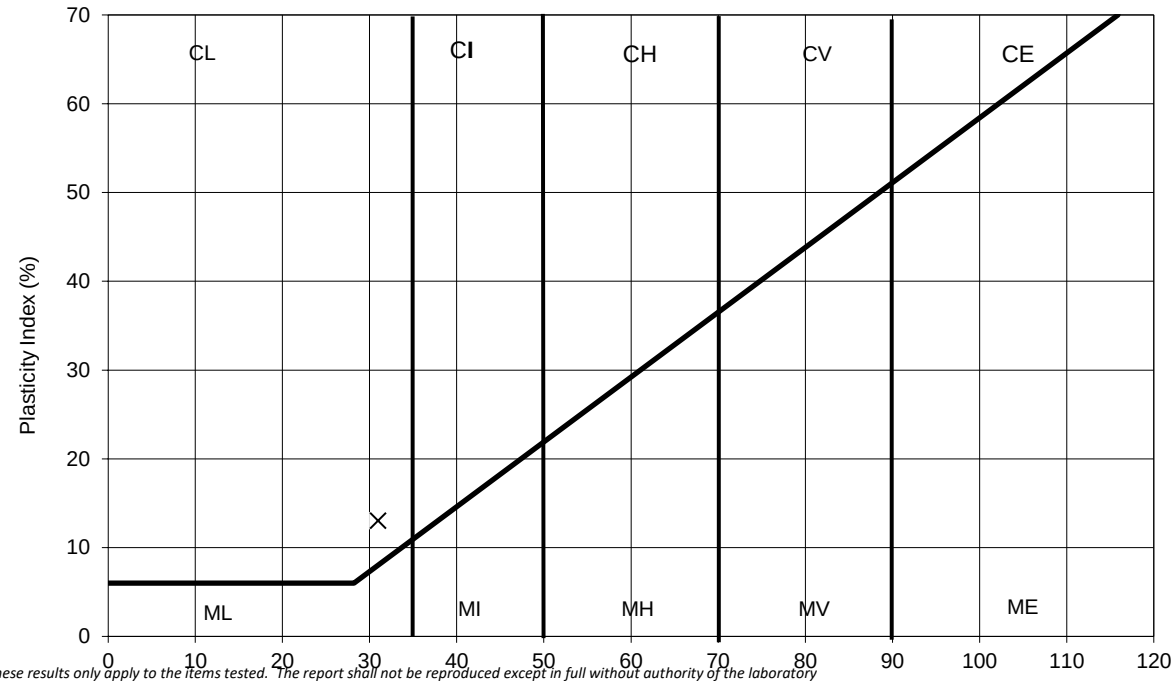
				Job No.	32282
				Borehole/Pit No.	TP-92904
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022



NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**95**	**%**
LIQUID LIMIT	**31**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**13**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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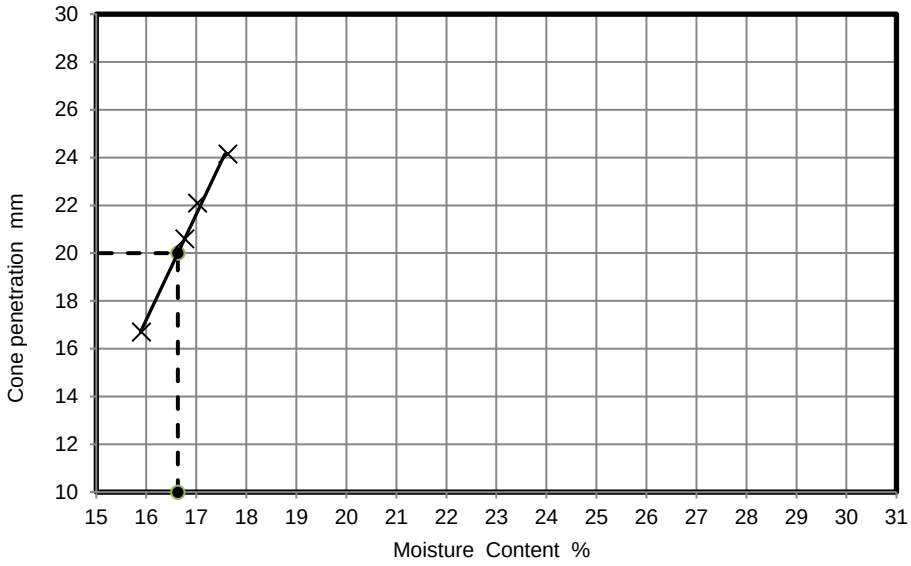
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92904
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

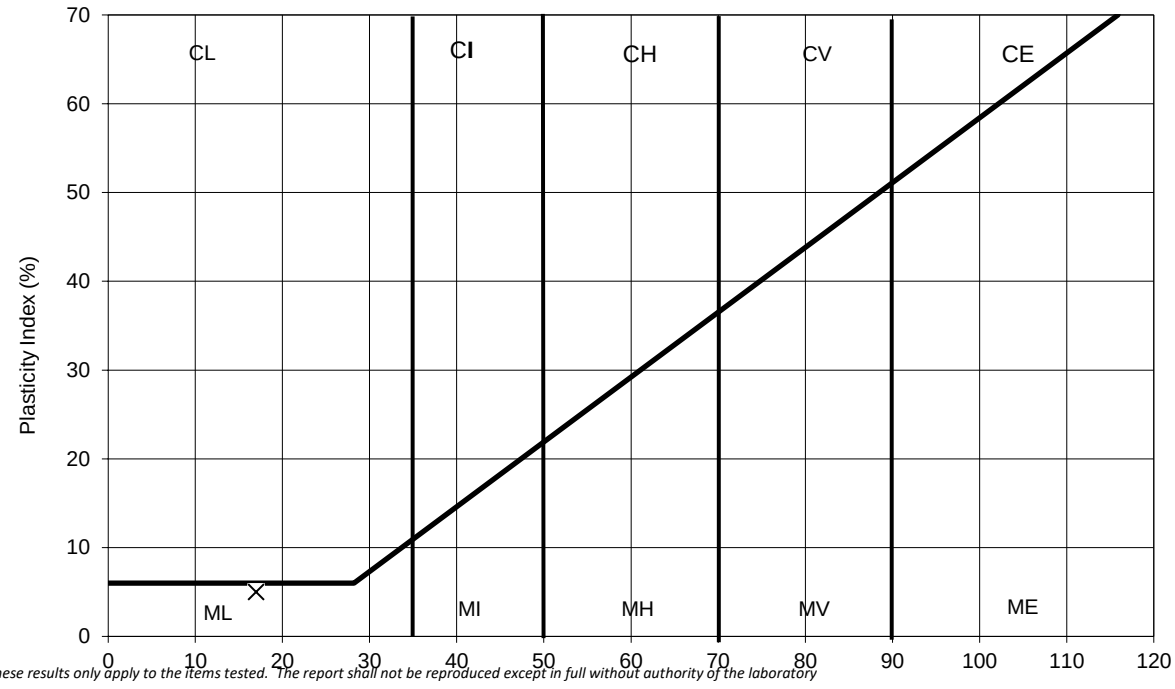


NATURAL MOISTURE CONTENT	**8.7**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

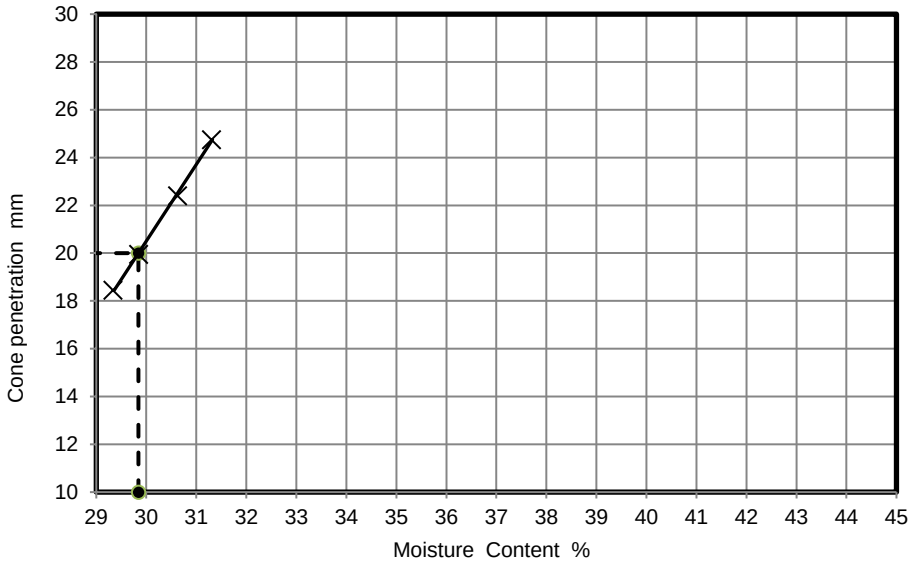
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

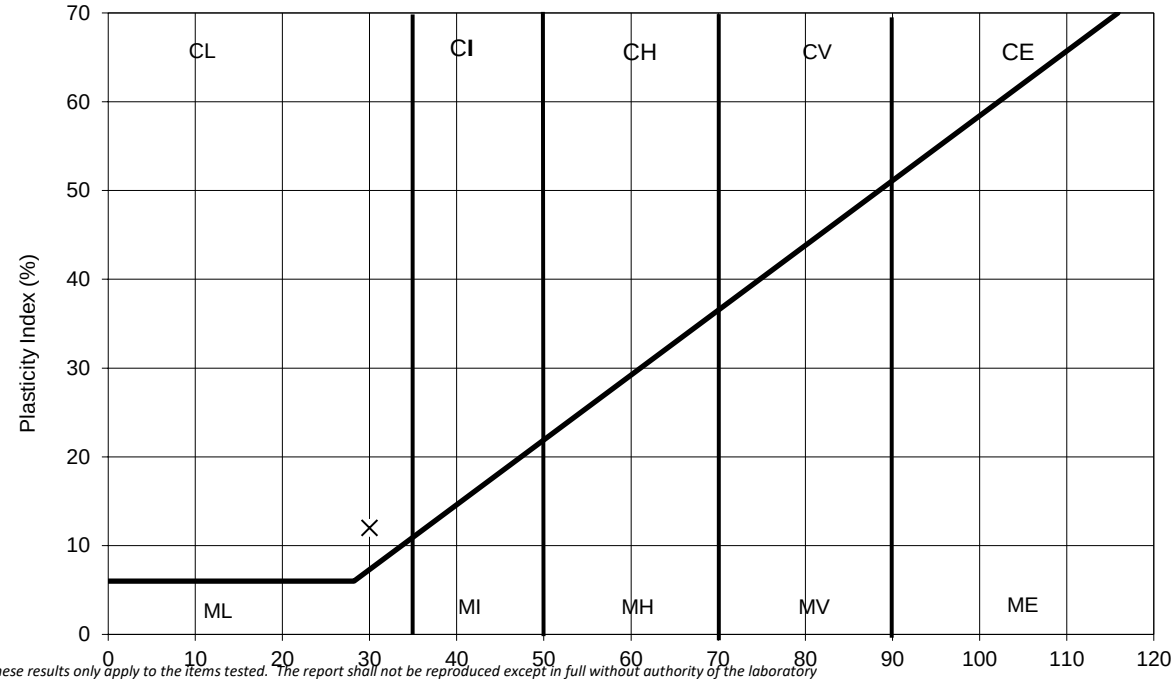
				Job No.	32282
				Borehole/Pit No.	TP-93003
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**30**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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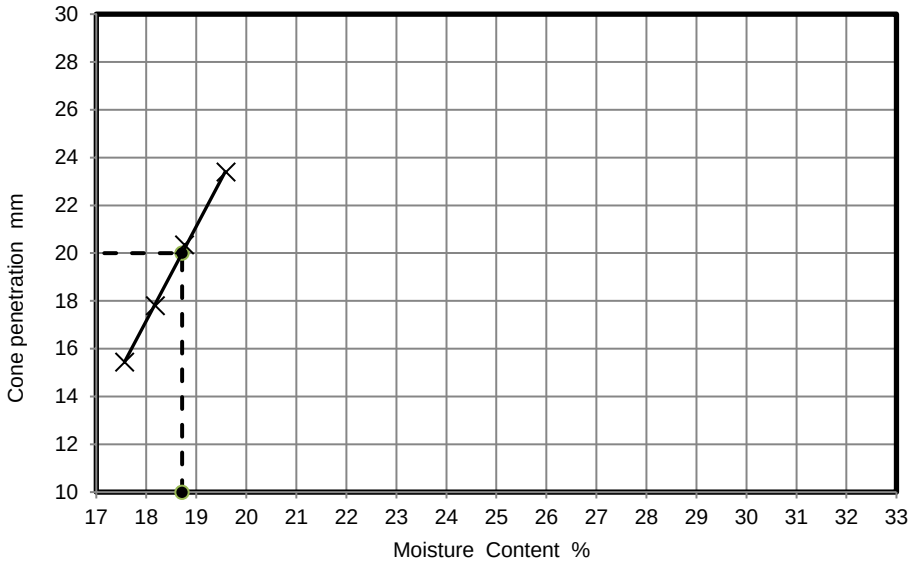
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93003
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

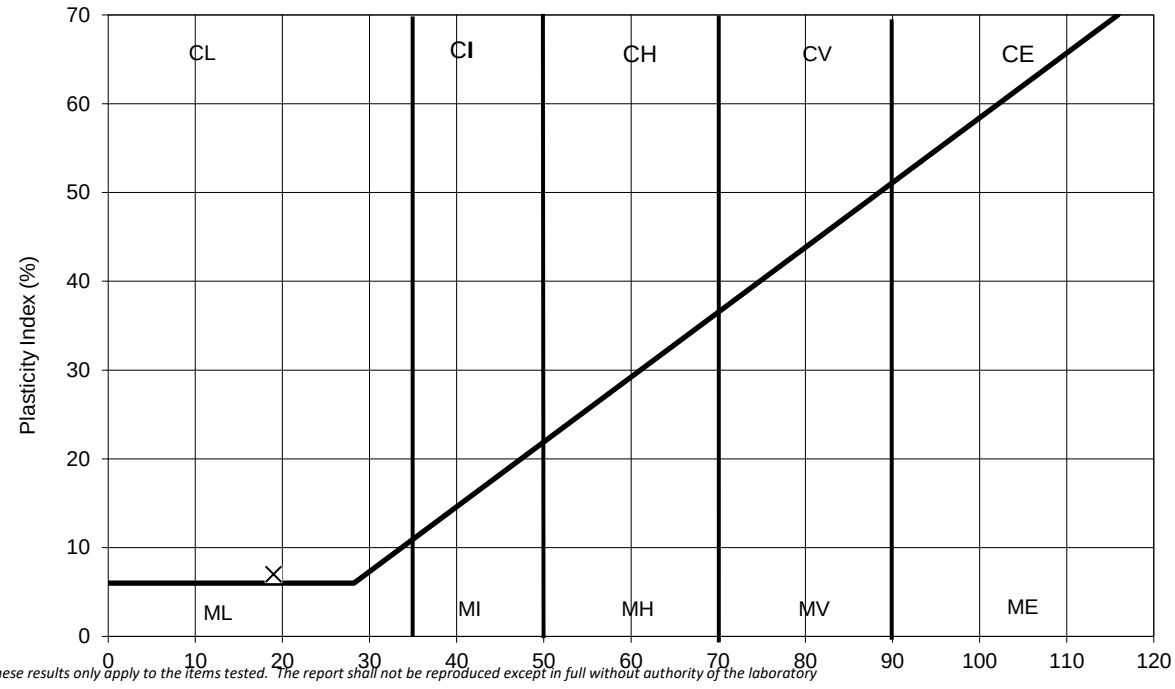


NATURAL MOISTURE CONTENT	**7.4**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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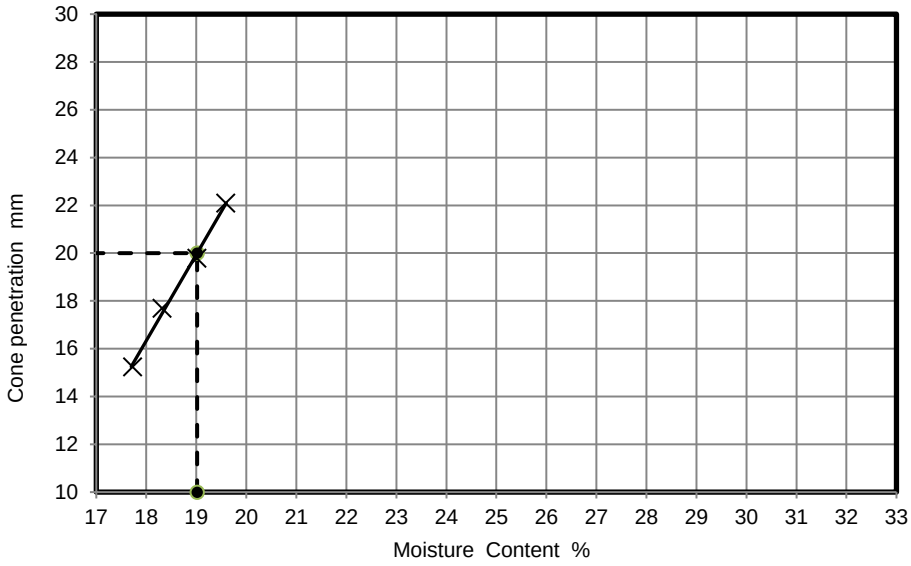
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

Job No. 32282

Borehole/Pit No. TP-93106

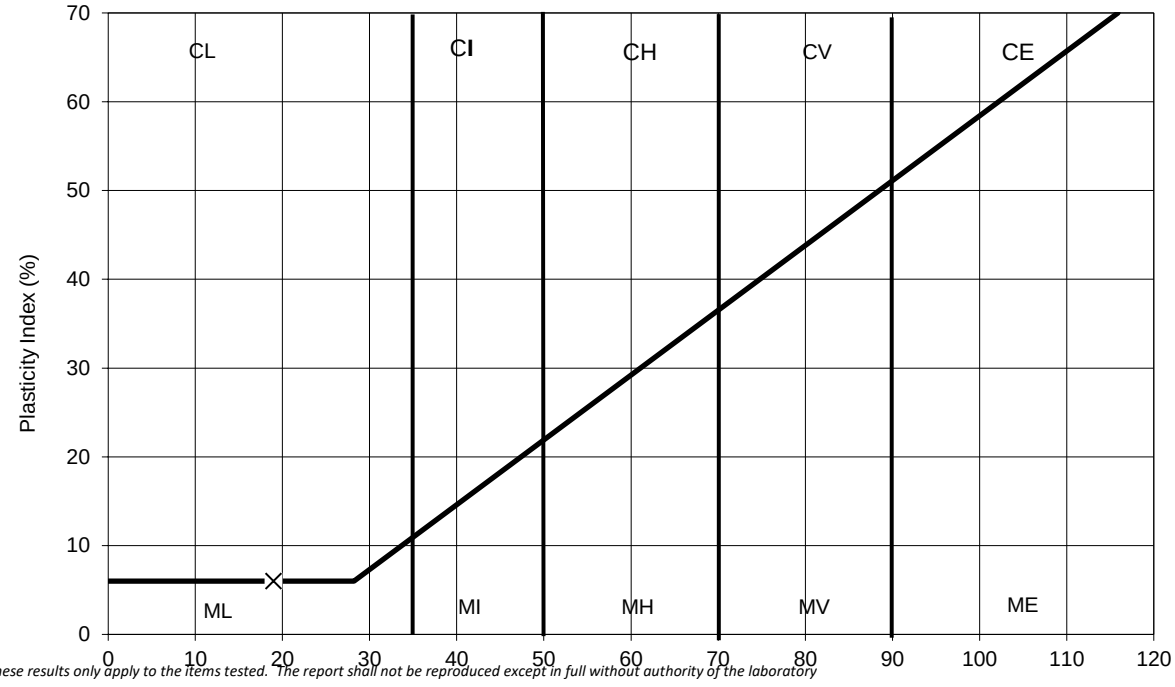


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Date: 15/12/2022

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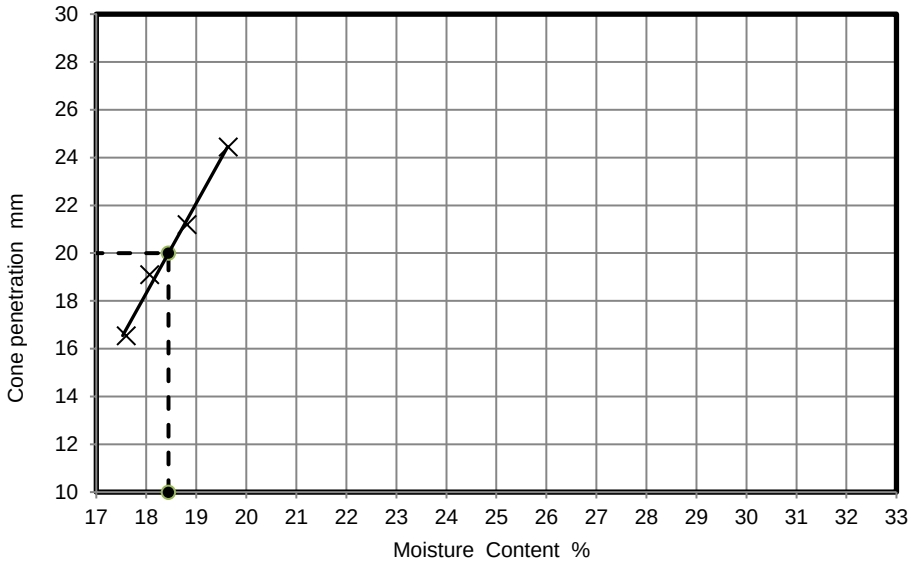
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93106
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.10 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

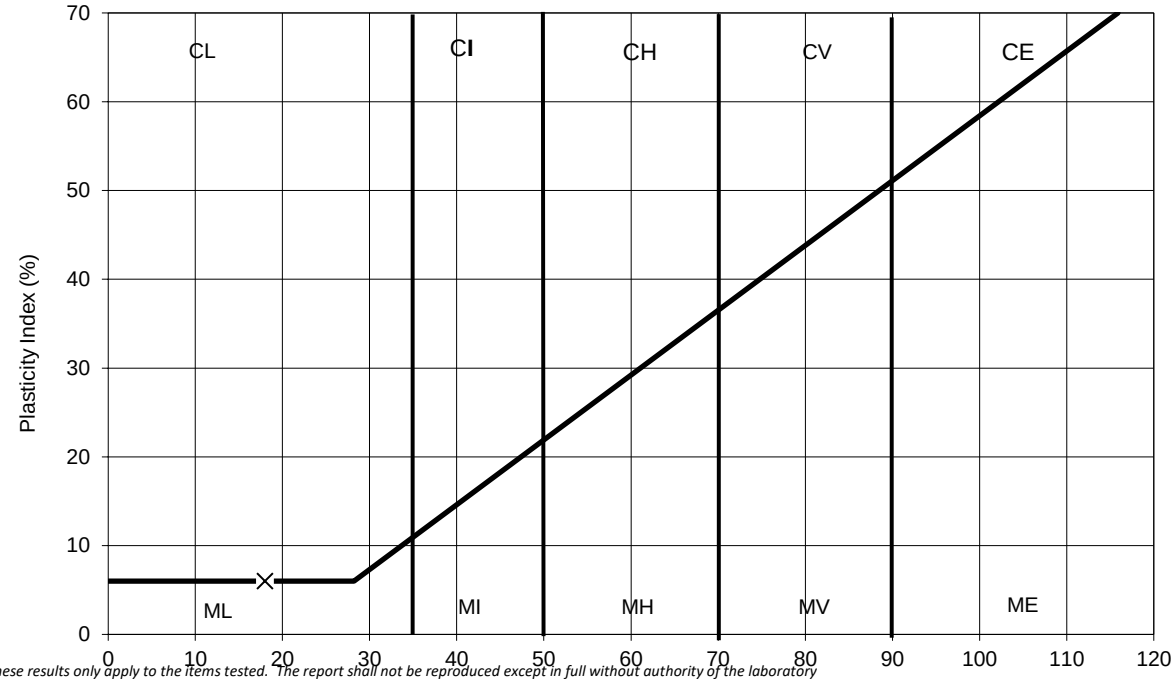


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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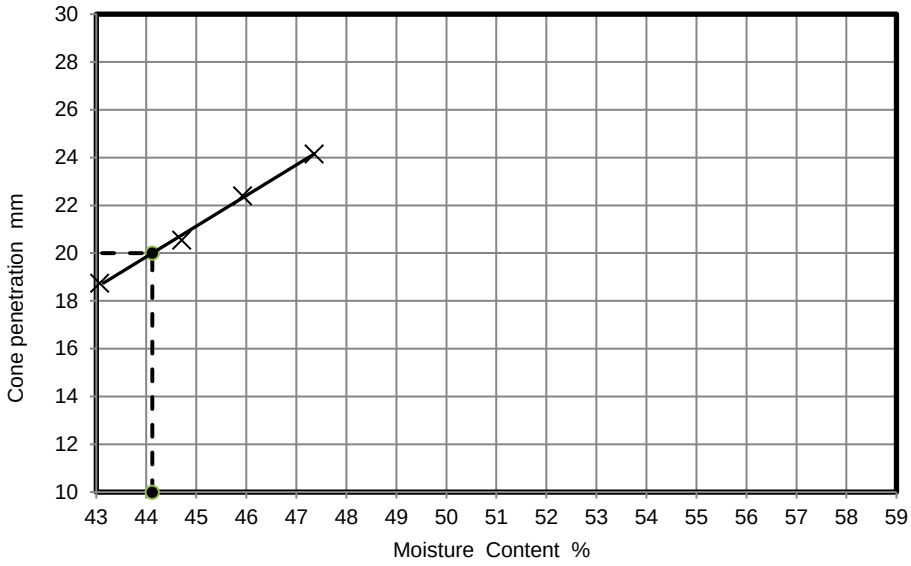
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

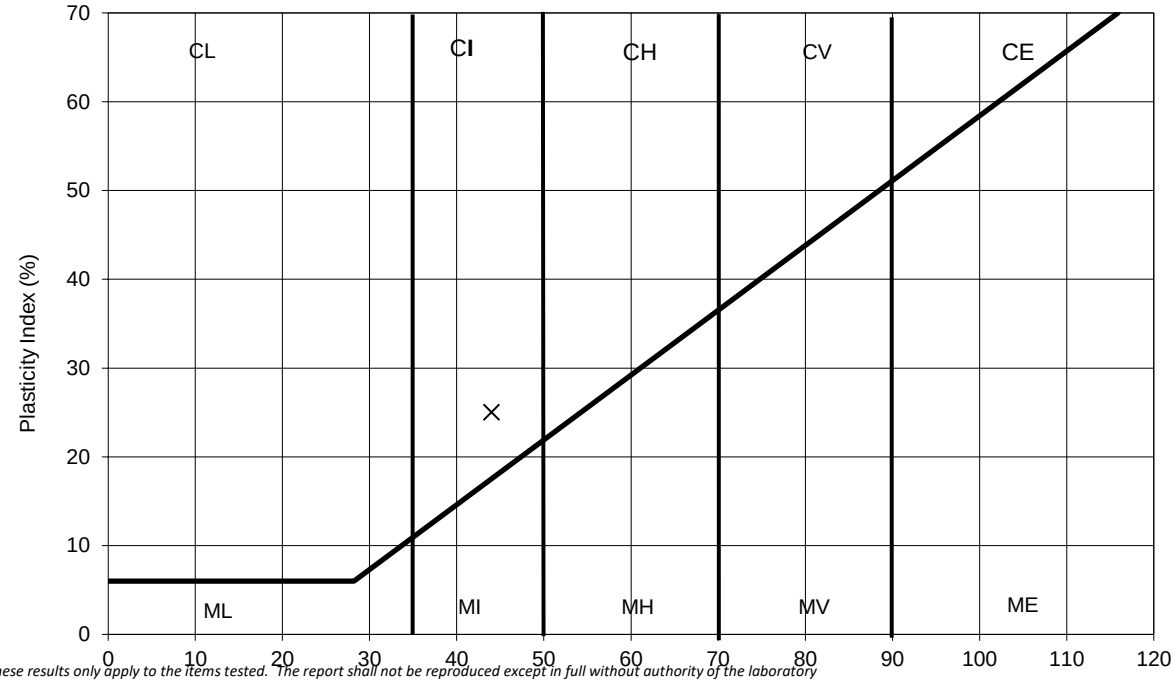
				Job No.	32282
				Borehole/Pit No.	TP-93174
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022



NATURAL MOISTURE CONTENT	**25**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**44**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**25**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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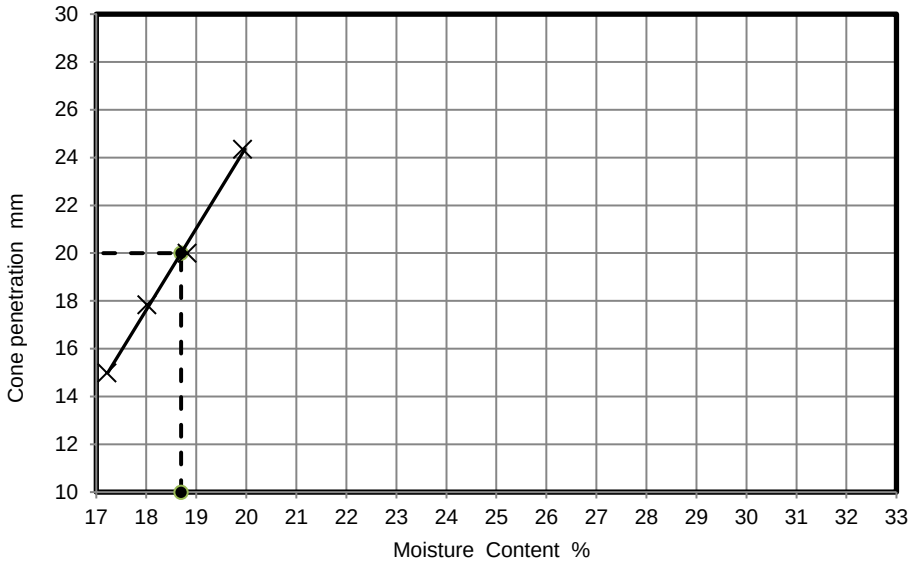
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-93174
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

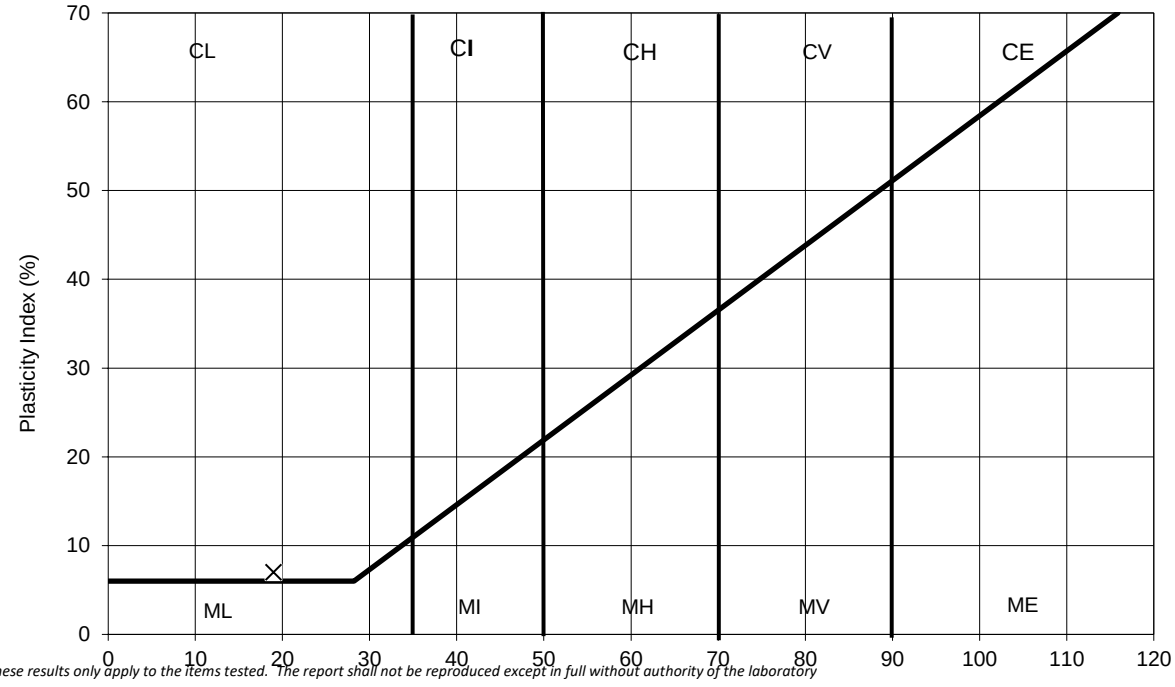


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

2519

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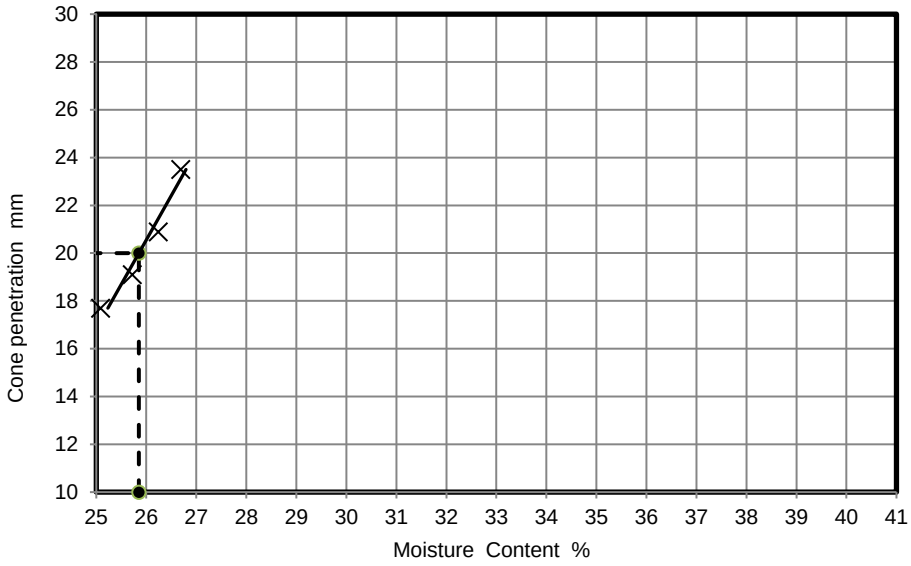
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown gravelly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

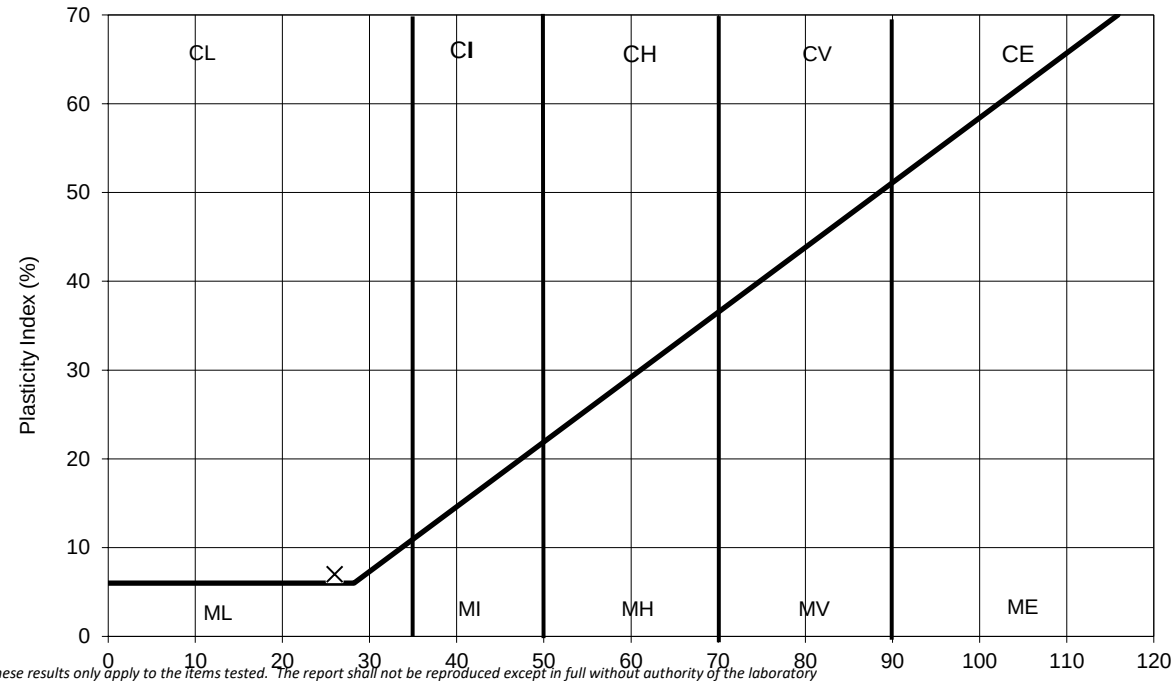


NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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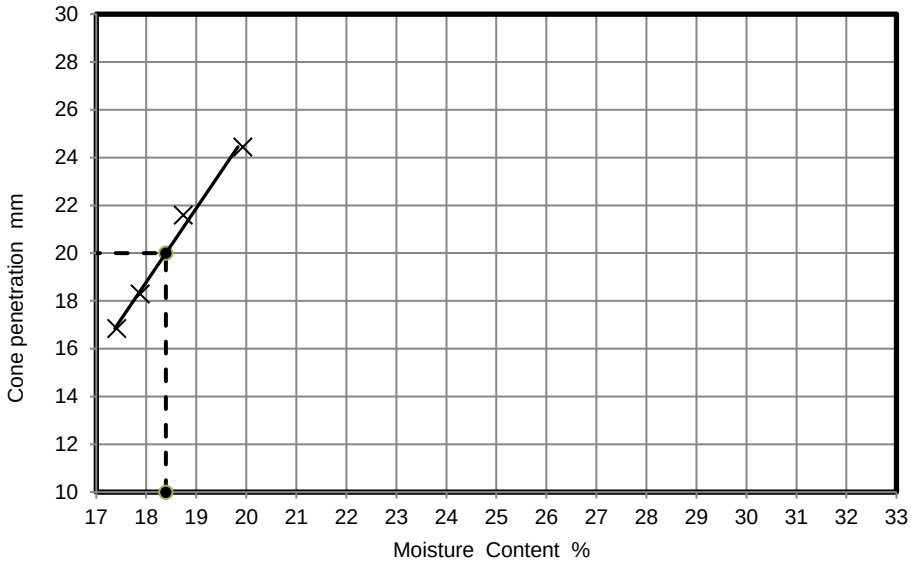
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

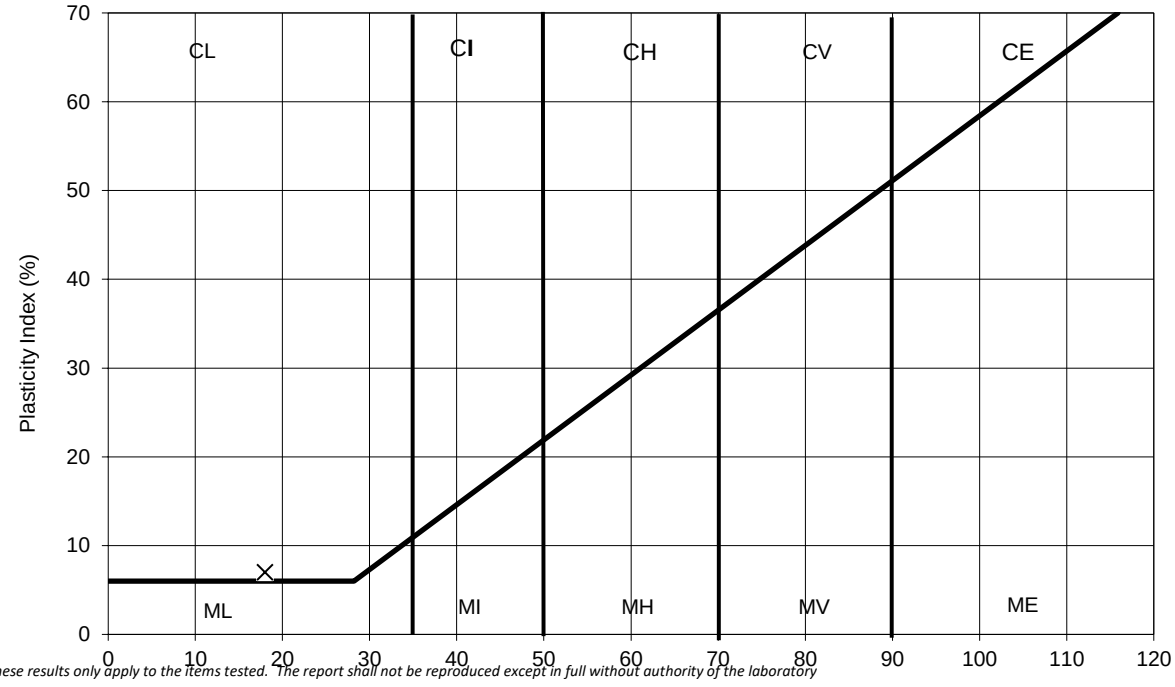


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**69**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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UKAS TESTING

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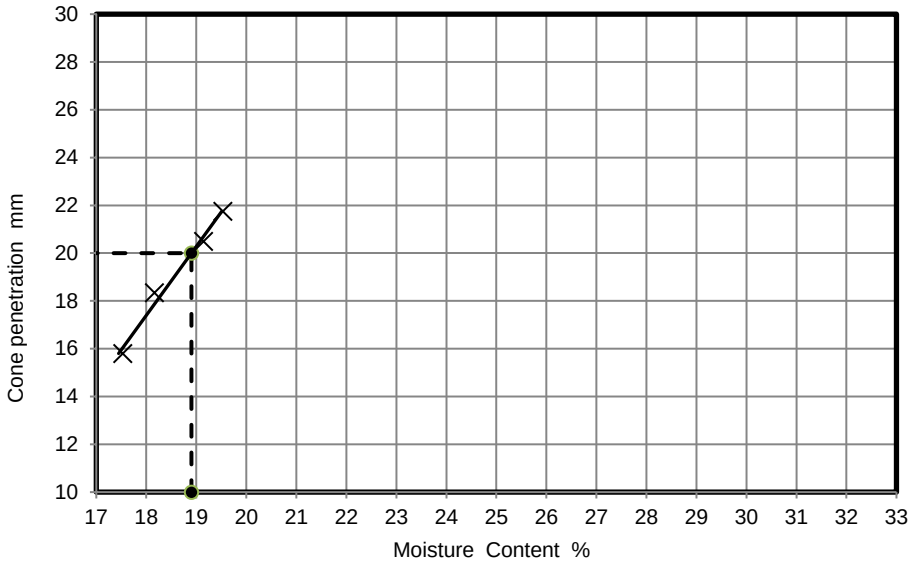
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93505
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

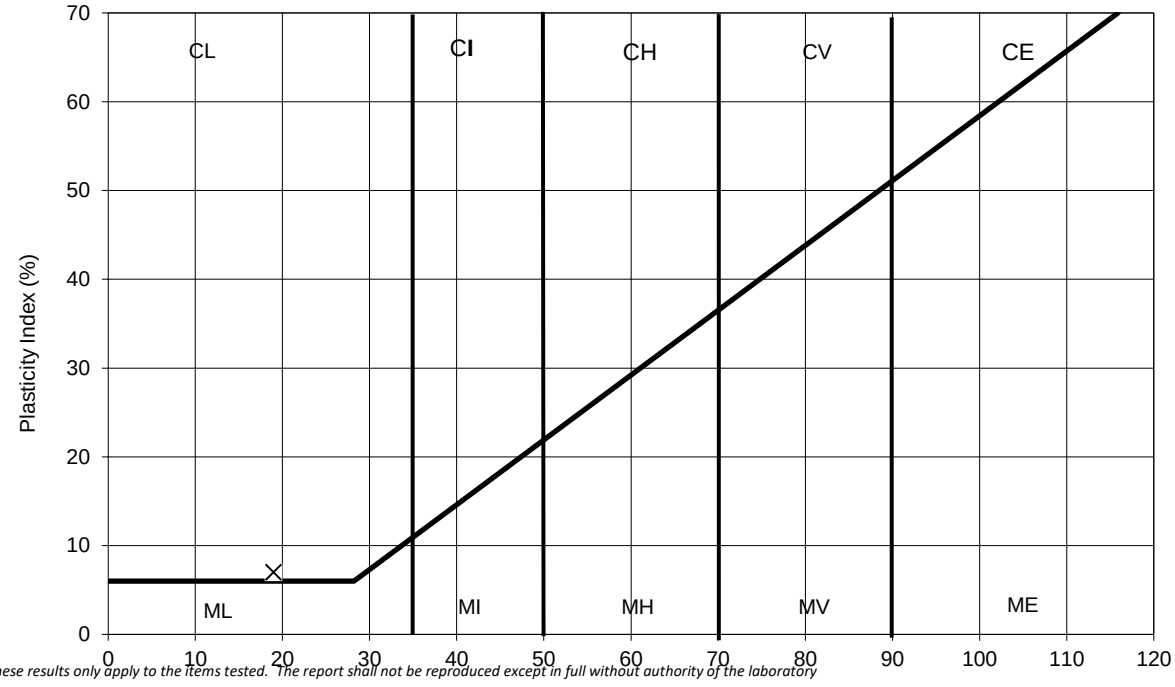


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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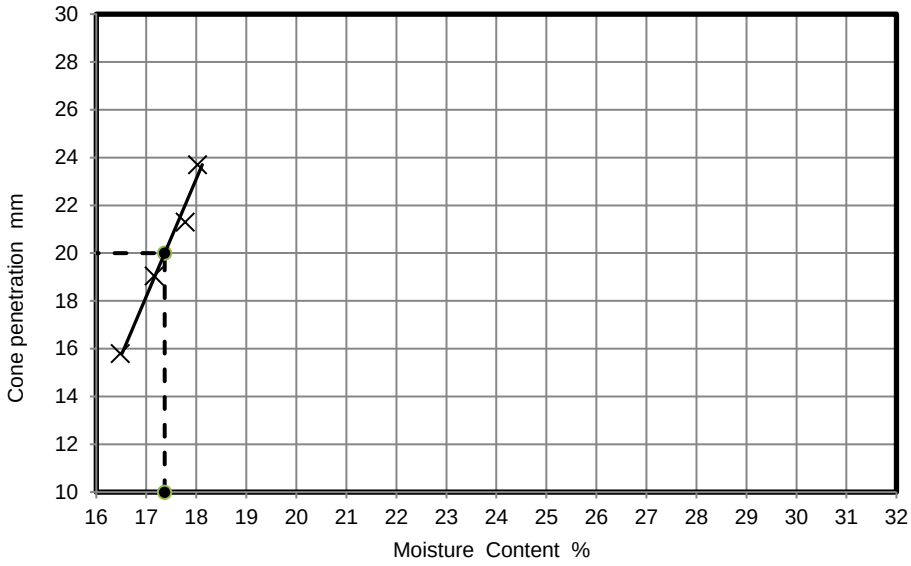
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93505
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Grey sandy fmc sub-angular to sub-rounded gravel in a silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

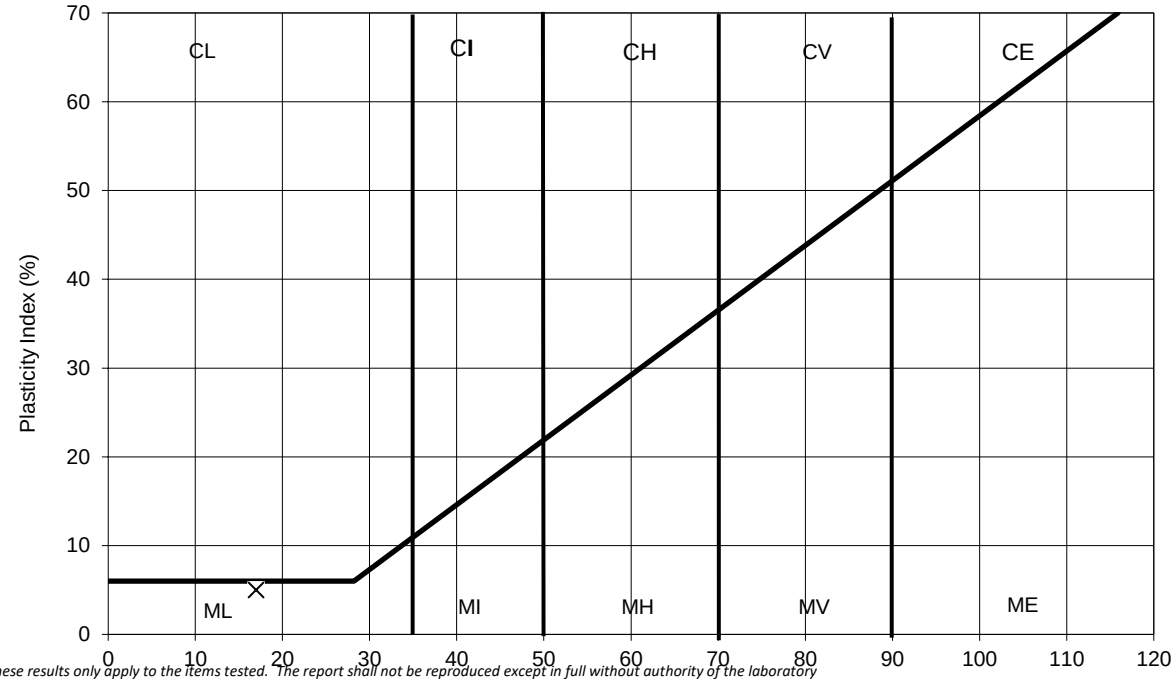


NATURAL MOISTURE CONTENT	**7.3**	**%**
% PASSING 425µm SIEVE	**42**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

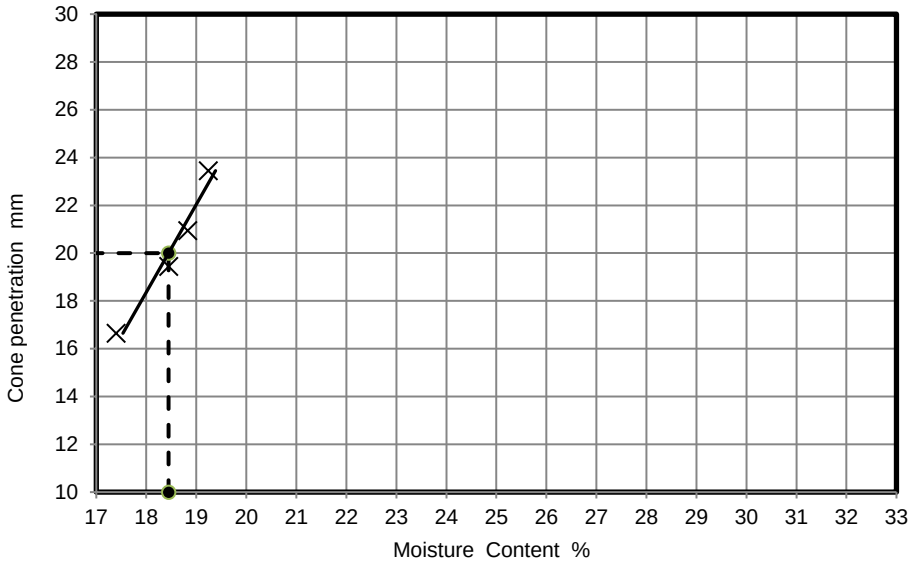
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

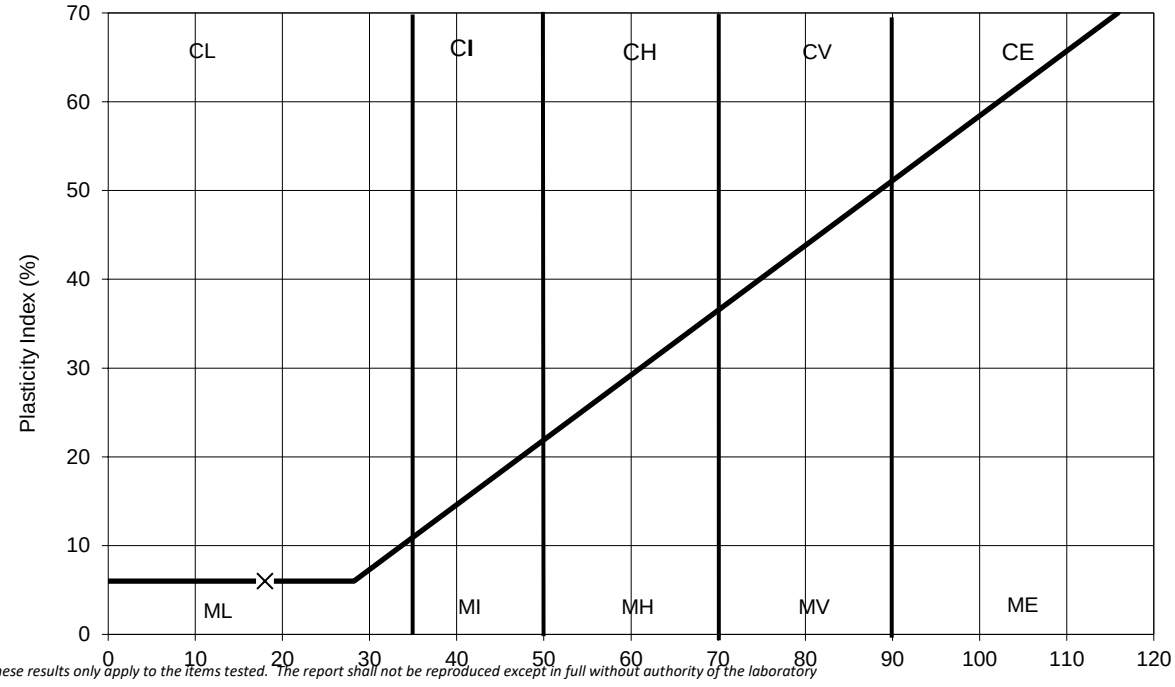
				Job No.	32282
				Borehole/Pit No.	TP-93602
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022



NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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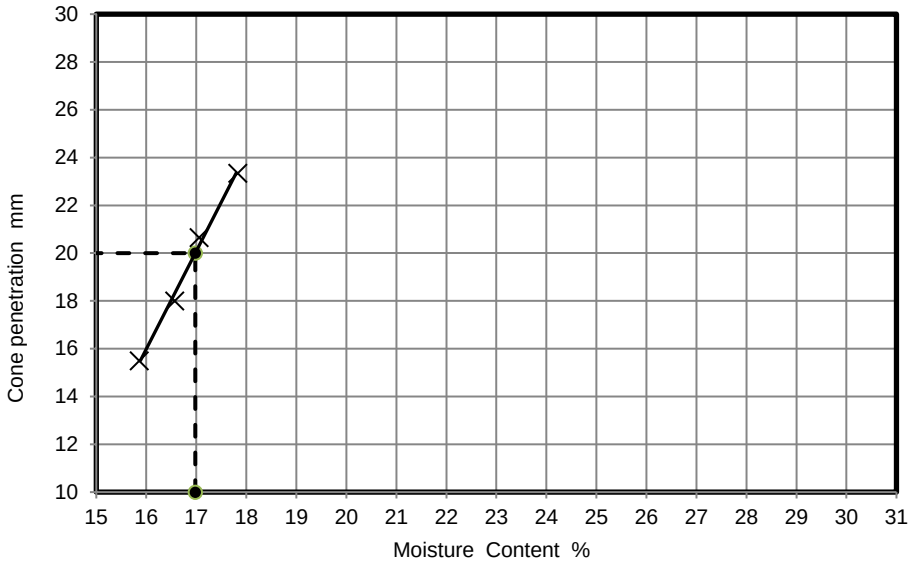
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93703
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

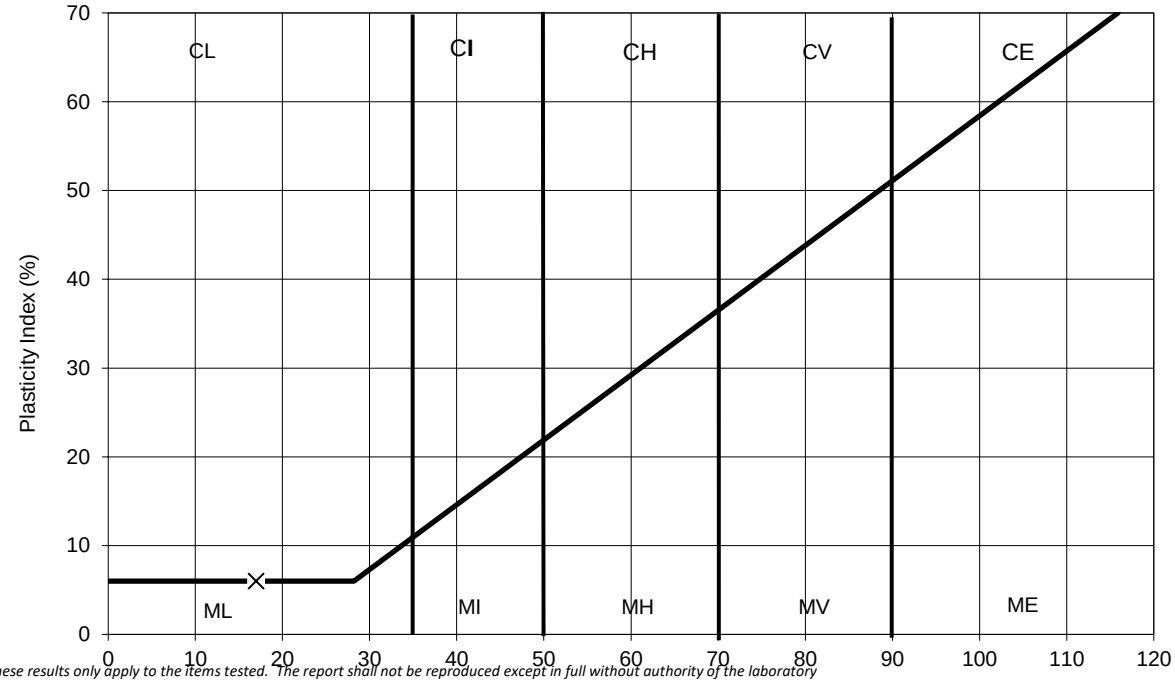


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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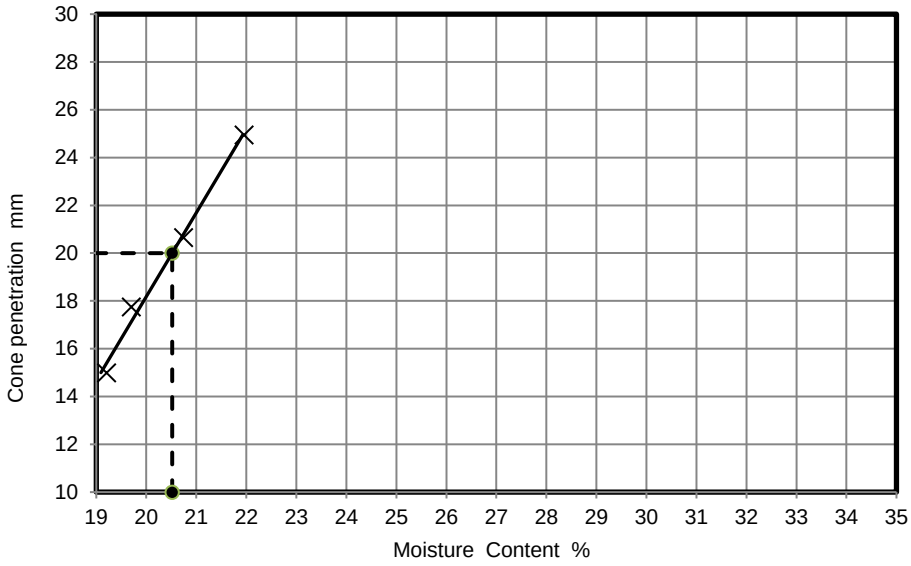
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93803
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

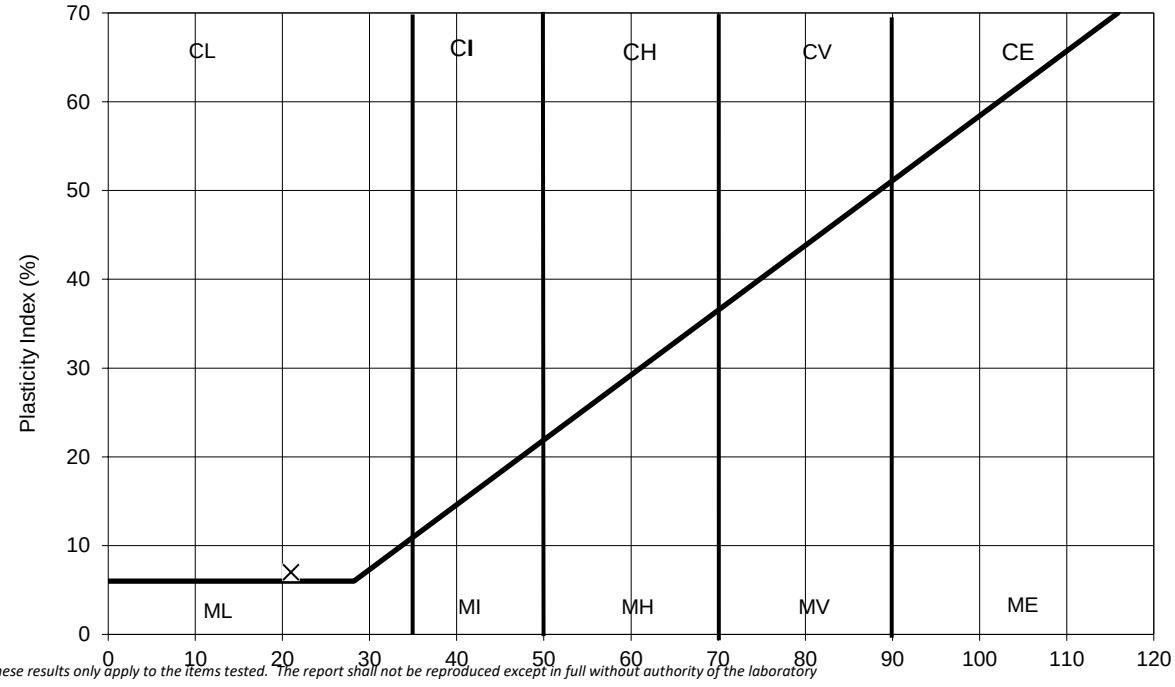


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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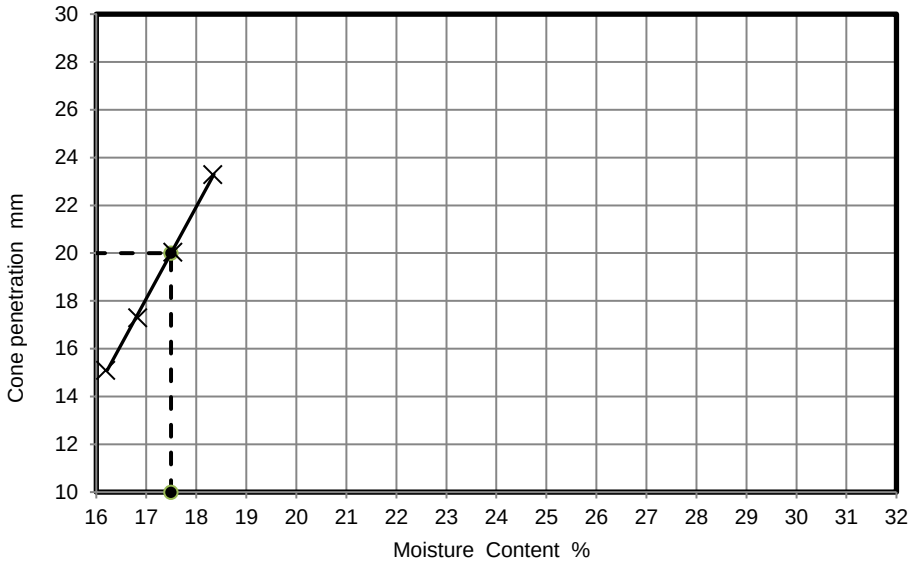
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93902
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

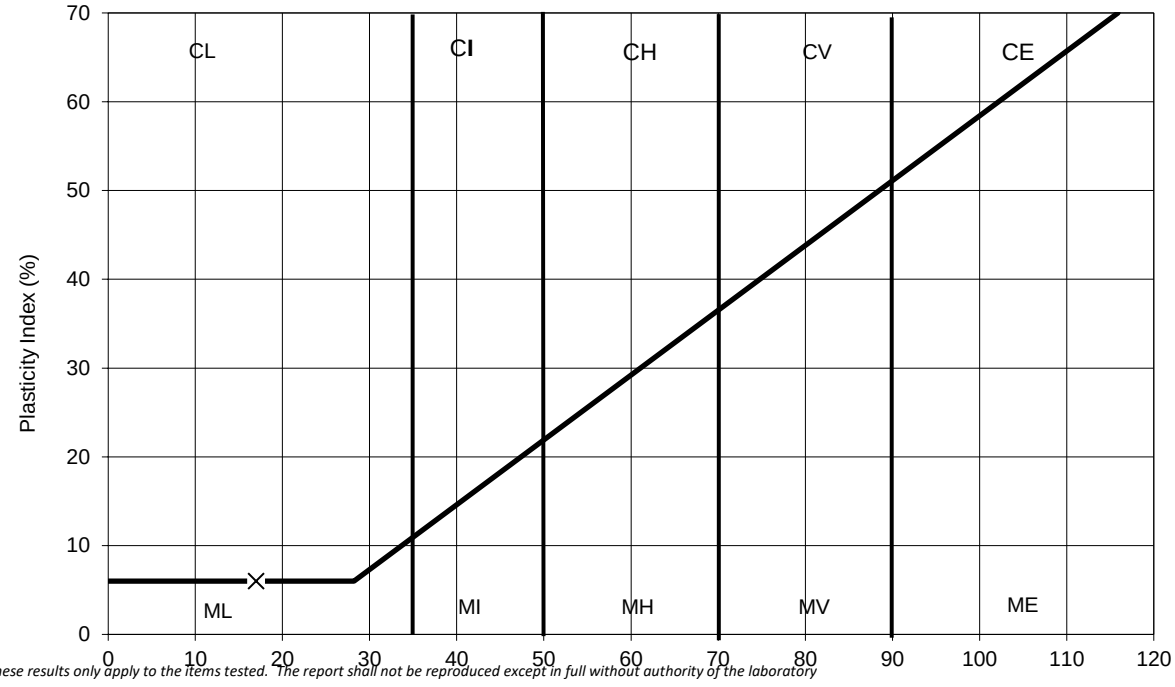


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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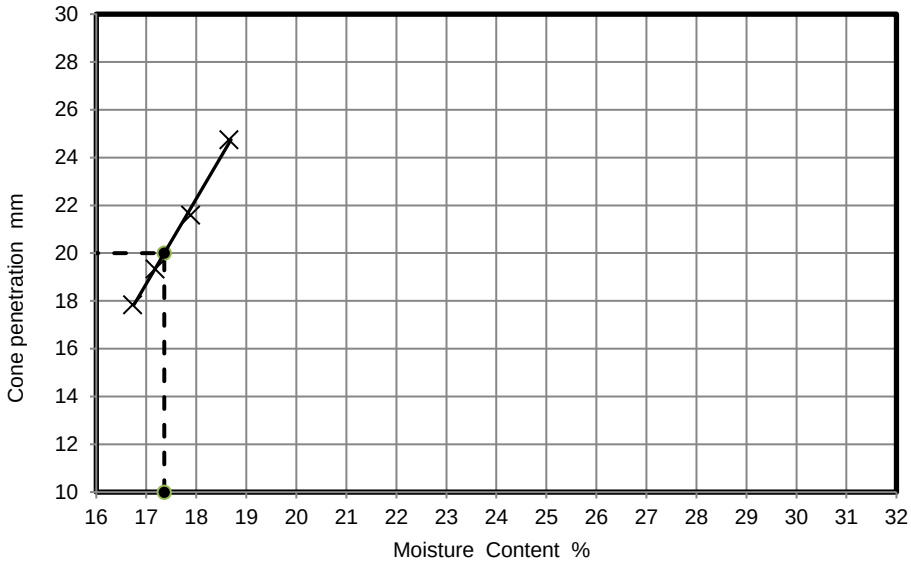
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

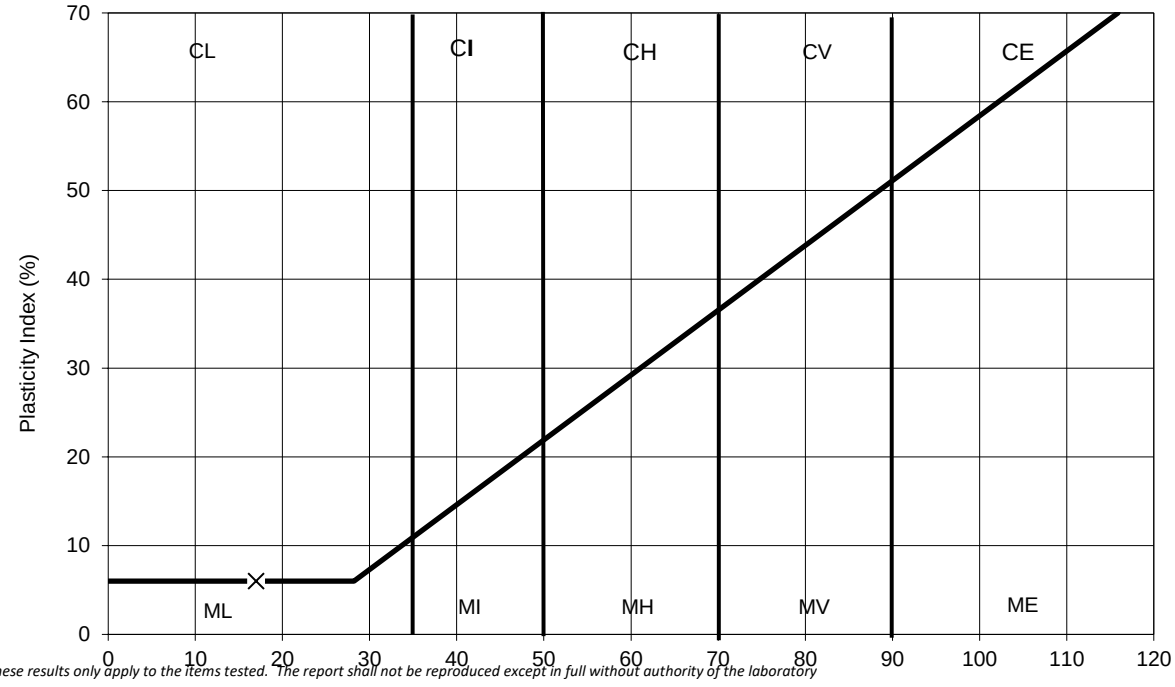
				Job No.	32282
				Borehole/Pit No.	TP-94198
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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UKAS TESTING

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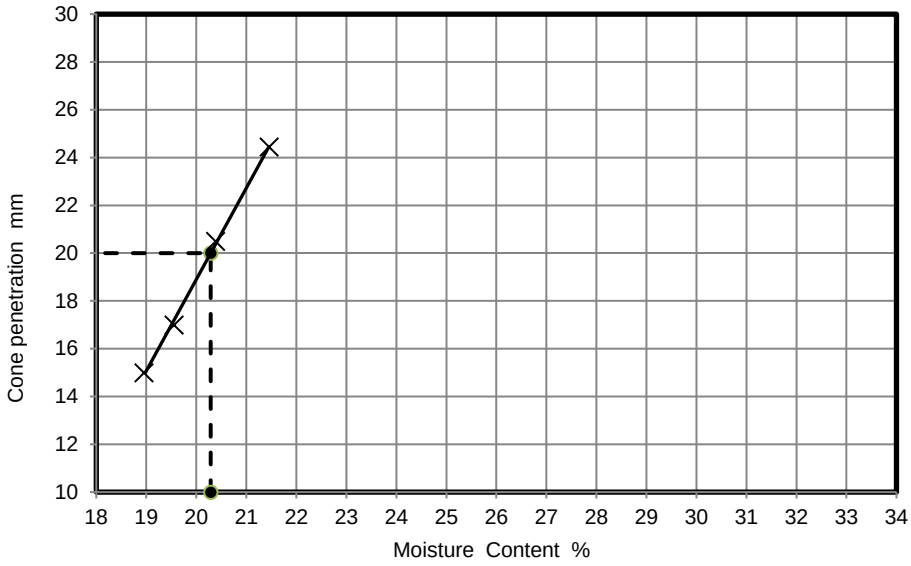
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fm and angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

Job No. 32282

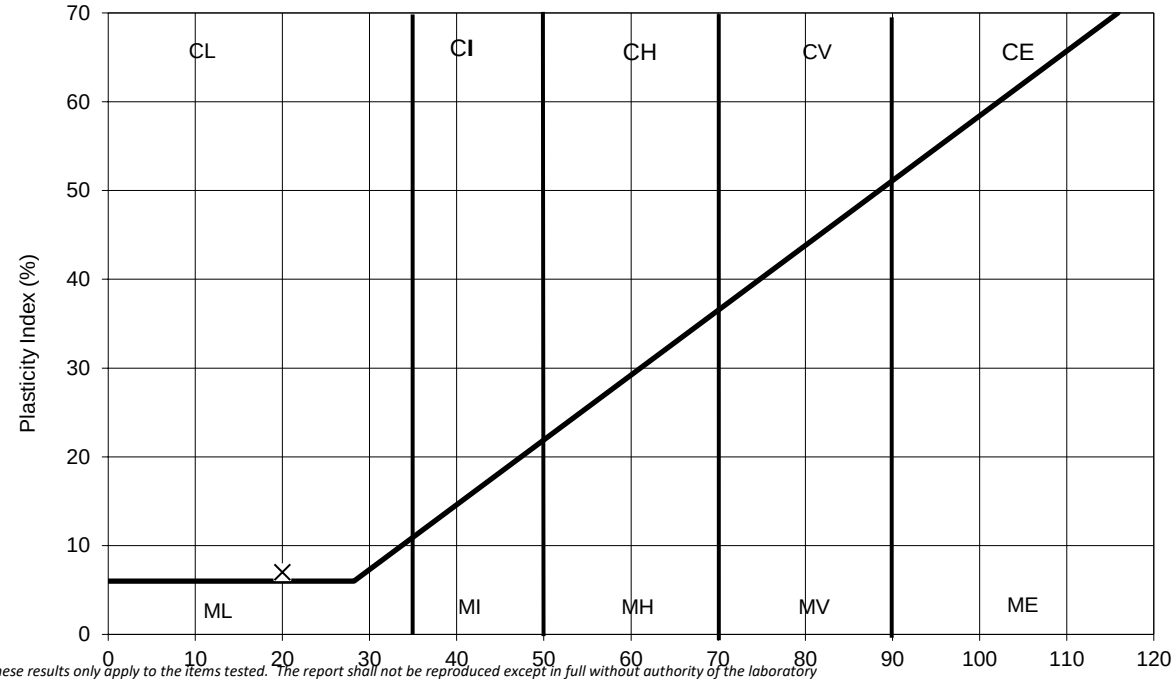
Borehole/Pit No. TP-94401



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

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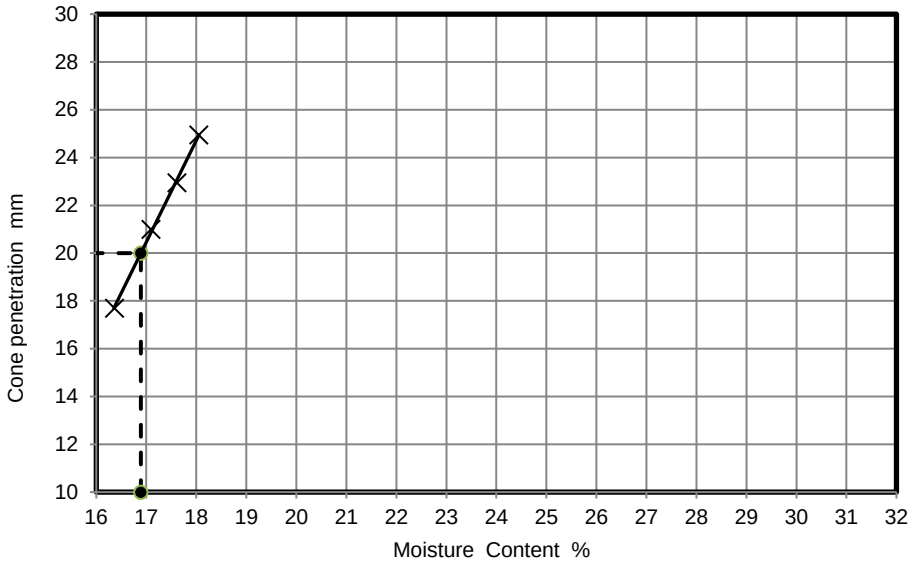
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

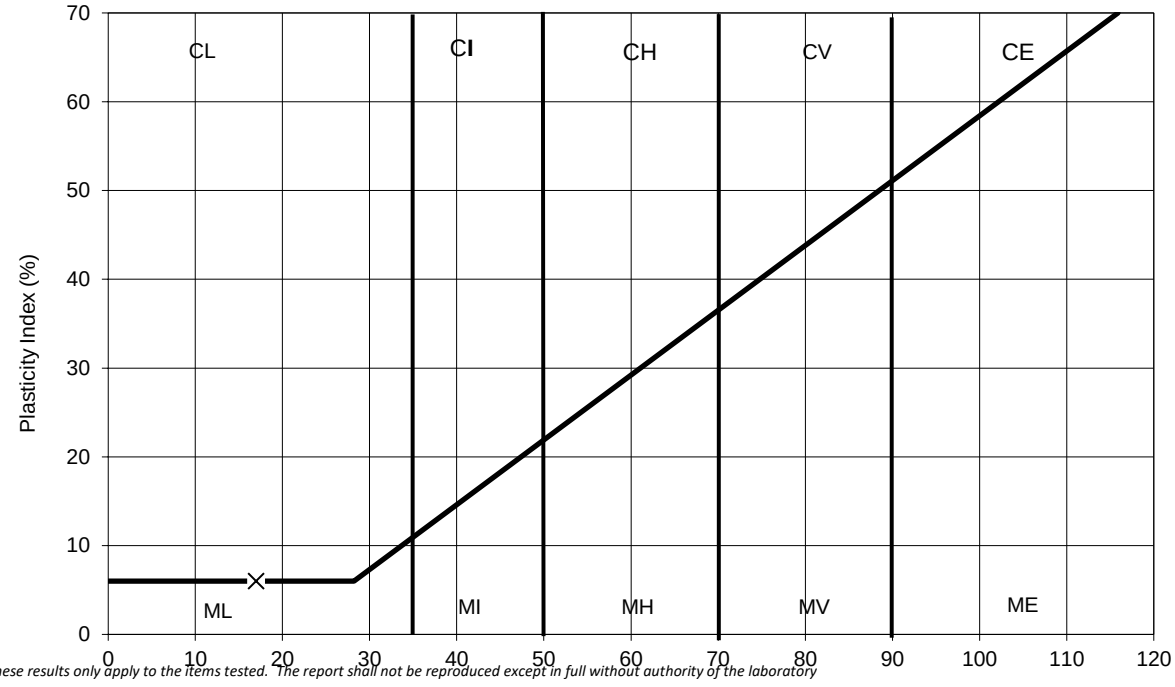
				Job No.	32282
				Borehole/Pit No.	TP-94401
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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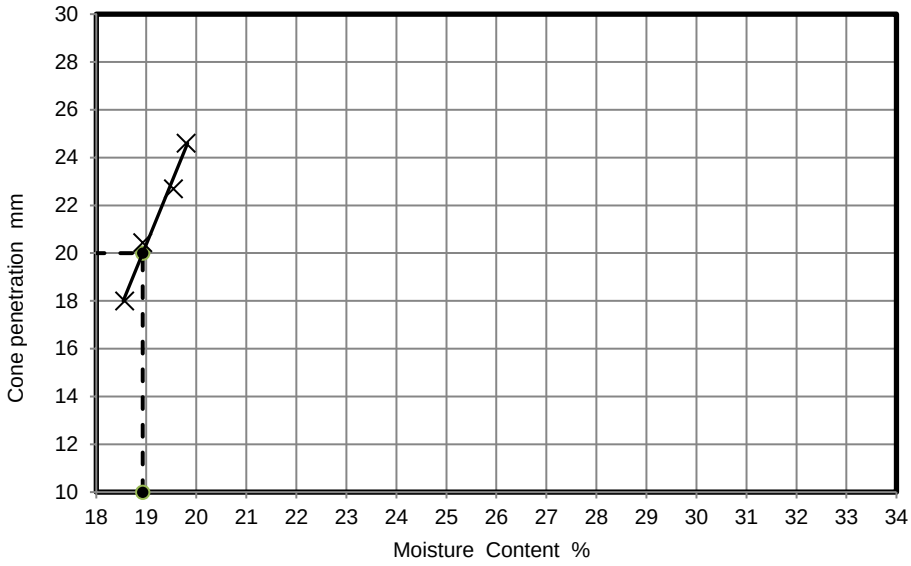
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

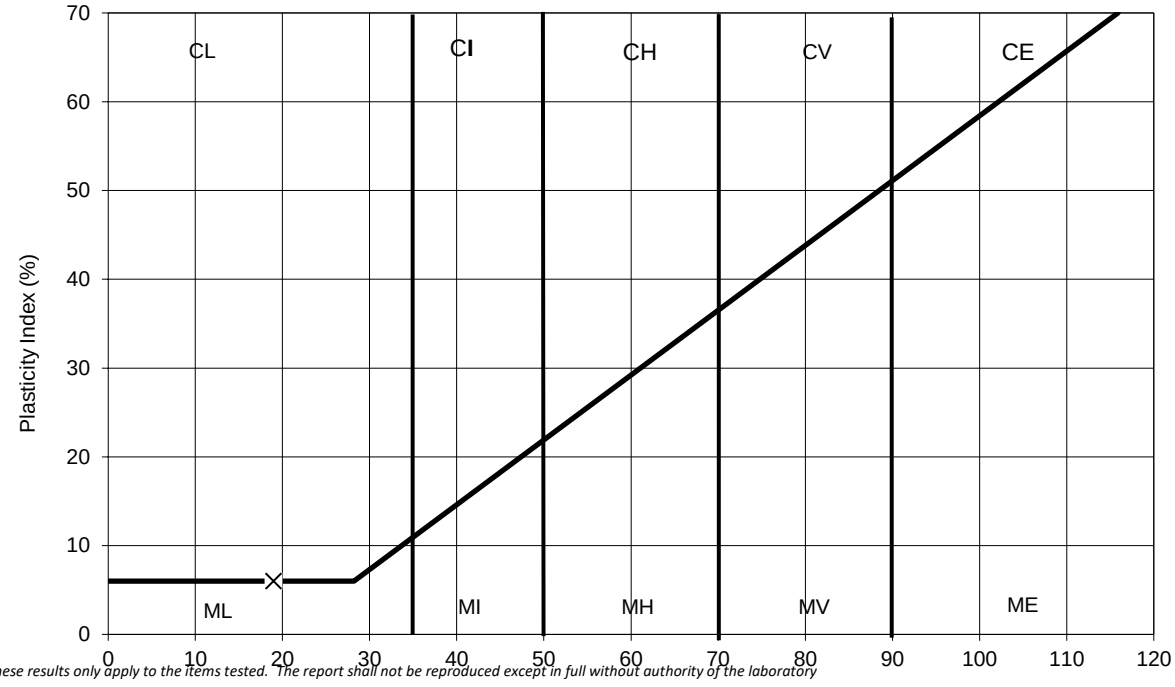
				Job No.	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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2519

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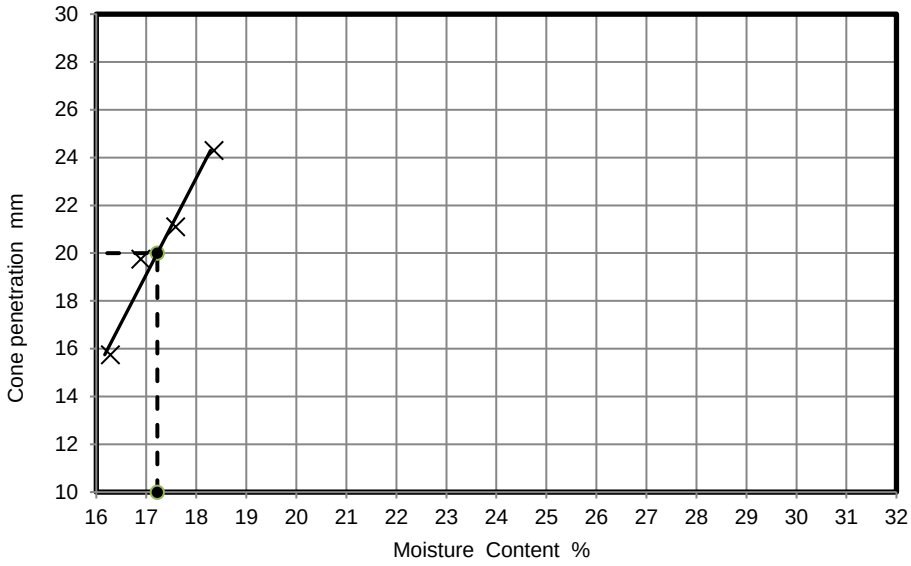
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greenish grey and brown gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

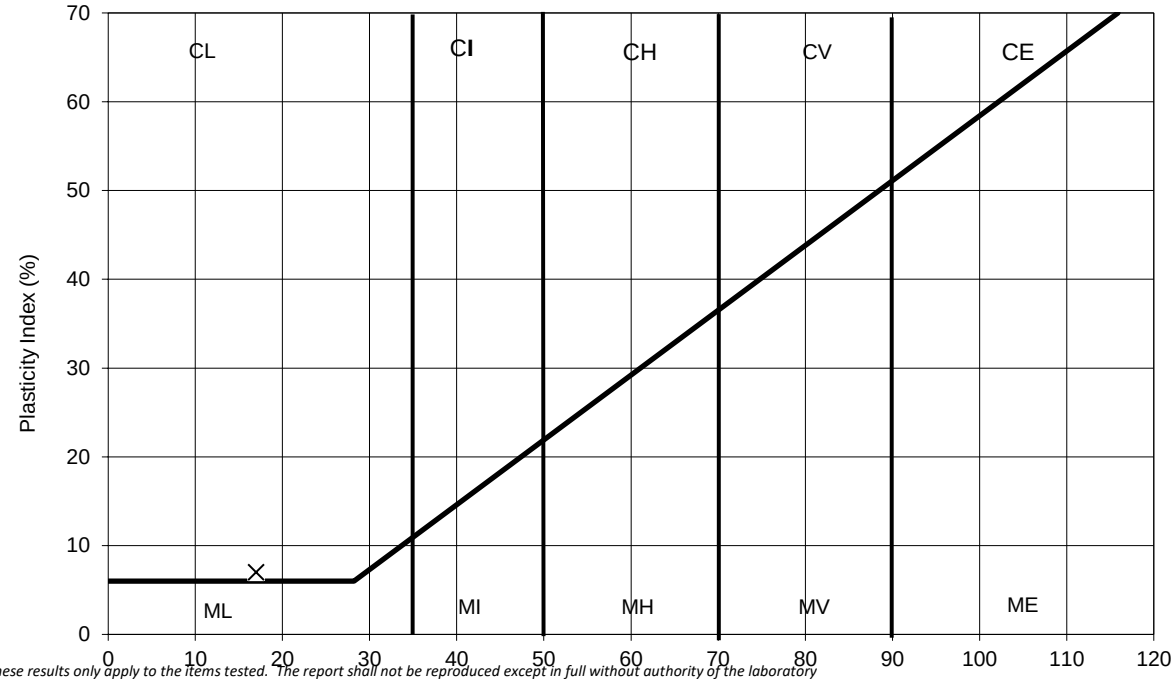


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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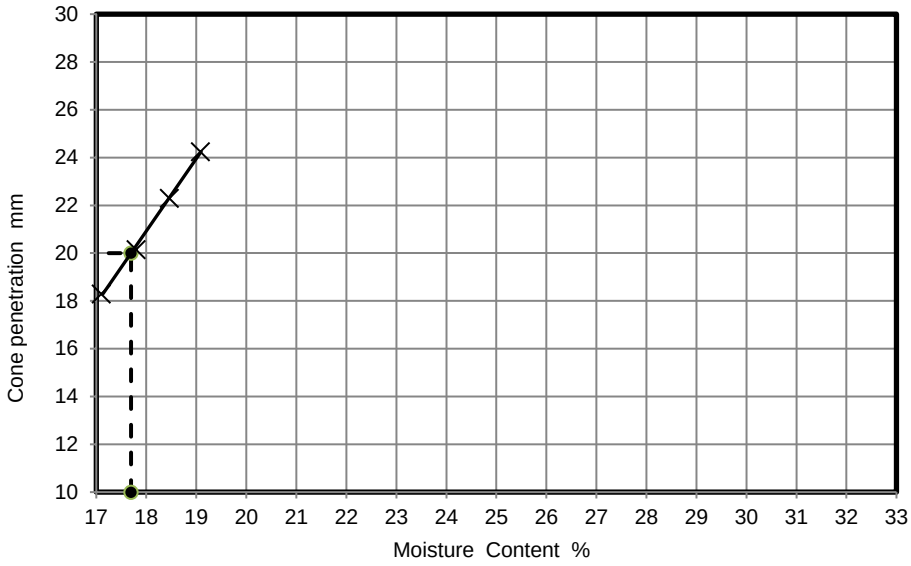
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94608
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

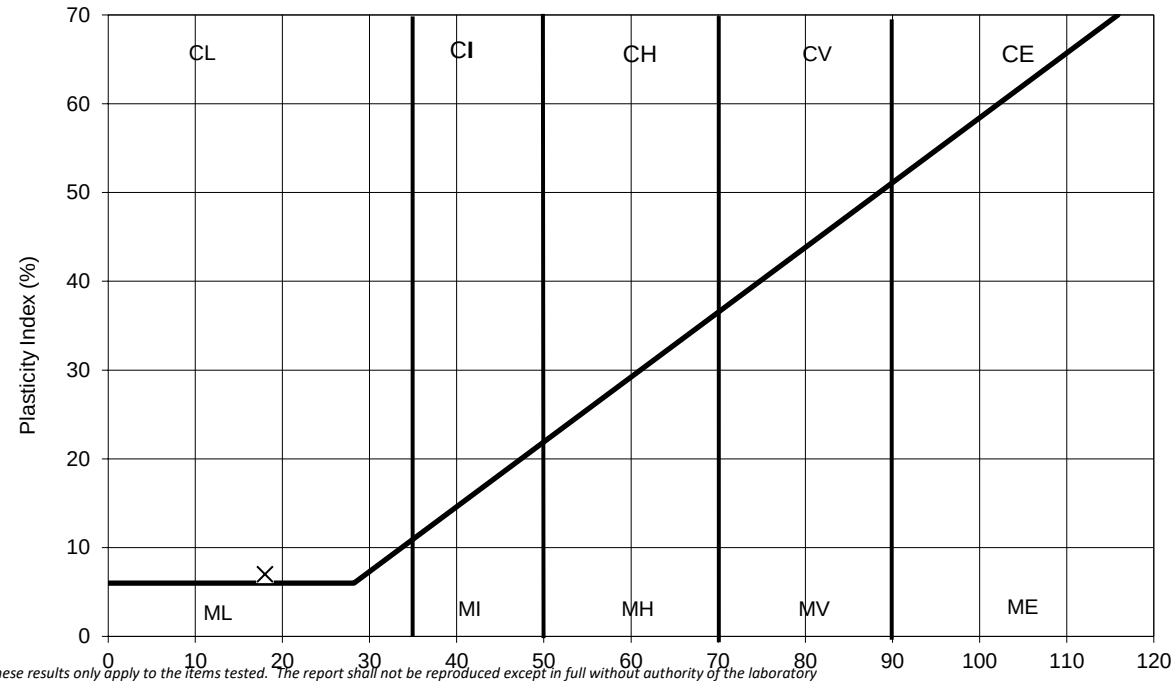


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

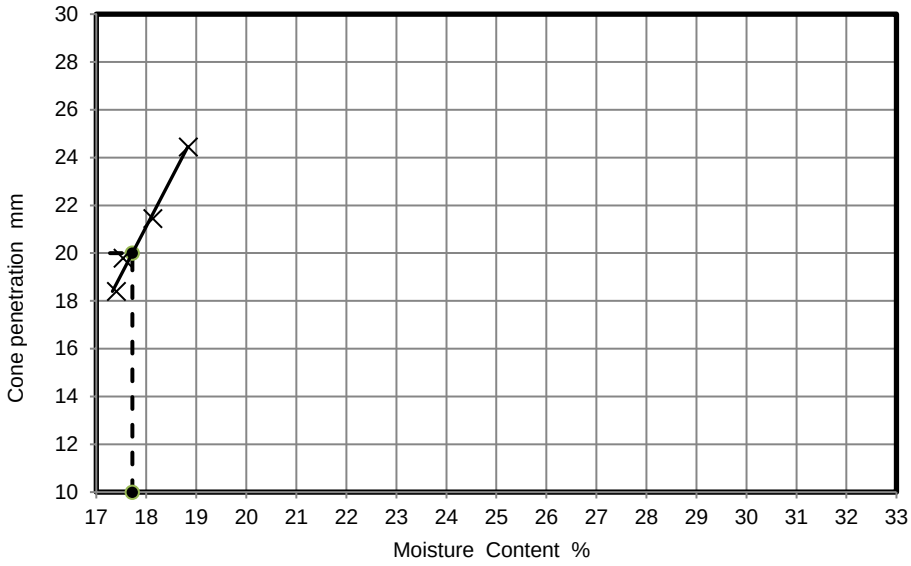
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

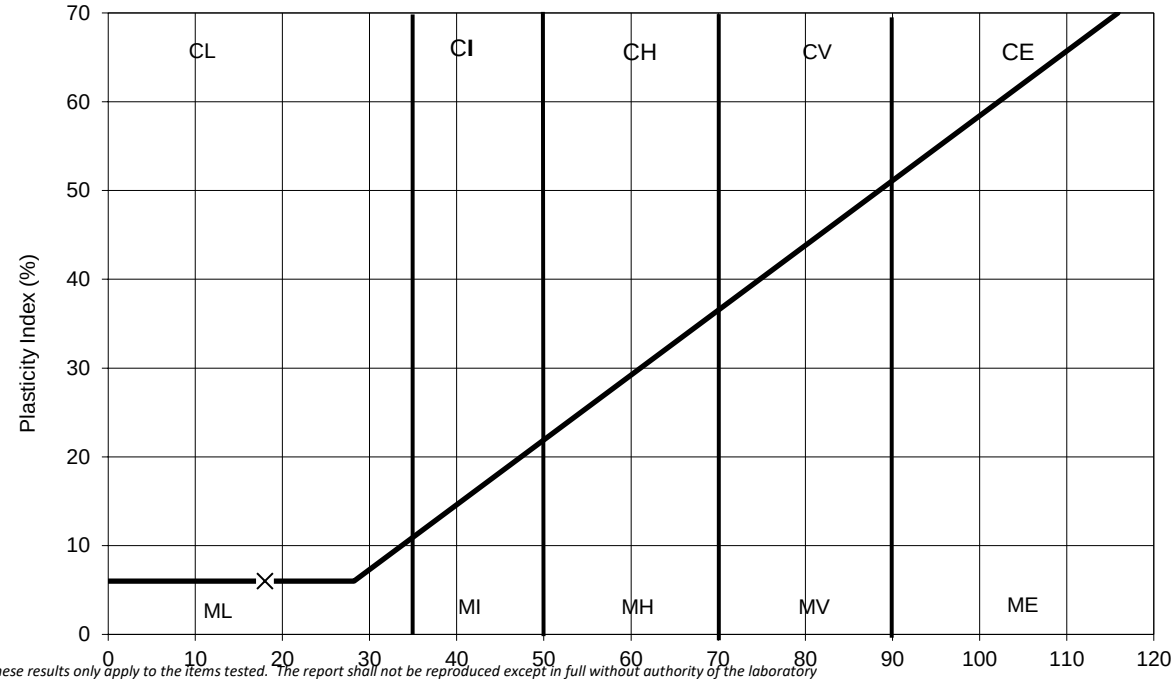


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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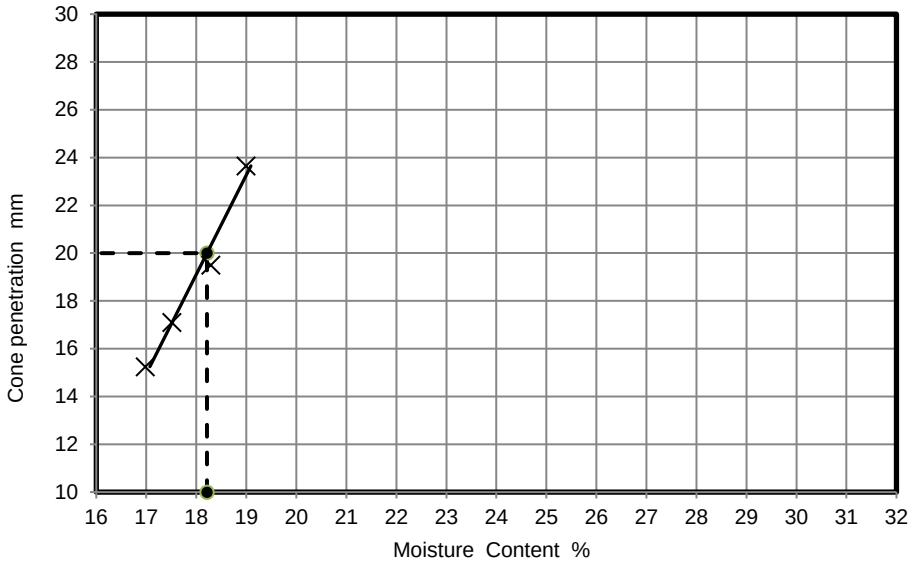
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94809
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

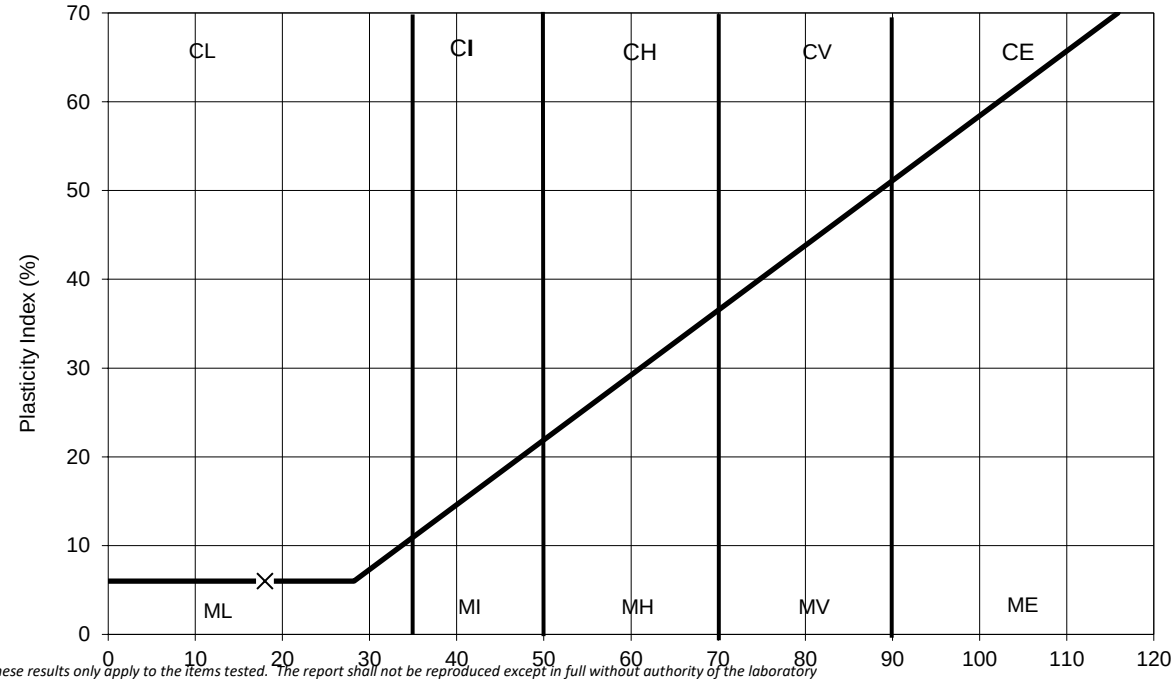


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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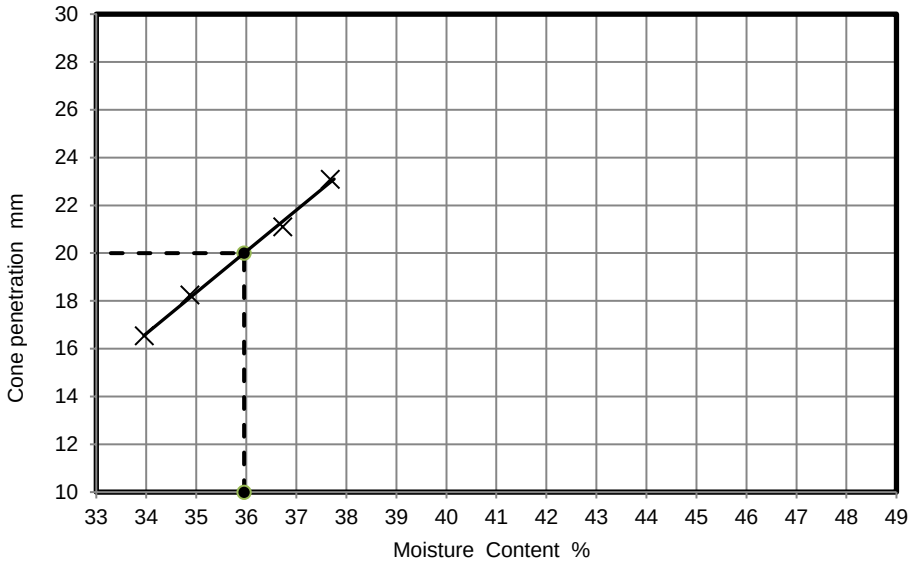
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

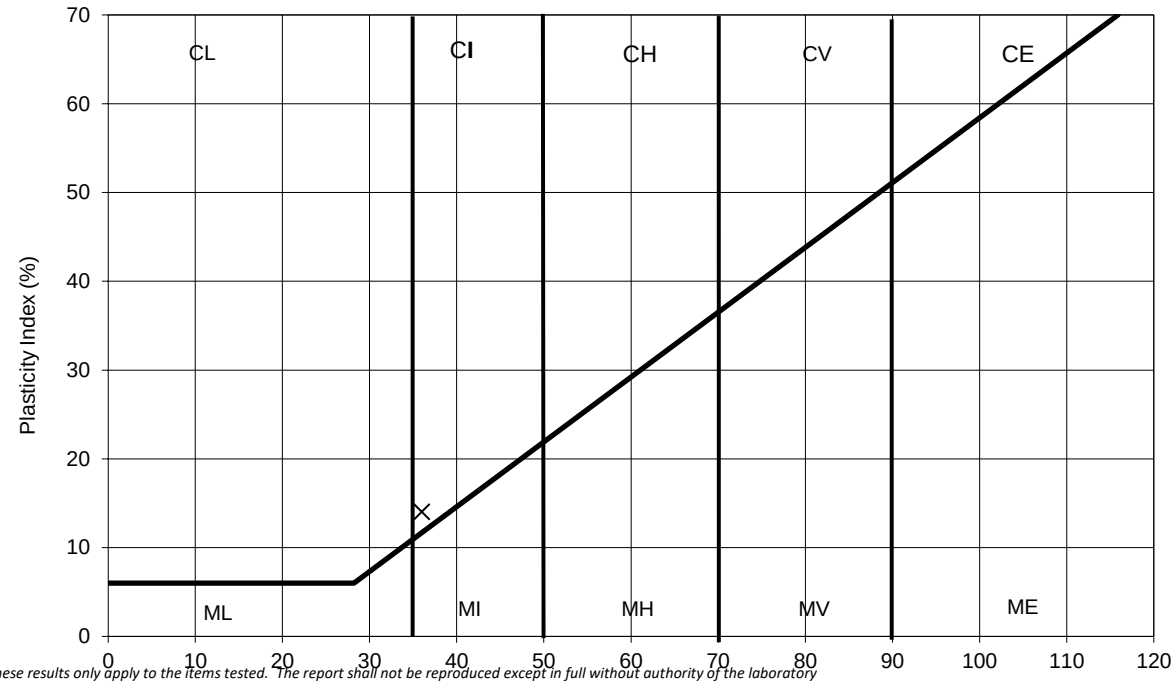
				Job No.	32282
				Borehole/Pit No.	TP-94905
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown and light grey sandy silty CLAY with rare fm sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022



NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**36**	**%**
PLASTIC LIMIT	**22**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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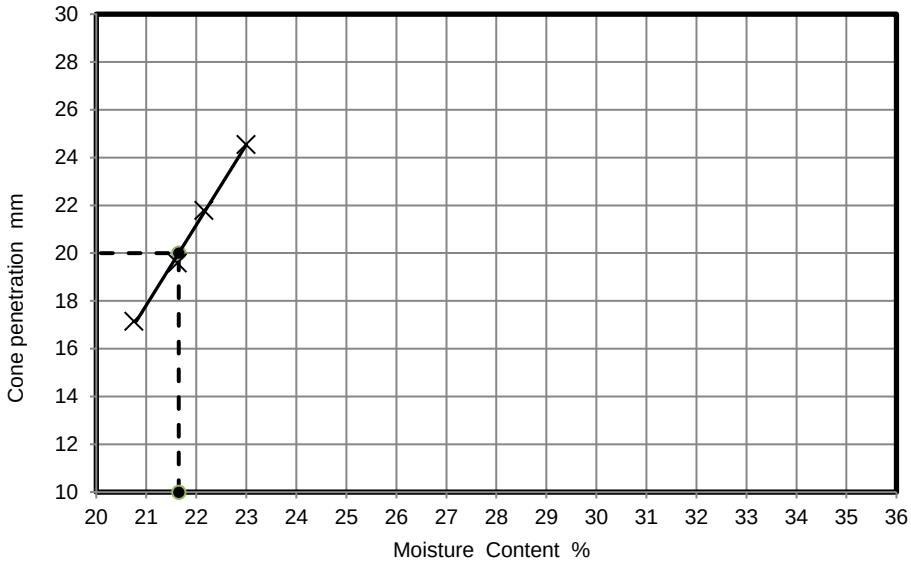
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

Job No. 32282

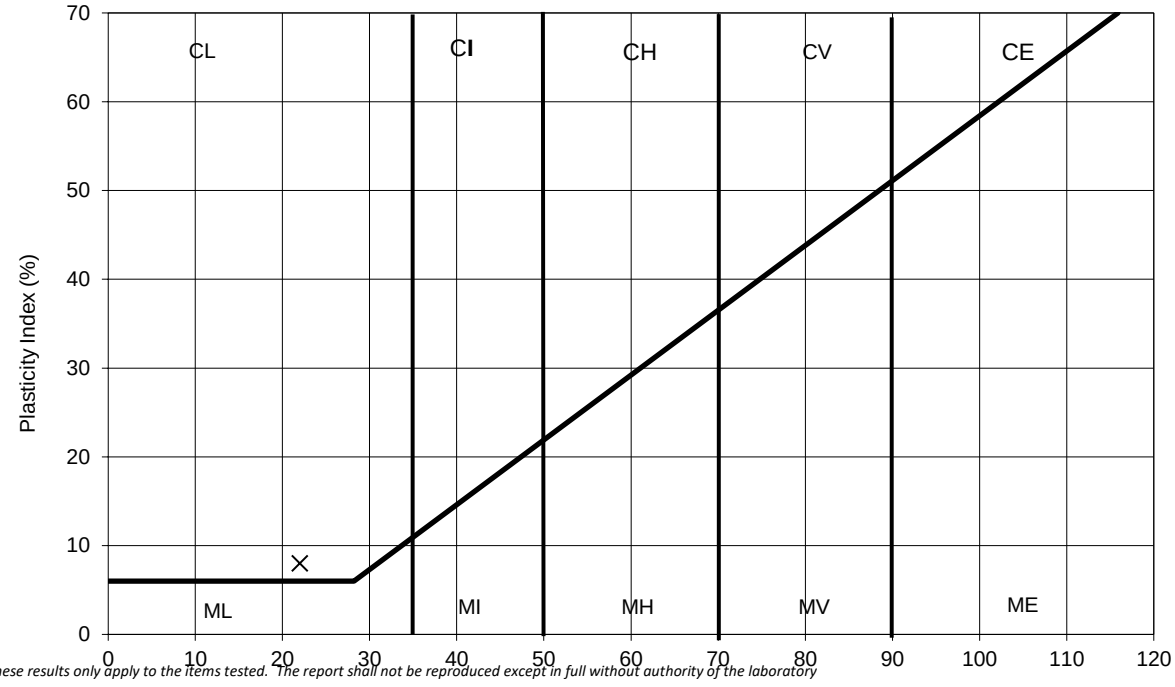
Borehole/Pit No. TP-95003



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**47**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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Initials: J.P

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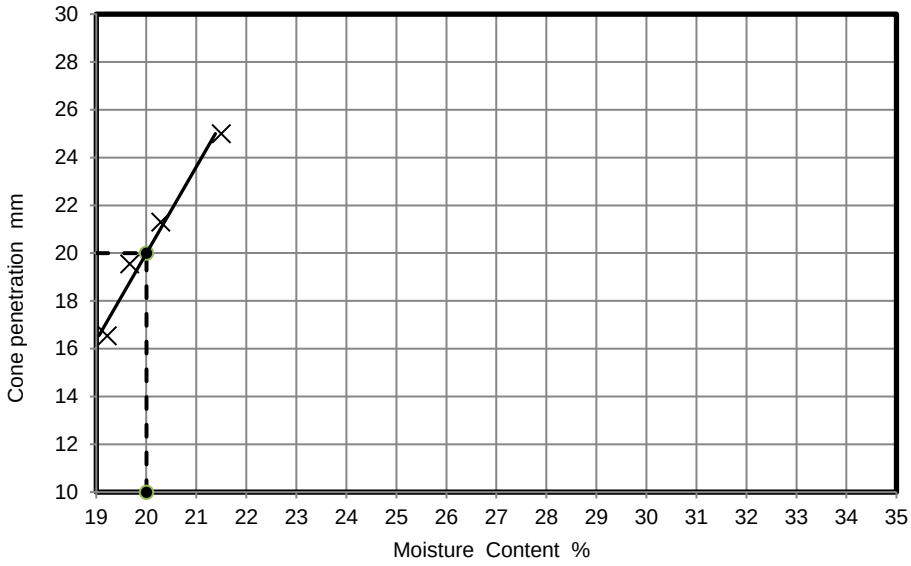
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

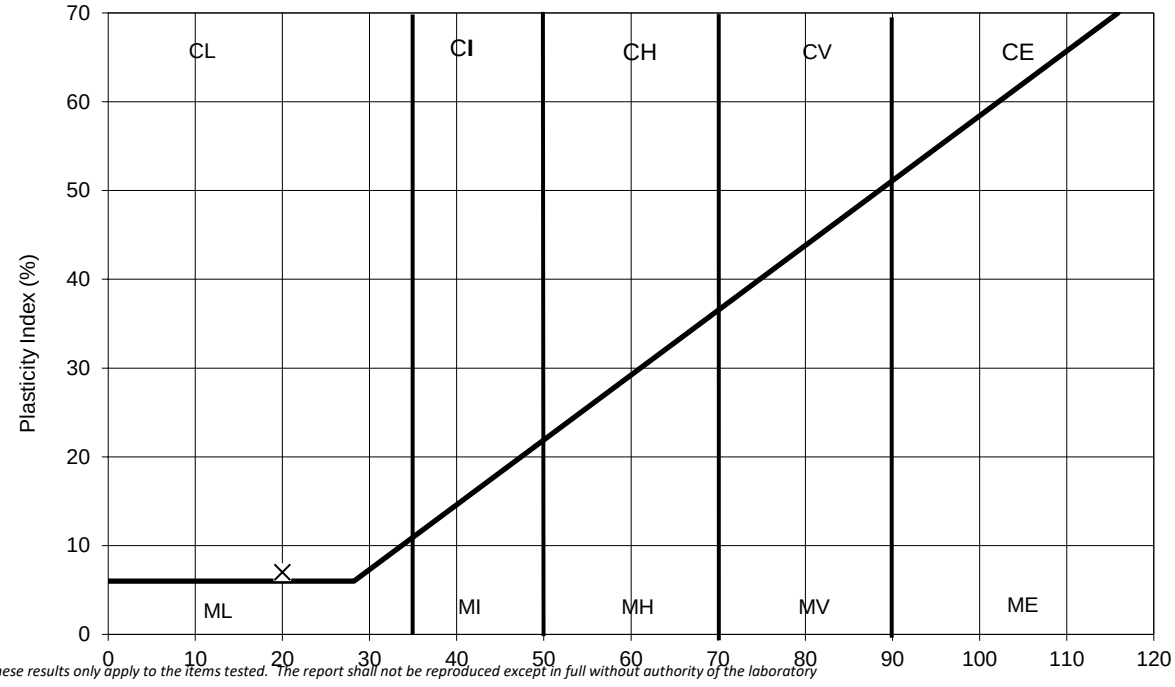
				Job No.	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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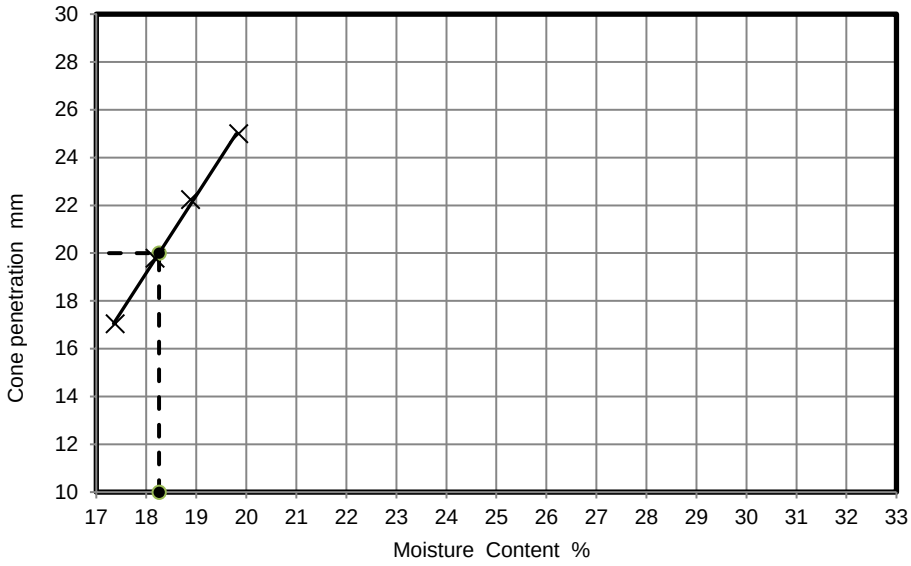
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

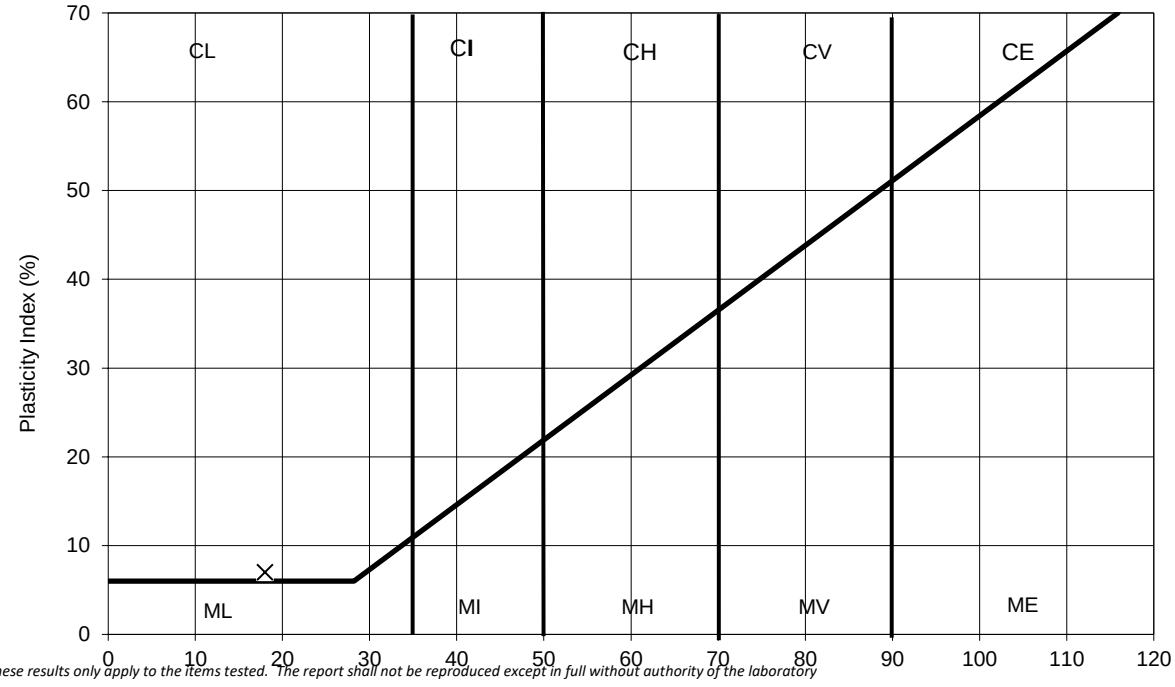
Job No.	32282				
Borehole/Pit No.	TP-95408				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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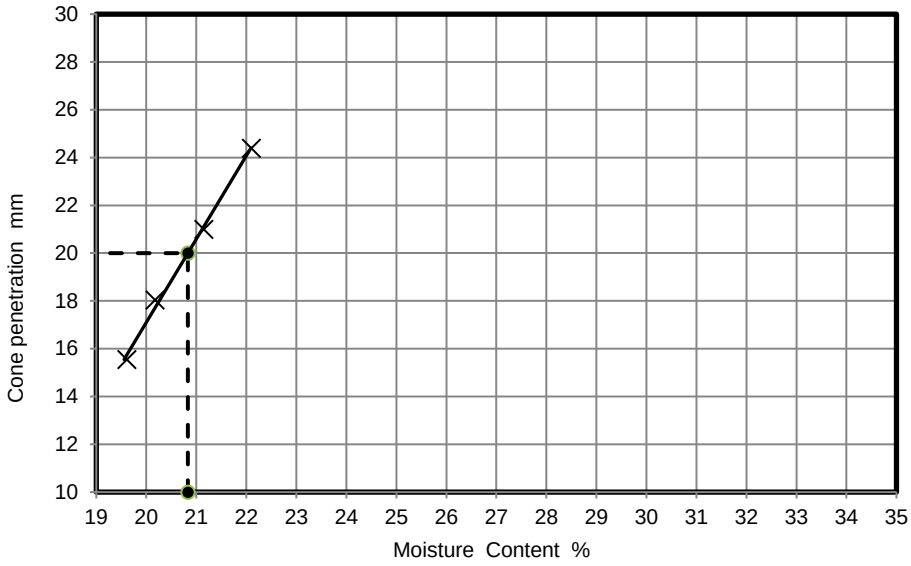
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022

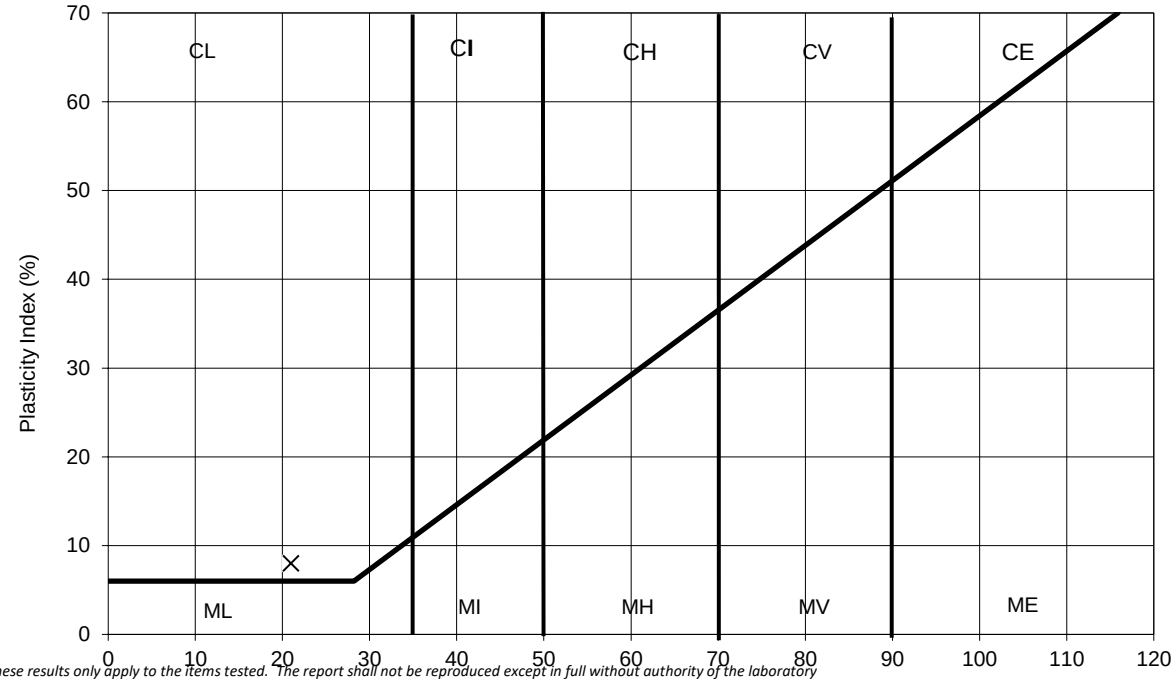


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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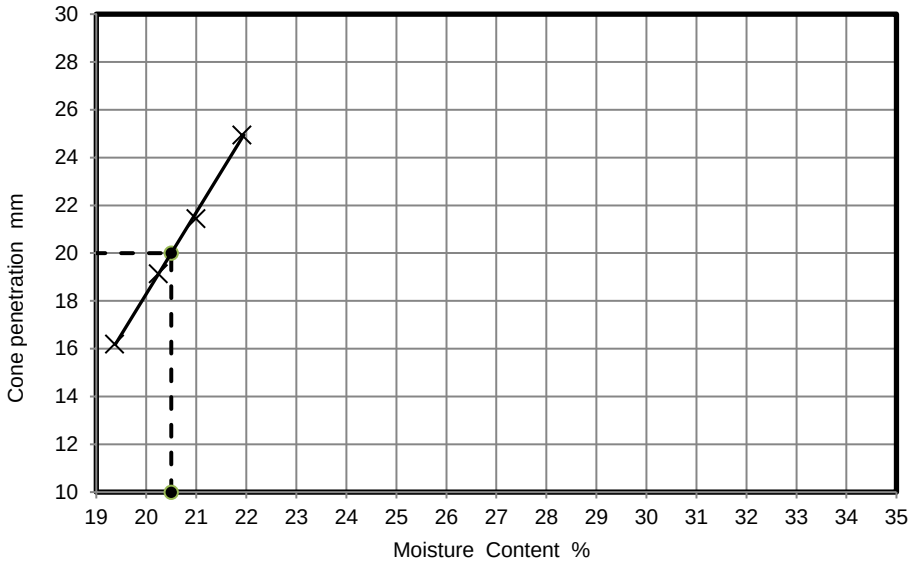
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

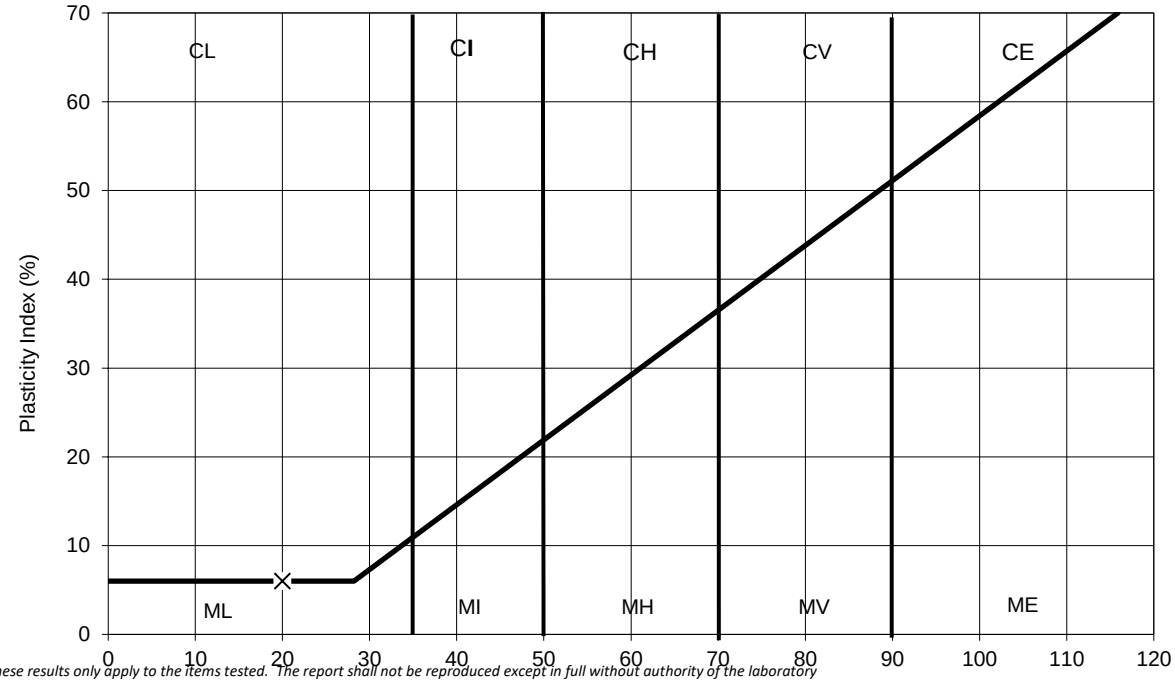
				Job No.	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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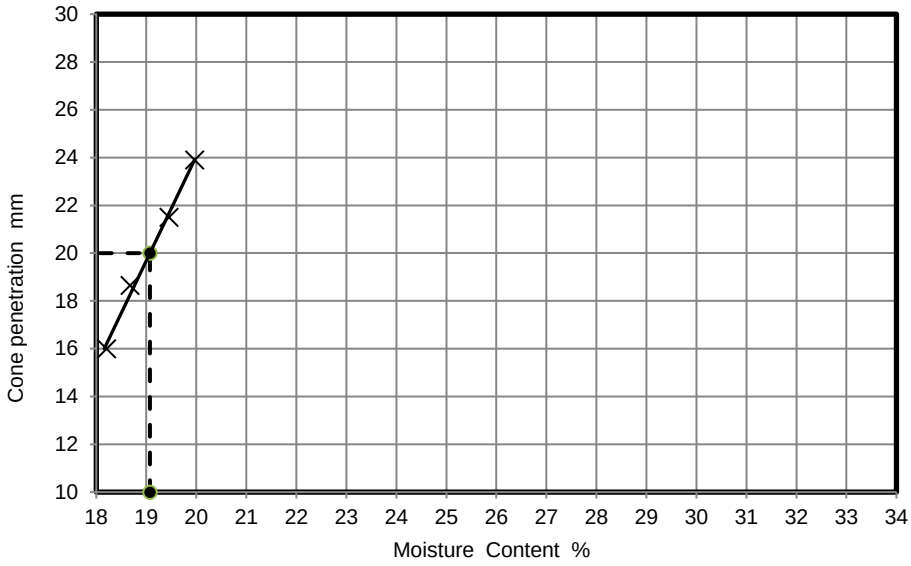
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022

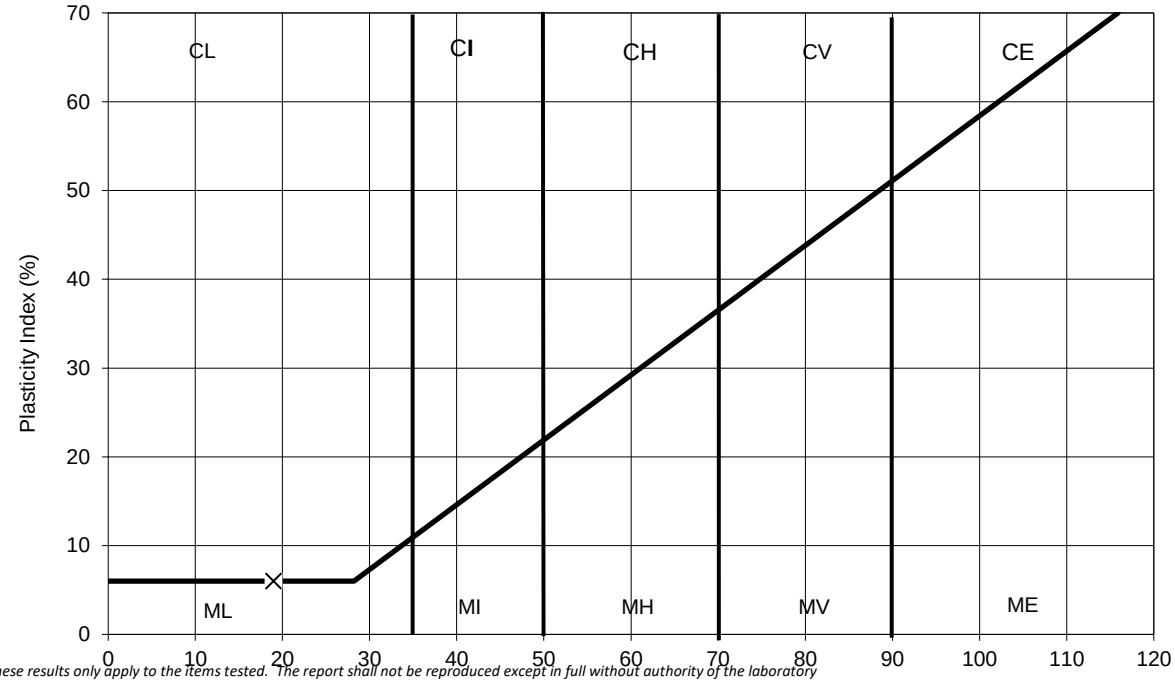


NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**41**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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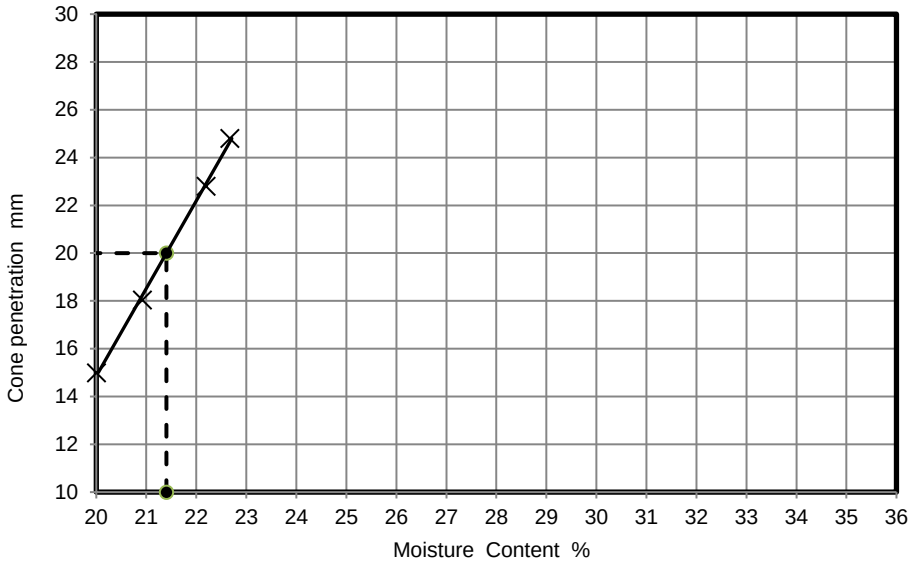
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95905
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc angular to sub-angular and tabular gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022

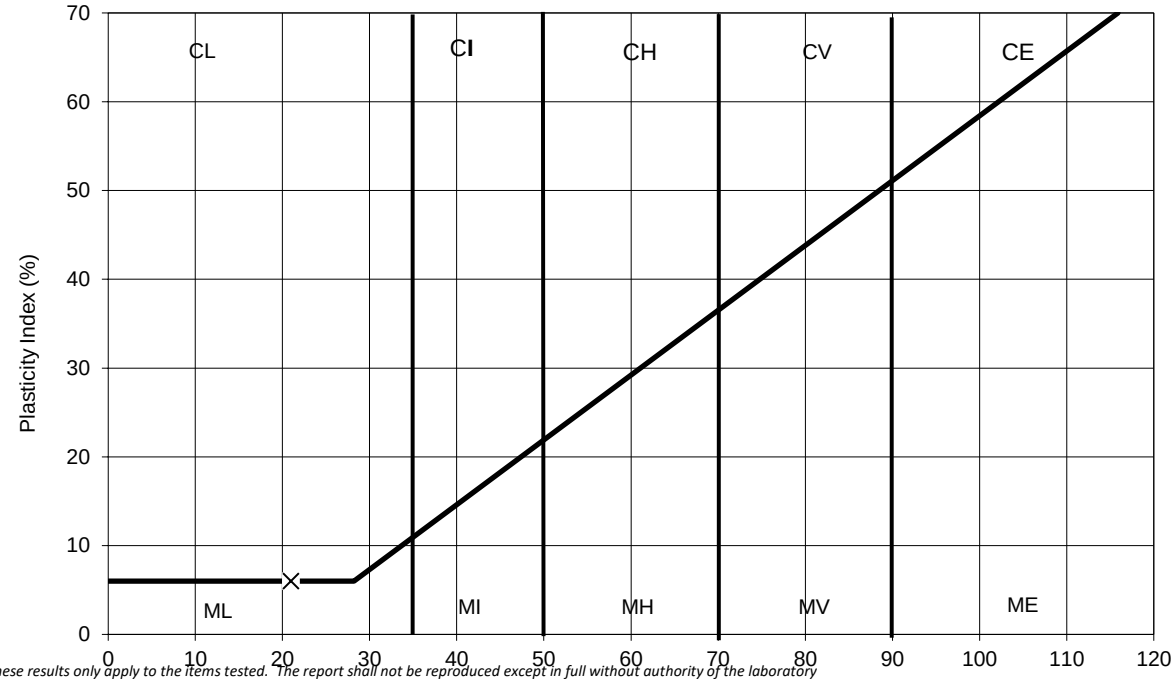


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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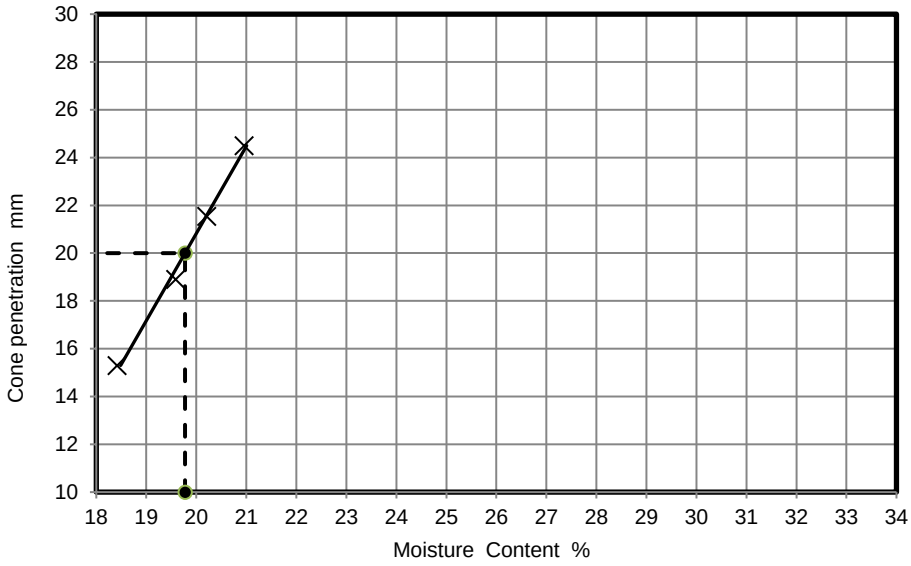
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

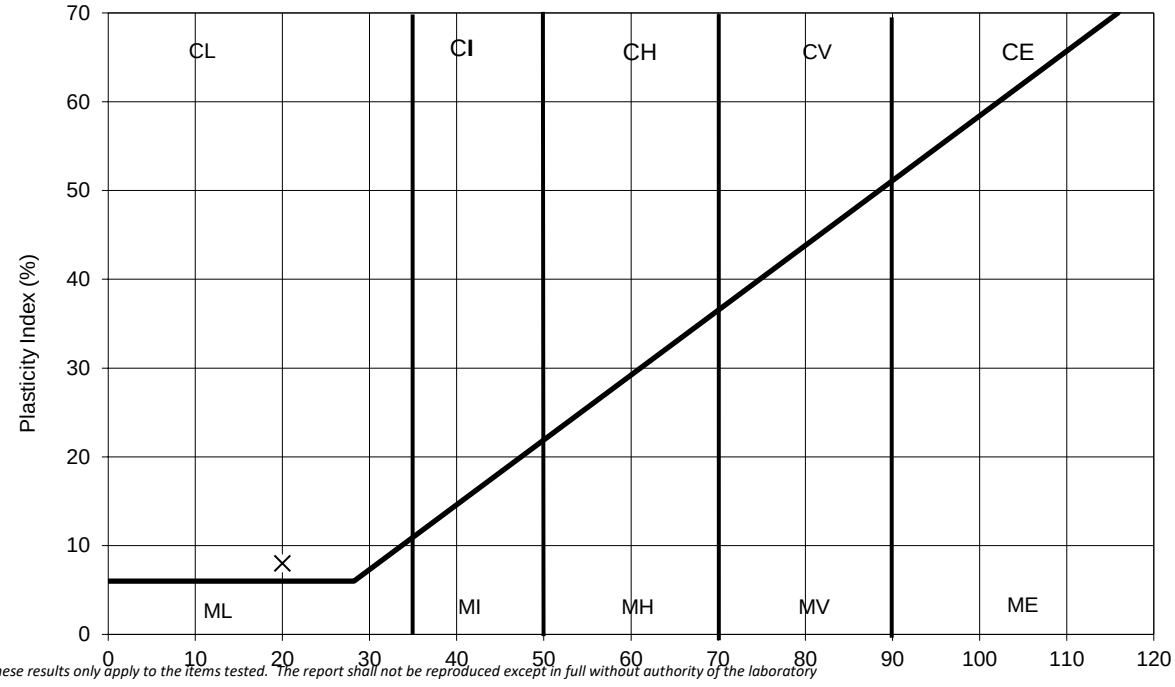
				Job No.	32282
				Borehole/Pit No.	TP-95999
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

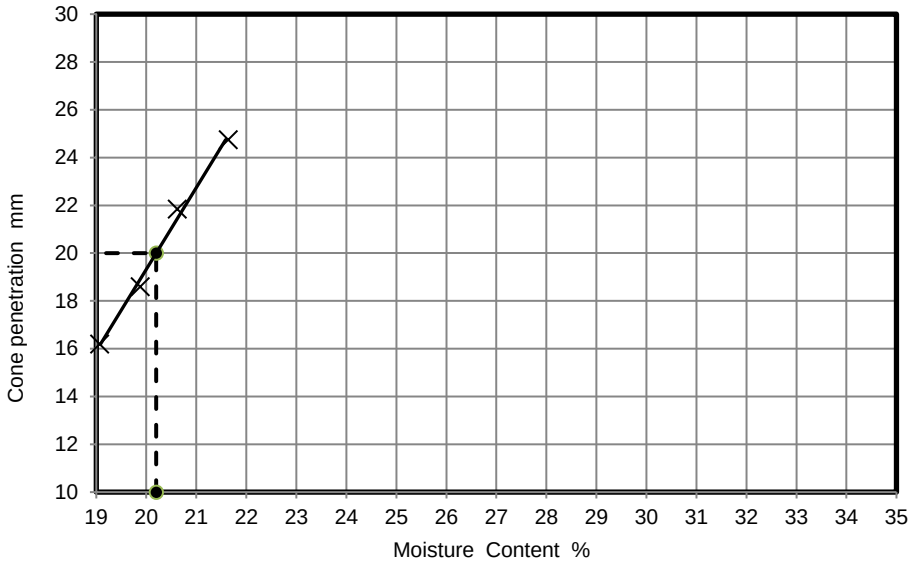
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

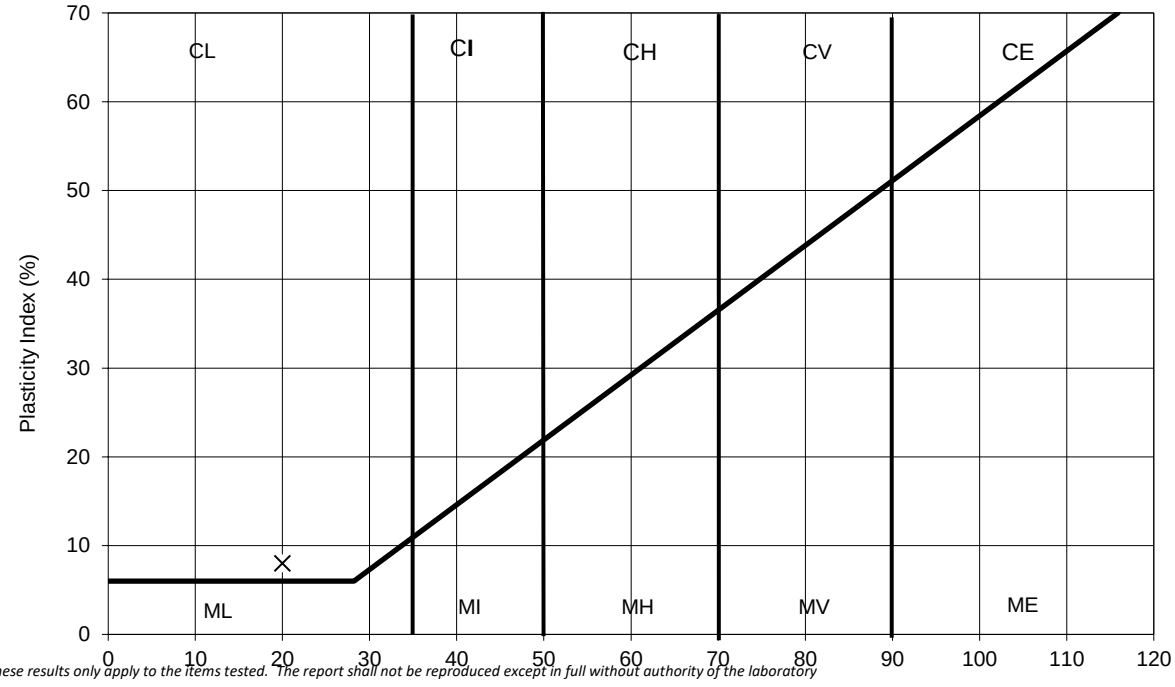
Job No.	32282				
Borehole/Pit No.	TP-96105				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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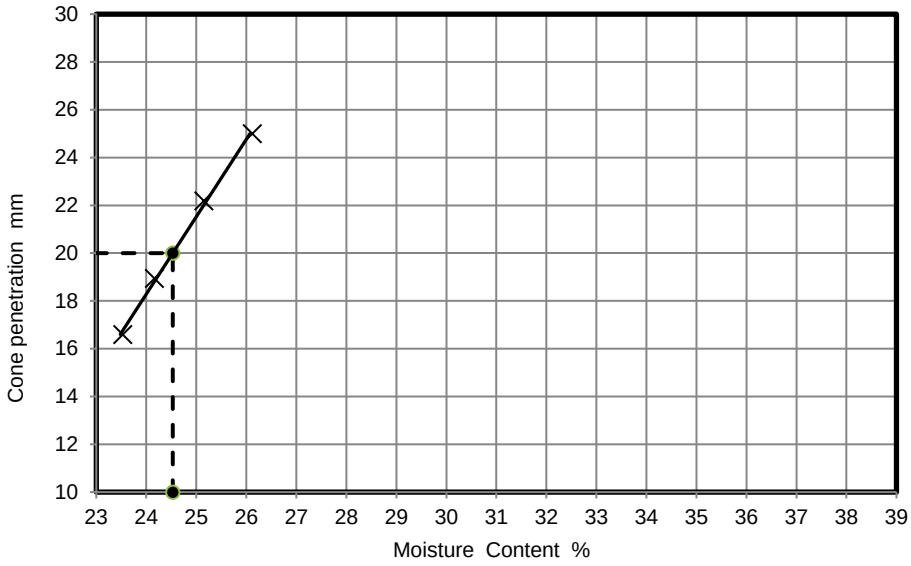
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-96204
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc angular to sub-angular and tabular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022

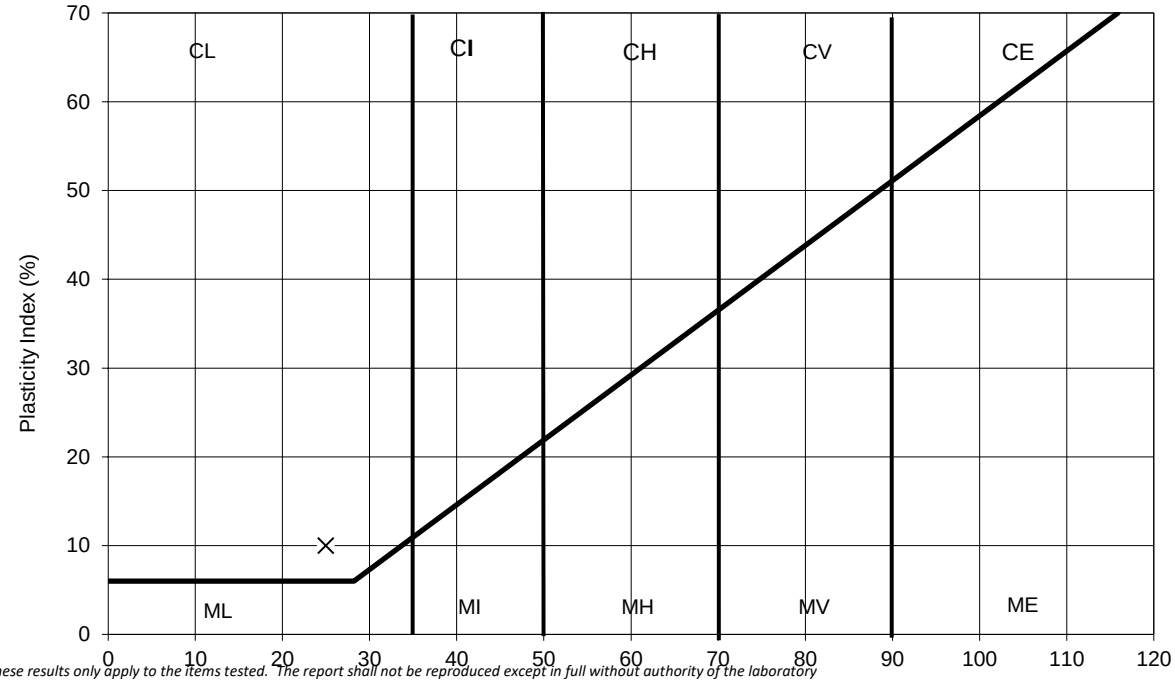


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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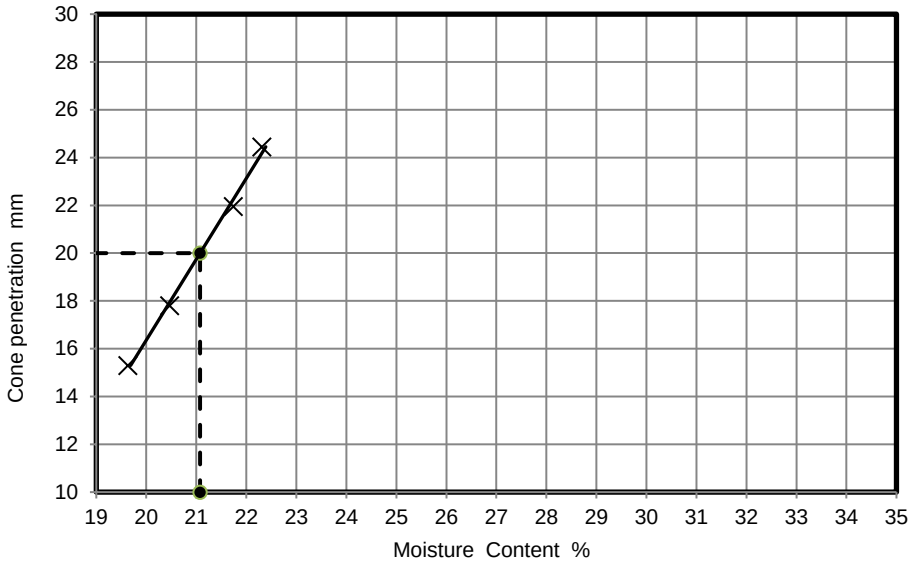
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

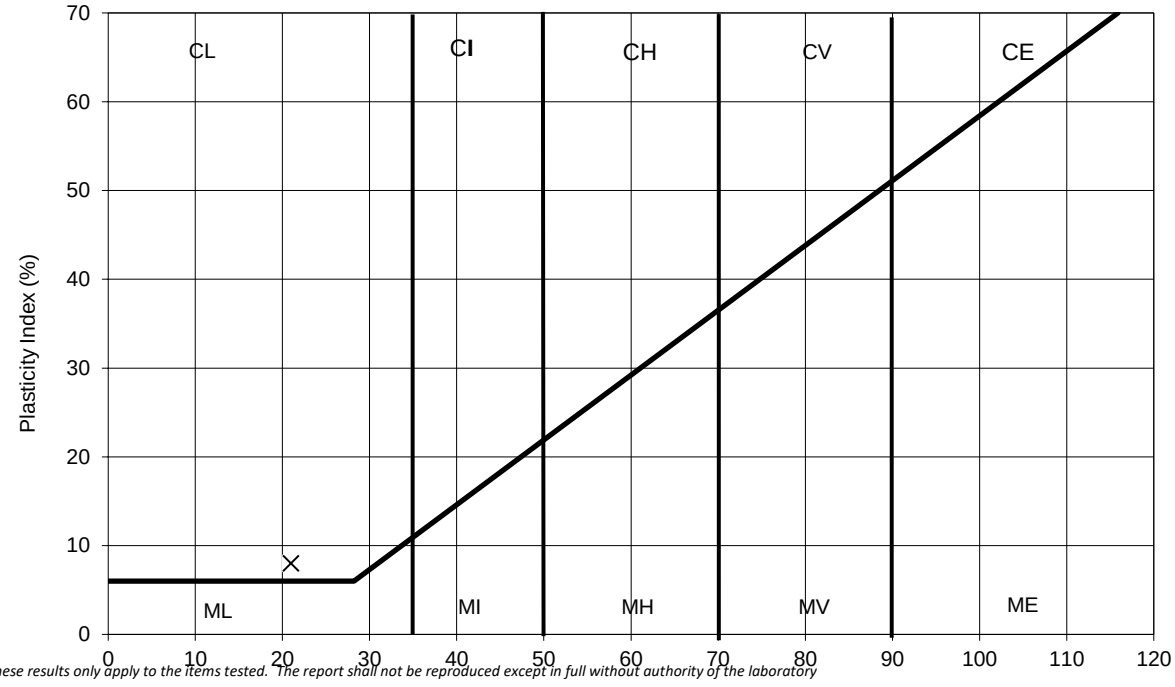
Job No.	32282				
Borehole/Pit No.	TP-96304				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**8.9**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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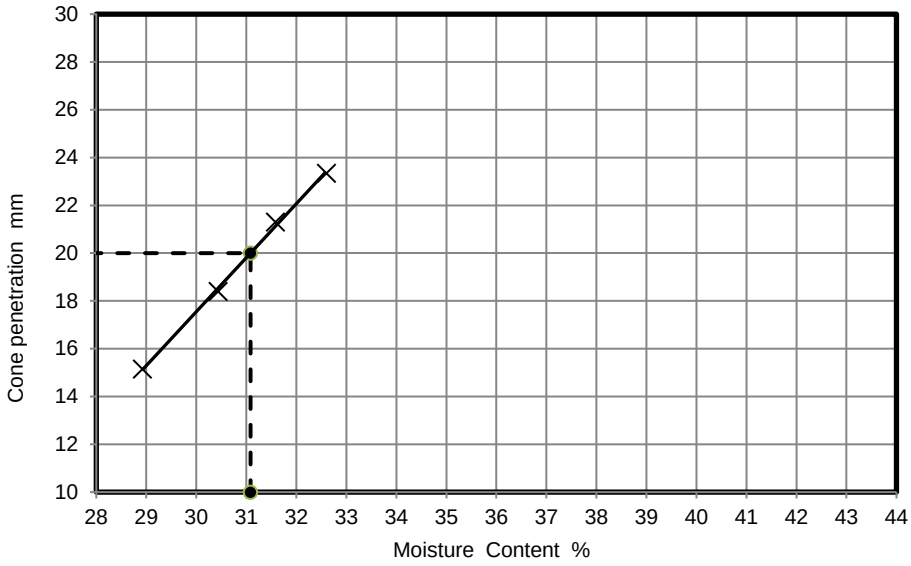
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

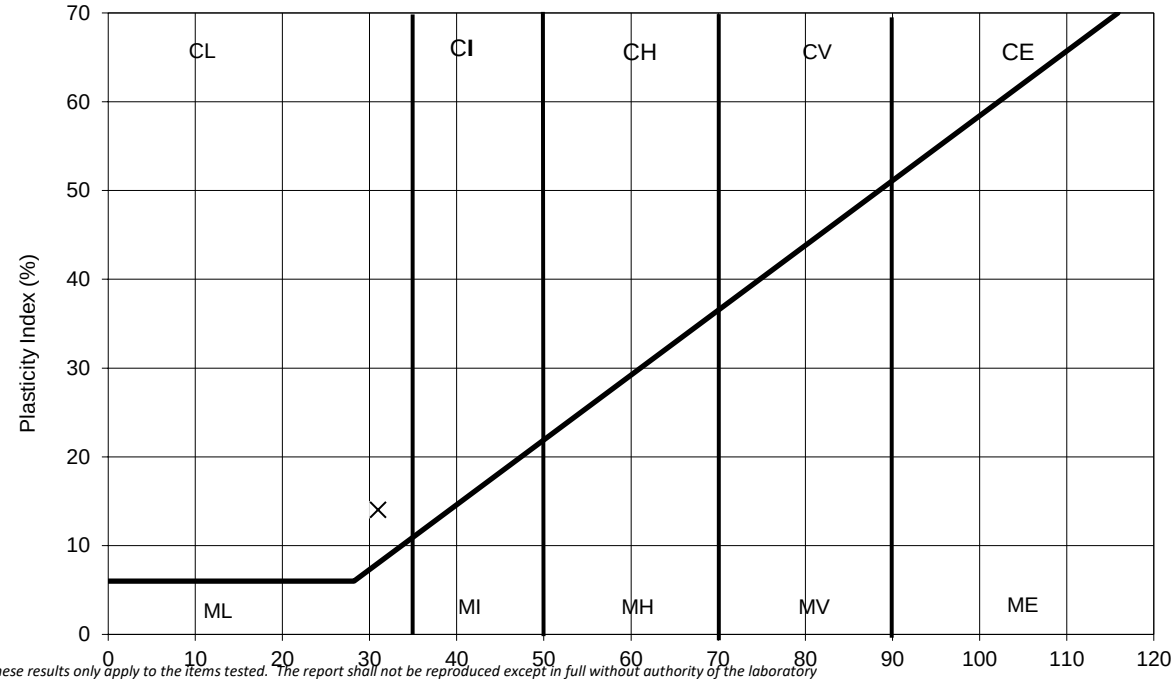
				Job No.	32282
				Borehole/Pit No.	TP-96387
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**93**	**%**
LIQUID LIMIT	**31**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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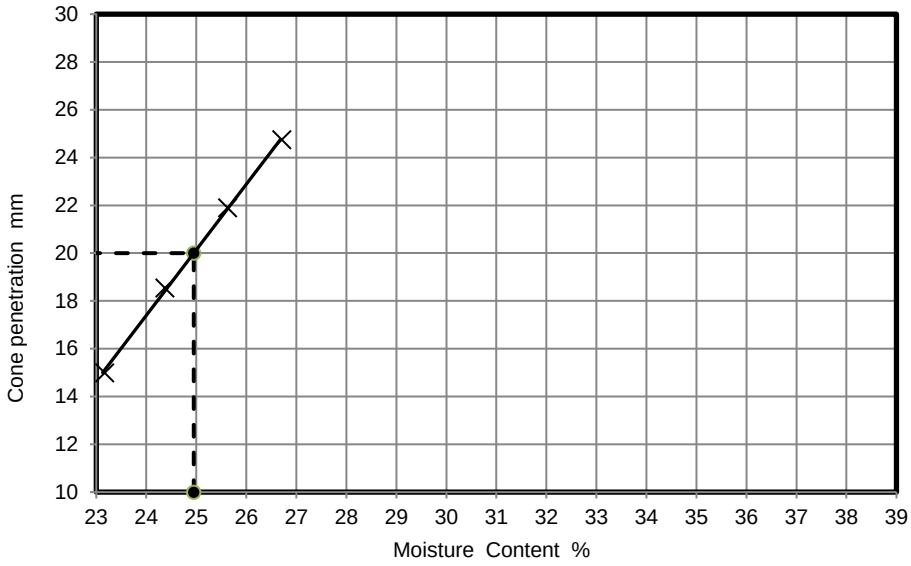
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

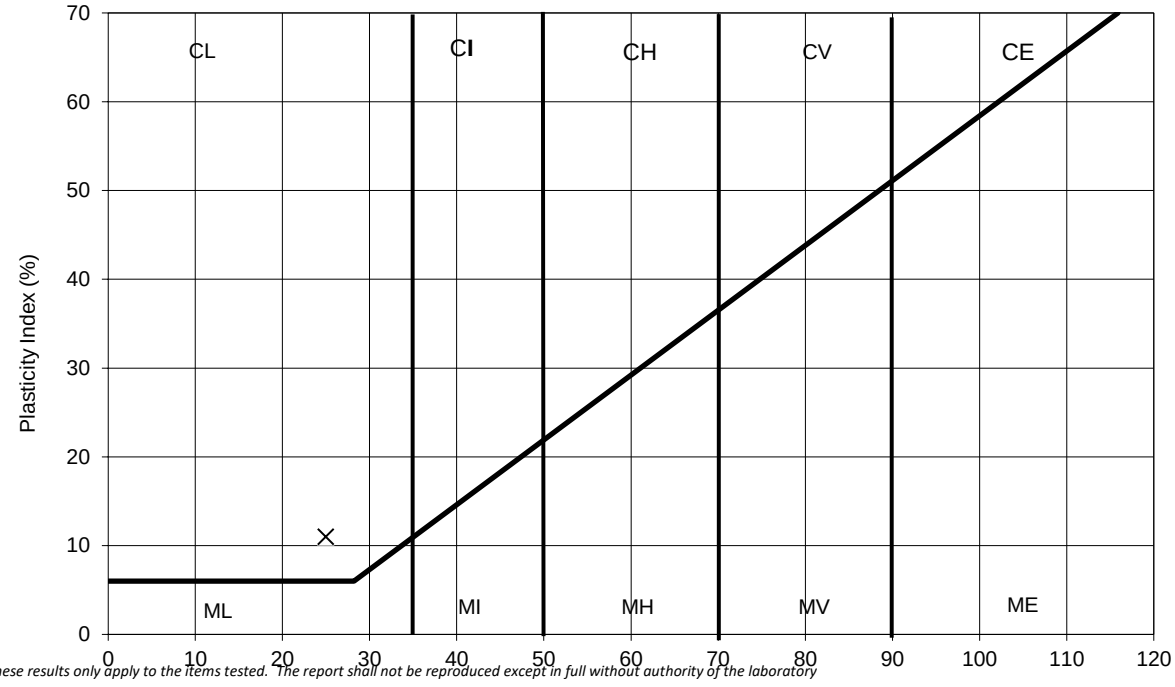
				Job No.	32282
				Borehole/Pit No.	TP-96608
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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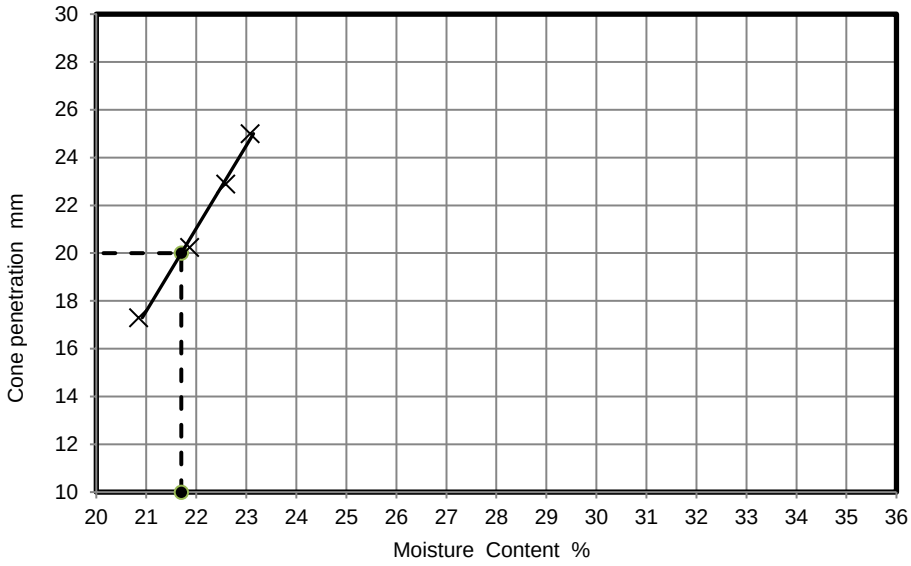
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

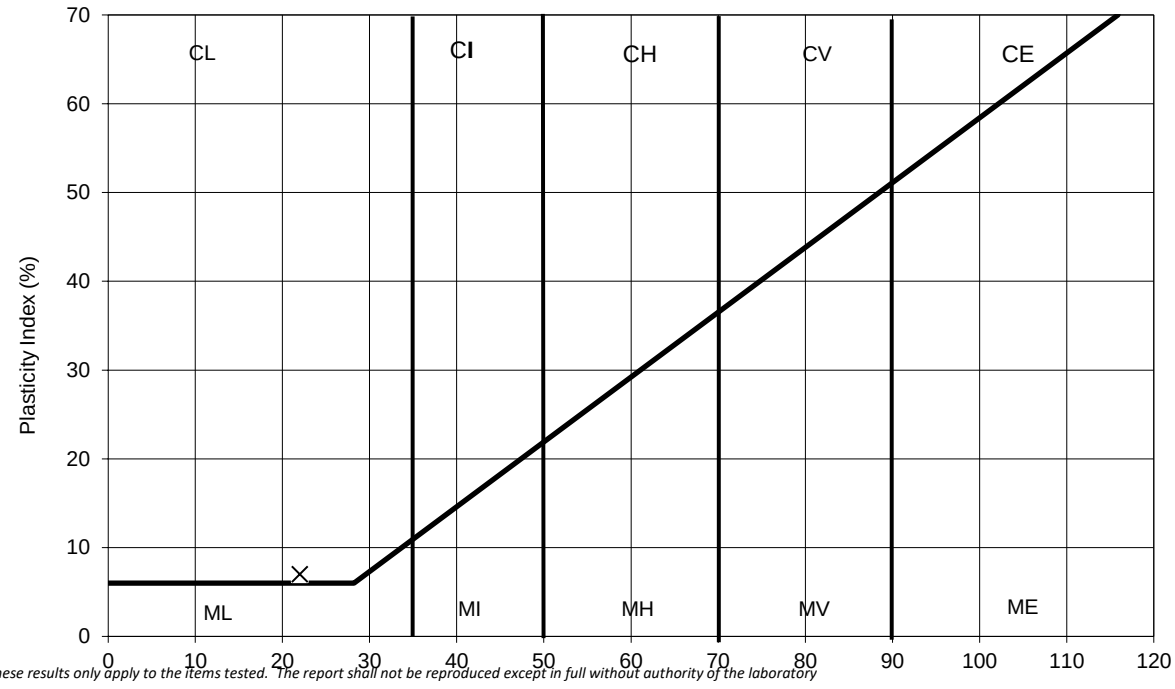
				Job No.	32282
				Borehole/Pit No.	TP-96705
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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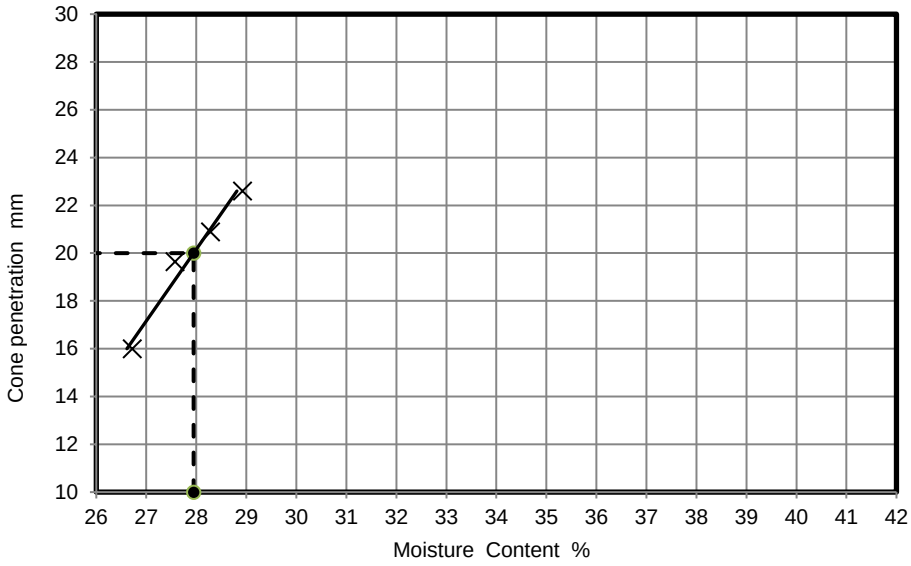
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown and grey mottled slightly gravelly slightly sandy silty CLAY (gravel is fm)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022

Job No. 32282

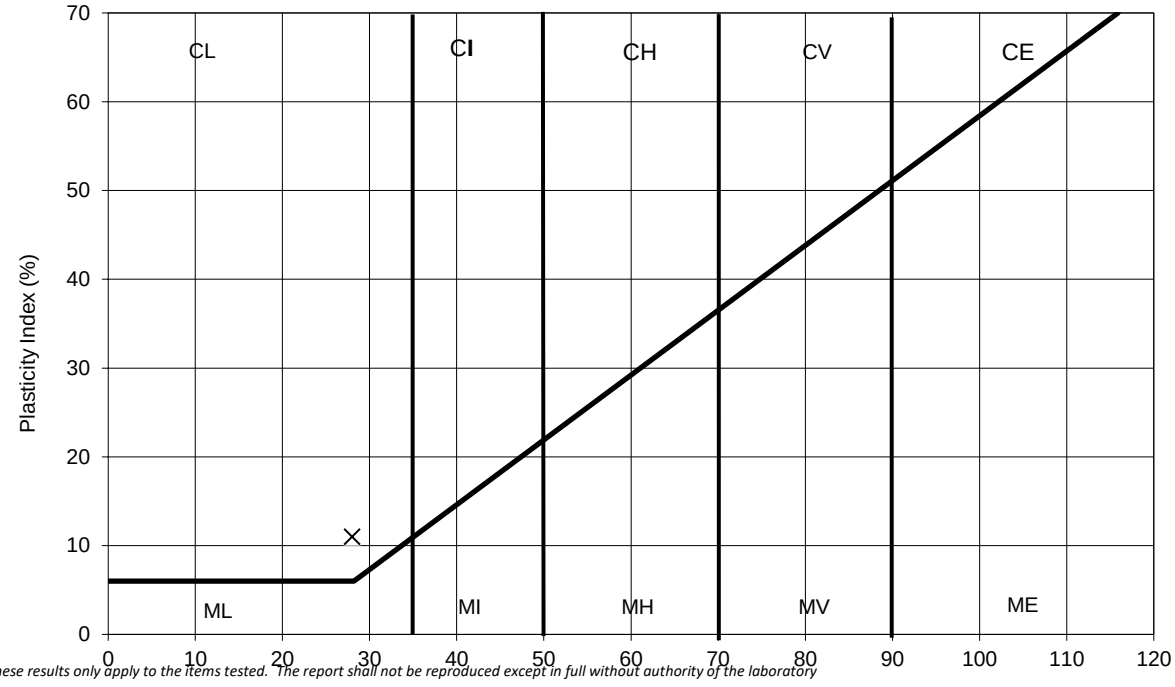
Borehole/Pit No. TP-96831



NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**95**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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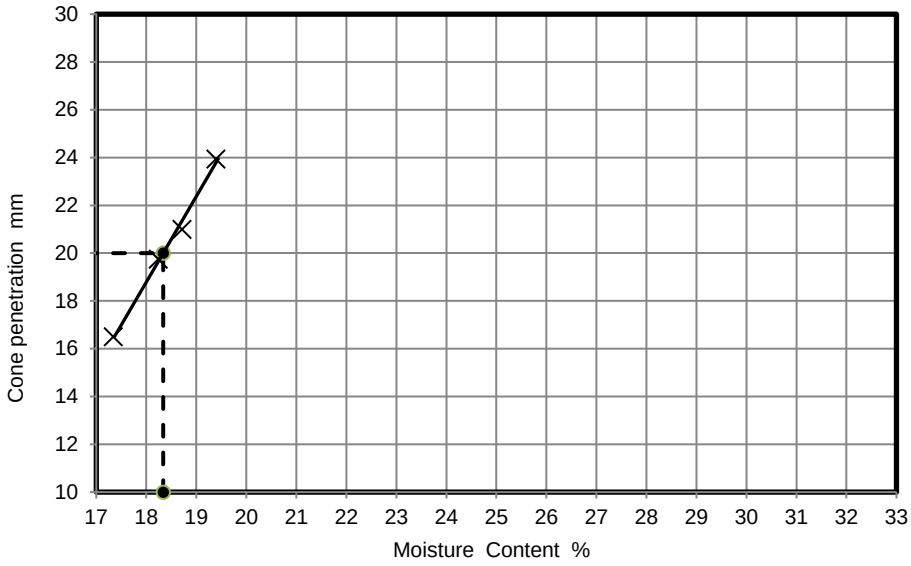
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

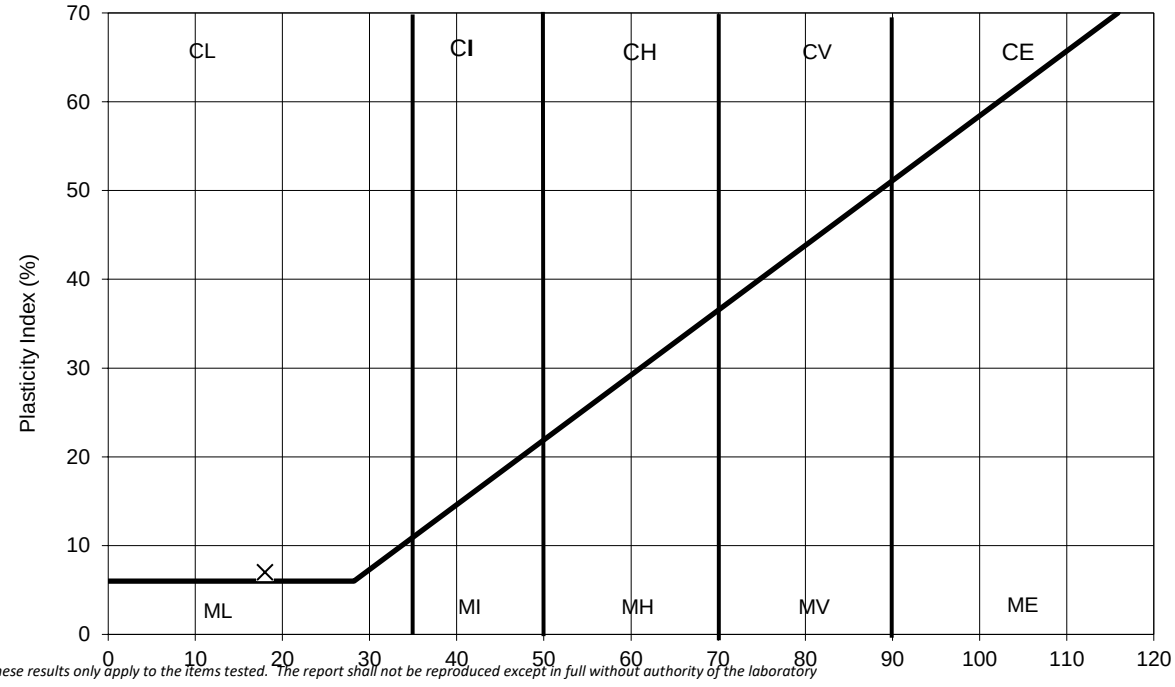
				Job No.	32282
				Borehole/Pit No.	TP-96831
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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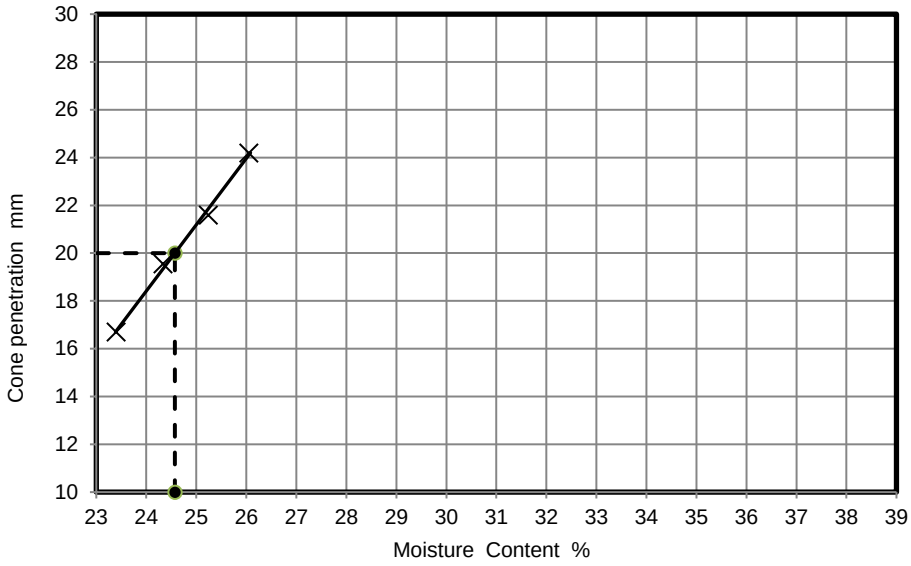
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022

Job No. 32282

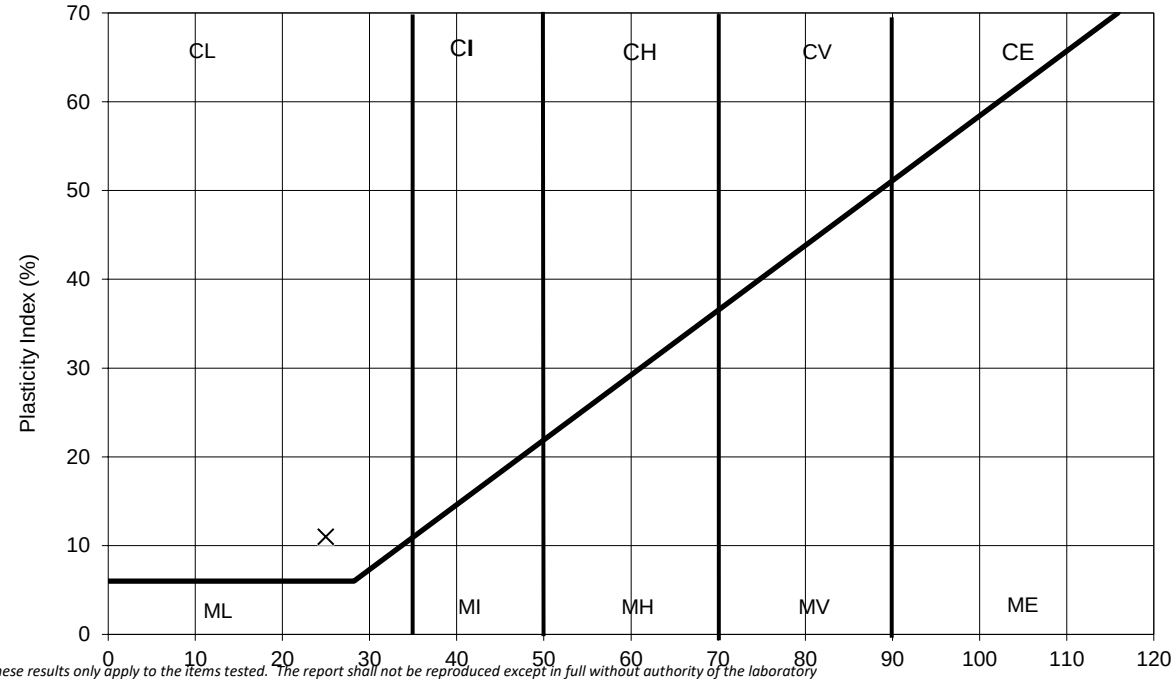
Borehole/Pit No. TP-96905



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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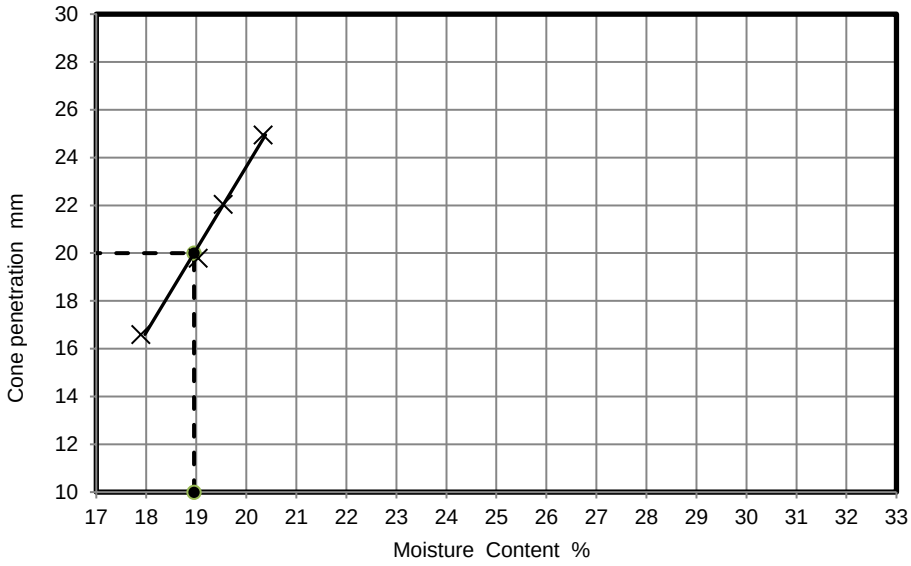
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022

Job No. 32282

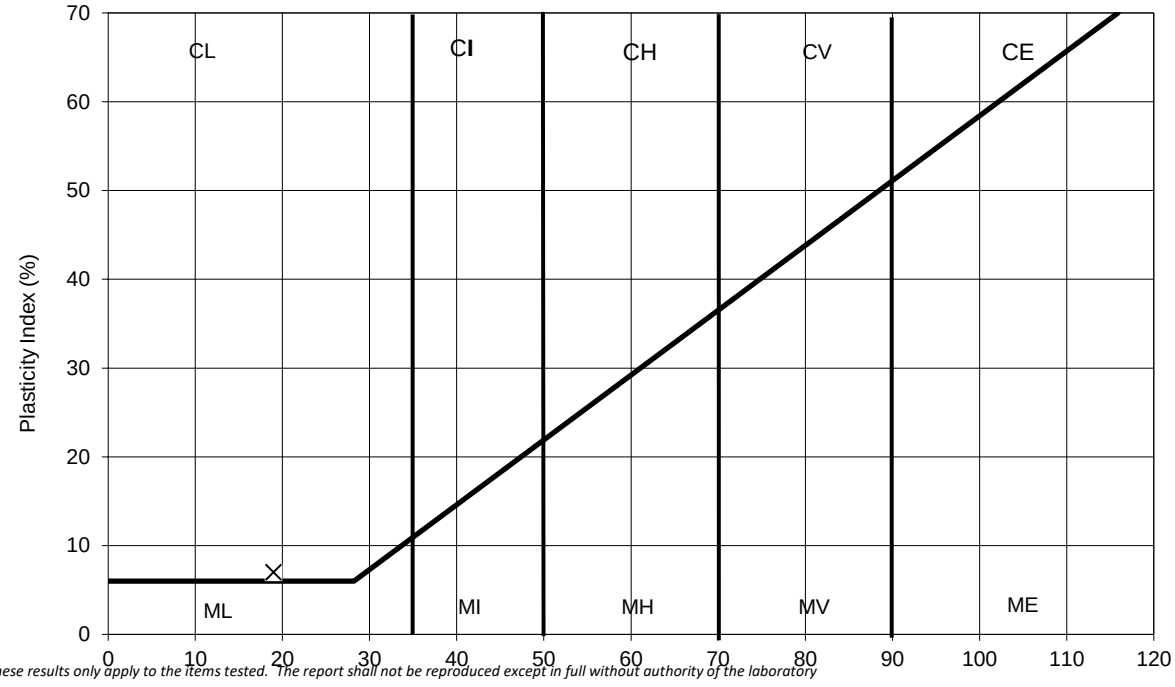
Borehole/Pit No. TP-96905



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

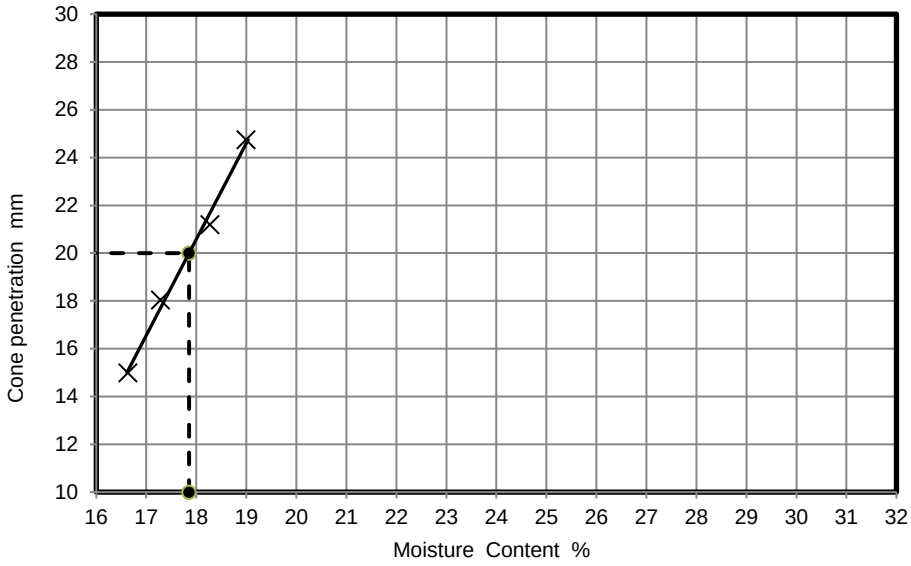
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

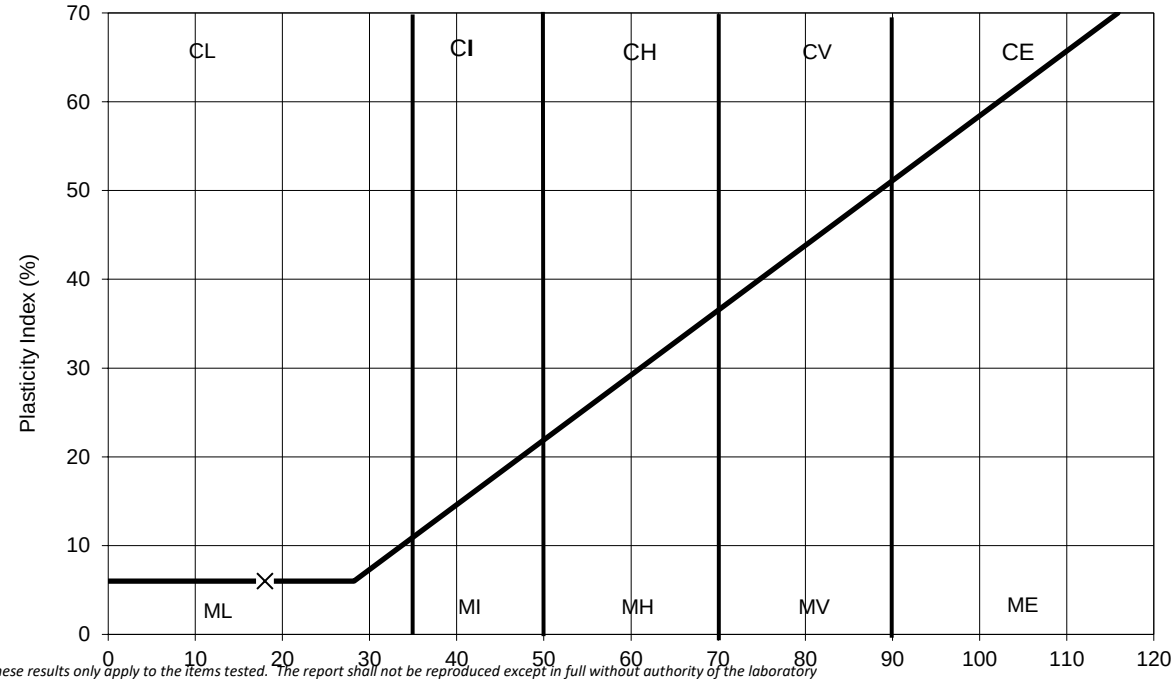
				Job No.	32282
				Borehole/Pit No.	TP-97009
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/09/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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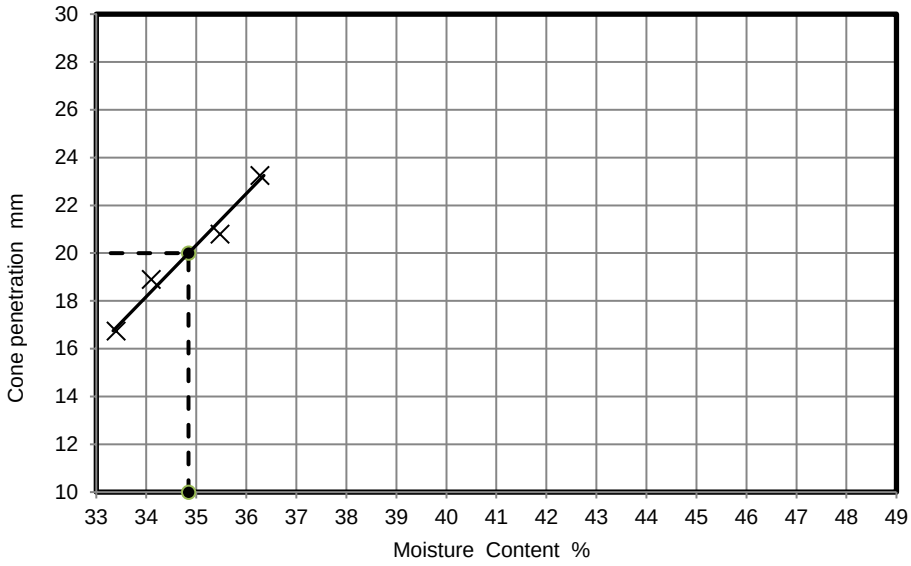
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

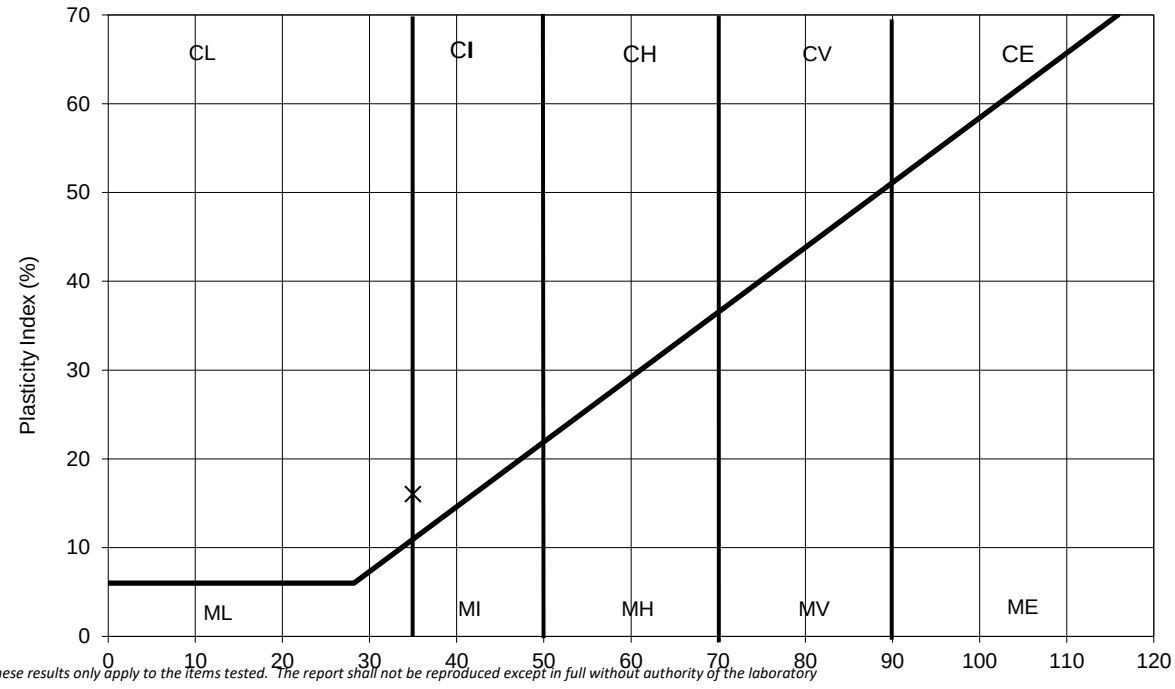
				Job No.	32282
				Borehole/Pit No.	TP-97108
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**35**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**16**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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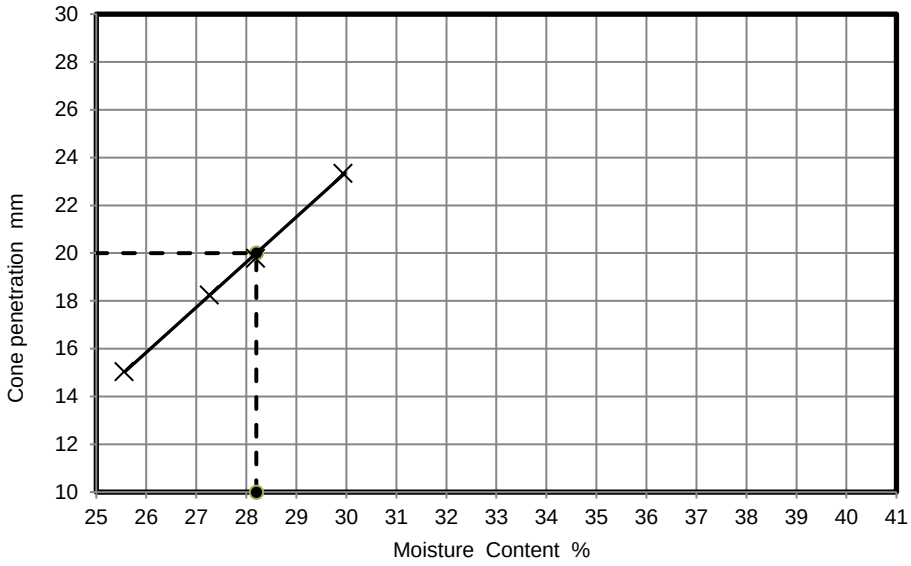
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

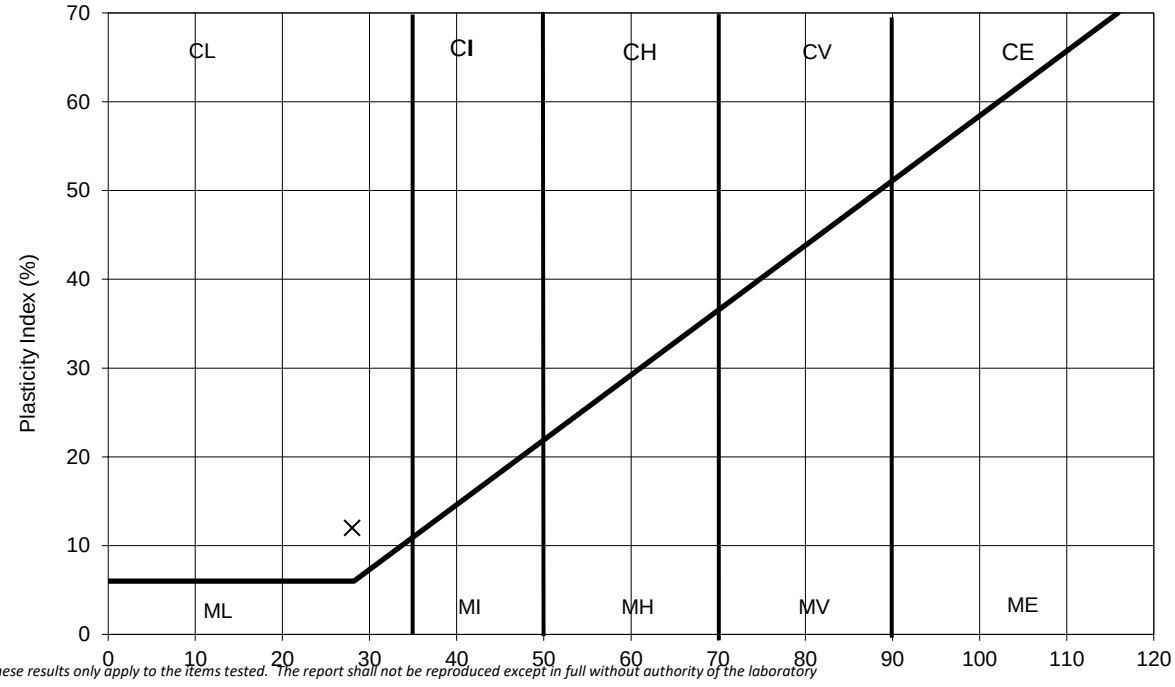
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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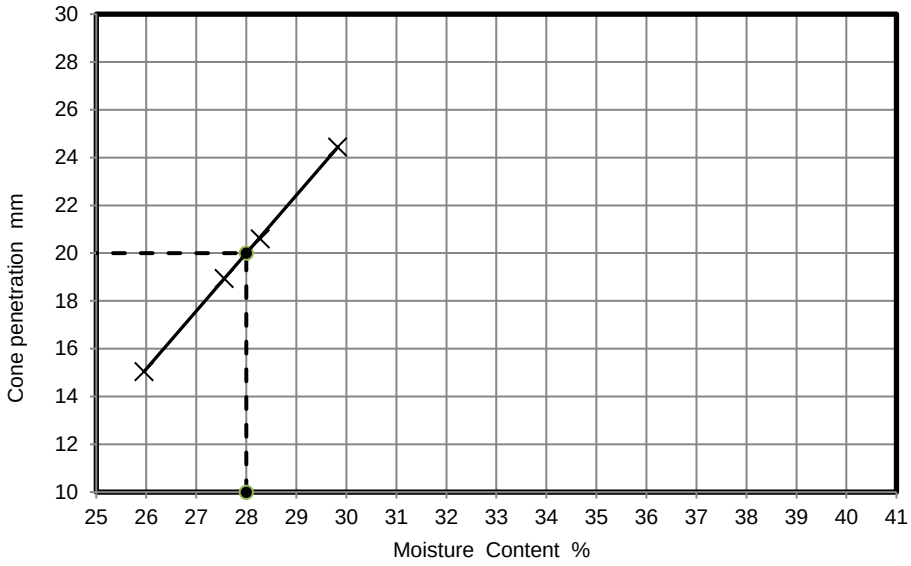
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

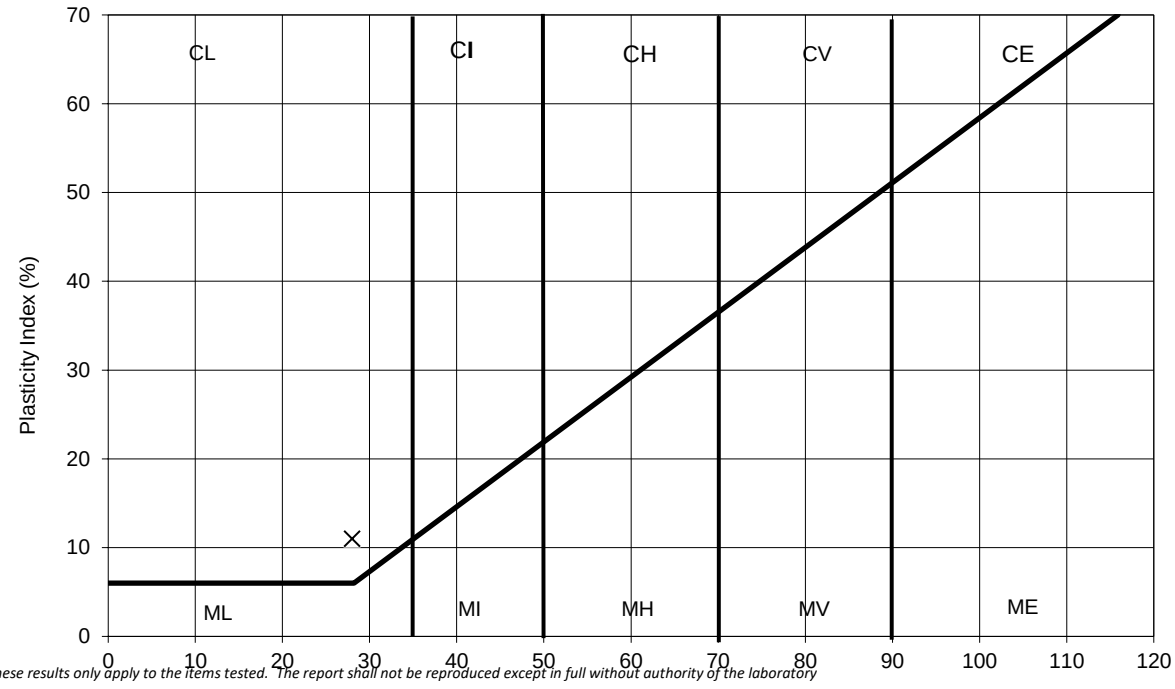
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Brown and grey mottled silty CLAY with sandy patches and rare fine gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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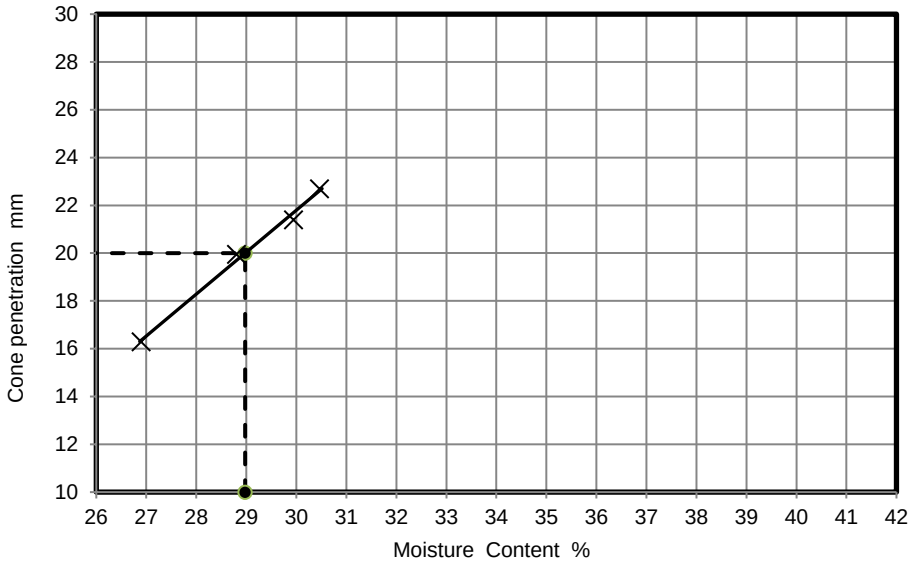
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

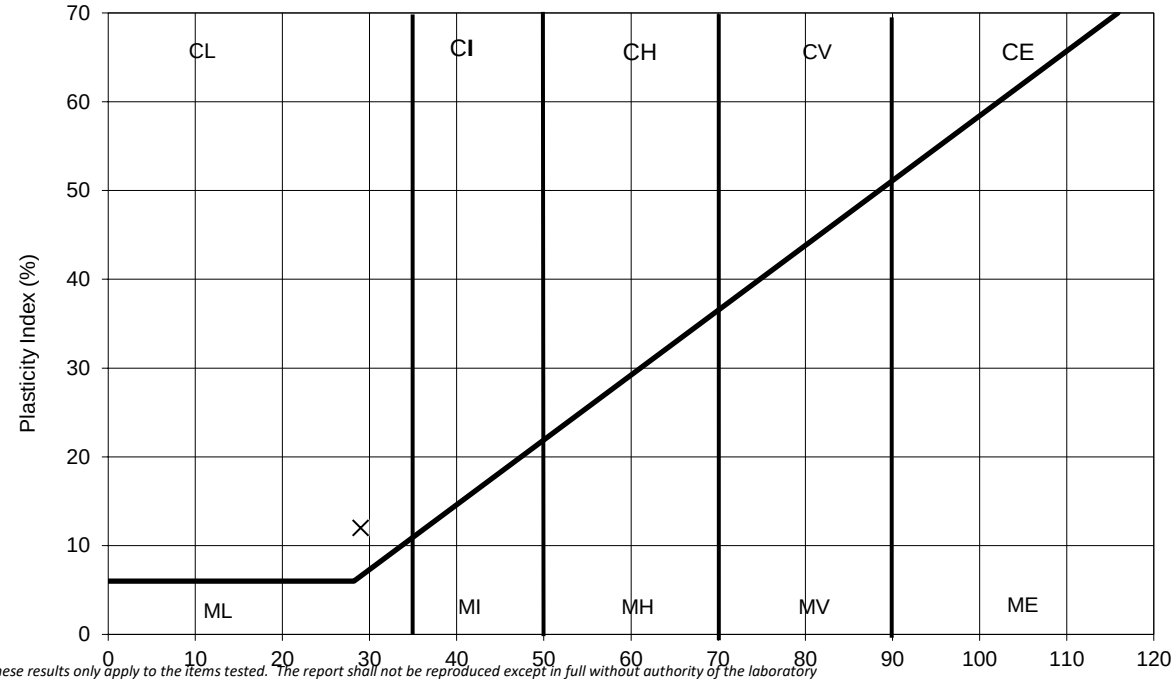
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Dark grey silty CLAY with rare fine gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**29**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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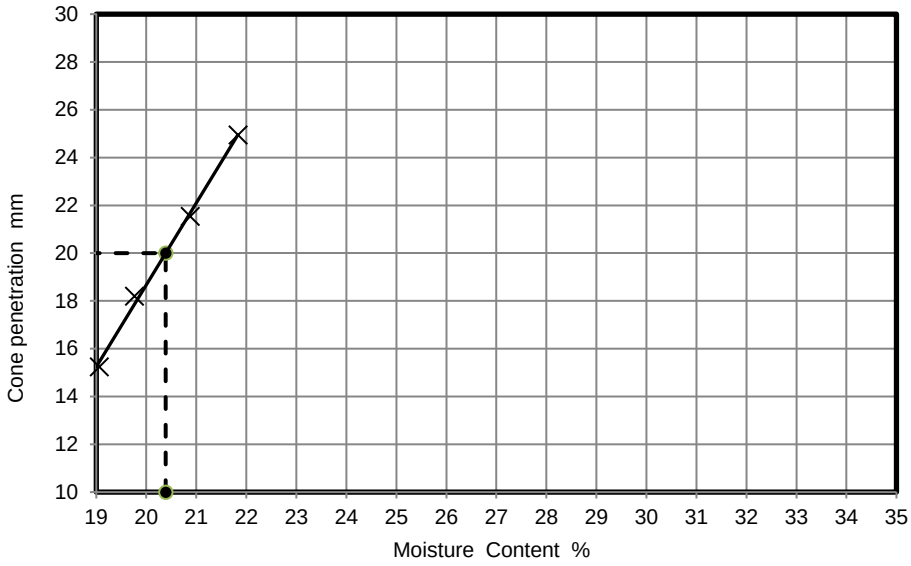
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

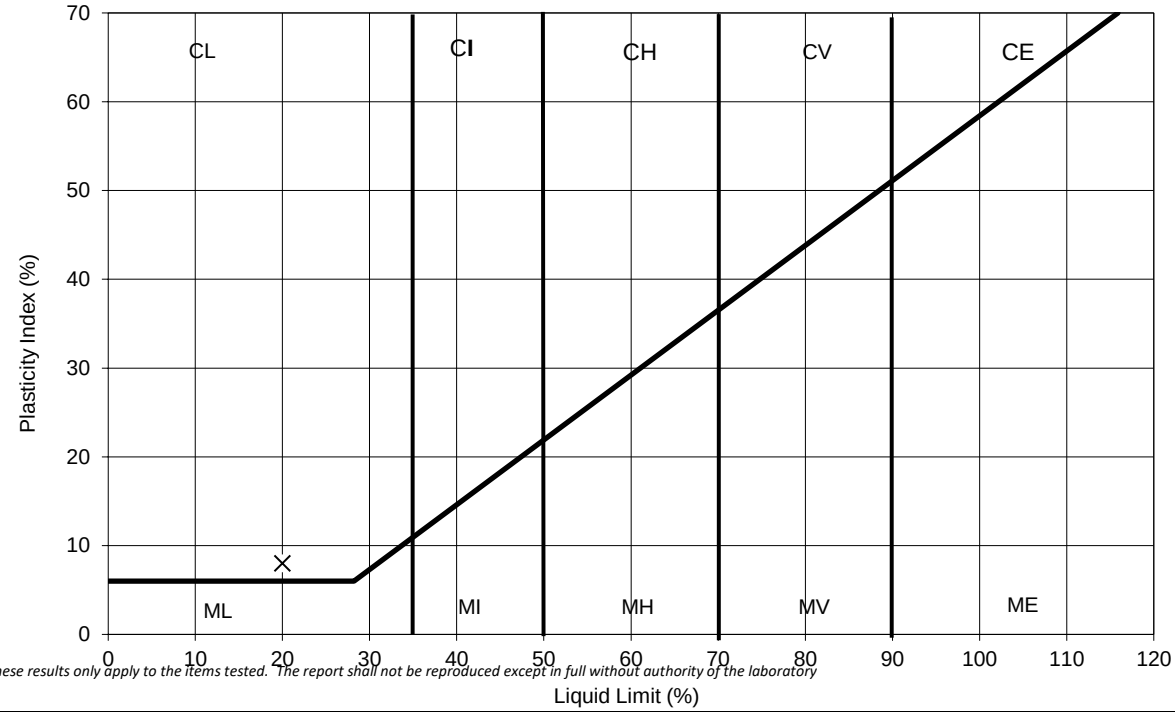
				Job No.	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

2519

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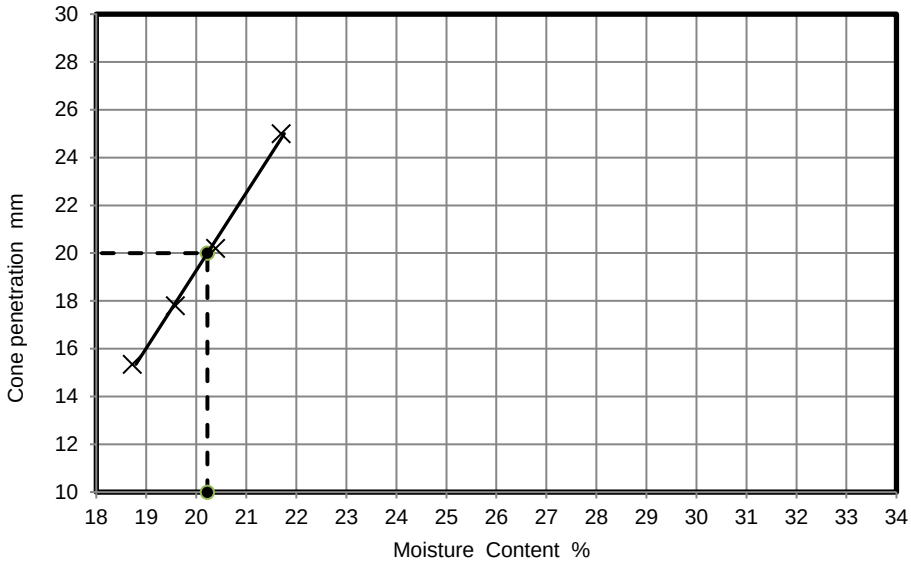
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

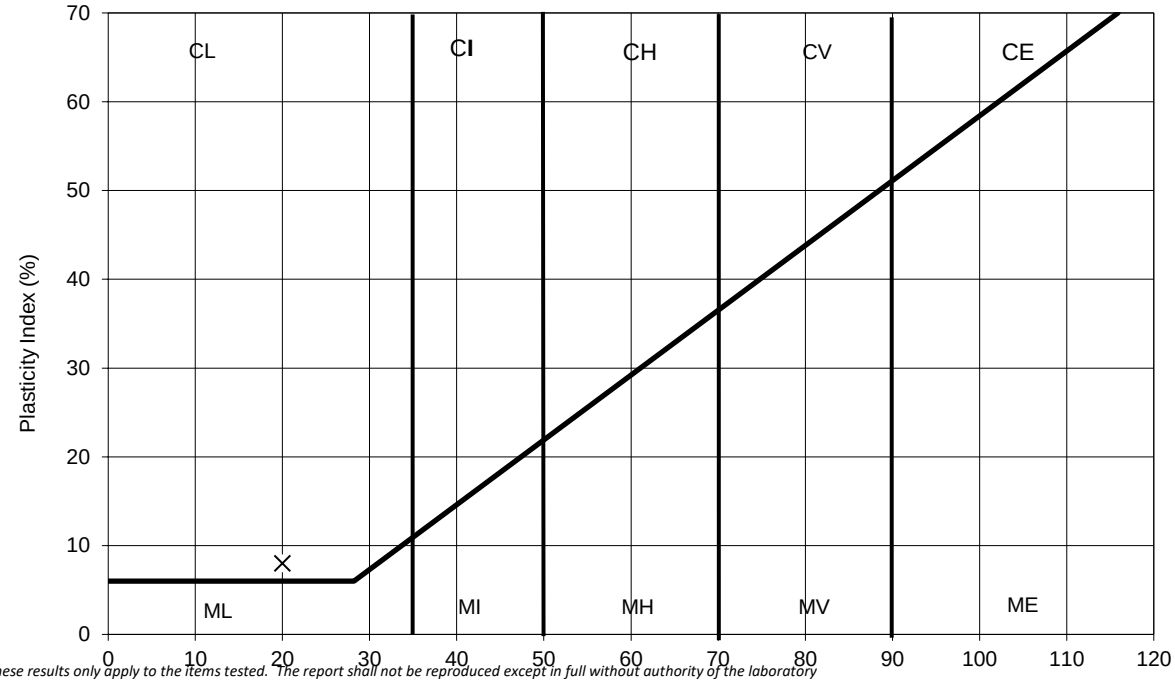
				Job No.	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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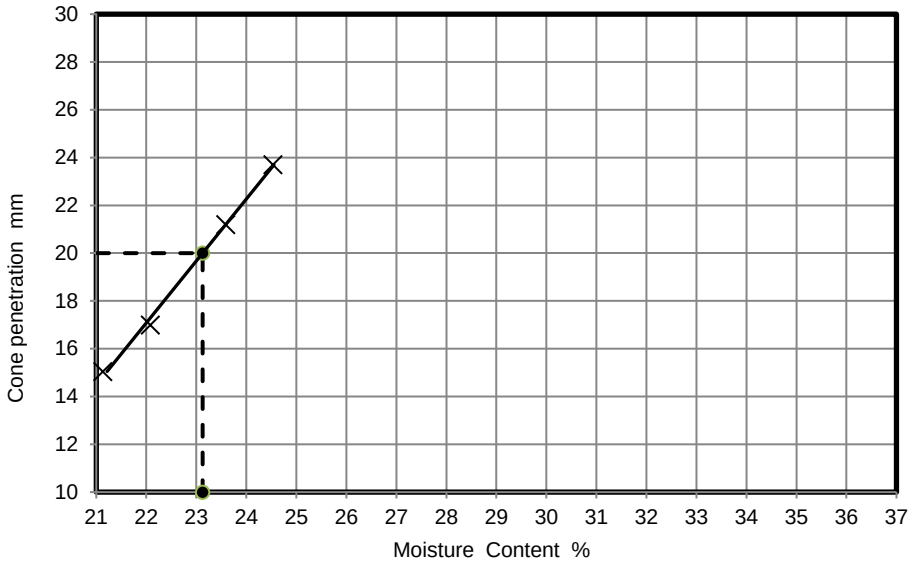
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

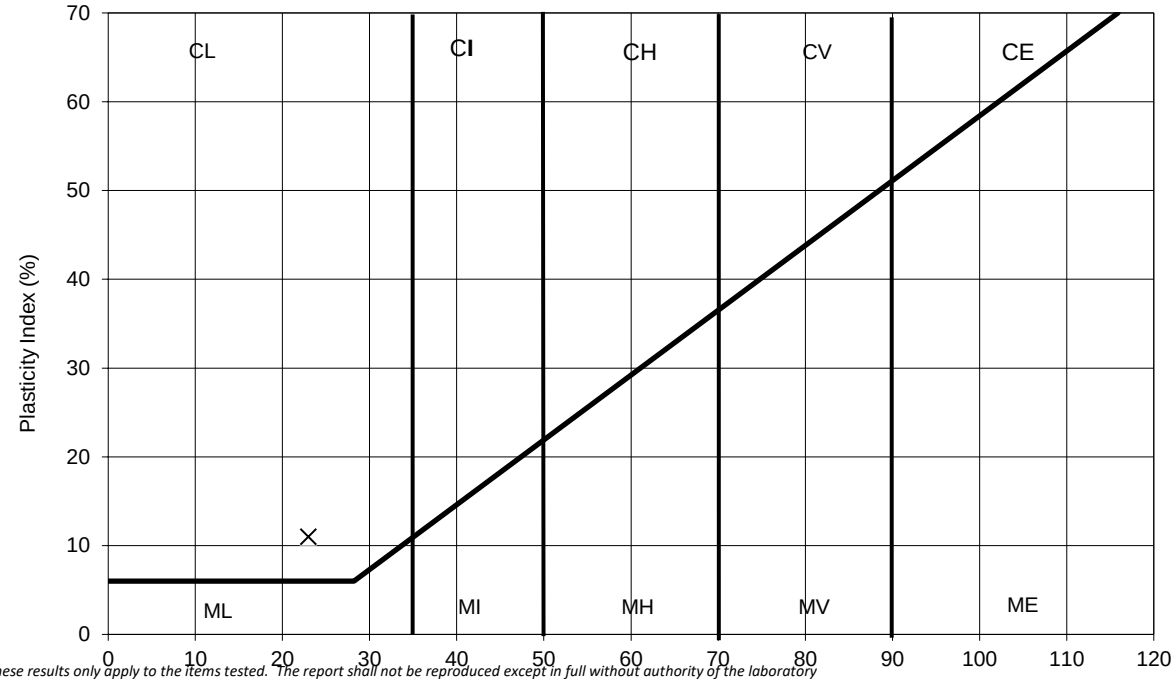
				Job No.	32282
				Borehole/Pit No.	TP-97505
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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UKAS TESTING

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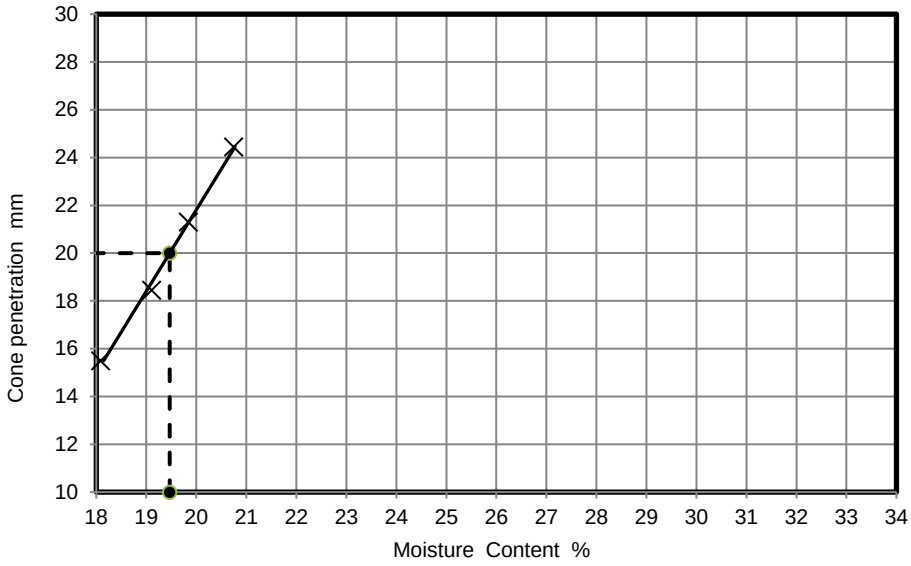
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/09/2022

Job No. 32282

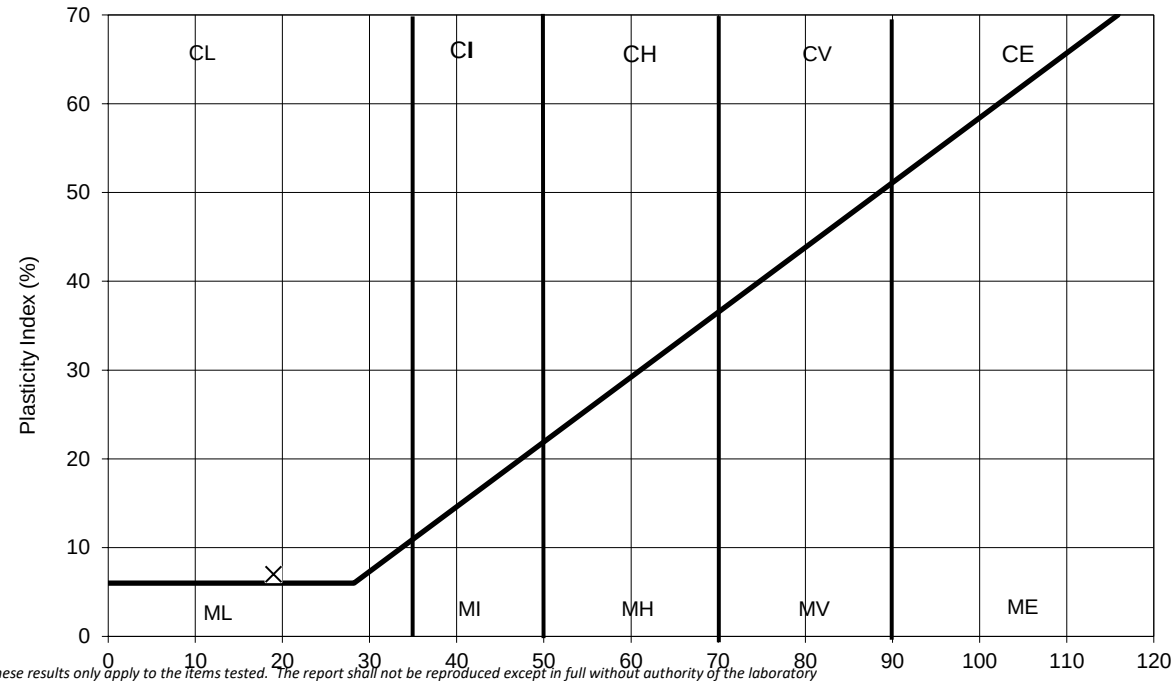
Borehole/Pit No. TP-97505



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**40**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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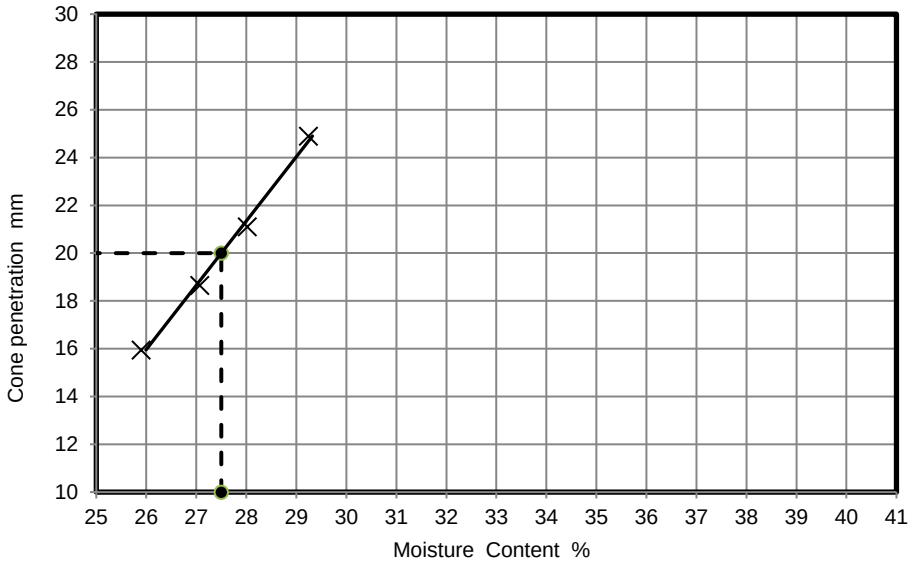
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

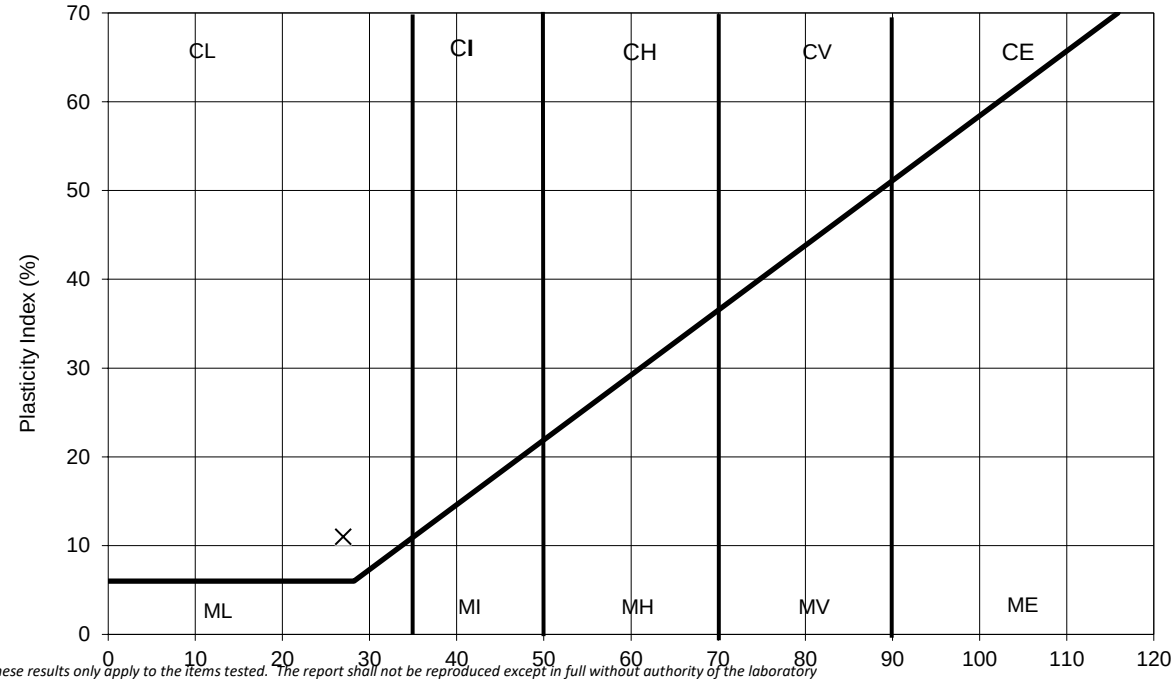
Job No.	32282				
Borehole/Pit No.	TP-97602				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

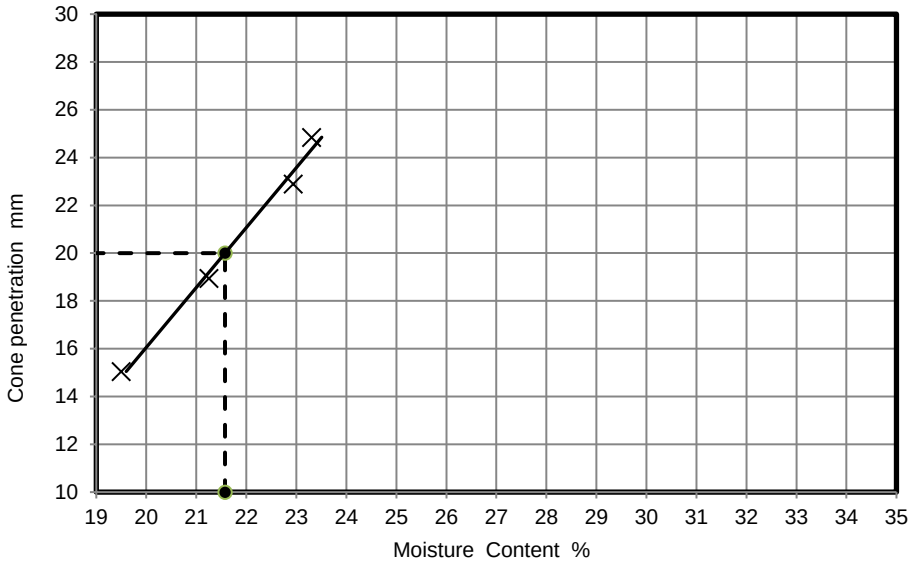
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

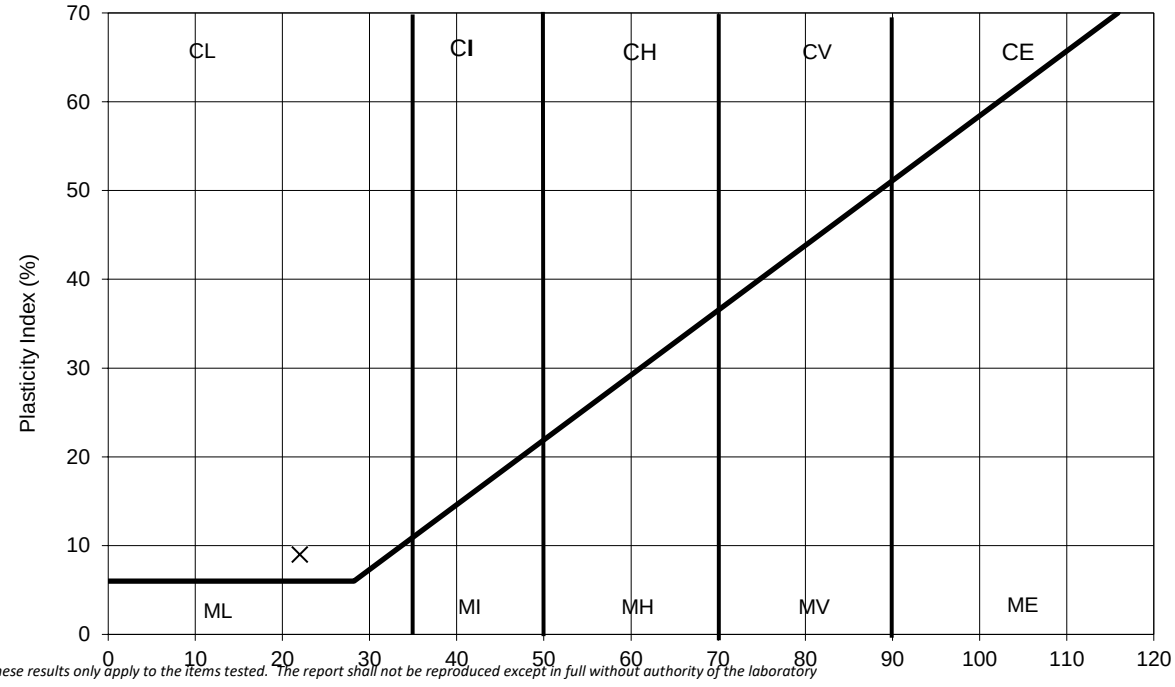
				Job No.	32282
				Borehole/Pit No.	TP-97602
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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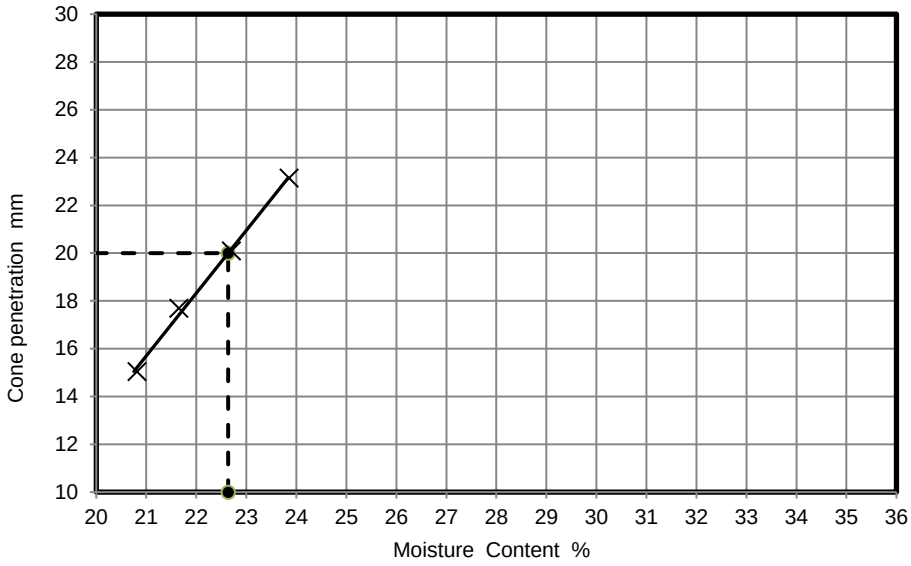
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

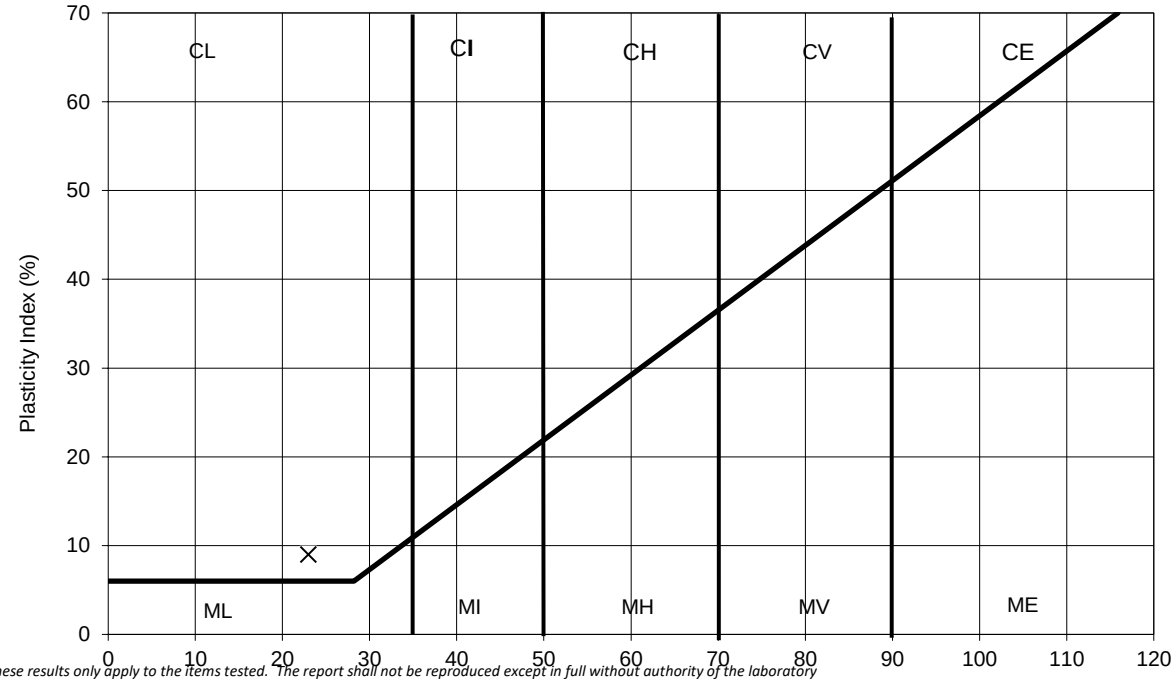
				Job No.	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**90**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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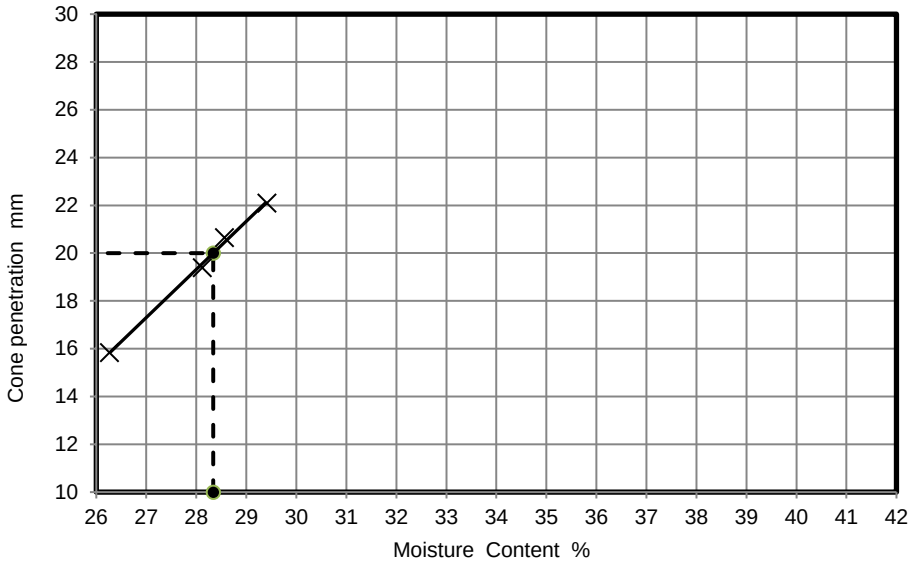
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

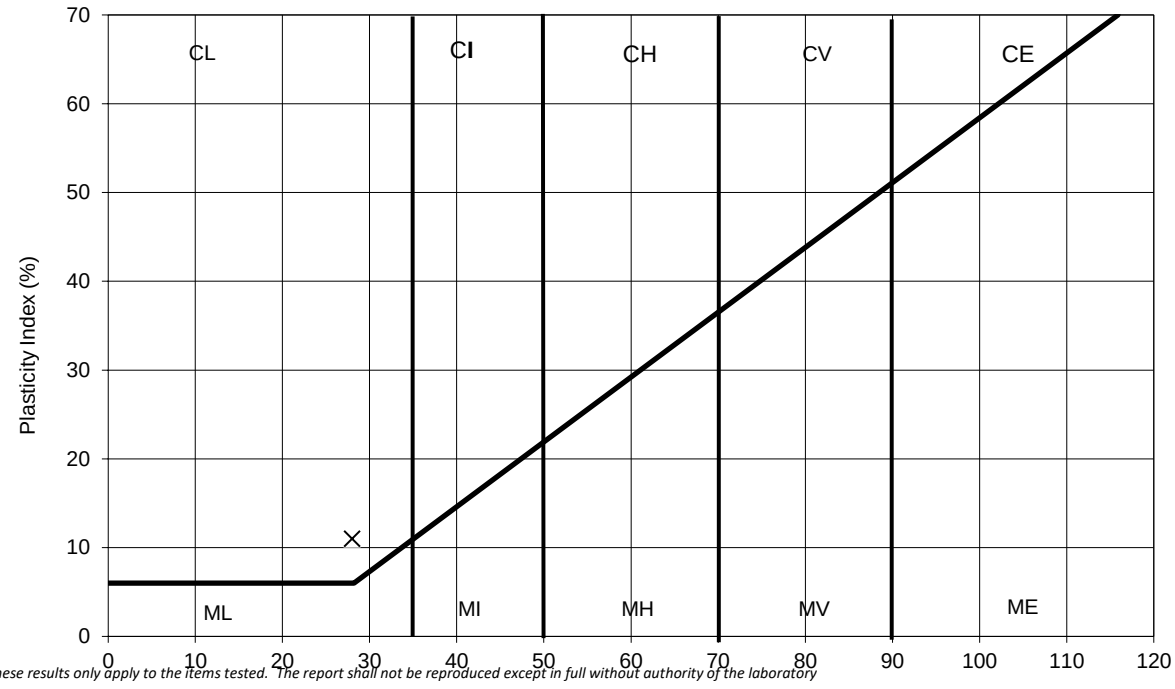
				Job No.	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Grey and brown mottled silty CLAY with sandy patches and rare fine gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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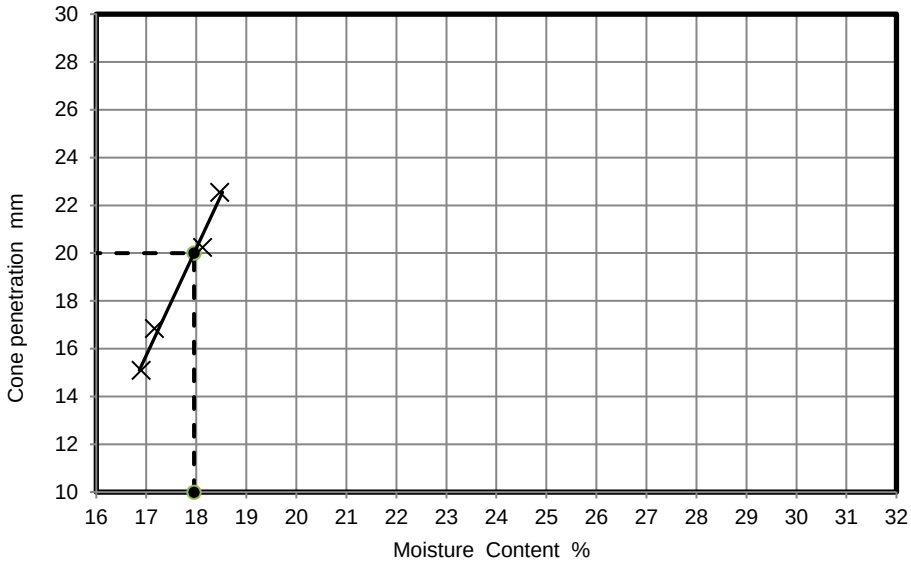
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

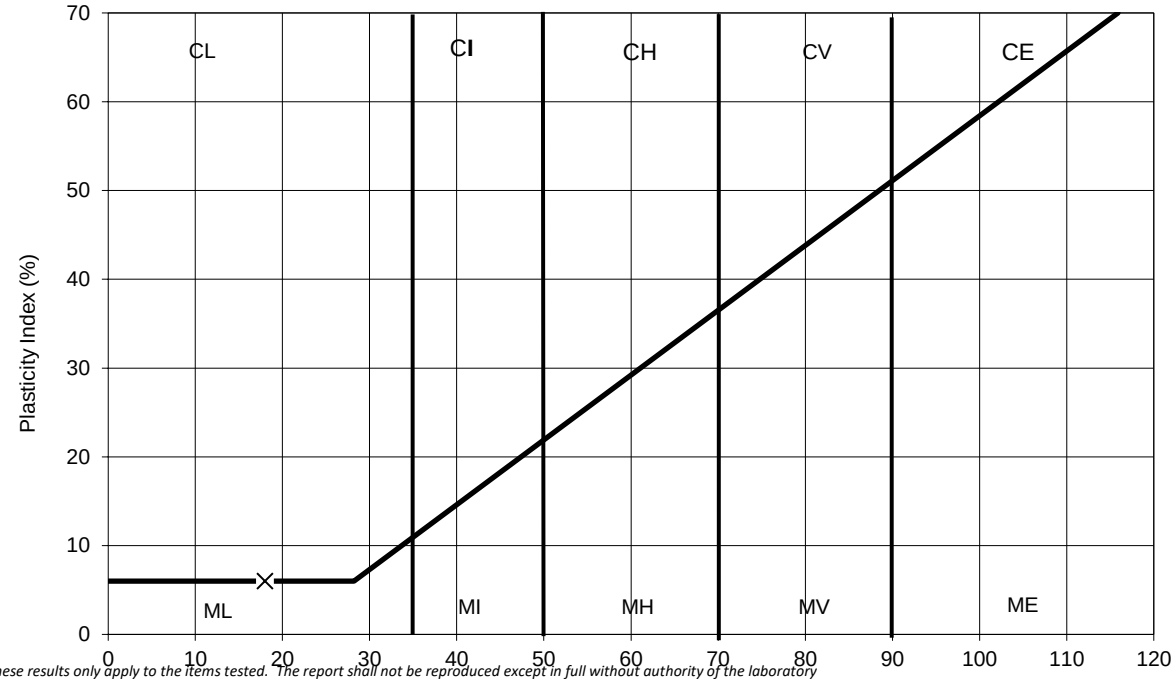
				Job No.	32282
				Borehole/Pit No.	TP-97777
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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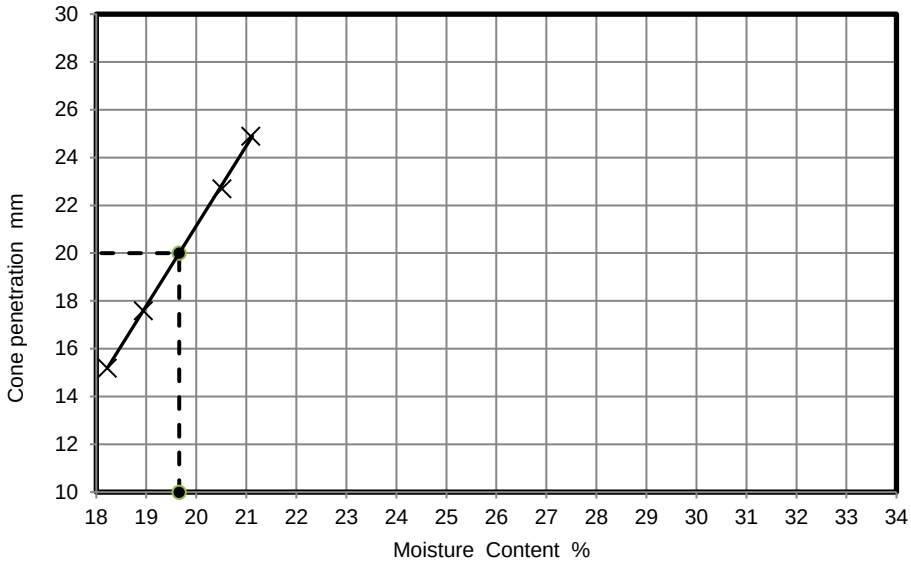
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

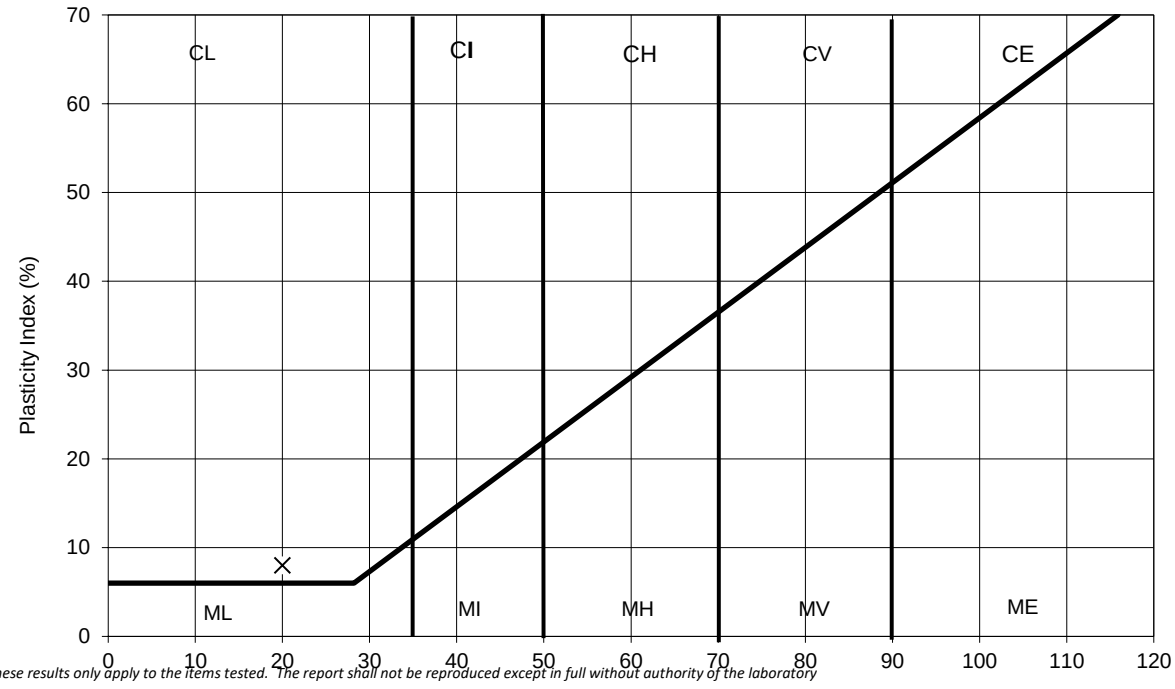
				Job No.	32282
				Borehole/Pit No.	TP-97998
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Dark greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**82**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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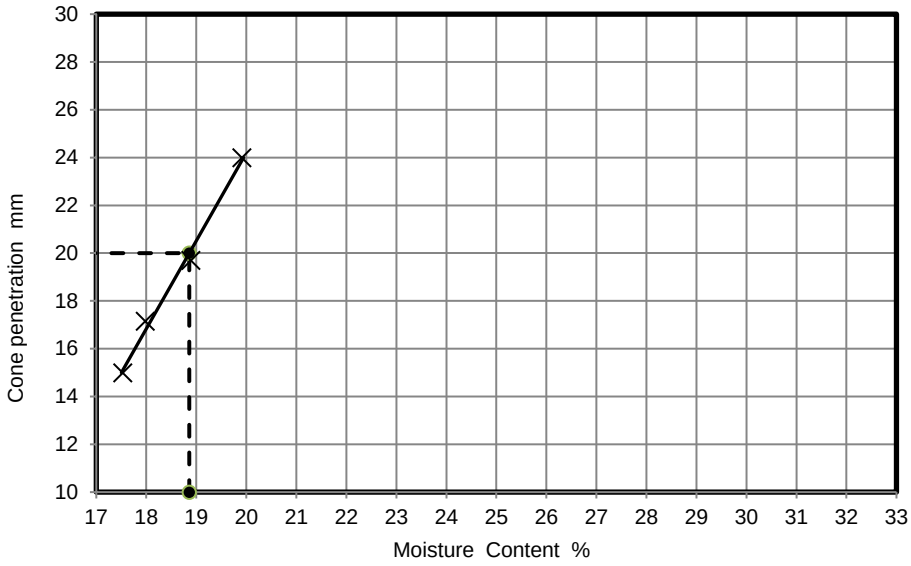
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

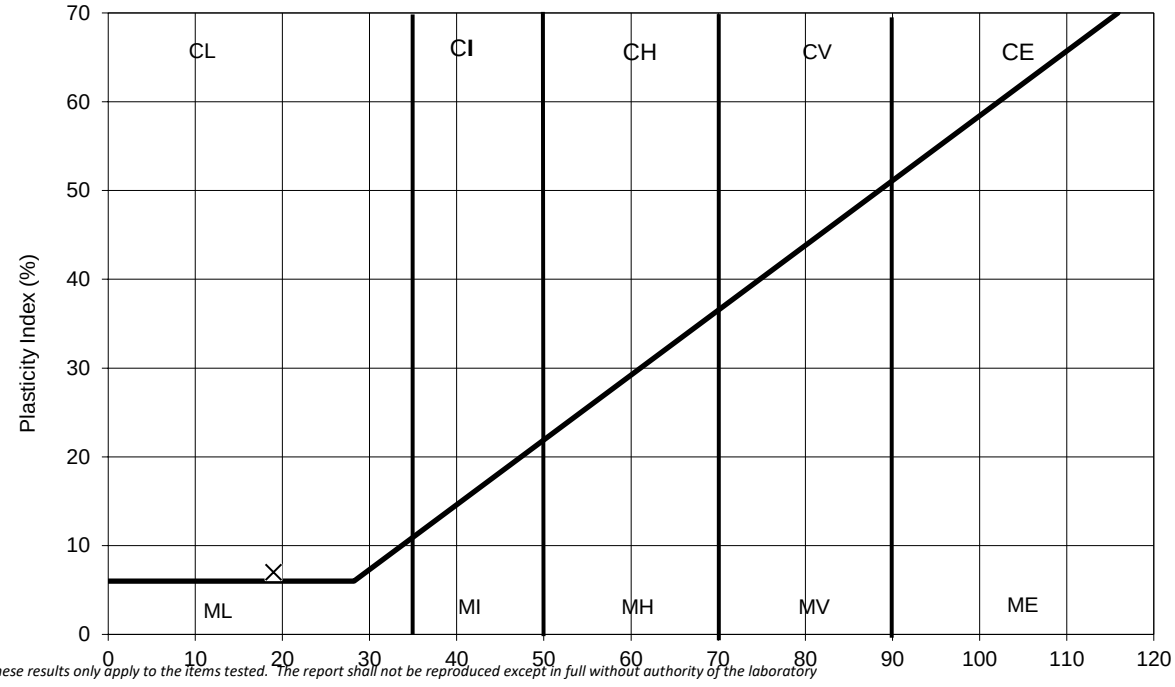
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Job No.	32282
				Borehole/Pit No.	TP-98105
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**7.0**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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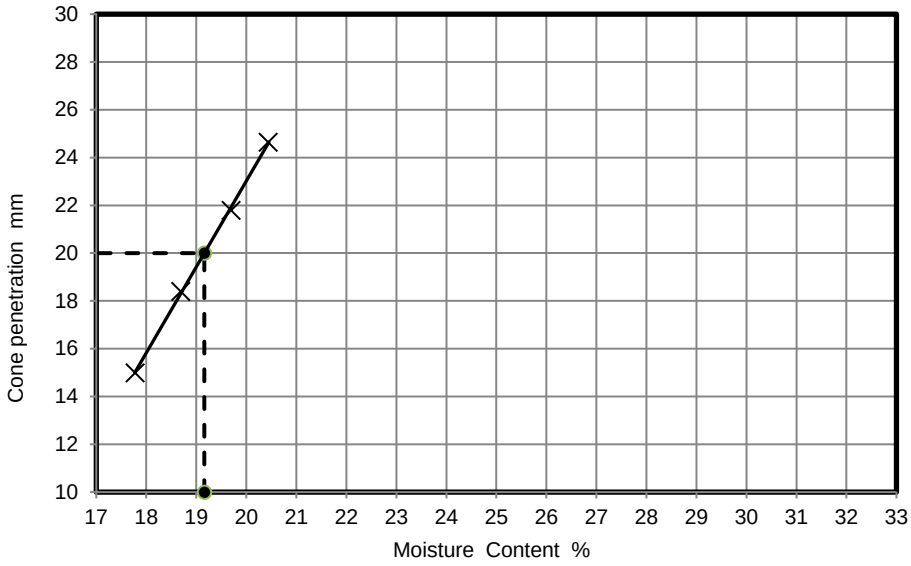
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

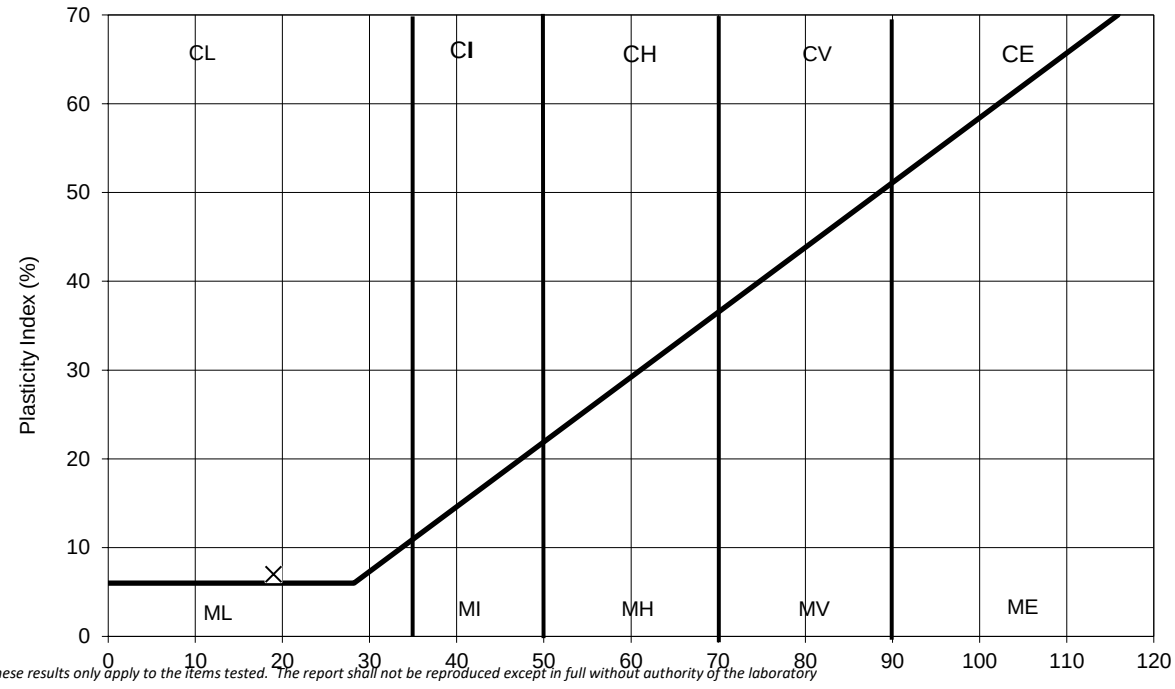
Job No.	32282				
Borehole/Pit No.	TP-98105				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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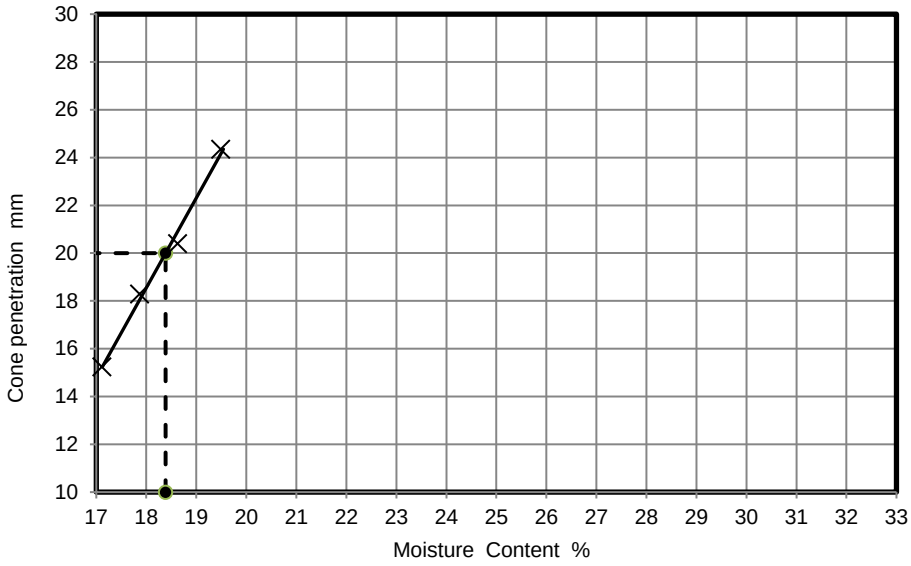
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022

Job No. 32282

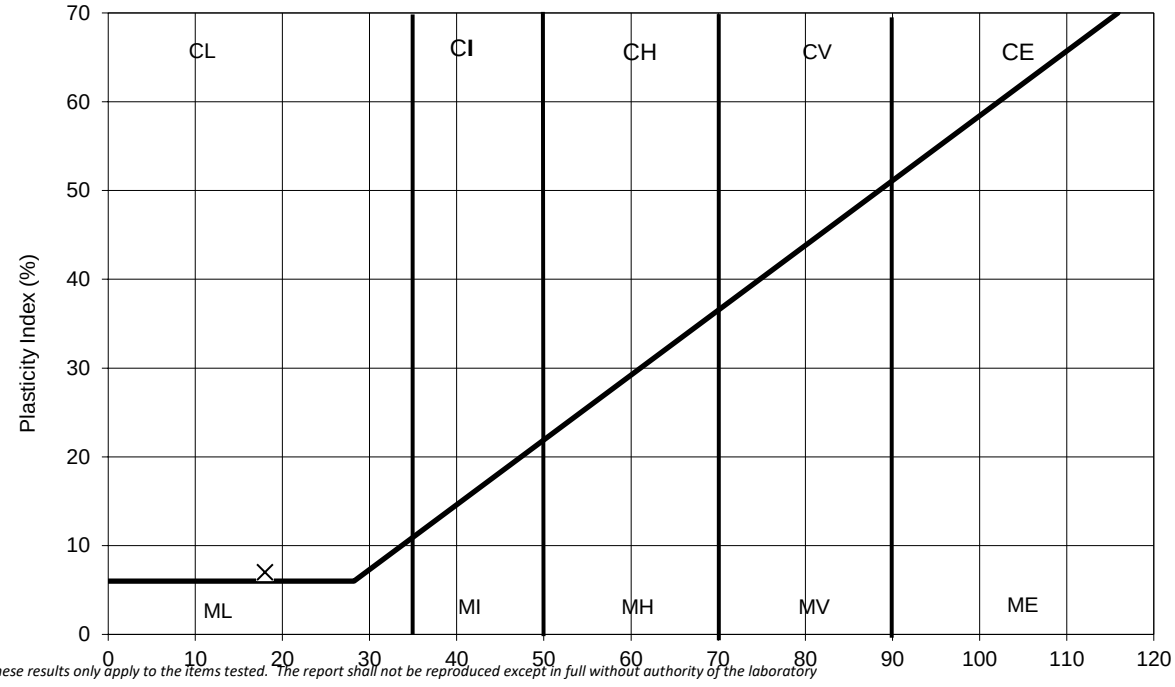
Borehole/Pit No. TP-98105



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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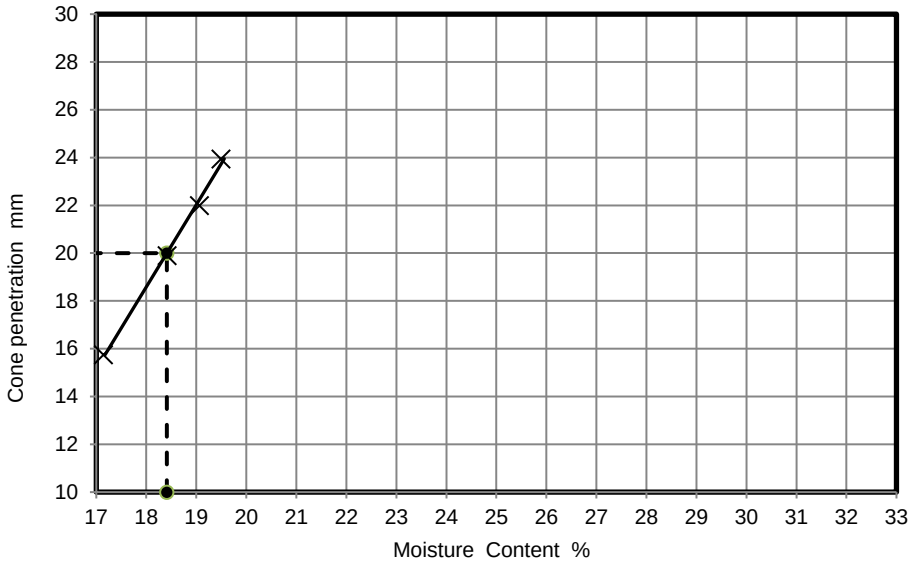
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

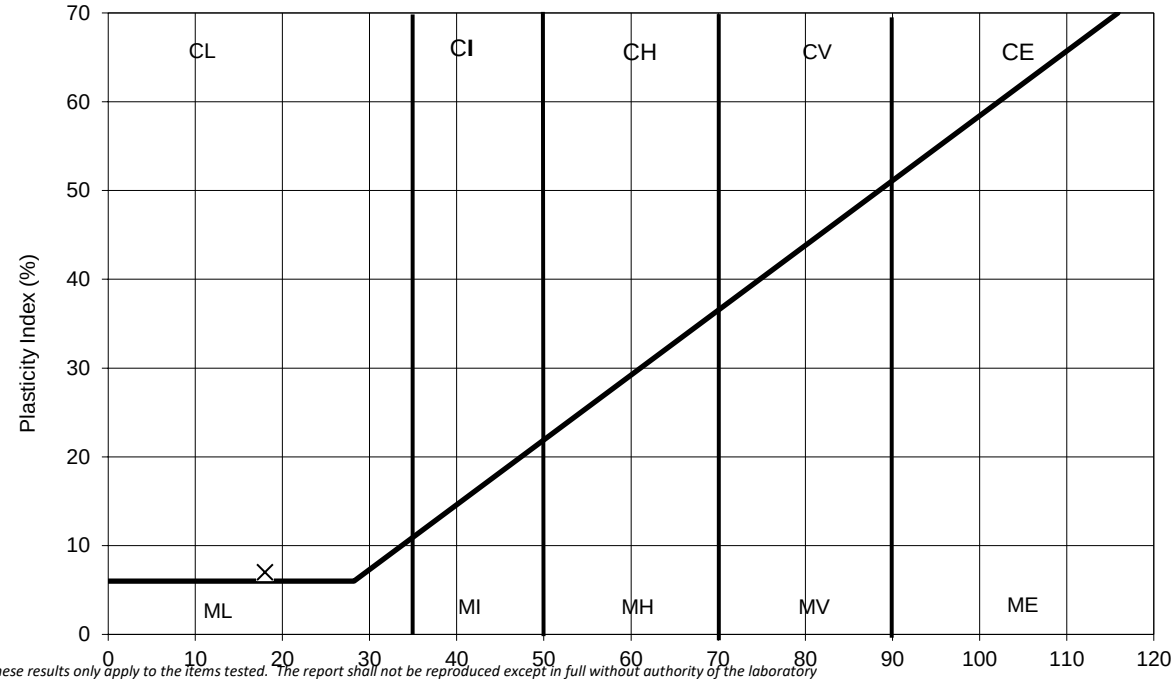
				Job No.	32282
				Borehole/Pit No.	TP-98205
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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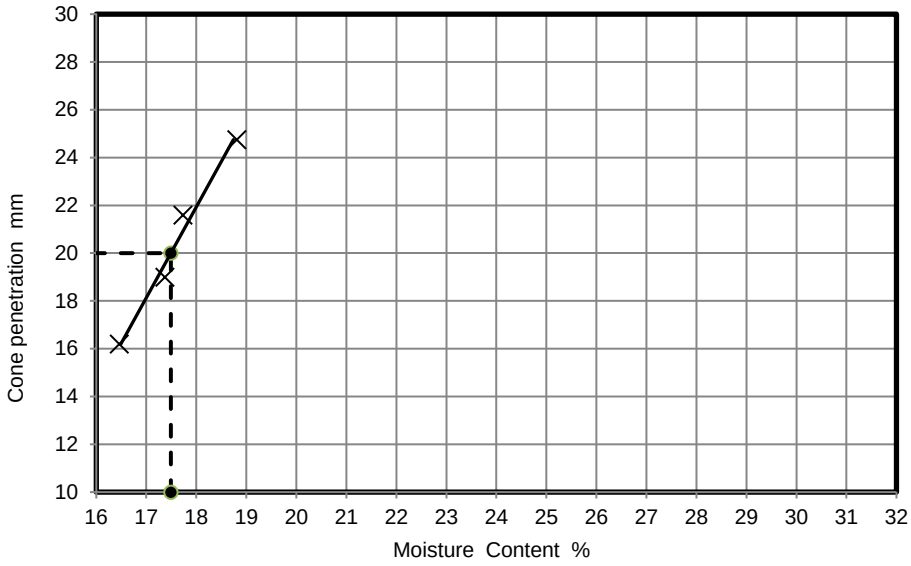
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

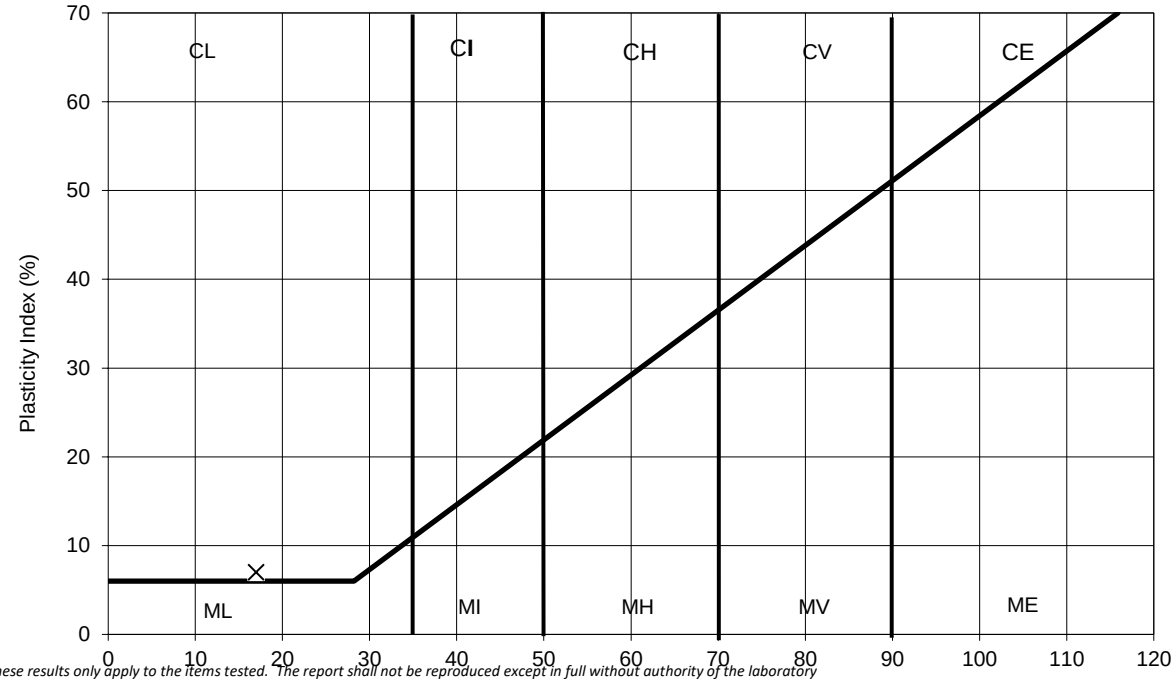
Job No.	32282				
Borehole/Pit No.	TP-98205				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

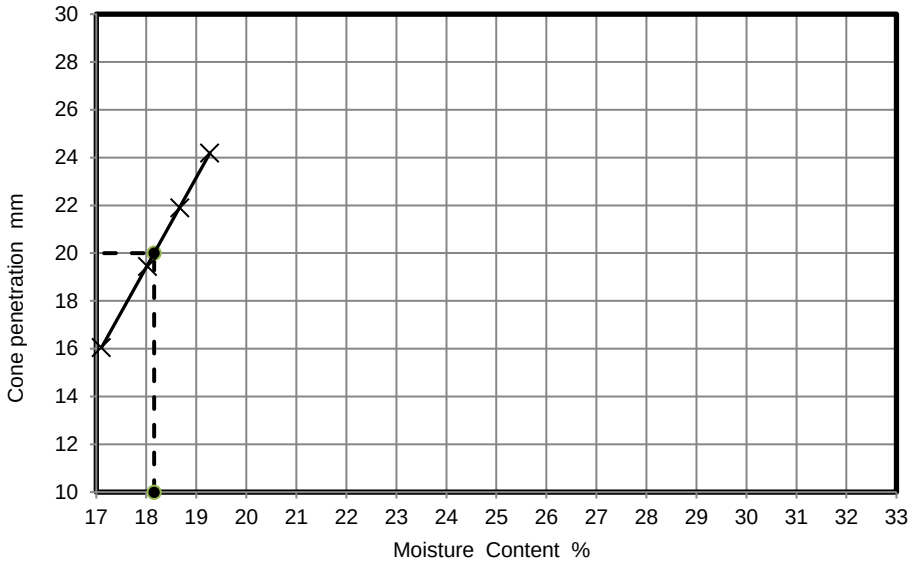
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

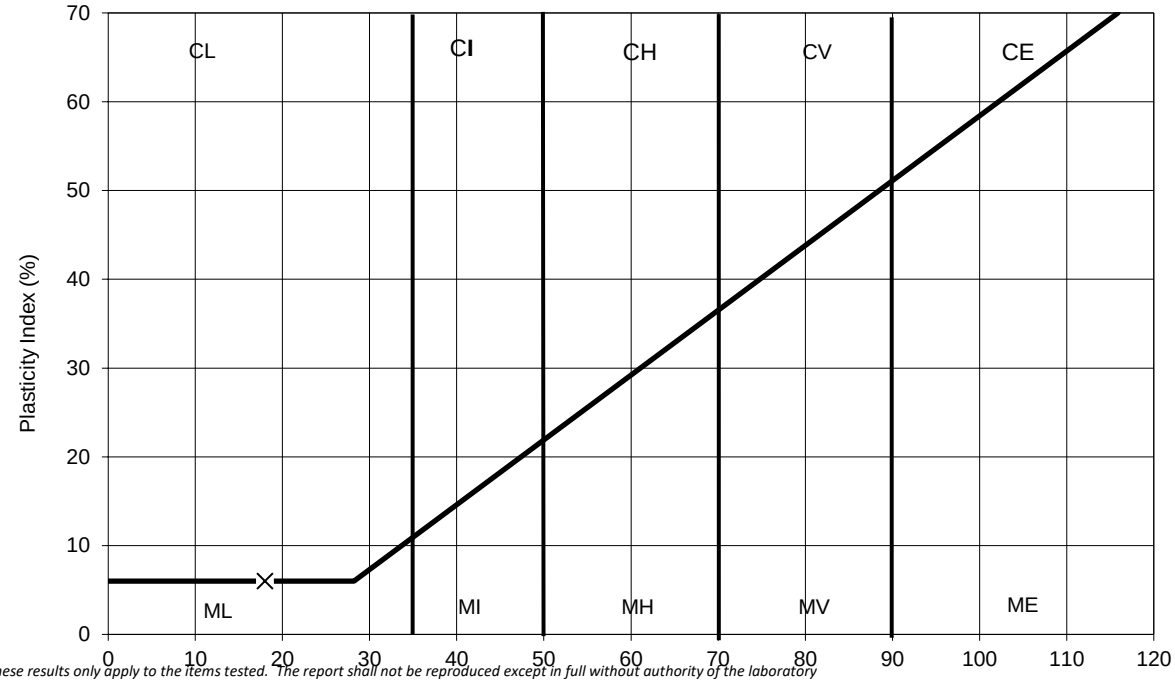
Borehole/Pit No. TP-98271



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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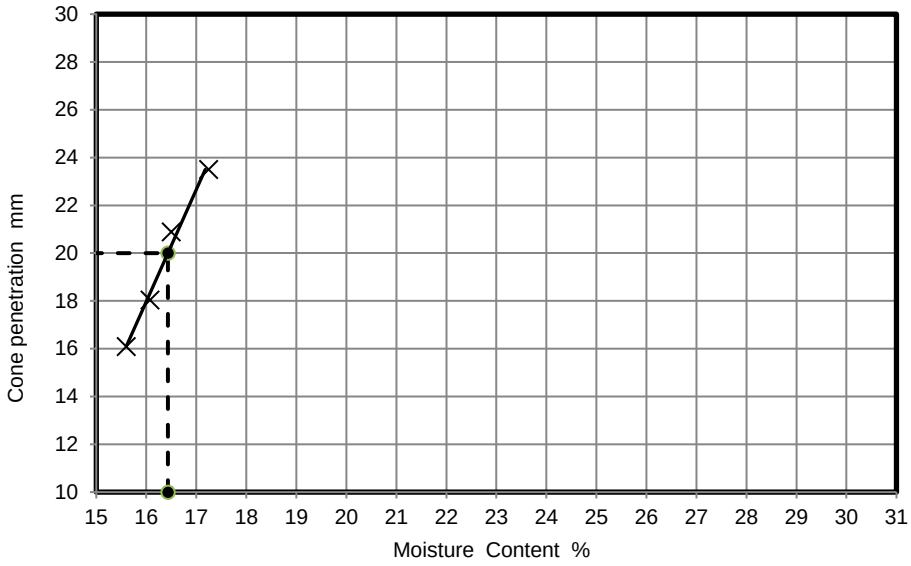
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-98271
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

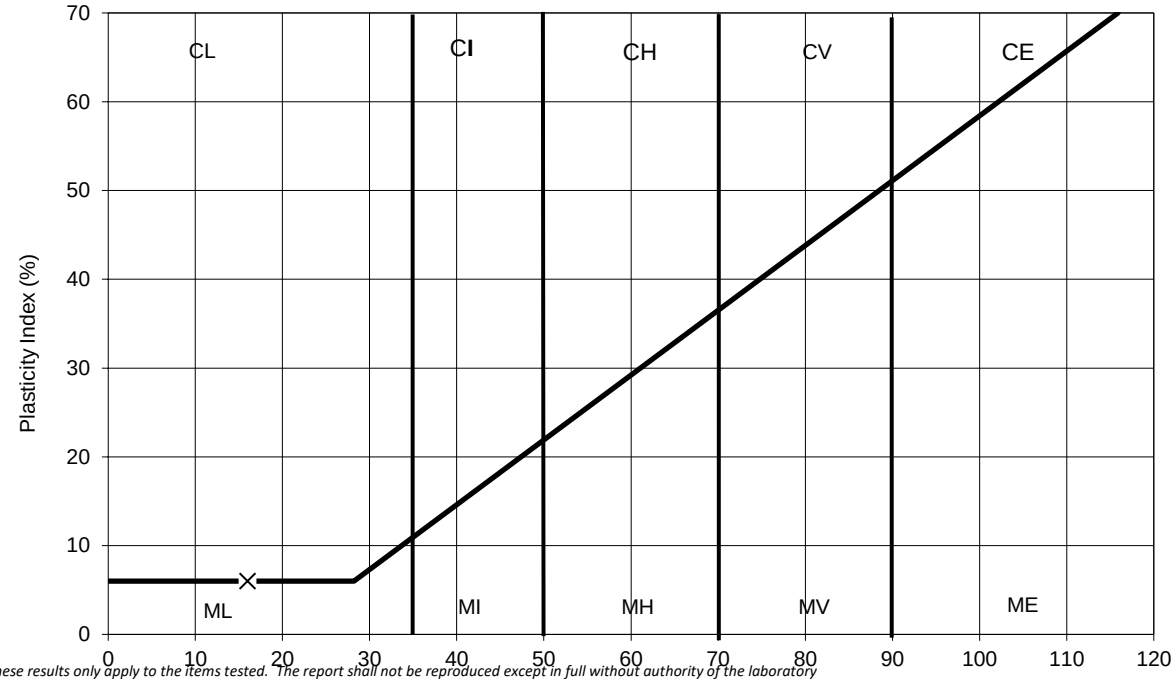


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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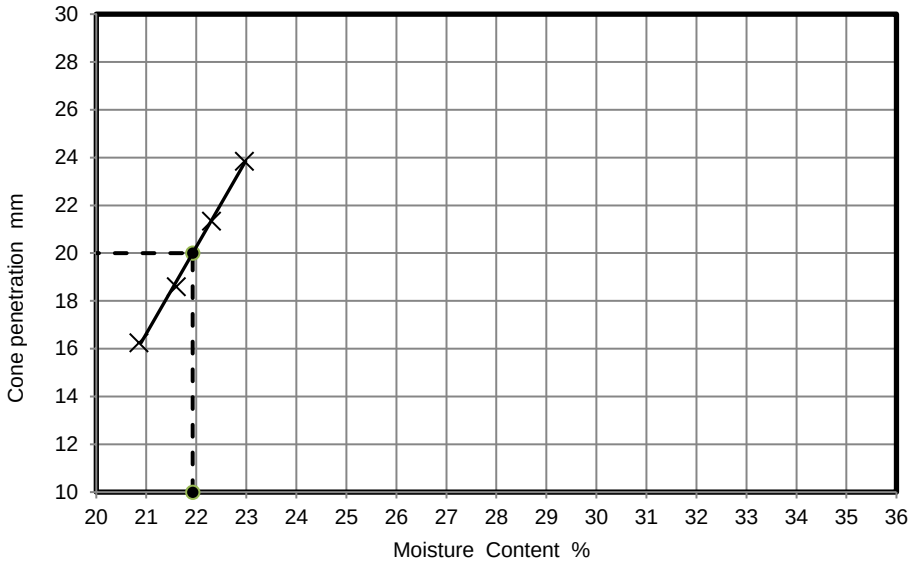
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

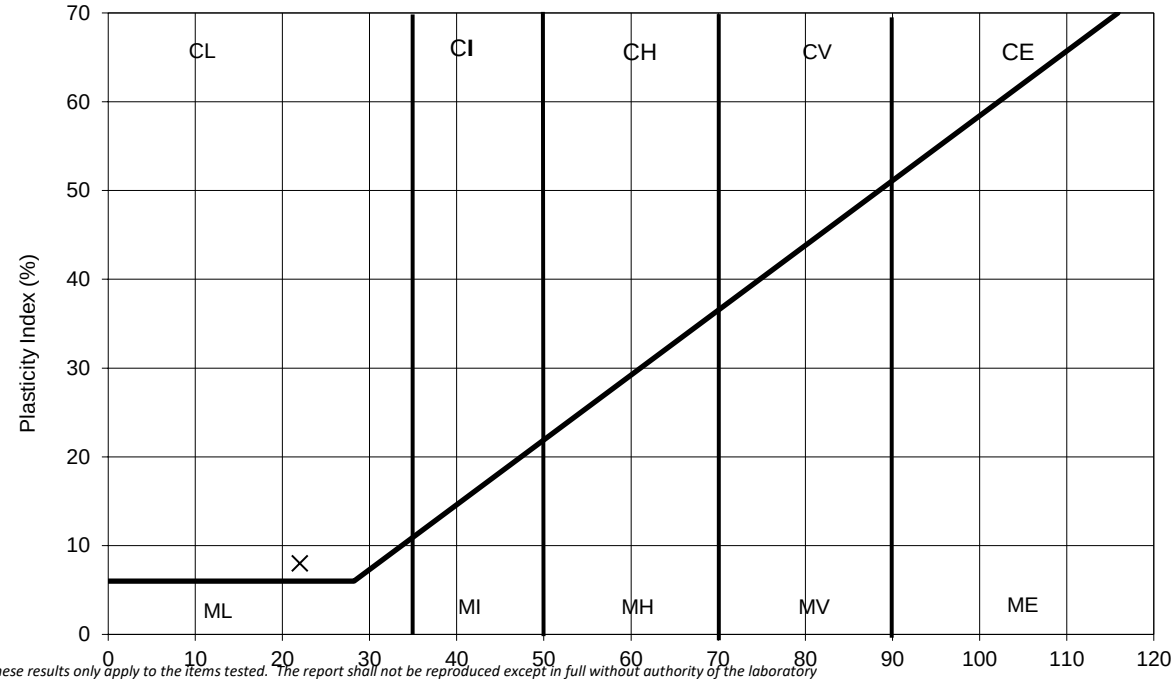
				Job No.	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	13/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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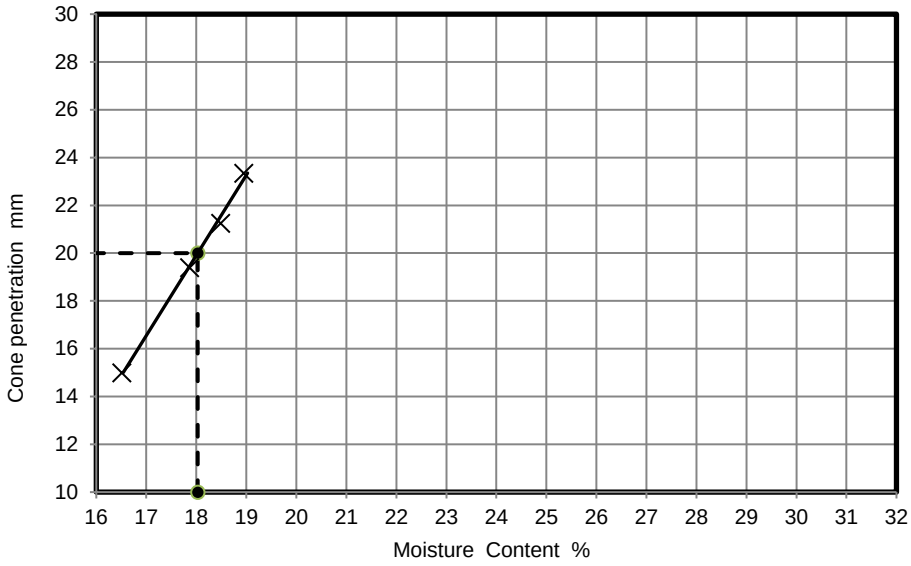
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

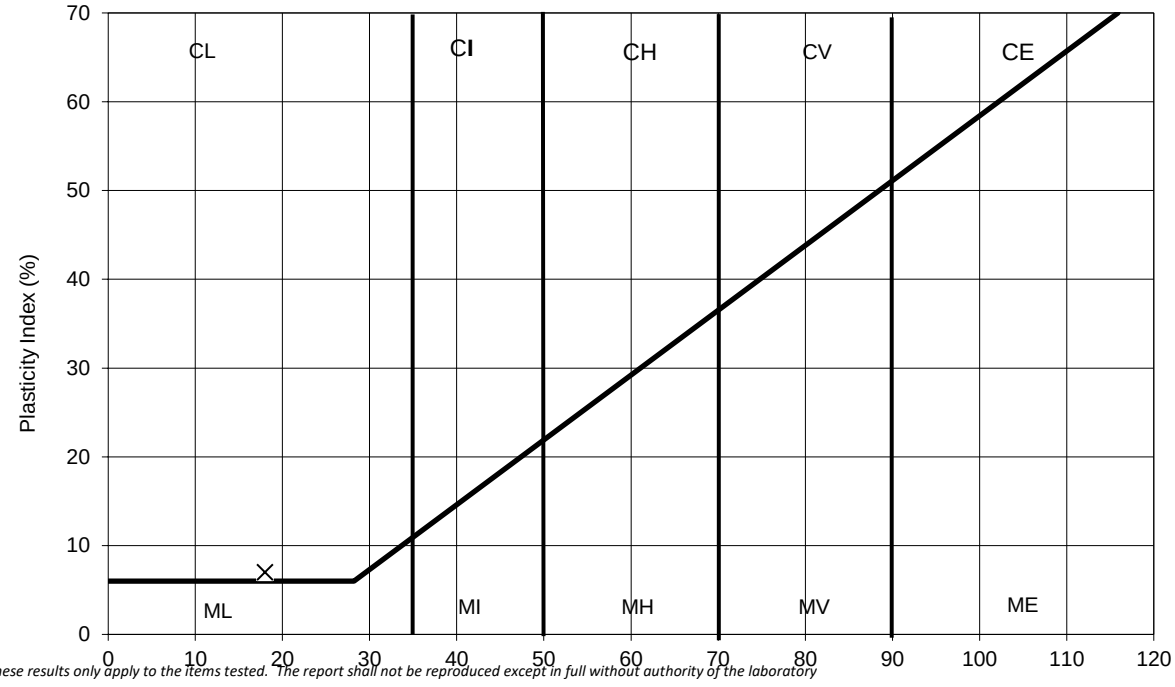
				Job No.	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Bluish grey and greenish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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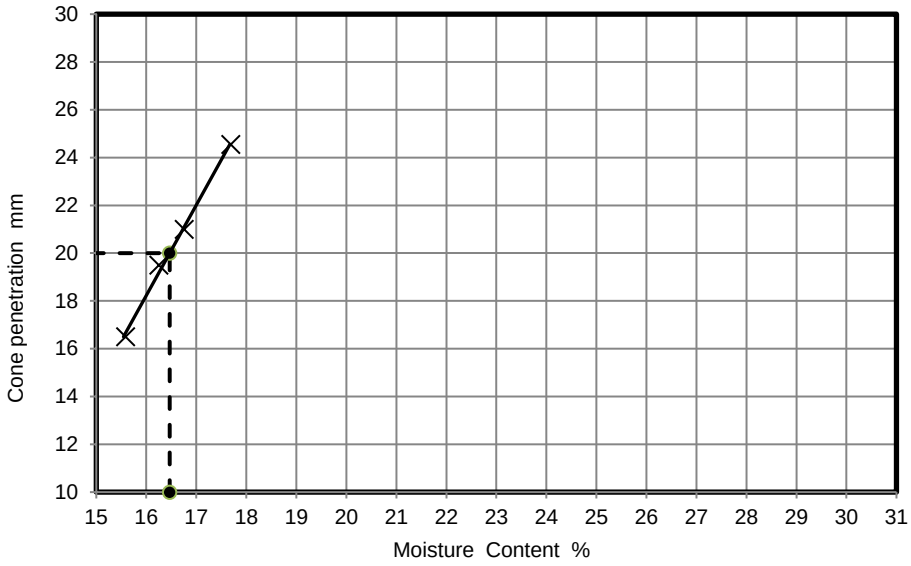
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

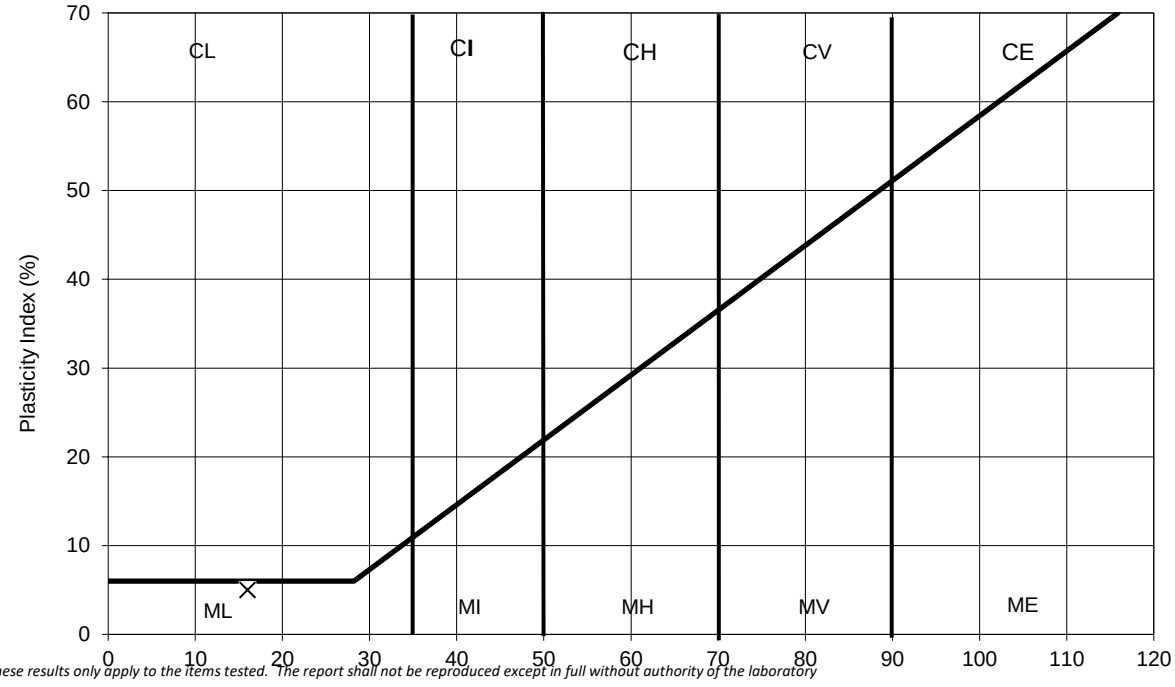
				Job No.	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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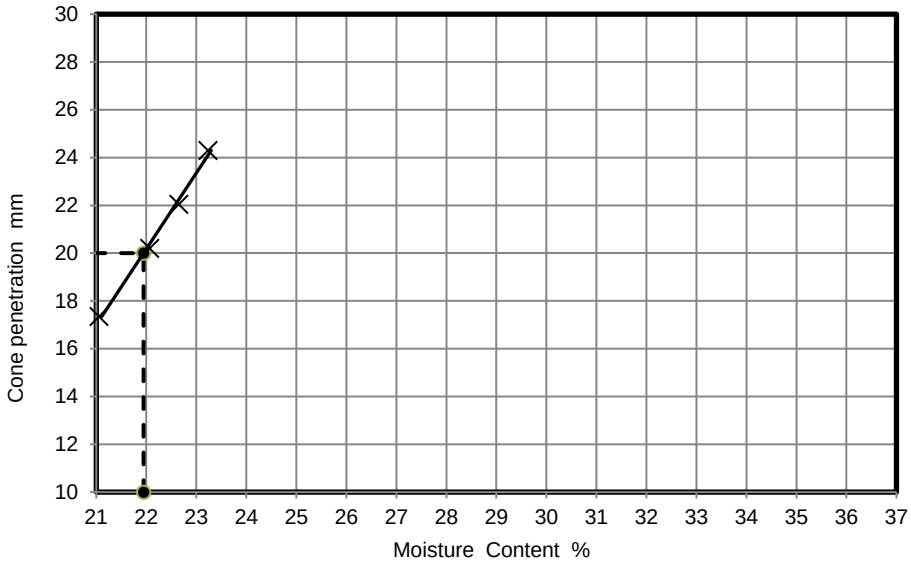
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Orangish brown and light grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

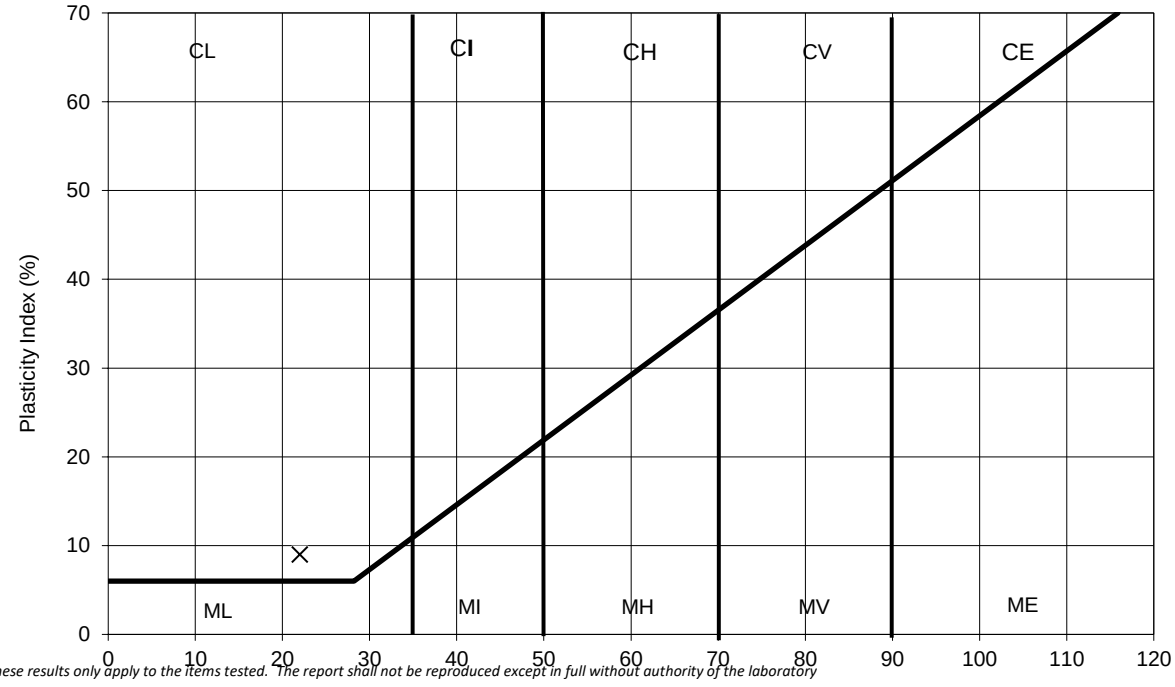
Job No.	32282
Borehole/Pit No.	TP-98502



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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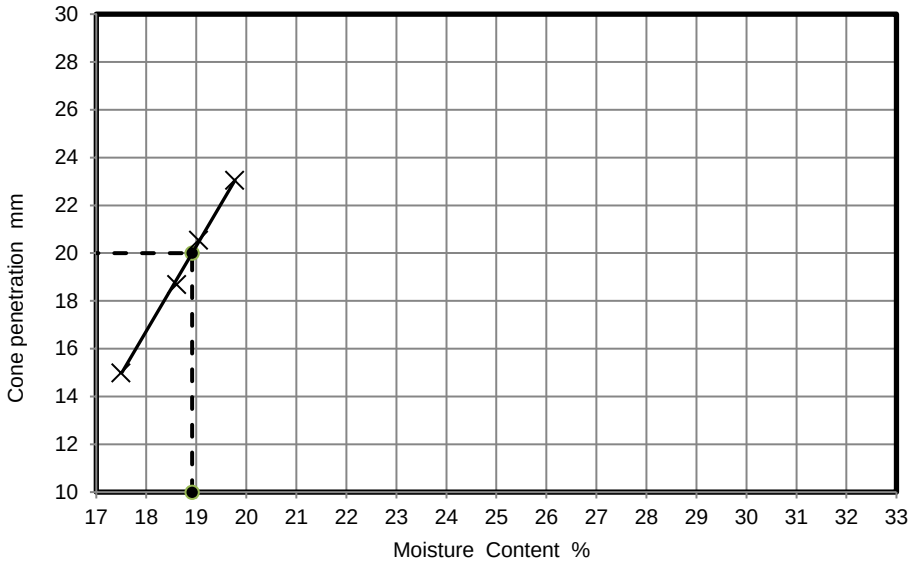
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

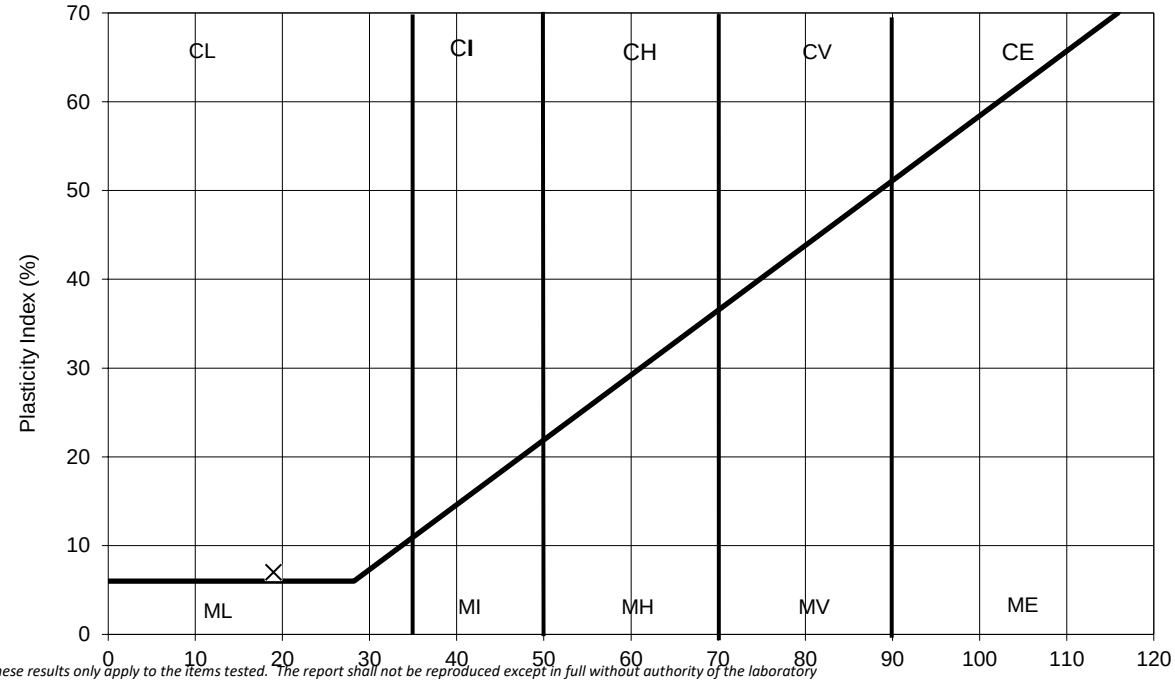
				Job No.	32282
				Borehole/Pit No.	TP-98502
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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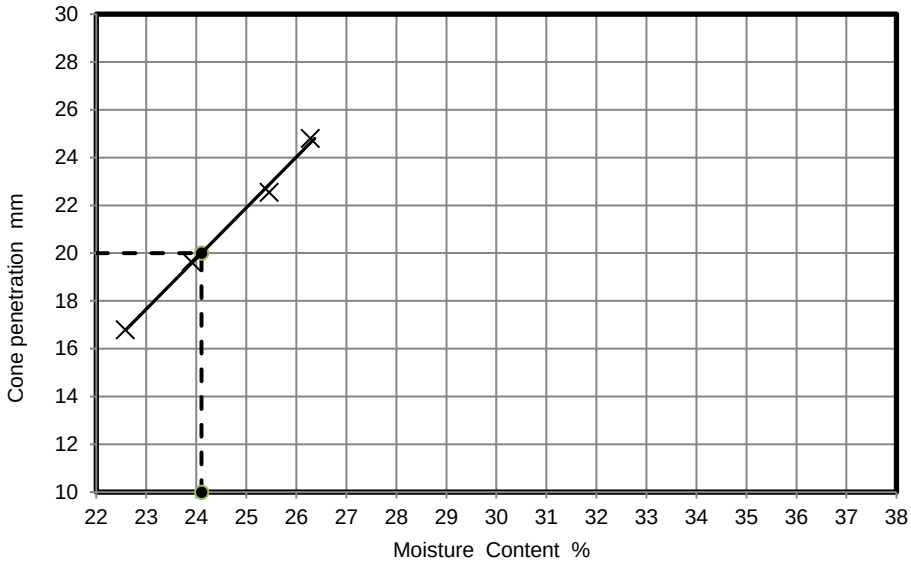
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fm and sub-anguar to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

Job No. 32282

Borehole/Pit No. TP-98602

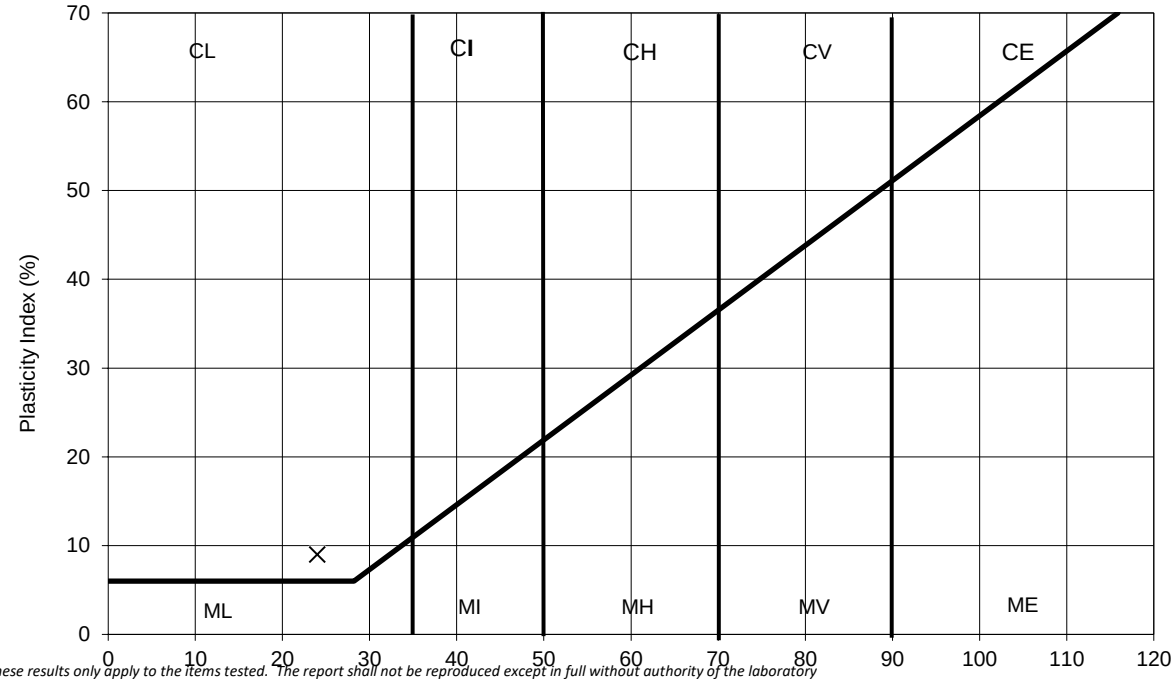


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**88**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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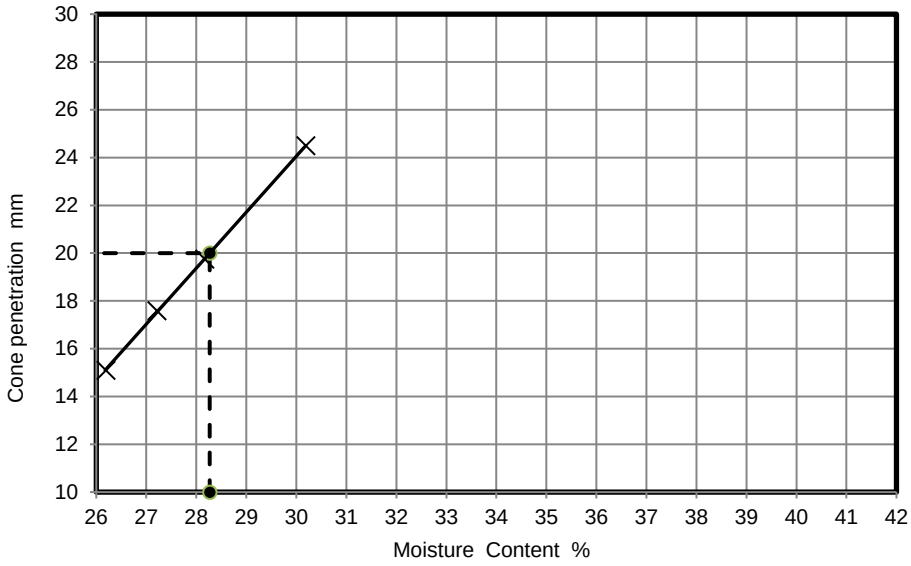
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-98702
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fmc angular to sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

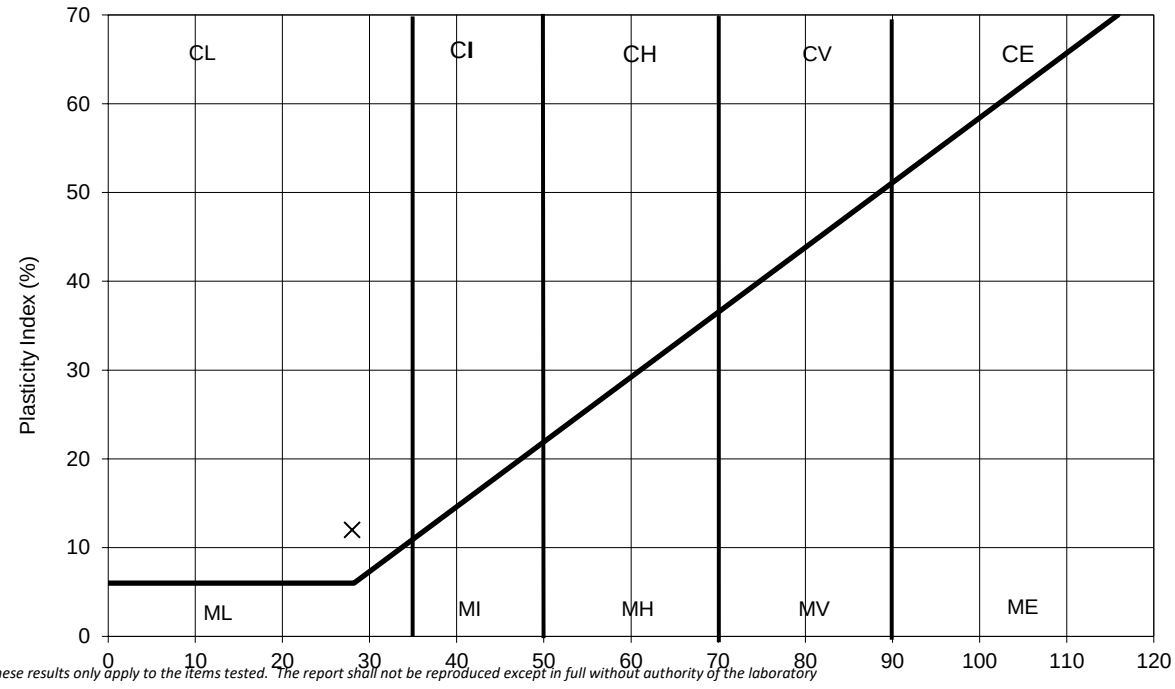


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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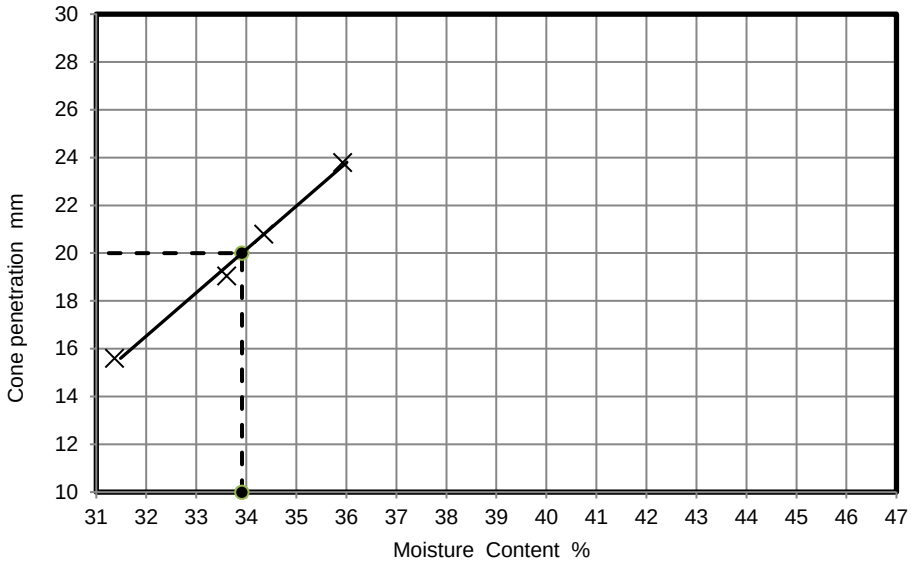
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

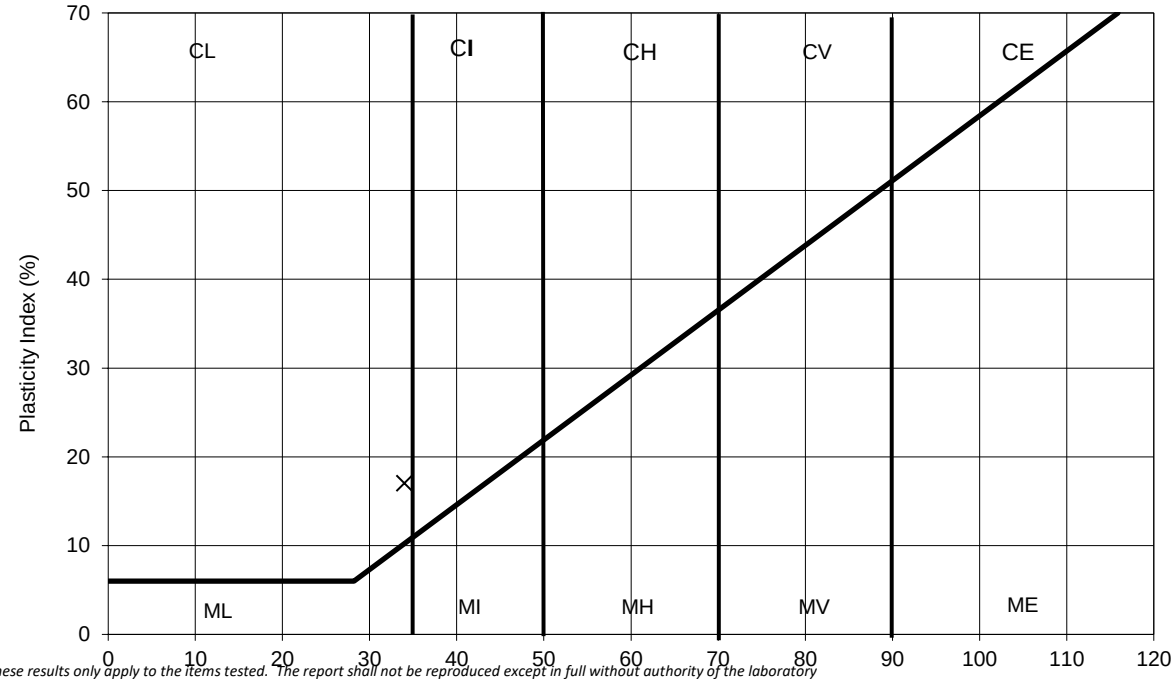
Job No.	32282				
Borehole/Pit No.	TP-98805				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**34**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**17**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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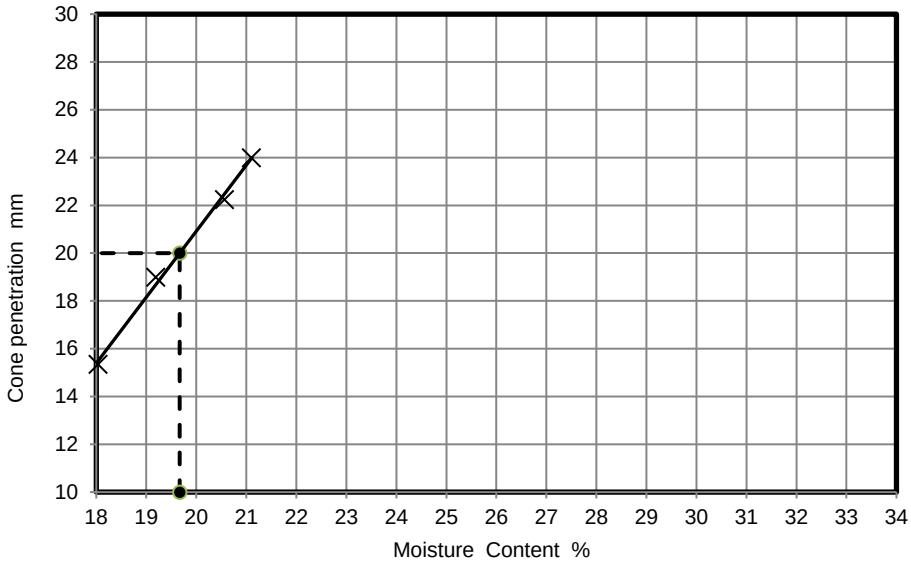
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

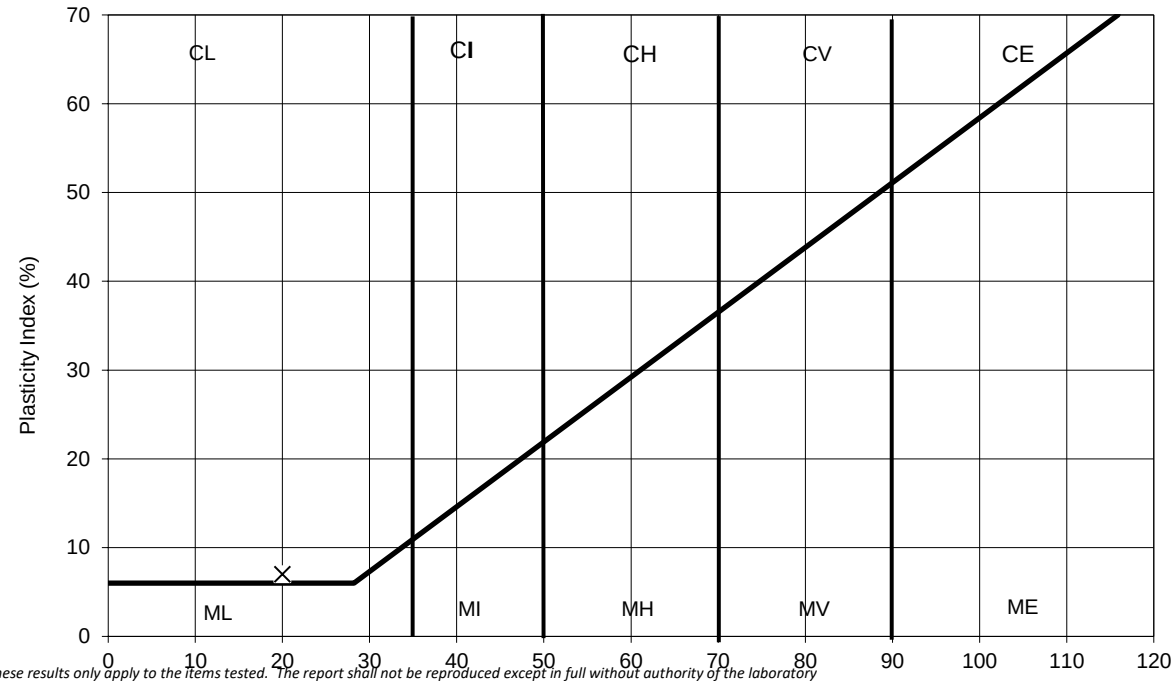
Job No.	32282				
Borehole/Pit No.	TP-98805				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

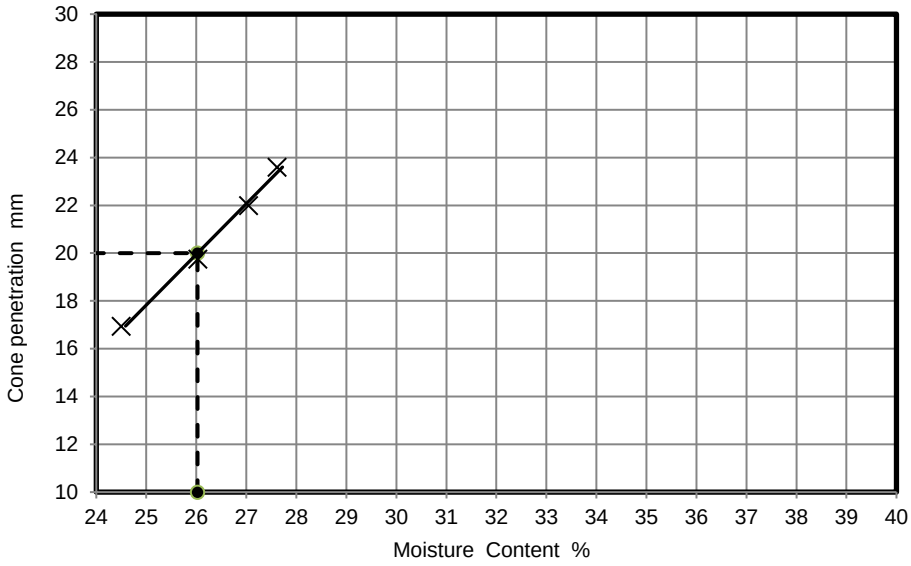
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

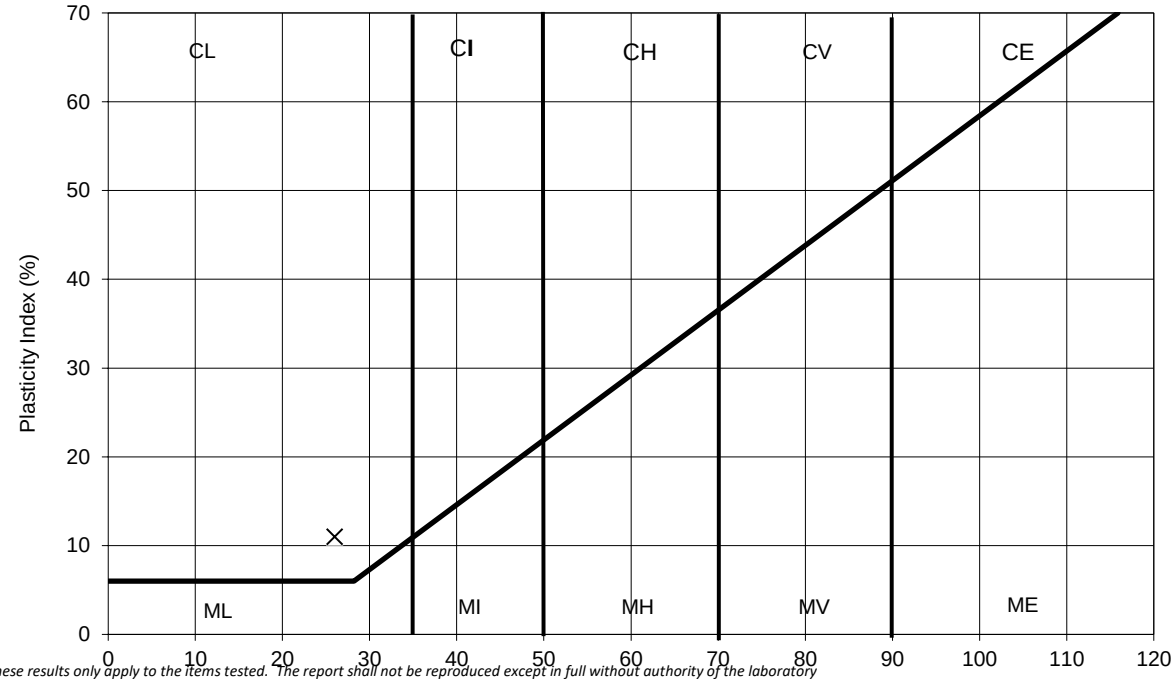
Borehole/Pit No. TP-98805



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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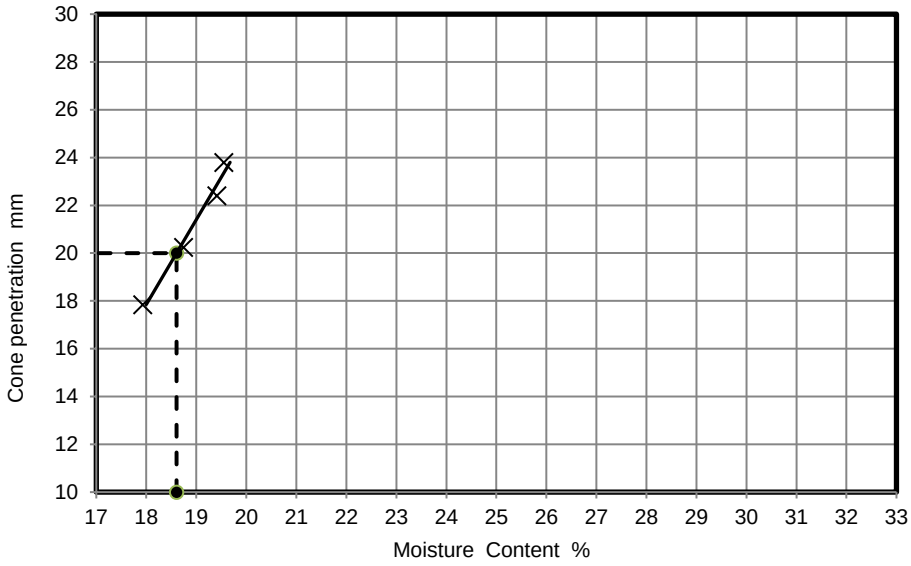
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

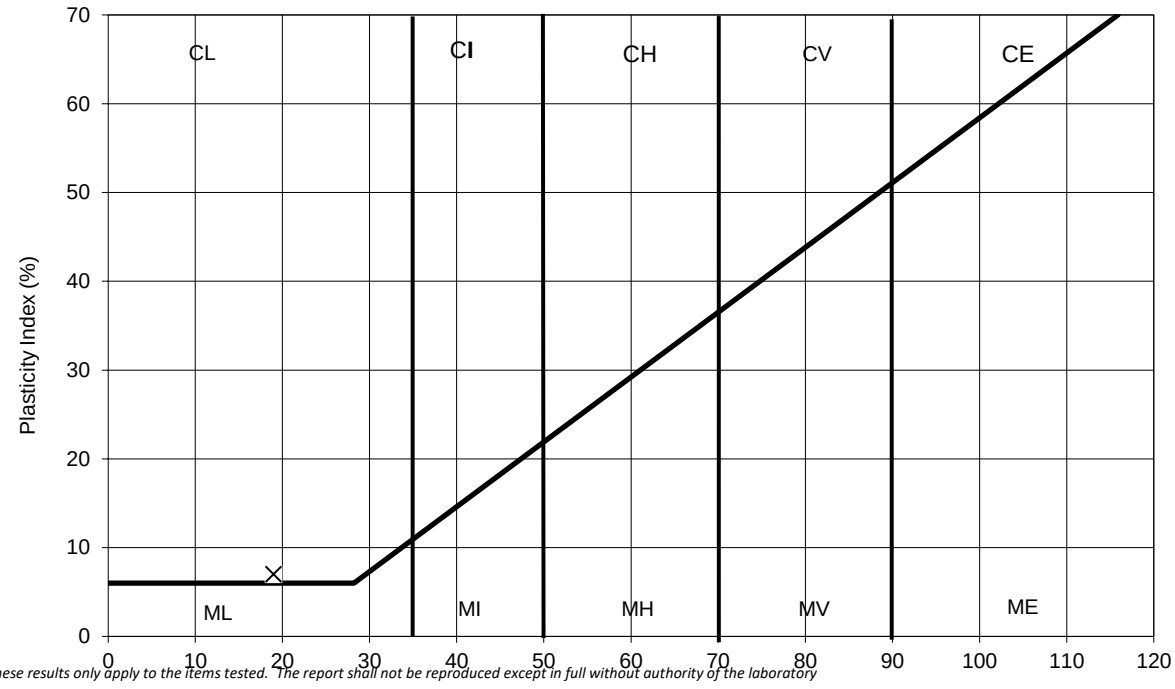
				Job No.	32282
				Borehole/Pit No.	TP-98904
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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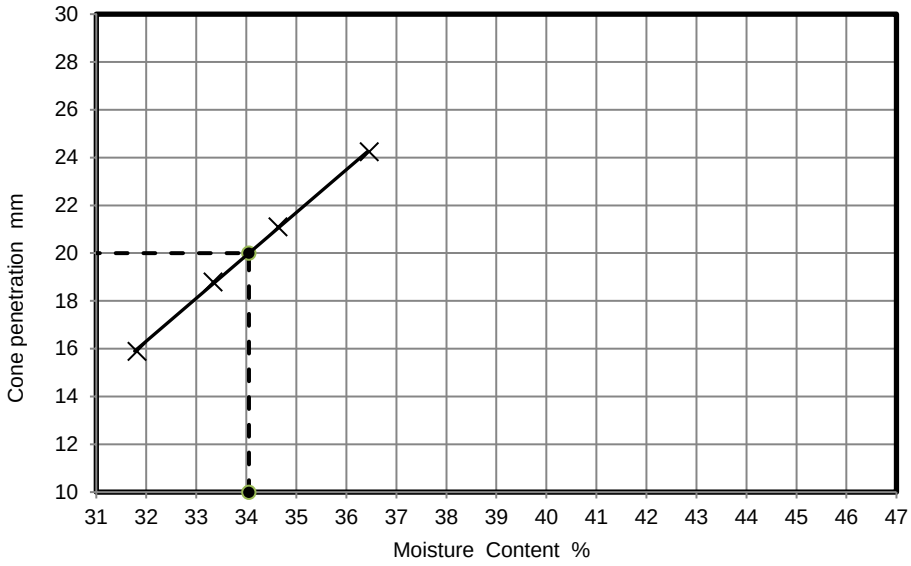
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

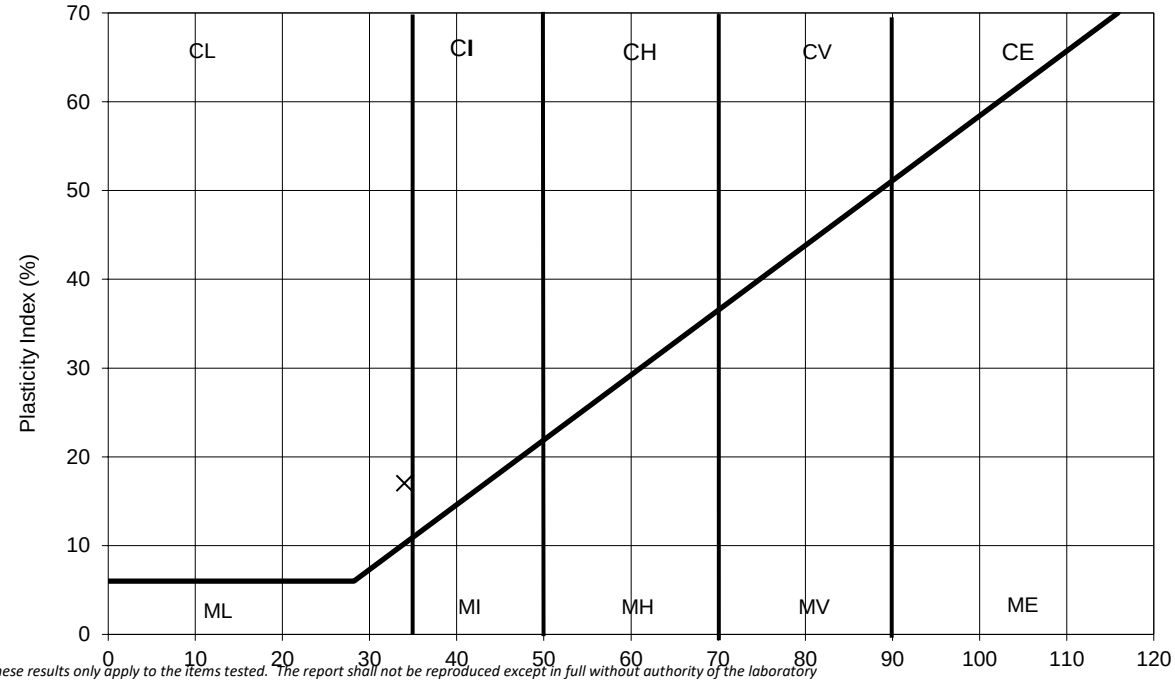
				Job No.	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**22**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**34**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**17**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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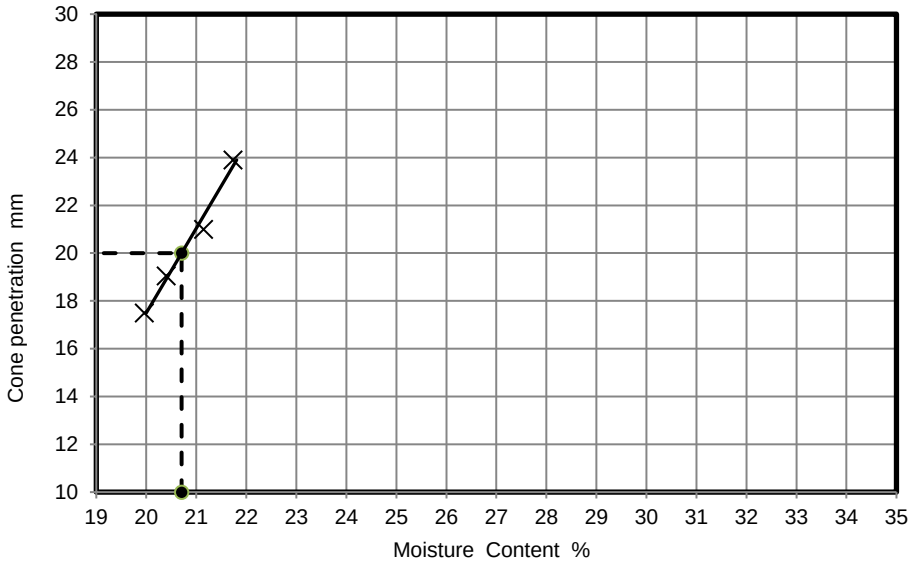
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

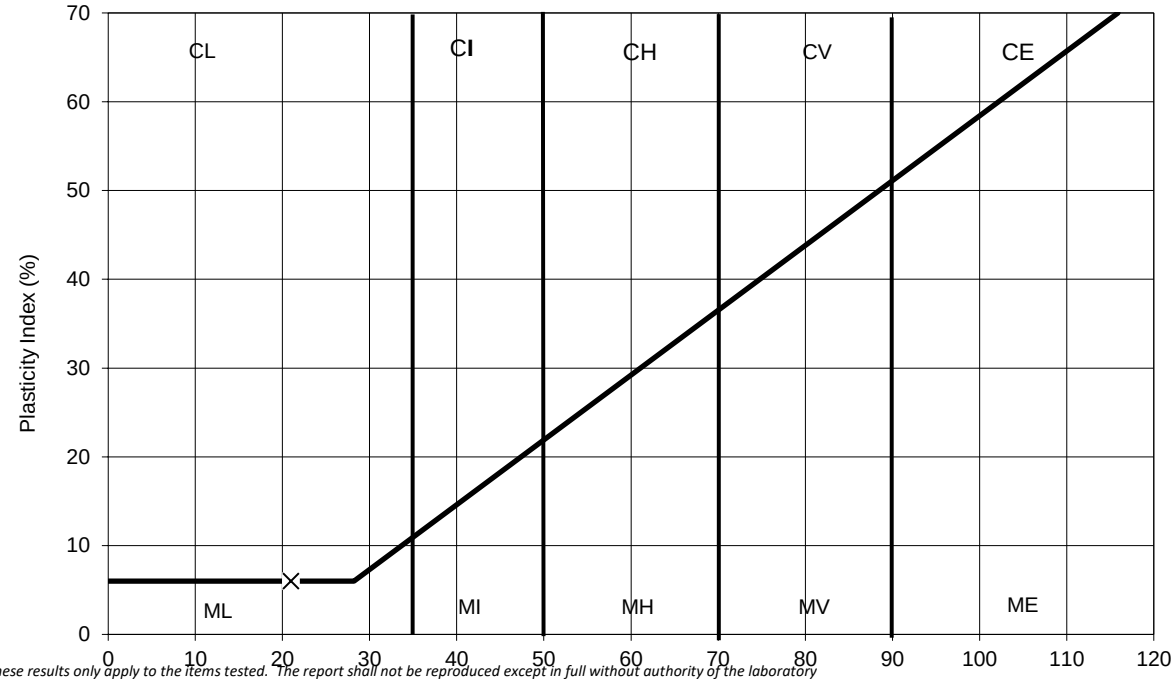
				Job No.	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly gravelly fine sandy clayey SILT (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**96**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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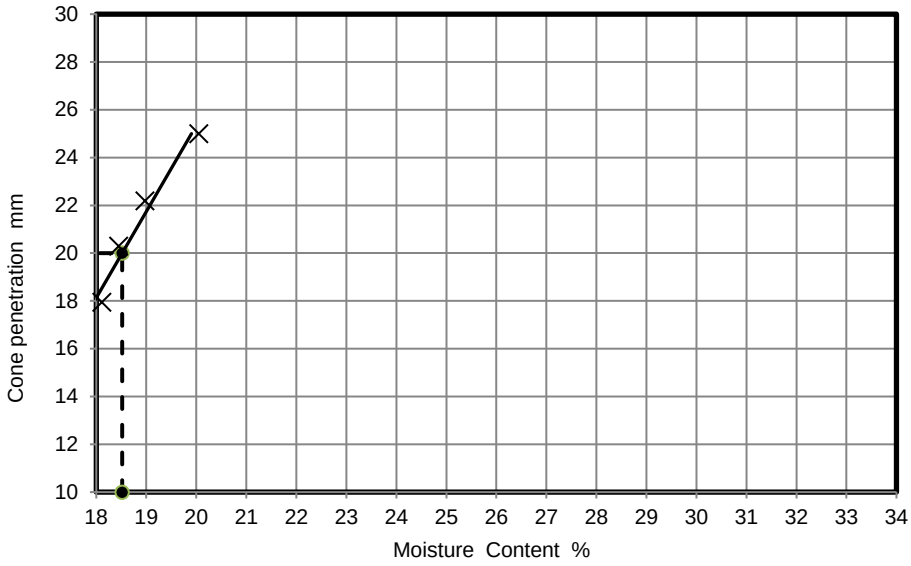
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

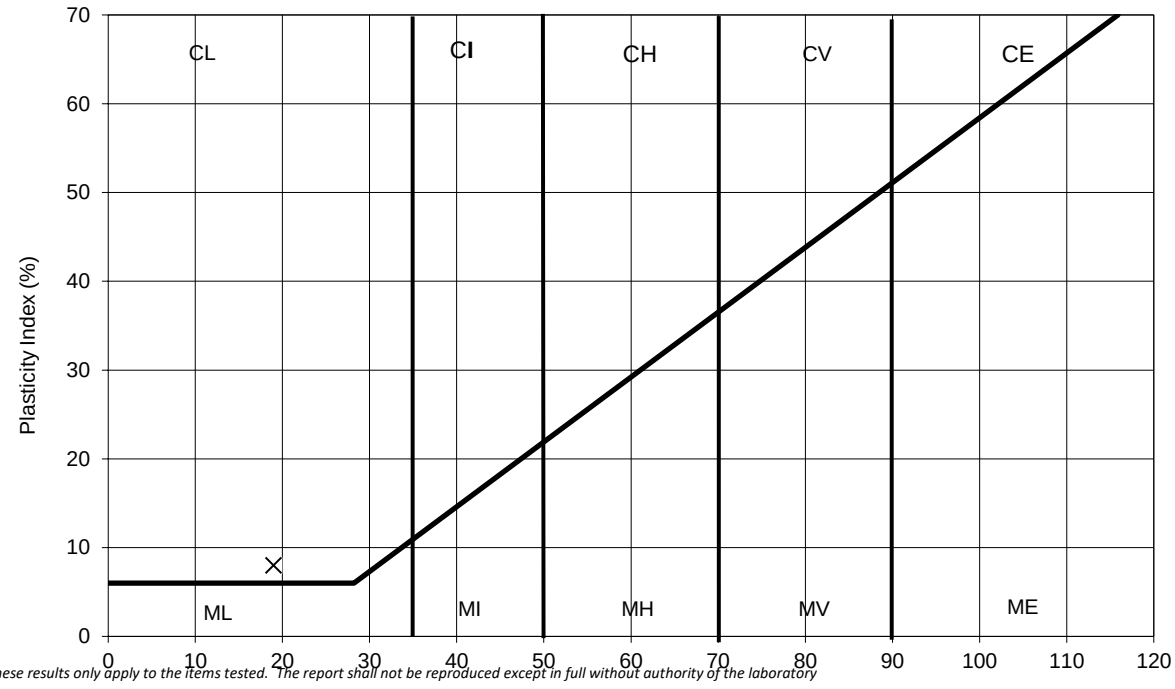
				Job No.	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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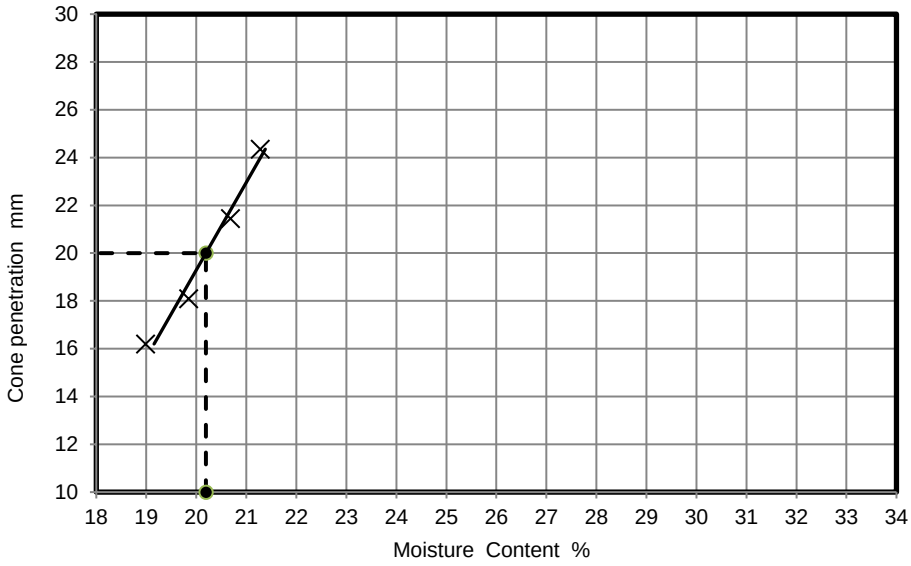
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99105
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

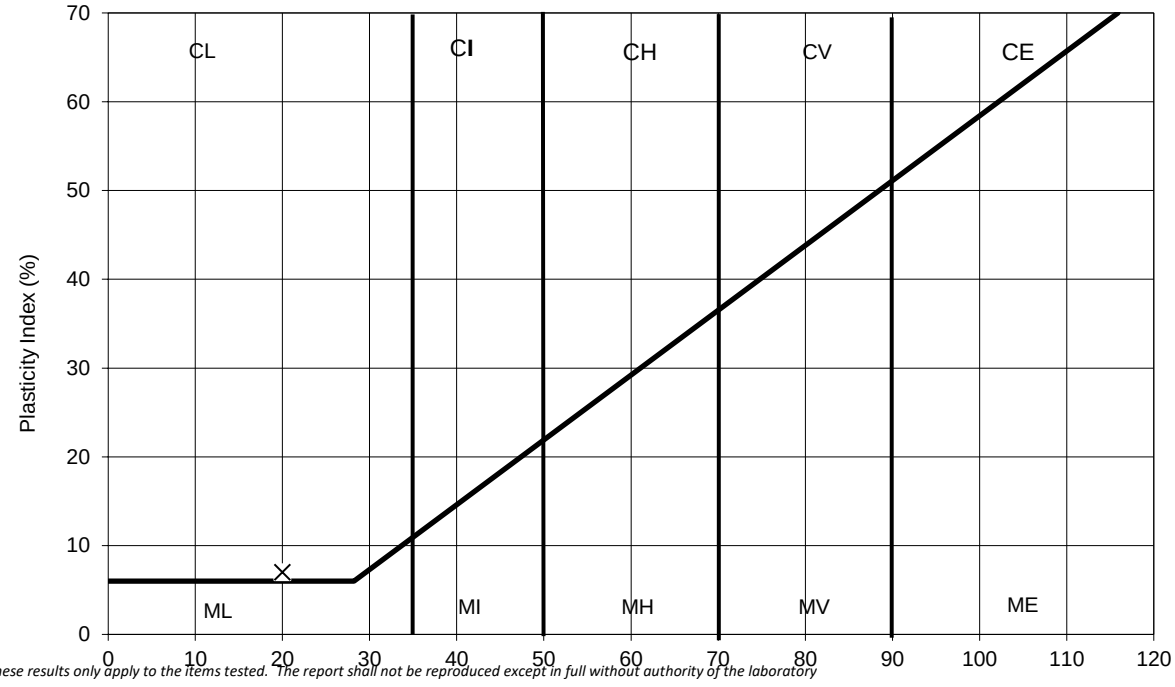


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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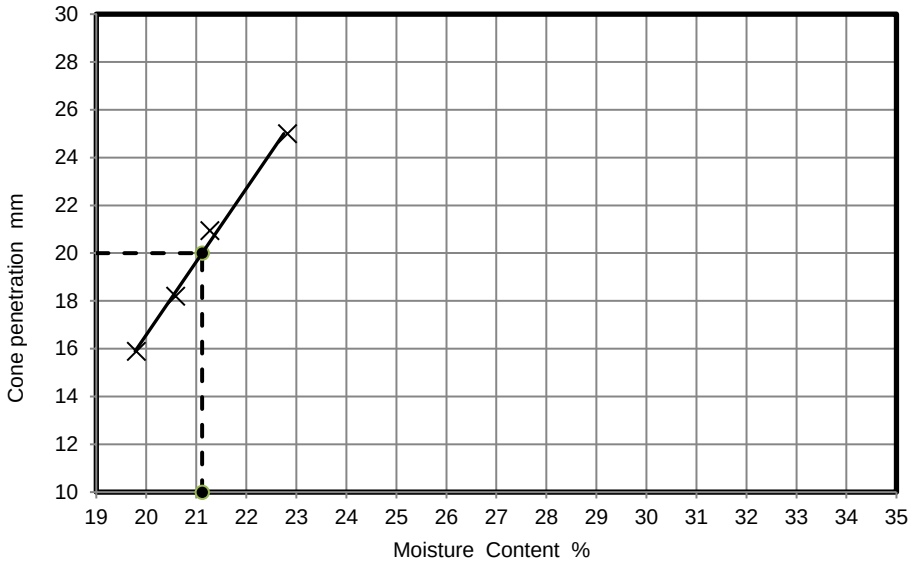
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-99105				
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

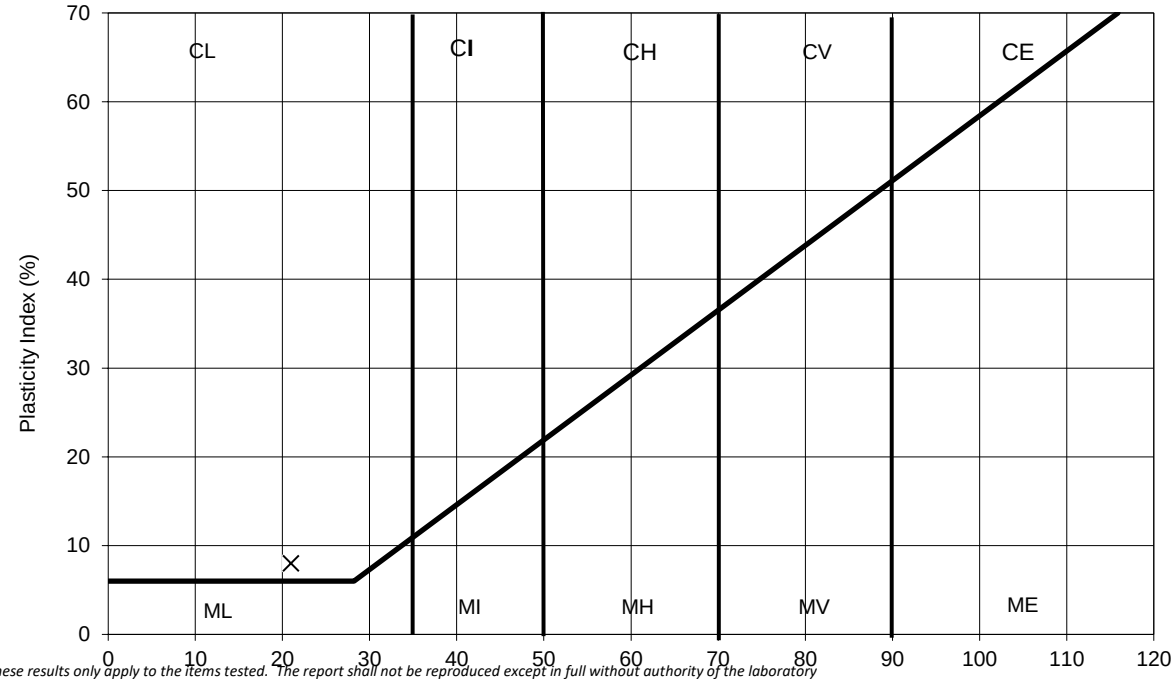


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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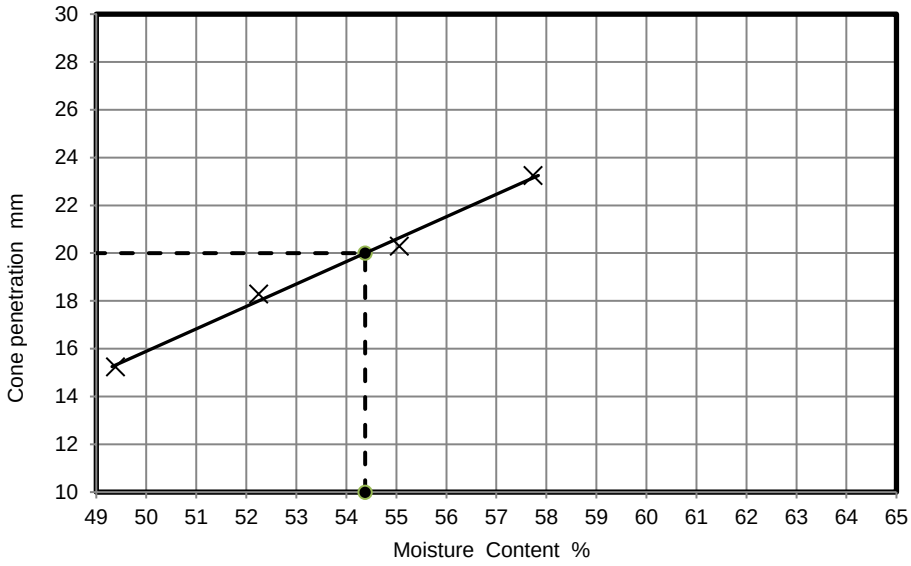
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

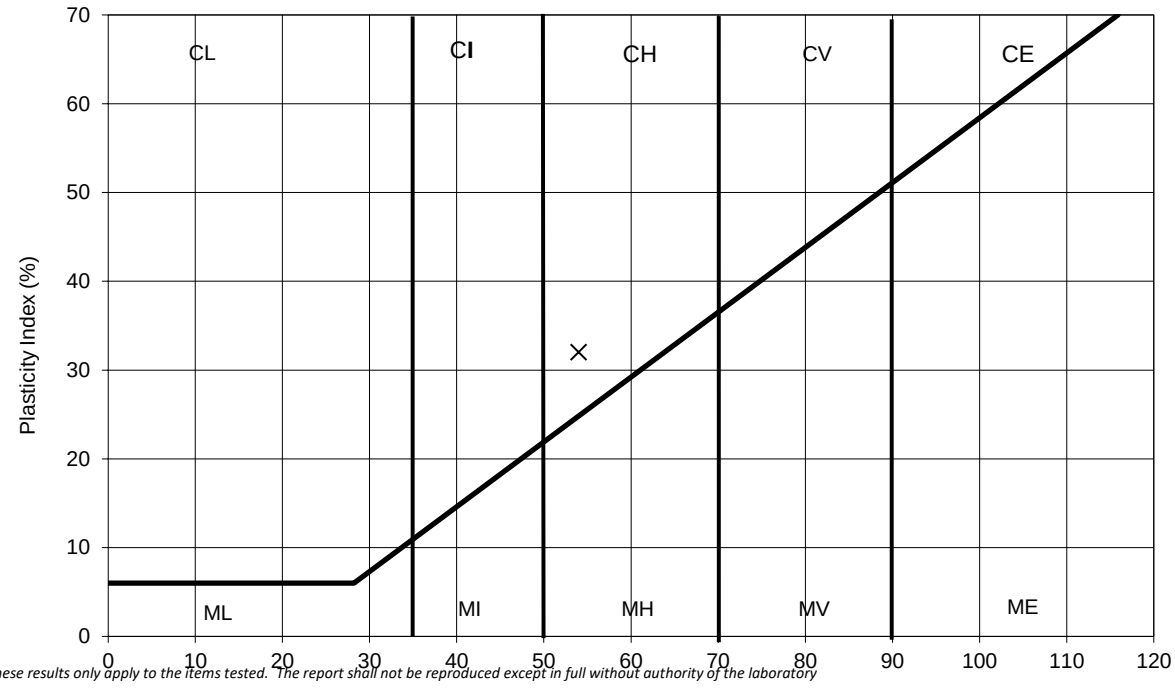
				Job No.	32282
				Borehole/Pit No.	TP-99206
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly sandy silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/11/2022



NATURAL MOISTURE CONTENT	**27**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**54**	**%**
PLASTIC LIMIT	**22**	**%**
PLASTICITY INDEX	**32**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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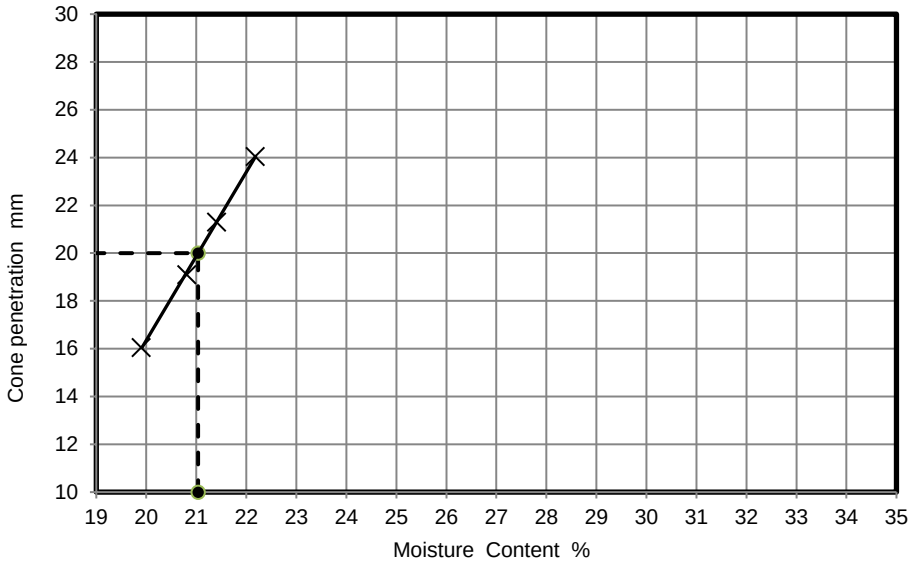
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

Job No. 32282

Borehole/Pit No. TP-99206

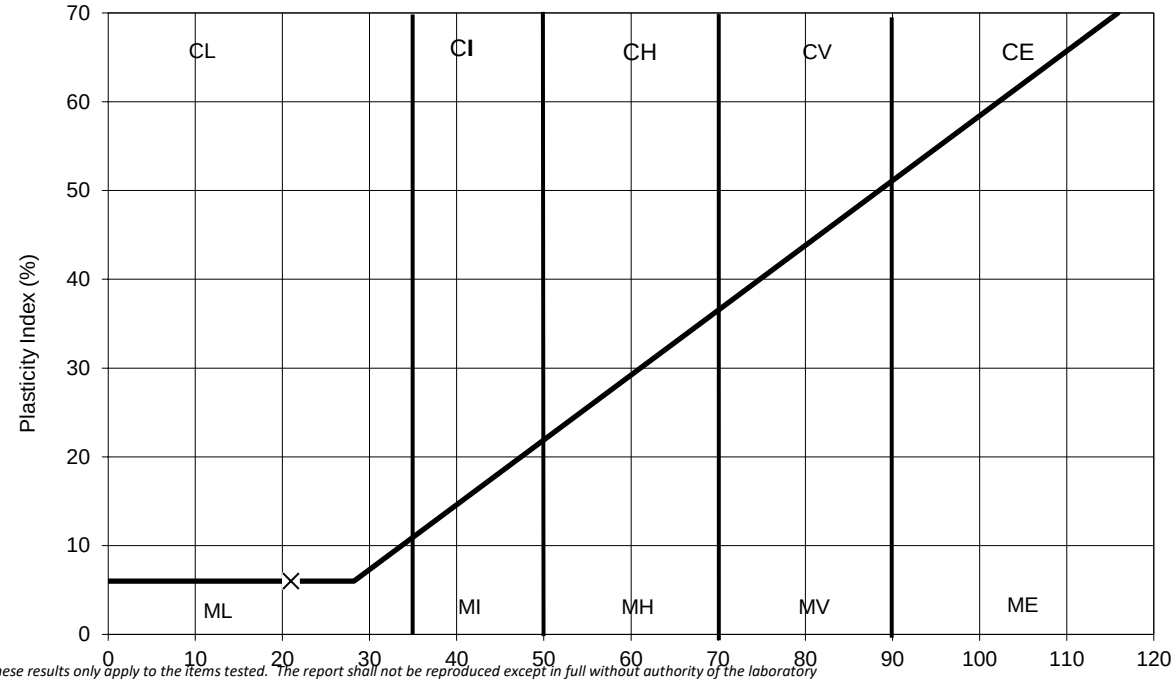


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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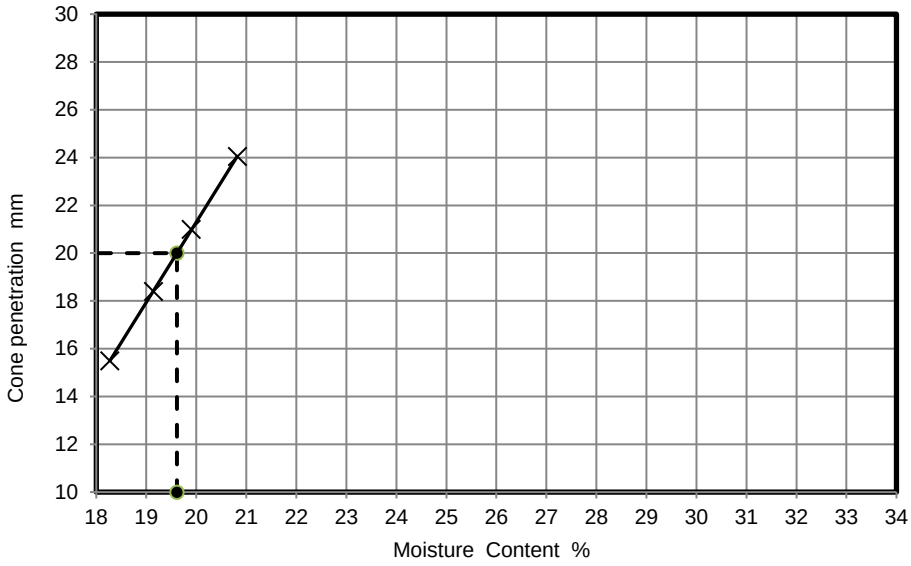
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99206
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy slighty gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

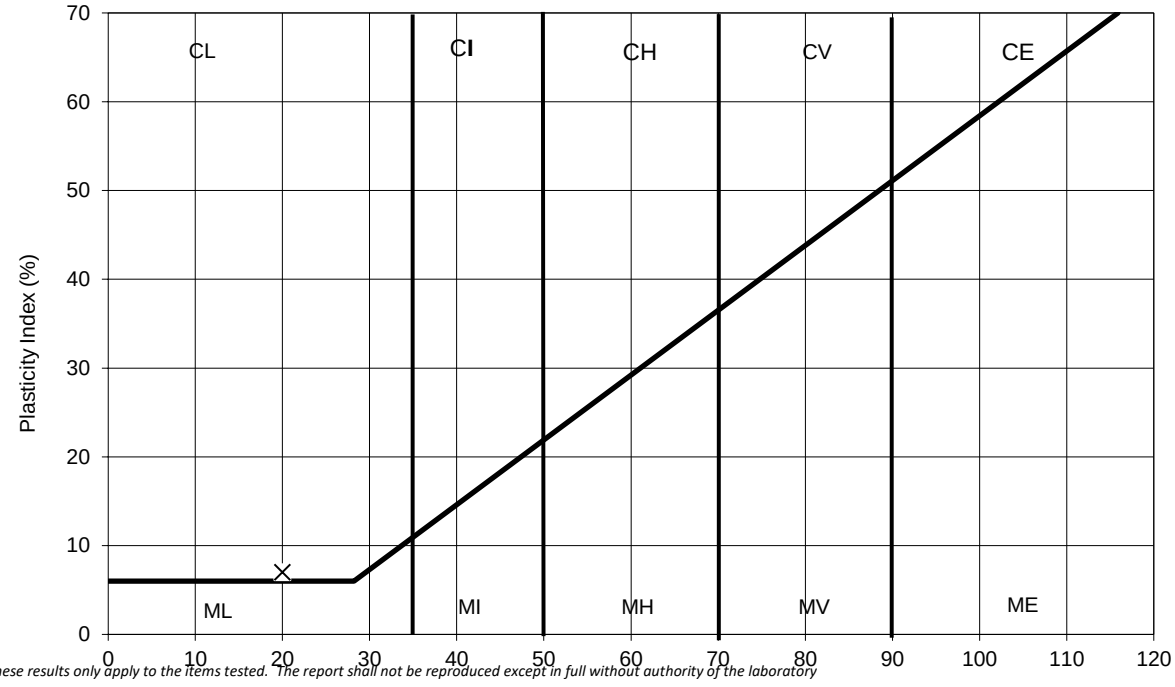


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

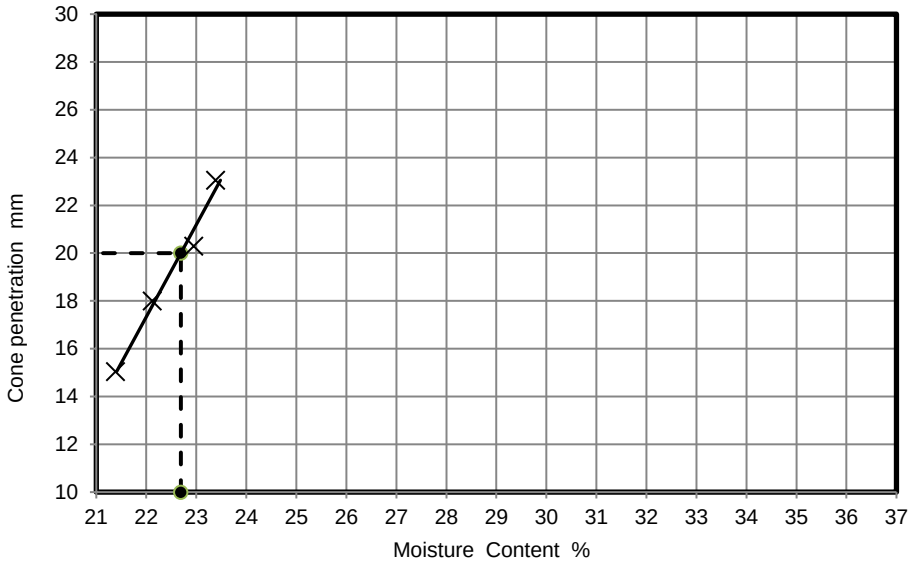
2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

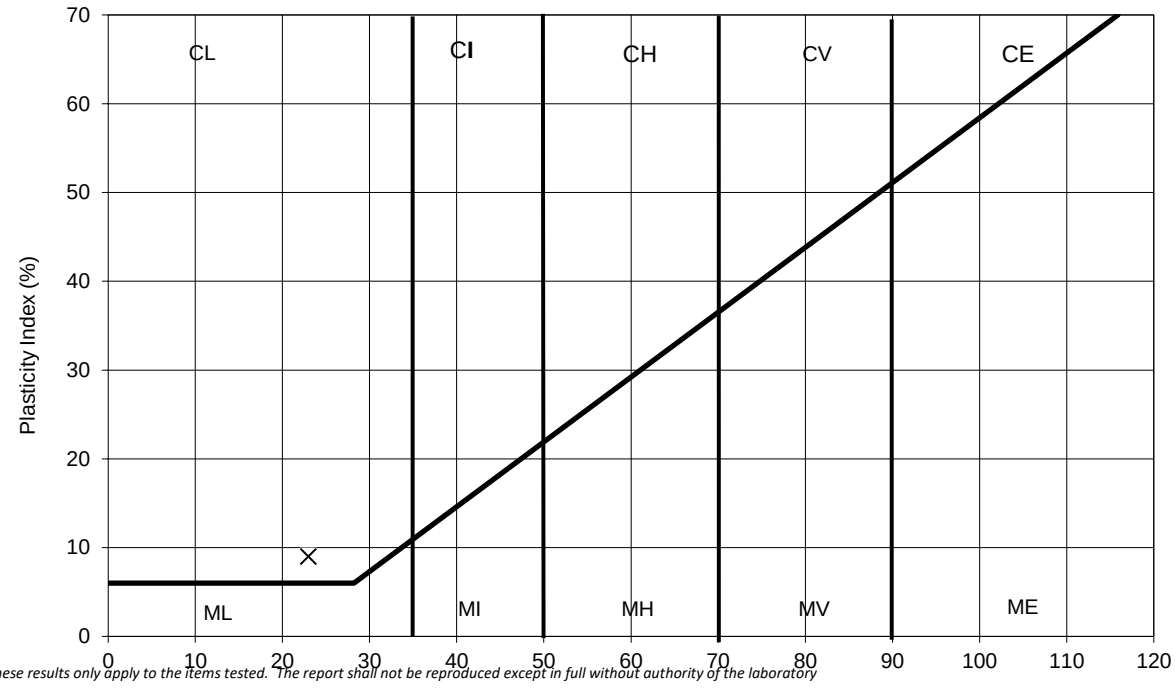
	Job No.	32282
	Borehole/Pit No.	TP-99304



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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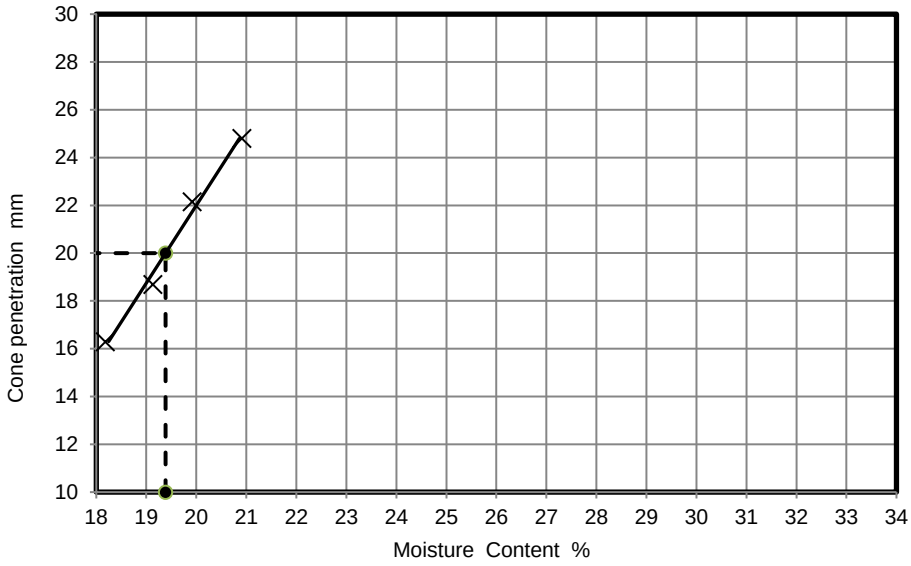
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99304
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

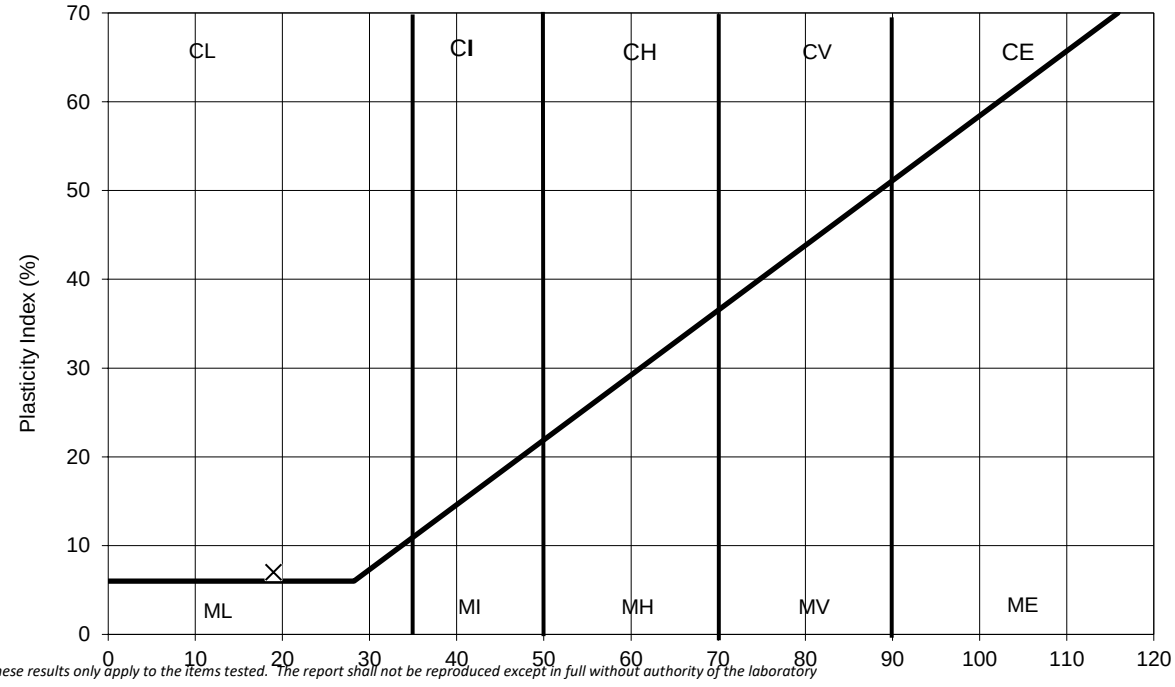


NATURAL MOISTURE CONTENT	**7.9**	**%**
% PASSING 425µm SIEVE	**32**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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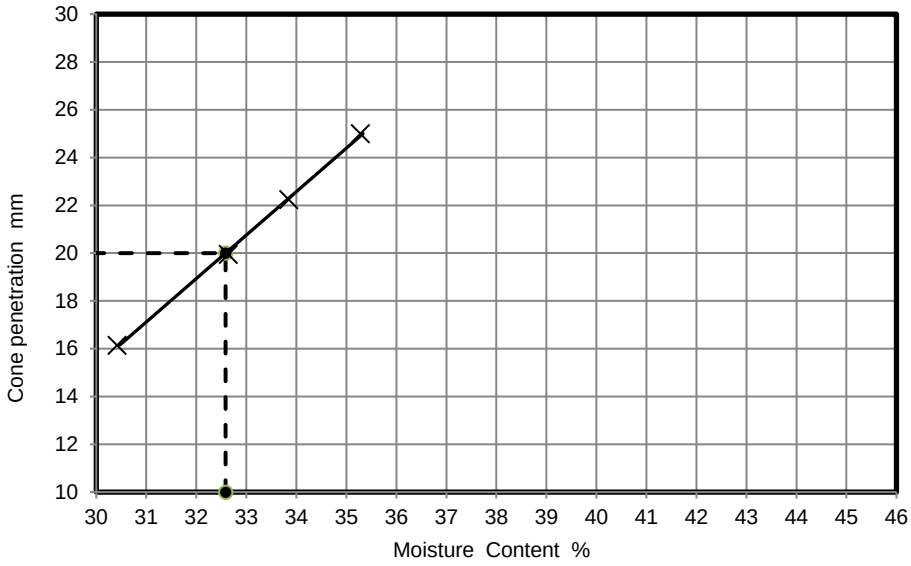
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

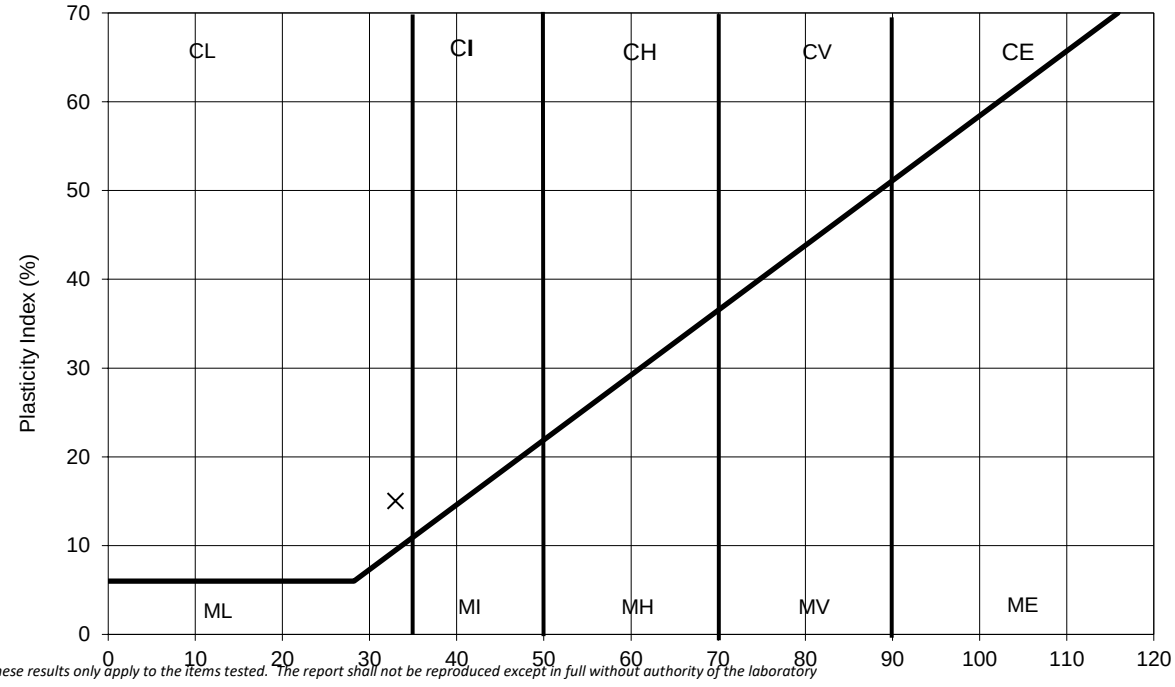
				Job No.	32282
				Borehole/Pit No.	TP-99400
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**94**	**%**
LIQUID LIMIT	**33**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**15**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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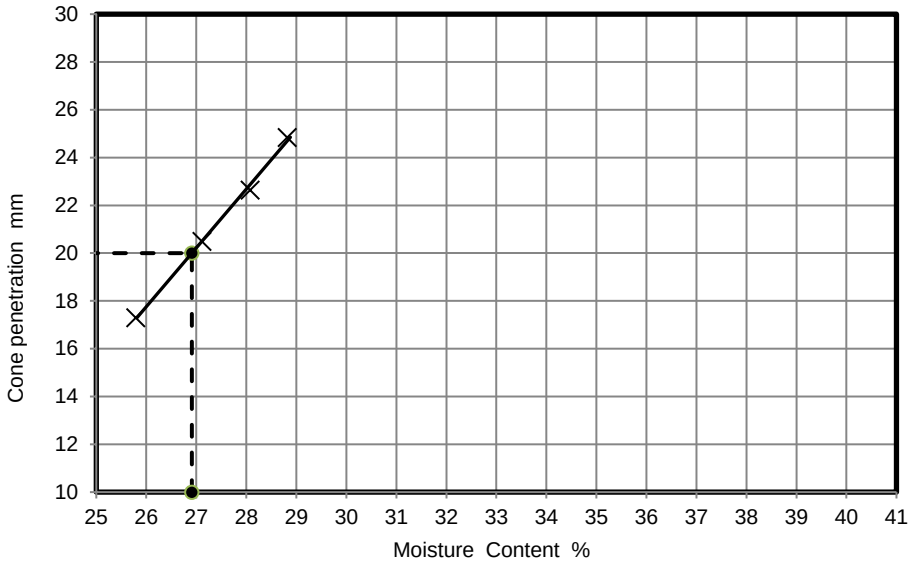
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

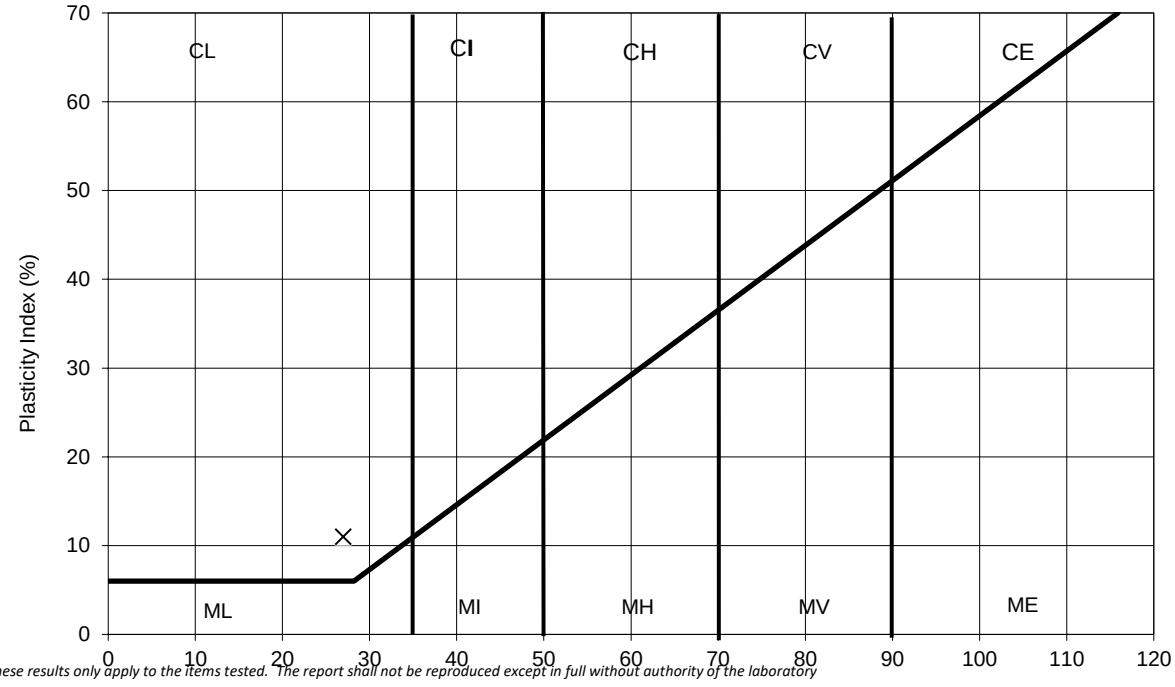
				Job No.	32282
				Borehole/Pit No.	TP-99400
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown fine sandy very silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

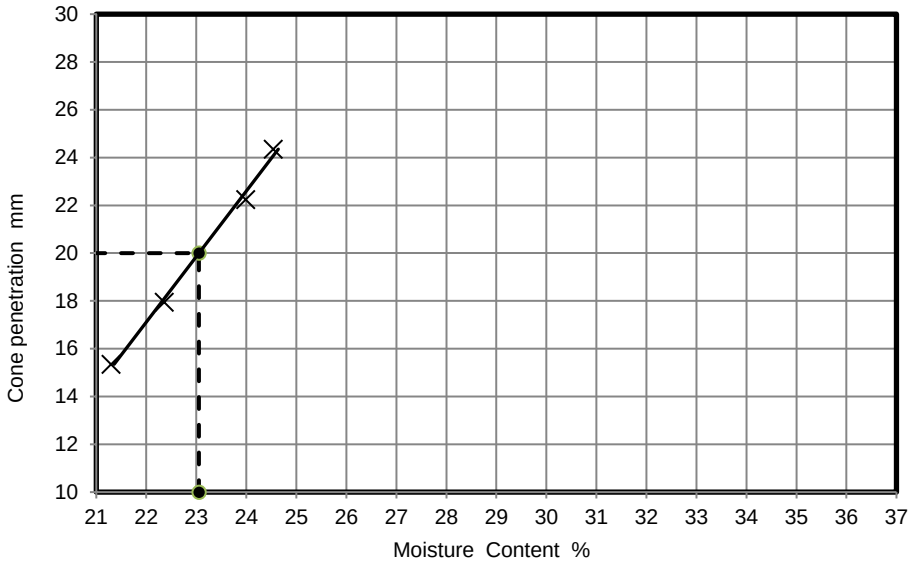
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

Job No. 32282

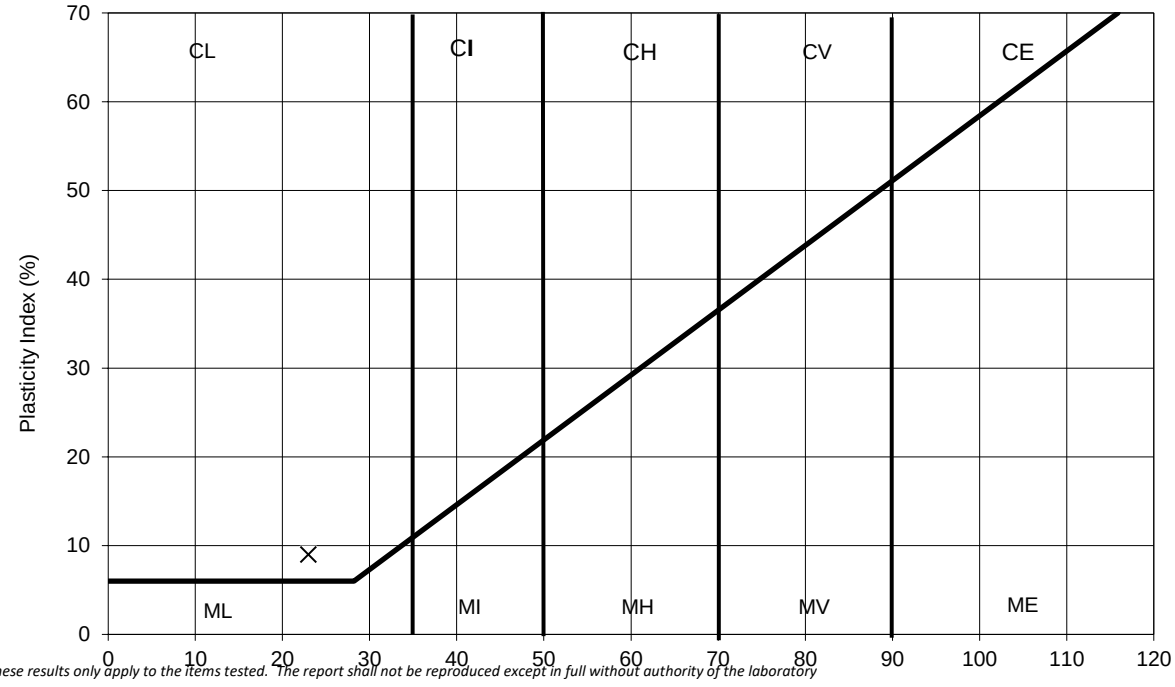
Borehole/Pit No. TP-99505



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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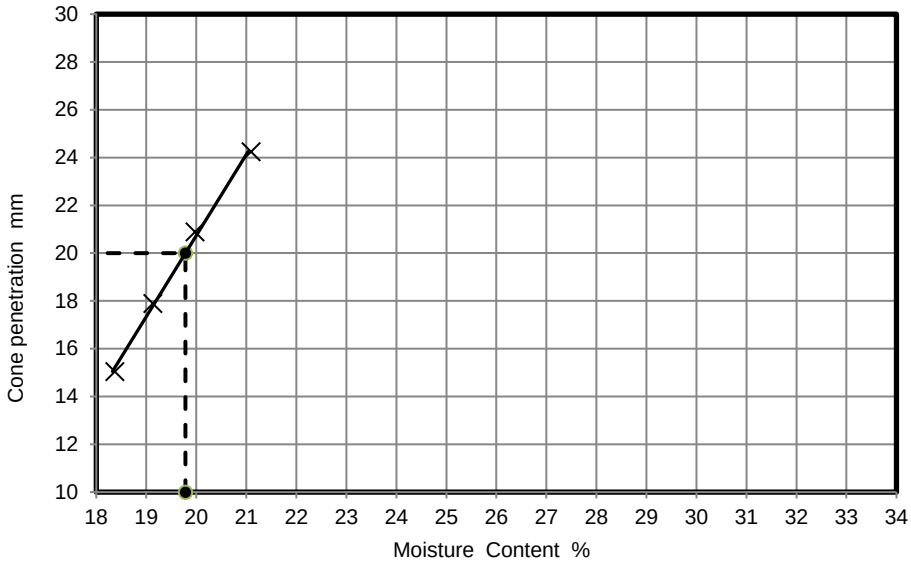
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99505
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

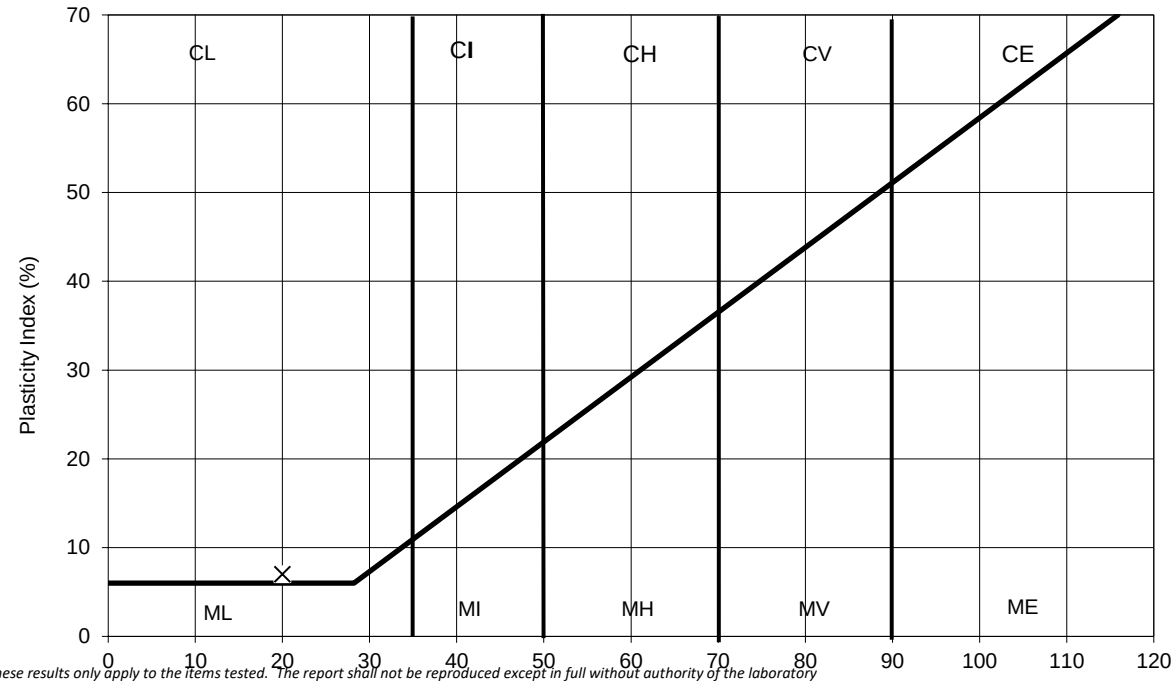


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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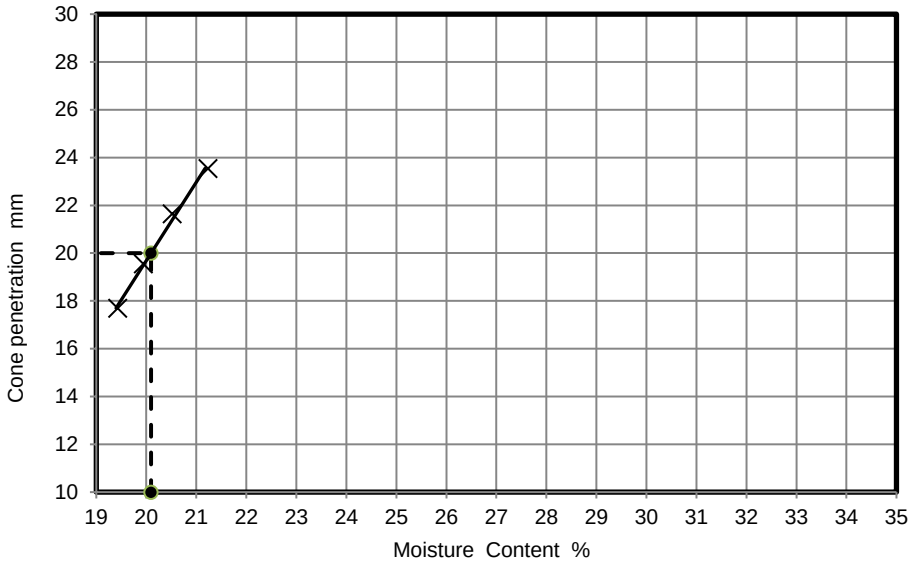
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

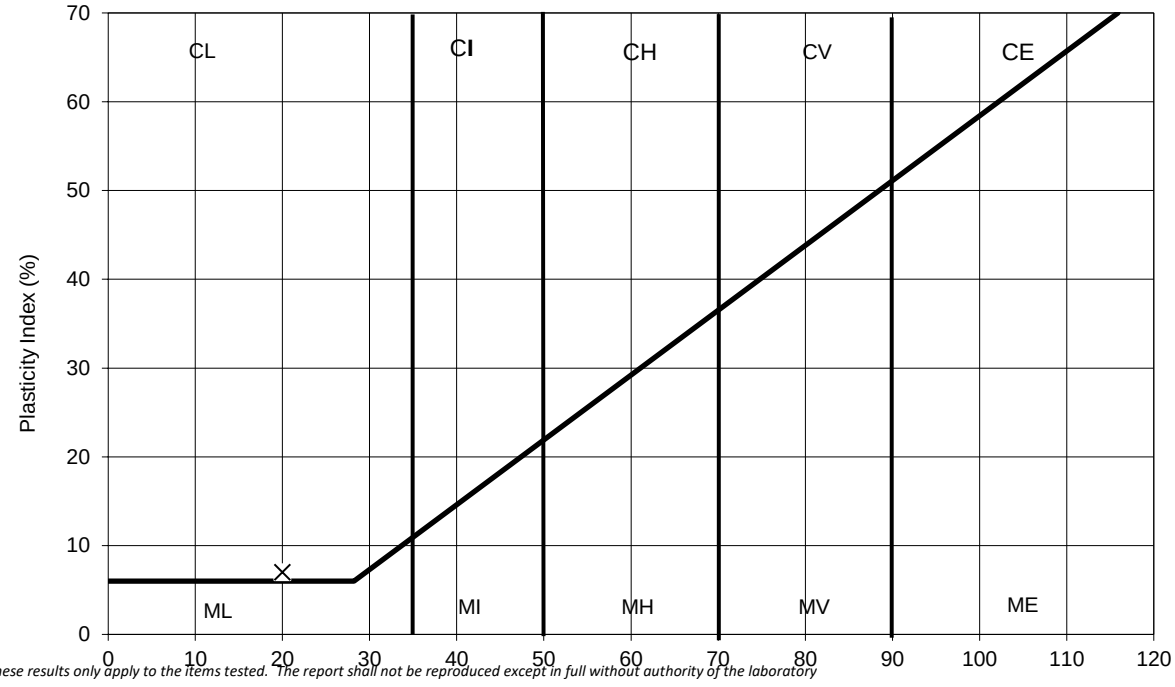
				Job No.	32282
				Borehole/Pit No.	TP-99599
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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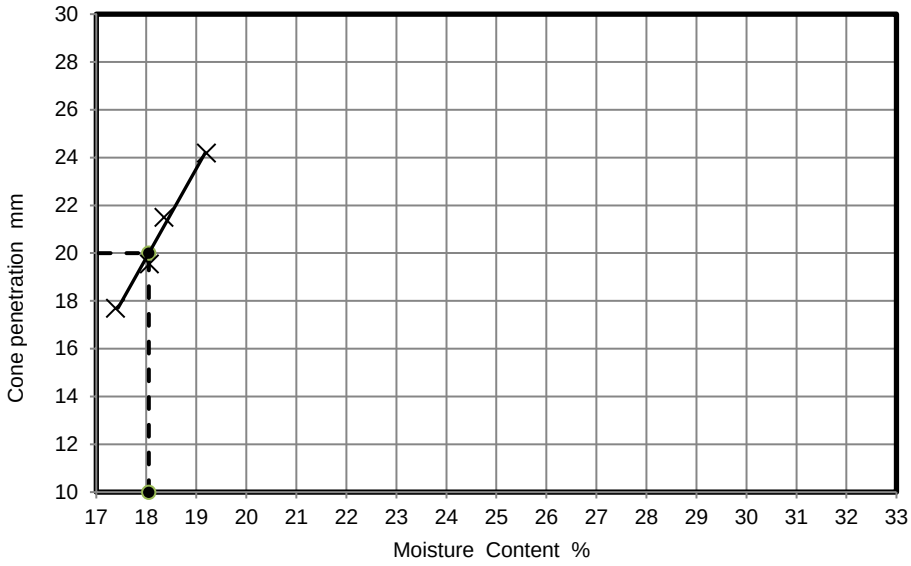
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99599
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

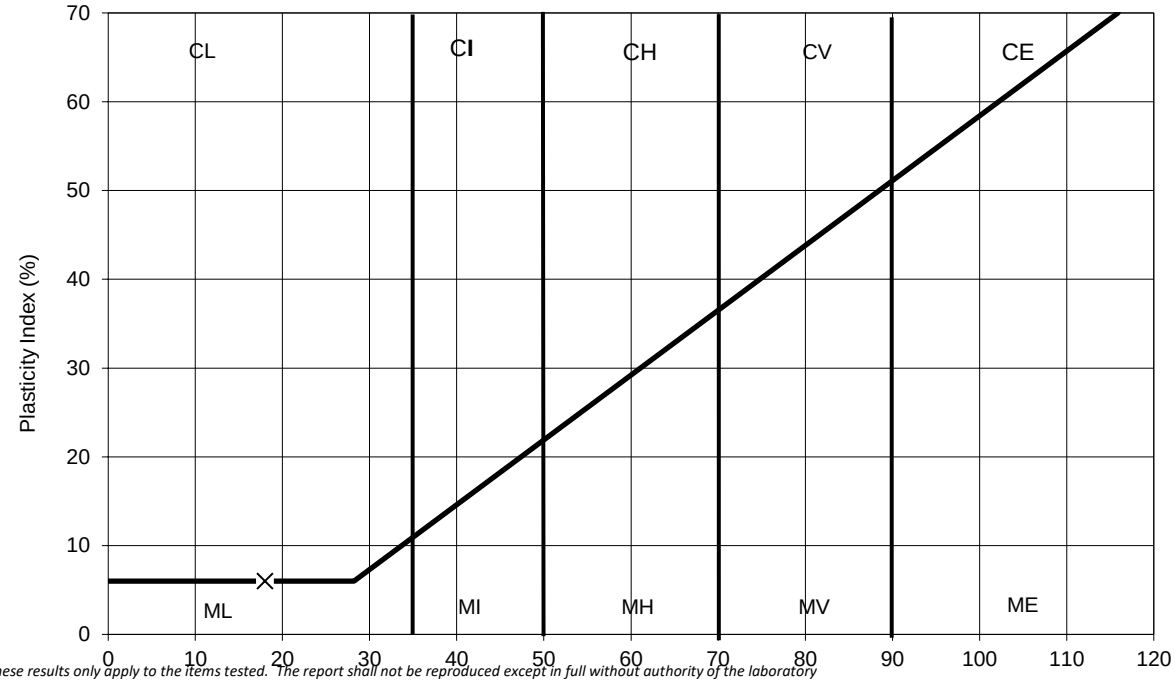


NATURAL MOISTURE CONTENT	**6.7**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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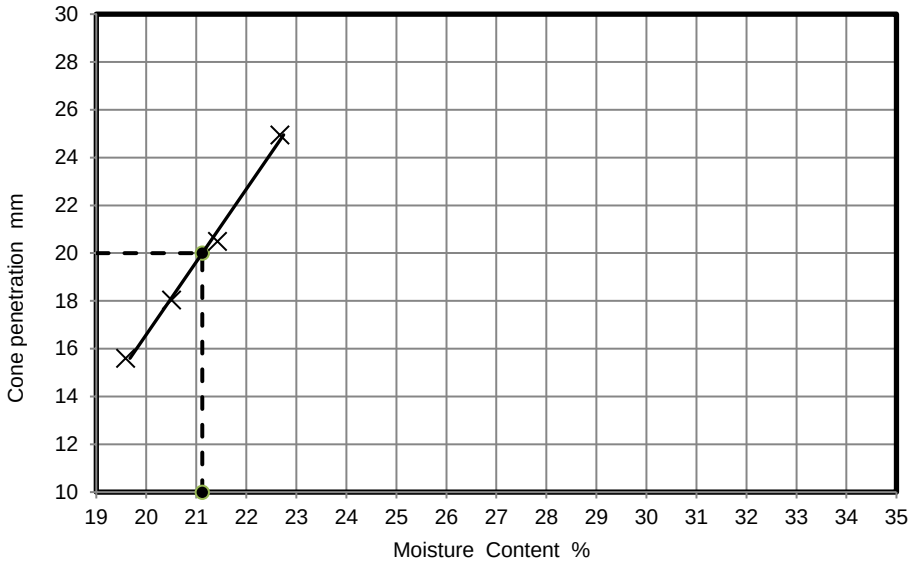
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

Job No. 32282

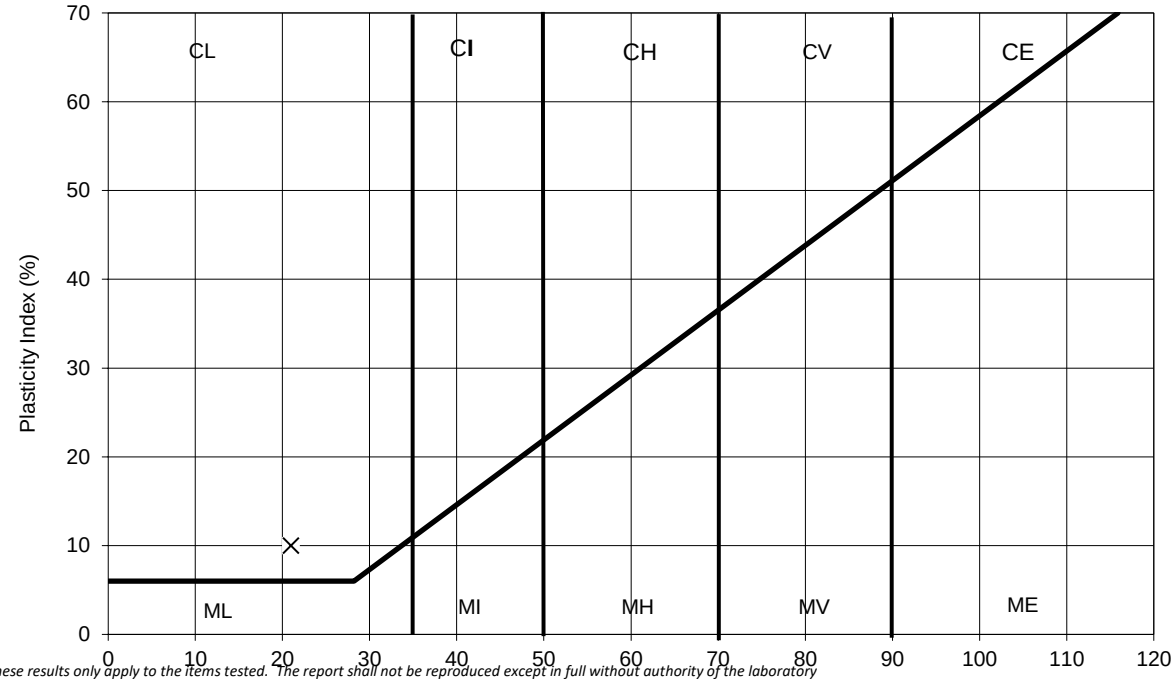
Borehole/Pit No. TP-99701



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**93**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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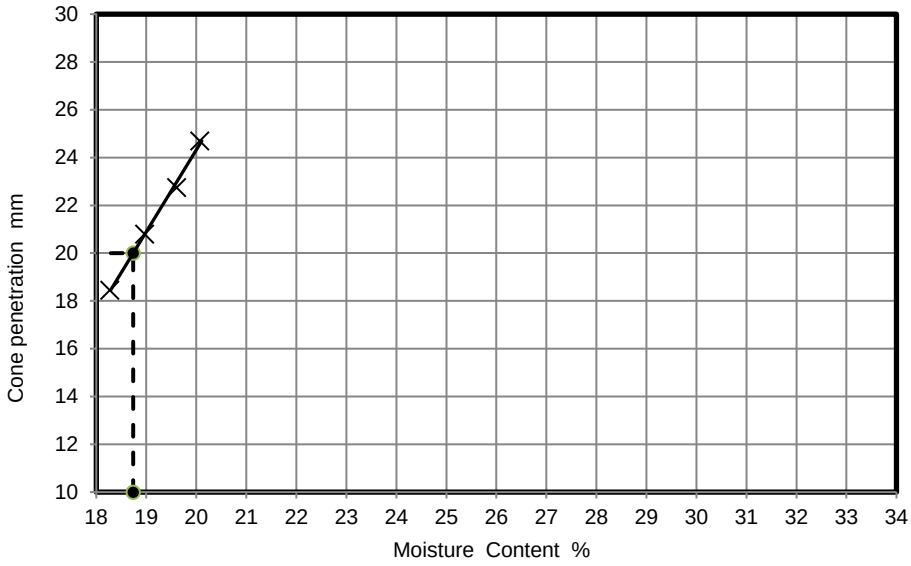
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

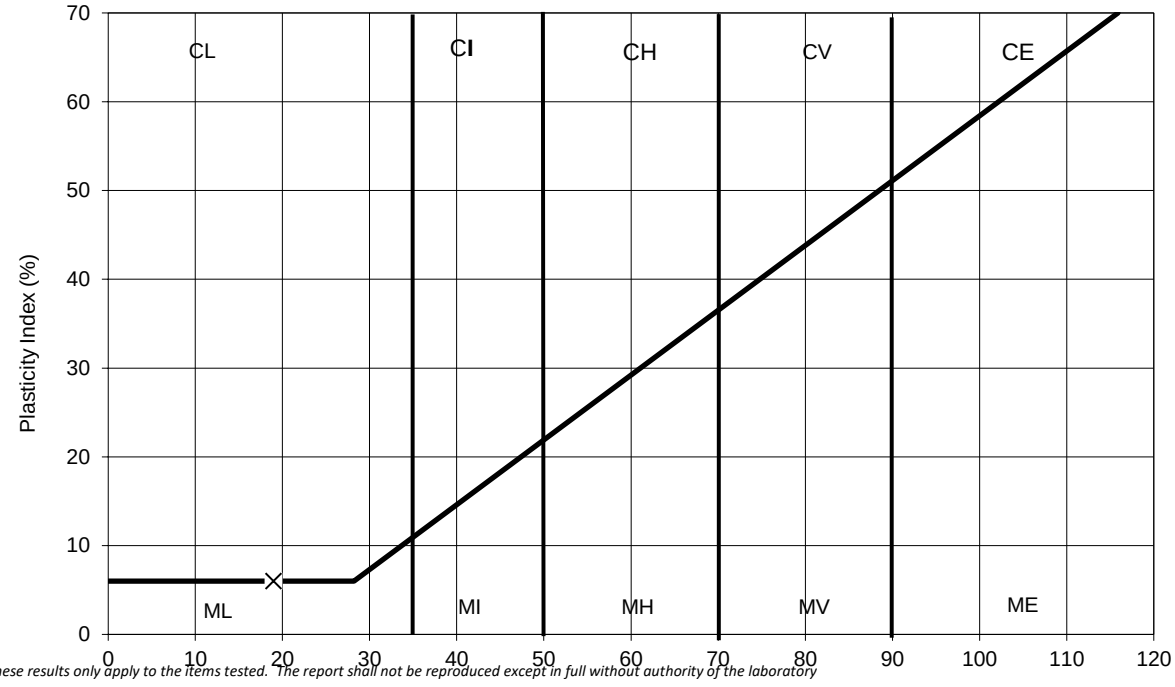
				Job No.	32282
				Borehole/Pit No.	TP-99701
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown fine sandy clayey SILT with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-36861	3	0.50	0.80	B		Brown very silty very sandy coarse GRAVEL.			7.9	34					
TP-36861	4	0.80		D		Yellowish-brown silty very sany medium GRAVEL.			8.8	43	23	14	9		CL
TP-36861	5	1.60	1.90	B		Brown silty very sandy medium and coarse GRAVEL.			7.0	21					
TP-36861	6	1.90		D		Brown silty very sandy medium GRAVEL.			5.5	21					NP
TP-37001	3	0.90	1.20	B		Light brown silty very sandy coarse GRAVEL.			5.6	20					
TP-37001	4	1.20		D		Light brown silty very sandy coarse GRAVEL.			7.1	28	27	18	9		CL
TP-37102	3	1.40	1.70	B		Brown slightly gravelly sandy SILT.			10.0	55					
TP-37102	4	1.70		D		Brownish-grey silty very sandy medium GRAVEL.			8.2	53	19	13	6		CL
TP-37201	1	0.20	0.50	B		Orangish-brown slightly gravelly sandy SILT.			26.0	67					
TP-37201	2	0.50		D		Brown sandy clayey SILT.			22.0	76	48	28	20		CI
TP-37698	2	0.30		D		Brown slightly gravelly slightly sandy SILT.			16.0	66	25	16	9		CL
TP-37698	3	1.20	1.50	B		Brown slightly gravelly slightly sandy SILT.			10.0	63					
TP-37698	4	1.50		D		Brown slightly gravelly slightly sandy SILT.			9.6		20	16	4		ML
TP-37778	4	0.80		D		Brown slightly gravelly slightly sandy SILT.			8.2						NP
TP-37778	6	2.40		D		Light brown slightly gravelly sandy SILT.			8.4		19	12	7		CL
TP-37903	4	1.20		D		Light brown slightly gravelly sandy SILT.			12.0		20	13	7		CL
TP-37903	6	2.60		D		Brown slightly gravelly slightly sandy SILT.			7.9	55	21	13	8		CL
TP-38100	2	0.70		D		Brown slightly gravelly slightly sandy SILT.			8.5		22	14	8		CL
TP-38100	4	2.00		D		Brown silty very sandy medium GRAVEL.			6.0						NP
TP-38205	2	0.40		D		Orangish-brown slightly gravelly slightly sandy clayey SILT.			18.0	86	31	22	9		CL
TP-38205	6	2.30		D		Brown slightly sandy gravelly SILT.			7.2		19	17	2		ML
TP-38313	3	1.70	2.00	B		Light brown very sandy very silty medium and coarse GRAVEL.			13.0	45					
TP-38313	4	2.00		D		Light brown sandy silty medium GRAVEL.			13.0		20	13	7		CL
TP-38500	2	0.70		D		Light brown sandy very silty medium GRAVEL.			10.0	55	19	13	6		CL
TP-38500	3	2.10	2.40	B		Brownish-grey slightly sandy gravelly SILT.			8.1	48					
TP-38500	4	2.40		D		Brownish-grey sandy very silty medium GRAVEL.			8.0	50	19	13	6		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 10

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-38604	3	0.80	1.10	B		Brownish-grey slightly sandy gravelly SILT.			8.1	54					
TP-38604	4	1.10		D		Light brown silty very sandy medium GRAVEL.			5.3	36	19	12	7		CL
TP-38604	5	2.00	2.30	B		Brown very sandy very silty coarse GRAVEL.			7.4	35					
TP-38604	6	2.30		D		Brownish-grey sandy very silty medium GRAVEL.			8.8	57	20	14	6		CL
TP-38700	3	1.30	1.60	B		Light brown slightly sandy gravelly SILT. Gravel is coarse and medium.			9.3	51					
TP-38700	4	1.60		D		Light brown sandy very silty medium GRAVEL.			10.0	59	19	13	6		CL
TP-38700	5	2.70	3.00	B		Brownish-grey very silty very sandy GRAVEL.			7.9	44					
TP-38700	6	3.00		D		Brownish-grey silty very sandy medium GRAVEL.			6.7	40	19	13	6		CL
TP-38777	3	1.30	1.60	B		Light brown slightly gravelly slightly sandy SILT.			12.0	60					
TP-38777	4	1.60		D		Light brown slightly sandy very silty medium GRAVEL.			9.9	50	20	13	7		CL
TP-38777	5	2.50	2.80	B		Brownish-grey very sandy very silty coarse GRAVEL.			7.3	40					
TP-38777	6	2.80		D		Greyish-brown sandy very silty medium GRAVEL.			6.9	50	19	13	6		ML
TP-38901	2	0.50		D		Brown slightly gravelly slightly sandy SILT.			8.3		24	19	5		ML
TP-38901	6	2.80		D		Grey slightly sandy gravelly SILT.			8.2						NP
TP-39006	1	0.30		D		Grey slightly gravelly sandy SILT.			6.4						
TP-39006	4	1.10	1.30	B		Brown very silty very sandy medium and fine GRAVEL.			11.0	38					
TP-39006	5	1.30		D		Brown very silty very sandy medium and fine GRAVEL.			11.0						NP
TP-39101	2	0.50		D		Brown silty very sandy medium and coarse GRAVEL.			11.0		27	18	9		CL
TP-39101	4	1.60		D		Brown silty very sandy medium GRAVEL.			7.2						NP
TP-39218	1	0.40	0.70	B		Dark brown silty very sandy medium GRAVEL.			7.6	25					
TP-39218	2	0.70		D		Dark brown silty very sandy medium GRAVEL.			8.9						NP
TP-39300	2	0.70		D		Brown very clayey very sandy medium GRAVEL.			16.0		36	23	13		CI
TP-39403	4	1.20		D		Greyish-brown slightly silty very sandy mediumand coarse GRAVEL.			6.6						NP
TP-39503	2	0.70		D		Brown slightly gravelly slightly sandy clayey SILT.			12.0		24	15	9		CL
TP-39503	3	1.70	2.00	B		Brown very silty very sandy medium GRAVEL.			9.5	42					
TP-39503	4	2.00		D		Brown very silty very sandy medium GRAVEL.			11.0						NP

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 11

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-39601	2	0.80		D		Brown slightly sandy gravelly SILT.			11.0		35	32	3		ML
TP-39706	2	0.90		D		Brown slightly sandy gravelly clayey SILT.			13.0		35	23	12		CI
TP-39805	2	0.70		D		Brown slightly sandy gravelly SILT.			14.0		36	30	6		MI
TP-39906	2	0.40		D		Grey slightly gravelly sandy SILT.			13.0						NP
TP-39906	4	1.20		D		Grey-brown silty very sandy coarse GRAVEL.			8.3		30	25	5		ML
TP-40001	4	1.40		D		Brown slightly gravelly slightly sandy SILT.			11.0		21	16	5		ML
TP-40001	5	2.20	2.50	B		Grey very silty SAND and GRAVEL.			9.1	49					
TP-40001	6	2.50		D		Grey very silty SAND and GRAVEL.			12.0		18	12	6		ML
TP-40205	2	0.30		D		Brown slightly gravelly sandy SILT. Sand is fine and medium.			12.0		30	18	12		CL
TP-40205	4	1.00		D		Dark grey slightly gravelly sandy claayey SILT.			13.0		26	10	16		CL
TP-40305	1	0.40		D		Black PEAT.			115.0	88	163	140	23		MEO
TP-40305	3	1.10		D		Grey slightly sandy gravelly SILT. Gravel is medium.			8.2						NP
TP-40305	4	1.70	2.00	B		Grey very silty very sandy GRAVEL.			8.4	47					
TP-40305	5	2.00		D		Grey very silty very sandy GRAVEL.			9.6		21	15	6		CL
TP-40404	2	0.40		D		Grey slightly sandy gravelly SILT. Gravel is medium.			9.2		24	23	1		NP
TP-40404	4	1.10		D		Grey slightly gravelly slightly sandy SILT. Gravel is medium.			8.8		20	10	10		CL
TP-40404	5	2.50	2.80	B		Grey slightly gravelly slightly sandy SILT.			9.5	63					
TP-40404	6	2.80		D		Grey slightly gravelly slightly sandy SILT.			9.5		19	11	8		CL
TP-40505	3	0.70	1.00	B		Grey slightly gravelly slightly sandy SILT.			9.5	62					
TP-40505	4	1.00		D		Grey slightly gravelly slightly sandy SILT.			9.5		22	15	7		ML
TP-40505	6	2.40		D		Grey slightly gravelly slightly sandy SILT			9.0		17	12	5		ML
TP-40605	4	1.60		D		Grey slightly sandy gravelly SILT.			7.9		18	14	4		ML
TP-40605	5	2.30	2.60	B		Grey slightly gravelly slightly sandy SILT.			9.4	56					
TP-40605	6	2.60		D		Grey slightly gravelly slightly sandy SILT.			7.8		20	13	7		CL
TP-43108	3	0.80	1.10	B		Grey slightly gravelly sandy SILT.			7.6	62					
TP-43108	4	1.10		D		Grey slightly gravelly slightly sandy SILT.			7.2						NP

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 12

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-43108	6	2.20		D		Grey-brown sandy very silty medium GRAVEL.			8.0		29	25	4		ML
TP-43207	2	0.60		D		Brown slighlty gravelly slightly sandy SILT.			7.8		25	14	11		CL
TP-43207	4	1.50		D		Dark grey very silty very sandy GRAVEL.			8.2		23	13	10		CL
TP-43308	2	0.40		D		Brown slightly sandy gravelly SILT. Gravel is medium.			13.0	60					NP
TP-43308	5	1.70	2.00	B		Brown very sandy very silty medium and coarse GRAVEL.			8.8	51					
TP-43308	6	1.80		D		Brown very sandy very silty medium and coarse GRAVEL.			11.0		24	20	4		ML
TP-43406	2	0.40		D		Brown slightly gravelly slightly sandy clayey SILT.			14.0	68	37	21	16		CI
TP-43406	4	1.30		D		Brown slightly gravelly slightly sandy clayey SILT.			11.0		22	15	7		CL
TP-43507	2	0.40		D		Brown slightly sandy gravelly SILT.			15.0		31	21	10		CL
TP-43507	4	1.40		D		Brown slightly gravelly slightly sandy SILT.			9.7		22	16	6		ML
TP-43607	2	0.60		D		Brown slightly sandy slightly gravelly SILT.			13.0		22	17	5		ML
TP-43607	3	1.20	1.50	B		Brown slightly gravelly slightly sandy SILT.			12.0	65					
TP-43607	4	1.50		D		Brown slightly gravelly slightly sandy SILT.			12.0		21	15	6		ML
TP-43607	6	2.80		D		Brown slightly gravelly slightly sandy SILT.			9.6		19	12	7		CL
TP-43708	2	0.70		D		Reddish-brown slightly gravelly slightly sandy SILT.			10.0		22	12	10		CL
TP-43708	4	1.50		D		Brown very silty SAND and GRAVEL.			10.0		23	19	4		ML
TP-43815	2	0.50		D		Light brown slightly gravelly slightly sandy SILT.			11.0		22	16	6		ML
TP-43815	3	0.70	1.00	B		Brown slightly gravelly slightly sandy SILT.			20.0	67					
TP-43905	2	0.40		D		Light brown slightly gravelly slightly sandy SILT.			9.5		24	14	10		CL
TP-43905	3	1.30	1.60	B		Light brown slightly gravelly sandy SILT.			12.0	61					
TP-43905	4	1.60		D		Light brown slightly gravelly slightly sandy SILT.			12.0		33	25	8		ML
TP-43905	6	2.60		D		Reddish-brwon slightly gravelly slightly sandy SILT.			12.0	62	22	14	8		CL
TP-44003	2	0.50		D		Brown slightly gravelly slightly sandy SILT.			11.0	57	22	15	7		ML
TP-44003	4	1.50		D		Light brown slightly gravelly slightly sandy SILT.			11.0		22	14	8		CL
TP-44003	6	2.80		D		Brown slightly gravelly sandy SILT.			9.8		24	12	12		CL
TP-44104	3	1.30	1.60	B		Grey silty very gravelly SAND.			7.1	42					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless :; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Linear measurement unless :

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 13

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-44104	4	1.60		D		Grey silty very gravelly SAND.			9.8						NP
TP-44104	6	3.20		D		Reddish-brown silty very sandy coarse and medium GRAVEL.			6.2						NP
TP-44211	2	0.50	0.80	B		Grey slightly sandy gravelly SILT.			12.0	51					
TP-44211	3	0.70		D		Grey slightly sandy gravelly SILT.			14.0		27	19	8		CL
TP-44211	5	1.80		D		Brown silty very gravelly medium SAND.			15.0						NP
TP-44309	2	0.60		D		Grey slightly gravelly slightly sandy SILT.			12.0		22	16	6		ML
TP-44309	6	2.60		D		Grey slightly sandy gravelly SILT.			9.9		18	12	6		ML
TP-44408	2	0.70		D		Brown slightly gravelly slightly sandy SILT.			8.0		29	20	9		CL
TP-44408	4	1.60		D		Brown very silty very sandy medium GRAVEL.			9.4		30	22	8		CL
TP-44508	2	0.60		D		Brown slightly gravelly slightly sandy SILT.			11.0		25	17	8		CL
TP-44508	3	1.20	1.50	B		Brown slightly gravelly slightly sandy SILT.			9.8	56					
TP-44508	4	1.50		D		Brown slightly gravelly slightly sandy SILT.			9.6		23	13	10		CL
TP-44508	6	2.50		D		Brown very silty SAND and GRAVEL.			9.6		22	16	6		ML
TP-44611	2	0.70		D		Grey silty very sandy medium GRAVEL.			11.0						NP
TP-44611	4	2.30		D		Grey very silty GRAVEL and SAND.			9.8		20	14	6		ML
TP-46303	3	0.70	1.00	B		Brown very silty very sandy medium GRAVEL.			19.0	45					
TP-46303	4	1.00		D		Brown slightly gravelly slightly sandy SILT.			10.0						NP
TP-46303	6	1.80		D		Brown slightly gravelly slightly sandy SILT.			9.4	53					NP
TP-46502	4	1.60		D		Brown slightly gravelly slightly sandy SILT.			20.0		24	13	11		CL
TP-46502	6	3.20		D		Brown slightly sandy gravelly SILT.			13.0		21	15	6		CL
TP-46603	2	1.00		D		Brown slighlty gravelly slightly sandy SILT.			13.0		27	23	4		ML
TP-46603	3	1.80	2.10	B		Brown slightly gravelly sandy SILT.			12.0	66					
TP-46603	6	3.10		D		Brown slightly gravelly slightly sandy SILT.			10.0		24	17	7		CL
TP-46717	2	0.60		D		Orangish-brown slightly gravelly slightly sandy clayey SILT.			28.0	79	45	19	26		CI
TP-46717	6	3.20		D		Brown silty very sandy medium GRAVEL.			9.8	35					NP
TP-46801	4	1.60		D		Brown sandy very silty medium GRAVEL.			9.0	51	30	17	13		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless :; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Linear measurement unless :

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 14

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-46801	6	2.80		D		Light brown very silty SAND and GRAVEL.			6.9	47					NP
TP-46901	4	2.20		D		Brown sandy very silty medium GRAVEL.			9.7	51					NP
TP-47003	2	0.70		D		Orange-brown slightly gravelly sandy CLAY.			19.0	70	38	22	16		CI
TP-47003	4	1.70		D		Brown slightly sandy very clayey medium GRAVEL.			7.7	40	27	17	10		CL
TP-47003	6	2.50		D		Brown very silty very sandy GRAVEL.			6.3	37					NP
TP-47102	4	1.60		D		Light brown sandy very silty medium GRAVEL.			7.9	51	20	15	5		ML
TP-47102	8	4.00		D		Light brown sandy very silty medium GRAVEL.			9.2	43	19	11	8		CL
TP-47202	4	1.30		D		Brown silty very sandy coarse GRAVEL.			5.0	25					NP
TP-47202	8	2.70		D		Brown silty very sandy medium GRAVEL.			9.6	62					NP
TP-47308	2	0.60		D		Brown silty very sandy medium GRAVEL.			14.0	59					NP
TP-47308	4	2.00		D		Brown sandy very silty medium GRAVEL.			9.7	56	22	14	8		CL
TP-47392	4	1.30		D		Brown slightly sandy slightly gravelly SILT. Gravel is coarse.			9.9	62	20	14	6		CL
TP-47392	6	2.30		D		Brown sandy very silty medium GRAVEL.			9.0	52	21	19	2		ML
TP-47392	8	3.40		D		Brown sandy very silty medium GRAVEL.			9.1	50					NP
TP-47507	4	1.30		D		Brown sandy silty coarse GRAVEL.			6.6	33					NP
TP-47507	6	2.80		D		Brown slightly sandy gravelly SILT. Gravel is coarse.			9.8	60	24	14	10		CL
TP-47615	2	0.70		D		Orangish-brown sandy SILT.			15.0	70	35	17	18		CL
TP-47615	4	1.50		D		Brown slightly silty very sandy medium GRAVEL.			7.4	38					NP
TP-47615	6	2.60		D		Light brown silty sandy coarse GRAVEL.			5.9	57					NP
TP-47705	2	0.70		D		Ornage-brown slightly gravelly slightly sandy SILT.			15.0		28	22	6		ML
TP-47705	6	2.50		D		Brown slightly gravelly slightly sandy SILT.			14.0	69	24	18	6		ML
TP-47801	4	0.80		D		Grey slightly silty very sandy GRAVEL. Sand is coarse.			3.5						NP
TP-47801	6	1.80		D		Orange-brown very silty very gravelly SAND. Gravel is medium.			6.8						NP
TP-47902	2	0.80		D		Brown sandy very silty medium GRAVEL.			7.1	44					NP
TP-47902	6	2.70		D		Greyish-brown silty very sandy coarse GRAVEL.			5.3	38					NP
TP-48001	2	0.80		D		Light brown sandy very silty medium GRAVEL.			10.0	48	25	15	10		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless :; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Linear measurement unless :

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 15

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-48102	2	0.70		D		Light brown very silty very sandy coarse GRAVEL.			8.9	49					NP
TP-48102	4	2.40		D		Brownish-grey slightly silty very sandy medium GRAVEL.			5.4	37					NP
TP-48302	4	1.60		D		Brownish-grey slightly silty very sandy medium GRAVEL.			4.2	21					NP
TP-48401	4	1.90		D		Light brown very sandy medium GRAVEL.			4.2	33					NP
TP-48500	4	0.80		D		Brown silty very sandy medium GRAVEL.			6.1	33					NP
TP-48500	6	1.80		D		Brownish-grey slightly silty very sandy medium GRAVEL.			7.1	50					NP
TP-48500	8	2.50		D		Light brown very sandy very silty medium and coarse GRAVEL.			5.9	38					NP
TP-48596	4	2.00		D		Light brown very sandy very silty GRAVEL.			4.4	40					NP
TP-48701	2	0.70		D		Brown very silty very sandy coarse GRAVEL.			9.3	50					NP
TP-48701	4	1.30		D		Brown slightly gravelly silty SAND.			14.0	60					NP
TP-48800	4	1.00		D		Brown silty SAND and GRAVEL. Gravel is medium.			13.0	41					NP
TP-48800	6	2.40		D		Brown slightly silty very sandy medium GRAVEL.			9.7	41					NP
TP-48900	6	2.00		D		Brown slightly gravelly sandy SILT.			9.3						NP
TP-48900	8	3.50		D		Brown very silty SAND and GRAVEL.			9.5						NP
TP-49000	4	1.50		D		Orange-brown SAND.			7.0	58					NP
TP-49102	4	0.90		D		Brown slightly gravelly slightly sandy SILT.			8.8	60	20	13	7		ML
TP-49102	6	2.10		D		Lightl brown sandy very silty medium GRAVEL.			8.2	39	20	15	5		ML
TP-49215	4	1.50		D		Brown slightly gravelly slightly sandy SILT.			11.0	43	23	16	7		CL
TP-49408	2	0.90		D		Brown slightly gravelly sandy SILT.			9.5	46					NP
TP-50309	2	0.60		D		Light brown slightly gravelly slightly sandy SILT.			10.0	58	18	13	5		ML
TP-50309	5	2.70	3.00	B		Light grey slightly gravelly sandy SILT. Gravel is medium.			8.4	57					
TP-50309	6	3.00		D		Light grey slightly gravelly sandy SILT. Gravel is medium.			8.4		17	12	5		ML
TP-50409	3	1.50	1.80	B		Light greyish-cream slightly gravelly sandy SILT.			9.3	62					
TP-50409	4	1.80		D		Light creamish-grey slightly gravelly sandy SILT.			9.3		17	12	5		ML
TP-50508	3	1.40	1.70	B		Brown slightly gravelly sandy SILT.			9.9	53					
TP-50508	4	1.70		D		Brown slightly gravelly sandy SILT.			9.9		22	16	6		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 16

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-50608	1	0.40	0.70	B		Light brown silty very sandy coarse GRAVEL.			4.6	31					
TP-50608	2	0.70		D		Light brown silty very sandy medium GRAVEL.			5.3	35	26	19	7		CL
TP-50707	2	0.50		D		Brownish-grey silty very sandy medium GRAVEL.			8.8	55	20	15	5		ML
TP-50707	3	1.10	1.40	B		Cream very sandy very silty GRAVEL.			11.0	49					
TP-50707	4	1.40		D		Light brown sandy very silty medium GRAVEL.			8.9	59	16	12	4		ML
TP-50707	5	2.30	2.60	B		Brownish-grey very sandy very silty GRAVEL.			7.4	45					
TP-50707	6	2.60		D		Brownish-grey very sandy very silty GRAVEL.			6.3	42	19	13	6		CL
TP-50809	3	0.50	0.80	B		Light brown very silty SAND and GRAVEL.			16.0	56					
TP-50809	4	0.80		D		Light brown very silty SAND and GRAVEL.			16.0		28	17	11		CL
TP-50921	3	1.70	2.00	B		Brownish-grey very sandy very silty coarse GRAVEL.			6.2	40					
TP-50921	4	2.00		D		Brownish-grey silty very sandy medium GRAVEL.			7.1	46	17	12	5		ML
TP-50959	3	1.30	1.60	B		Light brown slightly gravelly sandy SILT.			9.9	60					
TP-50959	4	1.60		D		Light brown silty very sandy medium GRAVEL.			9.7	62	19	13	6		CL
TP-50959	5	2.30	2.60	B		Yellowish-brown slighlty sandy slightly gravelly SILT.			16.0	65					
TP-50959	6	2.60		D		Yellowish-brown slighlty sandy gravelly SILT.			12.0	68	33	18	15		CL
TP-50964	3	1.50	1.80	B		Brownish-grey very sandy very silty coarse GRAVEL.			5.4	38					
TP-50964	4	1.80		D		Brownish-grey silty very sandy medium GRAVEL.			7.3	56	18	14	4		ML
TP-50987	2	0.60		D		Light grey slightly sandy slightly gravelly SILT.			10.0	55	20	15	5		ML
TP-50987	4	1.10		D		Creamy-brown slightly gravelly slightly sandy SILT.			7.1	55	18	13	5		ML
TP-50987	6	2.30		D		Cream-brown very sandy very silty medium GRAVEL.			9.0	59	18	12	6		ML
TP-50998	1	0.50	0.80	B		Light brown silty sandy coarse GRAVEL.			5.6	29					
TP-50998	2	0.80		D		Light brown silty sandy coarse GRAVEL.			7.2	44	19	14	5		ML
TP-50998	5	3.00	3.30	B		Brownish-grey very sandy very silty coarse GRAVEL.			7.4	43					
TP-50998	6	3.30		D		Brownish-grey silty very sandy medium GRAVEL.			7.2	46	19	13	6		ML
TP-51019	2	0.40		D		Light brown slighlty gravelly sandy SILT.			14.0	65	47	26	21		CI
TP-51019	4	0.90		D		Light brown slightly sandy slightly gravelly SILT.			11.0	59	18	13	5		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 17

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-51019	6	2.00		D		Light brown slightly sandy slightly gravelly SILT.			7.1	53	18	13	5		ML
TP-51052	3	1.00	1.30	B		Yellowish-brown very silty very sandy coarse GRAVEL.			9.0	51					
TP-51052	4	1.30		D		Light brown silty very sandy medium GRAVEL.			8.6	57	18	13	5		ML
TP-51052	5	2.50	2.80	B		Light brown silty very sandy medium GRAVEL.			9.5						
TP-51059	2	0.30		D		Brown slightly gravelly sandy SILT.			27.0	73	49	32	17		MI
TP-51059	4	1.60		D		Golden-brown slightly sandy gravelly SILT.			15.0	53	30	15	15		CL
TP-51059	6	2.60		D		Golden-brown slightly sandy slightly gravelly SILT.			16.0	62	33	15	18		CL
TP-51061	3	1.50	1.80	B		Brownish-grey very sandy very silty GRAVEL.			8.1	52					
TP-51061	4	1.80		D		Light brown sandy very silty medium GRAVEL.			8.4	53	17	12	5		ML
TP-51061	6	3.00		D		Orangish-brown slightly sandy very silty medium GRAVEL.			9.3	66					NP
TP-51107	2	0.60		D		Orangish-brown slightly gravelly sandy SILT. Sand is fine.			27.0	87	37	18	19		CI
TP-51107	4	1.60		D		Brown very silty very sandy medium GRAVEL.			12.0	43	22	14	8		CL
TP-51116	1	0.30	0.60	B		Brown slightly gravelly sandy SILT.			15.0	52					
TP-51116	2	0.60		D		Brown silty very sandy medium GRAVVEL.			17.0	51	44	27	17		MI
TP-51116	7	2.40	2.70	B		Yellowish-brown very silty very sandy GRAVEL.			9.0	38					
TP-51116	8	2.70		D		Light brown silty very sandy medium GRAVEL.			8.9	33	23	18	5		ML
TP-51138	2	0.70		D		Creamish-brown slighlty gravelly sandy SILT.			12.0	56	21	16	5		ML
TP-51138	4	2.30		D		Light brown slightly sandy gravelly SILT.			11.0	57	18	11	7		CL
TP-51201	3	1.00	1.30	B		Yellowish-brown sandy very gravelly SILT.			12.0	66					
TP-51201	4	1.30		D		Yellowish-brown sandy very silty medium GRAVEL.			12.0	66					NP
TP-51201	5	2.40	2.70	B		Yellowish slightly sandy gravelly SILT.			11.0	55					
TP-51201	6	2.70		D		Cream sandy very silty medium GRAVEL.			12.0	54	21	15	6		CL
TP-51305	3	1.20	1.50	B		Light brown very sandy very silty GRAVEL.			10.0	51					
TP-51305	4	1.50		D		Yellowish brown sandy very silty medium GRAVEL.			8.6	54	18	12	6		CL
TP-51305	5	2.30	2.60	B		Yellowish-brown slighlty gravelly sandy SILT.			10.0	61					
TP-51305	6	2.60		D		Brown sandy very silty medium GRAVEL.			14.0	67	21	15	6		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 18

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-51385	1	0.70	1.00	B		Light brown slightly sandy gravelly SILT. Gravel is medium.			7.3	53					
TP-51385	2	1.00		D		Light brown silty very sandy medium GRAVEL.			7.3	42	21	14	7		CL
TP-51385	4	2.30		D		Brownish-grey silty very sandy medium GRAVEL.			5.7	39	17	13	4		ML
TP-51603	2	0.40		D		Brownish-grey sandy very silty medium GRAVEL.			6.5	58	17	13	4		ML
TP-51603	5	1.80	2.10	B		Light grey slighlty sandy gravelly SILT.			7.9	50					
TP-51603	6	2.10		D		Creamy-brown sandy very silty medium GRAVEL.			8.3	55	16	13	3		ML
TP-51705	1	0.30	0.60	B		Brownish-grey very silty GRAVEL and SAND.			9.2	52					
TP-51705	2	0.60		D		Brownish-grey silty very sandy medium GRAVEL.			8.4	55					NP
TP-51705	5	3.00	3.30	B		Brownish-grey gravelly very silty medium SAND.			9.5	71					
TP-51705	6	3.30		D		Brownish-grey silty very sandy medium GRAVEL.			9.6	65					NP
TP-51801	3	1.00	1.30	B		Brown very silty very gravelly SAND.			12.0	54					
TP-51801	4	1.30		D		Brown very silty very gravelly SAND.			14.0		19	16	3		ML
TP-51801	5	2.40	2.70	B		Grey slightly gravelly slightly sandy SILT.			8.5	60					
TP-51801	6	2.70		D		Grey slightly gravelly slightly sandy SILT.			7.0		16	11	5		ML
TP-51906	3	1.20	1.50	B		Greyish-brown slighlty gravelly sandy SILT.			5.5	23					
TP-51906	4	1.50		D		Greyish-brown slighlty gravelly sandy SILT.			13.0						NP
TP-51906	5	2.20	2.50	B		Light grey slightly sandy slightly gravelly SILT.			7.8	53					
TP-51906	6	2.50		D		Light grey slightly sandy slightly gravelly SILT.			7.6		16	12	4		ML
TP-52050	3	0.80	1.10	B		Dark grey silty very sandy medium and coarse GRAVEL.			8.0	21					
TP-52050	4	1.00		D		Grey slightly gravelly slightly sandy SILT.			8.8		23	17	6		ML
TP-52050	5	1.30	1.60	B		Grey slightly gravelly slightly sandy SILT.			8.0	59					
TP-52050	6	1.60		D		Grey slightly gravelly slightly sandy SILT.			8.5		16	11	5		CL
TP-52108	1	0.30	0.60	B		Black very silty very sandy coarse GRAVEL. Silt is peaty.			40.0	50					
TP-52108	3	1.30	1.60	B		Grey slighlty gravelly sandy SILT.			11.0	61					
TP-52108	4	1.60		D		Grey slighlty gravelly sandy SILT.			11.0		16	11	5		ML
TP-52207	1	0.30	0.60	B		Light brown slightly gravelly slightly sandy SILT.			12.0	65					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 19

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-52207	2	0.60		D		Light brown slightly gravelly slightly sandy SILT.			10.0		19	13	6		ML
TP-52207	3	1.30	1.60	B		Light brown slightly gravelly slightly sandy SILT.			15.0	85					
TP-52207	4	1.60		D		Light brown slightly gravelly slightly sandy SILT.			17.0						NP
TP-52308	1	0.30	0.60	B		Dark brown slightly gravelly Sandy SILT. Sand is fine.			22.0	77					
TP-52308	2	0.60		D		Dark brown slightly gravelly Sandy SILT. Sand is fine.			22.0		34	23	11		CL
TP-52308	5	2.30	2.60	B		Brown slightly gravelly slightly sandy SILT.			9.1	72					
TP-52308	6	2.60		D		Brown slightly gravelly slightly sandy SILT.			8.6		22	13	9		CL
TP-52400	3	1.30	1.60	B		Light grey slightly gravelly sandy SILT.			10.0	62					
TP-52400	4	1.60		D		Light grey slightly gravelly sandy SILT.			8.4	65	18	13	5		ML
TP-52507	1	0.50	0.80	B		Light brown slightly sandy slightly gravelly SILT.			11.0	58					
TP-52507	2	0.80		D		Light brown slightly sandy slightly gravelly SILT.			9.1		22	16	6		ML
TP-52507	5	3.30	3.60	B		Light brown gravelly very silty fine SAND.			14.0	89					
TP-52507	6	3.60		D		Light brown gravelly very silty fine SAND.			12.0	91					NP
TP-52609	3	0.90	1.20	B		Brown very silty fine SAND.			8.4	96					
TP-52609	4	1.10		D		Brown very silty fine SAND.			7.1						NP
TP-52609	6	3.10		D		Light brown slightly gravelly sandy SILT.			21.0	64					NP
TP-52709	5	1.30	1.60	B		Light brown slightly sandy slightly gravelly SILT.			10.0	56					
TP-52709	6	1.60		D		Light brown slightly sandy slightly gravelly SILT.			8.3		16	12	4		ML
TP-52709	7	2.20	2.50	B		Brown silty very sandy medium GRAVEL.			9.7	36					
TP-52709	8	2.50		D		Brown silty very sandy medium GRAVEL.			8.7						NP
TP-52910	1	0.50	0.80	B		Grey very sandy very silty medium GRAVEL.			7.8	52					
TP-52910	2	0.80		D		Grey very sandy very silty medium GRAVEL.			7.8		19	14	5		ML
TP-52910	3	1.90	2.20	B		Brown slightly gravelly sandy SILT.			9.8	66					
TP-52910	4	2.20		D		Brown slightly gravelly sandy SILT.			9.8		18	12	6		ML
TP-53110	3	0.80	1.10	B		Light brown very sandy very silty medium GRAVEL.			10.0	51					
TP-53110	4	1.10		D		Light brown slightly gravelly sandy SILT.			10.0		19	14	5		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 20

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-53110	6	2.60		D		Light brown slightly gravelly sandy SILT.			6.3	46	17	9	8		CL
TP-53211	2	0.70		D		Light creamish-grey slightly gravelly slightly sandy SILT.			9.9	55	19	13	6		ML
TP-53211	3	1.80	2.10	B		Light brown very sandy very silty medium GRAVEL.			9.9	48					
TP-53211	4	2.10		D		Light brown slightly gravelly slightly sandy SILT.			6.8		18	13	5		ML
TP-53310	3	1.50	1.80	B		Light brown very silty very sandy GRAVEL.			7.5	39					
TP-53310	4	1.80		D		Light brown slightly sandy gravelly SILT.			7.8						NP
TP-53371	2	0.50		D		Brown slighlty sandy slightly gravelly SILT.			11.0	35					NP
TP-53371	3	0.90	1.20	B		Brown silty very sandy medium GRAVEL.			14.0	38					
TP-53371	4	1.20		D		Brown slightly gravelly slightly sandy SILT.			14.0		30	26	4		ML
TP-53371	5	1.80	2.10	B		Brown silty very sandy medium GRAVEL.			8.0	29					
TP-53371	6	2.10		D		Brown slightly sandy gravelly SILT.			8.0						NP
TP-53510	1	0.30	0.60	B		Brown very silty very sandy coarse GRAVEL.			10.0	44					
TP-53510	2	0.60		D		Brown very silty very sandy coarse GRAVEL.			10.0		22	15	7		CL
TP-53510	3	1.40	1.70	B		Grey very silty very sandy GRAVEL.			5.9	43					
TP-53510	4	1.70		D		Light grey slightly sandy gravelly SILT.			5.9		17	12	5		ML
TP-53510	6	2.80		D		Light grey slightly gravelly sandy SILT.			8.9	32					NP
TP-53609	3	1.10	1.40	B		Grey very silty very sandy GRAVEL.			8.4	40					
TP-53609	4	1.40		D		Grey very silty very sandy GRAVEL.			8.4		20	20	0		NP
TP-53692	3	1.70	2.00	B		Light brown silty very sandy coarse GRAVEL.			10.0	33					
TP-53692	4	2.00		D		Light brown silty very sandy coarse GRAVEL.			15.0		22	17	5		ML
TP-53810	2	0.70		D		Light brown slightly sandy gravelly SILT.			13.0		25	16	9		CL
TP-53810	4	2.10		D		Light grey very gravelly very silty SAND.			9.6		18	14	4		ML
TP-54012	4	1.70		D		Light brown silty very sandy medium and coarse GRAVEL.			4.8		23	17	6		ML
TP-54109	1	0.30	0.60	B		Light brown very sandy very silty coarse GRAVEL.			11.0	49					
TP-54109	2	0.60		D		Light brown slightly gravelly slighlty sandy SILT.			11.0		27	17	10		CL
TP-54309	2	0.70		D		Light brown slightly gravelly sandy SILT.			9.0	58	19	14	5		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Liquid Limit: 4pt cone unless :; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Linear measurement unless :

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 21

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-54309	3	2.10	2.40	B		Light grey very silty SAND and GRAVEL.			7.9	42					
TP-54309	4	2.40		D		Light grey very silty SAND and GRAVEL.			8.5		17	11	6		CL
TP-54411	1	0.30	0.60	B		Light brown slightly sandy slightly gravelly SILT.			9.3	56					
TP-54411	2	0.60		D		Light brown slightly sandy slightly gravelly SILT.			8.5	46	19	14	5		ML
TP-54411	3	1.60	1.90	B		Light creamish-grey very silty very sandy GRAVEL.			7.5	40					
TP-54411	4	1.90		D		Light creamish-grey very silty very sandy GRAVEL.			7.9						NP
TP-54511	4	1.70		D		Light creamish-grey slightly gravelly sandy SILT.			9.9		18	12	6		CL
TP-54611	4	1.00		D		Light brown slightly gravelly slightly sandy SILT.			11.0		20	15	5		ML
TP-54611	6	2.20		D		Light brown slightly gravelly slightly sandy SILT.			8.0		21	14	7		CL
TP-54710	1	0.50	0.80	B		Light brown slightly gravelly sandy SILT.			10.0	64					
TP-54710	2	0.60		D		Light brown slightly gravelly sandy SILT.			8.5		19	14	5		ML
TP-54809	1	0.30	0.60	B		Light brown slightly gravelly sandy SILT.			11.0	56					
TP-54809	2	0.60		D		Light brown slightly gravelly slightly sandy SILT.			9.9		23	16	7		CL
TP-54922	4	1.50		D		Light brown very silty very sandy coarse GRAVEL.			7.3		20	15	5		ML
TP-55008	4	2.00		D		Light grey silty very sandy coarse GRAVEL.			6.9						NP
TP-55109	4	0.80		D		Cream slightly gravelly sandy SILT.			9.3		20	15	5		ML
TP-55109	6	1.60		D		Dark brown very silty SAND and GRAVEL. Gravel is predominantly medium.			8.3		17	12	5		ML
TP-55207	1	0.30	0.60	B		Light brown slightly gravelly sandy SILT.			9.0	61					
TP-55207	2	0.60		D		Light brown slightly gravelly sandy SILT.			9.0		18	14	4		ML
TP-55207	5	2.30	2.60	B		Light brown very silty SAND and GRAVEL.			7.5	47					
TP-55207	6	2.60		D		Light brown very silty SAND and GRAVEL.			7.5		18	14	4		ML
TP-55310	2	0.80		D		Light brown silty very sandy medium and coarse GRAVEL.			7.8		21	19	2		ML
TP-55310	4	2.20		D		Cream very silty SAND and GRAVEL.			11.0		19	13	6		ML
TP-55409	2	0.70		D		Light brown very silty very sandy coarse GRAVEL.			7.9	46	20	16	4		ML
TP-55409	4	2.00		D		Light brown silty very sandy medium GRAVEL.			9.1		21	15	6		ML
TP-55510	2	0.80		D		Light brown silty very sandy coarse GRAVEL.			8.5		23	18	5		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 22

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-55612	4	1.40		D		Light cream very silty very sandy coarse GRAVEL.			3.9						NP
TP-55711	2	0.60		D		Dark grey very silty very sandy coarse GRAVEL.			8.8						NP
TP-55711	4	1.70		D		Light grey very silty sandy GRAVEL.			9.4	42	20	18	2		ML
TP-55806	4	1.00		D		Dark grey very silty SAND and GRAVEL. Gravel is medium.			15.0	50	26	21	5		ML
TP-55806	6	1.70		D		Dark grey silty very sandy medium GRAVEL.			15.0						NP
TP-55897	4	1.50		D		Dark grey very silty very sandy GRAVEL.			7.6		16	12	4		ML
TP-55897	6	2.40		D		Dark grey very silty very sandy coarse GRAVEL.			6.4		16	11	5		ML
TP-56308	2	0.50		D		Brownish-grey slightly gravelly slightly sandy silty CLAY.			17.0	78	29	17	12		CL
TP-56308	3	0.90	1.20	B		Grey silty very sandy medium and coarse GRAVEL.			10.0	16					
TP-56308	4	1.20		D		Grey silty very sandy medium and coarse GRAVEL.			9.1		27	20	7		CL
TP-56408	1	0.30	0.60	B		Brown very silty SAND and GRAVEL.			14.0	51					
TP-56408	2	0.60		D		Brown very silty SAND and GRAVEL.			14.0		26	19	7		CL
TP-56408	5	2.00	2.30	B		Brown very silty SAND and GRAVEL.			10.0	48					
TP-56408	6	2.30		D		Brown very silty SAND and GRAVEL.			12.0		19	17	2		ML
TP-56485	1	0.30	0.60	B		Brown very gravelly very silty medium SAND.			19.0	64					
TP-56485	2	0.60		D		Brown very gravelly very silty medium SAND.			22.0		23	23	0		NP
TP-56485	3	1.30	1.60	B		Light brown slighlty gravelly sandy SILT.			11.0	68					
TP-56485	4	1.60		D		Light brown slighlty gravelly sandy SILT.			11.0		19	15	4		ML
TP-56627	3	0.90	1.20	B		Brown very silty very gravelly coarse SAND.			11.0	36					
TP-56627	4	1.20		D		Brown very silty very gravelly coarse SAND.			7.6		25	23	2		ML
TP-56627	5	2.30	2.60	B		Light brown slightly gravelly sandy SILT.			11.0	57					
TP-56627	6	2.60		D		Light brown slightly gravelly sandy SILT.			12.0		18	14	4		ML
TP-56709	1	0.30	0.60	B		Brown silty very sandy medium GRAVEL.			16.0	29					
TP-56709	2	0.60		D		Brown silty very sandy medium GRAVEL.			5.2		34	21	13		CL
TP-56709	5	2.40	2.70	B		Light brown silty SAND and GRAVEL. Sand is medium and coarse, gravel is fine and medium.			11.0	36					
TP-56709	6	2.70		D		Light brown slighlty gravelly slightly sandy SILT.			7.4		20	16	4		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 23

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-57107	1	0.30	0.60	B		Brown slightly gravelly sandy SILT.			13.0	52					
TP-57107	2	0.60		D		Brown slightly gravelly sandy SILT.			13.0		26	19	7		CL
TP-57107	3	1.50	1.80	B		Brownish-grey very silty very sandy medium GRAVEL.			8.0	50					
TP-57107	4	1.80		D		Brownish-grey very silty very sandy medium GRAVEL.			10.0		17	14	3		ML
TP-57203	3	0.90	1.20	B		Light brown very gravelly very silty SAND.			14.0	61					
TP-57203	4	1.20		D		Light brown very gravelly very silty SAND.			11.0		23	17	6		ML
TP-57203	5	3.20	3.50	B		Brown slightly gravelly sandy SILT.			13.0	72					
TP-57203	6	3.50		D		Brown slightly gravelly sandy SILT.			13.0		20	14	6		CL
TP-57307	3	1.80	2.10	B		Light brown slightly gravelly sandy SILT.			11.0	60					
TP-57307	4	2.10		D		Light brown slightly gravelly sandy SILT.			9.3		19	14	5		ML
TP-57307	6	2.90		D		Light brown slightly gravelly sandy SILT.			6.8	69	17	13	4		ML
TP-57417	1	0.40	0.70	B		Light brown silty very sandy coarse GRAVEL.			10.0	26					
TP-57417	4	1.80		D		Light brown slightly gravelly slightly sandy SILT.			9.4	60	18	12	6		ML
TP-57510	5	1.70	2.00	B		Light brown slightly gravelly sandy SILT.			10.0	60					
TP-57510	6	2.00		D		Light brown slightly gravelly sandy SILT.			9.4		19	14	5		ML
TP-57602	5	1.60	1.90	B		Light grey slightly gravelly sandy SILT.			10.0	57					
TP-57602	6	1.90		D		Light grey slightly gravelly sandy SILT.			9.5		18	14	4		ML
TP-57708	2	0.10		D		Dark brown slightly gravelly sandy SILT.			41.0	64					
TP-57708	3	0.40	0.70	B		Dark brown slightly gravelly sandy SILT.			9.8		19	13	6		CL
TP-57708	4	0.70		D		Brown silty gravelly medium SAND.			10.0	56					
TP-57708	5	1.50	1.80	B		Brown silty gravelly medium SAND.			11.0	43	19	14	5		ML
TP-58419	1	0.60	0.90	B		Brown silty very sandy medium GRAVEL.			12.0	23					
TP-58505	1	0.30	0.60	B		Light brown slightly gravelly slightly sandy SILT.			9.3	76					
TP-58505	2	0.60		D		Light brown slightly gravelly slightly sandy SILT.			9.2		22	18	4		ML
TP-58505	3	1.50	1.80	B		Grey silty very sandy medium GRAVEL.			8.7	29					
TP-58505	4	1.80		D		Grey silty very sandy medium GRAVEL.			8.7		19	17	2		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 24

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-58606	2	0.70	1.00	B		Brownsih-grey very silty very sandy coarse GRAVEL.			9.6	40					
TP-58606	3	0.80		D		Brownsih-grey very silty very sandy coarse GRAVEL.			11.0	40	29	18	11		CL
TP-58702	1	0.30	0.50	B		Brownish-grey very silty very sandy medium and coarse GRAVEL.			7.3	38					
TP-58702	2	0.50		D		Brownish-grey very silty very sandy medium and coarse GRAVEL.			6.5	38	18	15	3		ML
TP-58702	3	1.50	1.80	B		Brownish-grey silty very sandy coarse GRAVEL.			6.5	29					
TP-58814	1	0.40	0.70	B		Greenish-brown very silty SAND and GRAVEL.			9.2	50					
TP-58814	2	0.70		D		Greenish-brown very silty SAND and GRAVEL.			7.7	50	20	14	6		CL
TP-58814	3	1.70	2.00	B		Brownish-grey slightly gravelly sandy SILT.			7.7	55					
TP-58904	1	0.40	0.70	B		Dark grey silty very sandy coarse GRAVEL.			6.9	32					
TP-58904	2	0.70		D		Dark grey silty very sandy coarse GRAVEL.			6.7	32					NP
TP-59203	2	0.25		D		Orangish-brown slightly gravelly slightly sandy SILT.			20.0	62					
TP-59203	3	0.60	0.90	B		Brown silty very sandy medium GRAVEL.			7.9	47	23	19	4		ML
TP-59203	5	1.70	2.00	B		Brown silty sandy coarse GRAVEL.			4.6	13					
TP-59305	1	0.50	1.00	B		Brown silty very sandy medium and coarse GRAVEL.			11.0	37					
TP-59305	2	0.50	1.00	D		Light brown slightly gravelly sandy SILT.			9.3	49					NP
TP-59305	3	1.70	2.20	B		Light brown silty SAND and GRAVEL.			10.0	48					
TP-59305	4	1.70	2.20	D		Light brown silty very sandy medium GRAVEL.			11.0	51					NP
TP-59407	1	0.70	1.20	B		Light brown very silty SAND and GRAVEL.			8.3	53					
TP-59407	2	0.70	1.20	D		Light brown sandy very silty medium GRAVEL.			8.5	54					NP
TP-59407	3	1.70	2.20	B		Light brown slightly gravelly sandy SILT.			7.7	56					
TP-59407	6	3.50	4.00	D		Light brown sandy very silty medium GRAVEL.			11.0	52					NP
TP-59504	1	0.70	1.20	B		Light brown very sandy very silty coarse GRAVEL.			11.0	46					
TP-59504	2	0.70	1.20	D		Light brown sandy very silty medium GRAVEL.			9.9	49	19	15	4		ML
TP-59504	3	2.20	2.70	B		Light brown very silty SAND and GRAVEL.			7.8	53					
TP-59504	4	2.20	2.70	D		Light brown sandy very silty medium GRAVEL.			9.6	45					NP
TP-60003	1	0.40	0.60	B		Light brown very gravelly very silty fine SAND.			18.0	61					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 25

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-60003	2	0.50		D		Light brown very gravelly very silty fine SAND.			19.0	68					NP
TP-60003	3	0.90	1.20	B		Light brownish-grey very silty SAND and GRAVEL.			11.0	46					
TP-60003	6	2.90	3.20	B		Light grey very silty SAND and GRAVEL.			8.5	46					
TP-60106	1	0.30	0.60	B		Light brownish-grey very silty very gravelly SAND.			12.0	54					
TP-60106	5	1.90	2.20	B		Dark grey very silty GRAVEL and SAND. Sand is fine.			8.9	56					
TP-60212	1	0.10	0.40	B		Light brown very silty very gravelly SAND.			10.0	55					
TP-60212	2	0.40		D		Light brown very silty very gravelly SAND.			10.0						NP
TP-60212	3	0.80	1.10	B		Light golden brown very silty SAND and GRAVEL..			10.0	58					
TP-60212	5	1.80	2.10	B		Grey very silty very gravelly fine SAND.			9.0	61					
TP-60212	6	2.10		D		Grey very silty very gravelly fine SAND.			9.0						NP
TP-60269	1	0.30	0.60	B		Light grey very gravelly very silty medium SAND.			16.0	58					
TP-60269	3	1.30	1.60	B		Dark grey slightly gravelly sandy SILT.			8.6	58					
TP-60269	4	1.60		D		Dark grey slightly gravelly sandy SILT.			8.6						NP
TP-60312	1	0.30	0.60	B		Light grey silty gravelly coarse and medium SAND.			5.1	39					
TP-60312	3	1.50	1.80	B		Dark grey slightly gravelly sandy SILT.			8.3	60					
TP-60312	4	1.80		D		Dark grey slightly gravelly sandy SILT.			8.3		16	11	5		ML
TP-60709	2	0.30		D		Dark grey slightly gravelly sandy SILT.			6.8	48	17	12	5		ML
TP-60709	3	0.70	1.00	B		Dark grey very silty SAND and GRAVEL.			8.3	55					
TP-60709	4	1.00		D		Dark grey very silty SAND and GRAVEL.			8.3		16	10	6		ML
TP-60805	3	0.60	0.90	B		Dark brownish-grey slightly gravelly sandy SILT.			9.4	63					
TP-60805	4	0.90		D		Dark brownish-grey slightly gravelly sandy SILT.			9.4		18	13	5		ML
TP-60805	5	1.50	1.80	B		Light greyish-brown very gravelly very silty medium SAND.			9.6	53					
TP-60805	6	1.80		D		Light greyish-brown slighlty gravelly sandy SILT.			9.9	62	17	12	5		ML
TP-60905	3	0.80	0.90	B		Light brown slightly sandy slightly gravelly SILT. Gravel is coarse.			16.0	56					
TP-60905	4	1.10		D		Light brownish-grey slighlty sandy gravelly SILT.			16.0	62	26	17	9		CL
TP-60905	6	2.00		D		Light grey slightly gravelly sandy SILT.			12.0	57					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 26

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-60905	7	2.30	2.50	B		Greyish-brown slightly sandy gravelly SILT.			6.7	28					NP
TP-61007	3	0.60	0.90	B		Light brown slightly gravelly slightly sandy SILT.			11.0	56					
TP-61007	4	0.90		D		Light brown slightly gravelly slightly sandy SILT.			11.0		18	12	6		ML
TP-61007	5	1.50	1.80	B		Light brown very silty SAND and GRAVEL.			7.6	50					
TP-61007	6	1.80		D		Light brown very silty SAND and GRAVEL.			7.6						NP
TP-61133	1	0.30	0.60	B		Light brown slighlty gravelly sandy SILT.			20.0	69					
TP-61133	2	0.50		D		Light brown slighlty gravelly sandy clayey SILT.			20.0		36	20	16		CI
TP-61133	5	2.50	2.80	B		Light brown slightly gravelly sandy SILT.			9.6	62					
TP-61133	6	2.80		D		Light brown slightly gravelly sandy SILT.			9.6		19	13	6		CL
TP-61201	1	0.30	0.60	B		Dark brown very silty SAND and GRAVEL.			13.0	49					
TP-61201	2	0.60		D		Dark brown very silty SAND and GRAVEL.			13.0		30	21	9		CL
TP-61201	4	1.30		D		Light brown slightly gravelly sandy SILT.			10.0	53	18	13	5		ML
TP-61201	5	1.90	2.20	B		Light brown slightly gravelly sandy SILT.			9.4	57					
TP-61201	6	2.20		D		Light brown slightly gravelly sandy SILT.			9.1		19	13	6		ML
TP-61521	3	1.20	1.50	B		Dark brownish-grey slightly gravelly sandy SILT.			10.0	58					
TP-61521	4	1.50		D		Dark brownish-grey slightly gravelly sandy SILT.			10.0		19	14	5		ML
TP-61706	3	0.70	1.00	B		Grey slightly gravelly slightly sandy SILT.			8.2	61					
TP-61706	4	1.00		D		Grey slightly gravelly slightly sandy SILT.			8.7	65	18	11	7		CL
TP-61706	5	2.00	2.30	B		Dark grey very sandy very silty GRAVEL.			8.6	52					
TP-61706	6	2.30		D		Dark grey very sandy very silty GRAVEL.			8.6		16	11	5		CL
TP-61904	2	0.40		D		Light brown slightly gravelly slightl ysandy SILT.			16.0	60					NP
TP-61904	4	0.80		D		Light brown slightly gravelly sandy SILT.			11.0	54	21	14	7		CL
TP-61904	5	1.70	2.00	B		Light brown very silty very sandy medium GRAVEL.			8.7	35					
TP-62004	1	0.30	0.50	B		Light brown very silty SAND and GRAVEL. Gravel is coarse.			18.0	49					
TP-62004	3	1.40	1.70	B		Light brown very silty very sandy medium and coarse GRAVEL.			10.0	34					
TP-62004	4	1.70		D		Light brown slightly gravelly slightly sandy SILT.			12.0	40	28	19	9		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 27

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-62205	1	0.30	0.60	B		Light brown gravelly very silty medium SAND.			15.0	70					
TP-62205	3	1.10	1.40	B		Light brown very silty very sandy medium GRAVEL.			9.1	36					
TP-62205	5	1.60	1.90	B		Light creamy grey slightly sandy gravelly SILT.			10.0	54	18	12	6		ML
TP-62305	1	0.40	0.70	B		Dark brown slightly silty very sandy GRAVEL.			5.5	6					
TP-62305	3	1.20	1.50	B		Dark brown slightly silty sandy medium GRAVEL.			6.1	7					
TP-62417	1	0.30	0.60	B		Yellowish-brown very silty medium SAND.			15.0	85					
TP-62417	2	0.60		D		Yellowish-brown very silty medium SAND.			19.0	87					NP
TP-62417	3	1.30	1.60	B		Light brown very sandy medium and coarse GRAVEL.			6.5	12					
TP-62506	2	0.70		D		Brown slightly gravelly sandy SILT.			38.0	93	53	30	23		MH
TP-62506	3	1.20	1.50	B		Light orangish-brown slighlty sandy silty CLAY.			34.0	98					
TP-62506	4	1.50		D		Light orangish-brown slighlty sandy silty CLAY.			34.0		30	18	12		CL
TP-62608	1	0.40	0.70	B		Light orangish-brown slighlty gravelly slightly sandy SILT.			27.0	88					
TP-62608	2	0.70		D		Light orangish-brown slighlty gravelly slightly sandy SILT.			28.0	88	39	23	16		CI
TP-62608	4	1.70		D		Light brownish-grey slightly gravelly sandy SILT.			75.0	96	81	41	40		MV
TP-62608	5	1.90	2.20	B		Light grey slightly gravelly sandy SILT.			41.0	79					
TP-62608	6	2.20		D		Light grey slightly gravelly SILT.			32.0	72	47	25	22		CI
TP-62706	1	0.40	0.70	B		Light brown sandy SILT. Sand is fine and medium.			32.0	93					
TP-62706	2	0.70		D		Light brown sandy SILT. Sand is fine and medium.			32.0		40	22	18		CI
TP-62706	3	1.50	1.80	B		Light brown slightly sandy SILT.			45.0	93					
TP-62706	4	1.80		D		Light brown slightly sandy SILT.			45.0		57	29	28		MH
TP-62706	5	2.20	2.50	B		Dark grey silty very sandy coarse GRAVEL.			18.0	25					
TP-62907	2	0.60		D		Yellowish-brown silty SAND.			26.0	95					NP
TP-62907	3	1.40	1.70	B		Brownish-grey slightly gravelly slightly sandy SILT.			47.0	87					
TP-62907	4	1.70		D		Brownish-grey sandy SILT.			36.0	90	48	26	22		CI
TP-62907	5	2.40	2.70	B		Greyish-brown silty very sandy coarse GRAVEL.			14.0	35					
TP-63205	1	0.30	0.60	B		Light orange-brown slightly gravelly sandy SILT. Sand is medium and fine.			25.0	84					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 28

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-63205	2	0.60		D		Yellowish-brown silty SAND.			16.0	82	25	17	8		CL
TP-63205	3	0.90	1.20	B		Brownish-grey silty very sandy coarse GRAVEL.			6.5	22					
TP-63205	5	2.00	2.30	B		Light brown slightly sandy gravelly SILT.			9.7	56					
TP-63205	6	2.30		D		Greyish-brown sandy very silty medium GRAVEL.			11.0	63	18	13	5		ML
TP-63510	2	0.30		D		Yellowish-brown slightly gravelly sandy SILT.			20.0	69	37	25	12		MI
TP-63510	3	0.70	1.00	B		Brownish-grey slighlty gravelly slightly sandy SILT.			17.0	73					
TP-63510	4	1.00		D		Brownish-grey very sandy very silty medium GRAVEL.			16.0	62	29	20	9		CL
TP-63510	5	1.70	2.00	B		Yelllowish-brown slightly sandy gravelly SILT.			8.9	53					
TP-63510	6	2.00		D		Brownish-grey sandy very silty medium GRAVEL.			8.8	49	19	13	6		CL
TP-63610	1	0.20	0.50	B		Geryish-brown slightly gravelly sandy SILT.			11.0	65					
TP-63610	2	0.50		D		Brownish-grey silty very sandy medium GRAVEL.			18.0	52	26	18	8		CL
TP-63610	4	1.50		D		Brownish-grey sandy very silty medium GRAVEL.			7.4	46					Smelly Sample
TP-63610	6	2.40		D		Brownish-grey sandy very silty medium GRAVEL.			10.0	62	20	13	7		CL
TP-63711	1	0.30	0.60	B		Yellowish-brown slightly gravelly very silty medium SAND.			12.0	78					
TP-63711	2	0.60		D		Yellowish-brown slightly gravelly very silty medium SAND.			21.0	96	29	21	8		CL
TP-63711	3	1.00	1.30	B		Greyish-brown silty very sandy coarse GRAVEL.			6.7	17					
TP-63711	4	1.90	2.20	B		Brwonish-grey very silty SAND and GRAVEL.			8.3	51					
TP-63711	5	2.20		D		Brwonish-grey very silty SAND and GRAVEL.			9.9	58	19	13	6		CL
TP-63812	2	0.60		D		Greyish-brown slightly gravelly sandy SILT.			19.0	90	25	18	7		CL
TP-63812	4	1.10		D		Brownish-grey sandy very silty medium GRAVEL.			8.9	51	20	14	6		ML
TP-63812	5	1.70	2.00	B		Brownish-grey slightly gravelly sandy SILT.			8.9	60					
TP-63911	1	0.20	0.50	B		Brown gravelly silty medium and coarse SAND.			24.0	48					
TP-63911	3	1.20	1.50	B		Black fibrous PEAT.			422.0	22					Not enough fines
TP-63911	5	2.30	2.60	B		Greyish-brown silty SAND.			25.0	89	28	17	11		CL
TP-65707	2	0.80		D		Light brown sandy very silty medium GRAVEL.			10.0	46	21	14	7		CL
TP-65805	2	0.60		D		Brown slightly gravelly sandy SILT.			17.0	51	30	20	10		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 29

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-65805	4	1.60		D		Brownish-grey sandy very silty medium GRAVEL.			6.4		19	14	5		ML
TP-65805	6	2.50		D		Brownish-grey sandy very silty medium GRAVEL.			7.3	38	19	14	5		ML
TP-65906	6	2.80		D		Greyish-brown sandy very silty medium GRAVEL.			8.9	60	17	12	5		ML
TP-66005	2	0.50		D		Brown slightly gravelly sandy SILT.			19.0	61	32	23	9		CL
TP-66005	4	1.10		D		Light brown slightly gravelly sandy SILT.			16.0	91	21	16	5		ML
TP-66005	6	2.00		D		Greyish-brown silty very sandy medium GRAVEL.			6.5	15					Not enough fines
TP-67410	2	0.60		D		Light brown slightly sandy gravelly SILT. Gravel is medium.			9.8	63	19	15	4		ML
TP-67410	4	1.80		D		Light brown slightly sandy gravelly SILT. Gravel is medium.			7.8		18	14	4		ML
TP-67410	6	3.20		D		Light brown slightly sandy gravelly SILT.			8.4		18	13	5		ML
TP-67511	2	0.40		D		Light brown slightly sandy gravelly SILT. Gravel is coarse.			13.0	53	25	19	6		ML
TP-67511	4	1.00		D		Light brown slightly sandy gravelly SILT. Gravel is coarse.			9.9		22	18	4		ML
TP-67511	6	2.40		D		Light brown slightly gravelly slightly sandy SILT.			9.3		20	13	7		CL
TP-67630	2	0.70		D		Light brown slightly gravelly sandy SILT.			9.5		21	15	6		ML
TP-67630	4	2.10		D		Light brown slightly sandy gravelly SILT.			10.0	52	20	13	7		CL
TP-67708	2	0.70		D		Brown slightly sandy gravelly SILT.			9.1	62	21	15	6		ML
TP-67708	4	2.10		D		Light brown slightly gravelly slightly sandy SILT.			7.6	59	19	15	4		ML
TP-67809	2	0.80		D		Light brown very sandy very silty medium GRAVEL.			9.3	54	21	15	6		ML
TP-67809	4	2.20		D		Light brown very sandy very silty coarse GRAVEL.			7.5	64	19	14	5		ML
TP-67908	2	0.30		D		Brown very sandy very silty coarse GRAVEL.			13.0	78	35	24	11		ML
TP-67908	8	1.00		D		Brown very sandy very silty coarse GRAVEL.			6.4		21	15	6		ML
TP-67908	4	1.30		D		Brown very sandy very silty coarse GRAVEL.			6.3	52	20	15	5		ML
TP-67908	6	2.60		D		Brown slightly gravelly sandy SILT.			9.6		21	14	7		CL
TP-68007	2	0.60		D		Brown slightly gravelly slightly sandy SILT.			25.0	73	41	19	22		CI
TP-68007	4	1.60		D		Light brown slighlty gravelly sandy SILT.			12.0	60	21	14	7		CL
TP-68007	8	3.50		D		Brown very silty SAND and GRAVEL.			8.1	54	19	15	4		ML
TP-68007	10	4.30		D		Light brown slighlty sandy slightly gravelly SILT.			9.4	58	24	15	9		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 30

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-68108	2	0.60		D		Orangish-brown slighlty gravelly sandy SILT.			15.0	73	31	20	11		CI
TP-68210	2	0.50		D		Orangish-brown slightly gravelly slightly sandy SILT.			17.0	75	34	21	13		CL
TP-68405	2	0.40		D		Orangish-brown slightly gravelly sandy SILT.			21.0	79	31	23	8		ML
TP-68405	4	1.30		D		Light brown very sandy very silty medium and coarse GRAVEL.			9.7	46	21	16	5		ML
TP-68505	2	0.50		D		Orangish-brown slightly gravelly sandy SILT.			20.0	76	32	19	13		CL
TP-68505	6	2.30		D		Greyish-brown slightly sandy gravelly SILT.			8.8	49	18	12	6		ML
TP-68607	2	0.70		D		Brown slightly sandy gravelly SILT.			11.0		21	15	6		ML
TP-68607	4	2.20		D		Light brown silty very sandy coarse GRAVEL.			4.9	25					NP
TP-68705	2	0.70		D		Light brown very sandy very silty coarse GRAVEL.			9.0		20	16	4		ML
TP-68705	5	2.50		D		Light brown very sandy very silty medium and coarse GRAVEL.			7.3		18	13	5		ML
TP-68806	1	0.40		D		Brown silty very gravelly medium SAND.			11.0	82	26	20	6		CL
TP-68806	6	2.10		D		Brown sandy very silty medium GRAVEL.			11.0	71	25	16	9		CL
TP-68806	8	3.30		D		Brown slightly gravelly slightly sandy SILT.			9.2		22	16	6		ML
TP-68905	2	0.70		D		Light brown very silty very sandy medium and coarse GRAVEL.			9.0	48	24	19	5		ML
TP-68905	4	1.70		D		Light brown silty very sandy coarse GRAVEL.			6.1	37					NP
TP-69006	2	0.60		D		Light brown very silty very sandy coarse GRAVEL.			9.1	51	20	17	3		ML
TP-69006	4	1.30	2.80	D		Light brown very silty very sandy coarse GRAVEL.			9.5	53	20	17	3		ML
TP-69106	2	0.50		D		Brown slightly gravelly sandy SILT.			18.0	69	30	21	9		CL
TP-69106	4	1.60		D		Light brown very silty very sandy GRAVEL.			9.0	49	20	16	4		ML
TP-69203	2	0.30		D		Brown silty very gravelly coarse SAND.			7.1	56	34	26	8		ML
TP-69306	2	0.50		D		Brown slightly sandy gravelly SILT.			20.0	68	36	23	13		MI
TP-69306	5	2.40		D		Brownish-grey slightly sandy slightly gravelly SILT.			8.3	52	18	12	6		ML
TP-69407	2	0.60		D		Brown silty very sandy coarse GRAVEL.			29.0		76	54	22		MV
TP-69407	4	1.50		D		Brownish-grey slightly gravelly slightly sandy SILT.			11.0	66	20	13	7		CL
TP-69407	6	2.30		D		Brownish-grey slightly gravelly slightly sandy SILT.			8.5	58	19	14	5		ML
TP-70005	2	0.40		D		Light brown very gravelly very silty fina and medium SAND.			19.0	65	30	21	9		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 31

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-70304	2	0.50		D		Brown slightly gravelly slightly sandy SILT.			20.0	75	34	20	14		CL
TP-70304	4	1.30		D		Light brown slighlty gravelly sandy SILT.			12.0		19	15	4		ML
TP-70304	6	2.30		D		Light brown very sandy very silty GRAVEL.			9.3	51	19	13	6		ML
TP-70393	2	0.50		D		Orangish-brown slightly gravelly slightly sandy SILT.			22.0	71	33	22	11		CL
TP-70393	4	1.00		D		Light brown very sandy very silty GRAVEL.			11.0	46	18	12	6		CL
TP-70393	6	2.10		D		Brownish-grey slightly sandy slightly gravelly SILT.			9.2	55	19	13	6		ML
TP-70504	4	0.80		D		Brownish-grey slightly sandy gravelly SILT.			10.0	54	22	16	6		ML
TP-70504	6	2.10		D		Light brown very sandy very silty GRAVEL.			9.0	49	18	13	5		ML
TP-70608	2	0.60		D		Brownish-grey very sandy very silty GRAVEL.			12.0	50	22	16	6		ML
TP-70608	4	1.30		D		Grey slightly sandy slightly gravelly SILT.			9.1	52	18	11	7		CL
TP-70608	6	2.50		D		Brownish-grey slightly sandy gravelly SILT.			7.8	53	18	13	5		ML
TP-70716	2	0.70		D		Brown very gravelly very silty medium SAND.			17.0	63					NP
TP-70716	4	2.00	2.30	B		Grey slight sandy gravelly SILT.			8.4	57	17	12	5		ML
TP-70716	5	2.30		D		Grey slight sandy gravelly SILT.			9.5		17	11	6		ML
TP-71808	2	0.50		D		Light brown slightly gravelly sandy SILT.			18.0	75	30	19	11		CL
TP-71808	4	1.40		D		Brownish-grey slightly sandy slightly gravelly SILT.			9.1	64	21	17	4		ML
TP-71808	6	2.50		D		Brownish-grey slightly sandy gravelly SILT.			11.0	54	18	13	5		ML
TP-71907	2	0.60		D		Light brown very silty SAND and GRAVEL.			11.0	51	23	16	7		CL
TP-72009	2	0.50		D		Orange-brown slighlty gravelly slightly sandy SILT.			22.0	73	38	18	20		CI
TP-72009	4	1.40		D		Light brown very silty very sandy medium GRAVEL.			9.7	45	19	13	6		CL
TP-72108	2	0.60		D		Brown slightly sandy slightly gravelly SILT.			10.0	54	22	15	7		CL
TP-72108	4	1.80		D		Brownish-grey very sandy very silty GRAVEL.			11.0	48	18	13	5		ML
TP-72160	2	0.60		D		Light brown slightly gravelly sandy SILT.			17.0	69	29	18	11		CL
TP-72160	4	1.60		D		Brownish-grey slightly sandy gravelly SILT. Gravel is coarse.			11.0	55	19	12	7		CL
TP-72289	2	0.30		D		Brown very silty very sandy GRAVEL.			14.0	49	31	21	10		CL
TP-72289	4	1.00		D		Light brown slightly sandy slightly gravelly SILT.			9.6	59	19	14	5		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 32

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-72289	6	2.30		D		Light brown slightly sandy slightly gravelly SILT.			6.1	58	20	12	8		CL
TP-72403	2	0.60		D		Brown slightly gravelly slightly sandy SILT.			18.0	59	25	18	7		CL
TP-72403	4	1.30		D		Brownish-grey slightly gravelly slightly sandy SILT.			10.0	61	20	13	7		CL
TP-72403	6	2.50		D		Greyish-brown slightly gravelly slightly sandy SILT.			8.6	61	18	13	5		ML
TP-72503	2	0.60		D		Brownish-grey slightly sandy slightly gravelly SILT.			18.0	74	27	20	7		CL
TP-72503	4	1.40		D		Brownish-grey very sandy very silty coarse GRAVEL.			7.5	52	17	13	4		ML
TP-72503	6	2.60		D		Grey very silty very sandy medium GRAVEL.			12.0	39	18	14	4		ML
TP-72603	3	0.80		D		Dark brown slightly gravelly sandy SILT.			33.0	93	43	25	18		CI
TP-72603	5	1.60		D		Dark grey very silty medium SAND.			22.0	93					NP
TP-72703	2	0.60		D		Brownish-grey very sandy very silty medium GRAVEL.			10.0	50	18	14	4		ML
TP-72703	4	1.60		D		Brownish-grey slightly gravelly slightly sandy SILT.			9.0	58	18	15	3		ML
TP-72703	6	2.60		D		Grey slightly sandy gravelly SILT.			9.2	54	18	11	7		CL
TP-72801	2	0.60		D		Dark grey slightly sandy slightly gravelly SILT.			10.0	54	18	10	8		CL
TP-72801	4	1.70		D		Brownish-grey very silty very sandy medium GRAVEL.			7.6	53	18	12	6		CL
TP-72801	5	2.40	2.70	B		Grey slightly sandy gravelly SILT.			8.2	52	18	13	5		ML
TP-72801	6	2.70		D		Grey slightly sandy gravelly SILT.			7.1	43	19	12	7		CL
TP-72903	2	0.60		D		Brownish-grey slightly gravelly slightly sandy SILT.			11.0	60	20	14	6		ML
TP-72903	4	1.80		D		Brownish-grey slightly gravelly sandy SILT.			11.0	61	18	13	5		ML
TP-73001	2	0.50		D		Grey very silty very sandy GRAVEL.			13.0						NP
TP-73001	4	1.00		D		Dark grey very sandy very silty GRAVEL.			10.0	66	17	13	4		ML
TP-73001	6	2.00		D		Dark grey very sandy very silty GRAVEL.			10.0	49	18	13	5		ML
TP-73103	2	0.60		D		Light brown very silty very sandy GRAVEL.			9.5	43	18	13	5		ML
TP-73103	4	2.00		D		Light brown very silty SAND and GRAVEL.			10.0	54	18	12	6		ML
TP-73202	4	0.80		D		Light brown slightly gravelly sandy SILT.			11.0	55	22	15	7		CL
TP-73202	6	2.10		D		Light brown slightly sandy slightly gravelly SILT.			9.1	57	20	15	5		ML
TP-73303	2	0.80		D		Yellowish-brown very silty SAND and GRAVEL.			13.0	54	20	14	6		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 33

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-73602	2	0.60		D		Orangish-brown slightly gravelly sandy SILT.			23.0	78	36	20	16		CI
TP-73602	4	1.40		D		Brownish-grey slightly sandy slightly gravelly SILT.			9.3	56	18	15	3		ML
TP-73602	6	2.50		D		Brown slightly gravelly slightly sandy SILT.			8.0	60	19	14	5		ML
TP-73704	4	1.60		D		Brown slightly sandy gravelly SILT.			10.0	53	17	12	5		ML
TP-74102	2	0.50		D		Brownish-grey slightly gravelly sandy SILT.			10.0	58	22	15	7		CL
TP-74102	4	1.20		D		Grey slightly gravelly sandy SILT.			9.2	59	18	13	5		ML
TP-74102	6	2.20		D		Dark grey very silty SAND and GRAVEL.			10.0	51	17	12	5		ML
TP-74170	5	1.50		D		Grey very sandy very silty medium GRAVEL.			8.1	47	16	12	4		ML
TP-74416	2	0.30		D		Brownish-grey very gravelly very silty medium SAND.			23.0	63	33	22	11		CL
TP-74503	2	0.60		D		Light brown slighlty gravelly sandy SILT.			9.9	59	21	14	7		CL
TP-74503	4	1.60		D		Light brown very silty SAND and GRAVEL.			8.8	53	19	14	5		ML
TP-74601	2	0.40		D		Light brown gravelly very silty medium SAND.			21.0	61	33	21	12		CL
TP-74601	4	0.80		D		Brownish-grey slightly gravelly sandy SILT.			4.6	58	19	16	3		ML
TP-74601	6	2.30		D		Light grey slightly sandy slightly gravelly SILT.			8.9	55	19	15	4		ML
TP-74702	4	1.30		D		Brownish-grey slightly gravelly sandy SILT.			9.0	65	17	15	2		ML
TP-74804	2	0.60		D		Grey and orange-brown sandy very silty medium GRAVEL.			16.0	67	23	18	5		ML
TP-74804	4	1.60		D		Grey and orange-brown slightly gravelly slightly sandy SILT.			9.7	58	18	15	3		ML
TP-74804	6	2.40		D		Brownish-grey slightly gravelly slightly sandy SILT.			9.3	54	17	14	3		ML
TP-74902	2	0.60		D		Brownish-grey very silty SAND and GRAVEL.			14.0	47	24	17	7		CL
TP-74902	4	1.20		D		Grey and orange-brown very silty very sandy GRAVEL.			8.8	42	21	14	7		CL
TP-74902	6	2.00		D		Grey silty very sandy GRAVEL.			6.9	37					NP
TP-74969	2	0.50		D		Brown slightly gravelly sandy SILT.			18.0	59	38	27	11		MI
TP-74969	4	1.60		D		Grey and orange-brown slightly gravelly sandy SILT.			13.0	63	18	11	7		CL
TP-74969	6	2.10		D		Grey slightly gravelly sandy SILT.			9.4	48	17	13	4		ML
TP-75104	2	0.50		D		Orangish-brown slightly gravelly sandy SILT. Sand is medium and fine.			18.0	79	31	20	11		CL
TP-75104	4	1.10		D		Light brown slightly sandy gravelly SILT.			8.4	53	19	13	6		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 34

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-75104	6	2.30		D		Light brown slightly gravelly sandy SILT.			10.0	54	23	14	9		CL
TP-75197	2	0.40		D		Light brown silty SAND and GRAVEL. Gravel is medium.			26.0	40	33	28	5		ML
TP-75305	2	0.70		D		Orangish-brown slightly sandy slightly gravelly SILT.			12.0	54	22	14	8		CL
TP-75404	2	0.60		D		Orangish-brown slightly gravelly sandy SILT.			21.0	71	36	29	7		MI
TP-75404	4	1.30		D		Light brown very sandy very silty coarse GRAVEL.			10.0		23	16	7		CL
TP-75508	4	1.70		D		Light brown slightly sandy gravelly SILT.			12.0	53	21	12	9		CL
TP-75508	6	3.00		D		Light brown very sandy very silty GRAVEL.			11.0	47	21	13	8		CL
TP-75605	2	0.50		D		Orange-brown slightly gravelly sandy SILT.			26.0	72	38	26	12		MI
TP-75605	4	1.60		D		Light brown slightly gravelly slightly sandy SILT.			10.0	69	21	14	7		CL
TP-75605	6	2.30		D		Light brown slightly sandy slightly gravelly SILT.			10.0	58	22	15	7		CL
TP-75908	4	2.10		D		Light brown sandy very silty medium GRAVEL.			9.3	53	19	13	6		ML
TP-76006	2	0.60		D		Brown slightly gravelly slightly sandy SILT.			14.0	65	23	15	8		CL
TP-76006	4	2.00		D		Light brown sandy very silty medium GRAVEL.			11.0	62	20	13	7		CL
TP-76087	2	0.60		D		Brown very sandy very silty medium and coarse GRAVEL.			16.0	47	23	16	7		CL
TP-76087	4	2.30		D		Light brown slightly gravelly slightly sandy SILT.			11.0	58	20	14	6		ML
TP-76212	2	0.50		D		Brown slightly sandy slightly gravelly SILT.			14.0	54	26	18	8		CL
TP-76212	4	1.60		D		Light brown slightly gravelly slightly sandy SILT.			10.0	64	20	14	6		ML
TP-76212	8	3.60		D		Light brown slightly gravelly slightly sandy SILT.			8.5	59	20	14	6		ML
TP-76309	2	0.50		D		Light bornw slightly gravelly sandy SILT.			20.0	75	23	20	3		ML
TP-76309	4	1.60		D		Light brown slightly gravelly slightly sandy SILT.			9.4	62	26	16	10		CL
TP-76440	2	0.60		D		Orangish-brown slightly gravelly slightly SILT.			21.0	66	40	25	15		MI
TP-76440	4	1.70		D		Light brown slightly sandy gravelly SILT.			11.0	55	22	15	7		CL
TP-76440	6	2.70		D		Light brown slightly sandy slightly gravelly SILT.			10.0	58	21	14	7		CL
TP-76508	2	0.70		D		Light brown slightly gravelly slightly sandy SILT.			11.0	61	22	15	7		CL
TP-76508	4	1.70		D		Light brown slightly sandy slightly gravelly SILT.			12.0	60	20	14	6		ML
TP-76508	6	2.70		D		Light brown slightly gravelly slightly sandy SILT.			12.0	63	19	13	6		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 35

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-76641	2	0.50		D		Light brown slightly sandy gravelly SILT.			13.0	54	21	15	6		ML
TP-76641	4	1.50		D		Light btown slightly gravelly sandy SILT.			10.0	67	20	14	6		ML
TP-76707	2	0.60		D		Orange-brown slightly gravelly sandy SILT. Sand is medium.			26.0	73	28	23	5		ML
TP-76707	4	1.50		D		Brown slightly gravelly slightly sandy SILT.			11.0	60	20	14	6		ML
TP-76707	6	3.00		D		Light brown slightly gravelly sandy SILT.			11.0	67	21	14	7		CL
TP-76805	2	0.50		D		Light brown slightly sandy gravelly SILT.			11.0	55	21	13	8		CI
TP-76805	4	1.60		D		Light brown slightly gravelly slightly sandy SILT.			10.0	59	20	13	7		CL
TP-76907	2	0.60		D		Orangish-brown slightly gravelly sandy SILT.			18.0	72	32	19	13		CL
TP-76907	4	1.60		D		Light brown slightly sandy slighlty gravelly SILT.			11.0	58	21	16	5		ML
TP-76907	7	3.40		D		Light brown slightly gravelly slightly sandy SILT.			8.0	61	21	13	8		CL
TP-77107	2	0.40		D		Orangish-brown slightly gravelly very silty fine and medium SAND.			18.0	78	26	18	8		CL
TP-77175	2	0.60		D		Orangish-brown slightly gravelly sandy SILT.			16.0	70	29	17	12		CL
TP-77175	6	2.40		D		Light brown slightly gravelly slightly sandy SILT.			10.0	60	20	14	6		ML
TP-77304	2	0.70		D		Light brown slightly gravelly slightly sandy SILT.			11.0	63	20	12	8		CL
TP-77304	4	2.00		D		Light brown sandy very silty medium GRAVEL.			9.0	65	19	14	5		ML
TP-77416	2	0.70		D		Brown very silty SAND and GRAVEL.			16.0	56	27	17	10		CL
TP-77416	4	2.10		D		Light brown slightly gravelly sandy SILT.			10.0	61	19	13	6		ML
TP-77504	2	0.70		D		Greyish-brown silty SAND and GRAVEL.			13.0	40	24	16	8		CL
TP-77705	2	0.60		D		Light brown very silty very gravelly SAND.			13.0	52	27	17	10		CL
TP-77903	2	0.80		D		Light brown slightly gravelly slightly sandy SILT.			8.0	62	23	15	8		CL
TP-77903	4	1.60		D		Greyish-brown slightly gravelly sandy SILT.			9.0	61	20	14	6		CL
TP-78697	2	0.40		D		Brown very silty very gravelly SAND.			22.0	52	33	22	11		CL
TP-78784	2	0.50		D		Brown gravelly very silty fine and medium SAND.			20.0	68	28	20	8		CL
TP-79208	2	0.60		D		Brown slightly gravelly sandy SILT.			18.0	65	31	26	5		ML
TP-79208	4	1.60		D		Light brown slightly gravelly slightly sandy SILT.			12.0	60	27	17	10		CL
TP-79208	6	2.60		D		Light brown slightly gravelly slightly sandy SILT.			10.0	63	19	14	5		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1 sheet 36

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-79309	2	0.70		D		Light brown slighlty gravelly slightly sandy SILT.			12.0	59	20	16	4		ML
TP-79309	6	2.70		D		Light brown slightly gravelly slightly sandy SILT.			7.7	60	20	14	6		ML
TP-79425	2	0.90		D		Brownish-grey slightly gravelly slightly sandy SILT.			16.0	62	24	15	9		CL
TP-79425	4	2.20		D		Brownish-grey slightly gravelly slighlty sandy SILT.			11.0	59	20	14	6		ML
TP-79507	2	0.50		D		Greyish-brown slightly gravelly sandy SILT. Sand is fine and medium.			22.0	81	28	21	7		CL
TP-79507	4	1.60		D		Greyish-brown slightly gravelly sandy SILT.			11.0	67	19	13	6		CL
TP-80306	1	0.30	0.50	B		Brownish-grey slightly gravelly sandy SILT. Sand is medium.			21.0	75	25	19	6		CL
TP-80306	4	1.10		D		Brownish-grey slightly gravelly slightly sandy SILT.			13.0	56	23	15	8		CL
TP-80306	6	2.10		D		Brownish-grey very silty SAND and GRAVEL.			9.7	52	19	15	4		ML
TP-80442	2	0.70		D		Light brown slightly gravelly slightly sandy SILT.			12.0	57	22	15	7		CL
TP-80442	6	2.70		D		Light brown slightly gravelly slightly sandy SILT.			9.4	61	19	13	6		ML
TP-80508	2	1.00	1.50	D		Light brown slightly gravelly slightly sandy SILT.			11.0	61	21	14	7		CL
TP-80634	2	0.50	1.00	D		Orangish-brown slightly gravelly sandy SILT.			24.0	63	35	23	12		CL
TP-80634	6	3.00	3.50	D		Light brown slightly gravelly slightly sandy SILT.			9.1	64	21	13	8		CL
TP-80718	4	1.50	1.90	D		Orange-brown slightly gravelly sandy SILT.			19.0	75	30	17	13		CL
TP-80800	4	2.00	2.50	B		Light brown slighlty gravelly slightly sandy SILT.			9.5	63	20	13	7		CL
TP-80903	2	0.50	1.00	B		Brown very gravelly very silty medium SAND.			20.0	66	35	26	9		MI
TP-80903	7	3.50	3.70	D		Grey sandy very silty medium GRAVEL.			10.0	64	20	12	8		CL
TP-80972	4	1.50	2.00	D		Light brown slightly gravelly slightly sandy SILT.			9.4	58	19	13	6		ML
TP-81064	3	2.00	2.40	D		Brown silty very gravelly medium SAND.			8.6	45	26	19	7		CL
TP-81202	2	0.50	1.00	D		Light brown slightly sandy gravelly SILT.			10.0	54	21	14	7		CL
TP-81202	3	1.50	2.00	B		Light brown slightly gravelly slightly sandy SILT.			9.3	59	20	14	6		ML
TP-81300	3	2.00	2.50	B		Light brown slightly gravelly slightly sandy SILT.			9.6	65	20	13	7		CL
TP-81404	3	2.00	2.50	B		Brownish-grey slighlty gravelly sandy SILT.			9.6	56	19	13	6		ML
TP-81501	3	1.50	2.00	B		Brownish-grey slightly gravelly sandy SILT.			9.2	58	18	12	6		ML
TP-81601	3	1.50	1.80	B		Greyish-brown slightly gravelly slightly sandy SILT.			11.0	55	26	14	12		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 37

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-81601	5	2.50	3.00	B		Dark grey silty very gravelly medium SAND.			11.0	54	18	13	5		ML
TP-81702	2	0.40	0.80	D		Brown slighlty gravelly sandy SILT. Sand is medium.			21.0	64	33	21	12		CL
TP-81702	4	1.50	2.00	D		Greyish-brown very silty very sandy coarse GRAVEL.			11.0	48	18	14	4		ML
TP-81802	2	0.40	0.70	D		Brown very gravelly very silty medium SAND.			16.0	65	28	20	8		CL
TP-81802	4	1.50	2.00	D		Light brown very silty SAND and GRAVEL.			8.6	51	19	14	5		ML
TP-81802	6	3.50	4.00	D		Brownish-grey slighlty sandy gravelly SILT.			9.9	55	19	13	6		ML
TP-81902	2	0.80		D		Brown slightly gravelly slightly sandy SILT.			13.0	58	26	18	8		CL
TP-81902	4	1.80		D		Light brown slightly sandy gravelly SILT.			9.3	58	19	12	7		CL
TP-81902	6	3.40		D		Light brown slightly gravelly slightly sandy SILT.			8.9	60	18	13	5		ML
TP-82001	2	0.90		D		Light brown slightly sandy slightly gravelly SILT.			8.6	57	23	16	7		CL
TP-82001	4	2.90		D		Light brown slightly gravelly slightly sandy SILT.			9.9	61	19	13	6		CL
TP-82102	2	0.70		D		Light brown very silty SAND and GRAVEL.			11.0	58	24	16	8		CL
TP-82102	4	1.70		D		Light brown slightly gravelly slightly sandy SILT.			9.9	59	18	13	5		ML
TP-82102	8	3.70		D		IIGHT brown slightly sandy slightly gravelly SILT.			9.7	56	20	12	8		CL
TP-82207	2	0.70		D		Light brown very silty SAND and GRAVEL.			7.9	52	21	15	6		ML
TP-82207	4	1.70		D		Light brown slightly gravelly slightly sandy SILT.			8.4	65	20	14	6		ML
TP-82303	2	0.50		D		Light brown slightly sandy gravelly SILT. Gravel is coarse.			12.0	53	20	14	6		CL
TP-82303	4	1.60		D		Light brown slightly sandy gravelly SILT.			9.6	49	24	15	9		CL
TP-82400	2	0.60		D		Light brown slighlty gravelly sandy SILT.			9.9	60	21	15	6		CL
TP-82400	4	2.10		D		Light brown slighlty gravelly slightly sandy SILT.			8.4	65	20	14	6		CL
TP-82400	6	3.50		D		Light brown slightly sandy slightly gravelly SILT.			9.3	57	20	13	7		CL
TP-82502	2	0.70		D		Light brown slightly gravelly sandy SILT.			8.4	59	18	14	4		ML
TP-82502	4	2.40		D		Light brown slightly gravelly sandy SILT.			9.2	50	19	13	6		CL
TP-82590	2	0.60		D		Orange-brown slightly gravelly sandy SILT. Sand is medium.			19.0	38	30	20	10		CL
TP-82590	5	2.00		D		Brownish-grey slighlty sandy gravelly SILT.			10.0	54	18	13	5		ML
TP-82590	7	3.60		D		Light brown slighlty gravelly slightly sandy SILT.			9.3	57	18	12	6		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

Table 1

sheet 38

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP-82702	2	1.80	2.10	B		Light brown slightly gravelly sandy SILT.			8.5	54	18	13	5		ML

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Liquid Limit

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

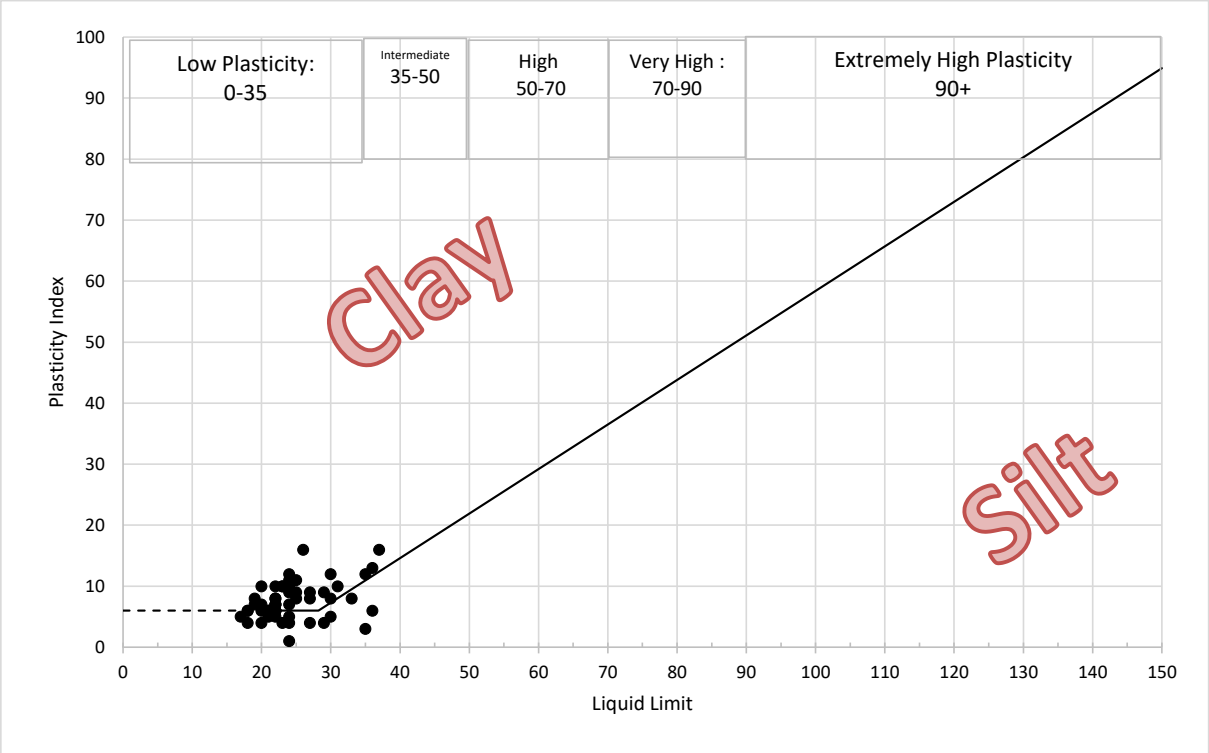
Table 1

sheet 39

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

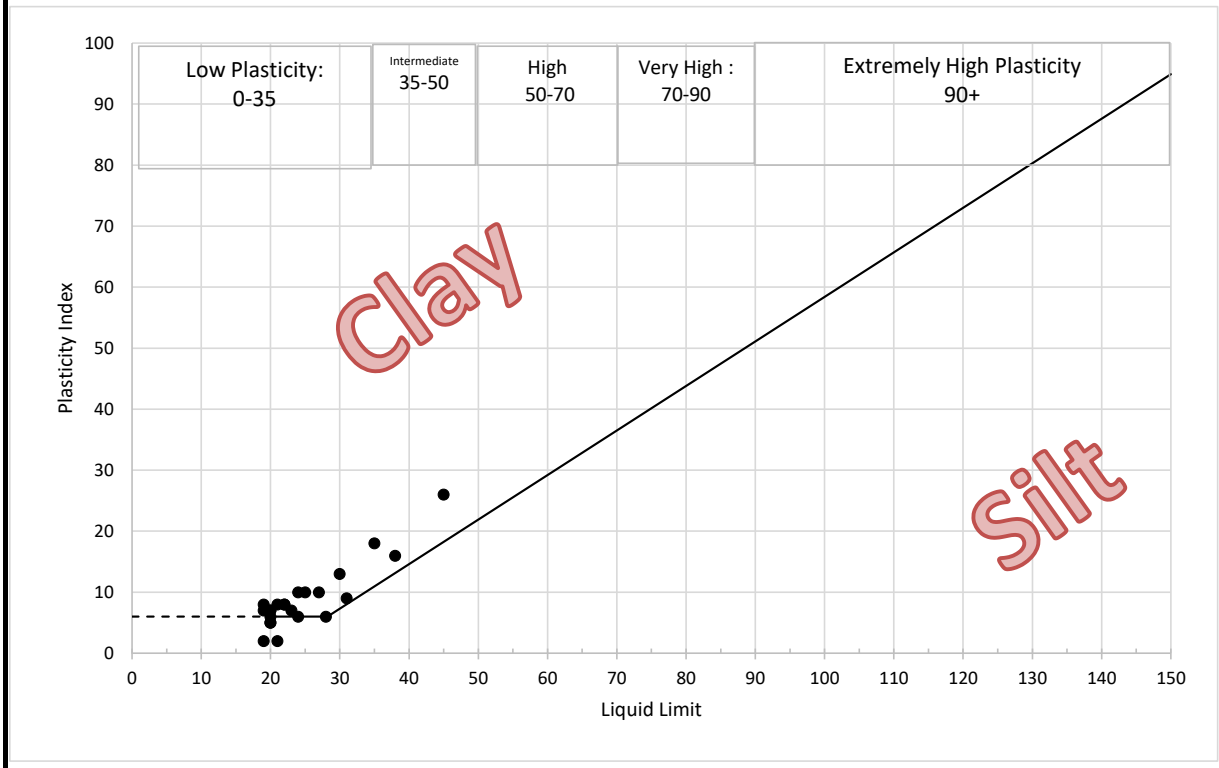
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule no 01: TP file 01

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

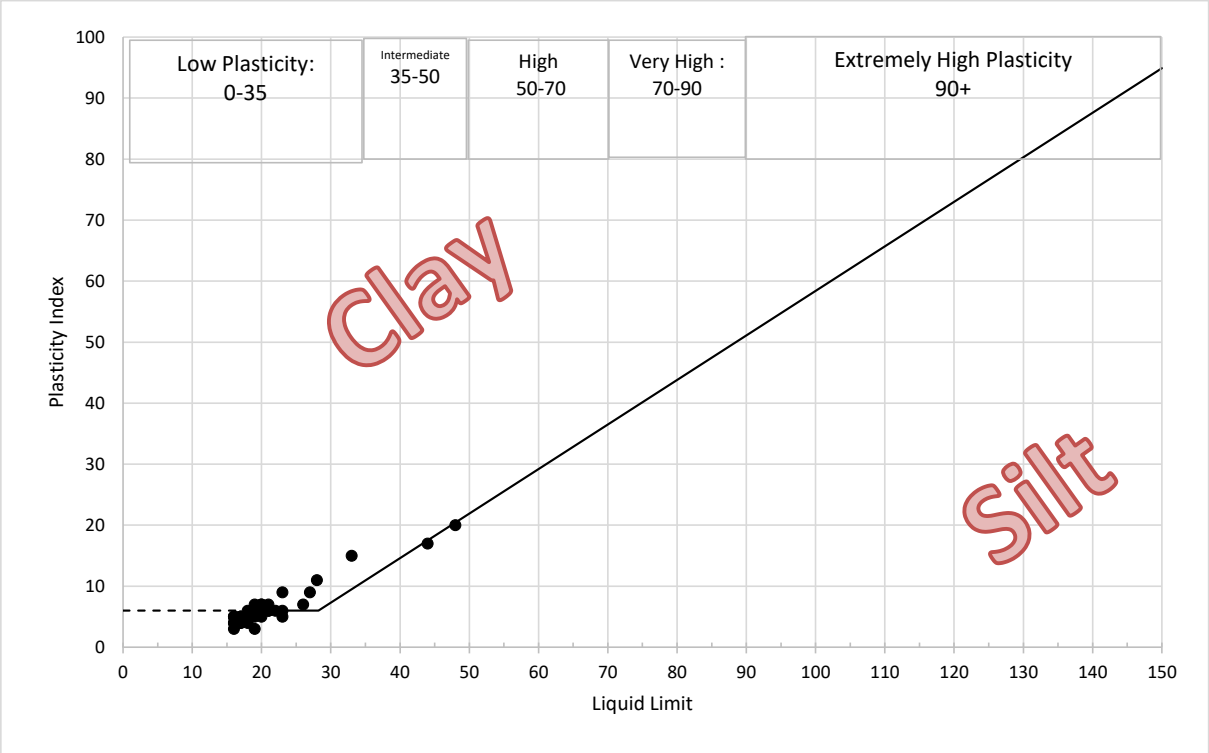
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Sch03: Tpfile 02

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

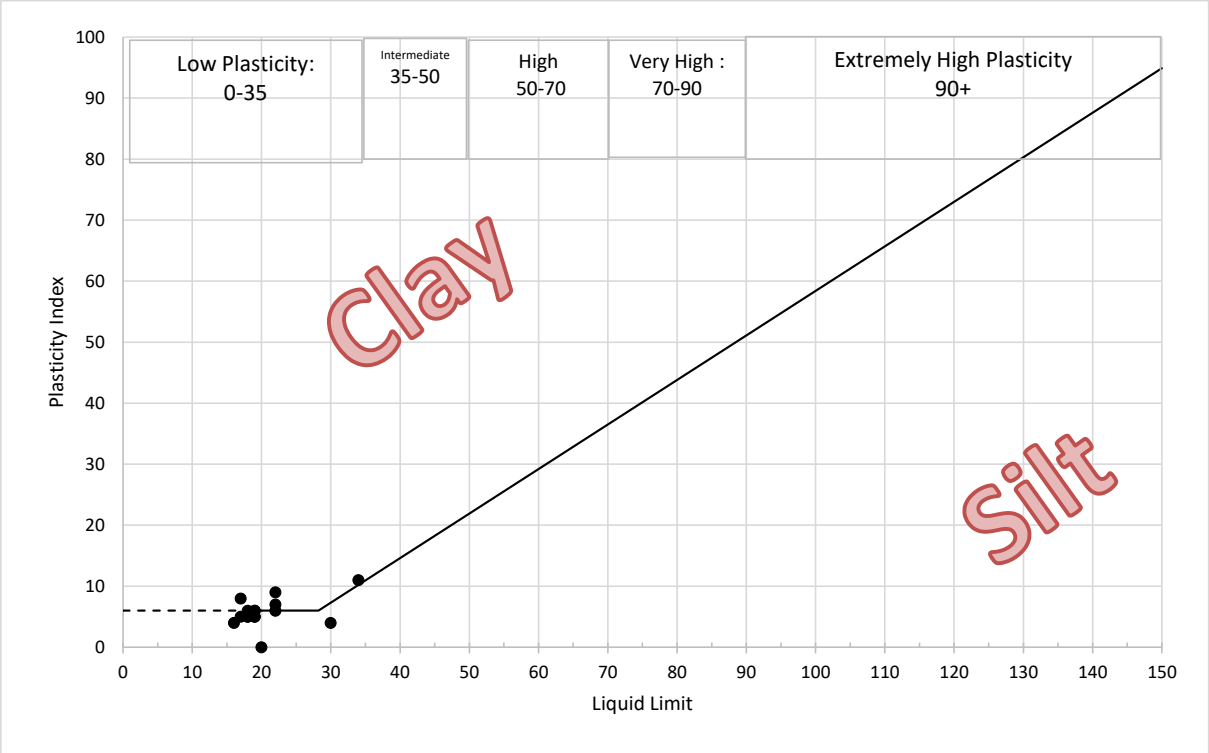
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Sch05: Tp file 03

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

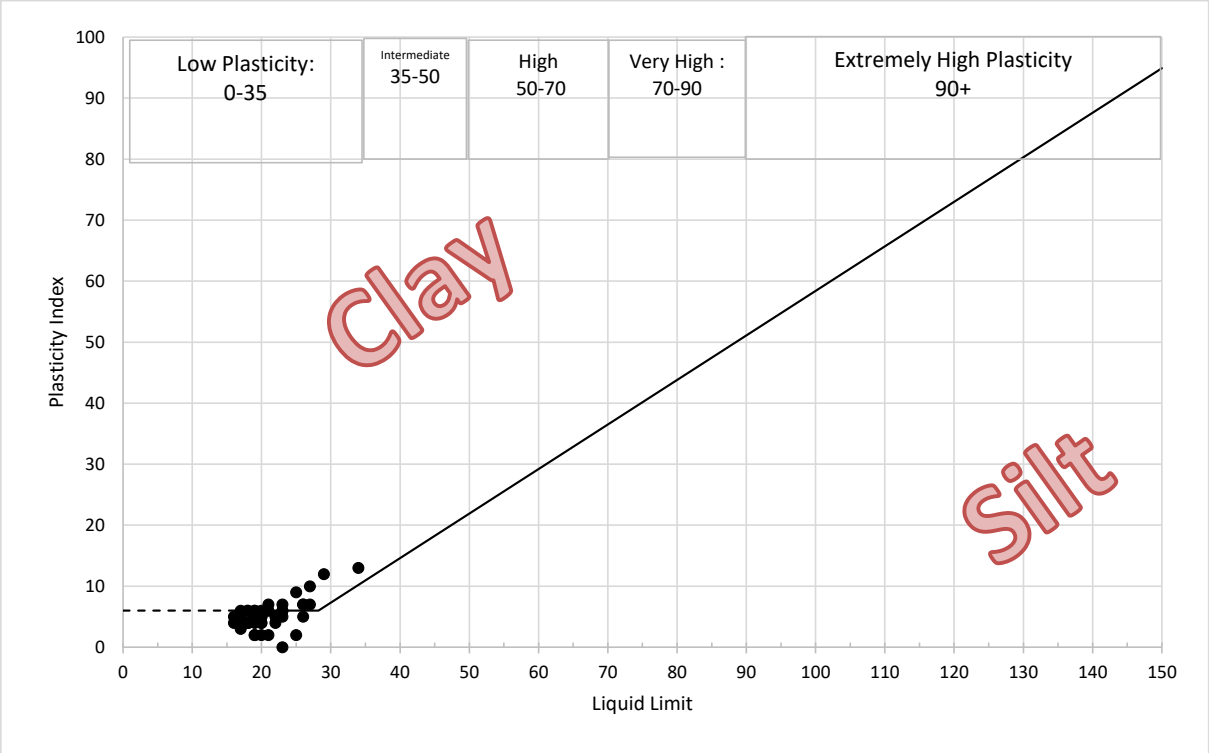
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Sch07: Tpfile 04

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

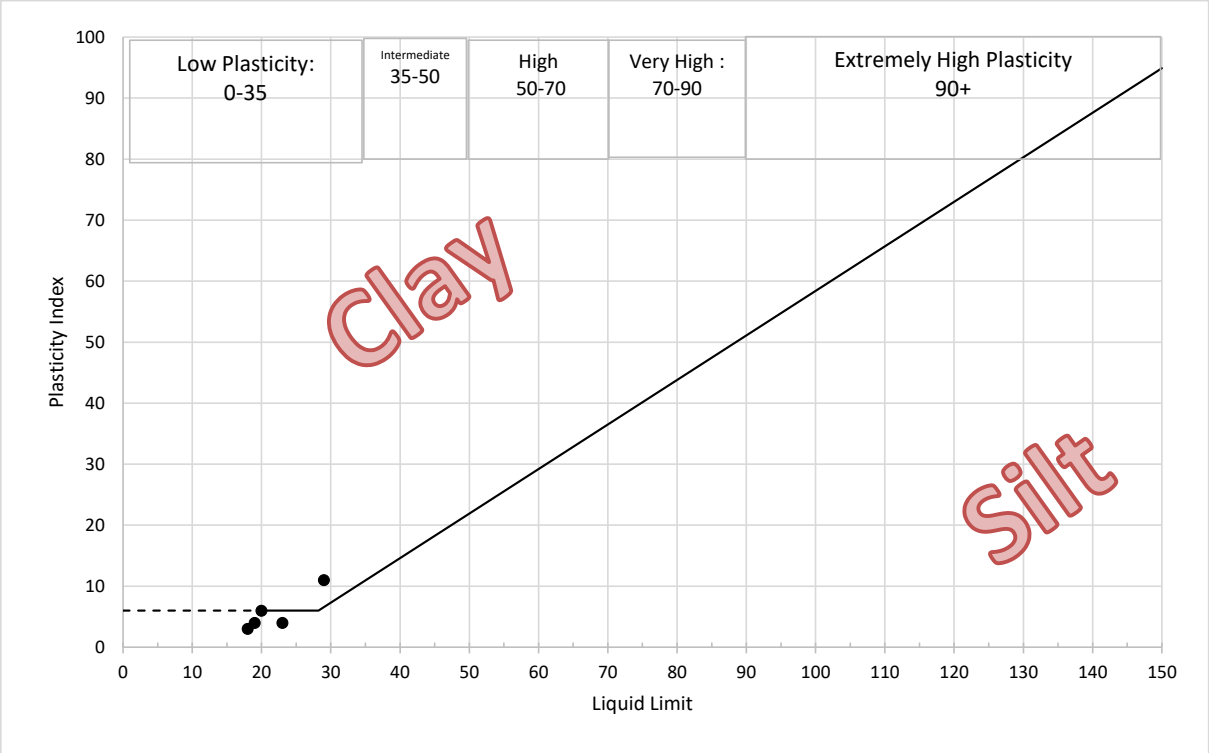
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 09, Tp file 05

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	WSP Eastern & Midlands Region	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

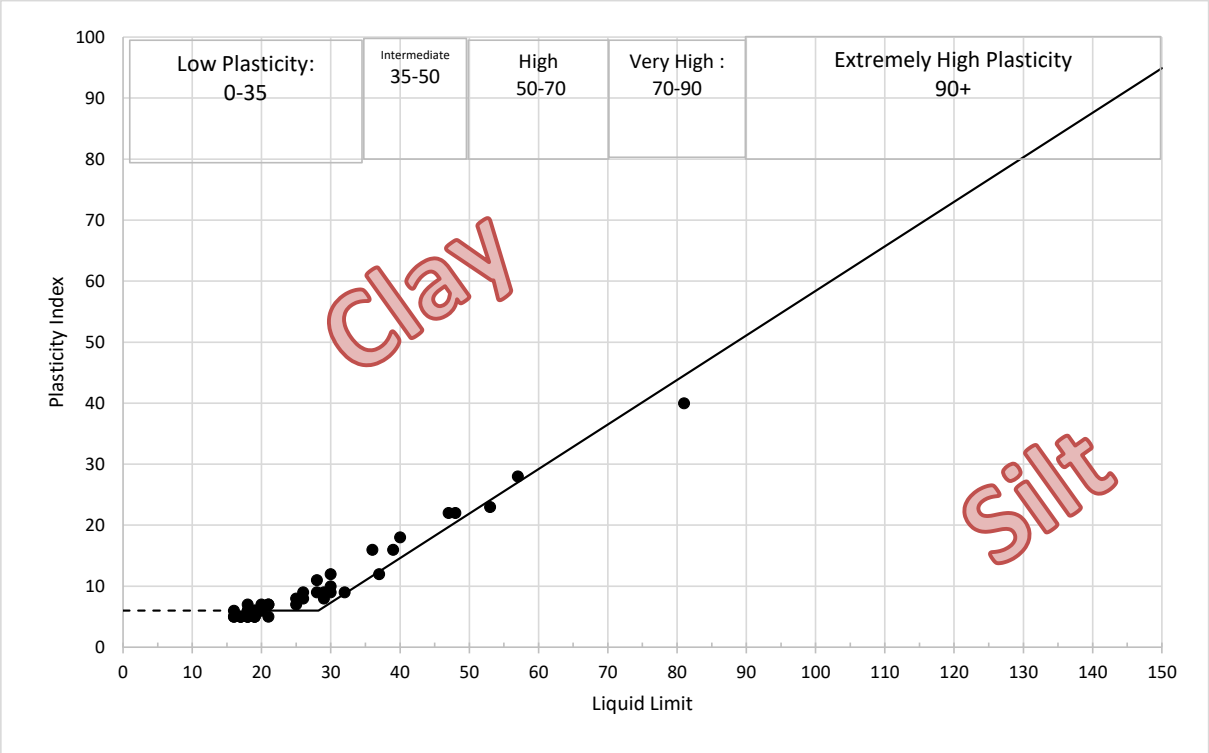
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Sch11, Tp file 06

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

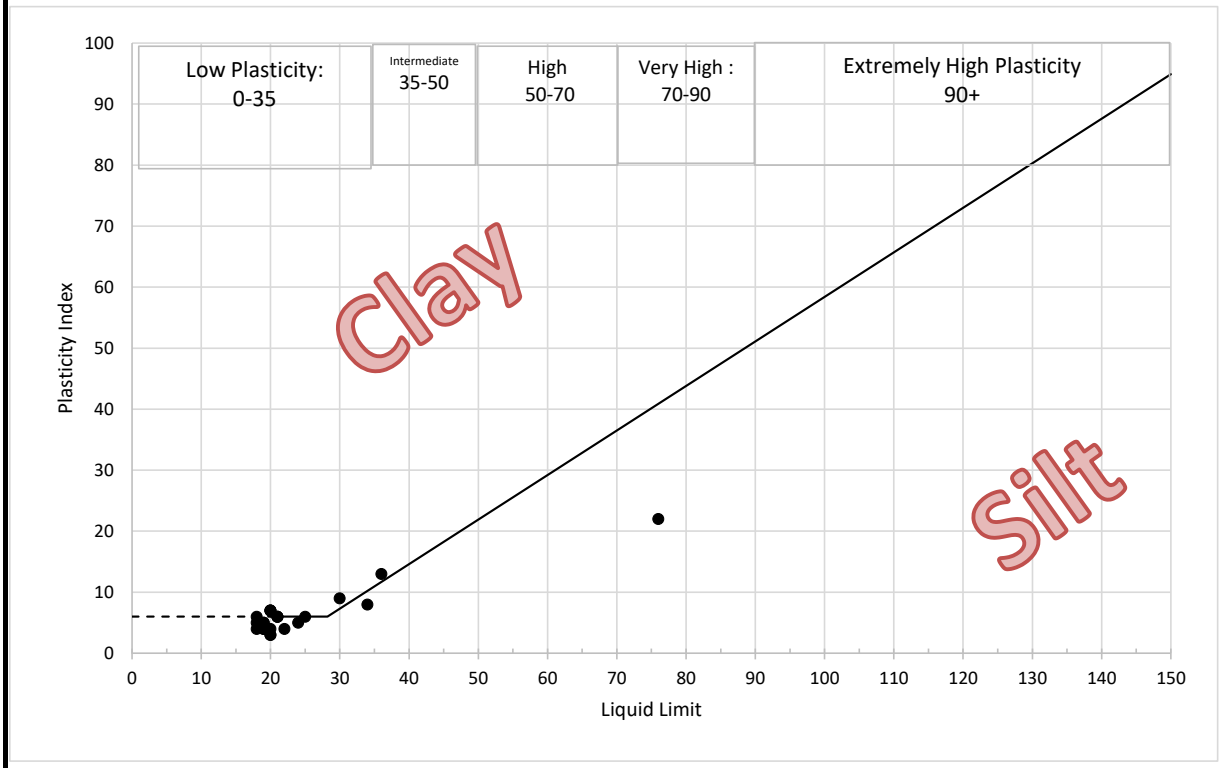
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 13, TP file 07

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	WSP Eastern & Midlands Region	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

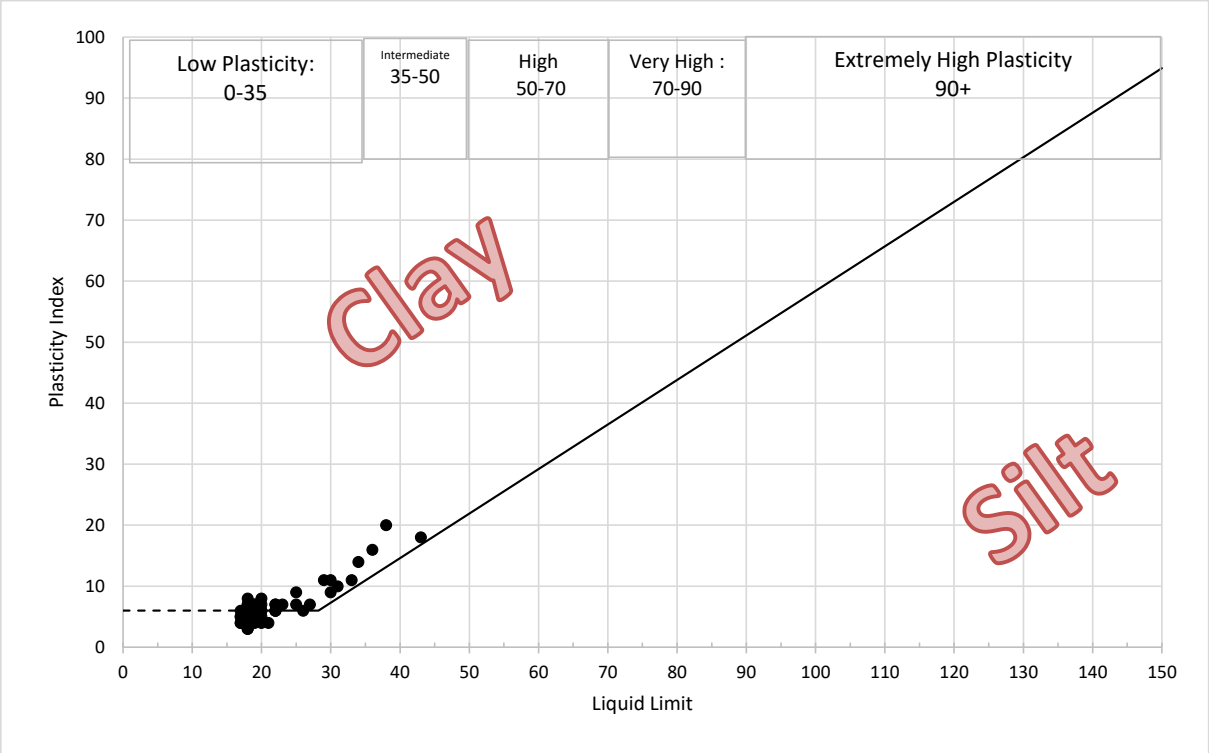
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 15, Tp file 08

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

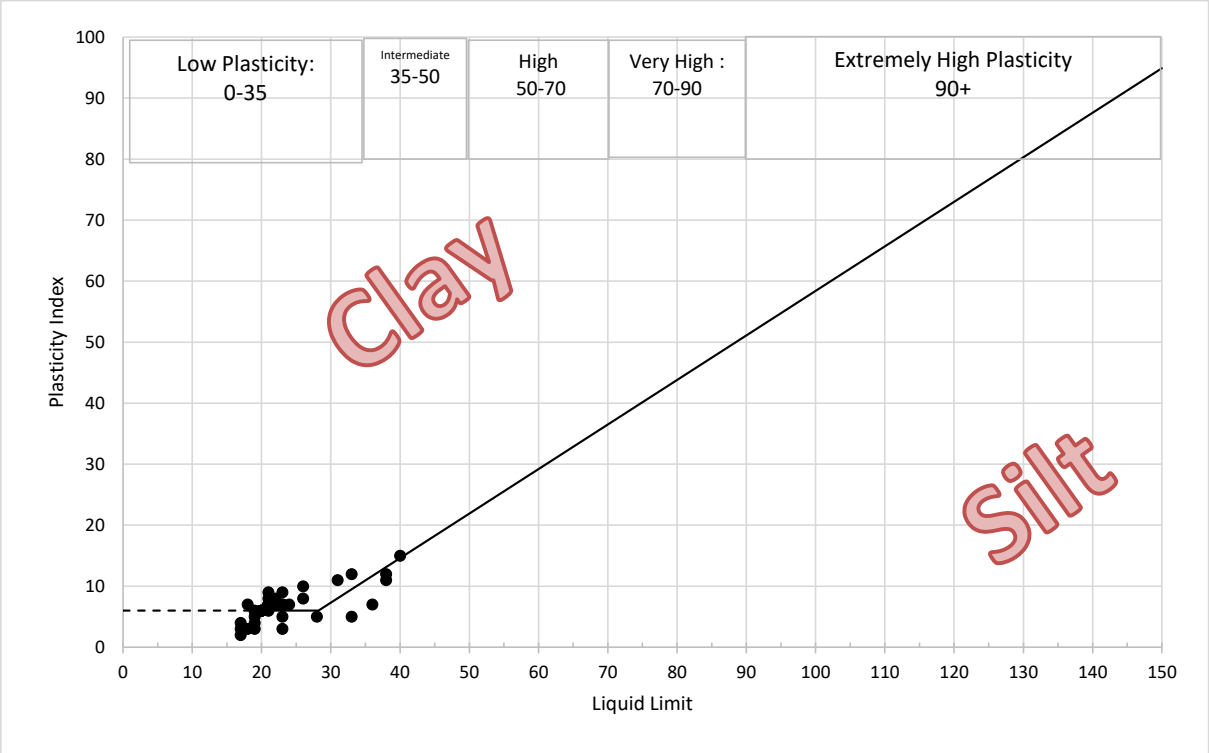
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 18, Tp file 10

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	WSP Eastern & Midlands Region	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

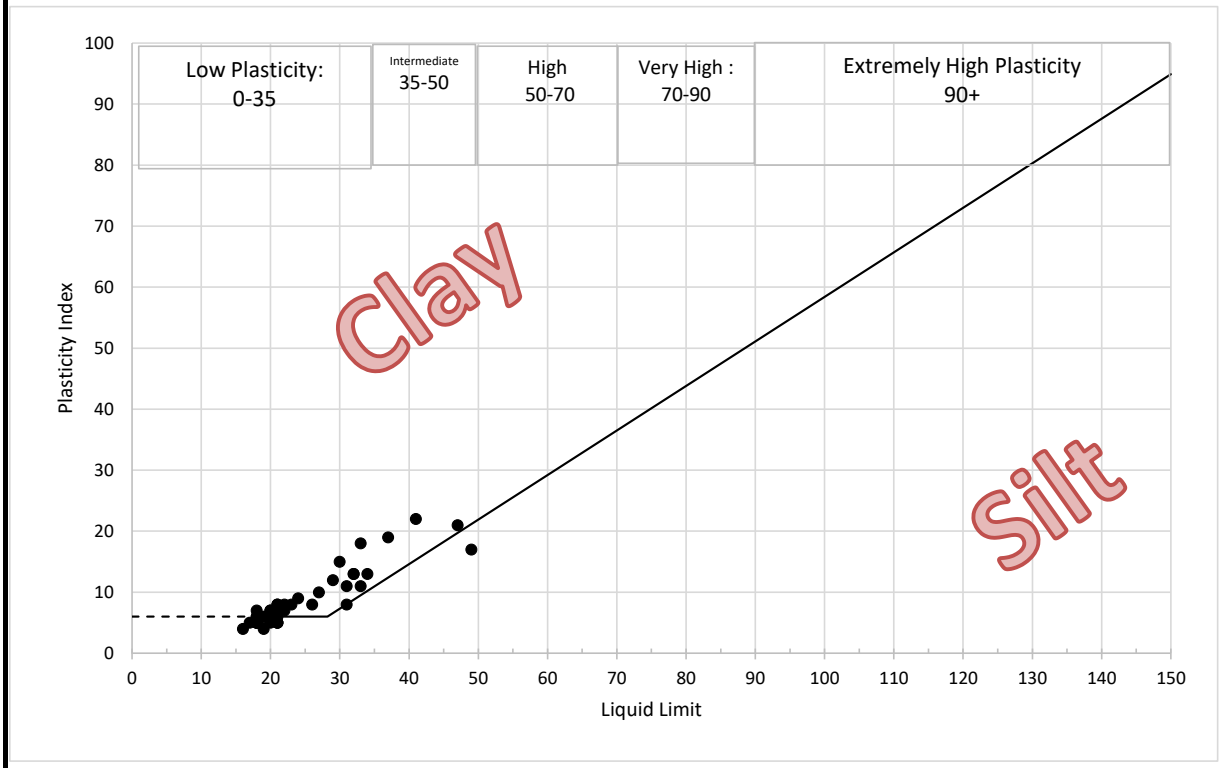
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 20, Tp file 11

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

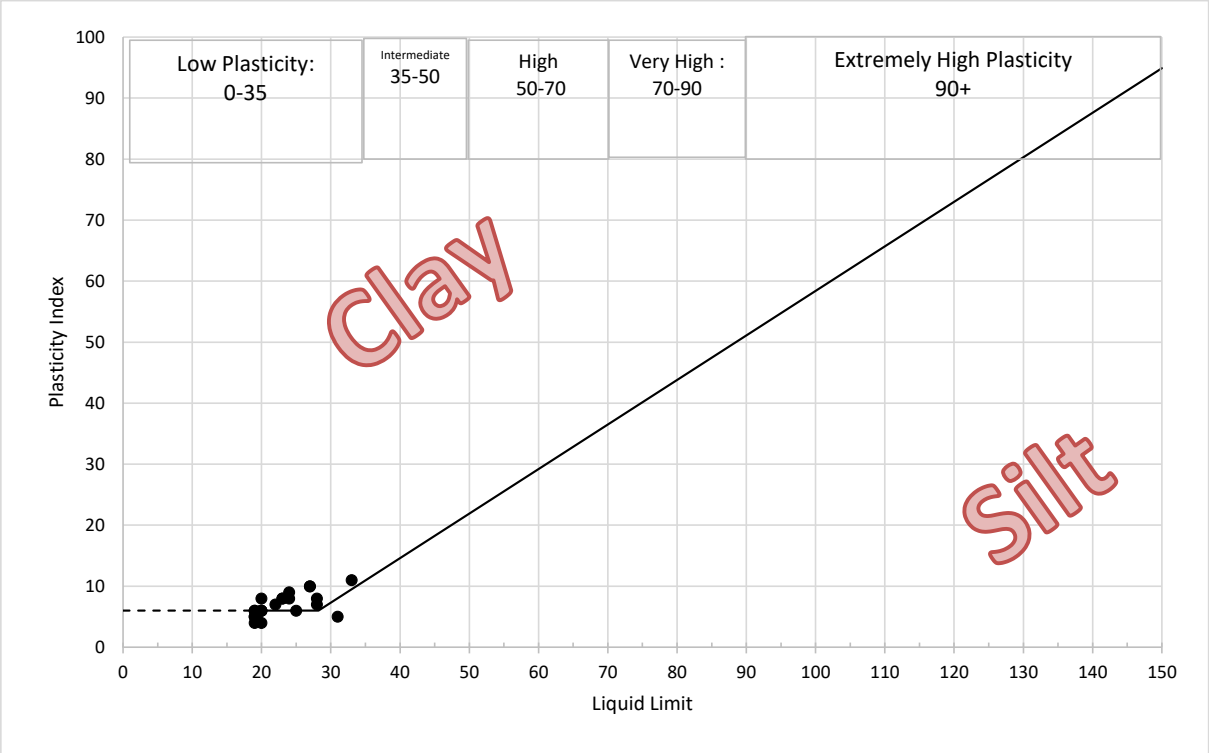
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule no 22, Tp file 12

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

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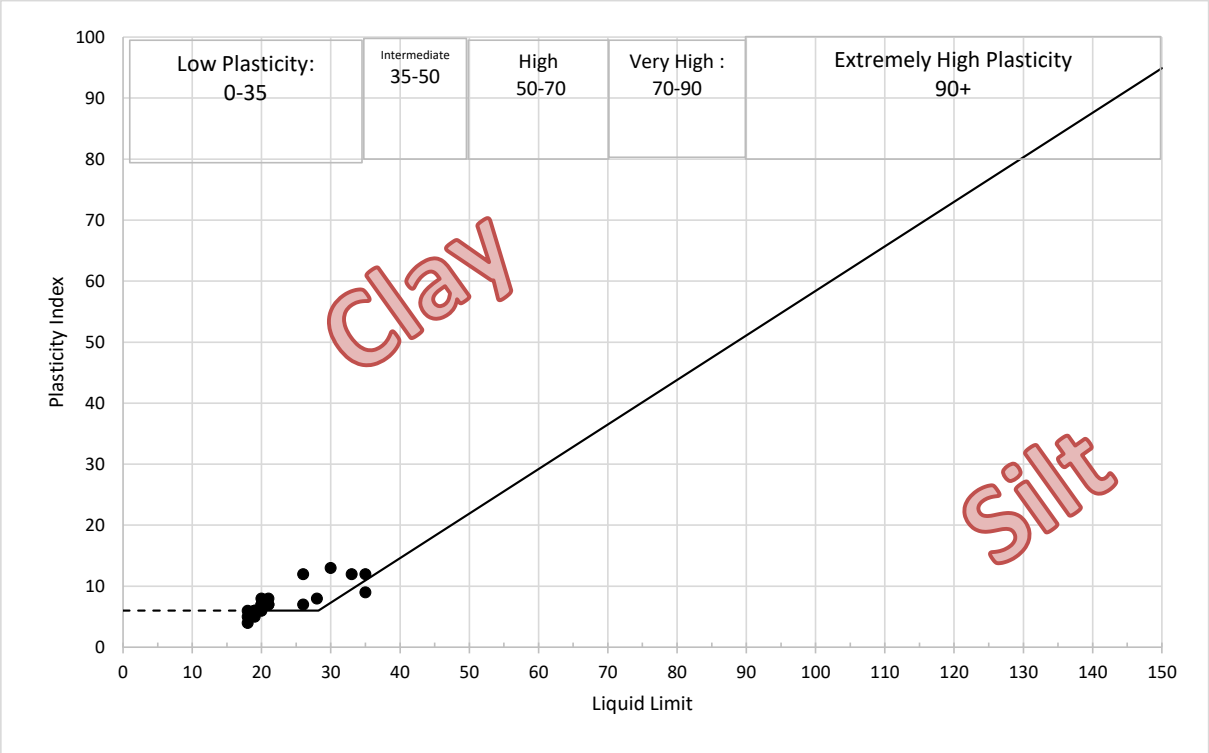
Chart taken from BS5930: 2010

Schedule 23, Tp file 13

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

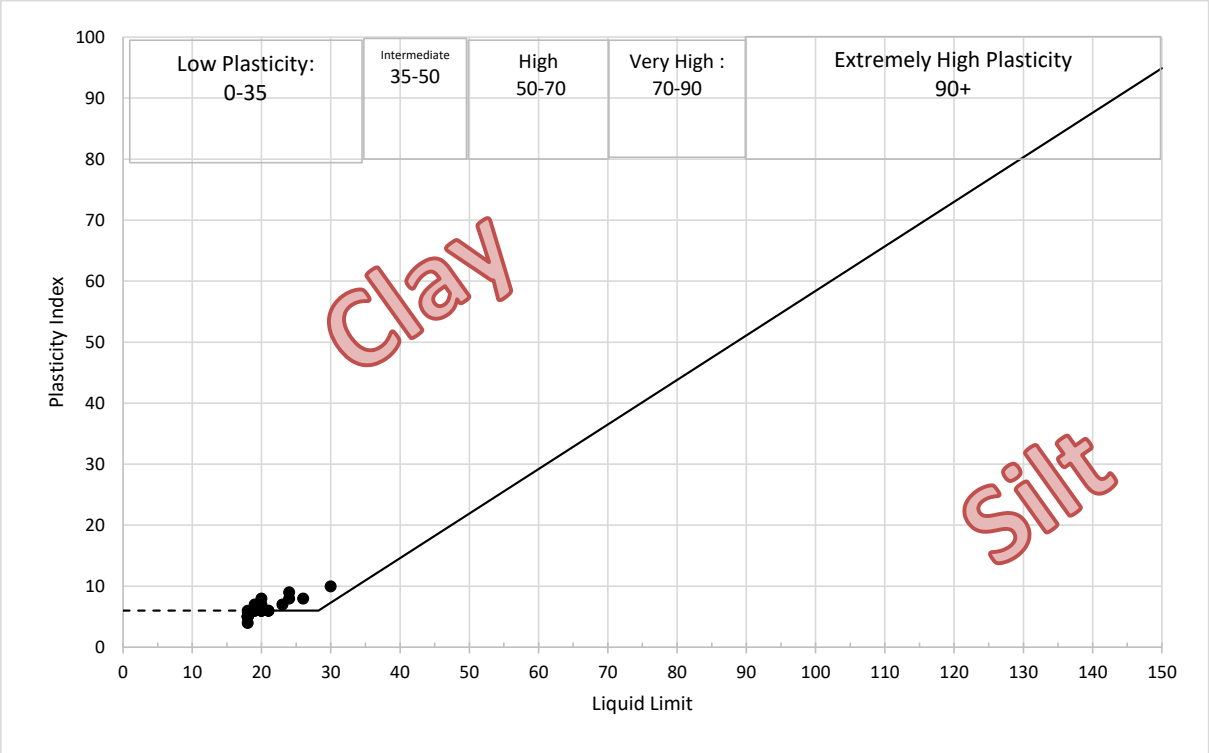
The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 26, Tp file 14

QC Form: R1

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedule 28, Tp file 15

QC Form: R1

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample Ref	Top m	Base m	Type	Soil Description	NMC %	Passing 425µm %	LL %	PL %	PI %	Remarks
TP-100304	2	0.60		D	Brownish grey sandy silty CLAY	21	100	24	15	9	
TP-100304	4	1.60		D	Bluish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	13	77	21	13	8	
TP-100304	6	2.60		D	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	81	20	13	7	
TP-100407	2	0.80		D	Brownish grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.3	60	20	12	8	Sample washed to obtain test fraction
TP-100407	4	1.80		D	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	68	21	13	8	Sample washed to obtain test fraction
TP-100449	2	0.70		D	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	76	23	14	9	
TP-100449	4	1.70		D	Light brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	65	18	11	7	
TP-100449	6	3.10		D	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	80	18	11	7	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

NOTE: The report shall not be reproduced except in full without authority of the laboratory

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved
Initials J.P
Date: 15/12/2022

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-100485	2	0.60		D	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	68	18	11	7	Sample washed to obtain test fraction
TP-100485	4	1.60	2.30	D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	80	21	13	8	Sample washed to obtain test fraction
TP-100503	2	0.70		D	Brown slightly gravelly sandy silty CLAY with traces of roots (gravel is fmc and sub-angular to sub-rounded)	13	67	25	14	11	
TP-100503	4	2.10		D	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	64	19	12	7	Sample washed to obtain test fraction
TP-100517	2	0.50		D	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	15	72	22	15	7	
TP-100517	4	1.00		D	Orangish brown and grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	15	70	22	14	8	
TP-100517	6	2.00		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	14	93	23	14	9	
TP-100605	3	1.40		D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	73	18	11	7	
TP-101206	4	0.90		D	Brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	57	23	15	8	Sample washed to obtain test fraction
TP-101206	7	1.60		D	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	66	19	11	8	
TP-101304	2	0.80		D	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	75	20	12	8	
TP-101407	2	0.60		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	9.8	60	19	12	7	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

NOTE: The report shall not be reproduced except in full without authority of the laboratory

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials **J.P**

Date: 15/12/2022

UKAS TESTING
2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-101407	4	1.90		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.8	76	17	12	5	
TP-101503	2	0.40		D	Brown fine sandy very silty CLAY with rare fine sub-angular gravel and traces of fine rootlets	16	99	28	17	11	
TP-101503	6	3.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	14	84	26	13	13	
TP-101600	2	0.60		D	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular)	22	95	37	19	18	
TP-101600	4	1.60		D	Greyish brown slightly sandy silty CLAY with rare fine sub-angular gravel	18	98	33	17	16	
TP-101704	2	0.60		D	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)	22	94	34	18	16	
TP-101704	4	1.00		D	Grey slightly gravelly sandy silty CLAY (gravel is fm and sub-angular)	13	90	20	13	7	
TP-101804	2	0.60		D	Brownish grey slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)	17	97	22	14	8	
TP-101804	4	2.60		D	Dark grey fine sandy very silty CLAY	21	100	23	15	8	
TP-102105	2	0.70		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	11	92	23	13	10	
TP-102204	2	0.30		D	Brown slightly sandy silty CLAY with rare fm sub-angular gravel	23	99	44	21	23	
TP-102204	4	0.90		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)	17	92	32	17	15	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Date: 15/12/2022

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-102303	4	1.50		D	Greyish brown slightly gravelly fine sandy very silty CLAY (gravel is fmc and angular to sub-angular)	13	85	22	14	8	
TP-102303	6	3.00		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	8.9	76	19	12	7	
TP-102488	2	0.80		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	18	71	28	16	12	
TP-102617	4	1.20		D	Greyish brown gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	13	54	24	15	9	Sample washed to obtain test fraction
TP-102617	6	2.30		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	12	75	20	13	7	
TP-102704	3	1.80		D	Dark grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.6	82	19	11	8	
TP-56220	2	0.40		D	Dark grey slightly sandy gravelly clayey very PEAT with rootlets (gravel is fm and angular to sub-angular)	82	53	73	61	12	Sample washed to obtain test fraction
TP-73403	2	0.50		D	Brown gravelly clayey very silty SAND (gravel is fmc and angular to sub-angular)	20	71	27	18	9	Sample washed to obtain test fraction
TP-73403	4	1.30		D	Dark greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	53	18	12	6	Sample washed to obtain test fraction
TP-73403	6	2.30		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.8	46	19	12	7	Sample washed to obtain test fraction
TP-73504	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.1	53	20	14	6	Sample washed to obtain test fraction
TP-73504	4	1.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	55	18	12	6	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-82812	4	1.70		D	Greyish brown slightly clayey gravelly very silty SAND (gravel is fmc and sub-angular to sub-rounded)	6.2	36	18	12	6	Sample washed to obtain test fraction
TP-82902	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.3	44	17	12	5	Sample washed to obtain test fraction
TP-82902	6	3.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.9	50	18	12	6	Sample washed to obtain test fraction
TP-82979	2	0.90		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.0	47	20	14	6	Sample washed to obtain test fraction
TP-82979	4	2.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.6	54	17	12	5	Sample washed to obtain test fraction
TP-83101	2	0.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	13	65	20	13	7	Sample washed to obtain test fraction
TP-83101	4	1.70		D	Greyish brown sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	7.8	46	16	11	5	Sample washed to obtain test fraction
TP-83101	6	3.40		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)	9.0	53	17	11	6	Sample washed to obtain test fraction
TP-83303	2	1.00		D	Greyish brown gravelly very sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.6	57	17	12	5	Sample washed to obtain test fraction
TP-84901	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	12	59	24	15	9	Sample washed to obtain test fraction
TP-84901	6	2.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	59	18	12	6	Sample washed to obtain test fraction
TP-85005	2	0.70		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	12	76	20	13	7	

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Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-85005	4	1.70		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	11	58	19	13	6	Sample washed to obtain test fraction
TP-85005	6	2.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to rounded)	6.1	37	17	12	5	Sample washed to obtain test fraction
TP-85102	4	1.50		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	11	61	20	13	7	Sample washed to obtain test fraction
TP-85102	6	2.90		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	66	19	12	7	Sample washed to obtain test fraction
TP-85302	4	1.40		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)	11	74	19	12	7	Sample washed to obtain test fraction
TP-85302	6	2.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.7	55	18	12	6	Sample washed to obtain test fraction
TP-85383	4	1.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	59	19	12	7	Sample washed to obtain test fraction
TP-85383	6	2.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.7	56	18	12	6	Sample washed to obtain test fraction
TP-87206	2	0.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.4	54	17	12	5	Sample washed to obtain test fraction
TP-87304	4	1.50		D	Greyish brown gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	11	61	19	13	6	Sample washed to obtain test fraction
TP-87803	4	0.80		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	12	77	18	12	6	
TP-88303	4	1.10		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	75	16	11	5	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-88303	6	2.30		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	8.5	58	17	12	5	Sample washed to obtain test fraction
TP-88402	3	1.50		D	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	64	18	12	6	Sample washed to obtain test fraction
TP-88503	3	1.50		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.8	34	16	11	5	Sample washed to obtain test fraction
TP-88703	4	1.80		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.7	50	17	12	5	Sample washed to obtain test fraction
TP-88802	4	0.90		D	Brownish grey gravelly clayey very silty SAND (gravel is fmc and sub-angular to sub-rounded)	9.6	53	18	13	5	Sample washed to obtain test fraction
TP-88802	6	1.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	5.8	60	18	12	6	Sample washed to obtain test fraction
TP-88802	8	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.6	51	19	12	7	Sample washed to obtain test fraction
TP-89003	3	1.60		B	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	69	17	12	5	Sample washed to obtain test fraction
TP-89104	2	0.80		D	Brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	60	24	16	8	Sample washed to obtain test fraction
TP-89205	3	1.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.8	59	18	12	6	Sample washed to obtain test fraction
TP-89303	6	2.10		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.7	60	18	12	6	Sample washed to obtain test fraction
TP-89405	2	0.70		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.2	63	18	12	6	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-89555	3	1.10		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	8.6	58	17	12	5	Sample washed to obtain test fraction
TP-90401	2	0.60		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	66	18	12	6	Sample washed to obtain test fraction
TP-90401	4	1.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	70	16	11	5	
TP-90401	6	2.10		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.2	53	19	12	7	Sample washed to obtain test fraction
TP-90503	4	1.70		D	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	64	17	11	6	
TP-90604	2	0.40		D	Greyish brown and brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-angular)	27	65	46	17	29	Sample washed to obtain test fraction
TP-90604	5	1.80		D	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-rounded)	11	70	16	10	6	
TP-90704	5	1.90		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	60	20	12	8	Sample washed to obtain test fraction
TP-90800	4	1.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	60	20	13	7	Sample washed to obtain test fraction
TP-90800	5	3.00	3.30	B	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)	9.4	60	20	13	7	Sample washed to obtain test fraction
TP-90894	2	0.70		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	8.6	61	19	13	6	Sample washed to obtain test fraction
TP-90894	5	3.40		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	9.6	61	19	12	7	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-91012	2	0.70		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	65	19	12	7	Sample washed to obtain test fraction
TP-91012	6	4.20		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	72	18	12	6	
TP-91104	4	1.80		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	11	71	18	12	6	Sample washed to obtain test fraction
TP-91193	4	1.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	66	21	14	7	Sample washed to obtain test fraction
TP-91193	6	3.00		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	57	19	13	6	Sample washed to obtain test fraction
TP-91305	3	1.30		D	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	10	60	18	14	4	Sample washed to obtain test fraction
TP-91305	5	2.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	9.4	63	17	12	5	Sample washed to obtain test fraction
TP-91406	2	0.50		D	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	18	74	26	17	9	Sample washed to obtain test fraction
TP-91406	4	1.80		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	12	80	18	13	5	Sample washed to obtain test fraction
TP-91504	2	0.70		D	Brown slightly clayey gravelly silty SAND (gravel is fm and angular to sub-angular)	18	70	26	20	6	Sample washed to obtain test fraction
TP-91705	2	0.80		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	8.7	53	19	14	5	Sample washed to obtain test fraction
TP-91805	3	0.80		D	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	16	68	23	13	10	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-91805	5	2.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	10	66	20	12	8	Sample washed to obtain test fraction
TP-91905	4	2.00		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)	9.3	55	18	12	6	
TP-92029	2	0.60		D	Dark brown slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)	21	79	24	16	8	
TP-92029	4	1.60		D	Grey silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	11	62	18	12	6	
TP-92209	2	0.60		D	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	21	97	33	19	14	
TP-92209	4	1.20		D	Light brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)	12	63	18	13	5	Sample washed to obtain test fraction
TP-92209	6	2.70		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	54	19	11	8	Sample washed to obtain test fraction
TP-92306	2	0.50		D	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)	19	83	31	19	12	Sample washed to obtain test fraction
TP-92306	4	1.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	9.4	72	19	13	6	Sample washed to obtain test fraction
TP-92306	6	2.50		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	56	19	12	7	Sample washed to obtain test fraction
TP-92407	2	0.60		D	Brown slightly gravelly clayey very silty SAND (gravel is fm and sub-angular to sub-rounded)	18	74	24	19	5	Sample washed to obtain test fraction
TP-92407	4	1.60		D	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	7.3	52	18	11	7	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-92407	6	3.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	7.8	65	18	11	7	Sample washed to obtain test fraction
TP-92506	2	0.70		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	12	63	18	11	7	Sample washed to obtain test fraction
TP-92506	4	2.30		D	Dark greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.6	62	19	13	6	Sample washed to obtain test fraction
TP-92506	6	3.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	65	18	11	7	Sample washed to obtain test fraction
TP-92587	2	0.60		D	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and sub-angular)	20	80	27	18	9	Sample washed to obtain test fraction
TP-92587	4	1.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	11	65	18	13	5	Sample washed to obtain test fraction
TP-92587	6	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	9.0	56	18	12	6	Sample washed to obtain test fraction
TP-92706	2	0.60		D	Brown slightly gravelly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)	19	78	24	16	8	Sample washed to obtain test fraction
TP-92706	6	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	9.8	59	18	12	6	Sample washed to obtain test fraction
TP-92804	2	0.70		D	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)	20	75	27	18	9	Sample washed to obtain test fraction
TP-92904	2	0.60		D	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	20	95	31	18	13	
TP-92904	5	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	8.7	56	17	12	5	Sample washed to obtain test fraction

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-93003	2	0.60		D	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	21	97	30	18	12	
TP-93003	6	3.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)	7.4	66	19	12	7	Sample washed to obtain test fraction
TP-93106	4	2.00		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	9.5	76	19	13	6	Sample washed to obtain test fraction
TP-93106	6	4.10		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	59	18	12	6	Sample washed to obtain test fraction
TP-93174	2	0.70		D	Brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)	25	97	44	19	25	
TP-93174	6	3.10		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.8	74	19	12	7	Sample washed to obtain test fraction
TP-93352	2	0.60		D	Brown gravelly sandy silty CLAY (gravel is fm and sub-angular)	17	73	26	19	7	Sample washed to obtain test fraction
TP-93352	6	3.00		D	Greyish brown gravelly silty CLAY (gravel is fmc and sub-angular)	10	69	18	11	7	Sample washed to obtain test fraction
TP-93505	2	0.90		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	55	19	12	7	Sample washed to obtain test fraction
TP-93505	6	2.80		D	Grey sandy fmc sub-angular to sub-rounded gravel in a silty CLAY matrix	7.3	42	17	12	5	Sample washed to obtain test fraction
TP-93602	4	1.60		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.0	58	18	12	6	
TP-93703	5	2.60		D	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	9.8	48	17	11	6	Sample washed to obtain test fraction

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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-93803	4	1.60		D	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix	10	59	21	14	7	Sample washed to obtain test fraction
TP-93902	3	2.00		D	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix	9.7	59	17	11	6	Sample washed to obtain test fraction
TP-94198	4	1.60		D	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	9.7	55	17	11	6	
TP-94401	2	0.70		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fm and angular)	12	55	20	13	7	
TP-94401	4	1.70		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	9.2	64	17	11	6	
TP-94504	2	0.80		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	12	53	19	13	6	
TP-94504	4	1.80		D	Greenish grey and brown gravelly silty CLAY (gravel is fmc and sub-angular)	9.4	65	17	10	7	Sample washed to obtain test fraction
TP-94608	3	1.50		D	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.7	49	18	11	7	Sample washed to obtain test fraction
TP-94704	4	1.40		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	12	53	18	12	6	Sample washed to obtain test fraction
TP-94809	4	1.00		D	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)	11	51	18	12	6	Sample washed to obtain test fraction
TP-94905	2	0.70		D	Brown and light grey sandy silty CLAY with rare fm sub-angular gravel	23	98	36	22	14	
TP-95003	4	1.40		D	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)	11	47	22	14	8	

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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-95408	2	0.90		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	11	63	20	13	7	
TP-95408	4	1.90		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	60	18	11	7	
TP-95408	6	3.30		D	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.4	51	21	13	8	Sample washed to obtain test fraction
TP-95806	4	1.60		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	10	80	20	14	6	
TP-95806	6	2.40		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.2	41	19	13	6	Sample washed to obtain test fraction
TP-95905	4	1.60		D	Greyish brown fmc angular to sub-angular and tabular gravel in a sandy silty CLAY matrix	10	50	21	15	6	Sample washed to obtain test fraction
TP-95999	2	0.50		D	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix	8.8	55	20	12	8	
TP-96105	4	1.30		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	9.9	75	20	12	8	
TP-96204	4	1.60		D	Greyish brown fmc angular to sub-angular and tabular gravel in a slightly sandy silty CLAY matrix	13	49	25	15	10	Sample washed to obtain test fraction
TP-96304	3	1.20		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	8.9	67	21	13	8	
TP-96387	2	0.60		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)	14	93	31	17	14	
TP-96608	2	0.60		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)	10	70	25	14	11	

Test Methods: BS1377: Part 2: 1990:
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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-96705	2	0.60		D	Grey slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	15	81	22	15	7	
TP-96831	2	0.60		D	Yellowish brown sandy silty CLAY	22	-	-	-	-	NMC Only
TP-96831	4	1.30		D	Brown and grey mottled slightly gravelly slightly sandy silty CLAY (gravel is fm)	20	95	28	17	11	
TP-96831	6	3.10		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)	10	70	18	11	7	
TP-96905	2	0.70		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	12	63	25	14	11	
TP-96905	4	2.10		D	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix	9.9	45	19	12	7	
TP-97009	3	1.20		D	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix	10	55	18	12	6	
TP-97108	2	0.60		D	Brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	16	75	35	19	16	
TP-97309	3	0.80		D	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)	14	97	28	16	12	
TP-97309	5	2.30		D	Brown and grey mottled silty CLAY with sandy patches and rare fine gravel	17	99	28	17	11	
TP-97309	7	3.30		D	Dark grey silty CLAY with rare fine gravel	19	99	29	17	12	
TP-97383	4	1.10		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	10	70	20	12	8	

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Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-97383	6	2.80		D	Greyish brown fmc angular to sub-angular gravel in a sandy silty CLAY matrix	9.6	60	20	12	8	
TP-97505	4	1.70		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	75	23	12	11	
TP-97505	6	2.60		D	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix	9.2	40	19	12	7	
TP-97602	4	1.20		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)	15	70	27	16	11	
TP-97602	6	2.80		D	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)	13	97	22	13	9	
TP-97704	4	2.30		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)	14	90	23	14	9	
TP-97704	6	3.30		D	Grey and brown mottled silty CLAY with sandy patches and rare fine gravel	14	99	28	17	11	
TP-97777	3	1.60		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)	13	80	18	12	6	
TP-97998	4	1.50	1.80	B	Dark greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-rounded)	10	82	20	12	8	
TP-98105	2	0.60		D	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	7.0	60	19	12	7	
TP-98105	4	1.60		D	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	70	19	12	7	
TP-98105	6	2.60		D	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	75	18	11	7	

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Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-98205	3	1.10		D	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	60	18	11	7	
TP-98205	5	2.30		D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	75	17	10	7	
TP-98271	3	1.00		D	Grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	81	18	12	6	
TP-98271	5	2.50		D	Grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.8	55	16	10	6	Sample washed to obtain test fraction
TP-98403	1	0.30	0.60	B	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	14	70	22	14	8	
TP-98403	3	1.60		D	Bluish grey and greenish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	65	18	11	7	
TP-98403	5	2.60		D	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	75	16	11	5	
TP-98502	2	0.70		D	Orangish brown and light grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	13	73	22	13	9	
TP-98502	4	1.80		D	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	12	70	19	12	7	
TP-98602	2	0.90		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fm and sub-anguar to sub-rounded)	13	88	24	15	9	Sample washed to obtain test fraction
TP-98702	2	0.60		D	Greyish brown slightly sandy very silty CLAY with rare fmc angular to sub-angular gravel	13	83	28	16	12	Sample washed to obtain test fraction
TP-98805	2	0.60		D	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)	11	84	34	17	17	

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		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-98805	4	1.50		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	12	84	20	13	7	
TP-98805	6	2.30		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	84	26	15	11	
TP-98904	2	0.80		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.9	75	19	12	7	
TP-99004	2	0.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	22	84	34	17	17	
TP-99004	4	1.50		D	Greyish brown slightly gravelly fine sandy clayey SILT (gravel is fm and sub-angular)	16	96	21	15	6	
TP-99004	6	2.30		D	Grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)	9.5	77	19	11	8	
TP-99105	4	1.30		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	57	20	13	7	Sample washed to obtain test fraction
TP-99105	6	2.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)	12	75	21	13	8	Sample washed to obtain test fraction
TP-99206	2	0.70		D	Brown slightly sandy silty CLAY	27	100	54	22	32	
TP-99206	4	1.70		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	11	71	21	15	6	Sample washed to obtain test fraction
TP-99206	6	2.70		D	Greyish brown slightly sandy slighty gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	66	20	13	7	Sample washed to obtain test fraction
TP-99304	2	0.60		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	81	23	14	9	

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Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	23/09/2022

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
TP-99304	6	2.60		D	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)	7.9	32	19	12	7	Sample washed to obtain test fraction
TP-99400	2	0.70		D	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)	18	94	33	18	15	
TP-99400	4	1.70		D	Greyish brown fine sandy very silty CLAY	16	100	27	16	11	
TP-99505	4	1.50		D	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	13	83	23	14	9	
TP-99505	6	2.60		D	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	10	60	20	13	7	Sample washed to obtain test fraction
TP-99599	2	0.70		D	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	9.2	80	20	13	7	
TP-99599	5	2.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)	6.7	64	18	12	6	Sample washed to obtain test fraction
TP-99701	2	0.50		D	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)	12	93	21	11	10	
TP-99701	5	3.10		D	Greyish brown fine sandy clayey SILT with rare fine sub-angular gravel	13	98	19	13	6	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3, 4.4 and 5.0
These results only apply to the items tested

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Test Report by K4 SOILS LABORATORY
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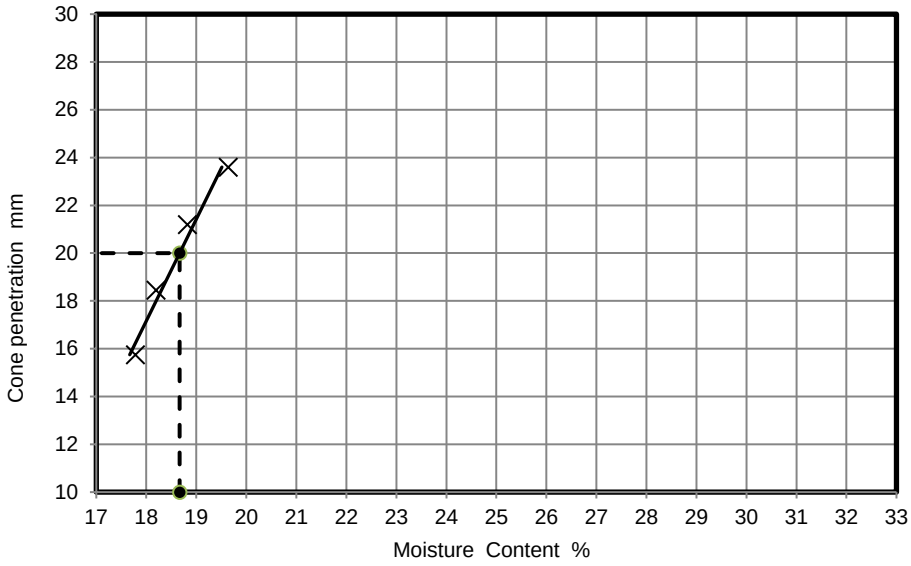
Checked and Approved

Initials **J.P**

Date: 15/12/2022

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-100012
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey and grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

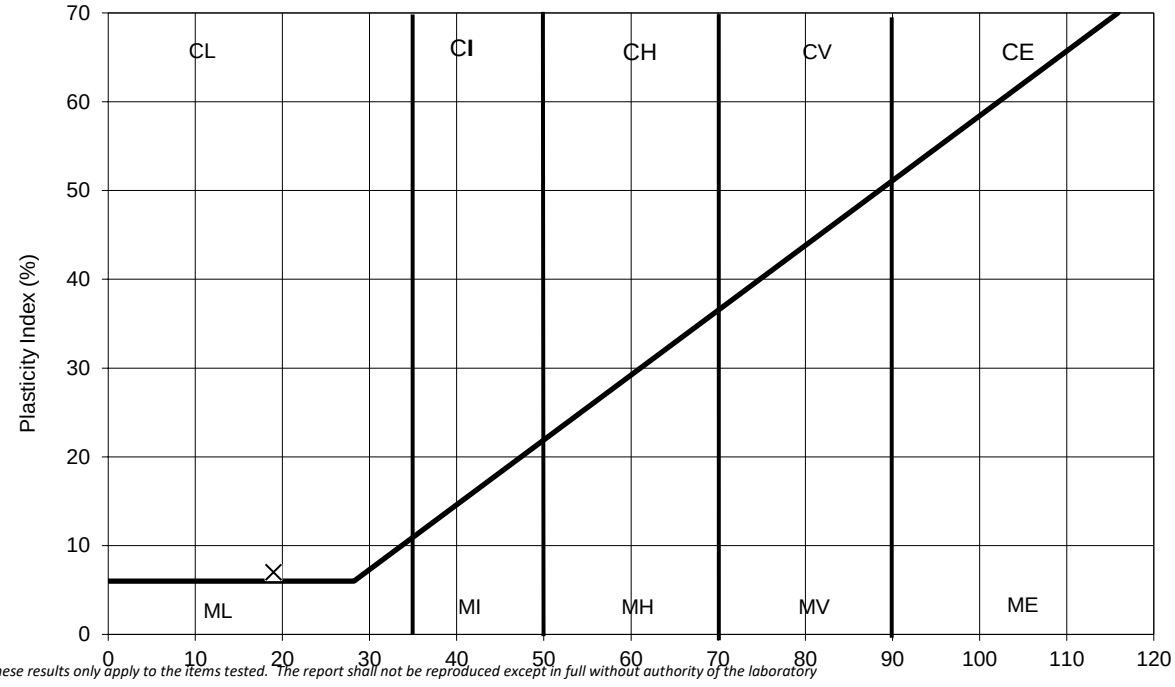


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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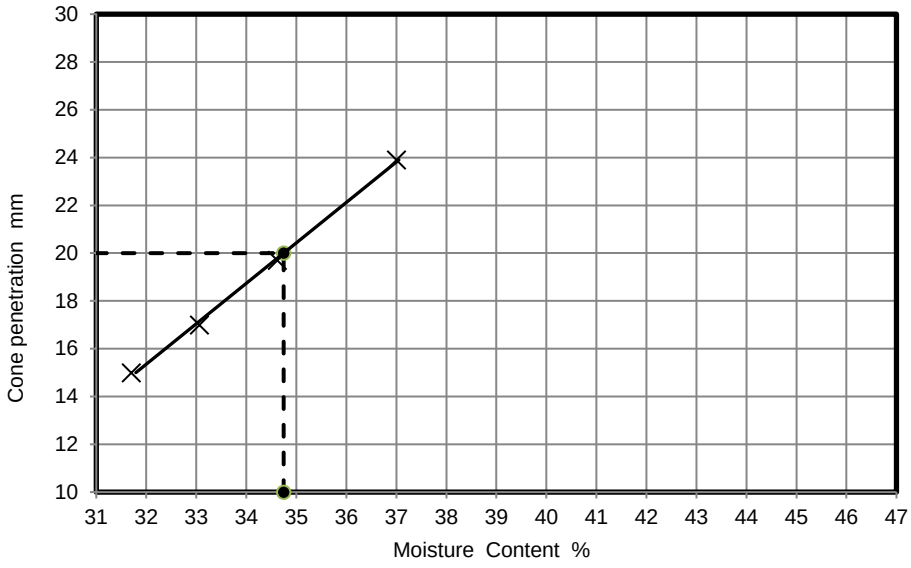
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

Job No. 32282

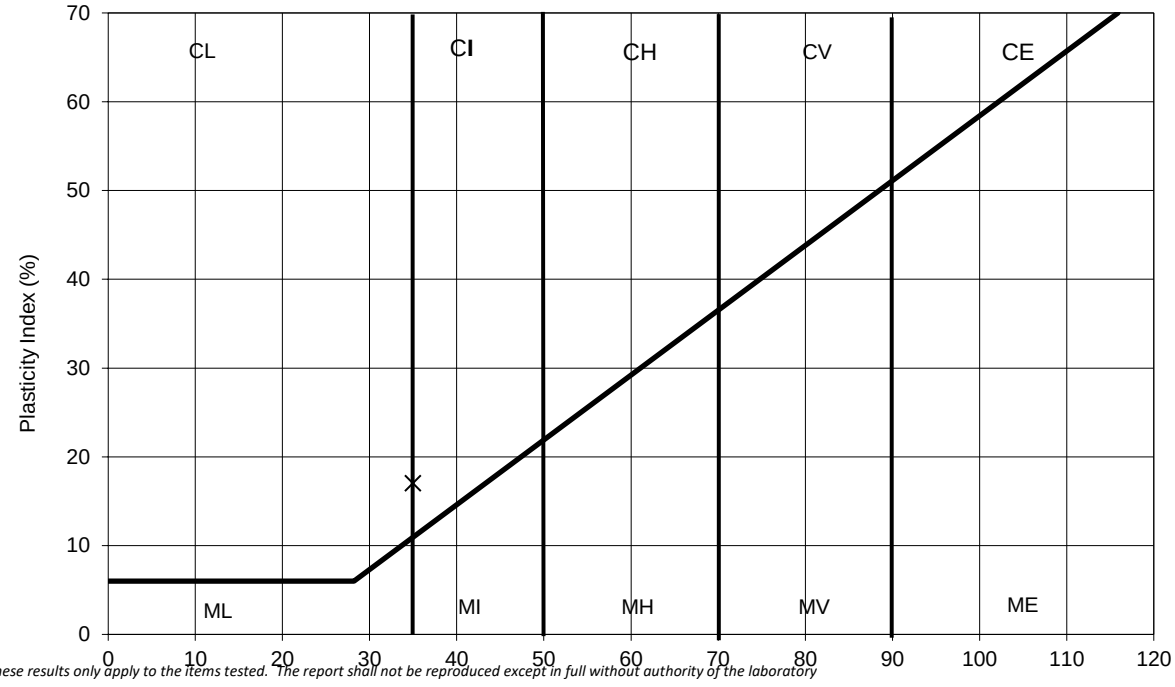
Borehole/Pit No. BH-102037



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**35**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**17**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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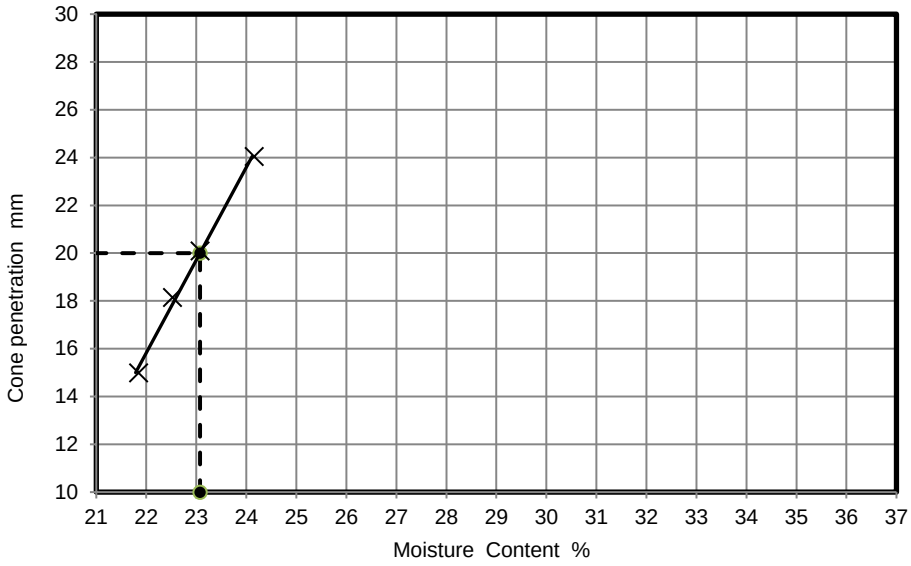
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-102528
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

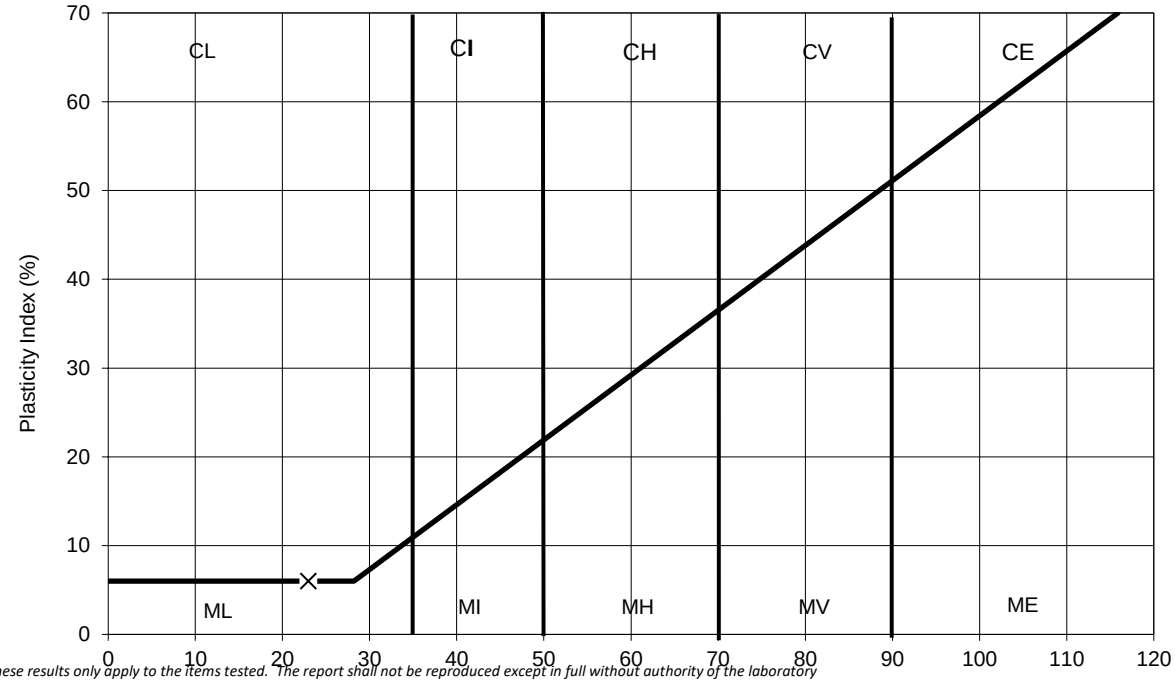


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**52**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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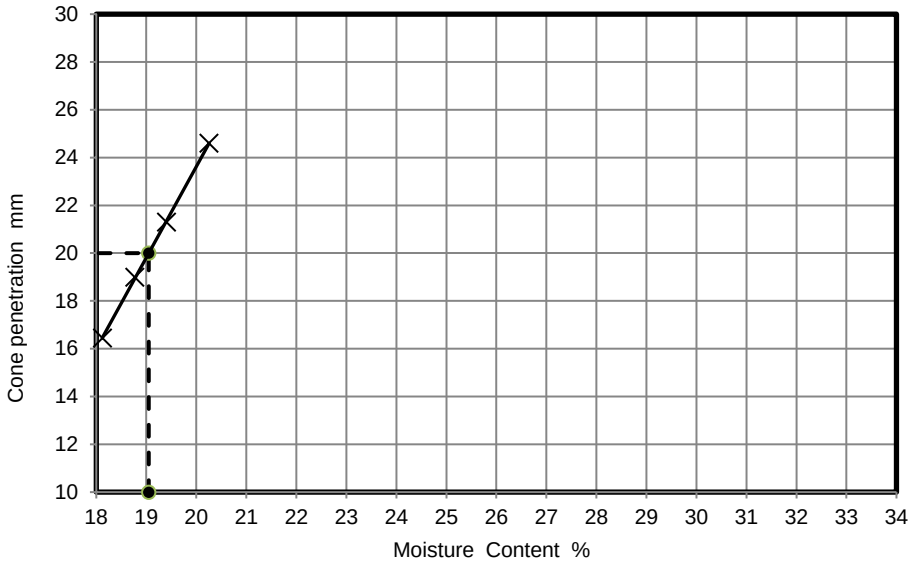
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-102528
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

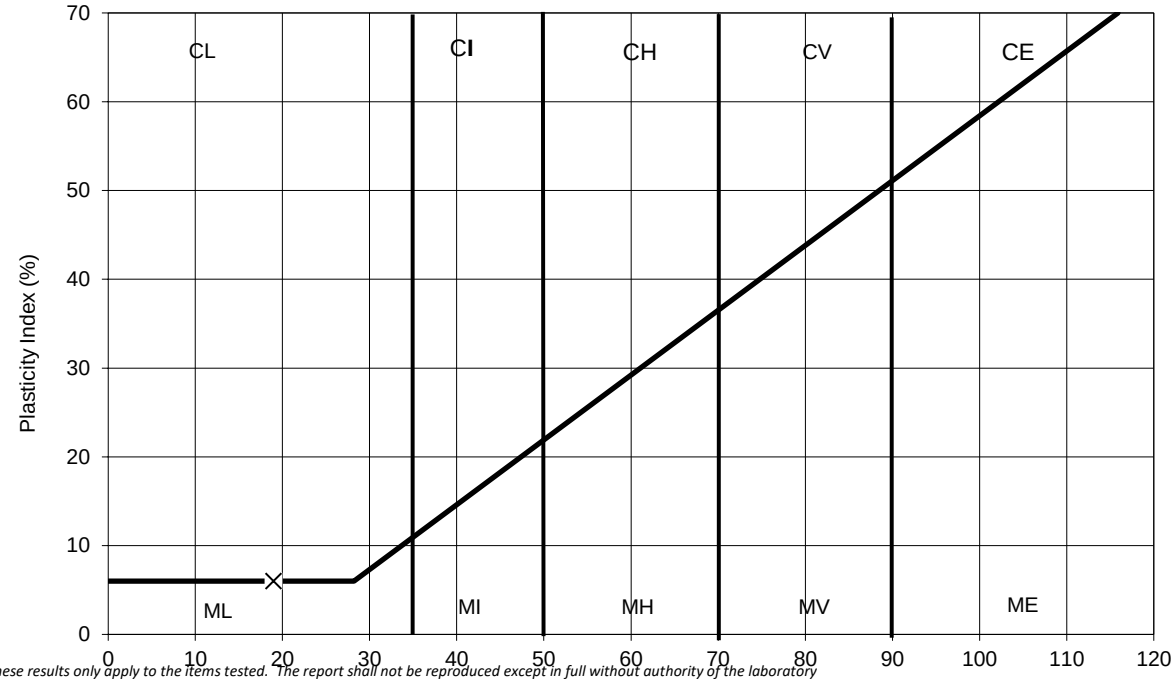


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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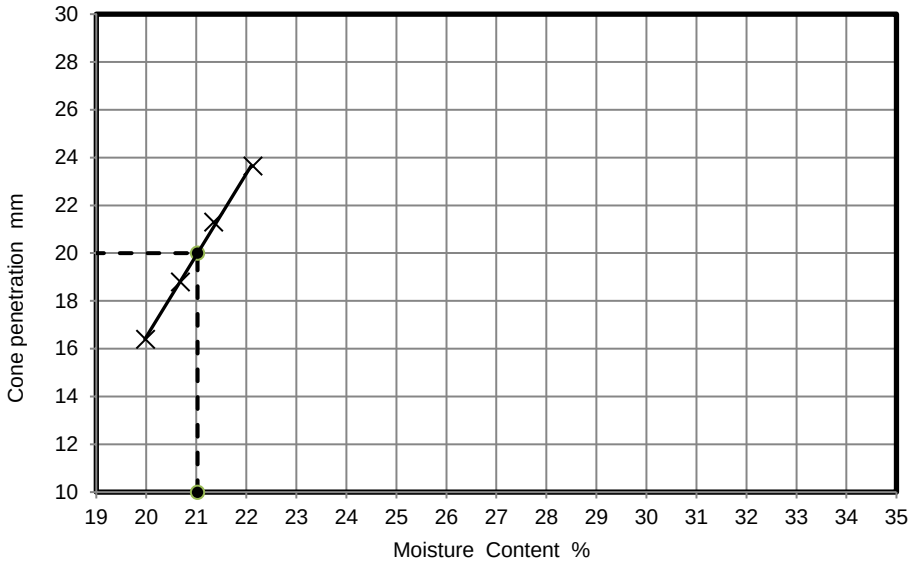
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-103234
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

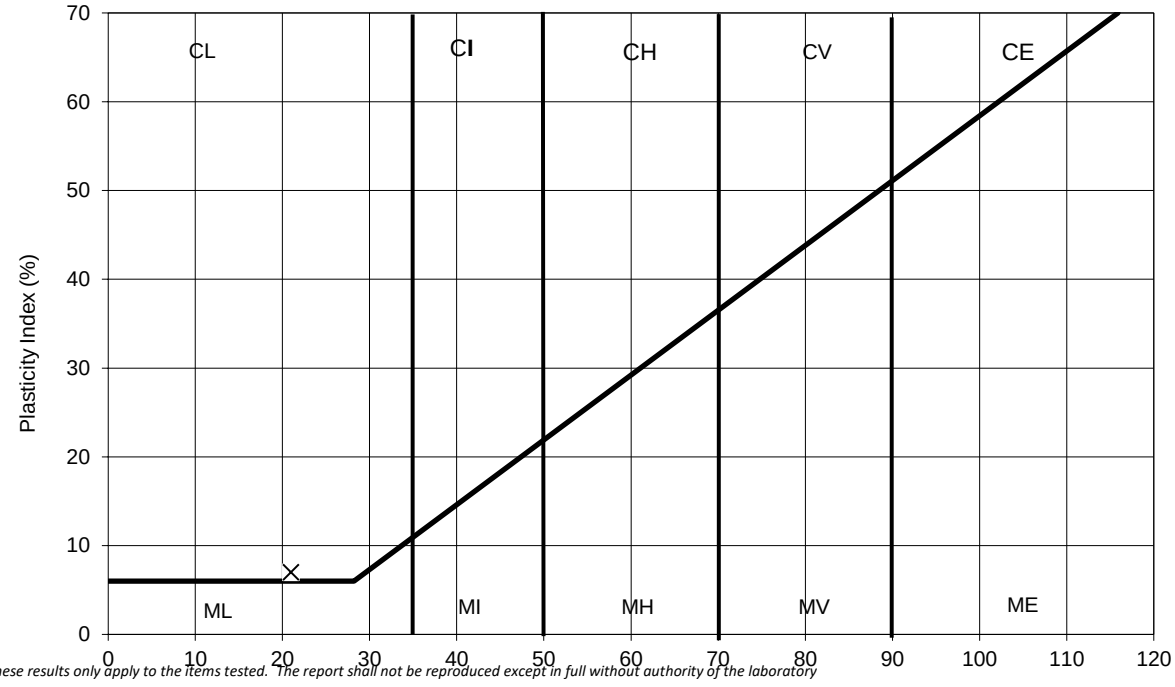


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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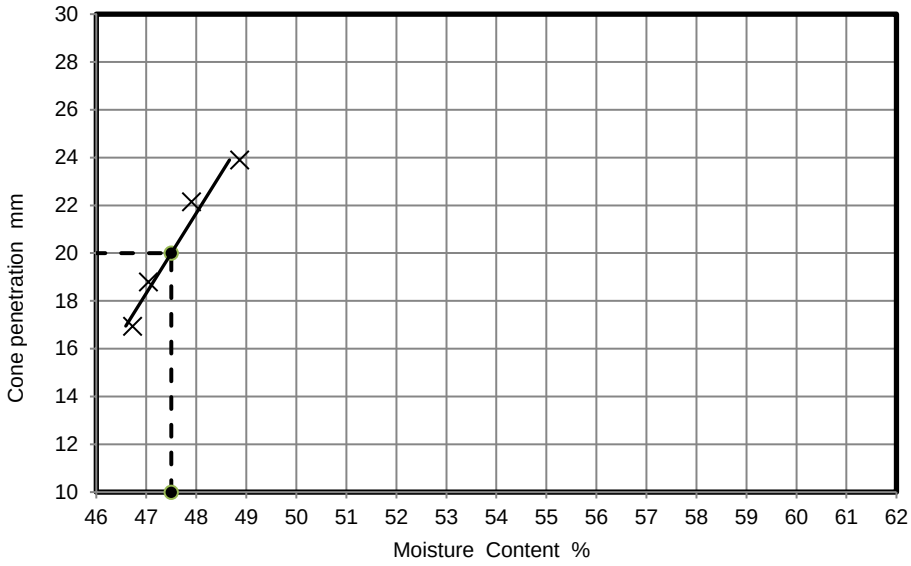
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-62806
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY with rare numerous fine roots (gravel is fine and sub-angula)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

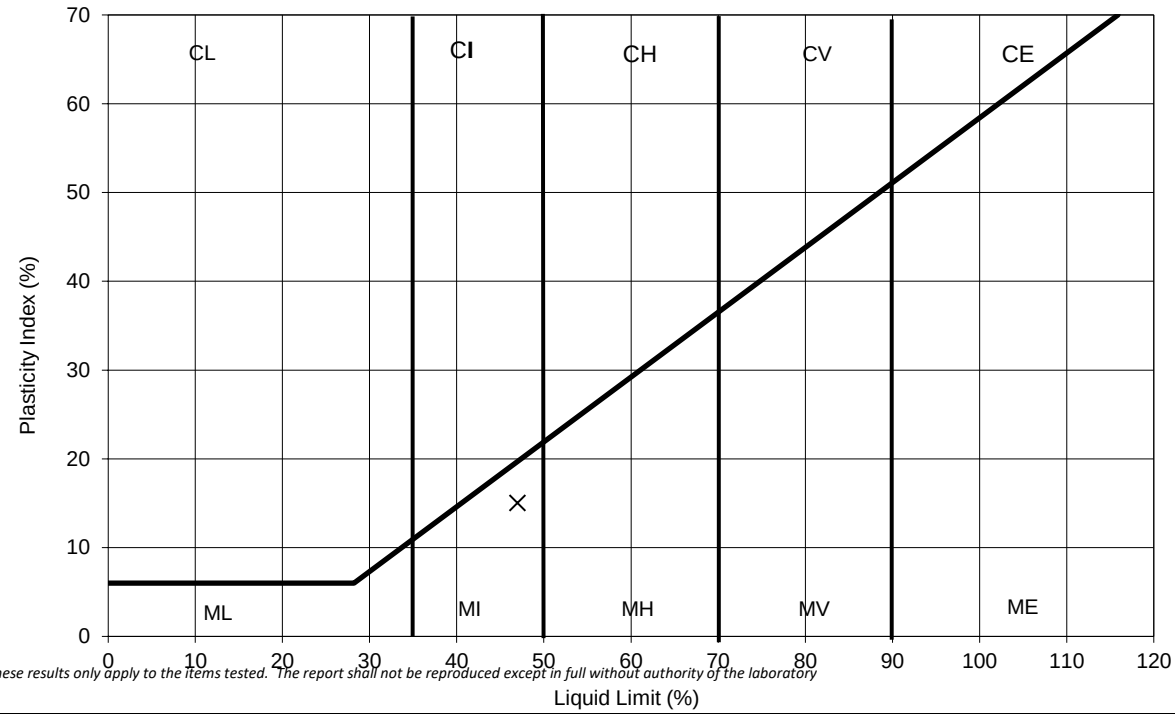


NATURAL MOISTURE CONTENT	**51**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**47**	**%**
PLASTIC LIMIT	**32**	**%**
PLASTICITY INDEX	**15**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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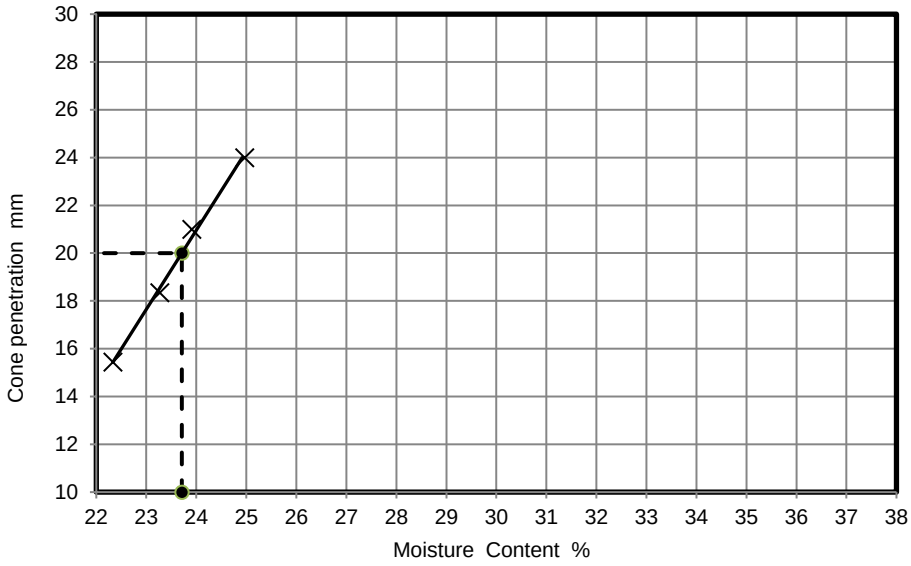
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-63008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

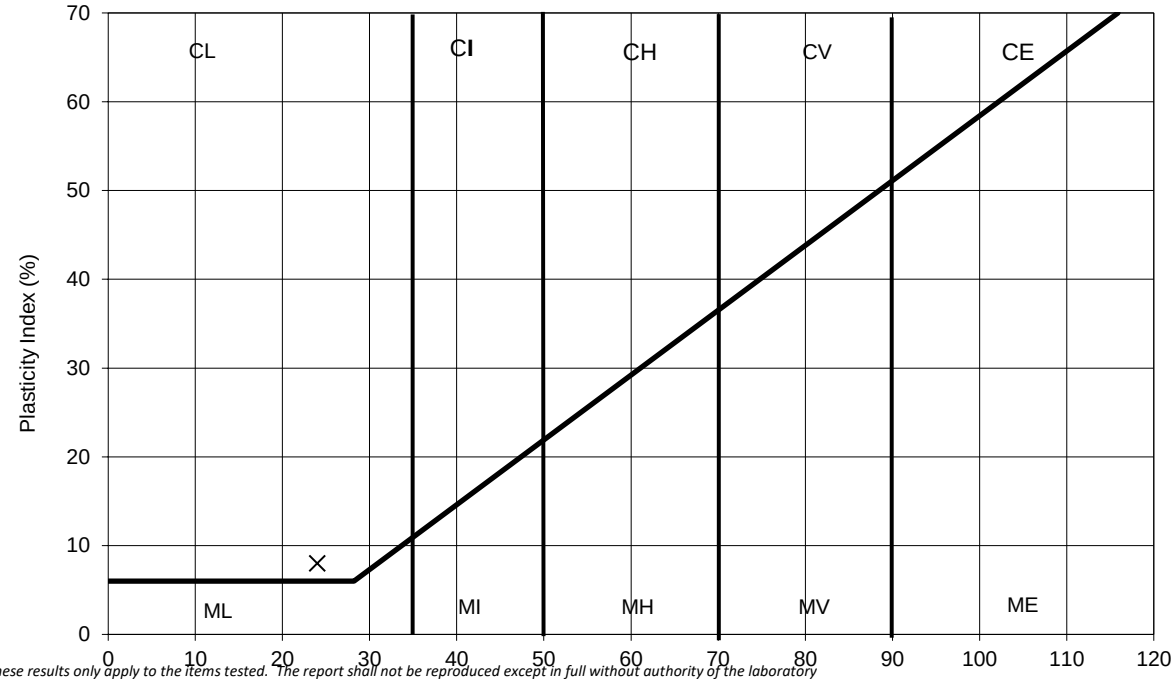


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sampe washed to obtain test fraction

PLASTICITY INDEX



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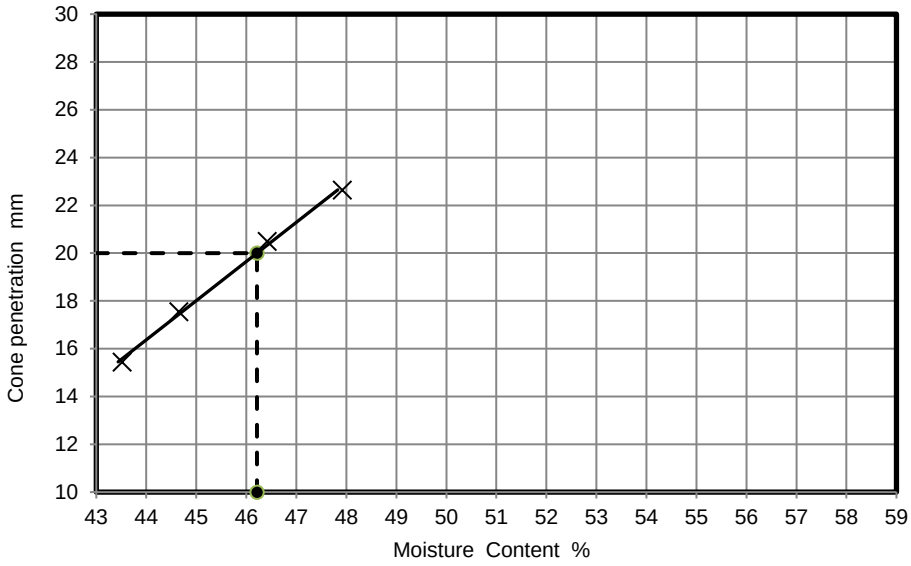
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

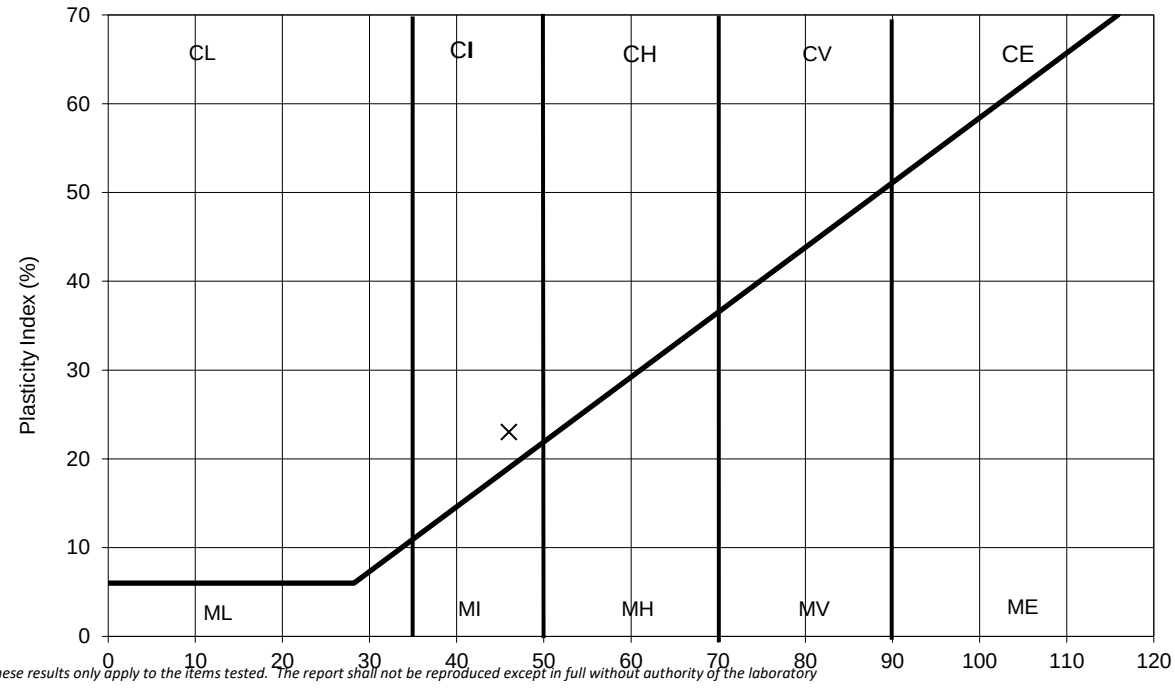
				Job No.	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown slightly sandy silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**35**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**46**	**%**
PLASTIC LIMIT	**23**	**%**
PLASTICITY INDEX	**23**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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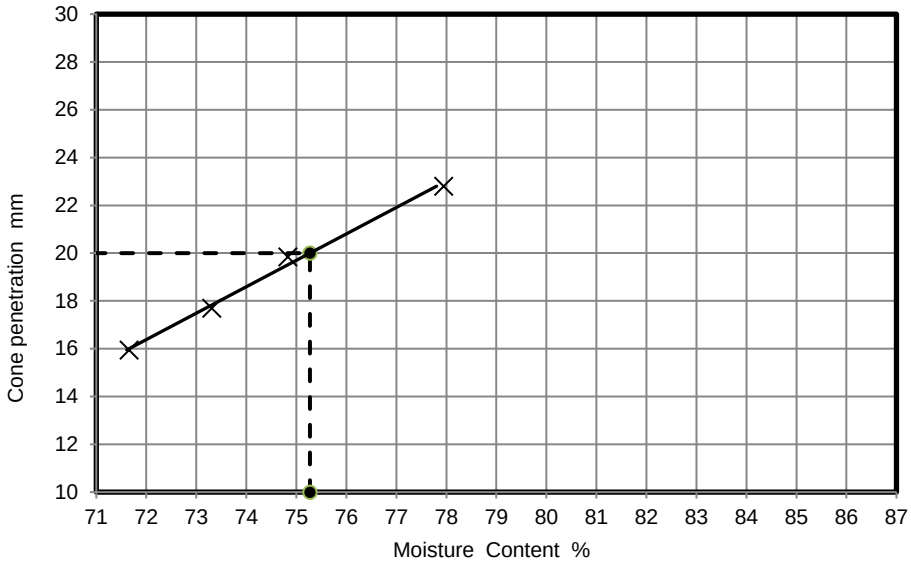
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

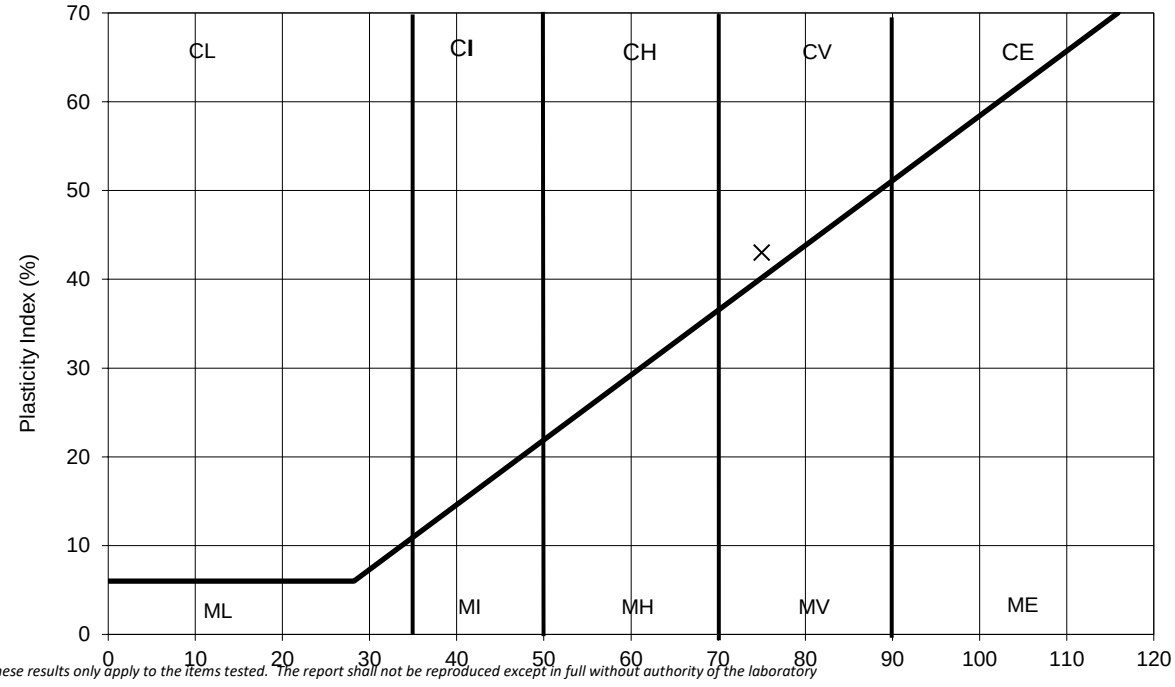
				Job No.	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**64**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**75**	**%**
PLASTIC LIMIT	**32**	**%**
PLASTICITY INDEX	**43**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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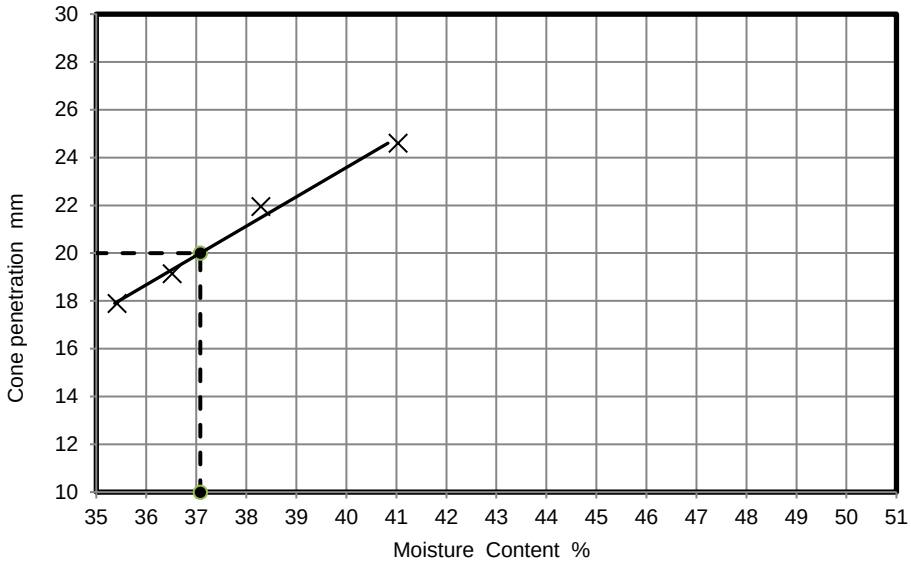
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	9.00 m
Soil Description	Dark grey slightly gravelly slightly sandy very silty CLAY (gravel is fine and anguar to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

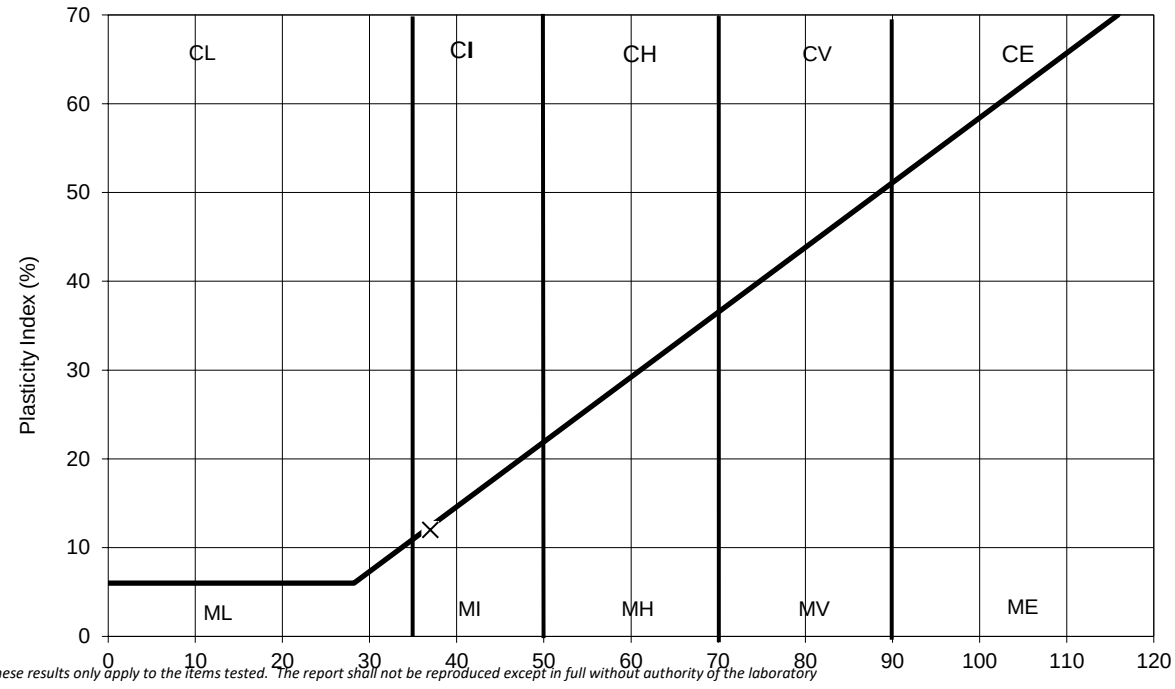


NATURAL MOISTURE CONTENT	**60**	**%**
% PASSING 425µm SIEVE	**89**	**%**
LIQUID LIMIT	**37**	**%**
PLASTIC LIMIT	**25**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

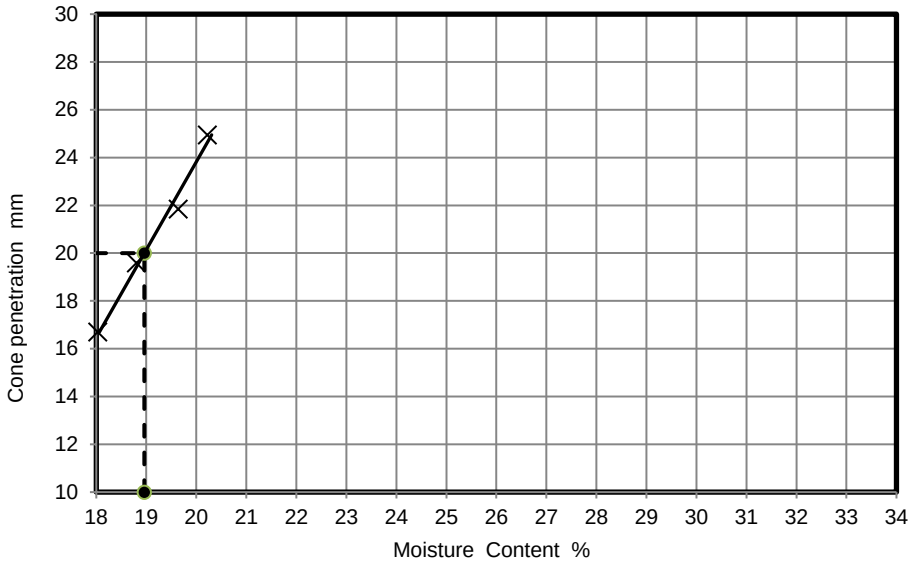
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-65612				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

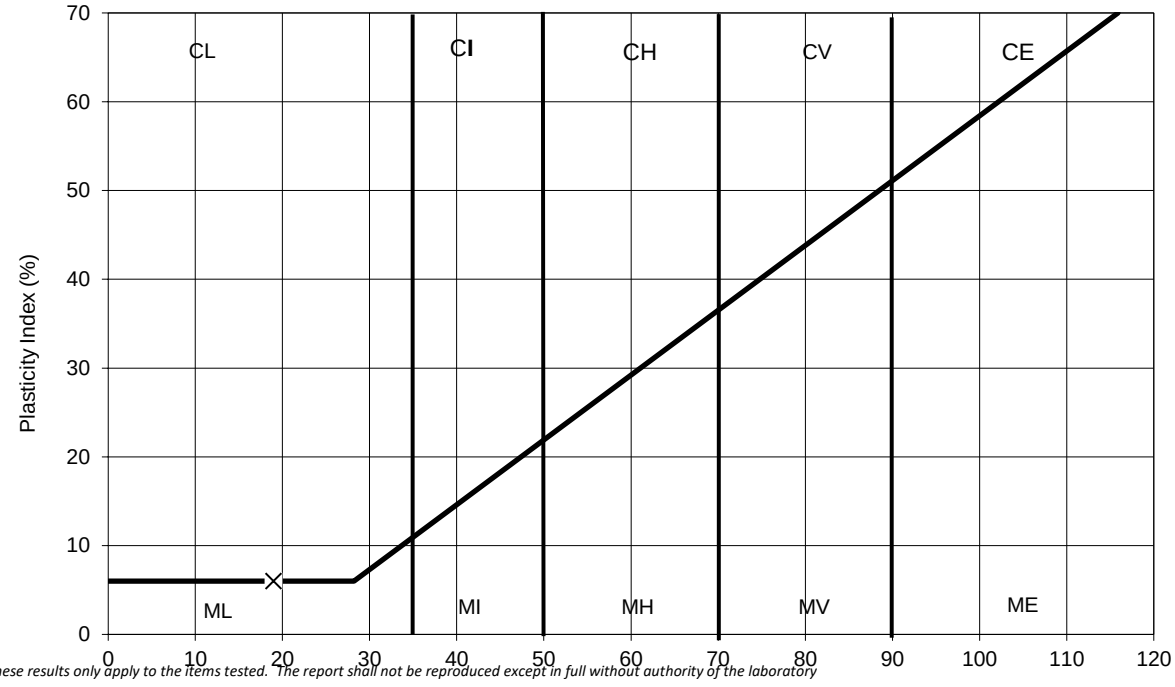


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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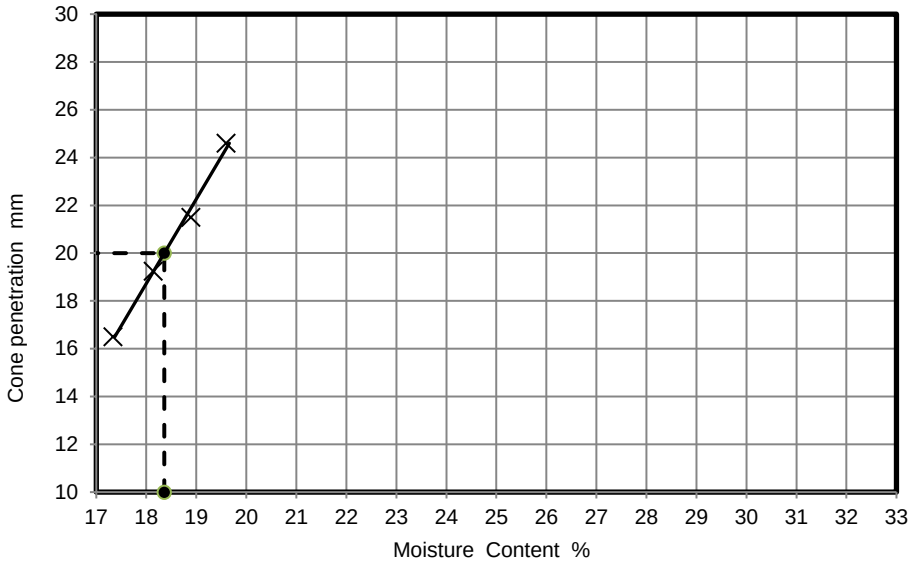
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-67338
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

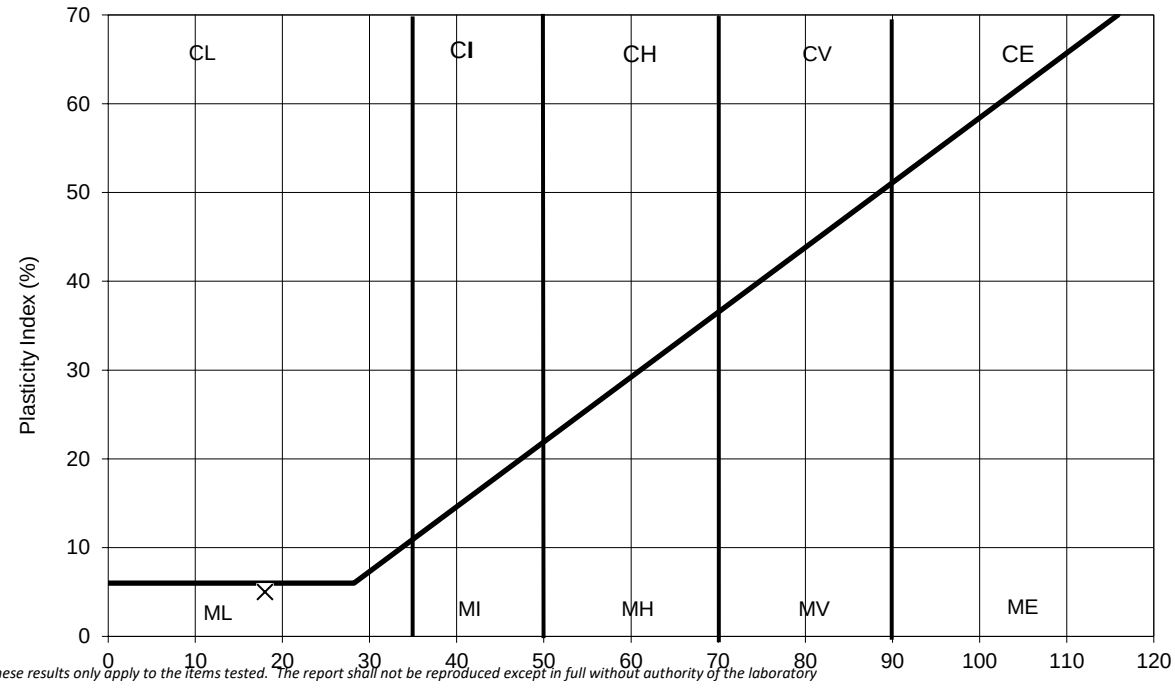


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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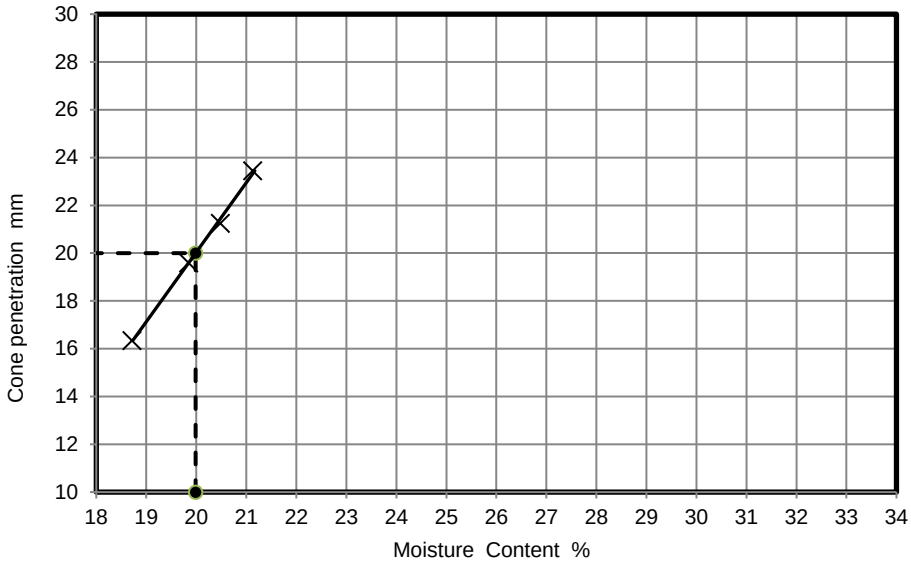
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

Job No. 32282

Borehole/Pit No. BH-67630

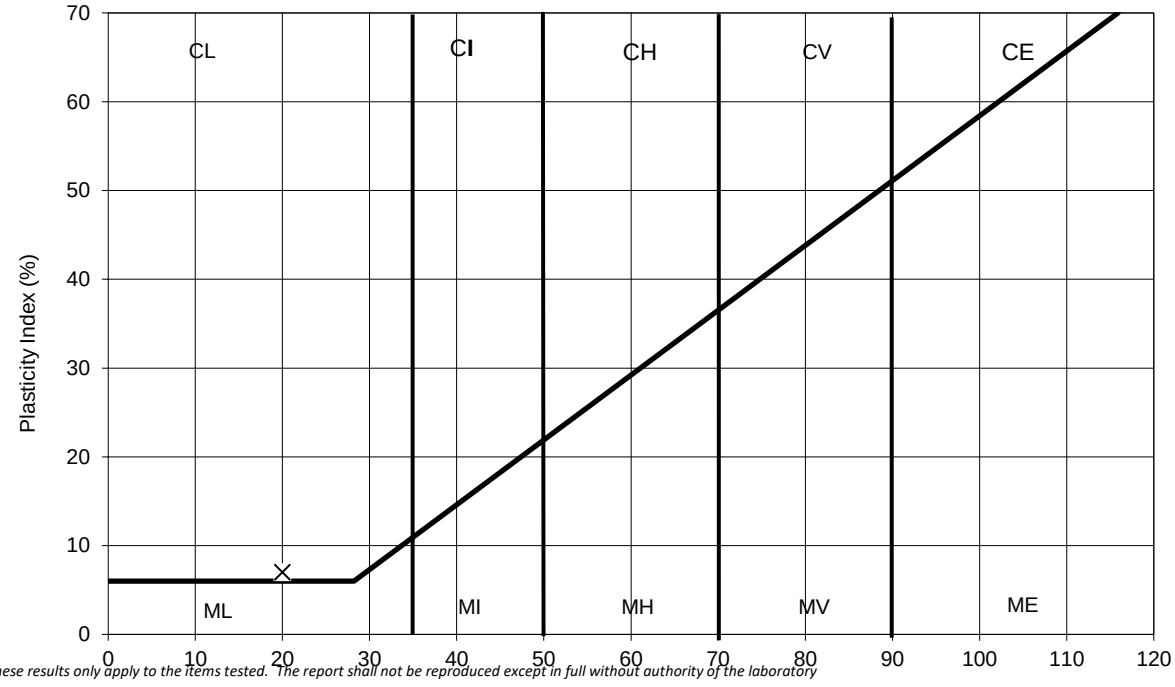


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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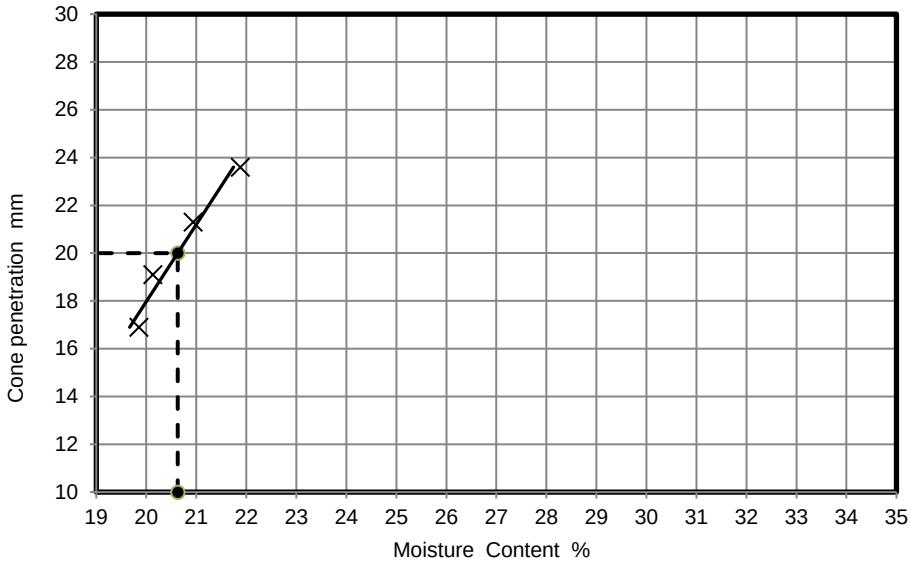
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

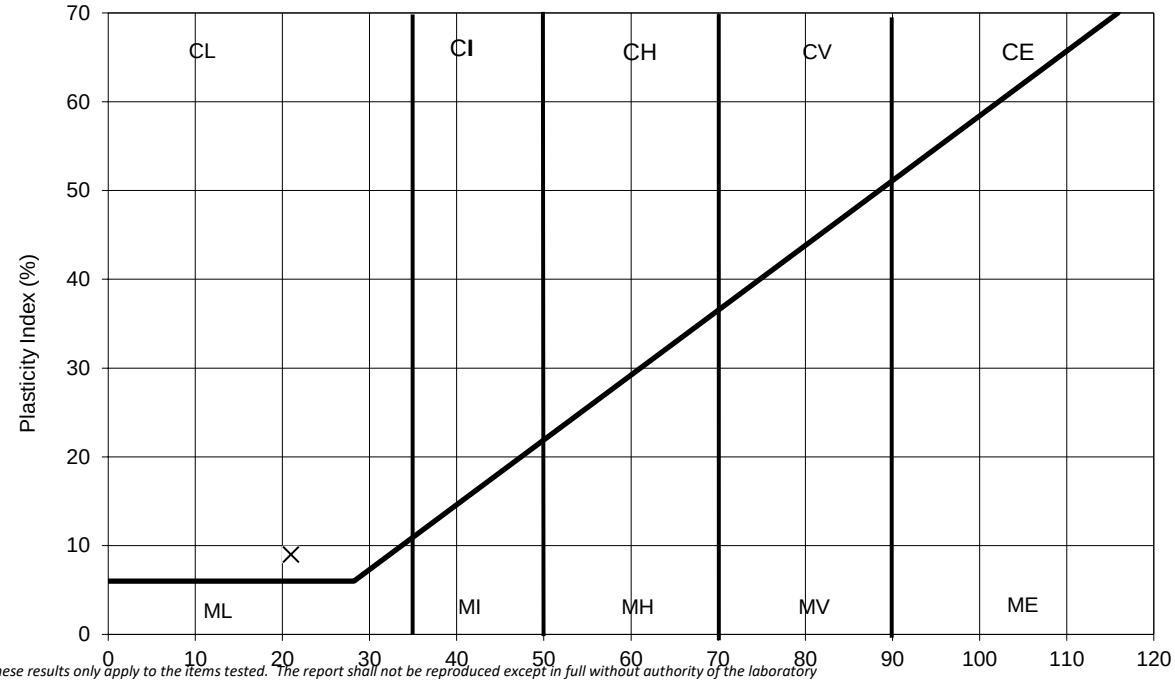


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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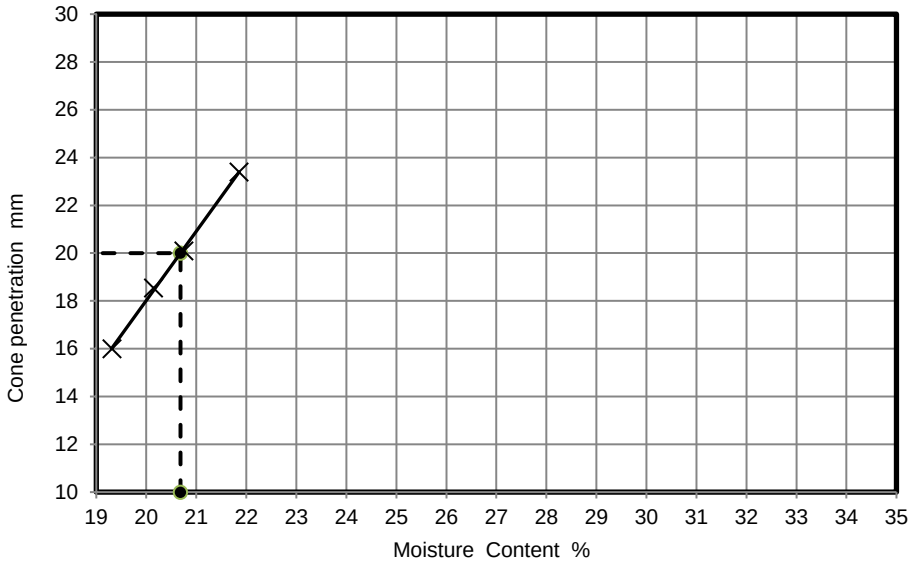
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	20
Project No.	2021OY102	Client	Irish Drilling	Depth Top	6.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

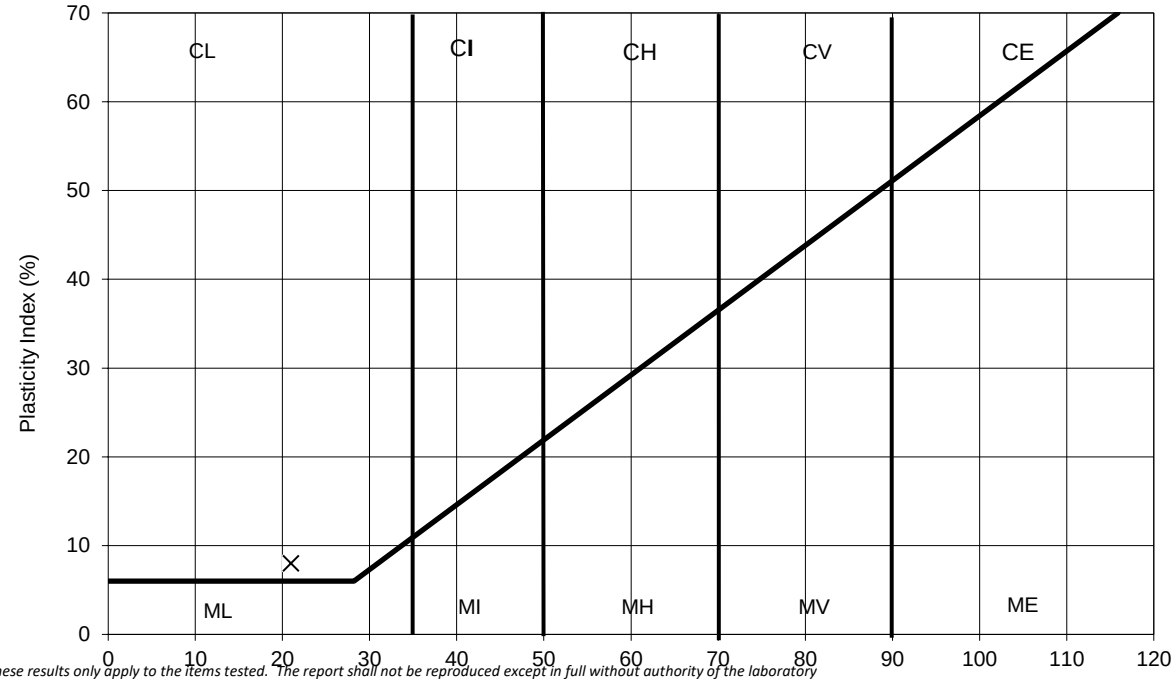


NATURAL MOISTURE CONTENT	**7.2**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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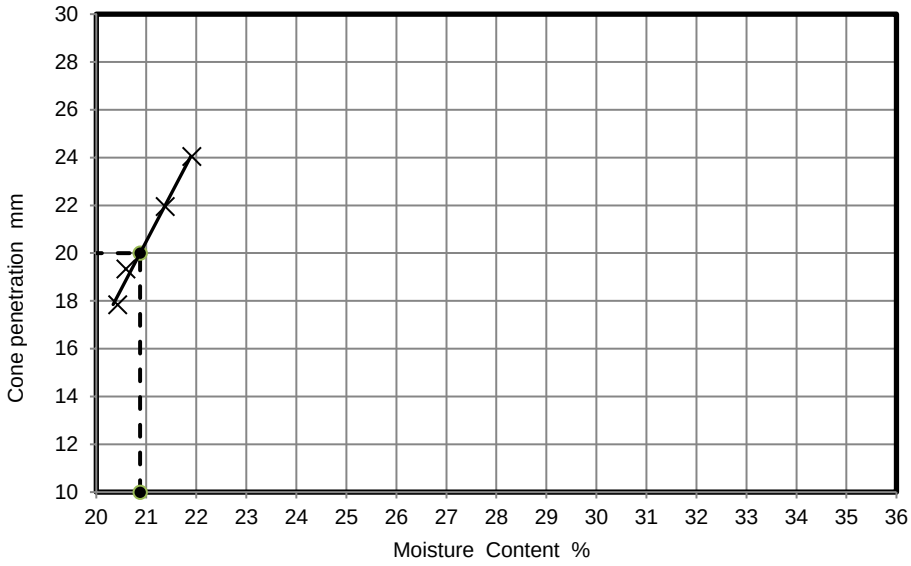
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-68009
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

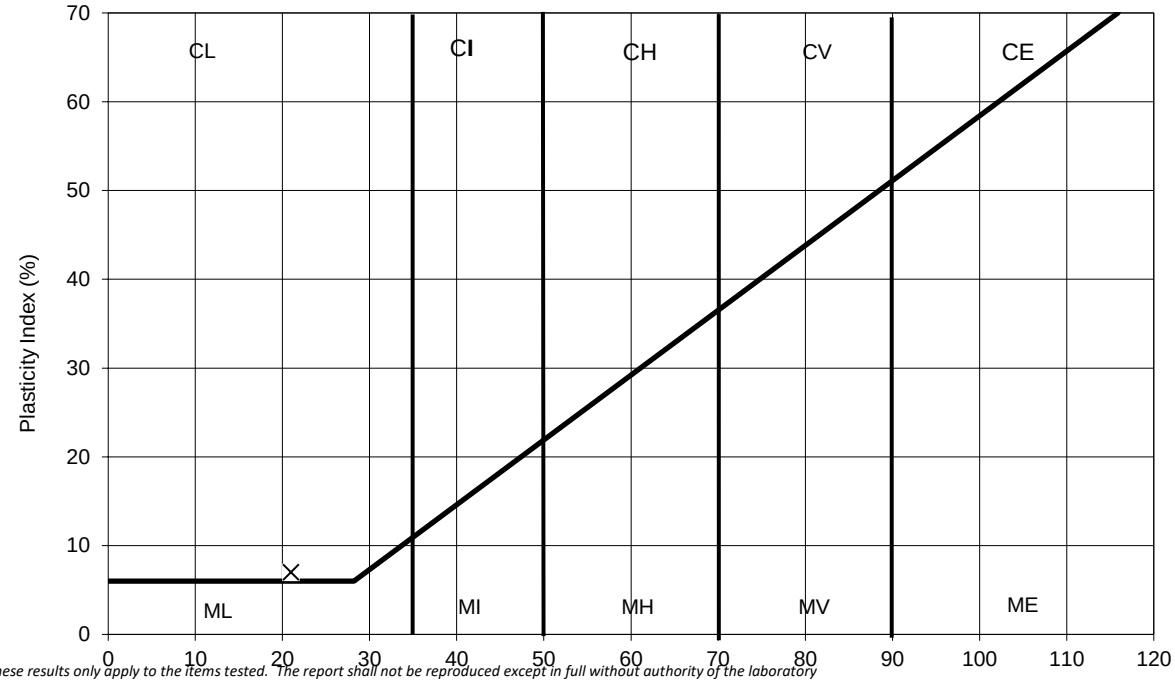


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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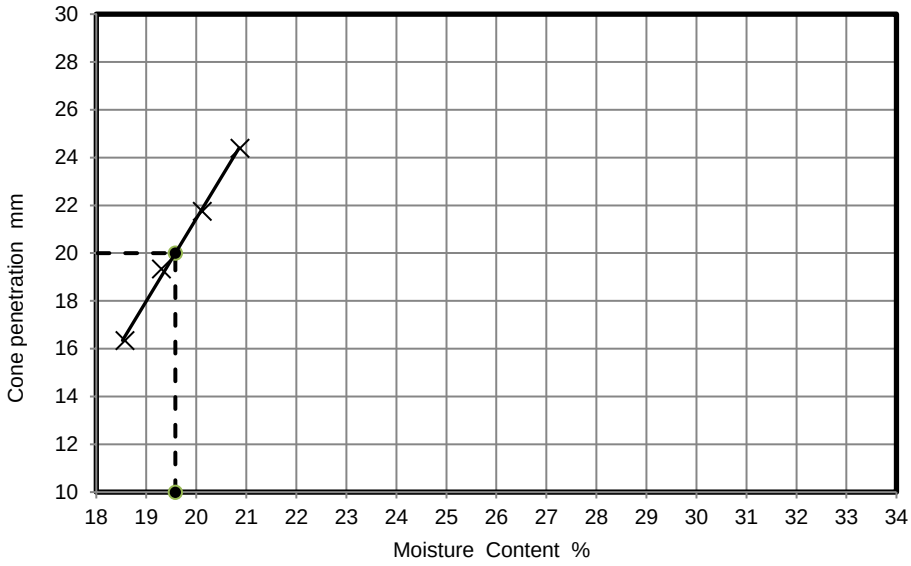
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-68306
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

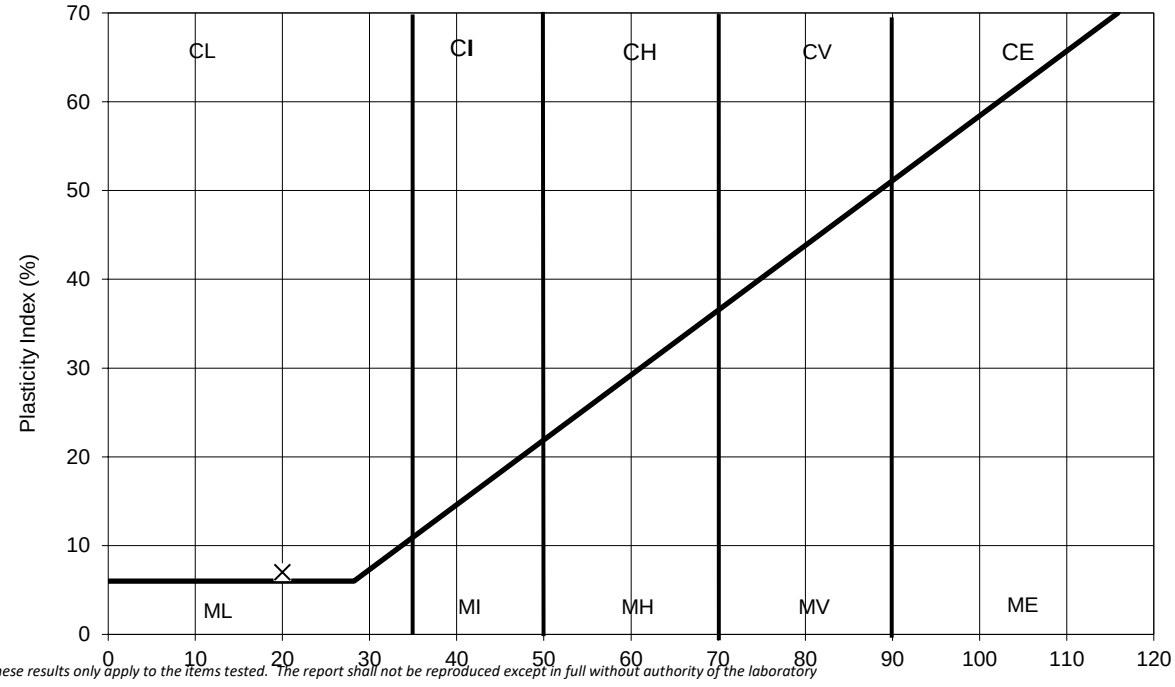


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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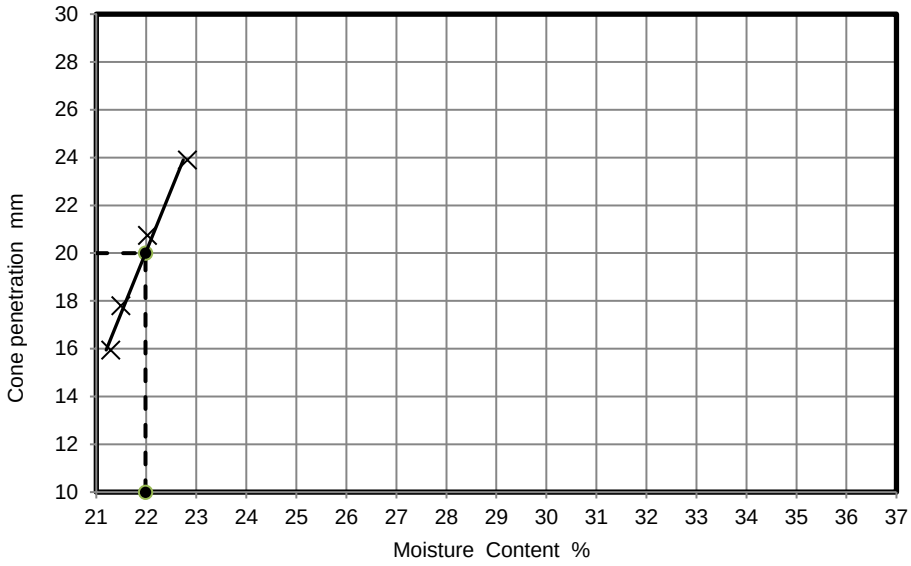
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-68804
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Brown slightly sandy very gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

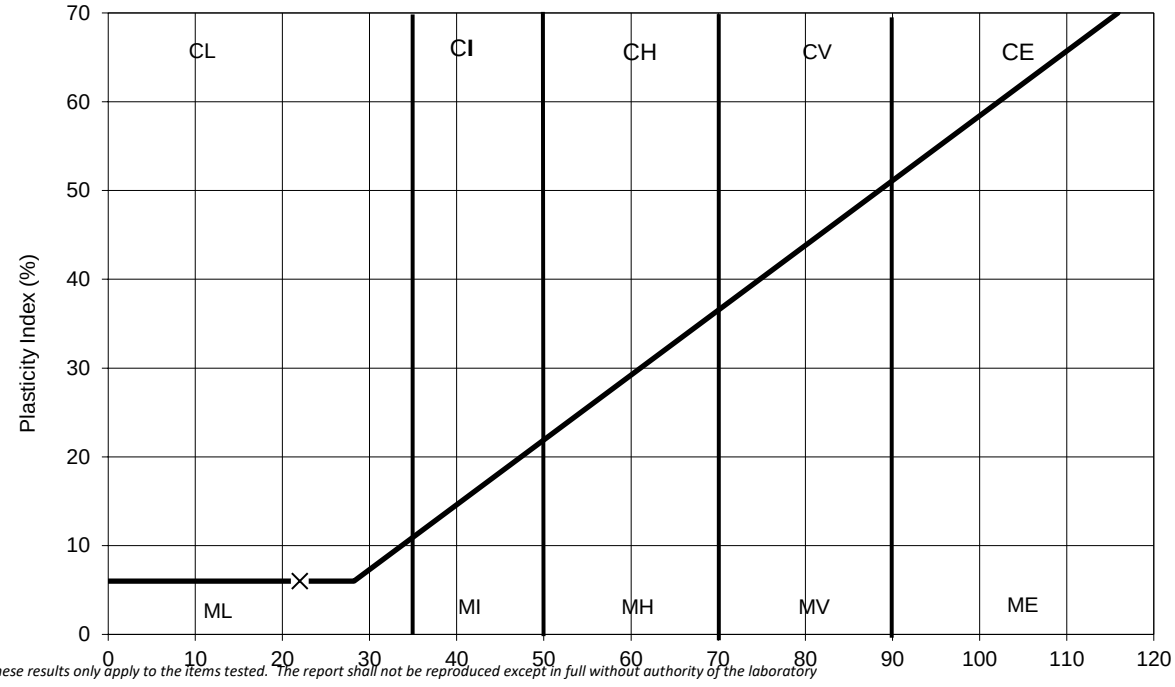


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**18**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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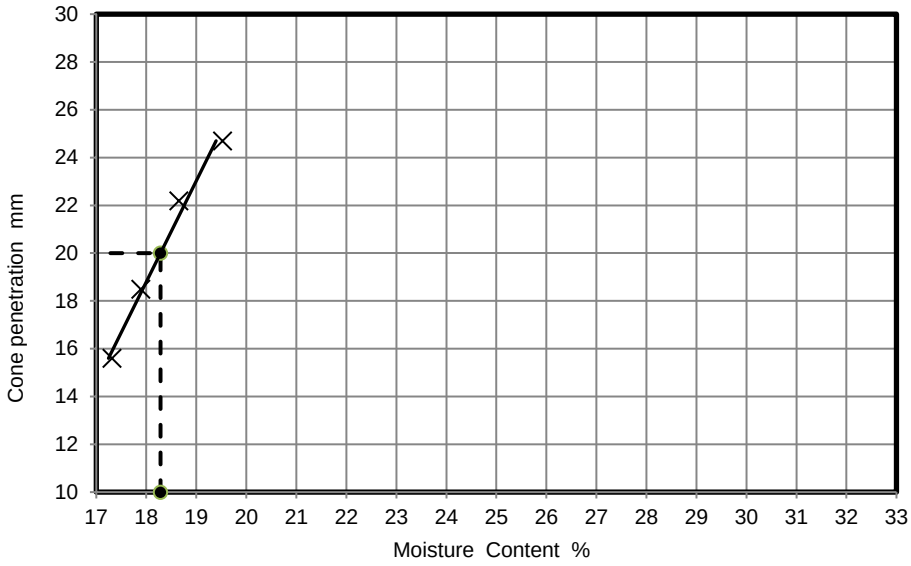
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-69405
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey fmc sub-angular to sub-rounded GRAVEL in a slightly sandy silty clay matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

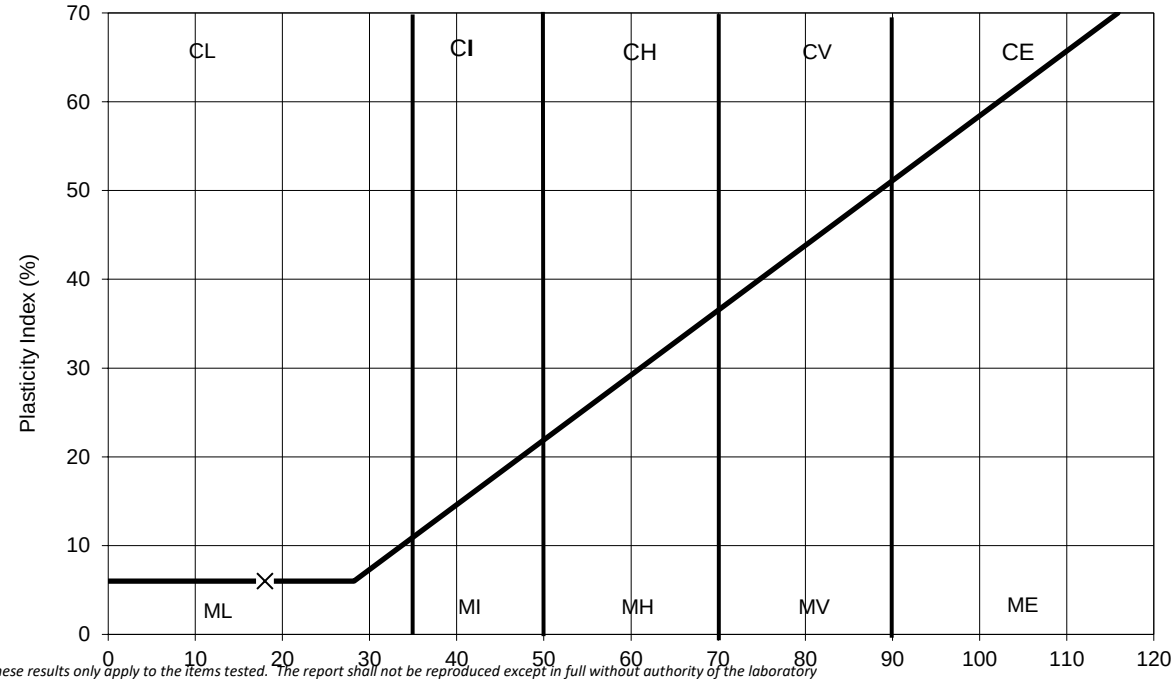


NATURAL MOISTURE CONTENT	**8.5**	**%**
% PASSING 425µm SIEVE	**18**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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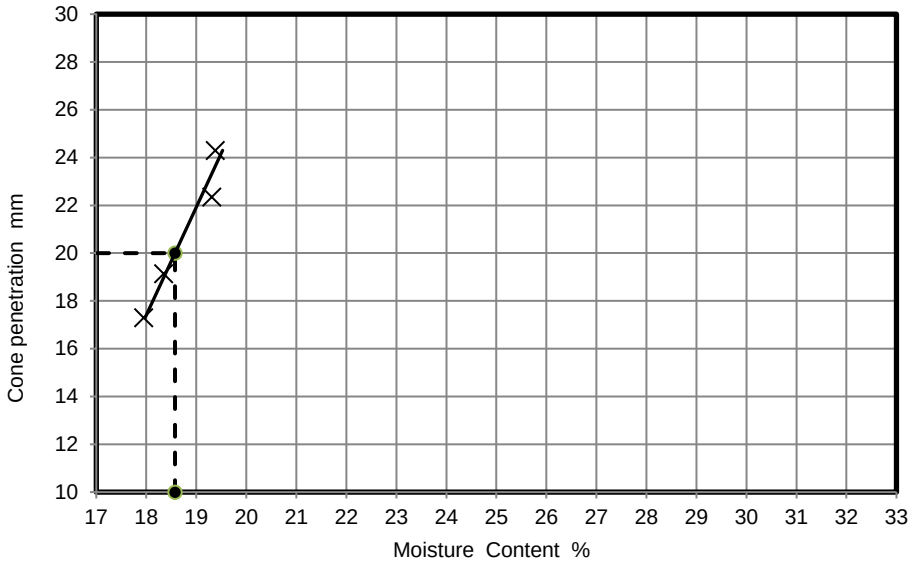
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-71124
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

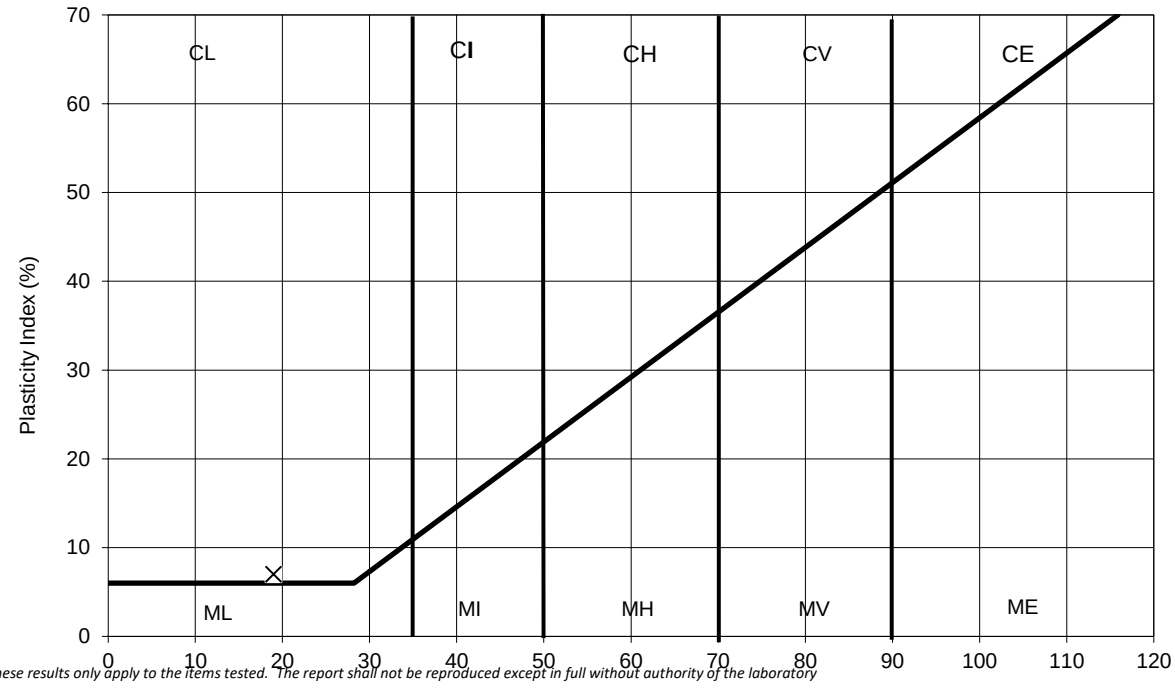


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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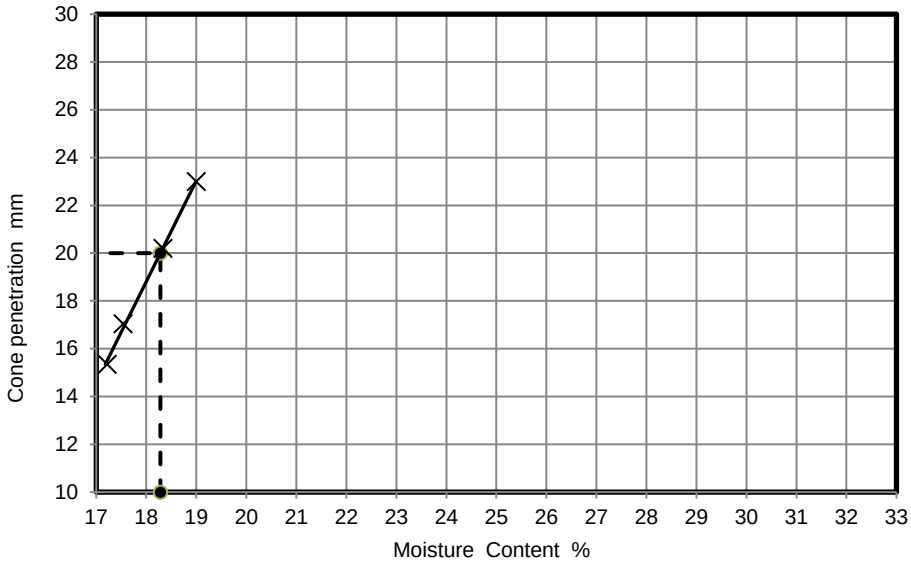
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-71124
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.50 m
Soil Description	Brownish grey slightly sandy very gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

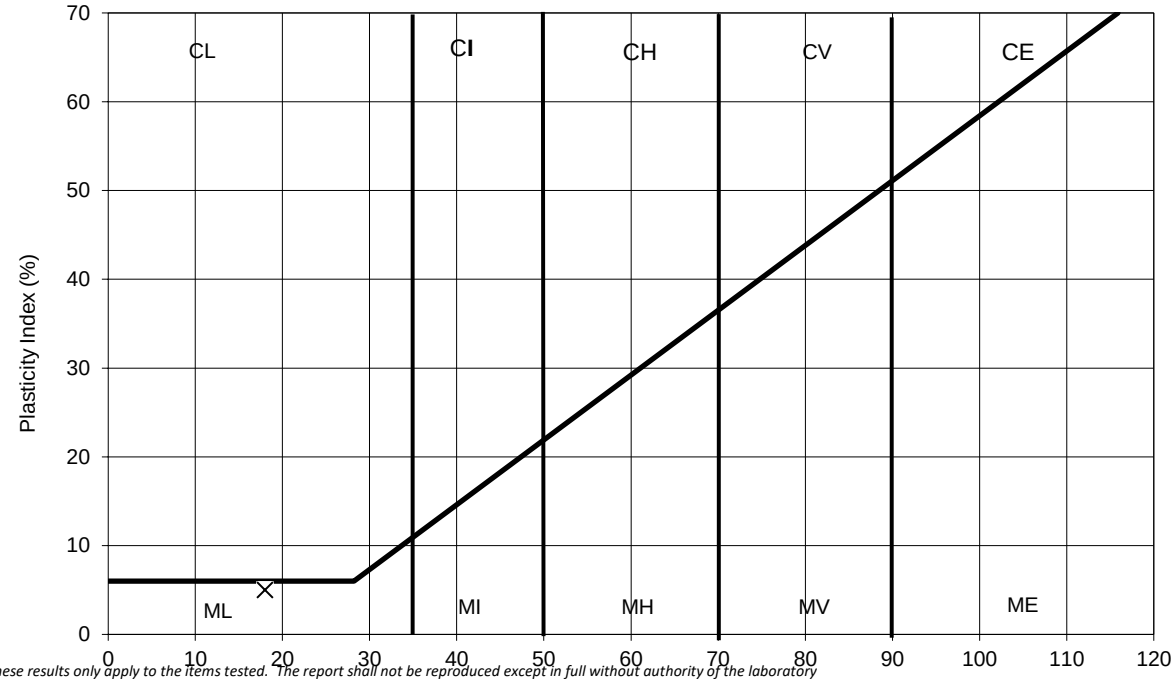


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**28**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

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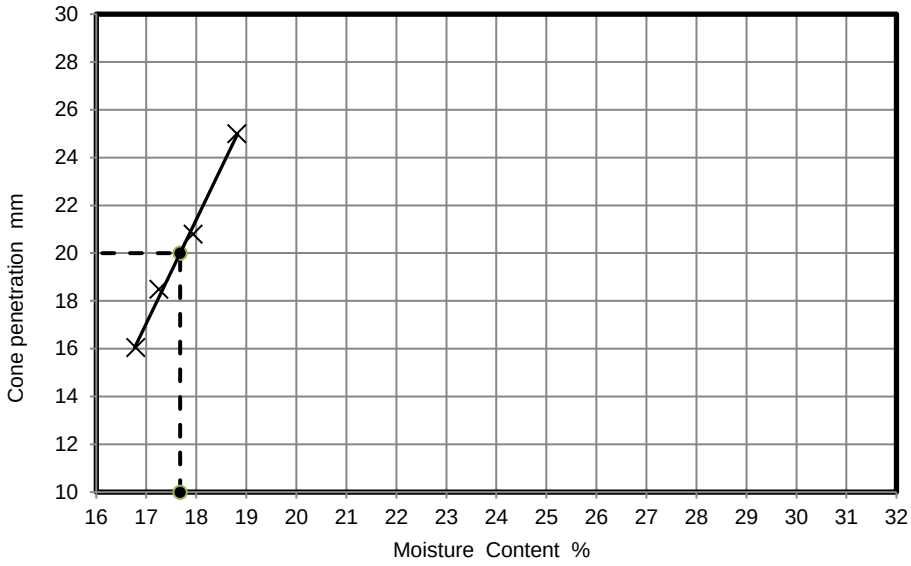
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.50 m
Soil Description	Grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

Job No. 32282

Borehole/Pit No. BH-71397

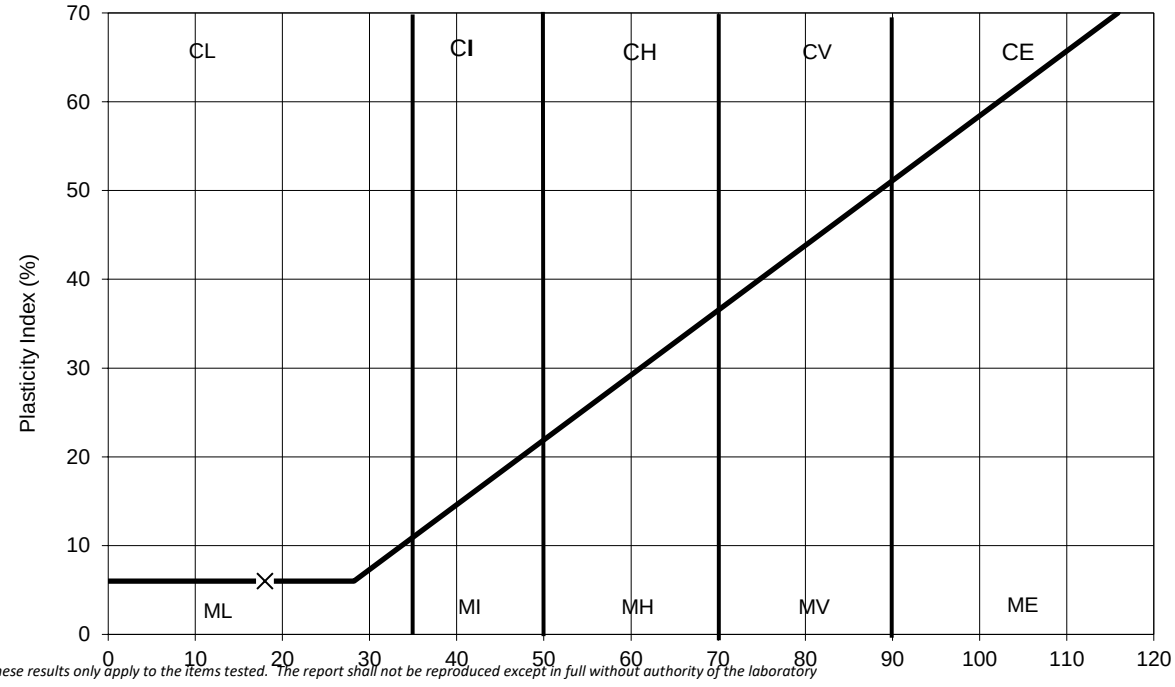


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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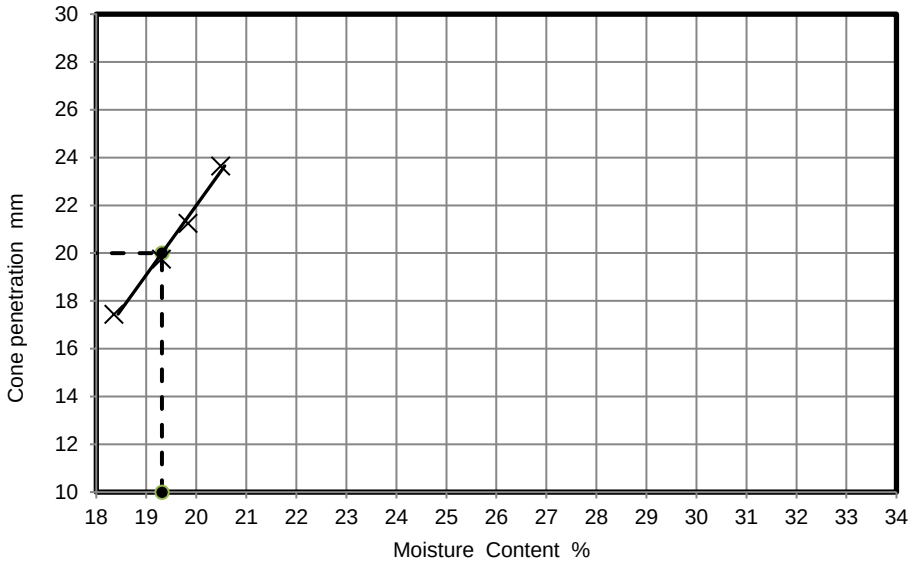
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-72207				
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

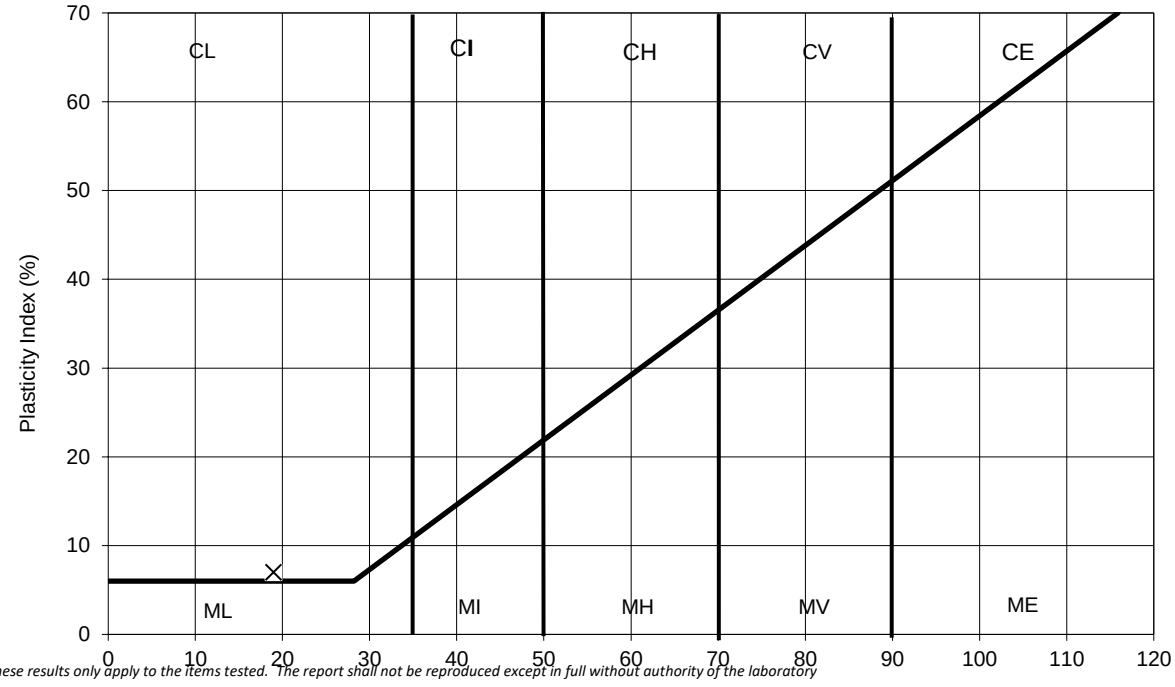


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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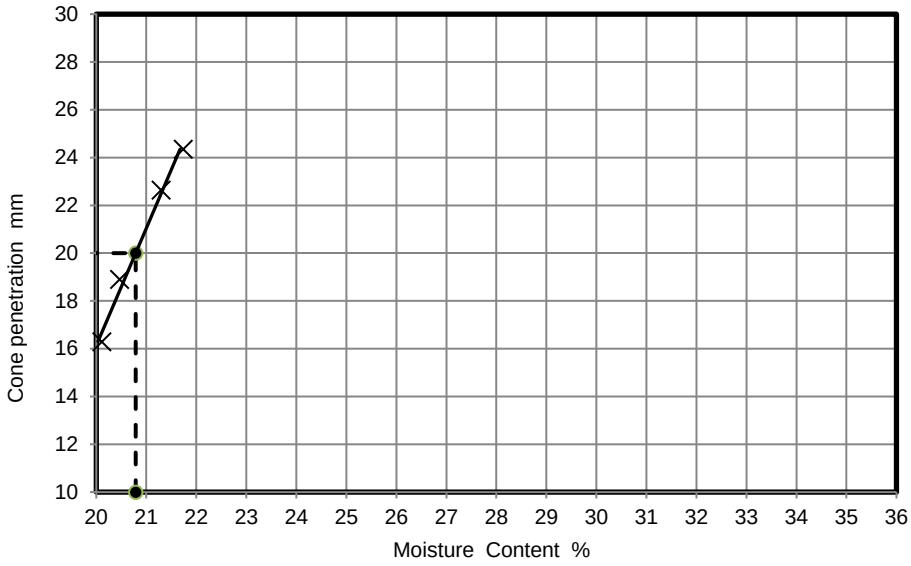
K4 SOILS	**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX**			Job No.	32282
				Borehole/Pit No.	BH-72683
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

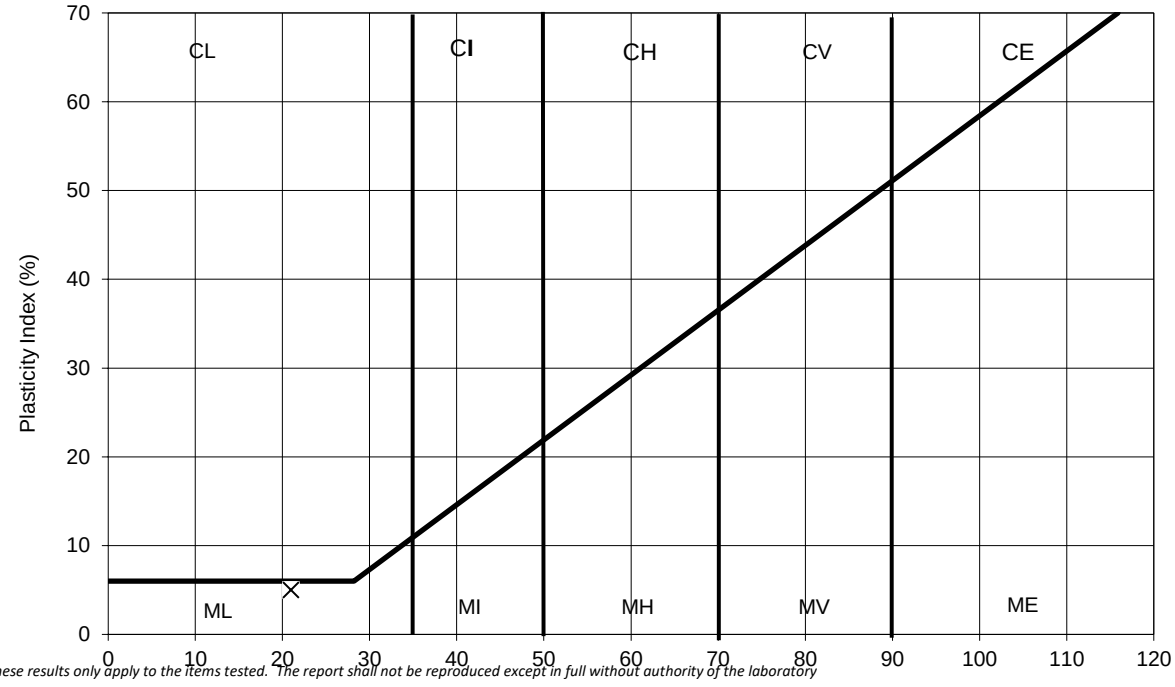


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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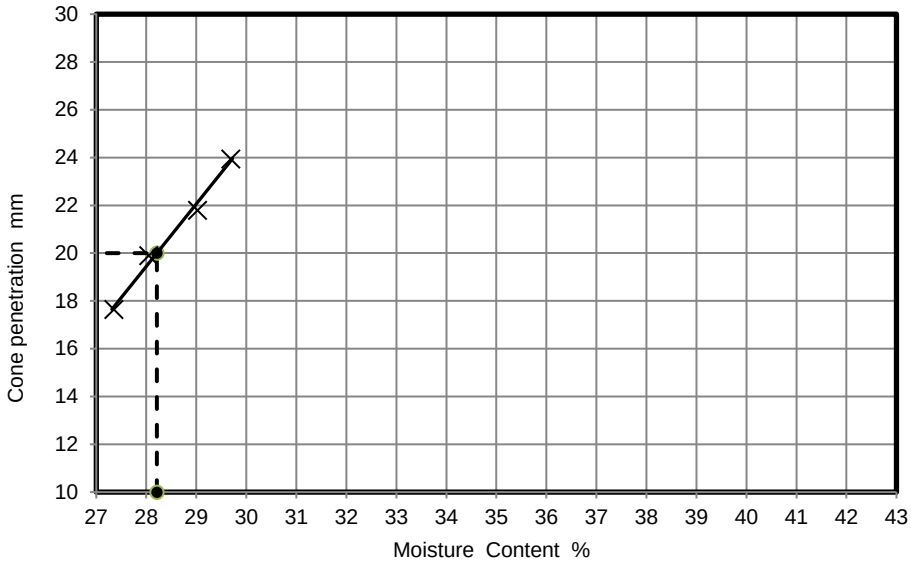
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-73135				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

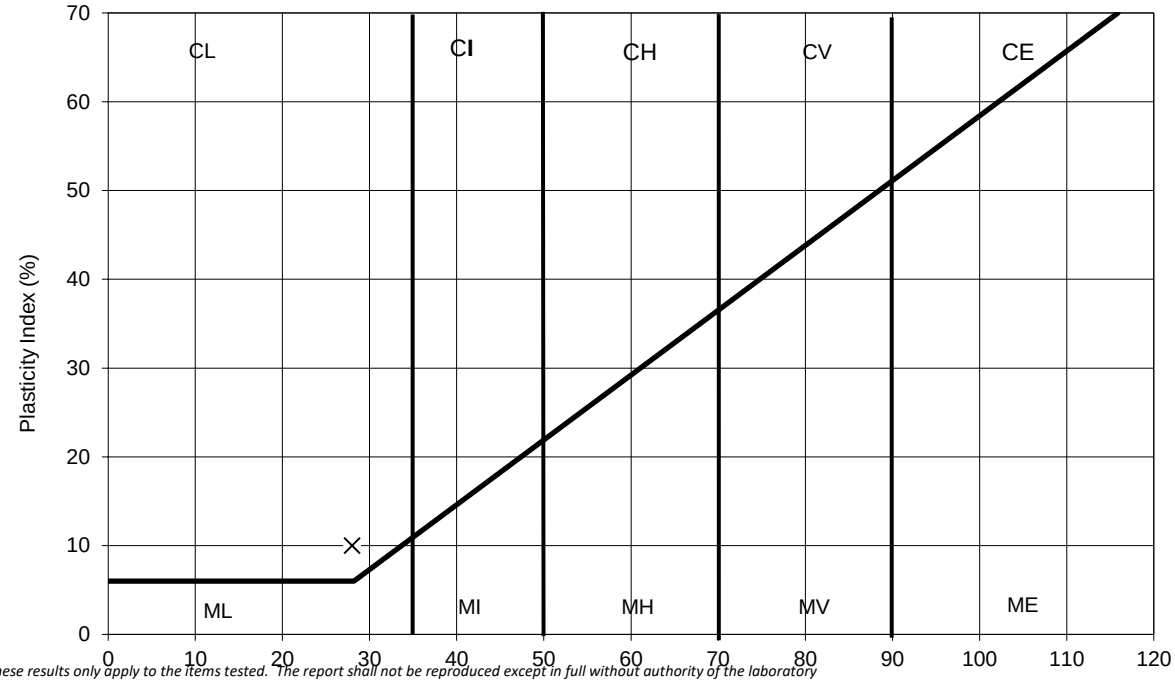


NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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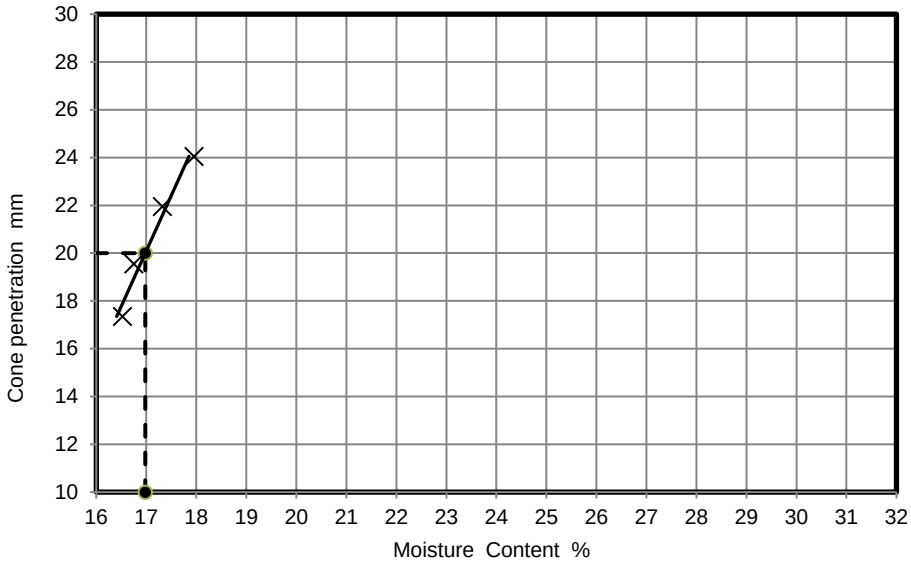
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-74100
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

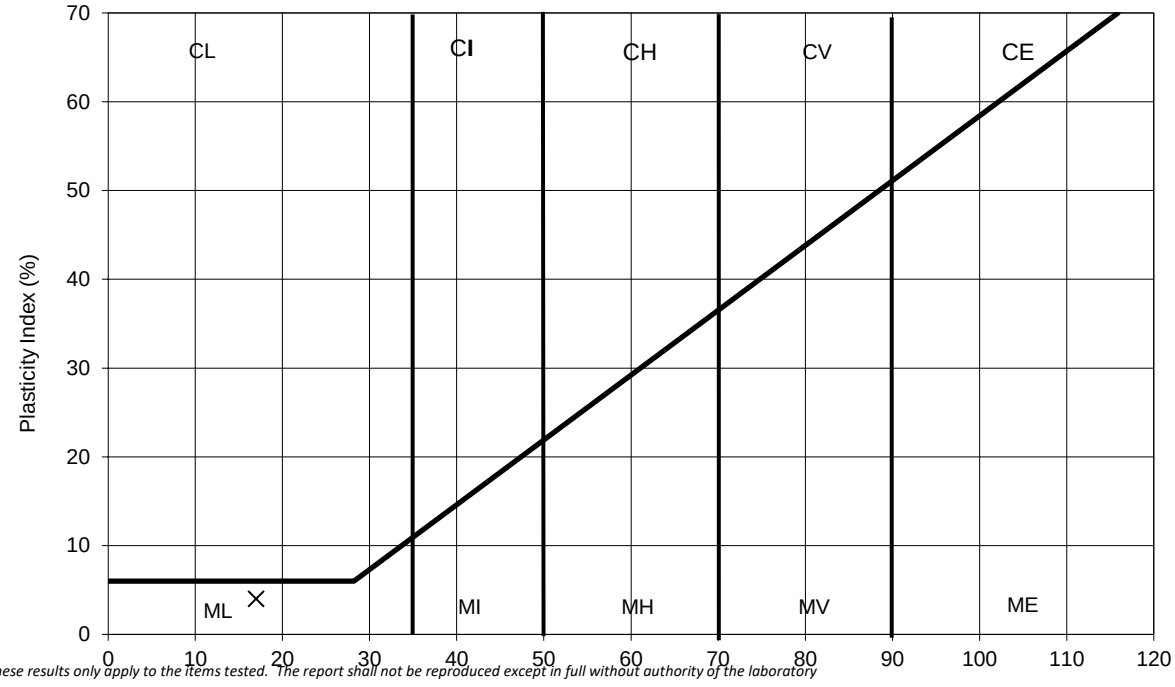


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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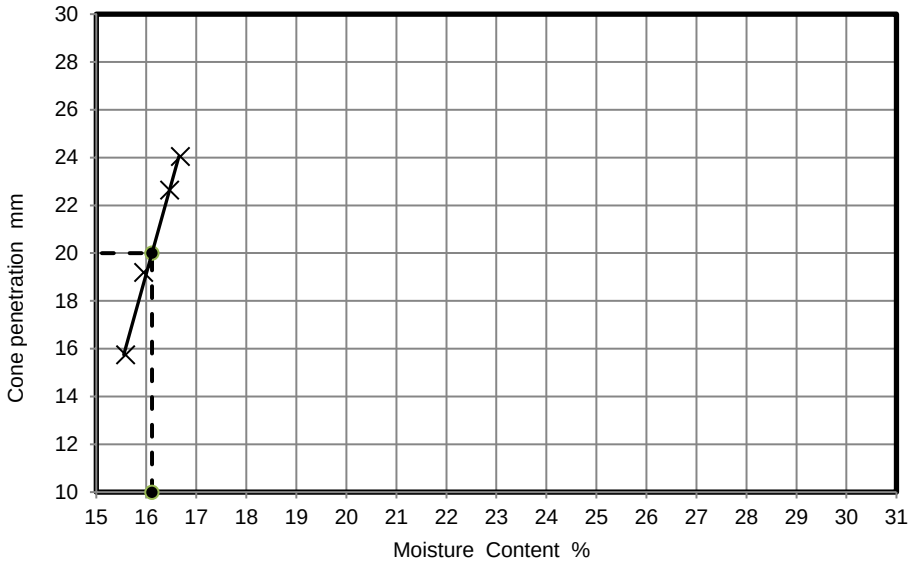
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-75808
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

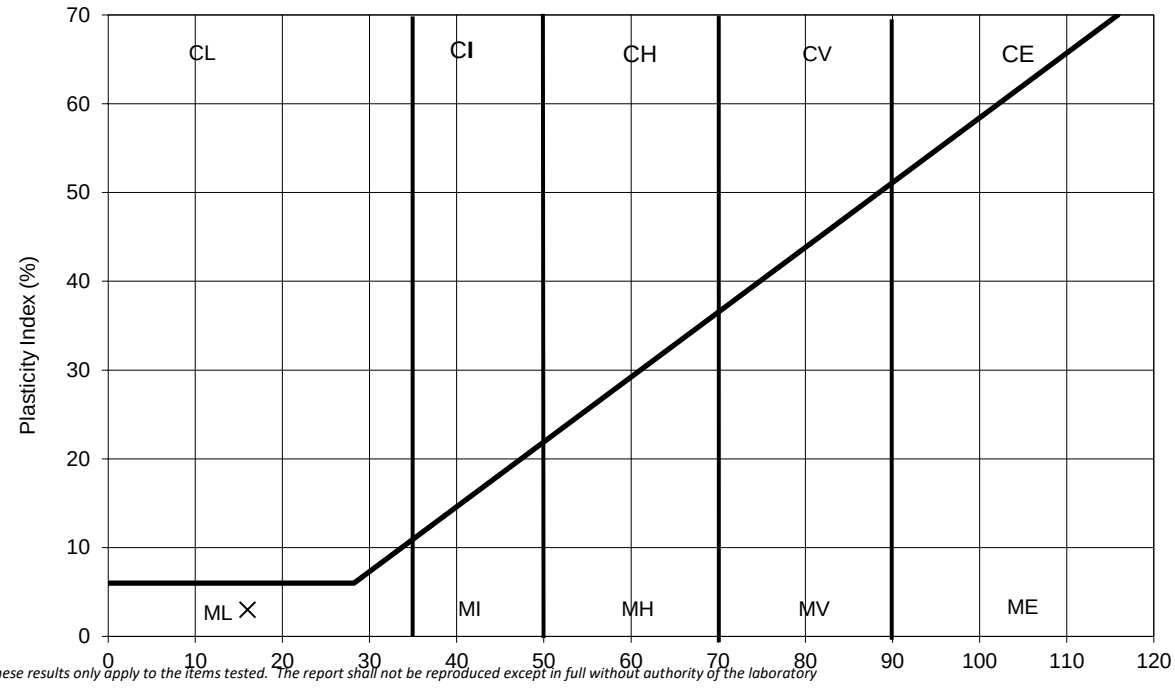


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**3**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

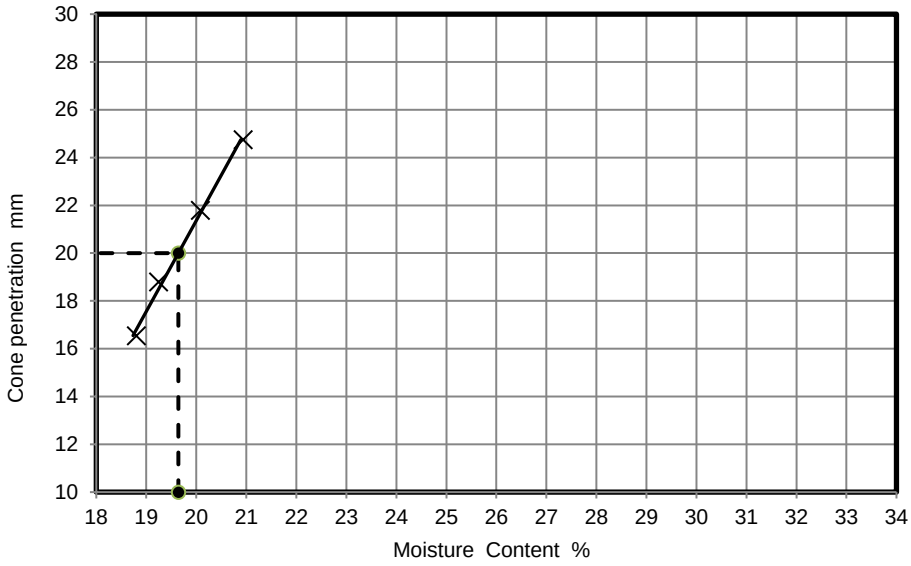
Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-76085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

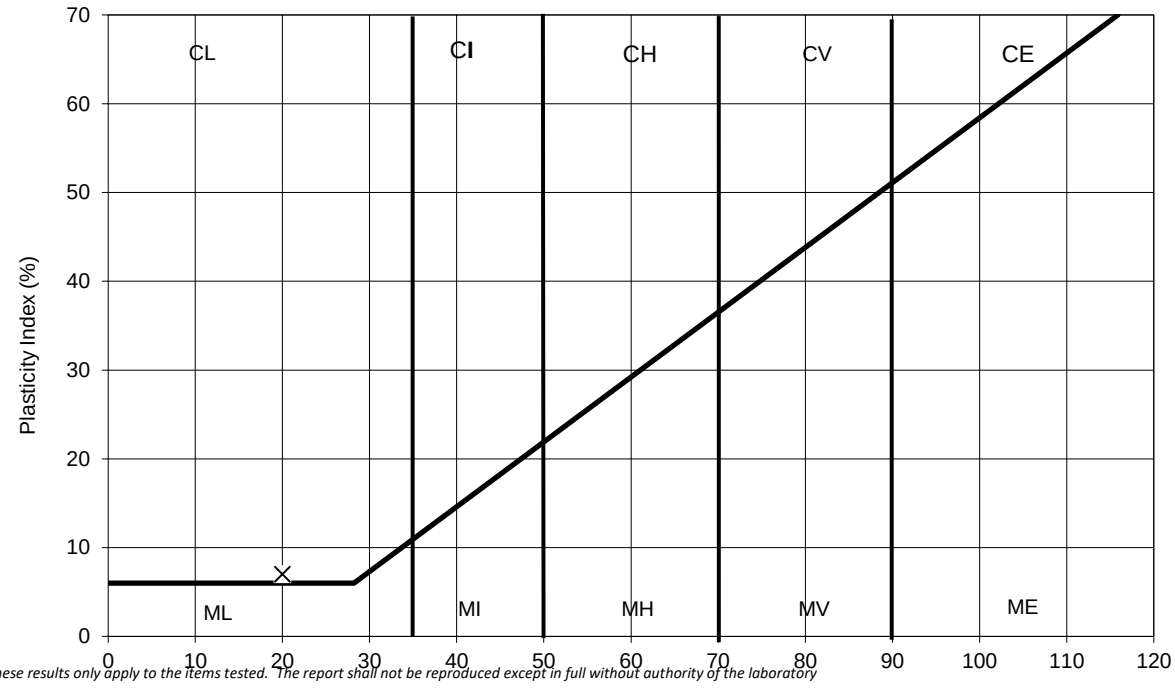


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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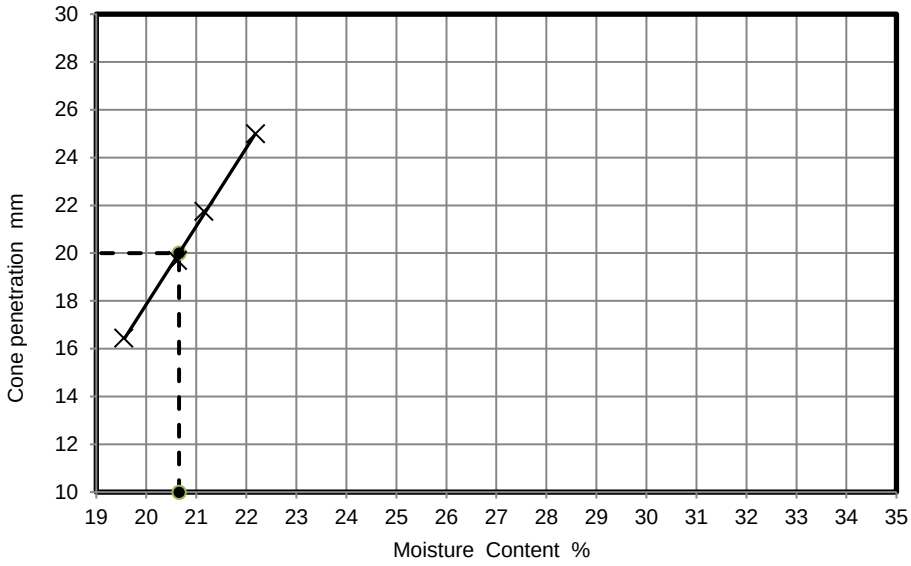
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-76545
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

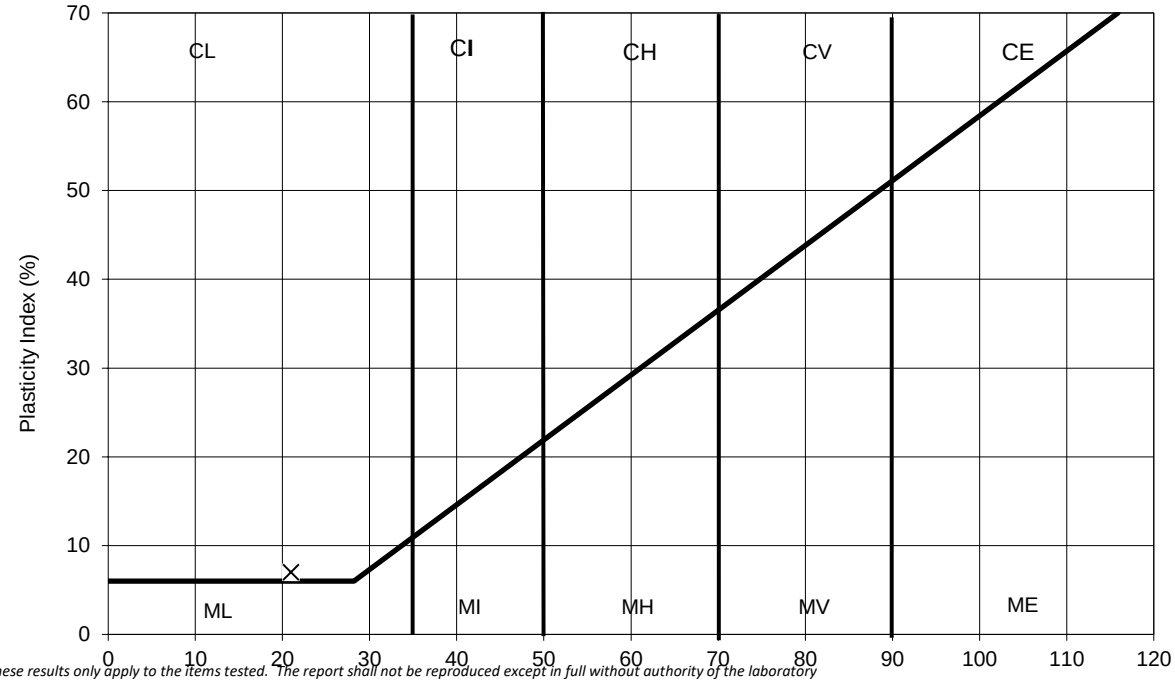


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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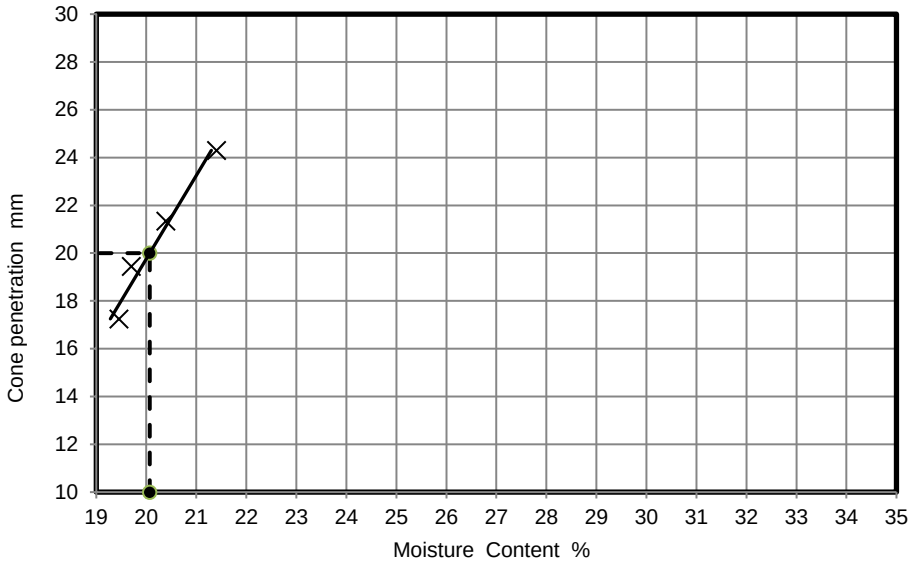
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

Job No. 32282

Borehole/Pit No. BH-76545

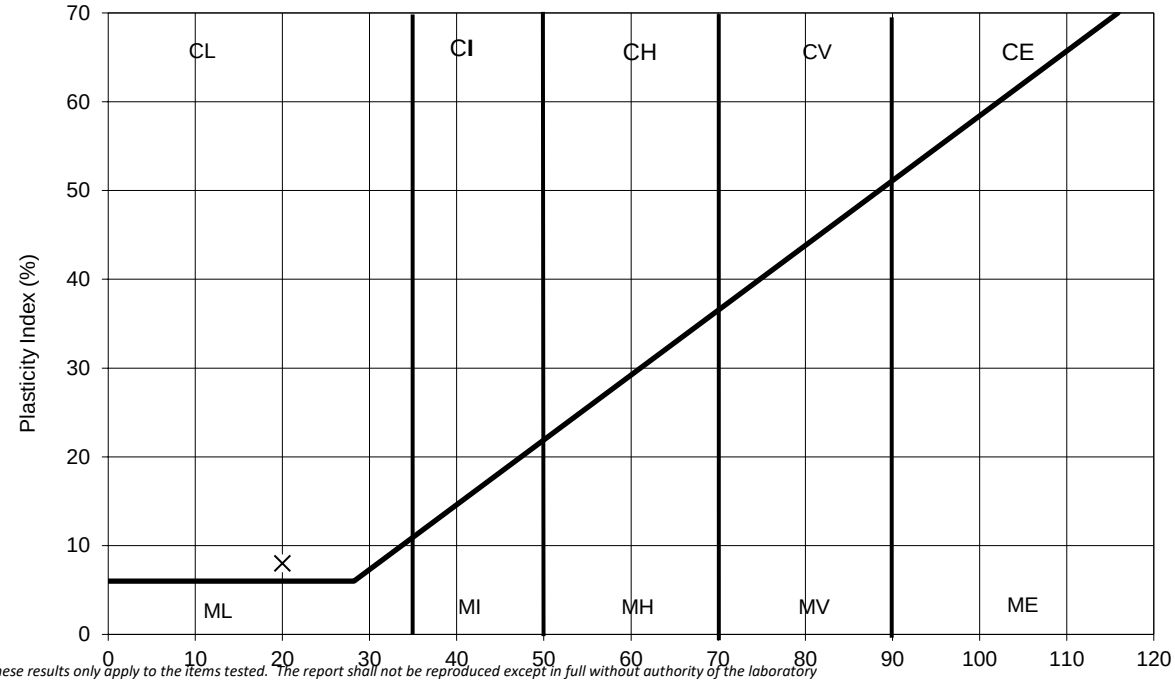


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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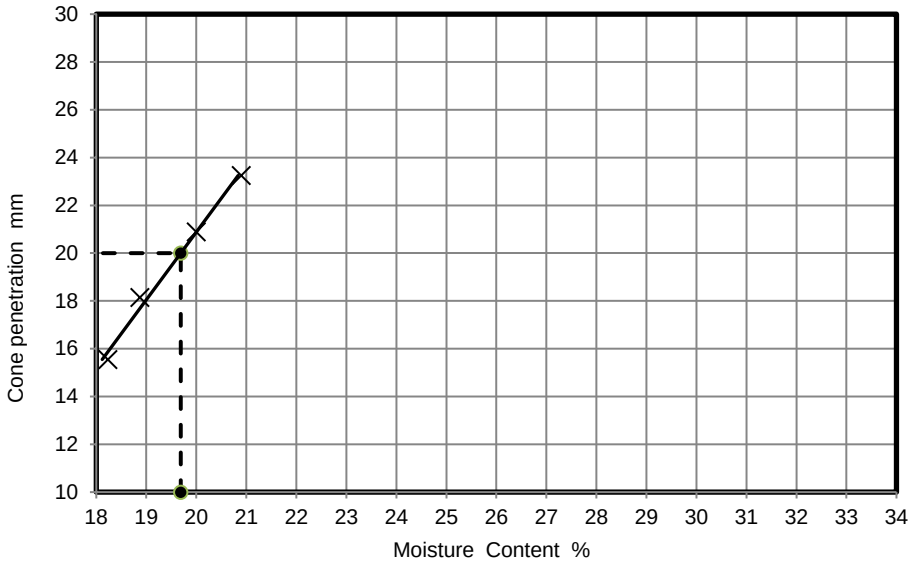
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-76718
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

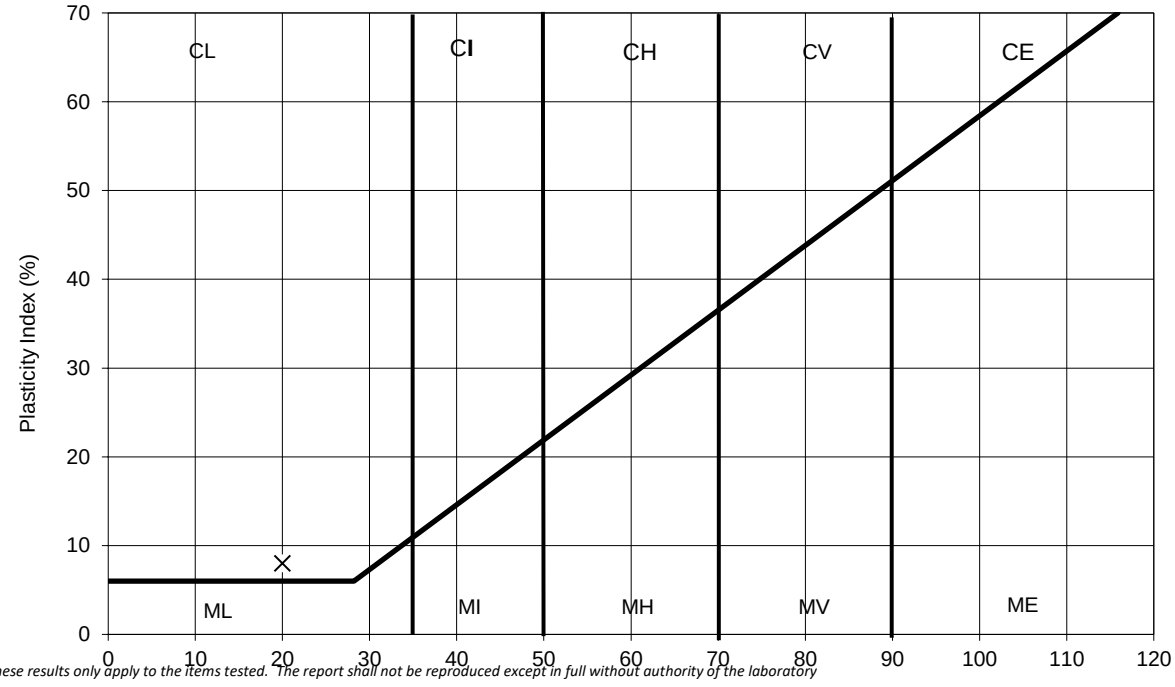


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

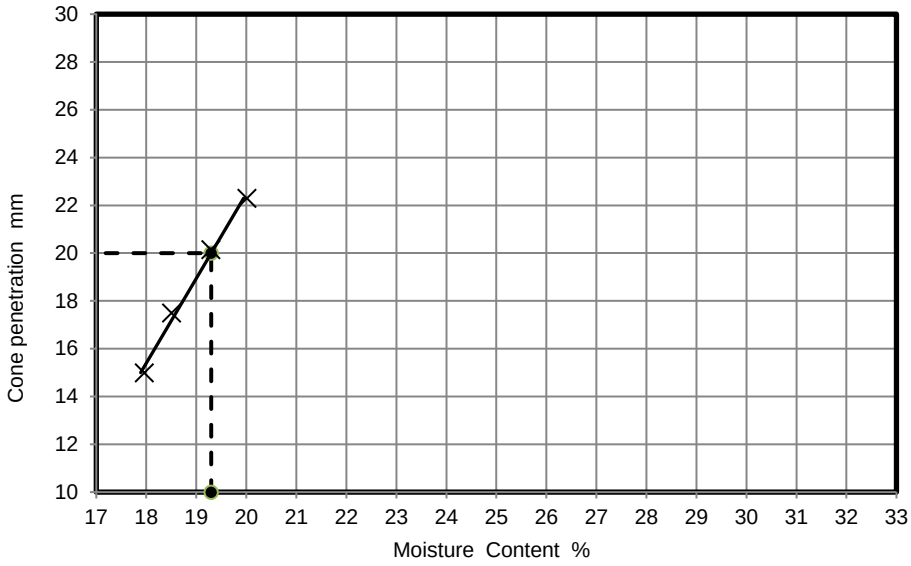
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77176
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

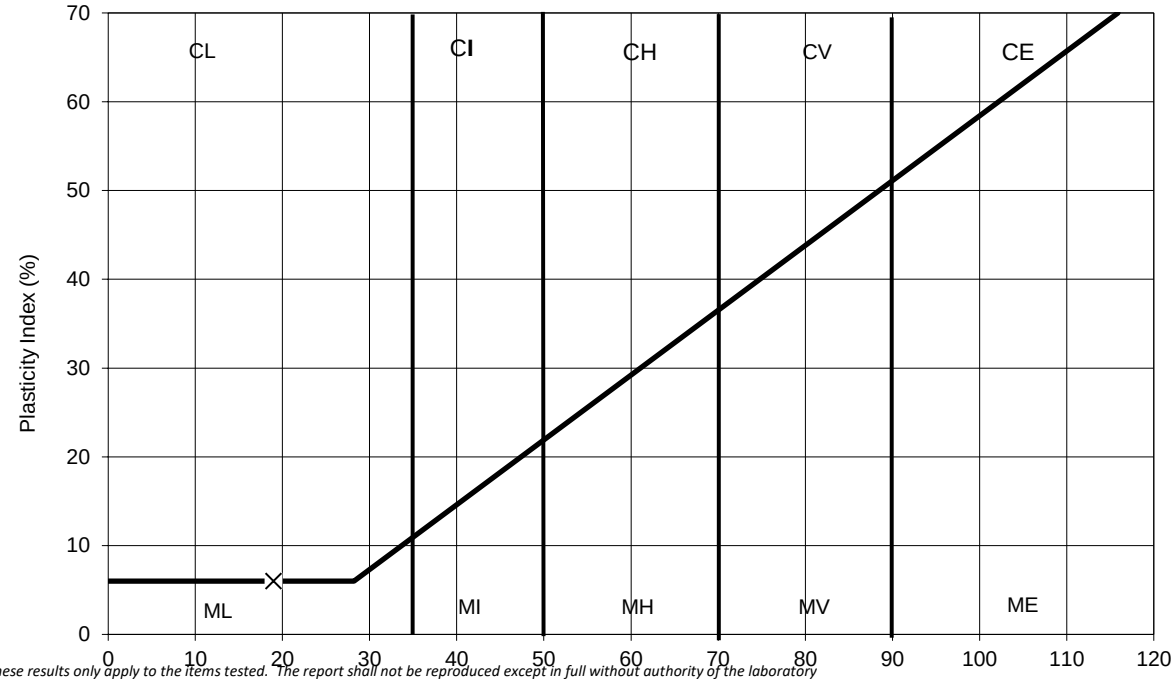


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**47**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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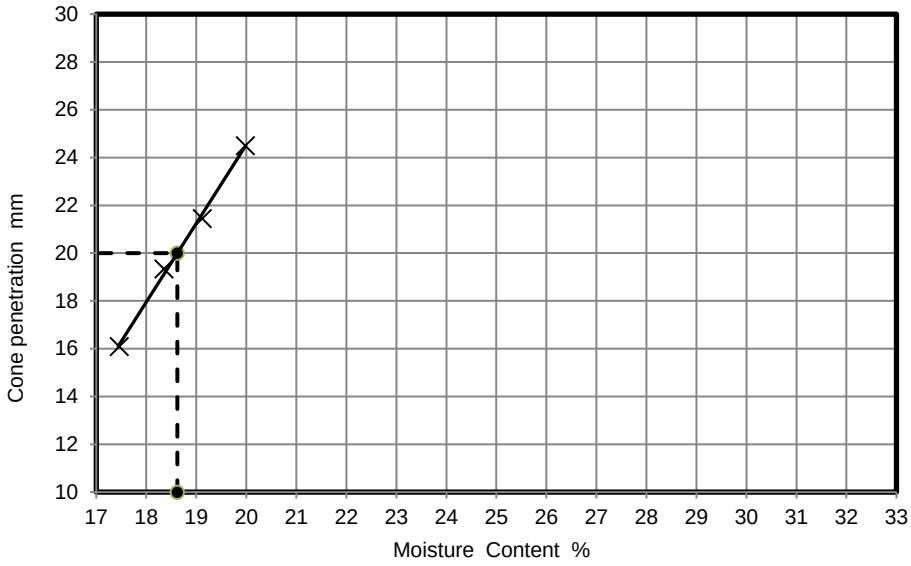
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77404
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

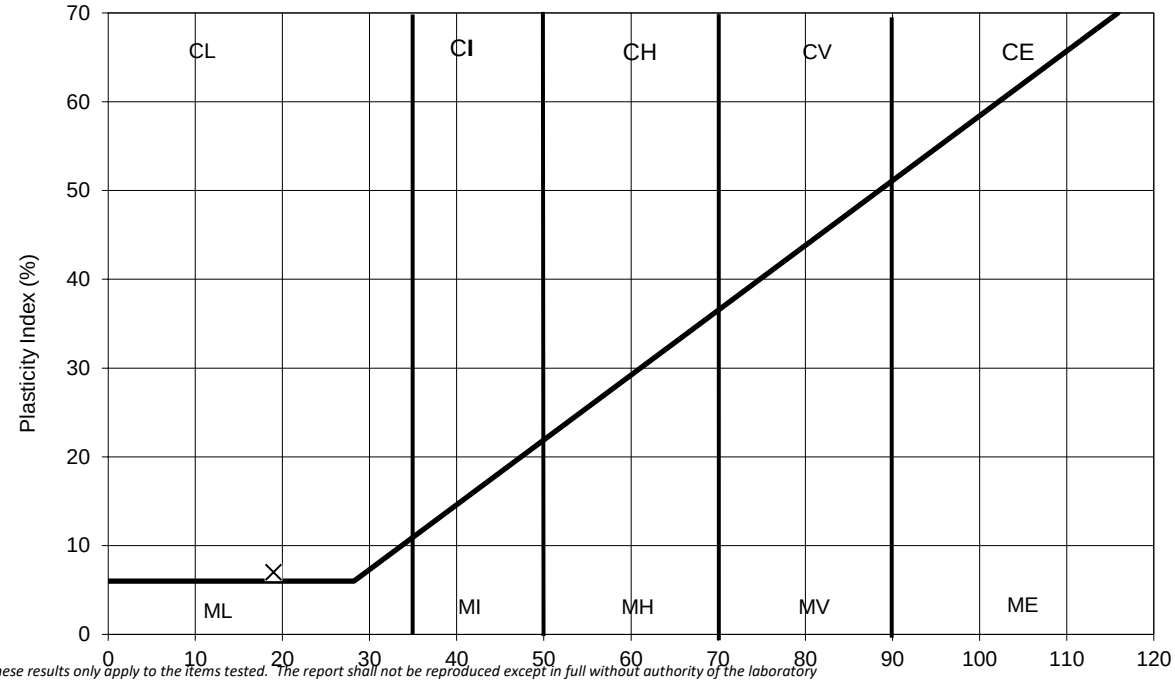


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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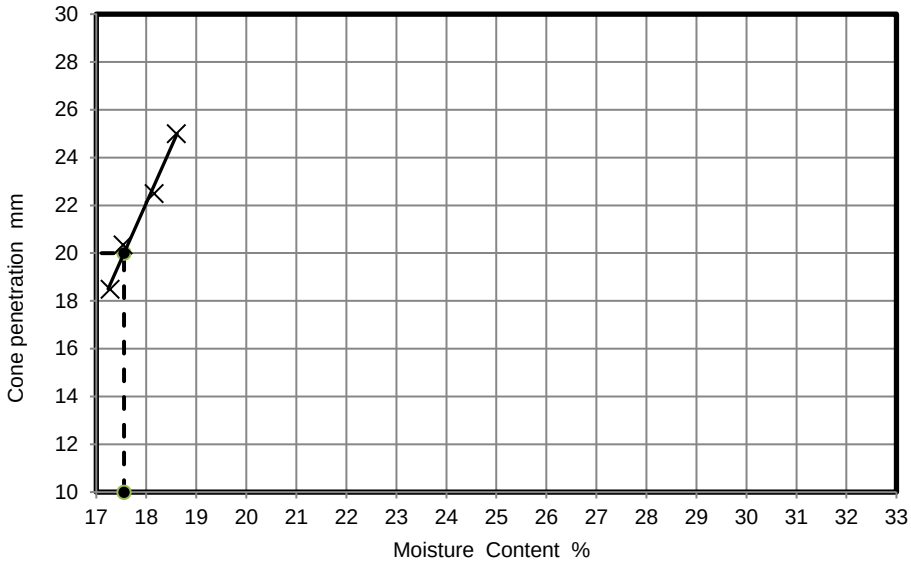
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77477
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

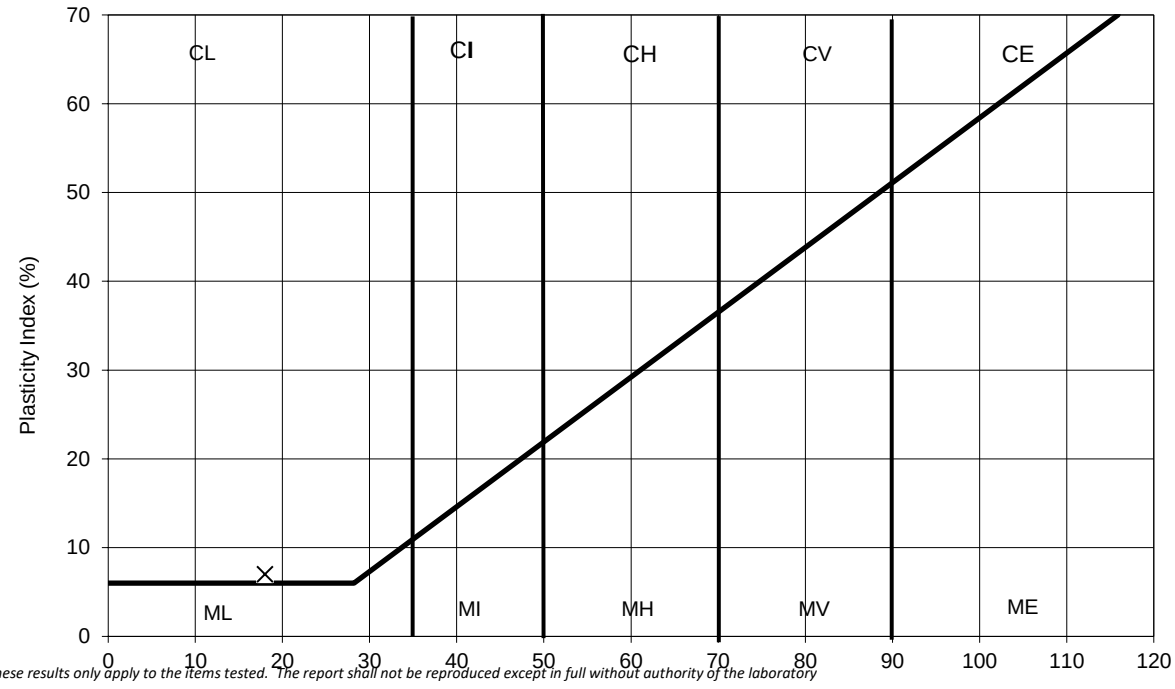


NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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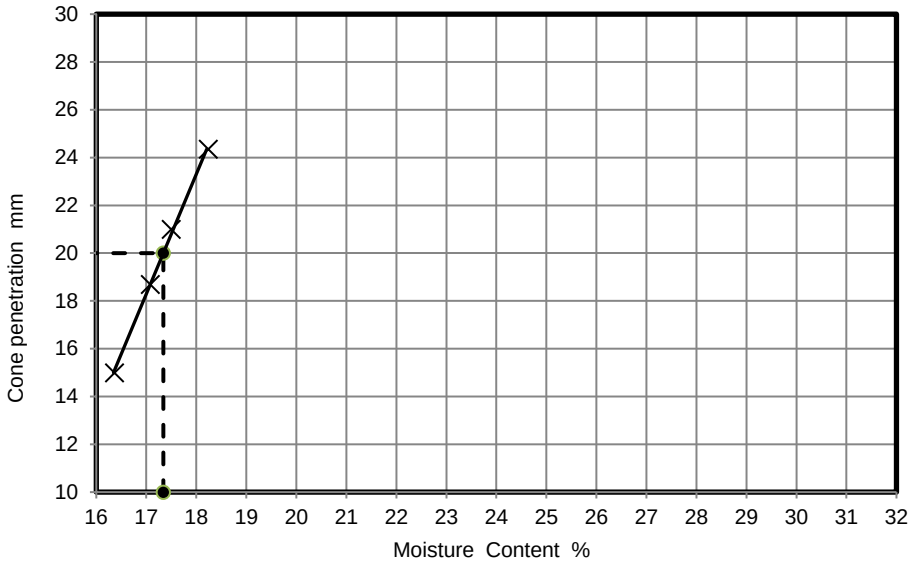
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-77631
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

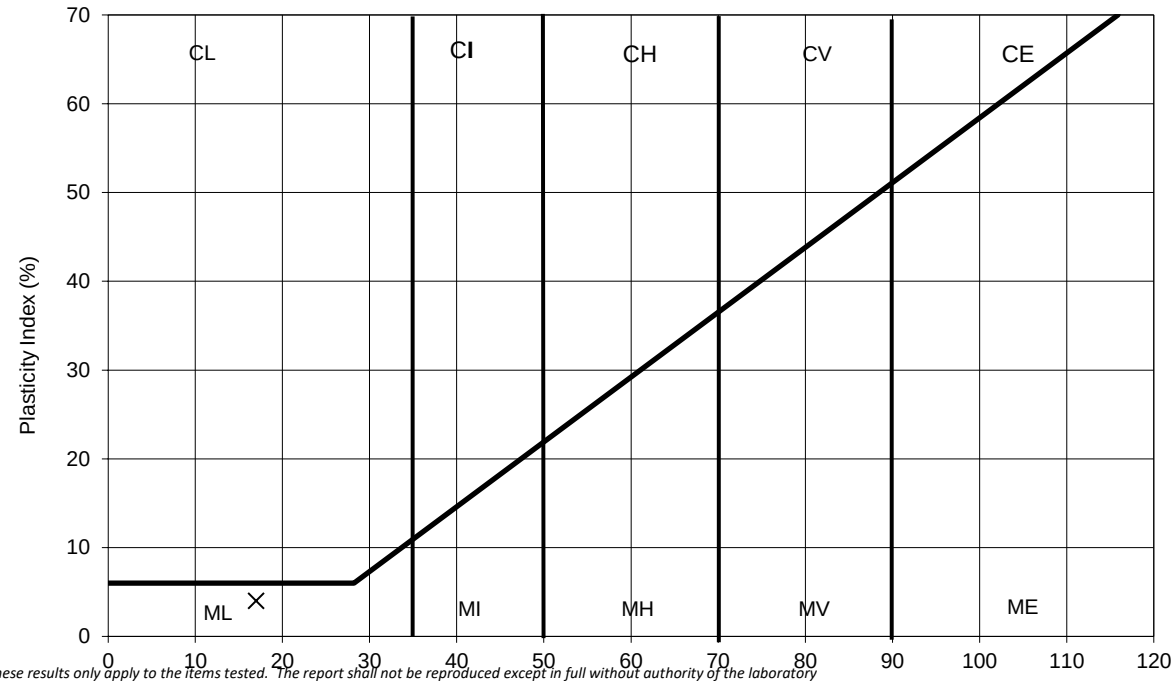


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**40**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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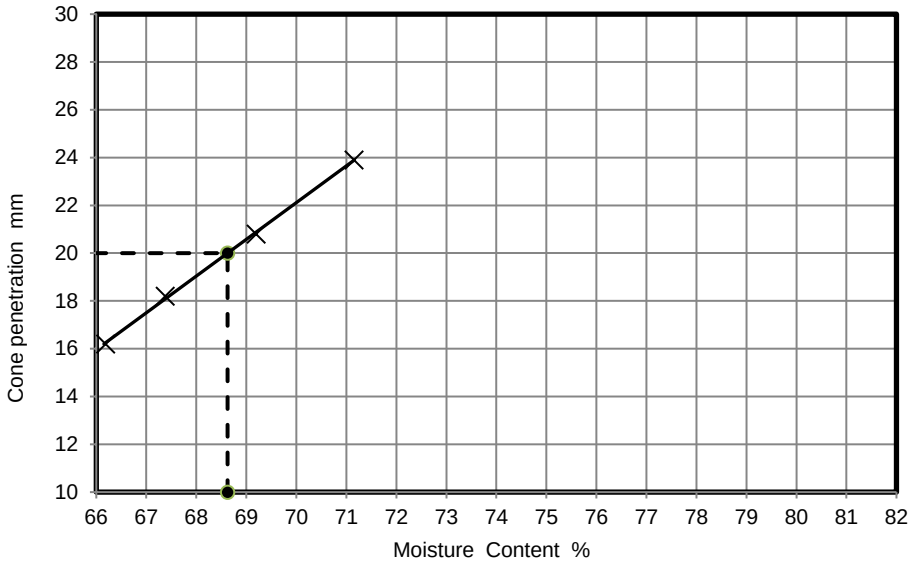
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

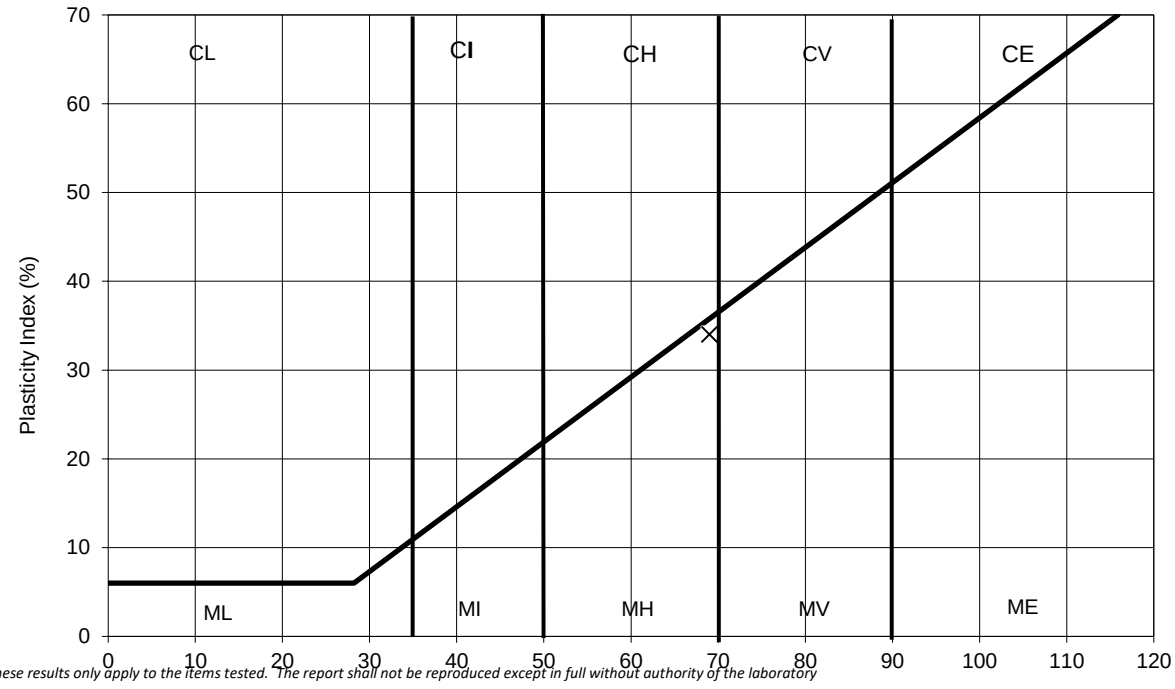
				Job No.	32282
				Borehole/Pit No.	BH-78412
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark grey slightly gravelly slightly sandy slightly organic very silty CLAY (gravel is fine and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**56**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**69**	**%**
PLASTIC LIMIT	**35**	**%**
PLASTICITY INDEX	**34**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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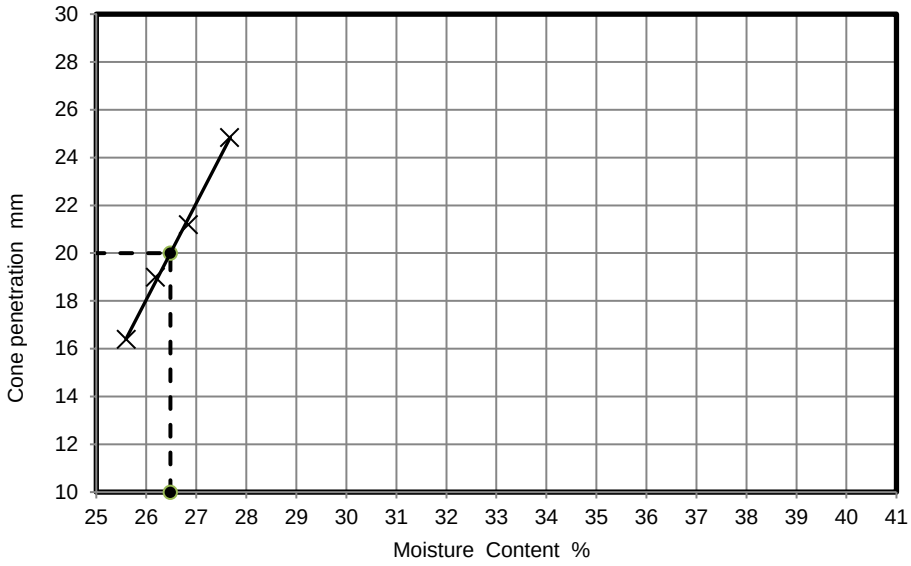
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-79026
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Dark brown and brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

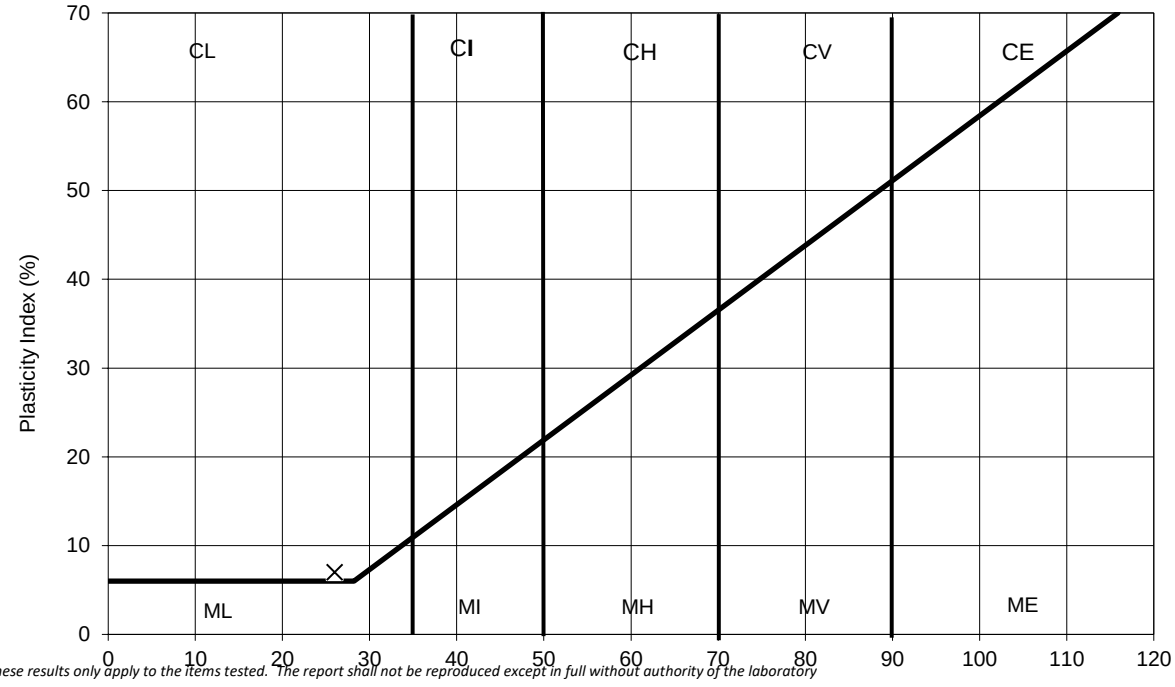


NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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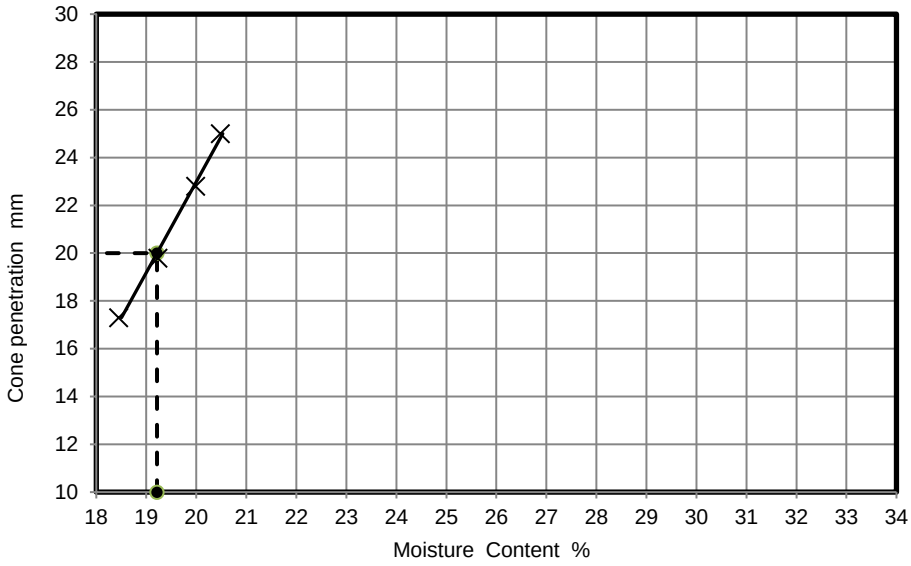
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-79209
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

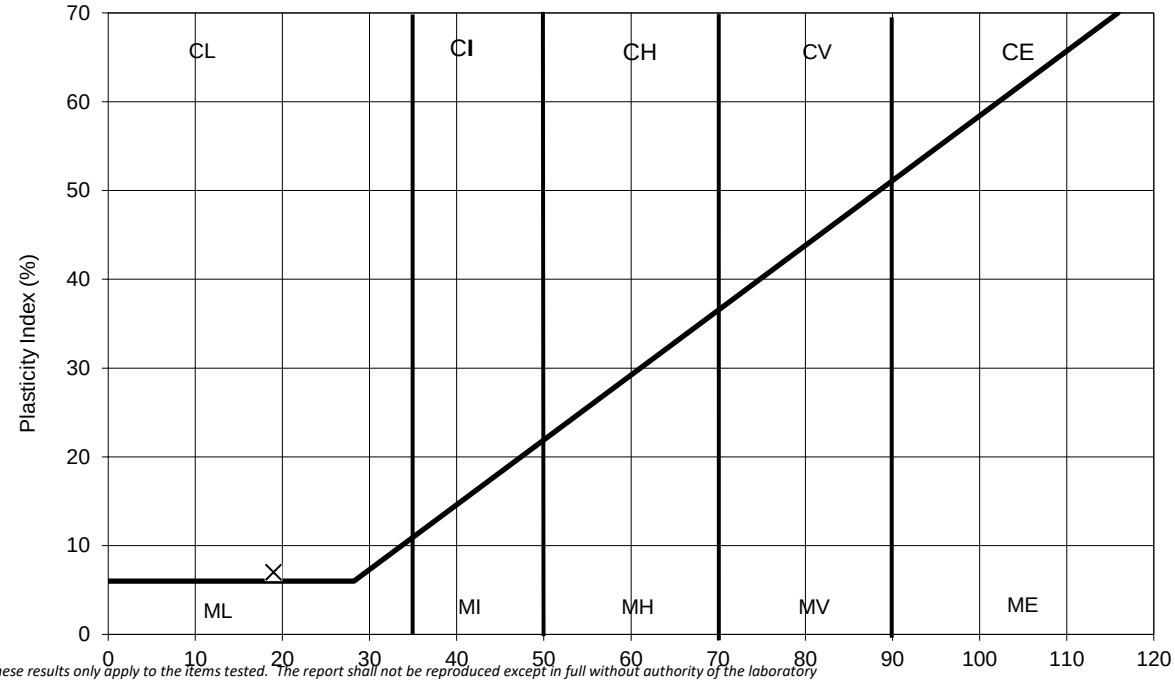


NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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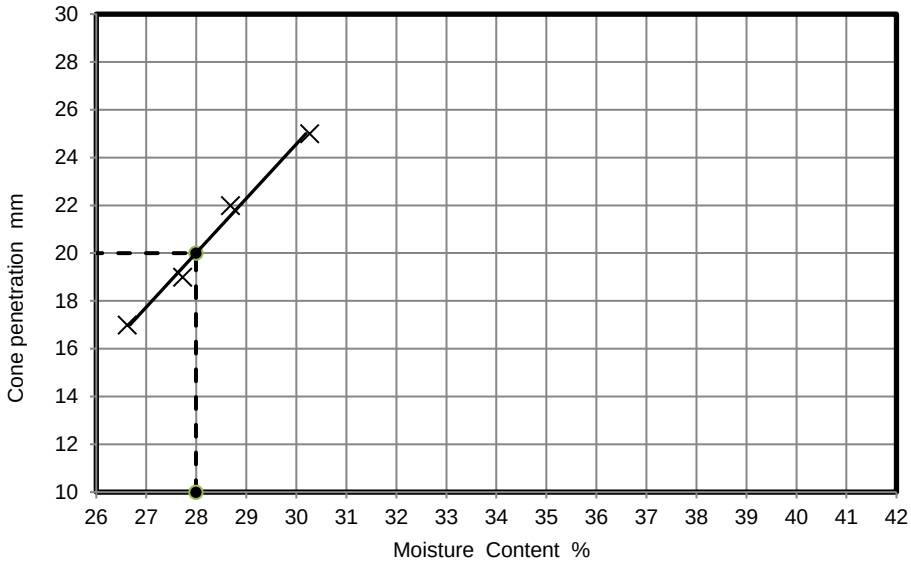
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-79273
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly sandy slightly gravelly silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

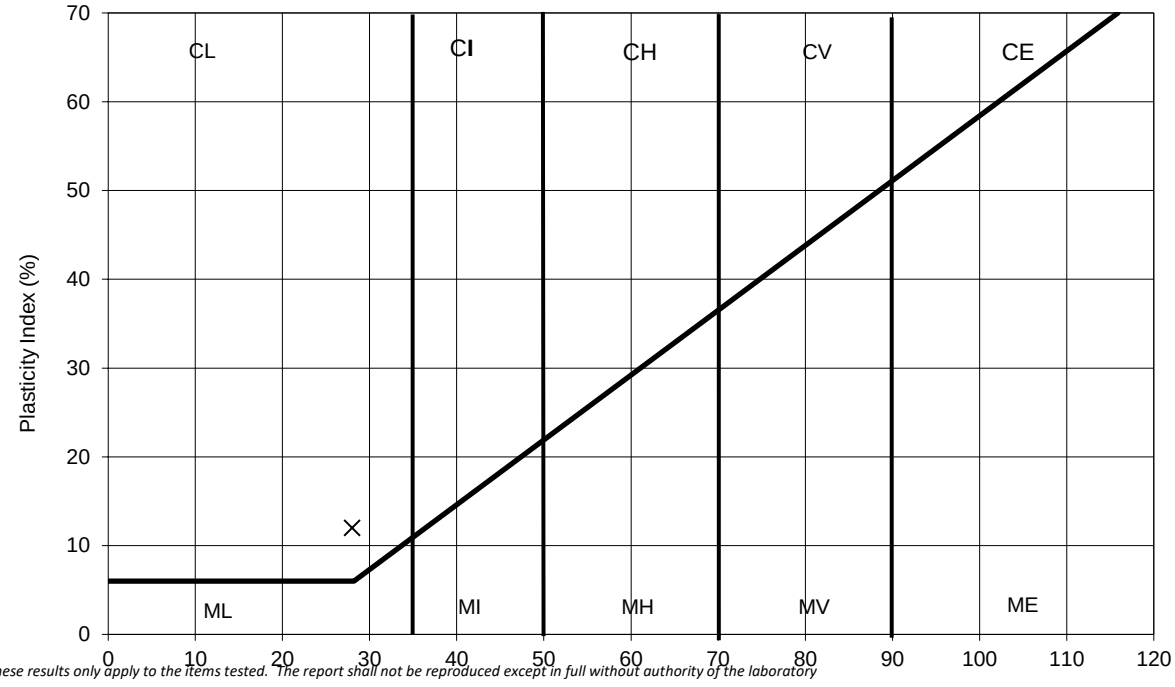


NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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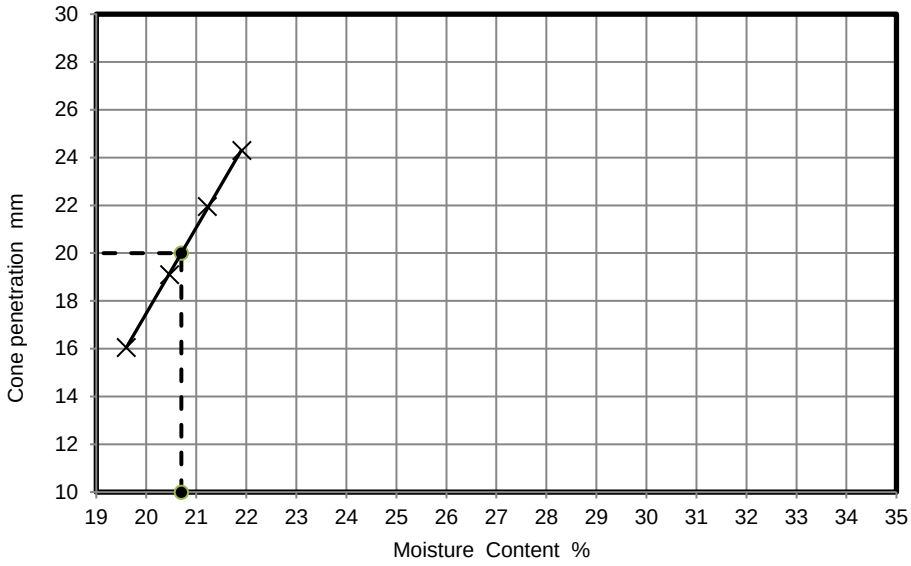
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-79441
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

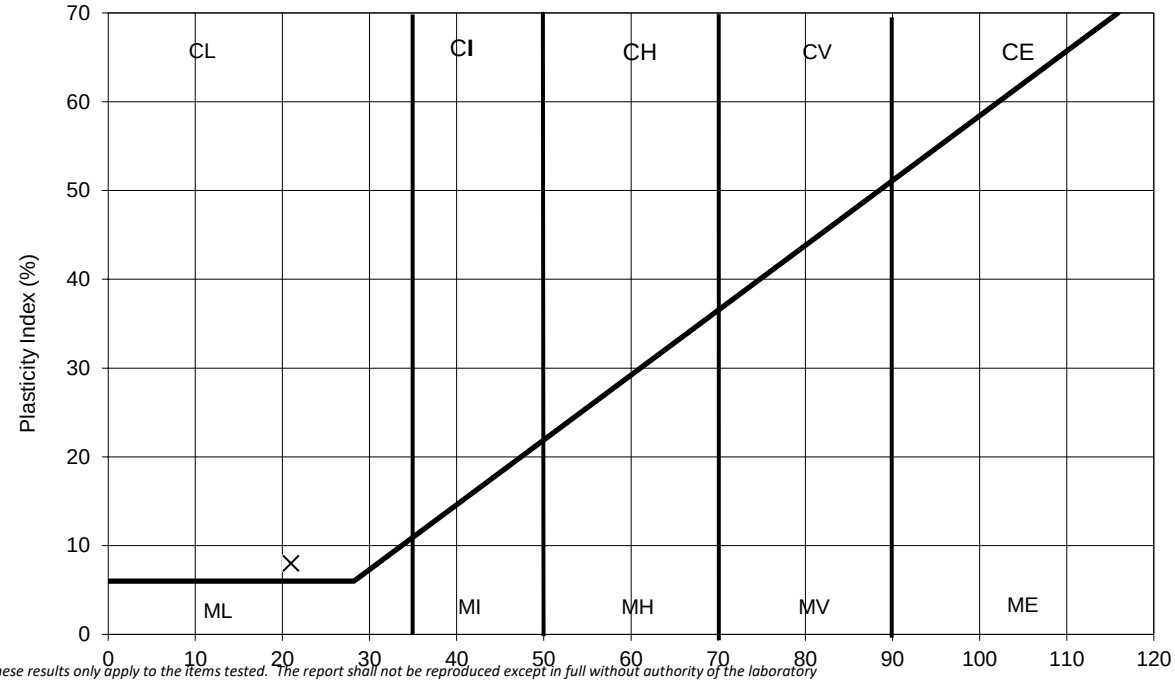


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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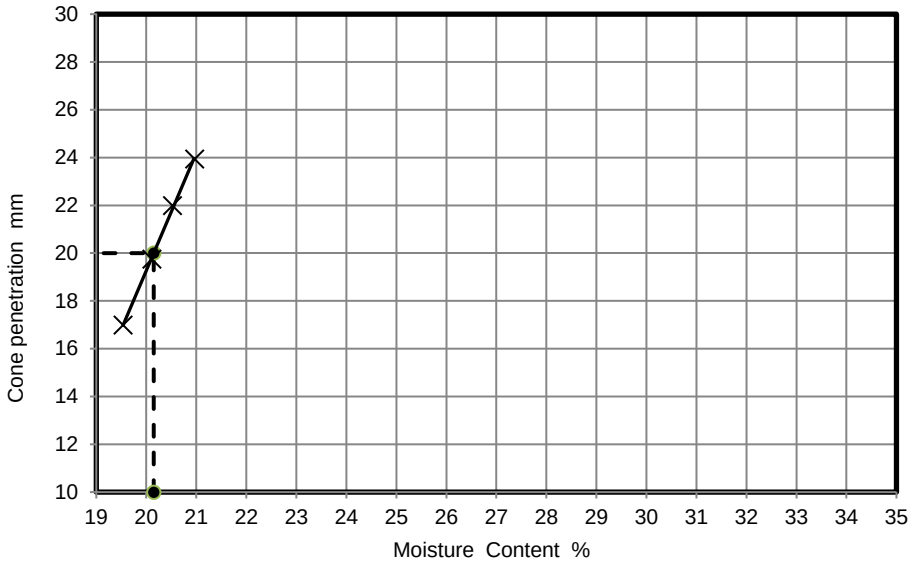
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-80024
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

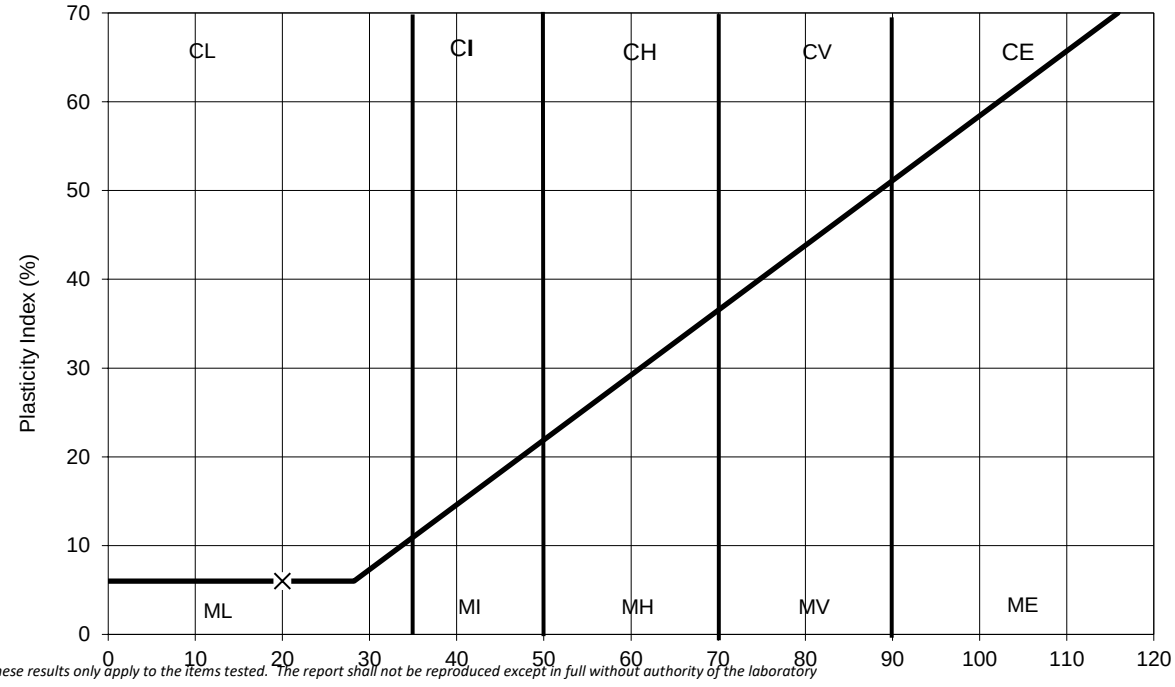


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

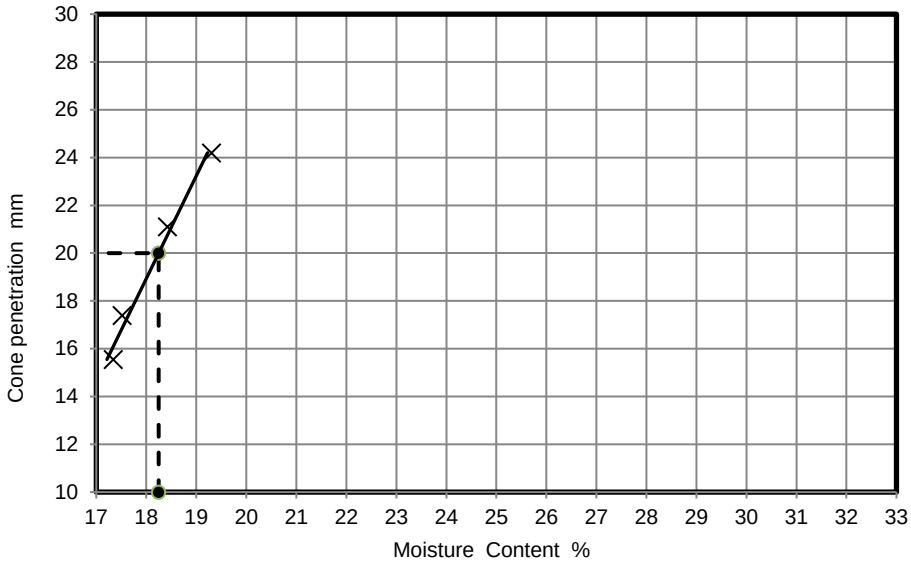
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	BH-80024				
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

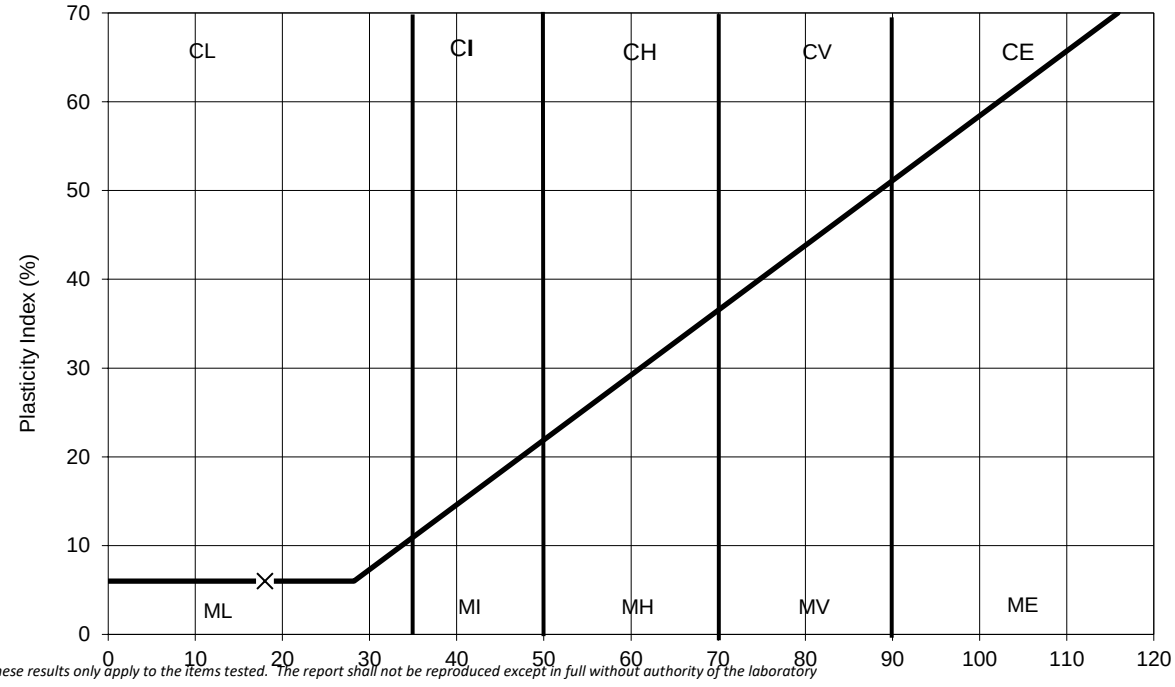


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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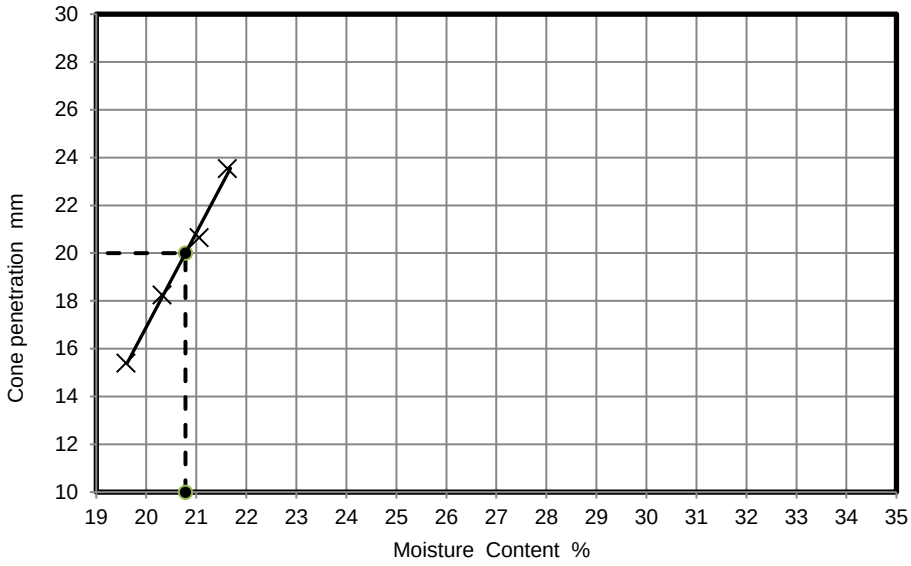
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Job No.	32282
				Borehole/Pit No.	BH-80338
Project No.	2021OY102	Client	Irish Drilling	Sample No.	2
				Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

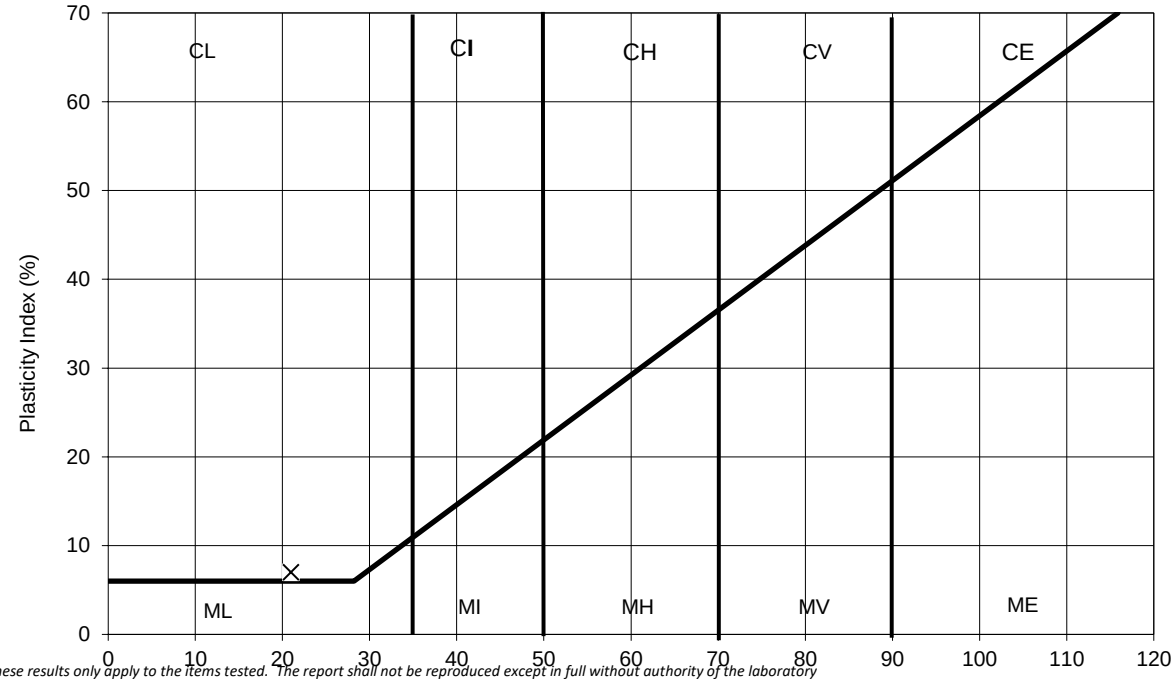


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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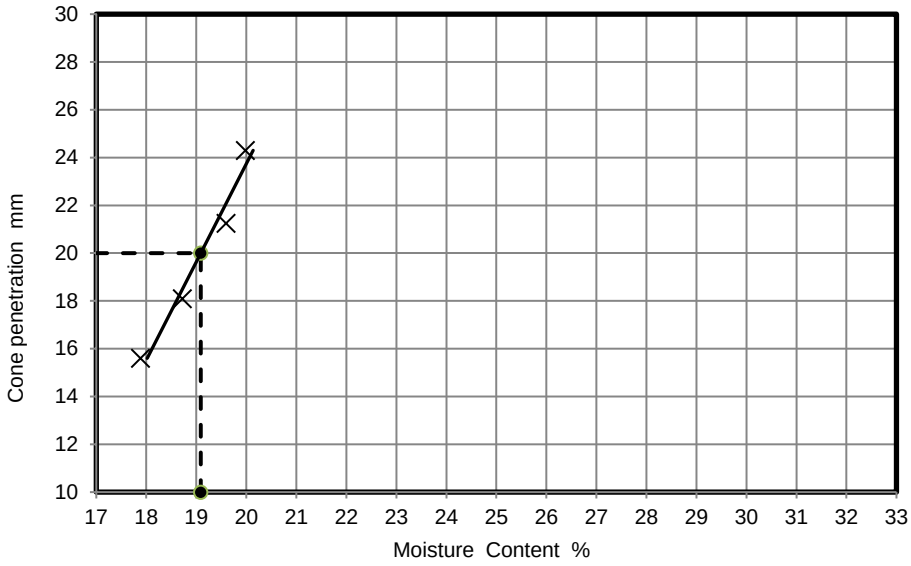
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Job No.	32282
				Borehole/Pit No.	BH-80439
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

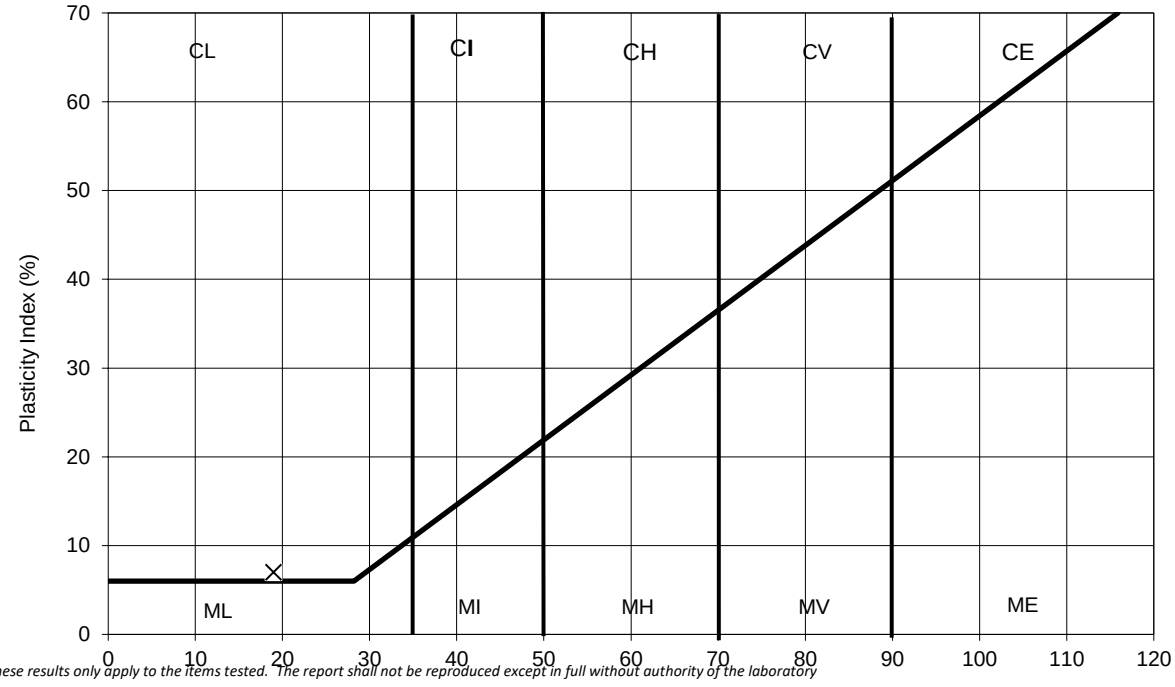


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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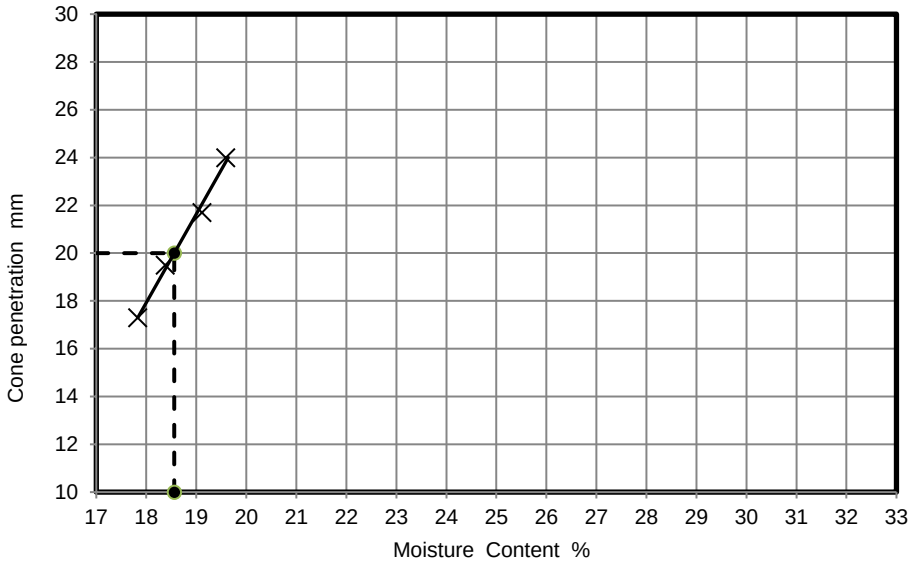
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-80960
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

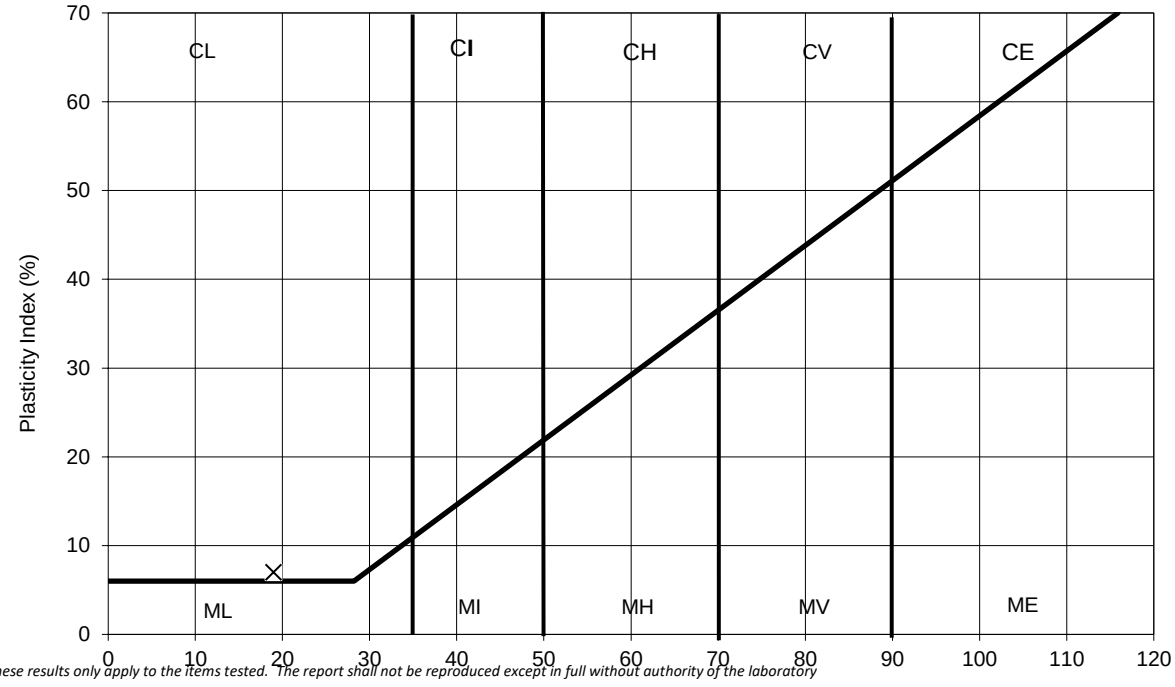


NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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Date: 15/12/2022

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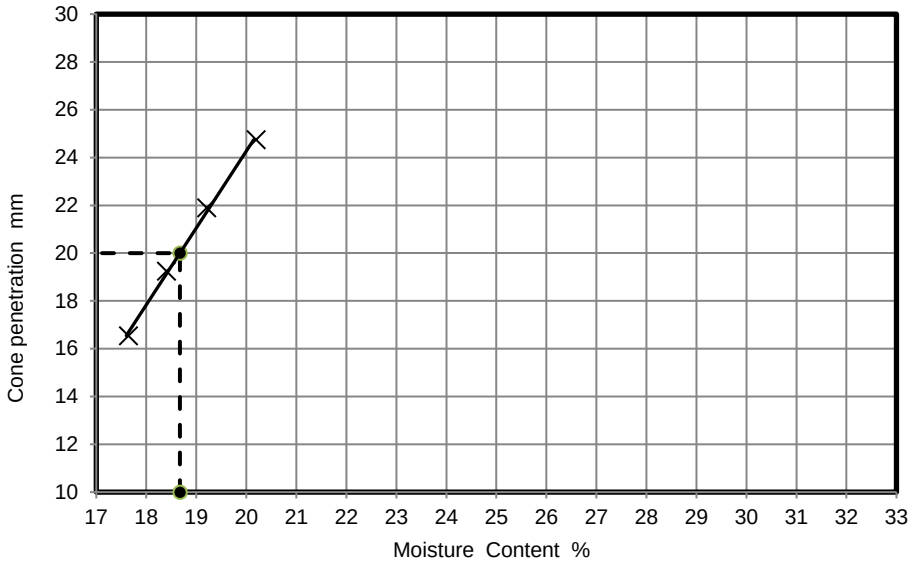
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-80960
Site Name	WSP Eastern & Midlands Region			Sample No.	20
Project No.	2021OY102	Client	Irish Drilling	Depth Top	7.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

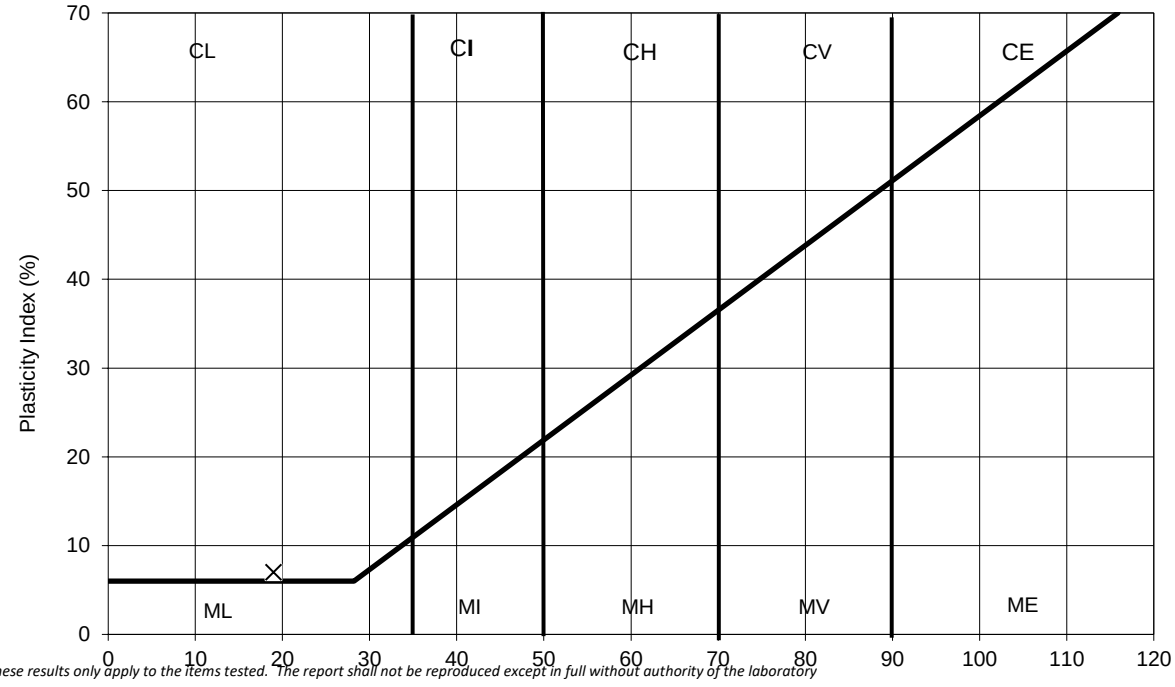


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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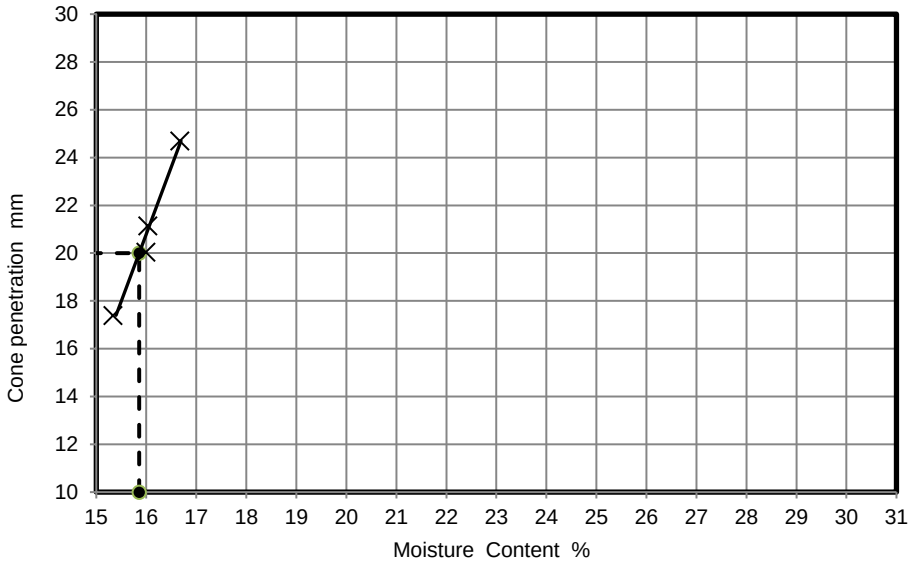
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-82974
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

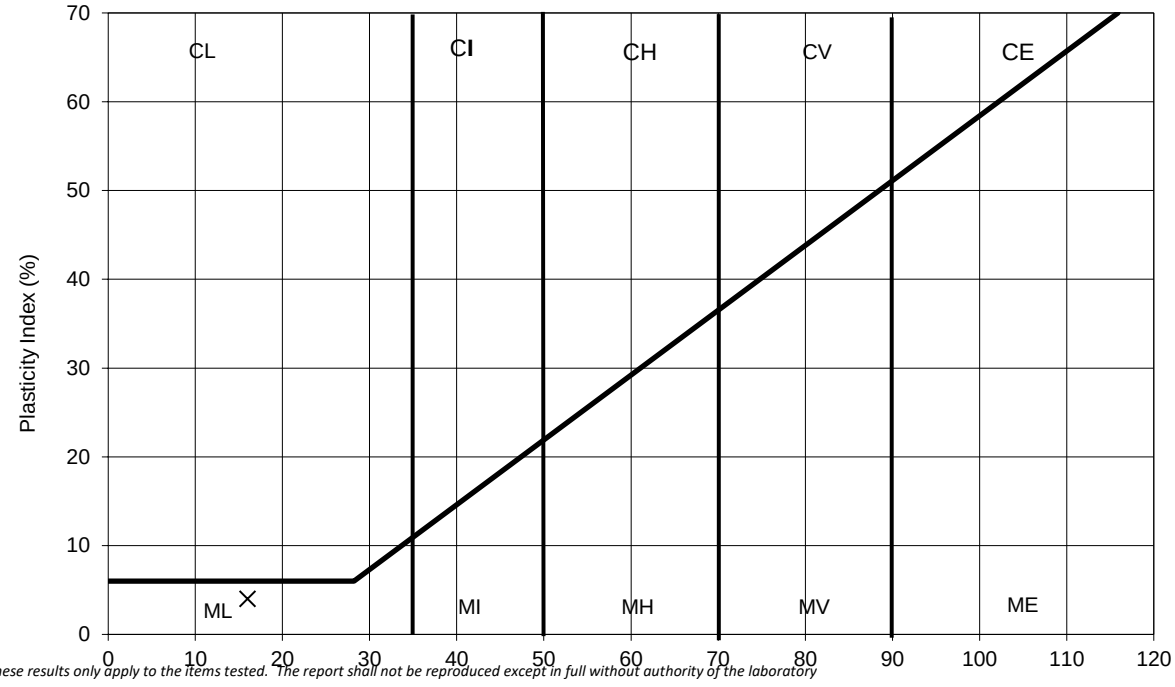


NATURAL MOISTURE CONTENT	**7.1**	**%**
% PASSING 425µm SIEVE	**35**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

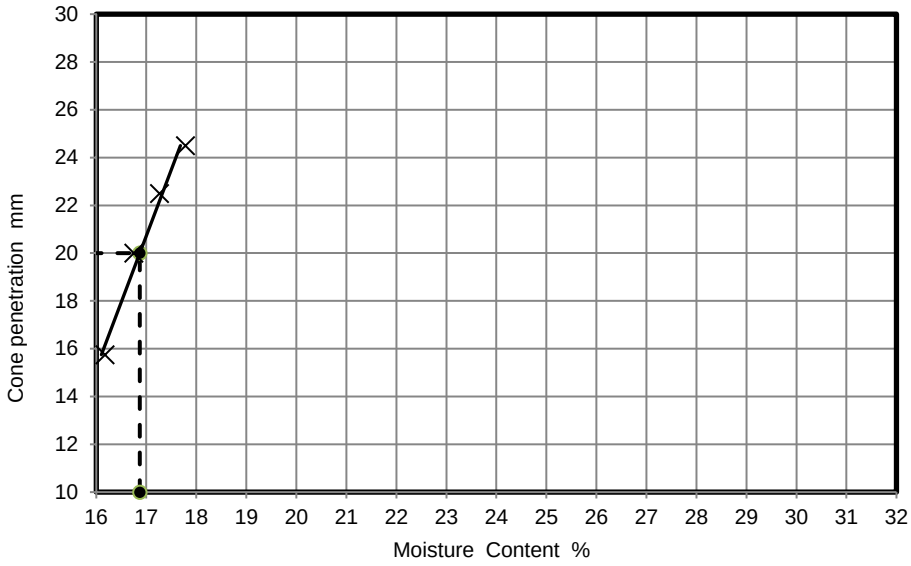
Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-84800
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

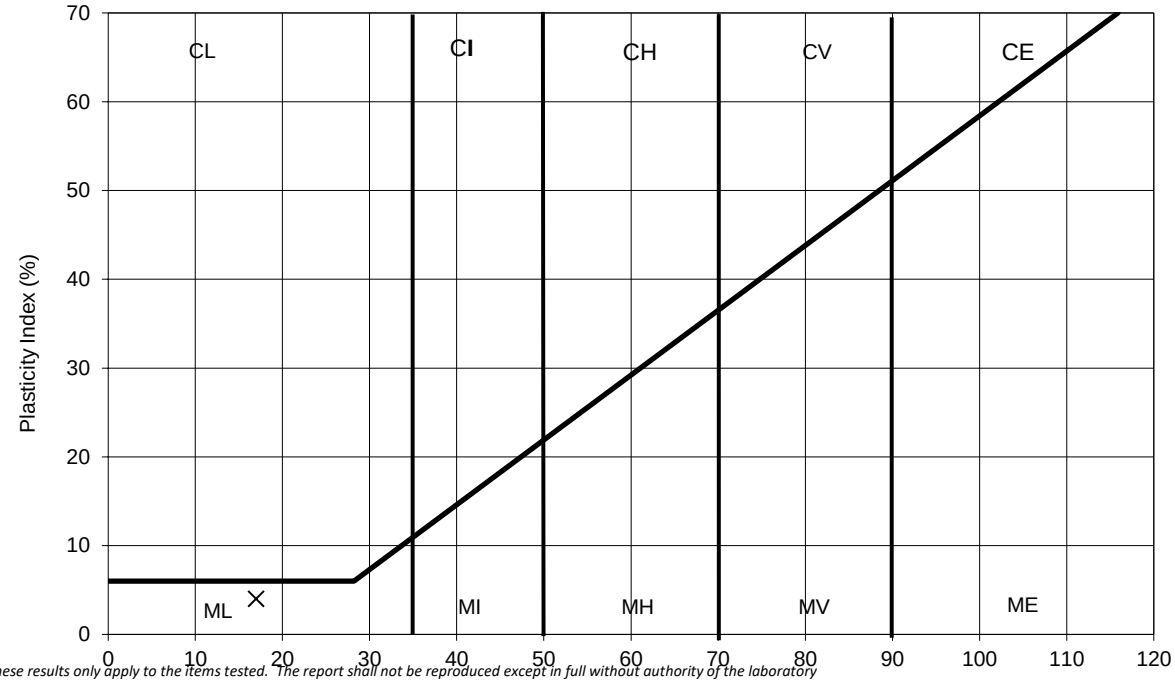


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**43**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

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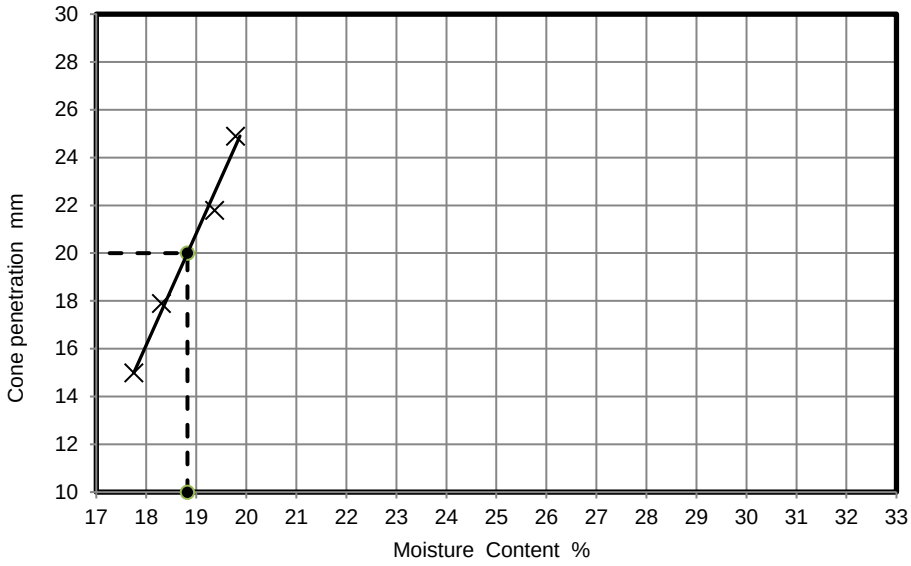
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

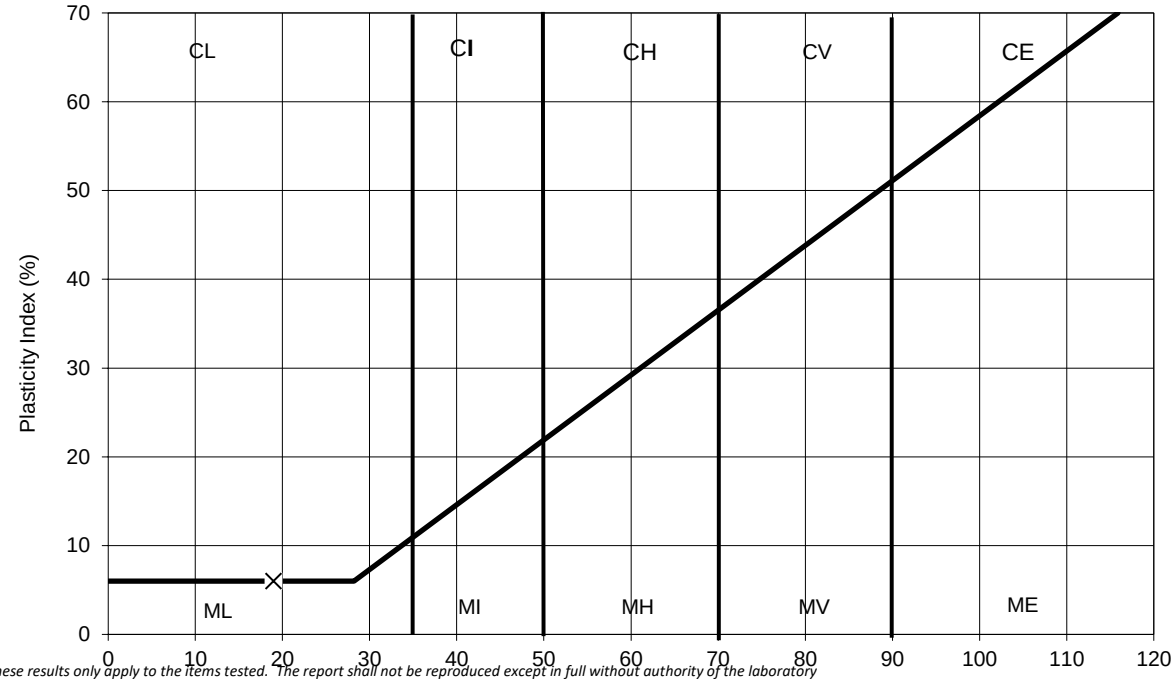


NATURAL MOISTURE CONTENT	**7.2**	**%**
% PASSING 425µm SIEVE	**38**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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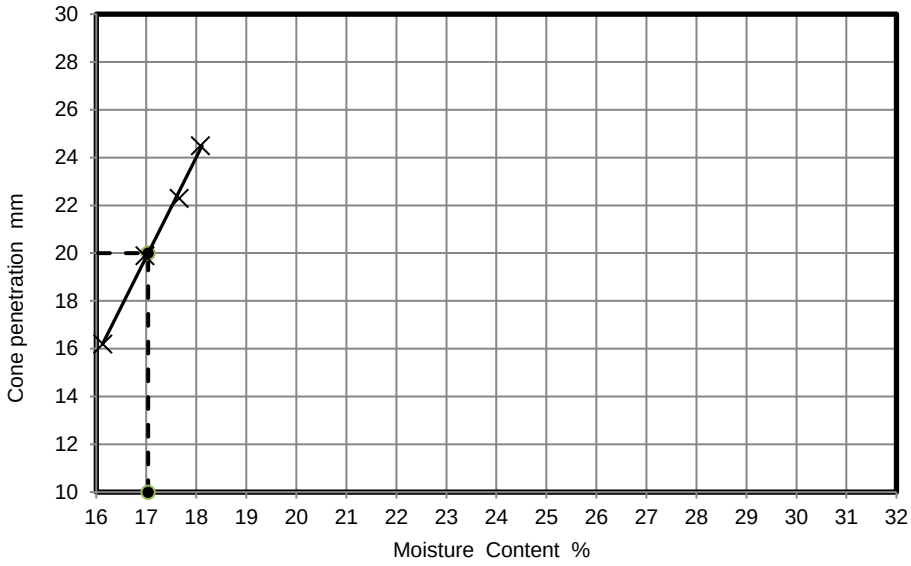
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-85791
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

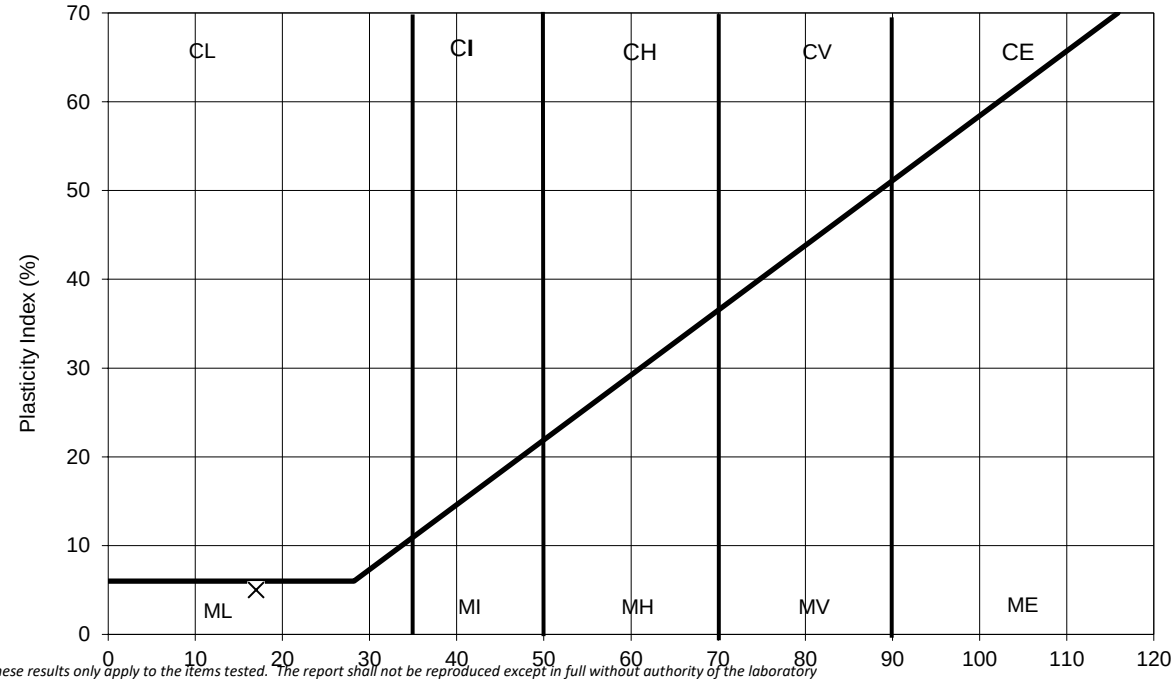


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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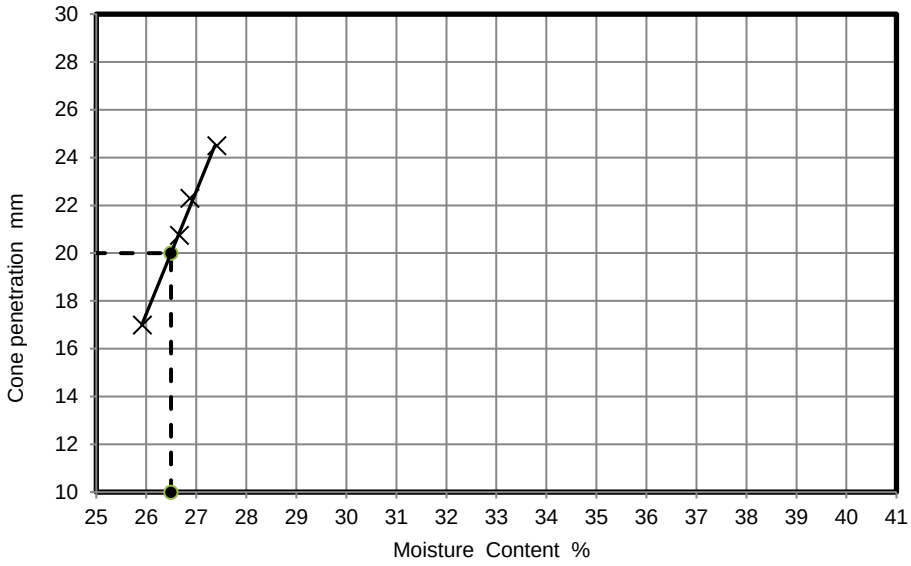
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-86203
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

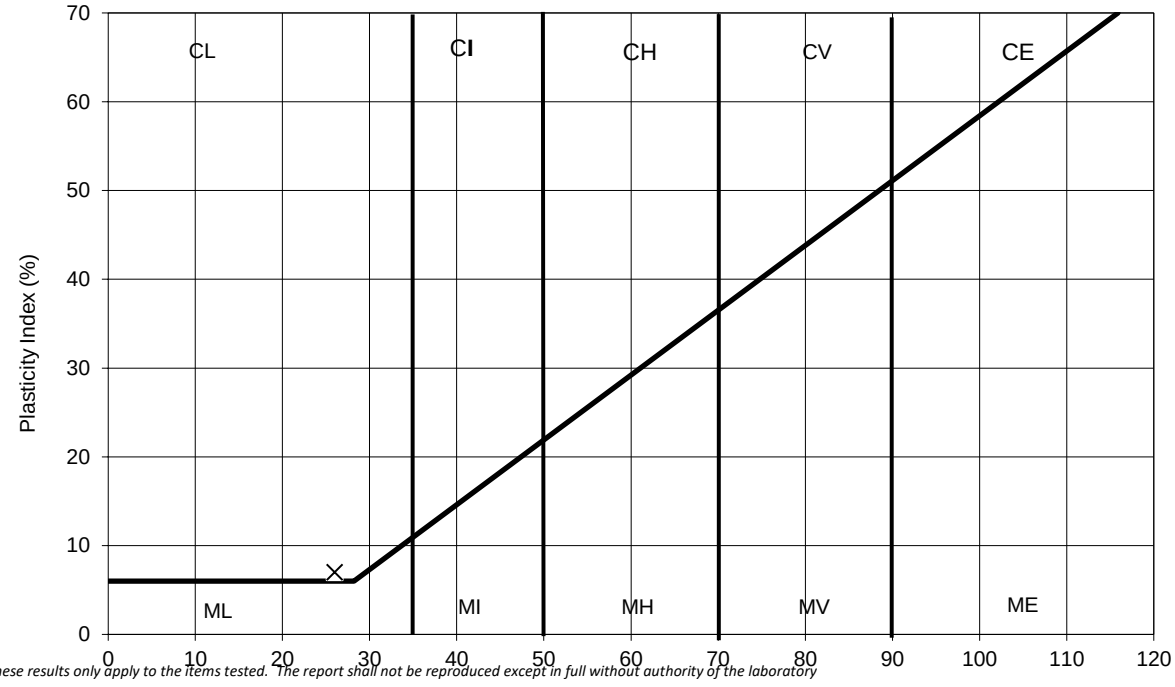


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**38**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

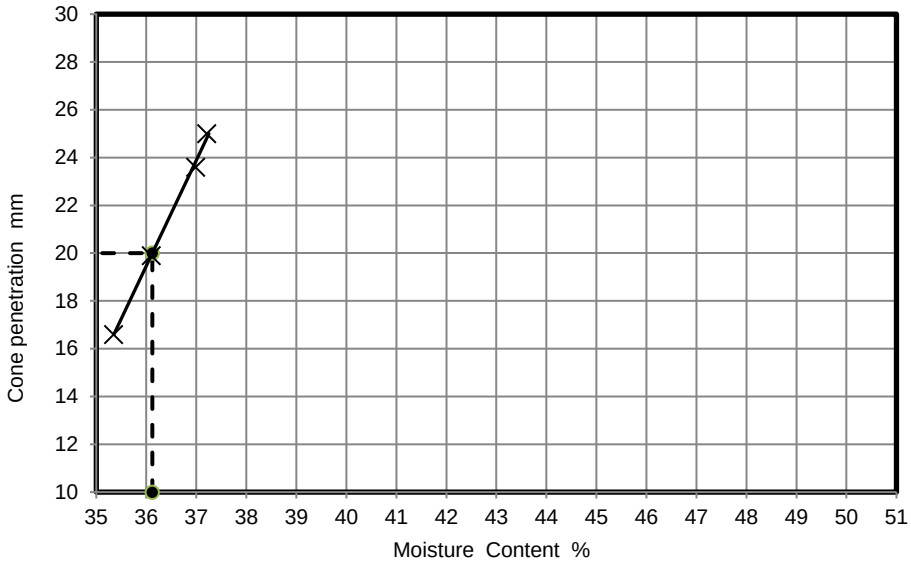
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-86592
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark brown gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

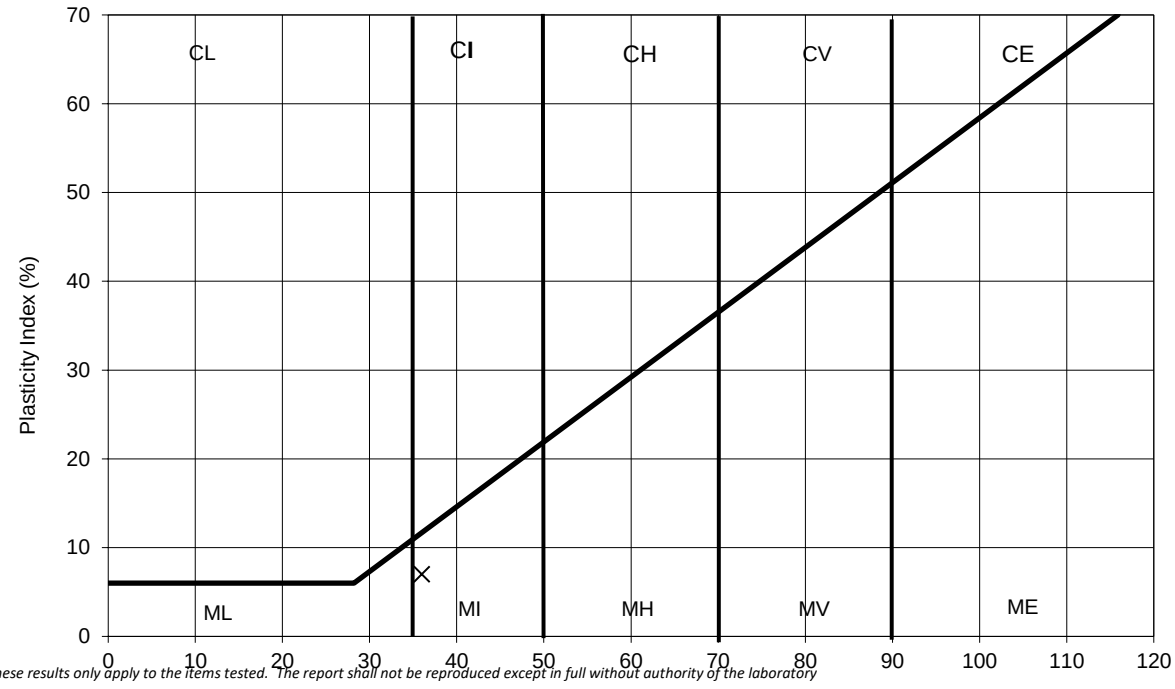


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**46**	**%**
LIQUID LIMIT	**36**	**%**
PLASTIC LIMIT	**29**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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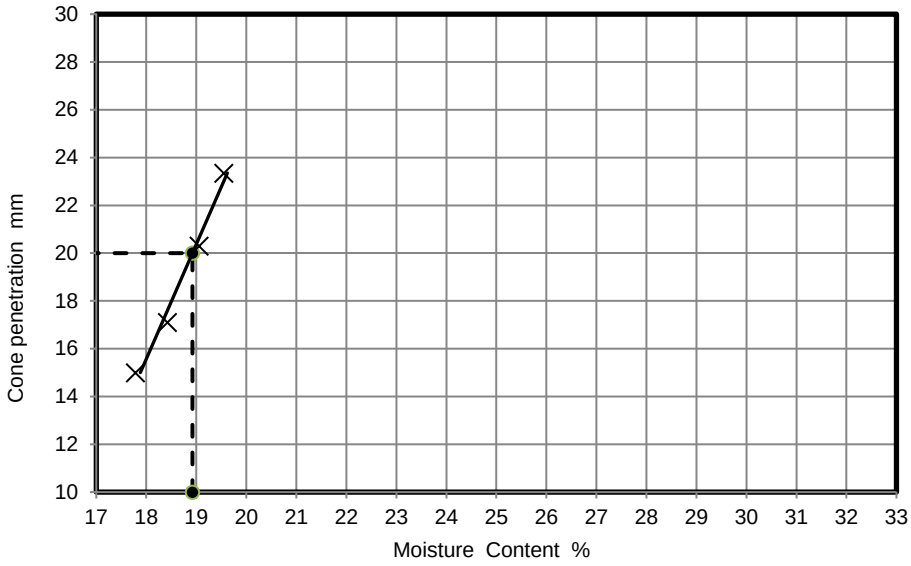
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey very silty GRAVEL in a sandy silty clay matrix (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

Job No. 32282

Borehole/Pit No. BH-86592

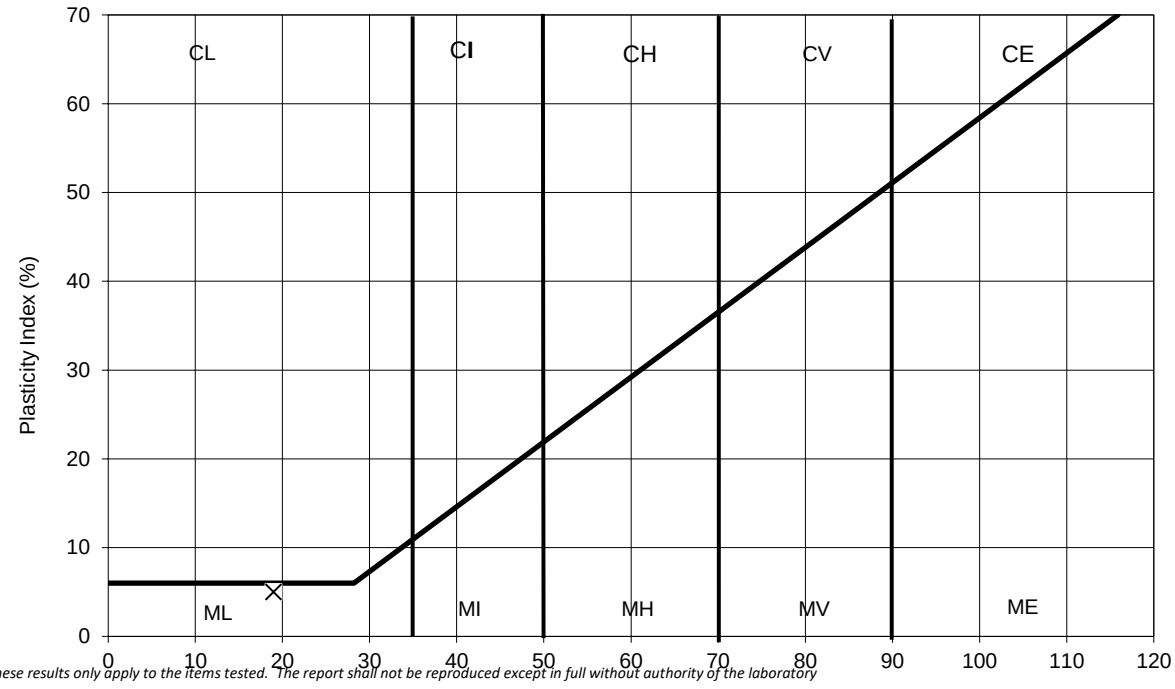


NATURAL MOISTURE CONTENT	**6.5**	**%**
% PASSING 425µm SIEVE	**26**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

Date: 15/12/2022

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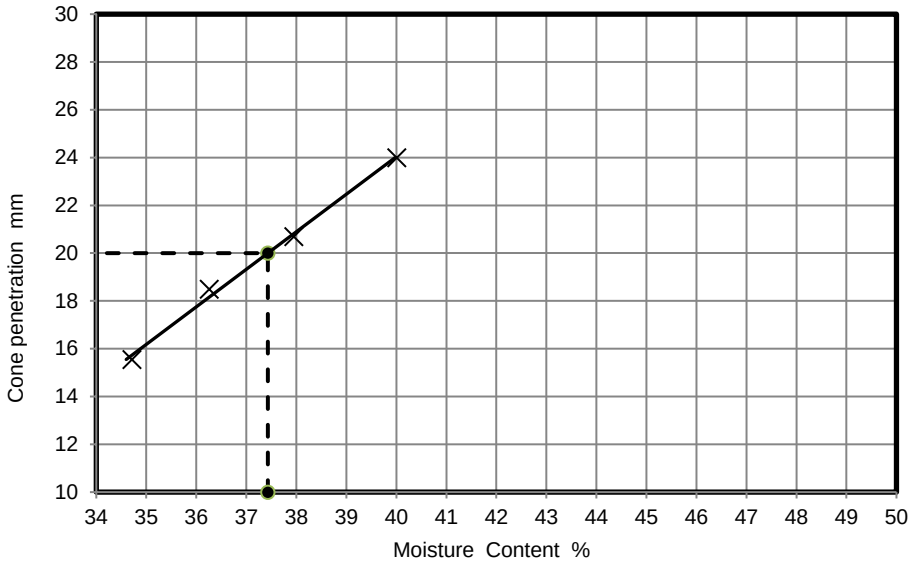
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

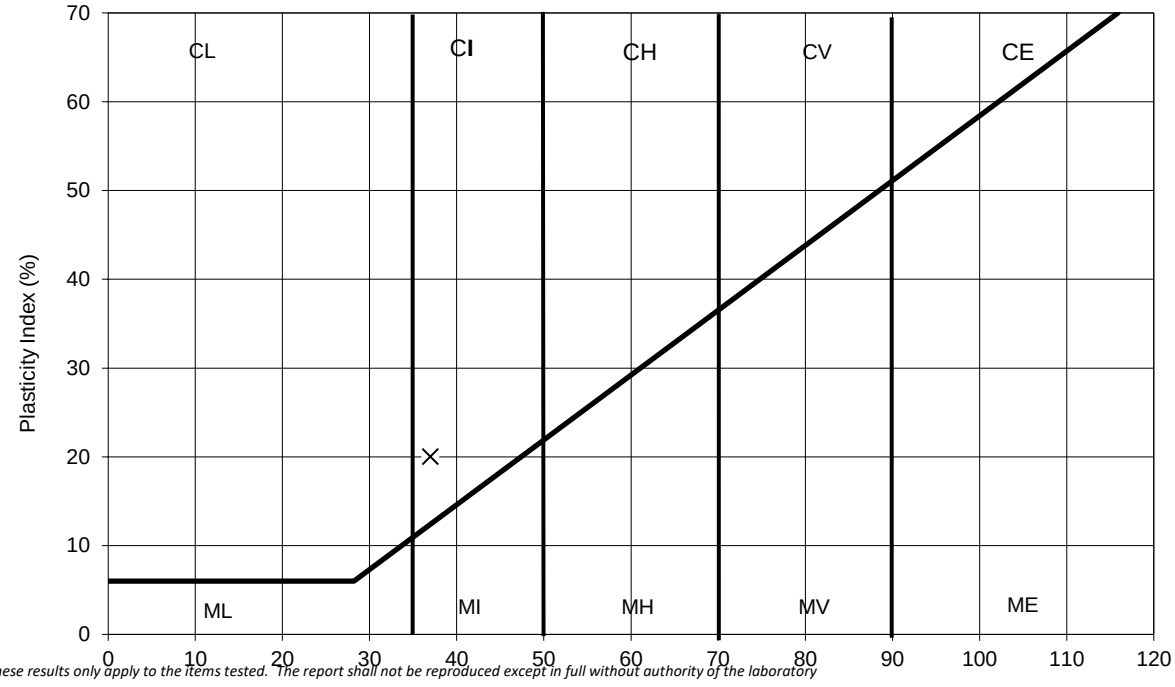
				Job No.	32282
				Borehole/Pit No.	BH-87806
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey and dark grey slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**26**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**37**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**20**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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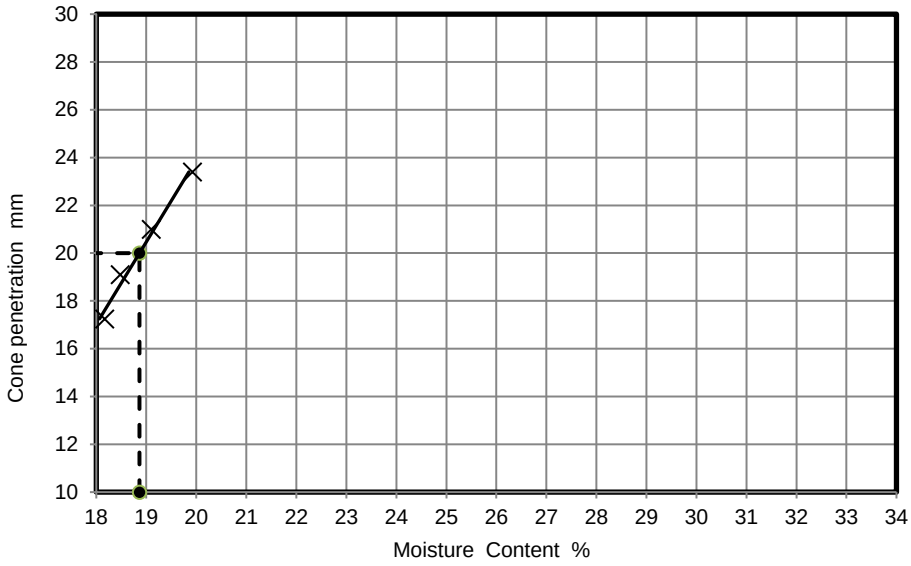
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-87999
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

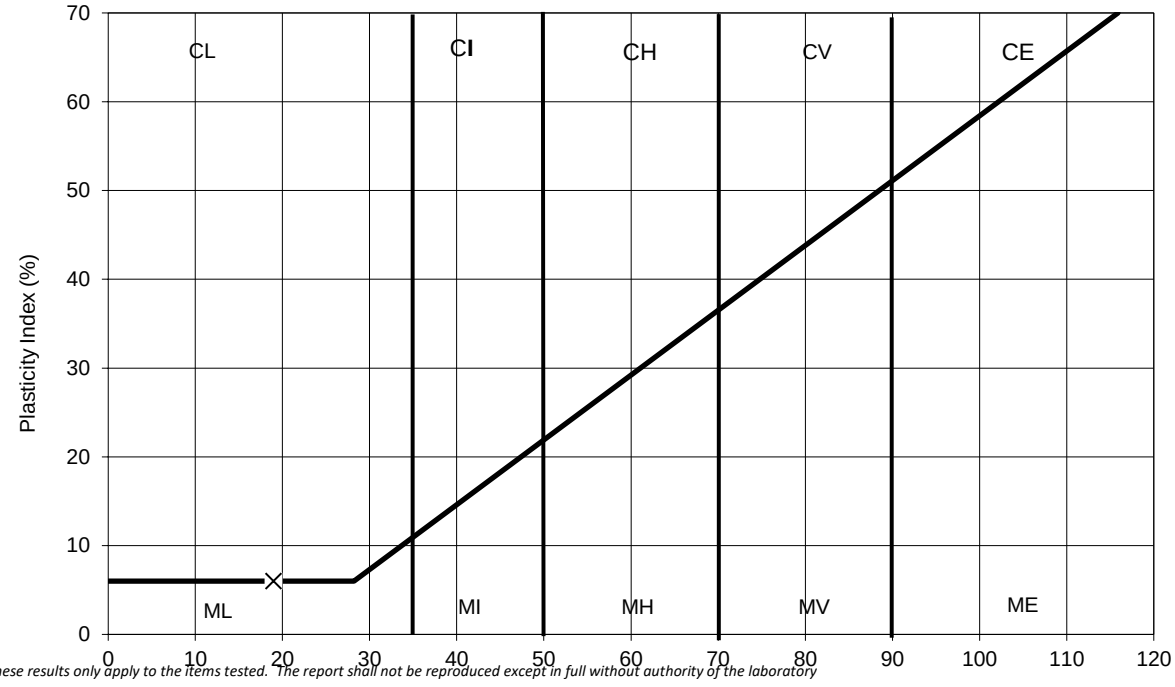


NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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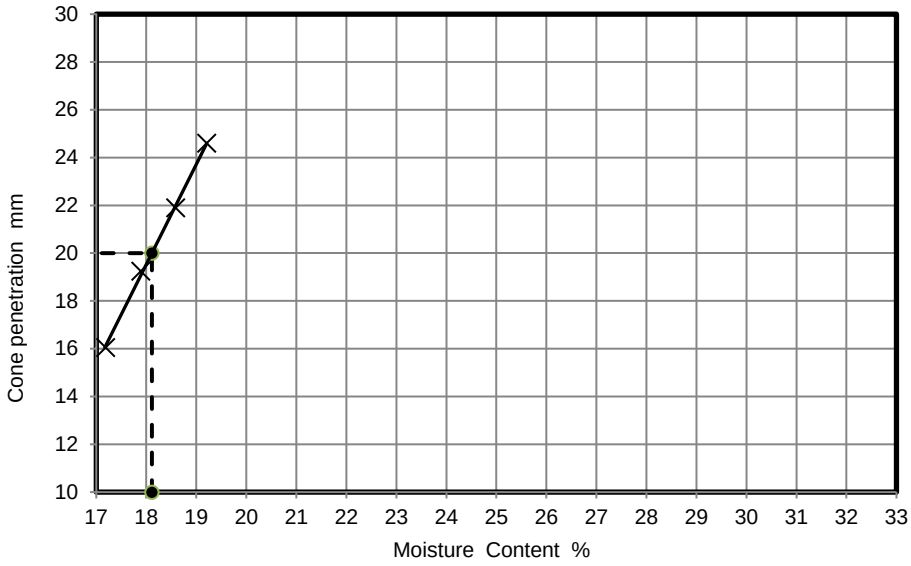
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-88759
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

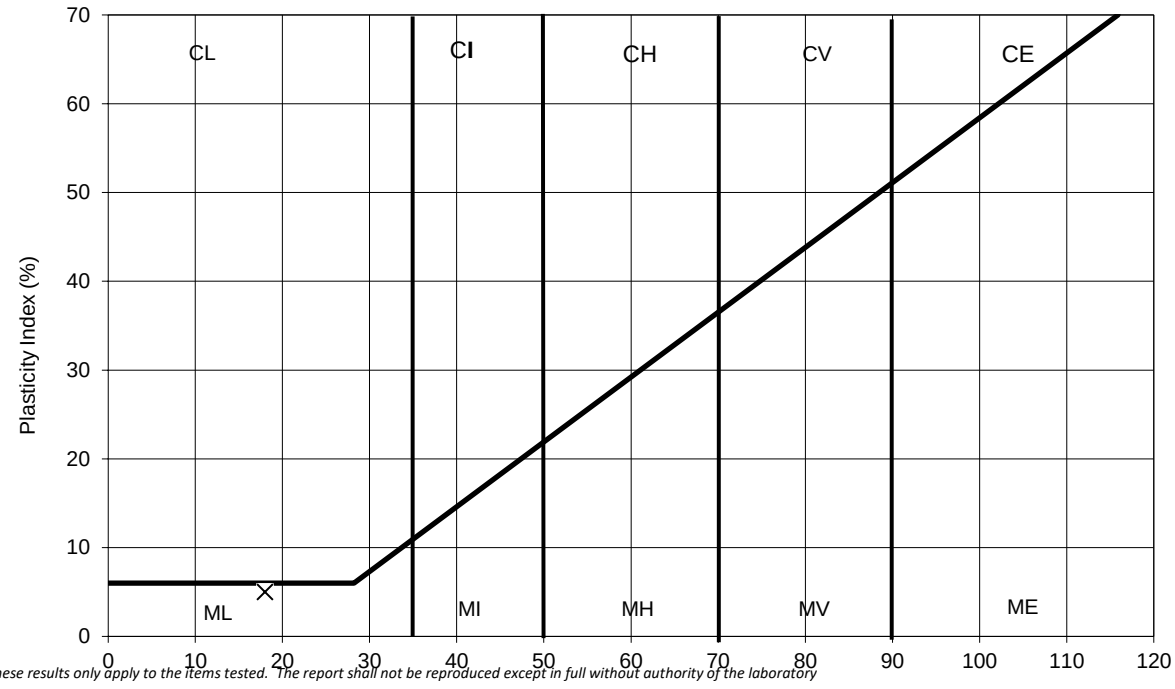


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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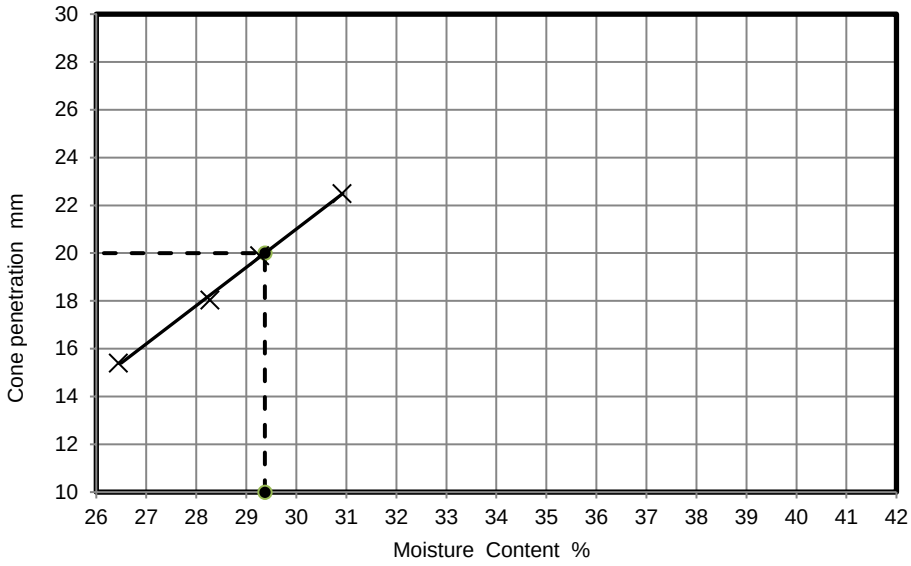
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

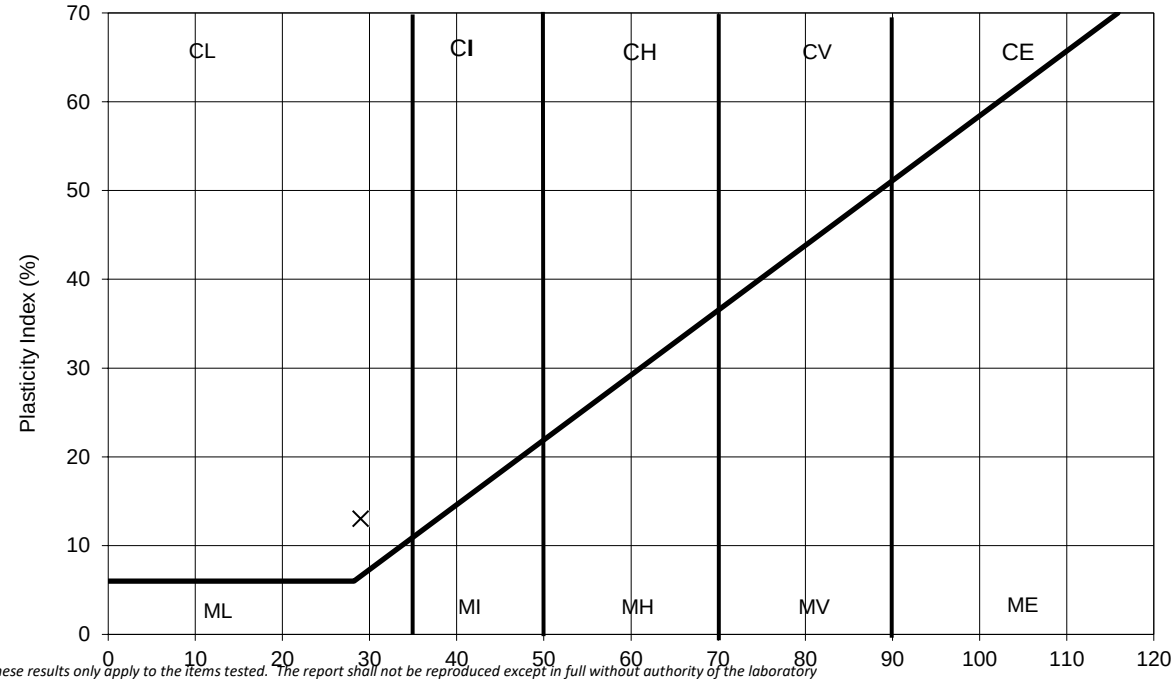
				Job No.	32282
				Borehole/Pit No.	BH-89604
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	6.00 m
Soil Description	Dark grey slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**29**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**13**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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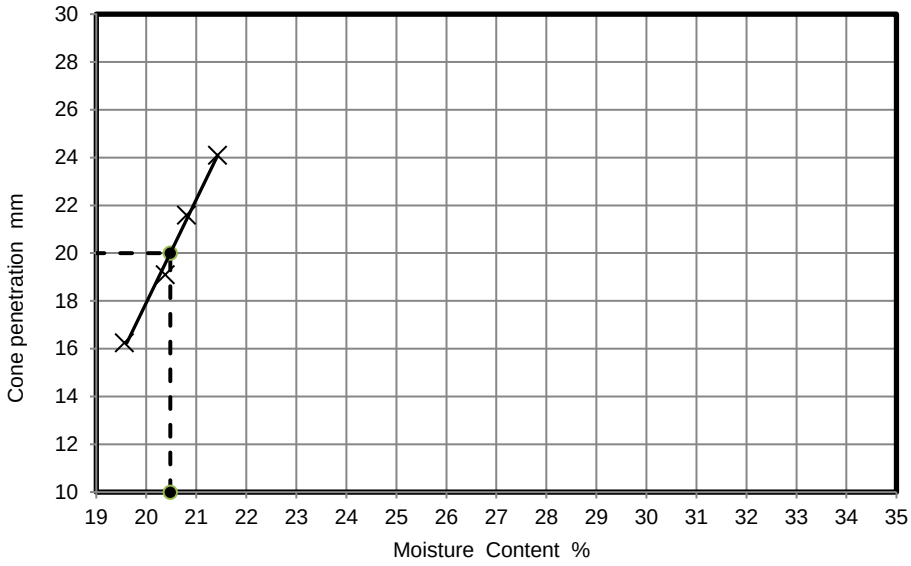
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-89662
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

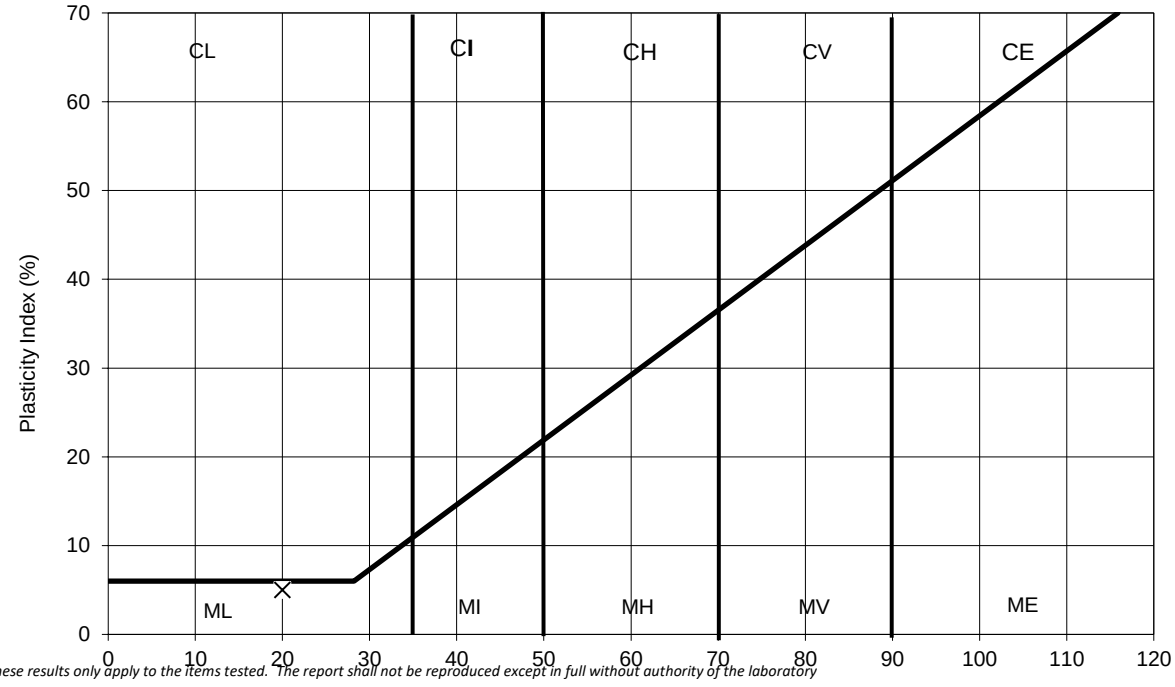


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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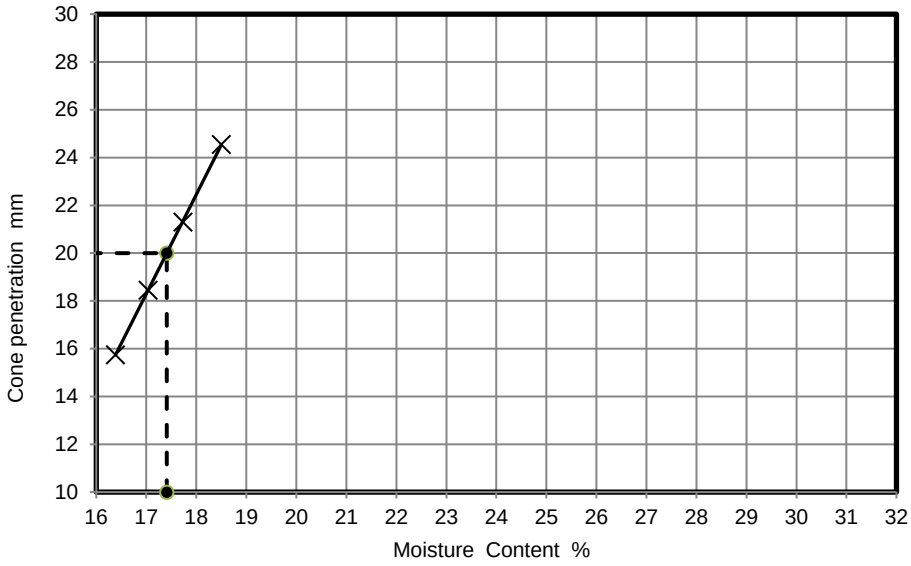
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-89690
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

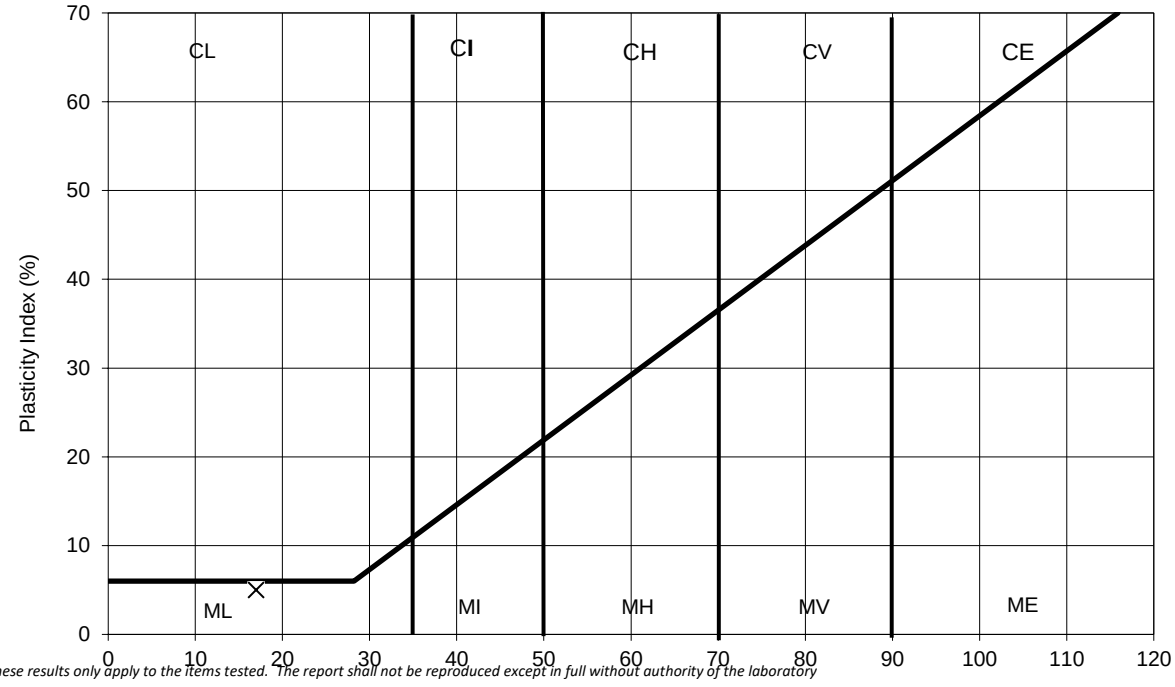


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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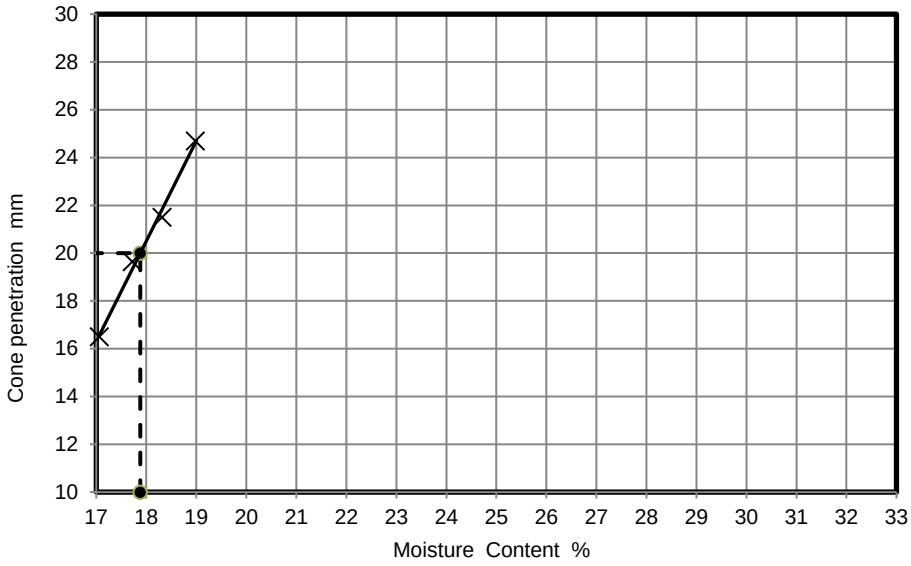
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-89747
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

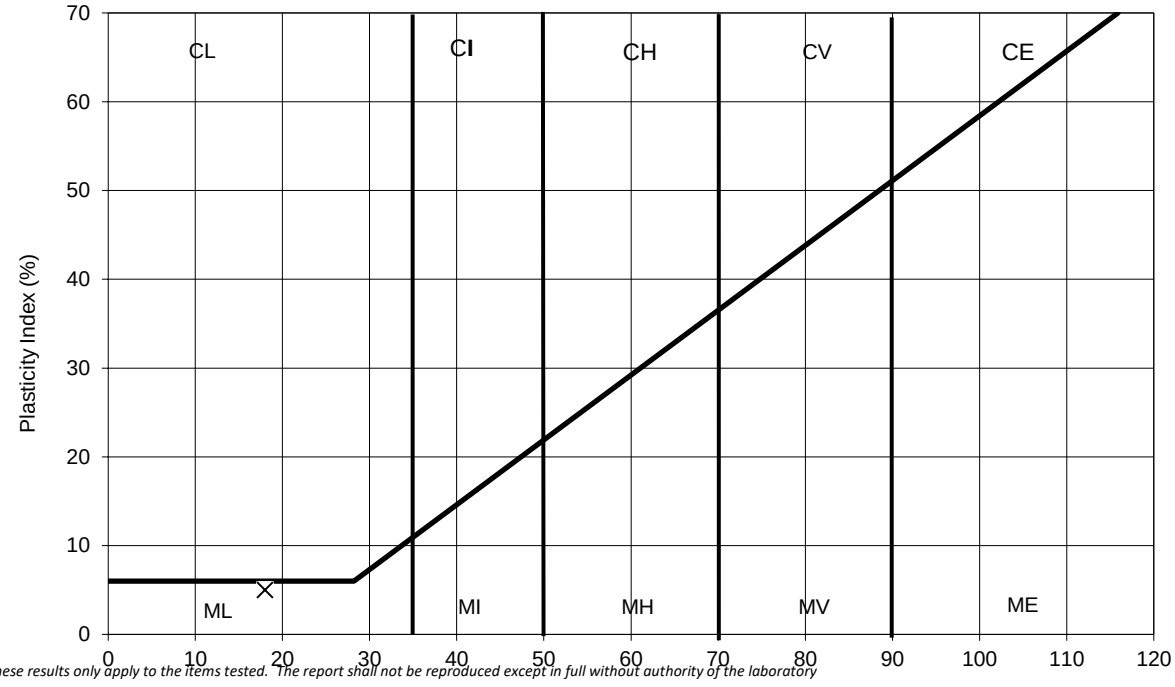


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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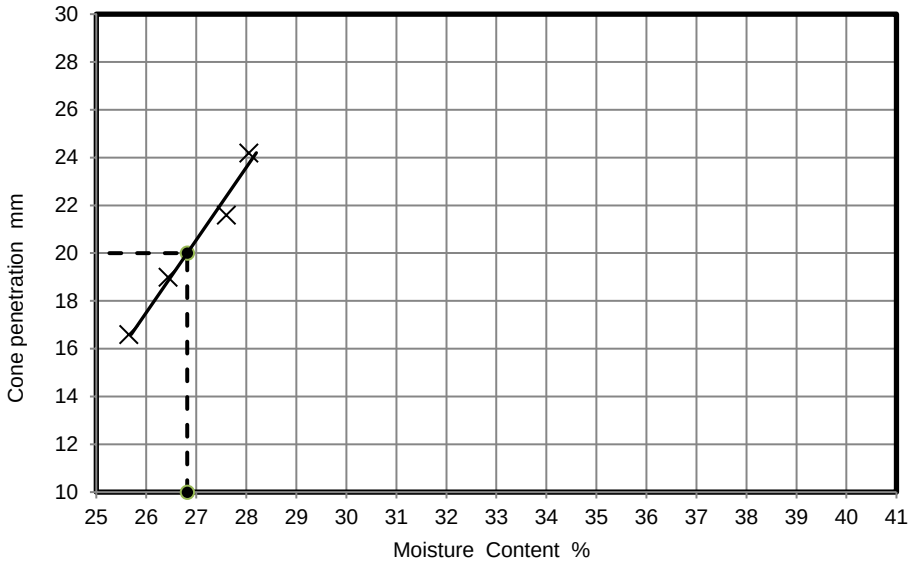
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-90003
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey and dark greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

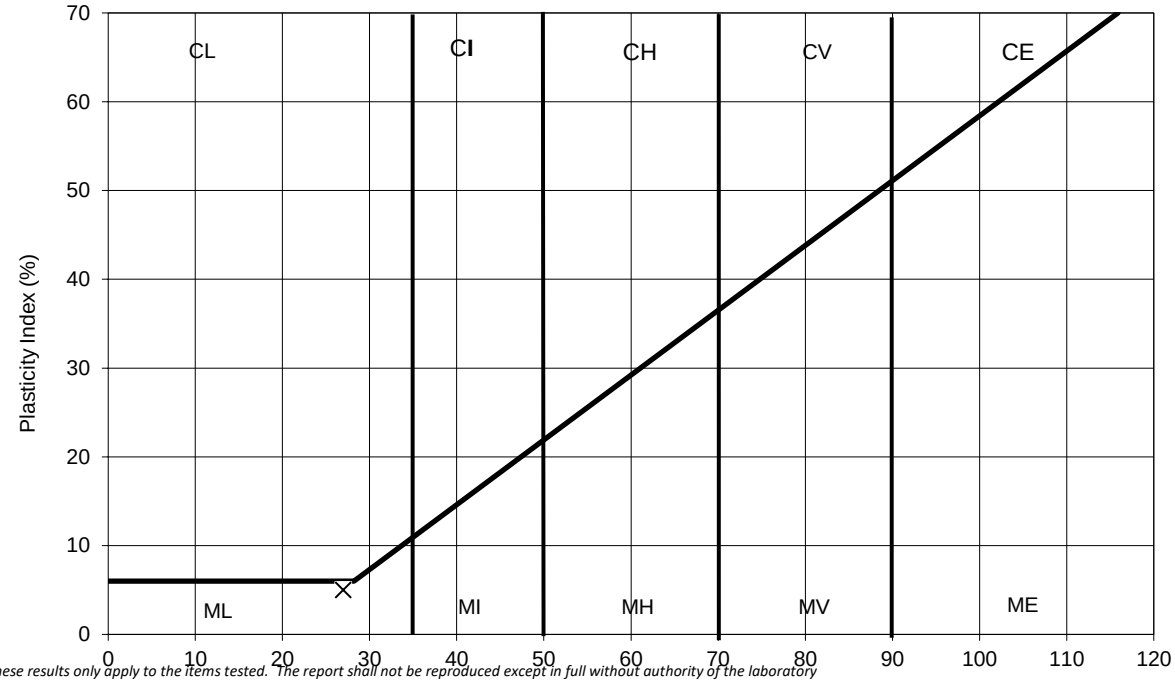


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**22**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

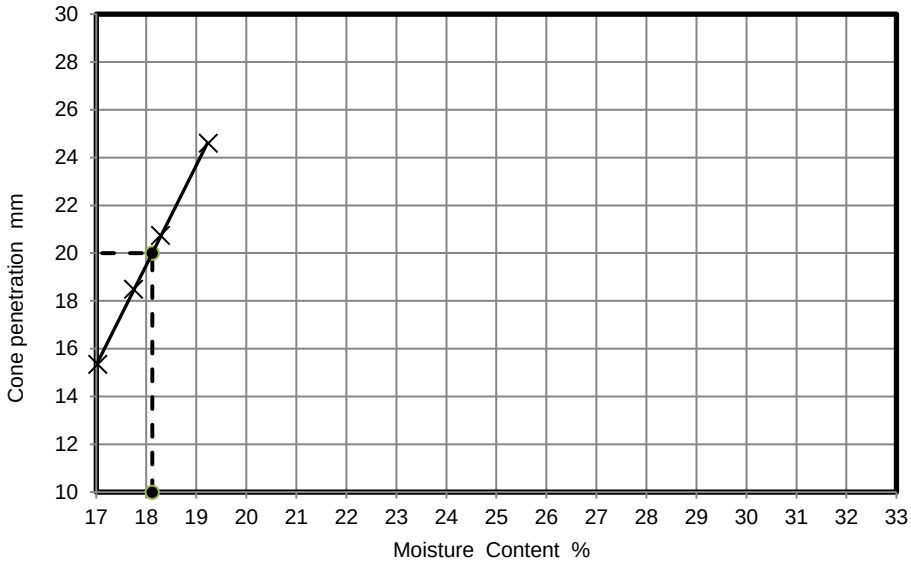
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-90003
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

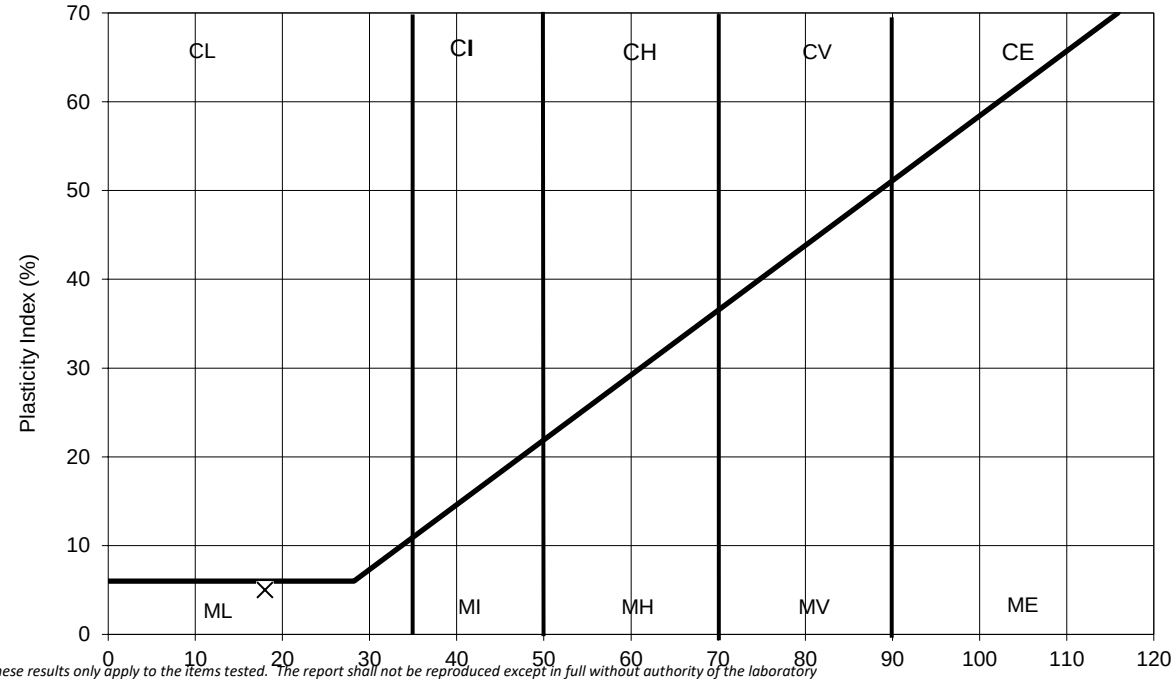


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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Initials: J.P
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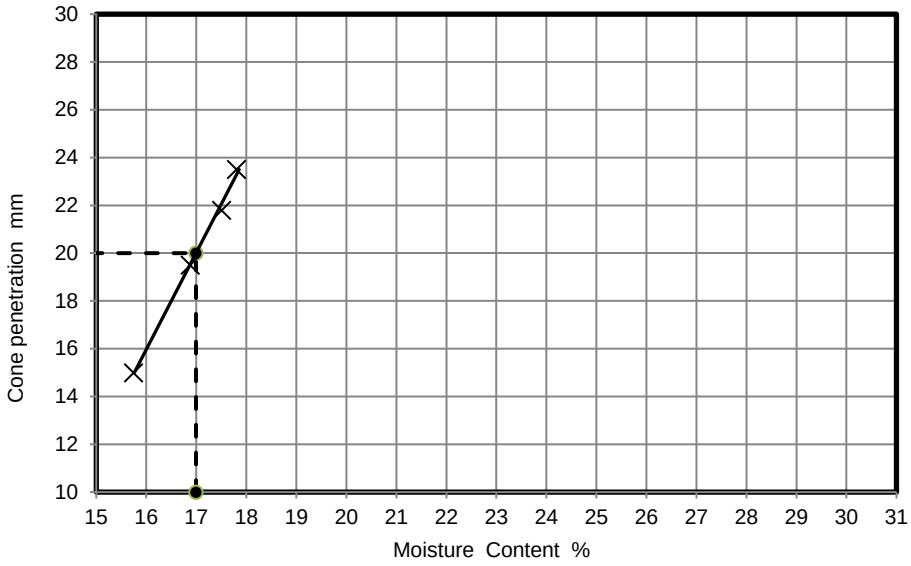
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-90402
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

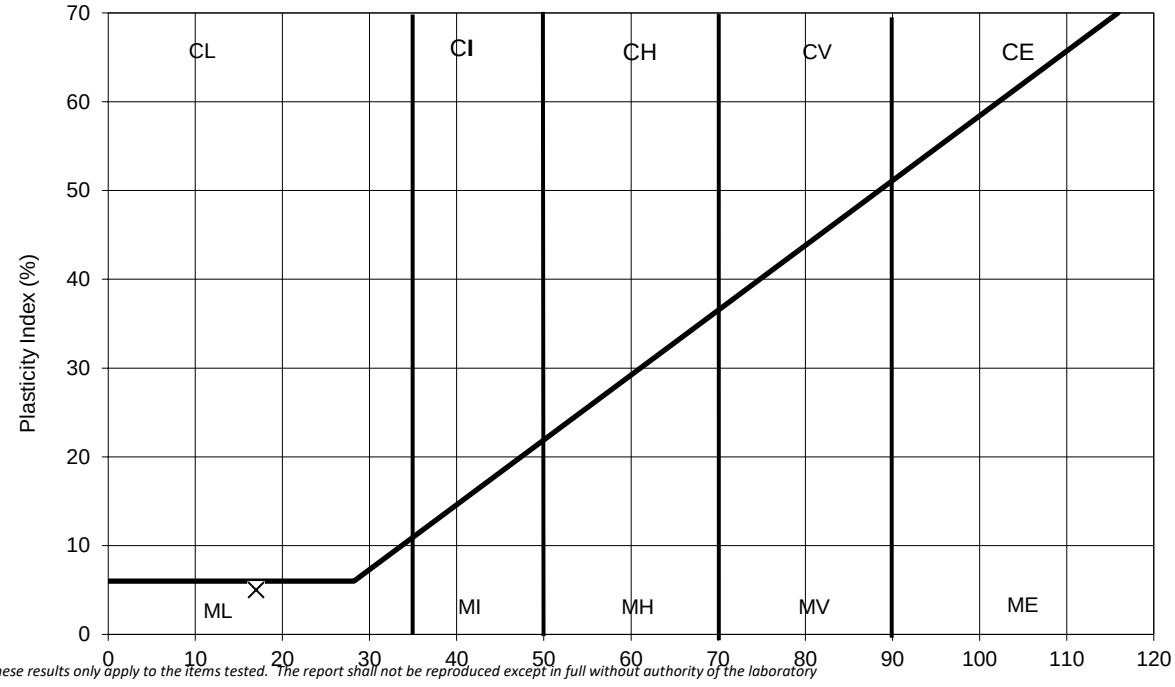


NATURAL MOISTURE CONTENT	**8.0**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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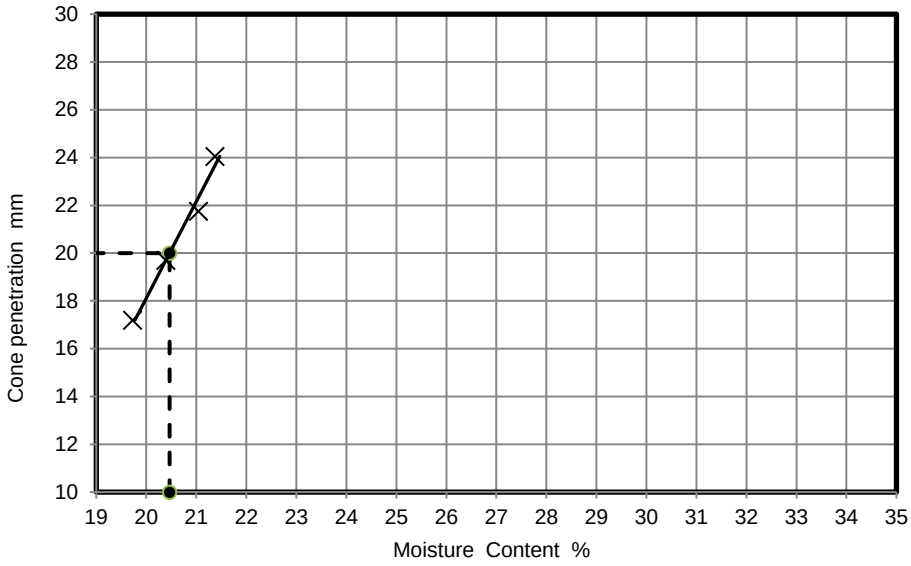
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-91011
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

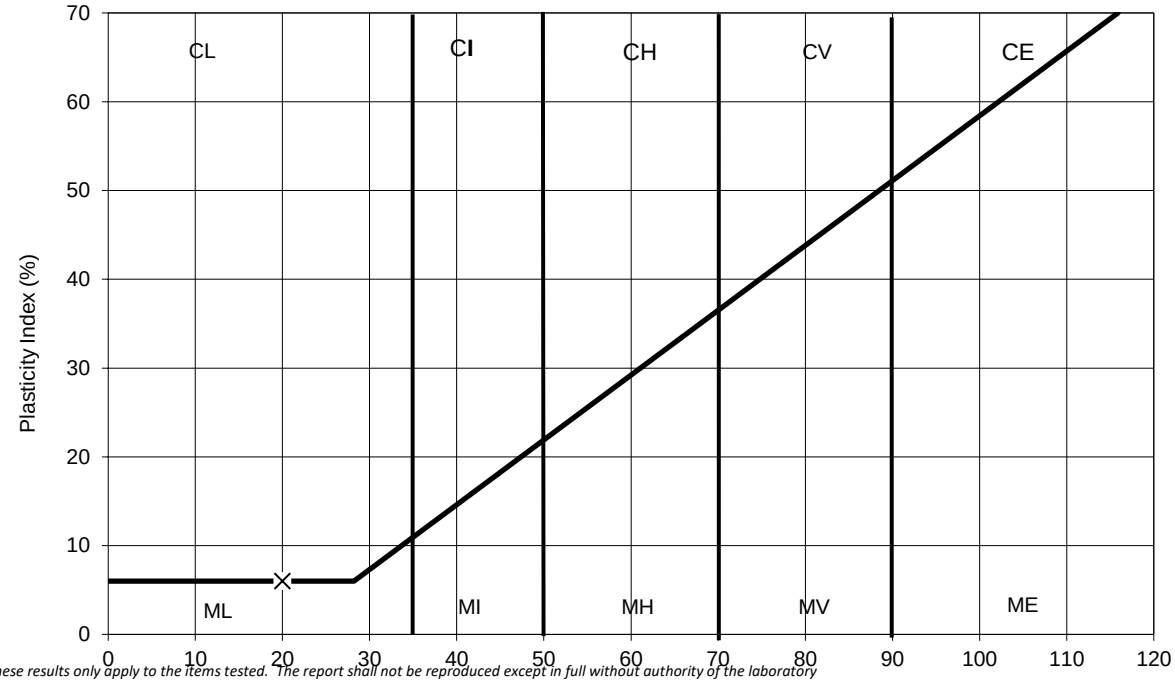


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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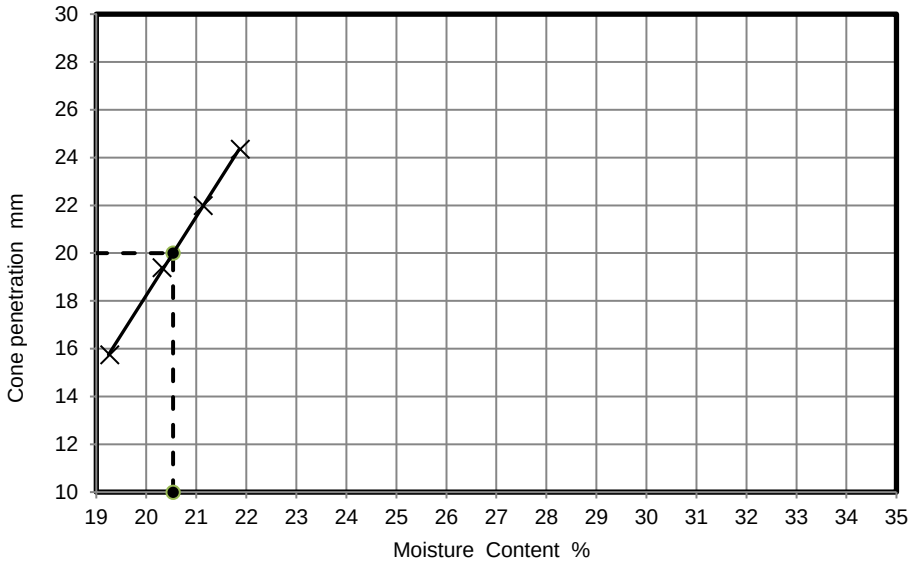
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-92206
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	06/12/2022

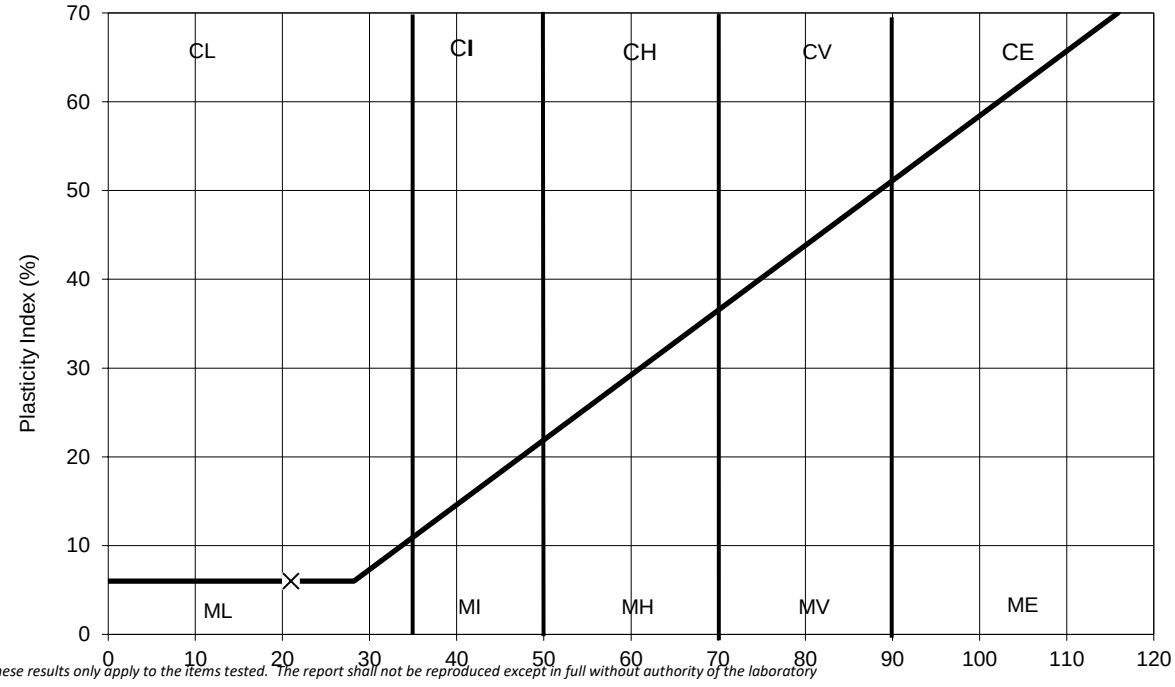


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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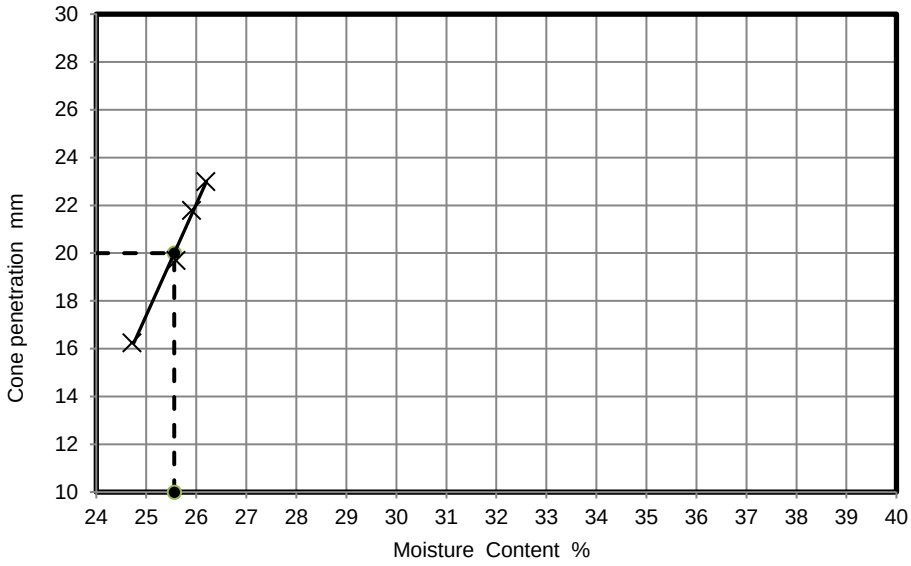
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-93391
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

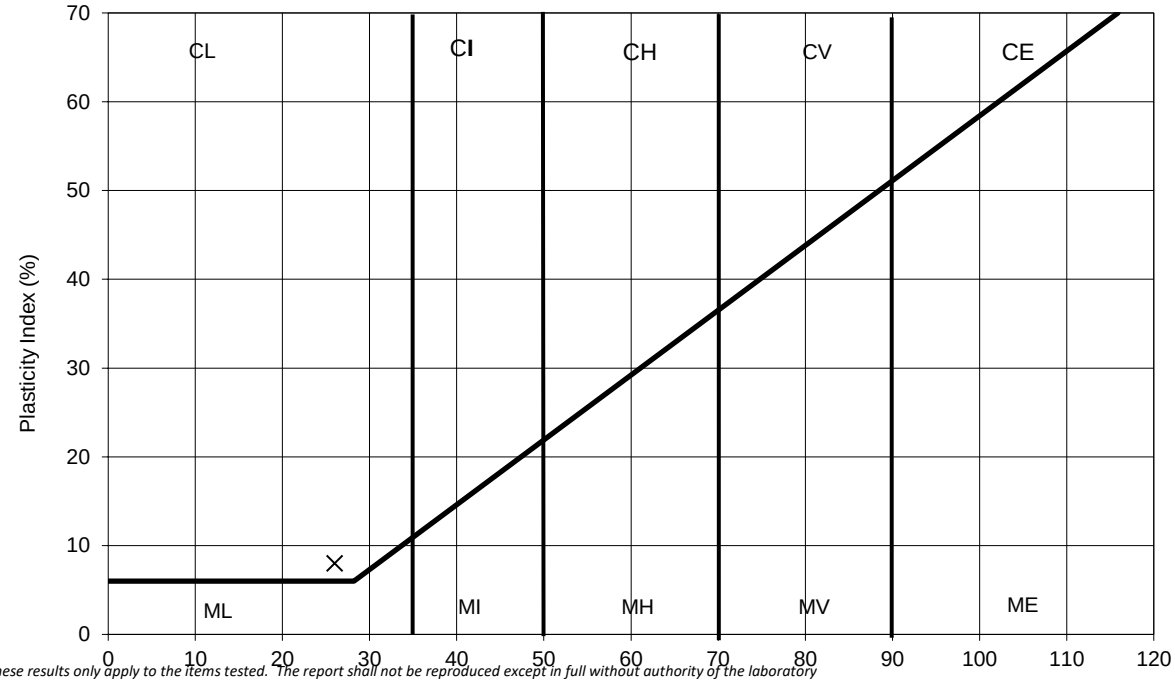


NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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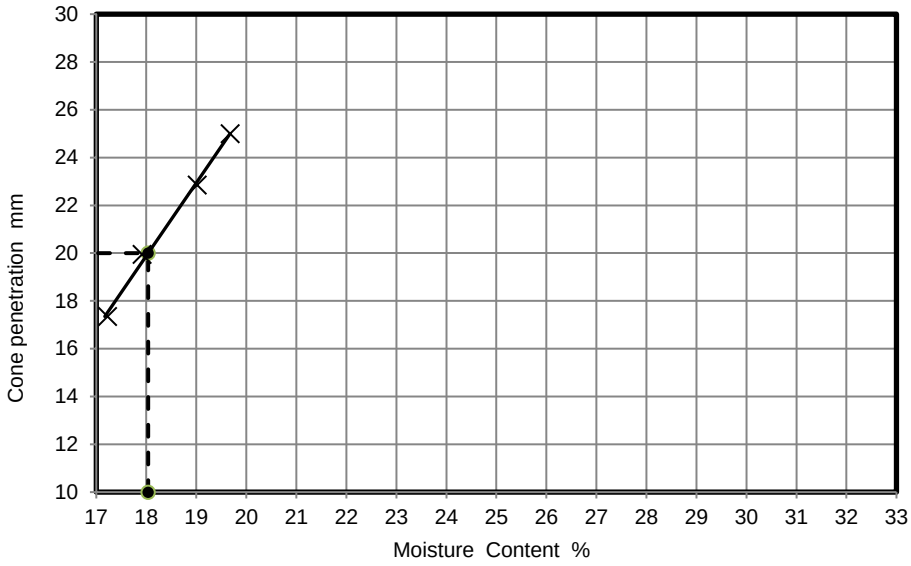
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-93391
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

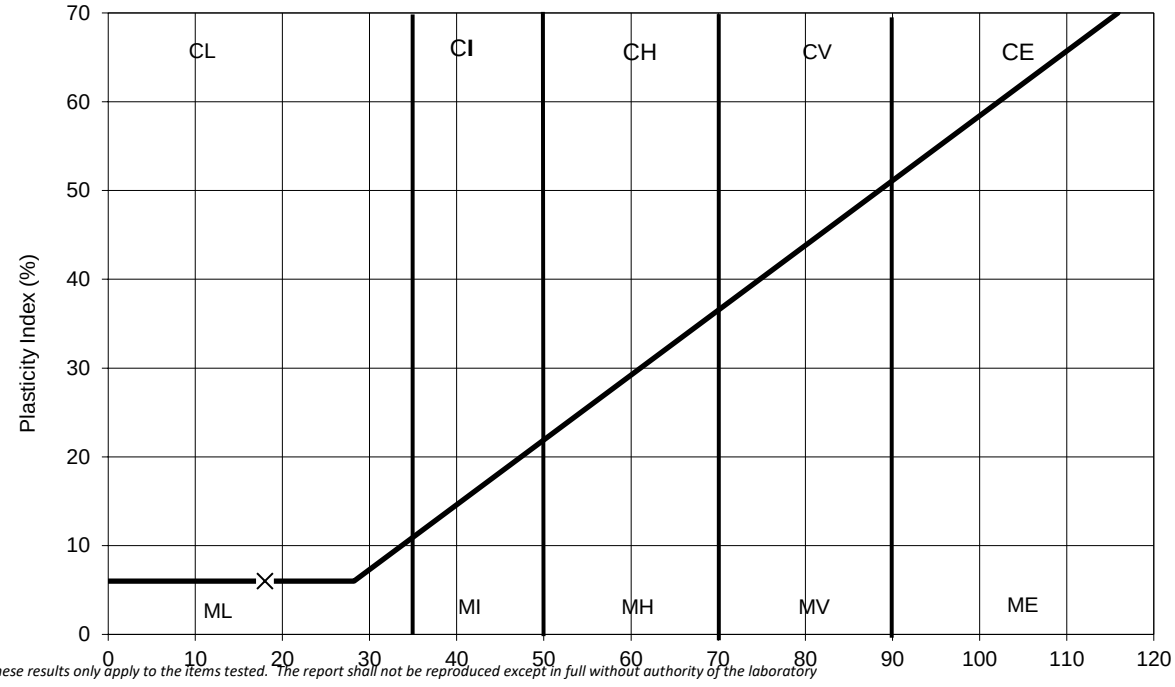


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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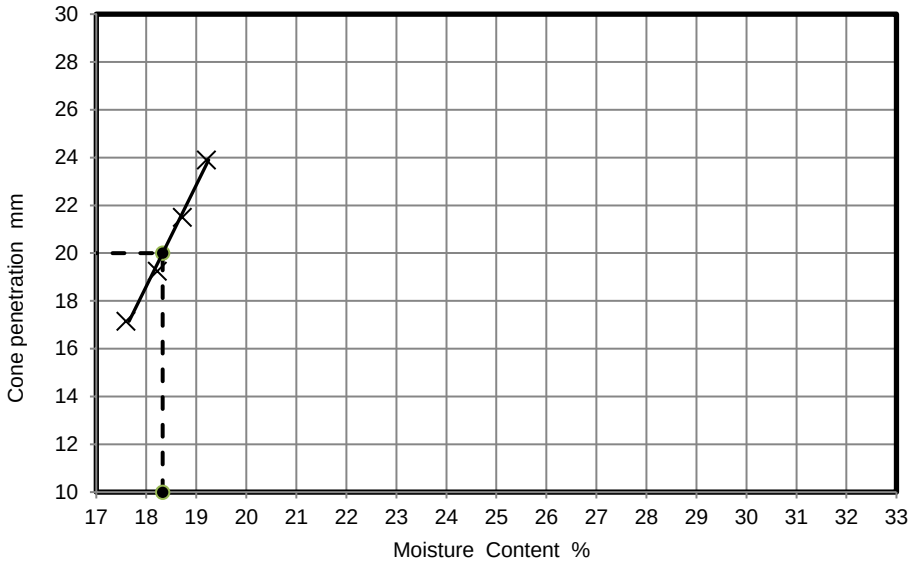
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-94403
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

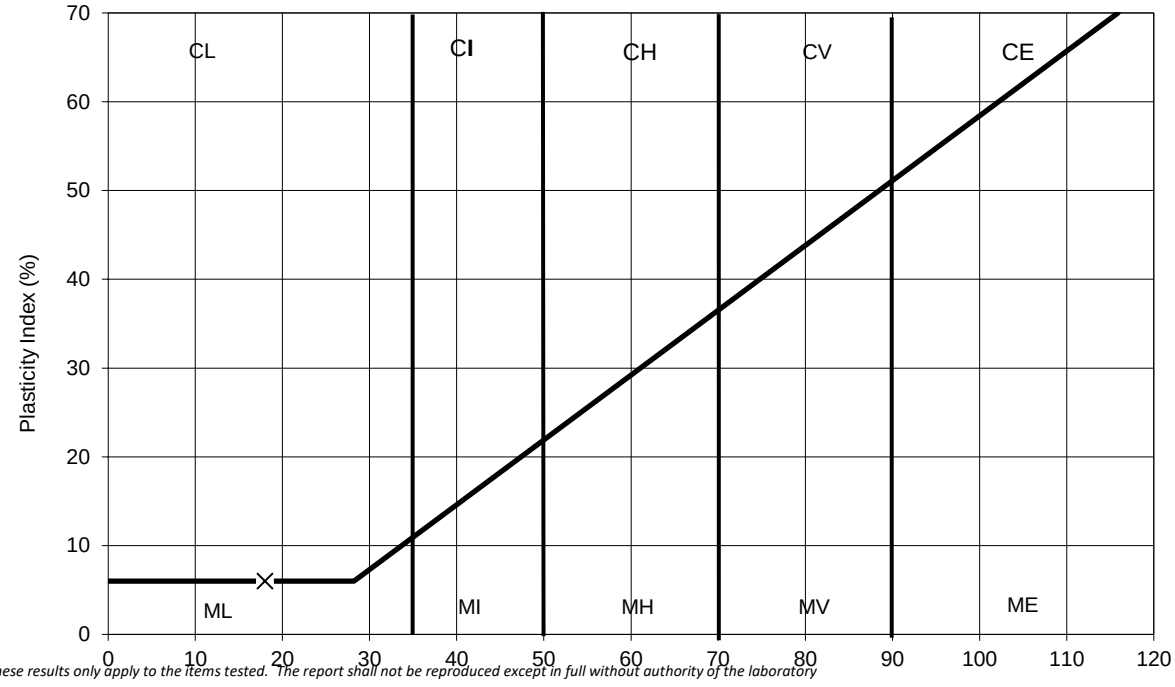


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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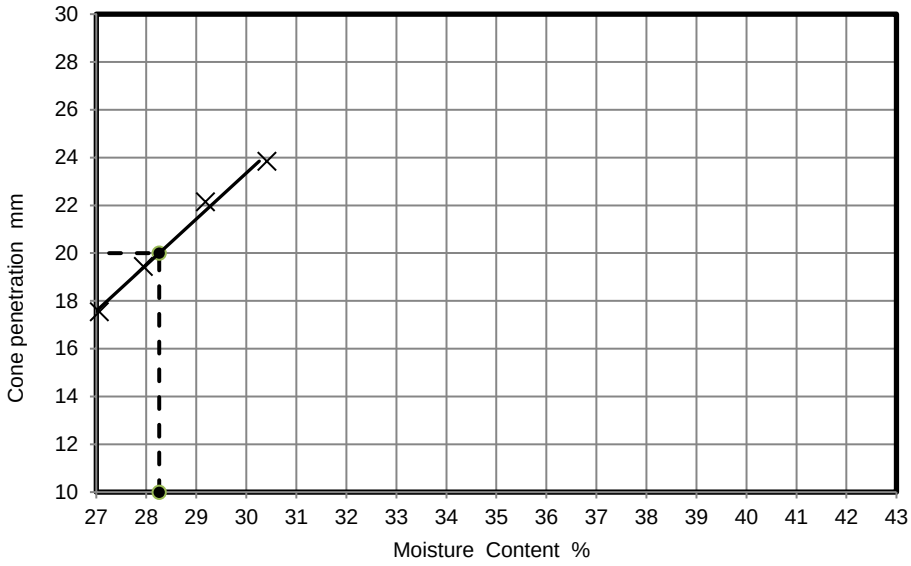
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-95064
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

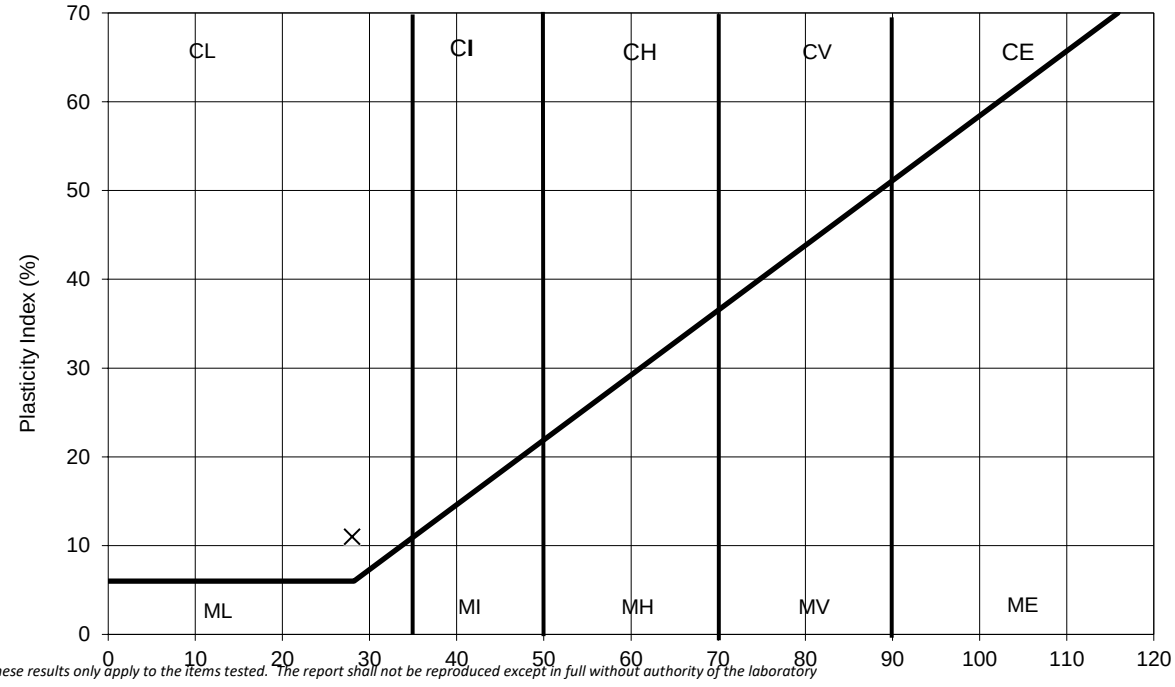


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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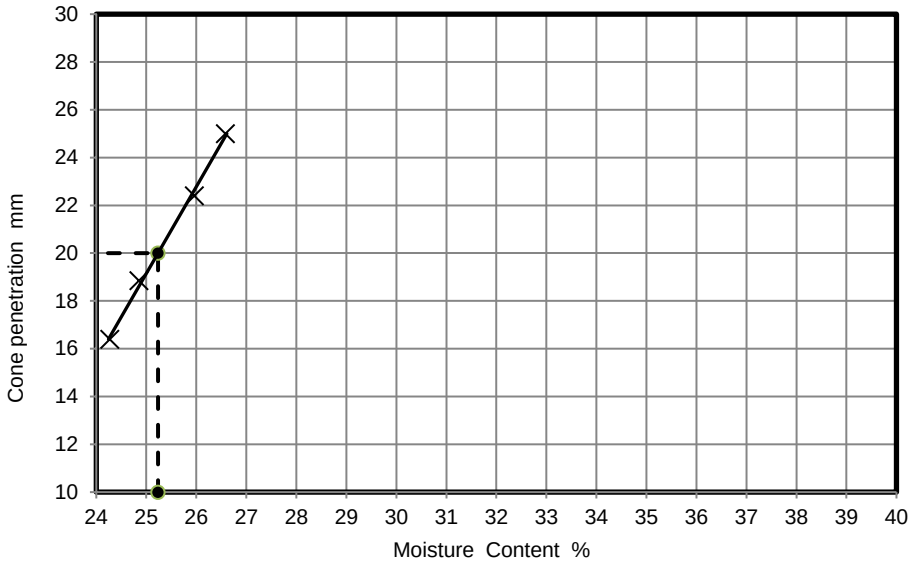
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-96005
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

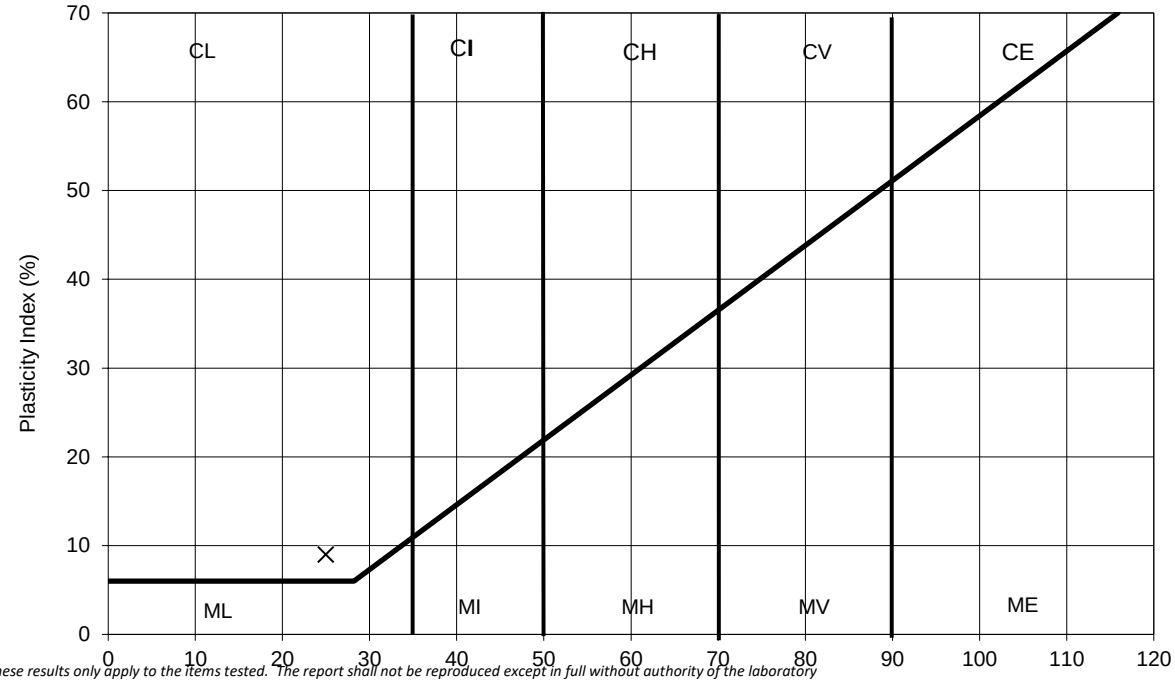


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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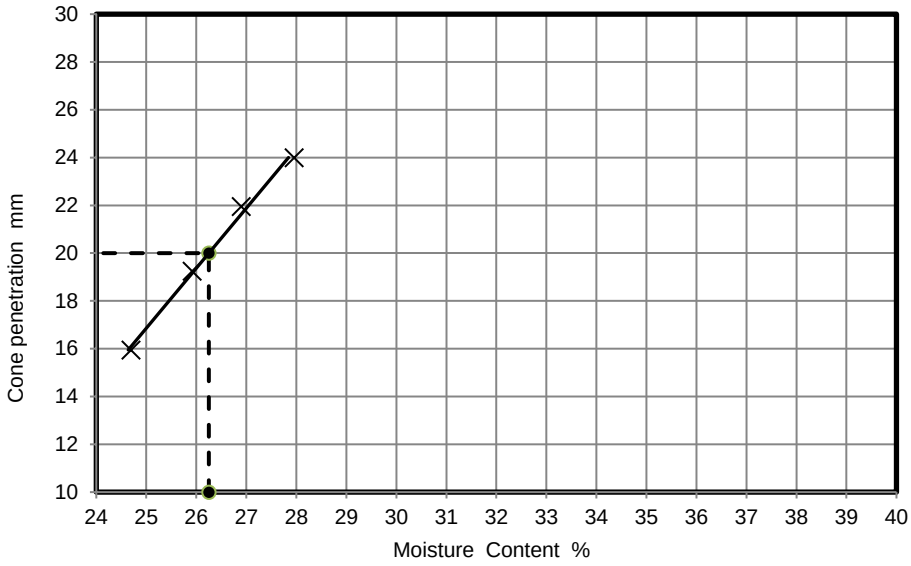
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/12/2022

Job No. 32282

Borehole/Pit No. BH-96364

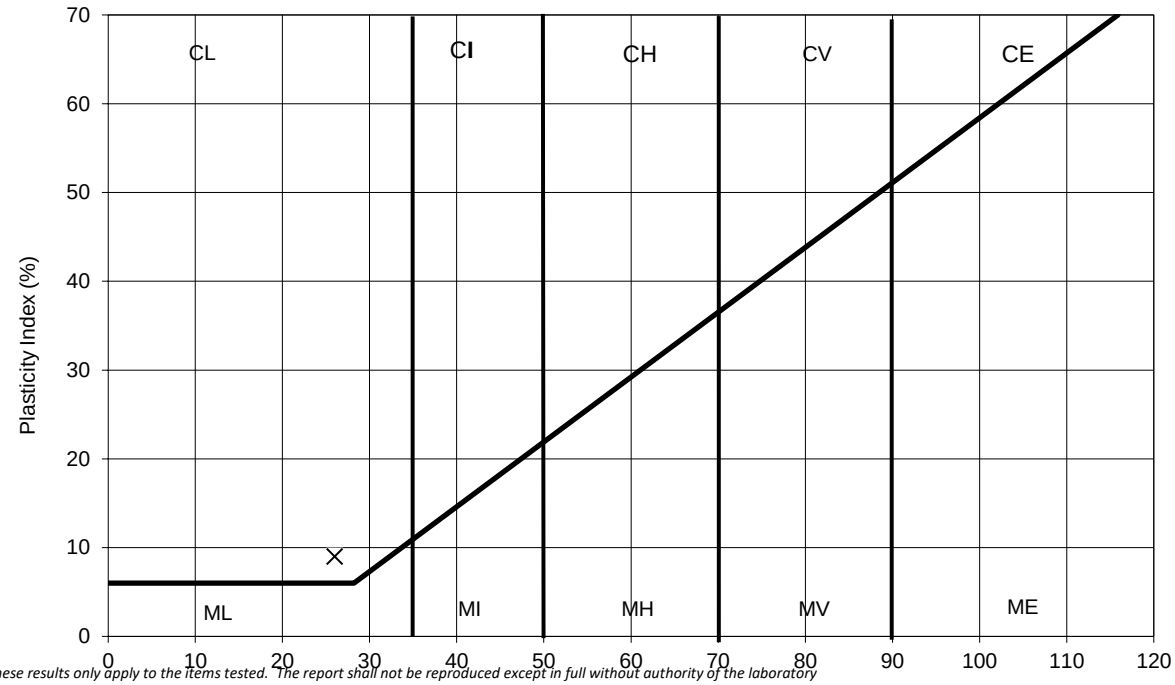


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

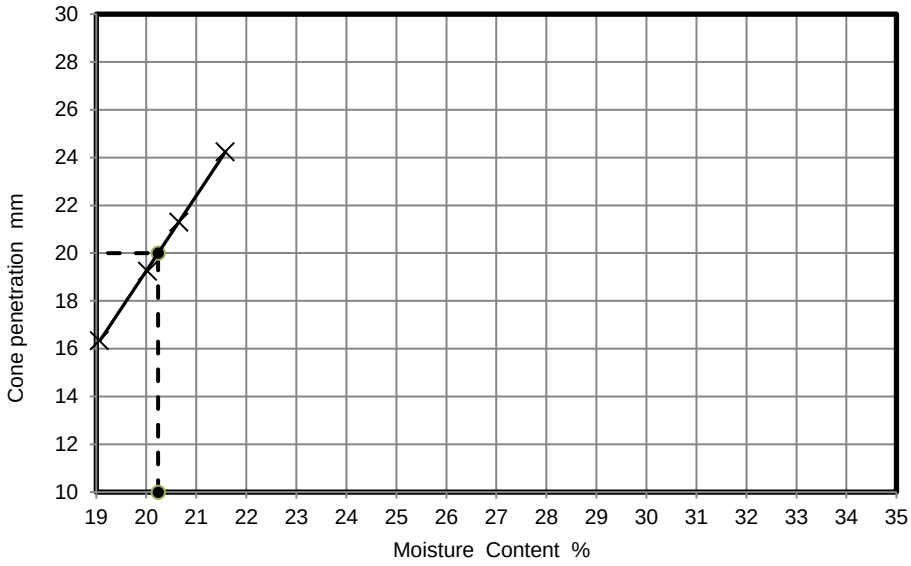
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-96858
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

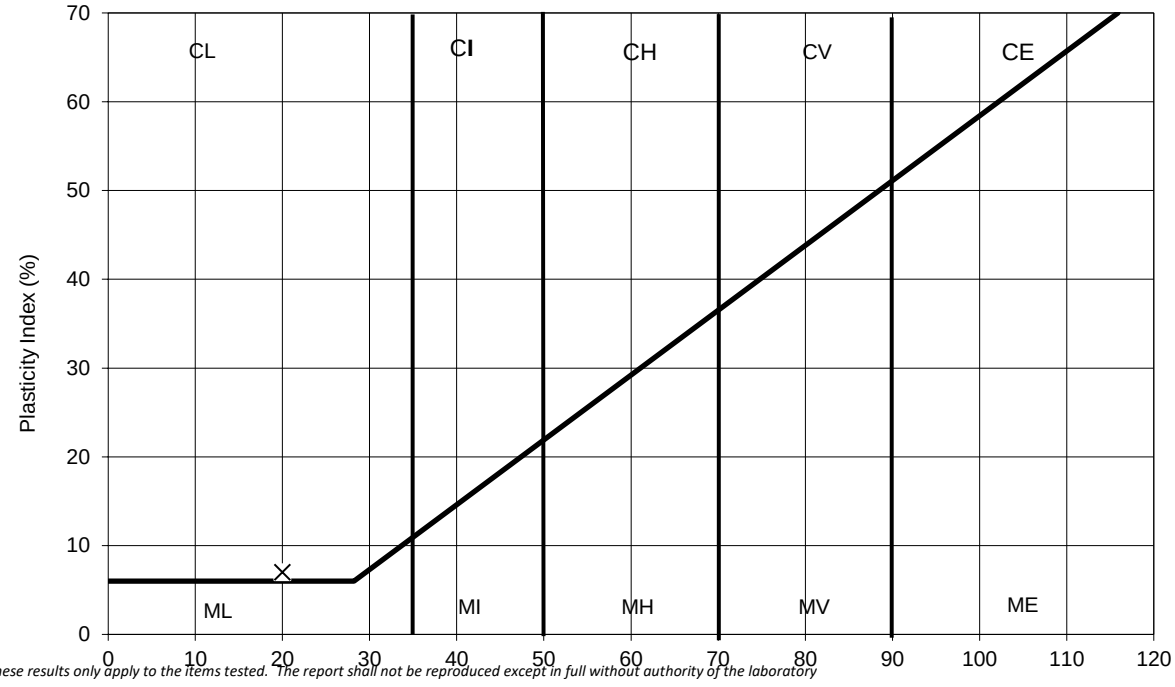


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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UKAS TESTING

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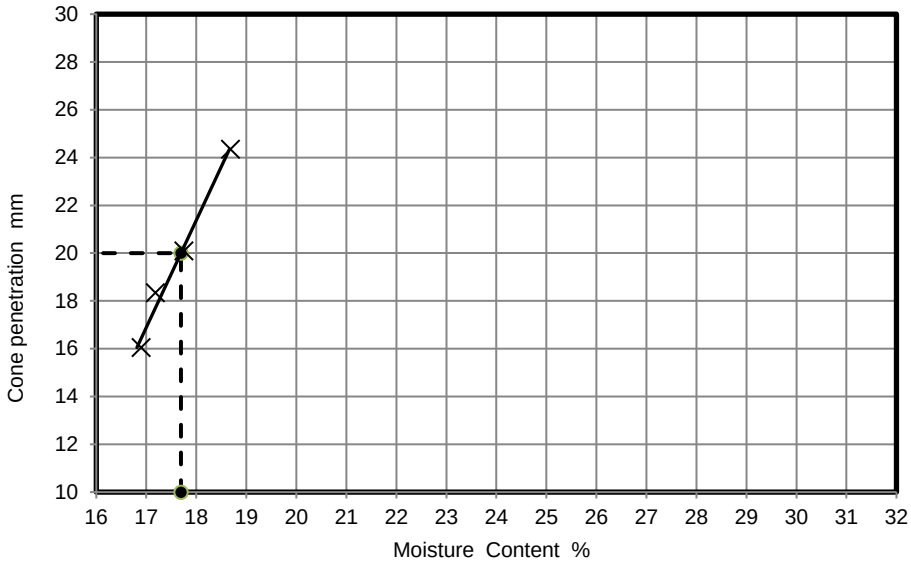
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-97788
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

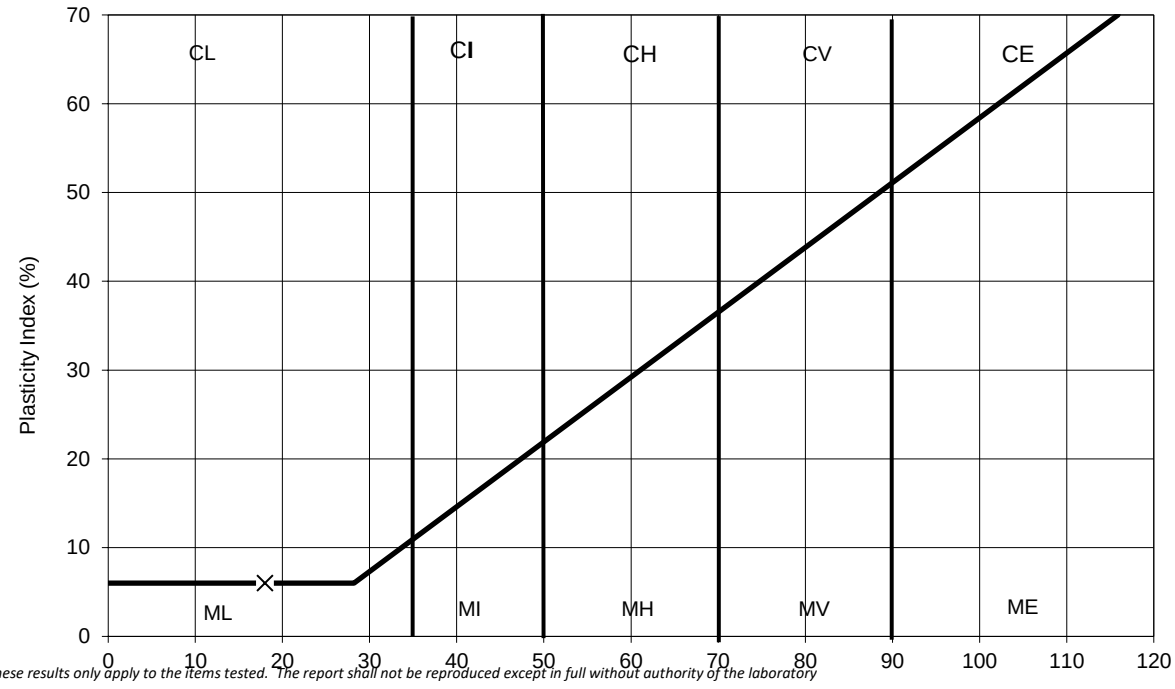


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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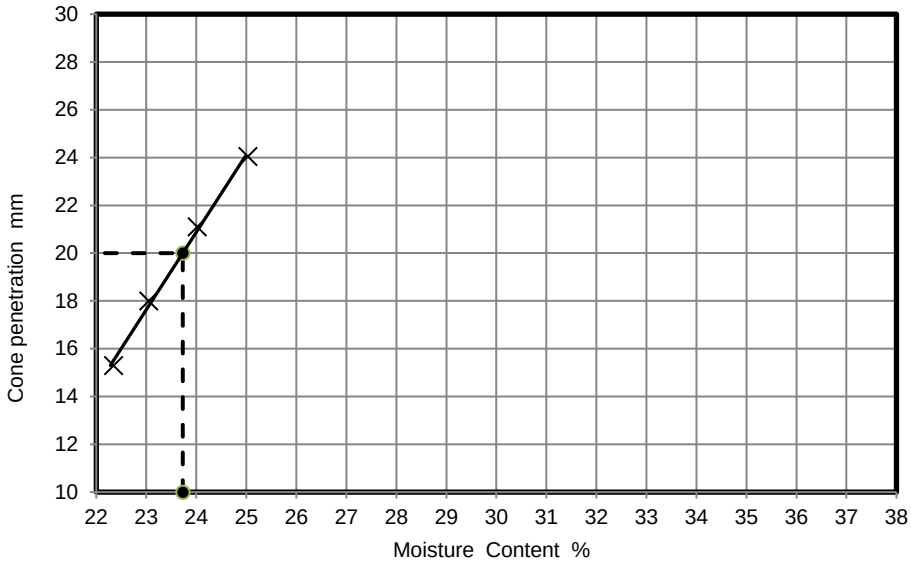
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-97837
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022

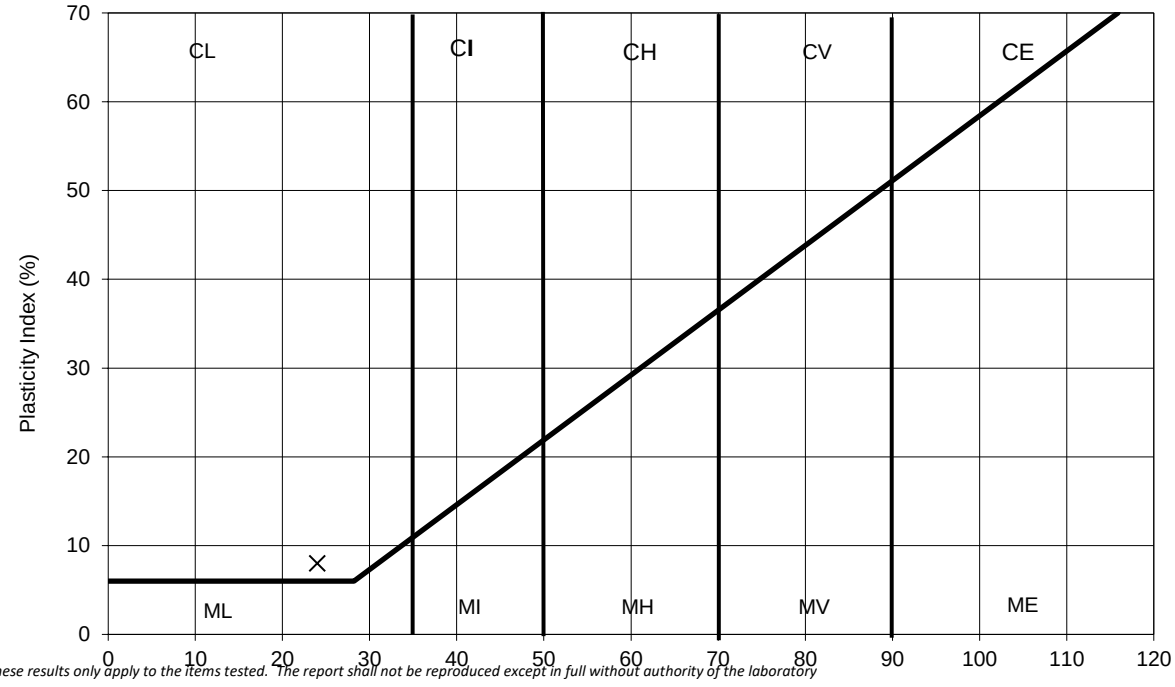


NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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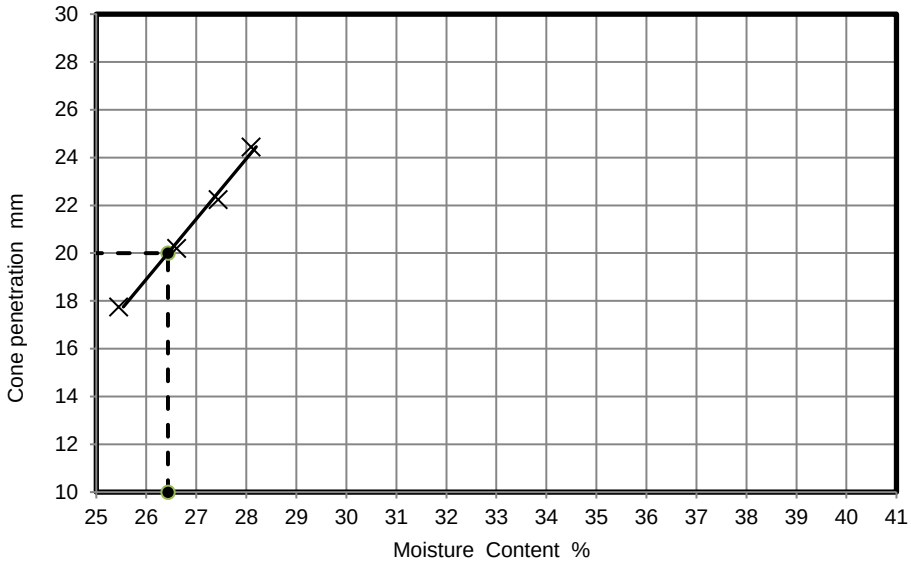
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

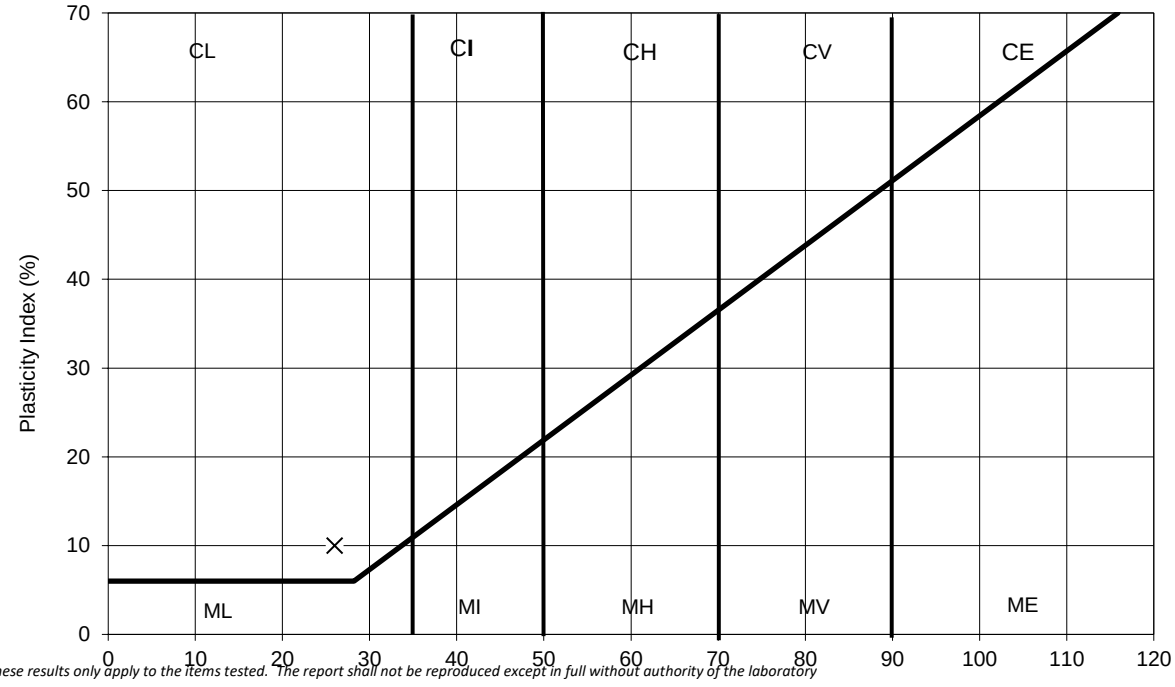
Job No.	32282				
Borehole/Pit No.	BH-97837				
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey slightly sandy clayey SILT			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/11/2022



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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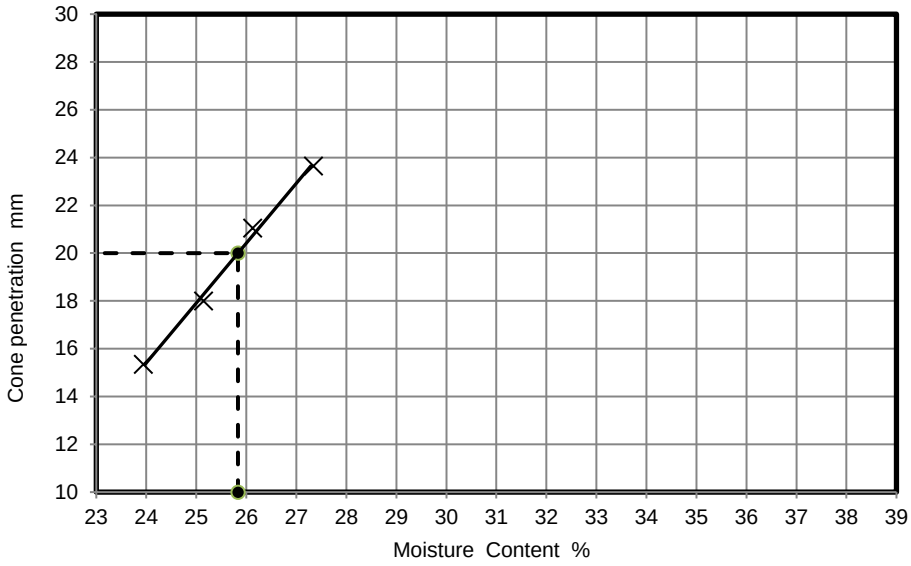
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

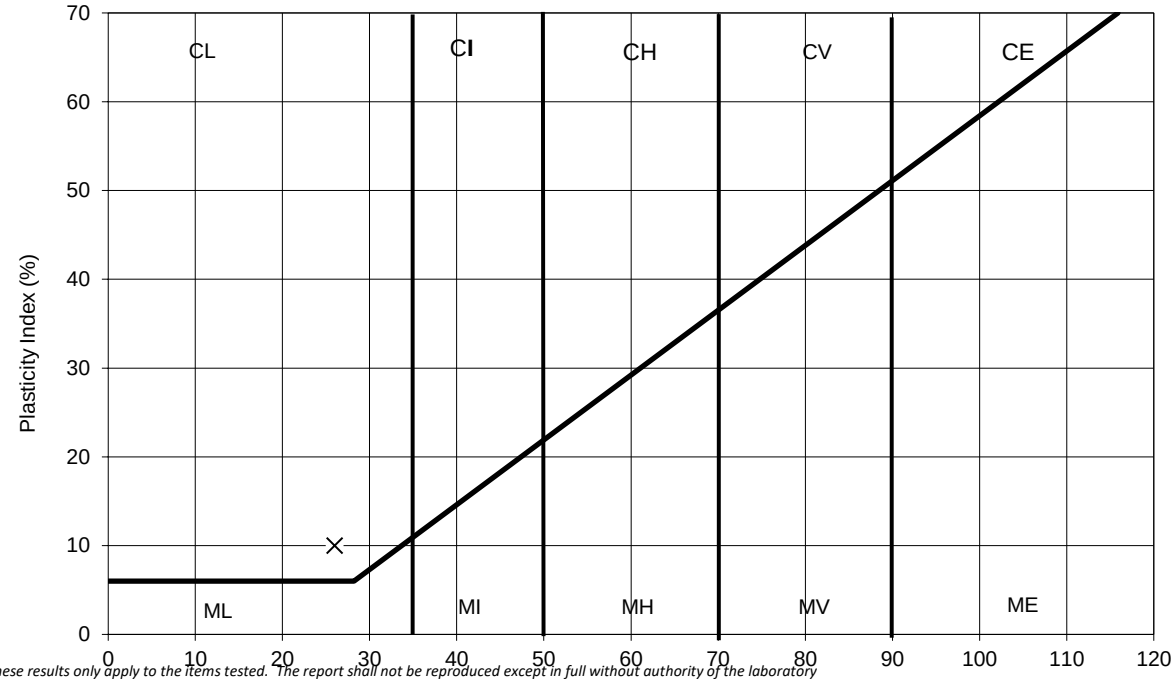
				Job No.	32282
				Borehole/Pit No.	BH-97881
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown and yellowish brown mottled slightly sandy very silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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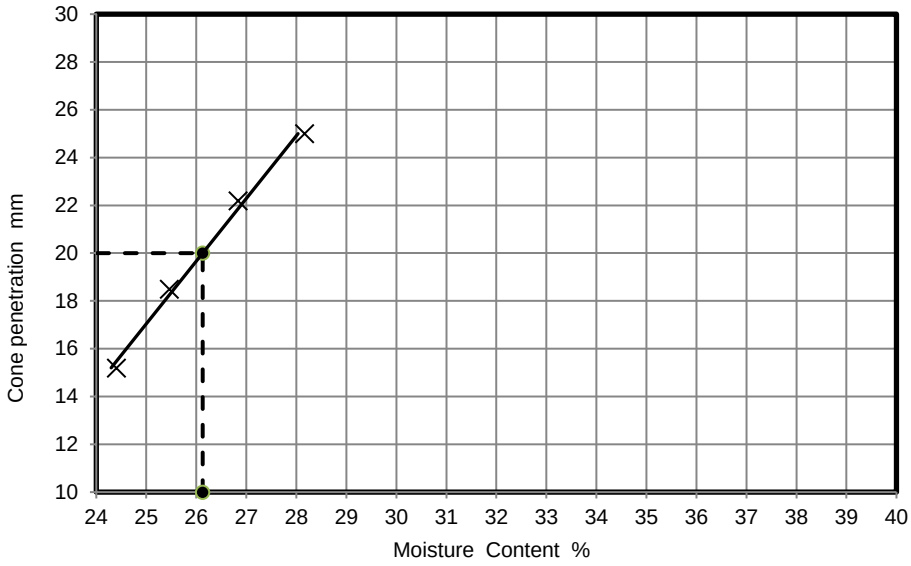
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

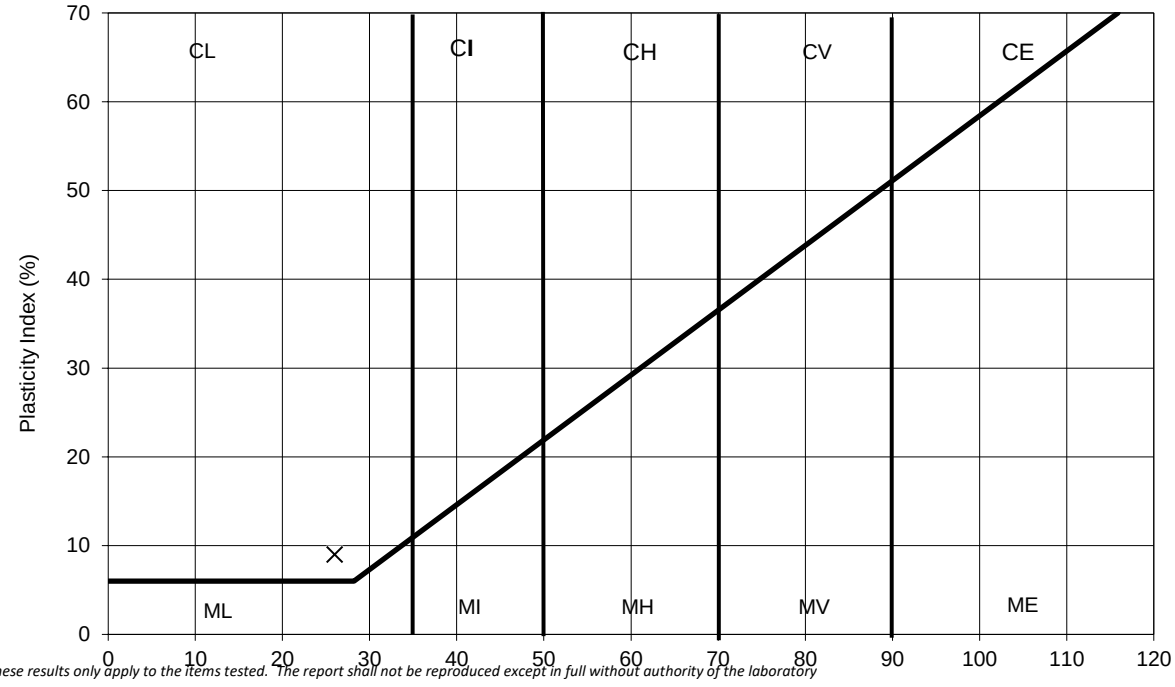
				Job No.	32282
				Borehole/Pit No.	BH-97881
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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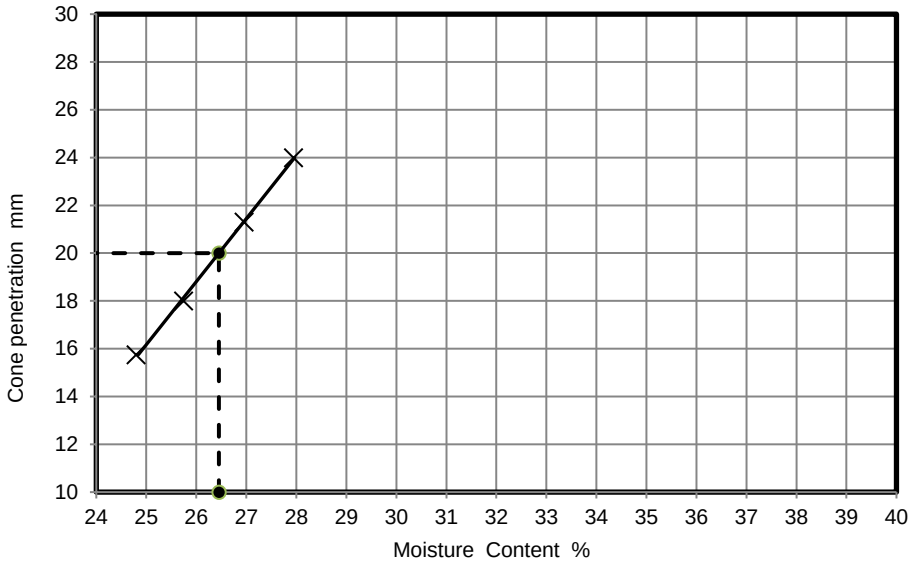
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

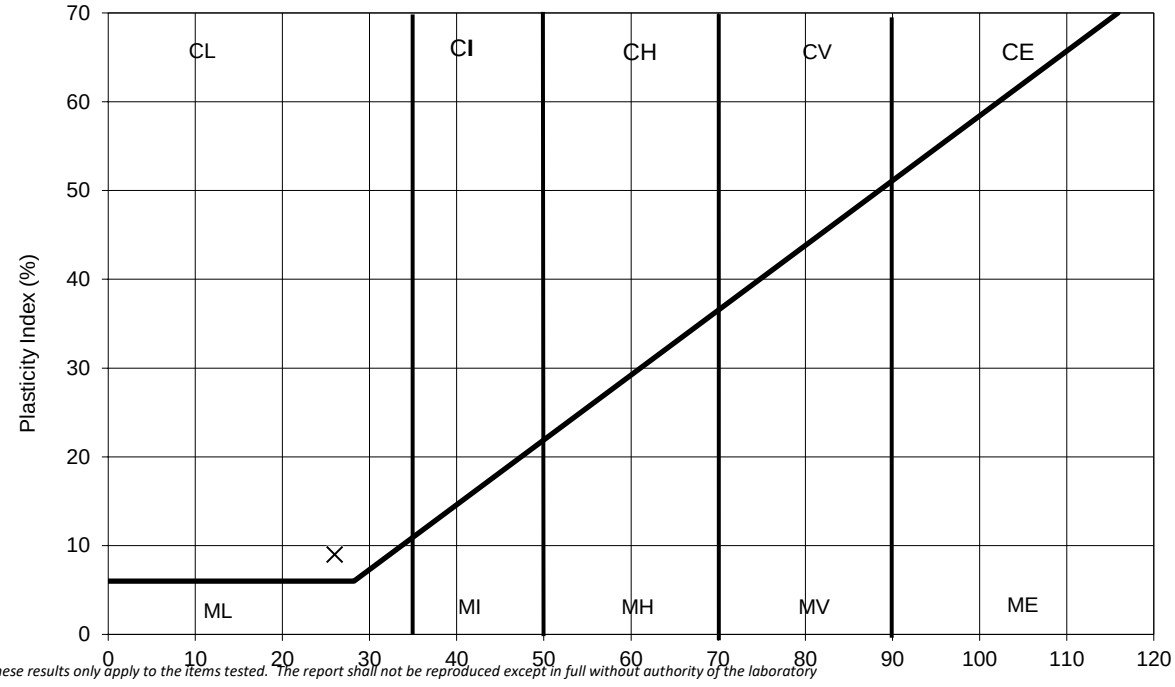
				Job No.	32282
				Borehole/Pit No.	BH-97914
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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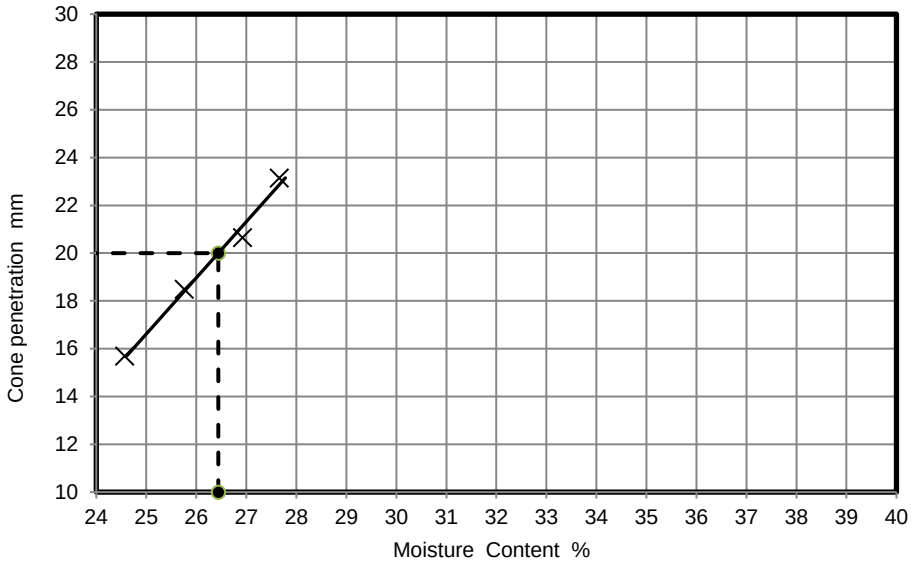
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

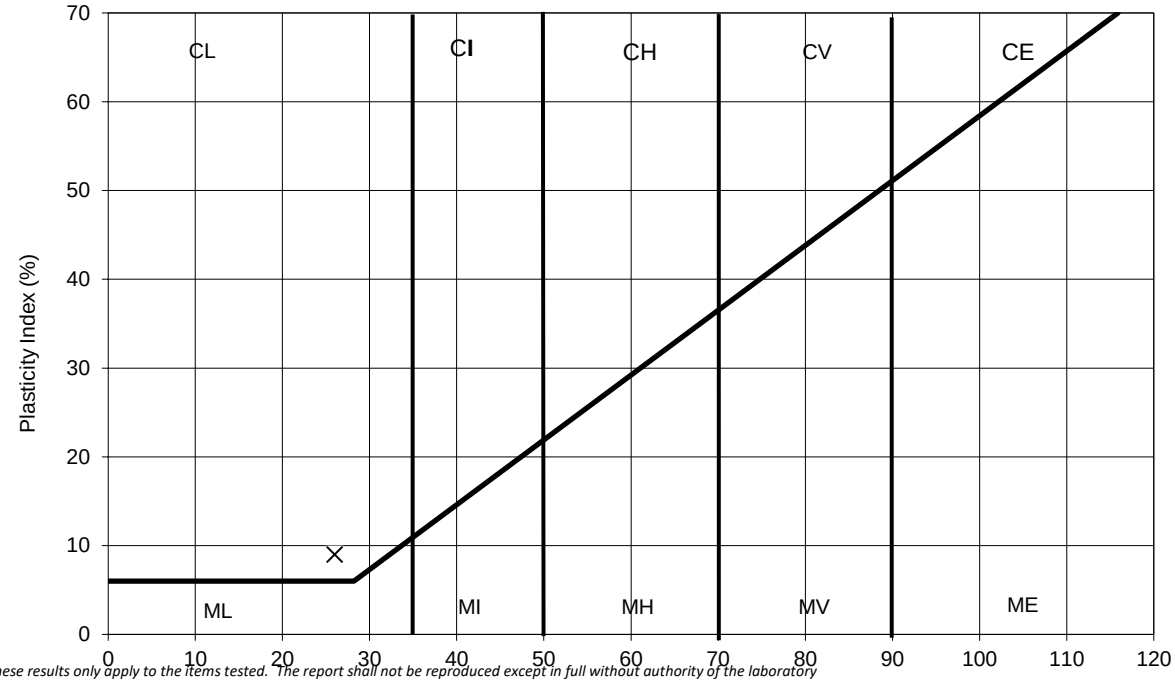
				Job No.	32282
				Borehole/Pit No.	BH-97914
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022



NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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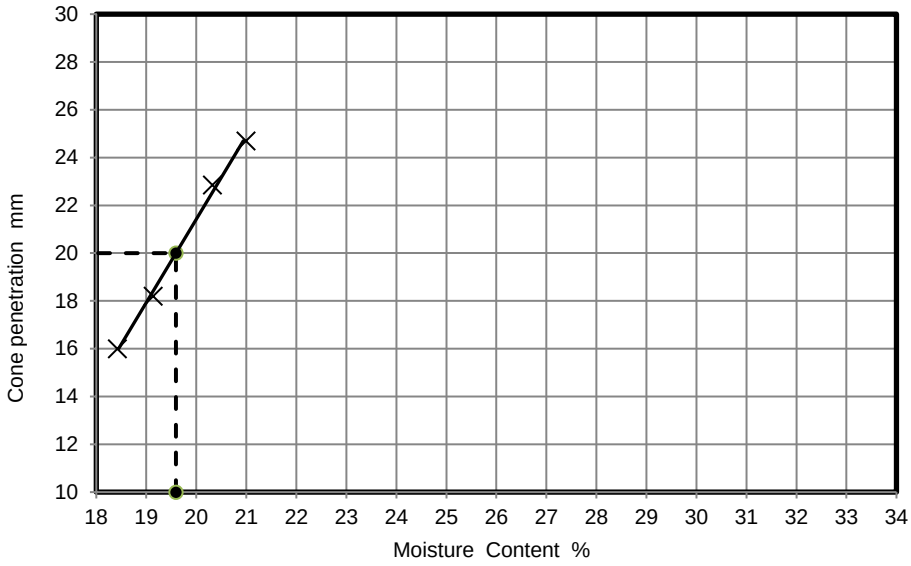
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	BH-98002
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	07/12/2022

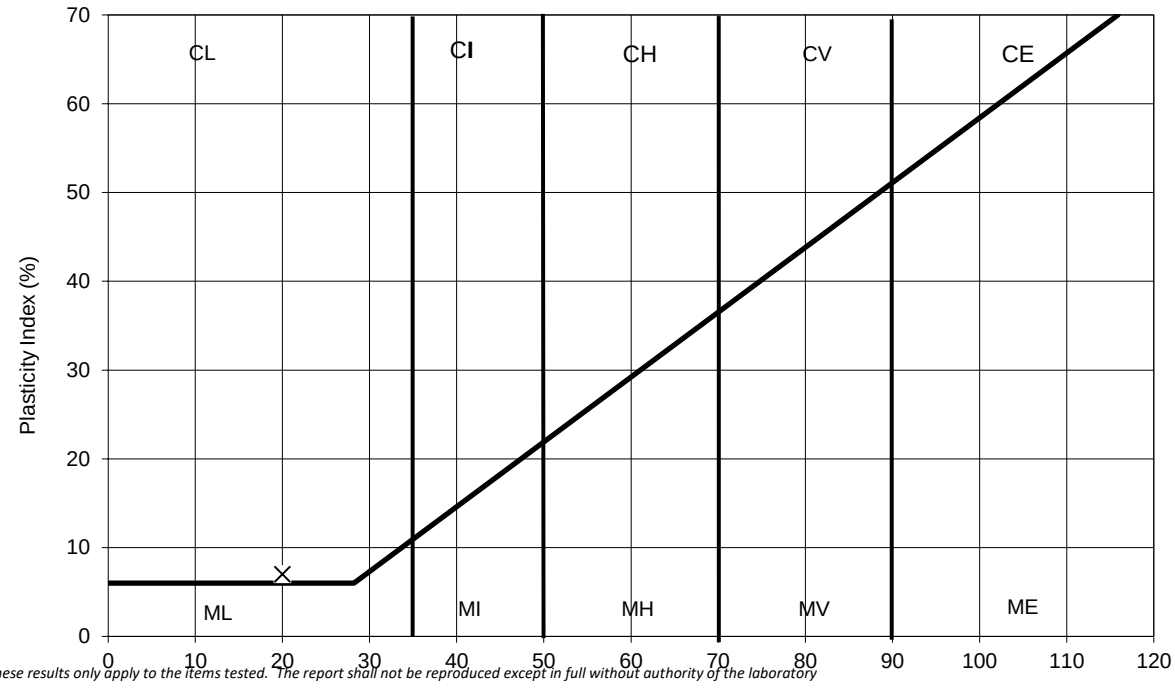


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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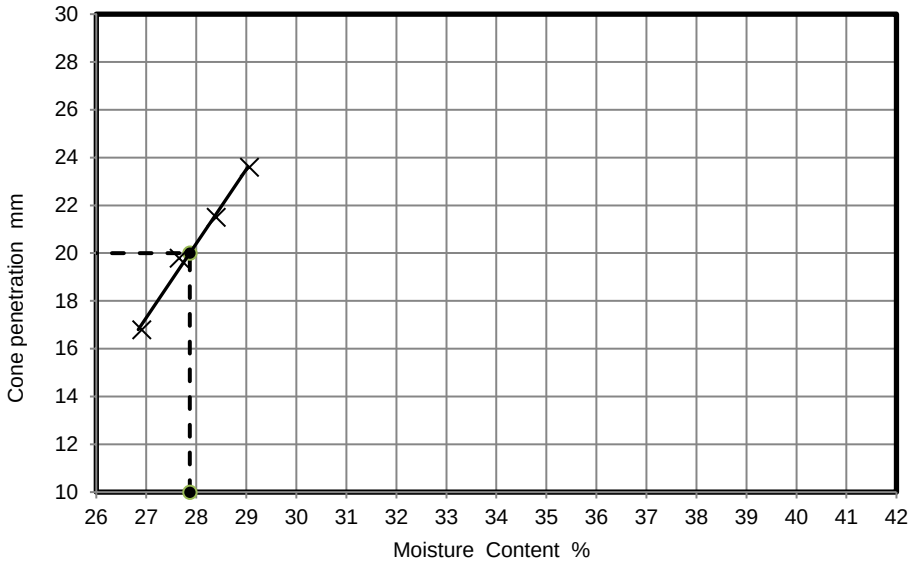
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey and dark grey slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

Job No. 32282

Borehole/Pit No. BH-98314

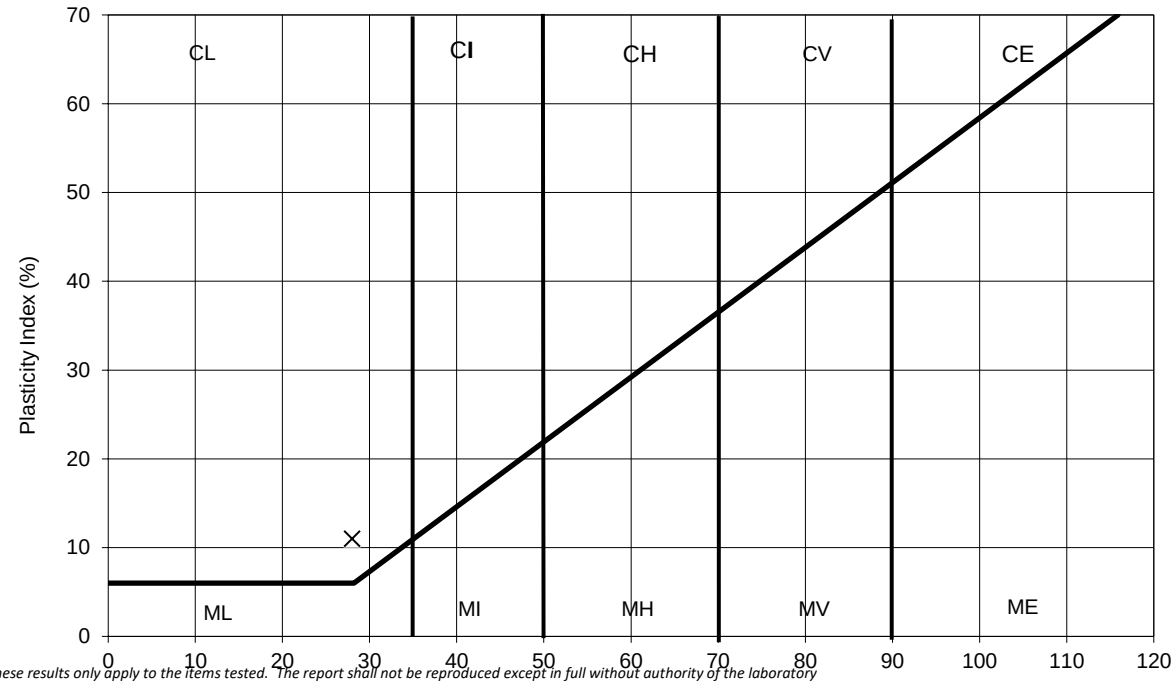


NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

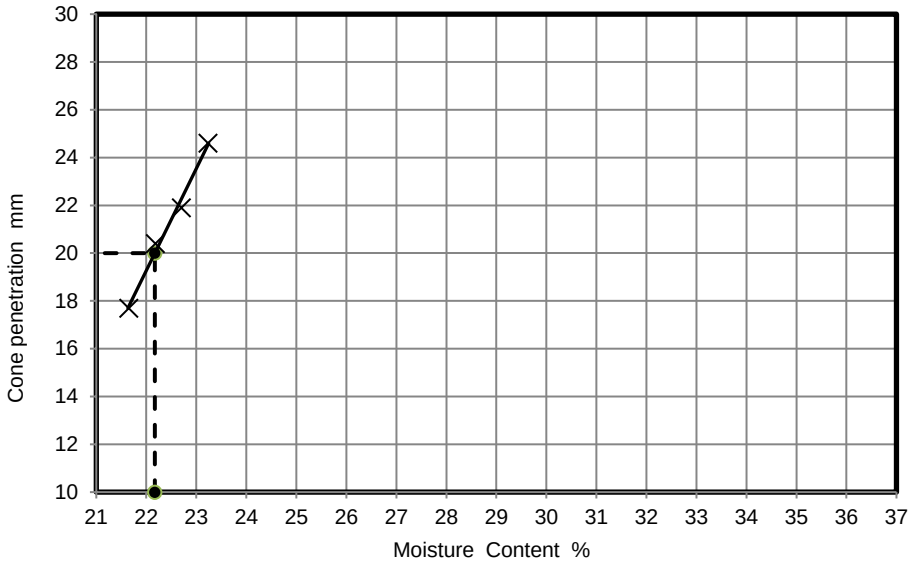
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-98314
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown and dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

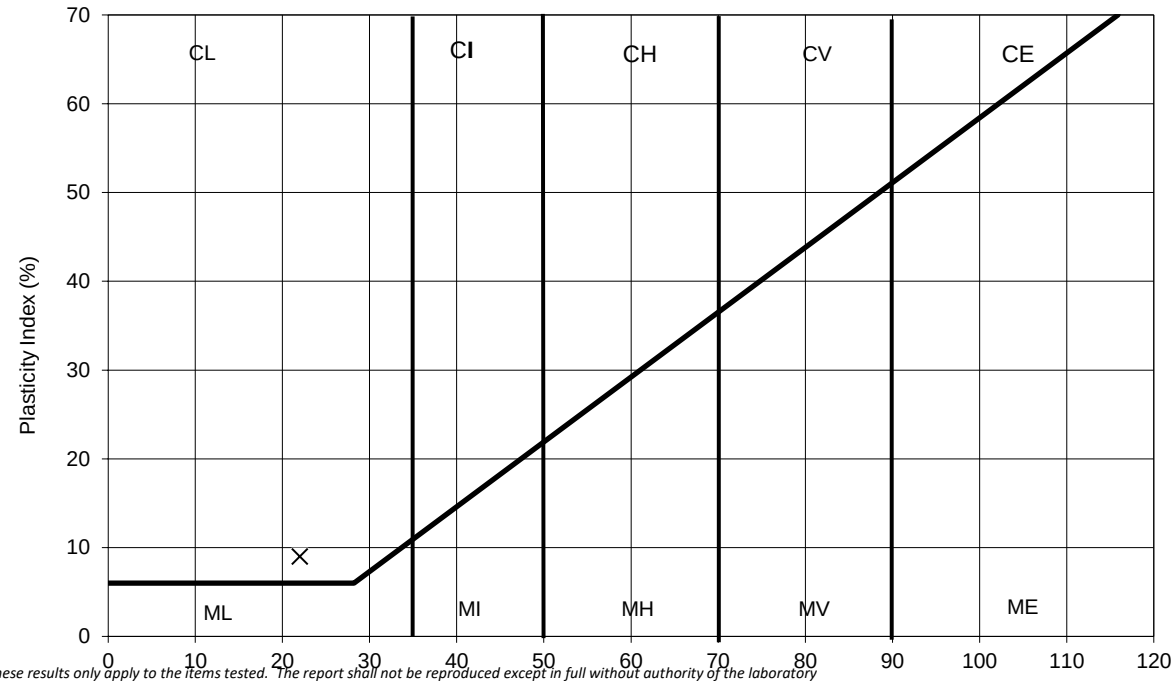


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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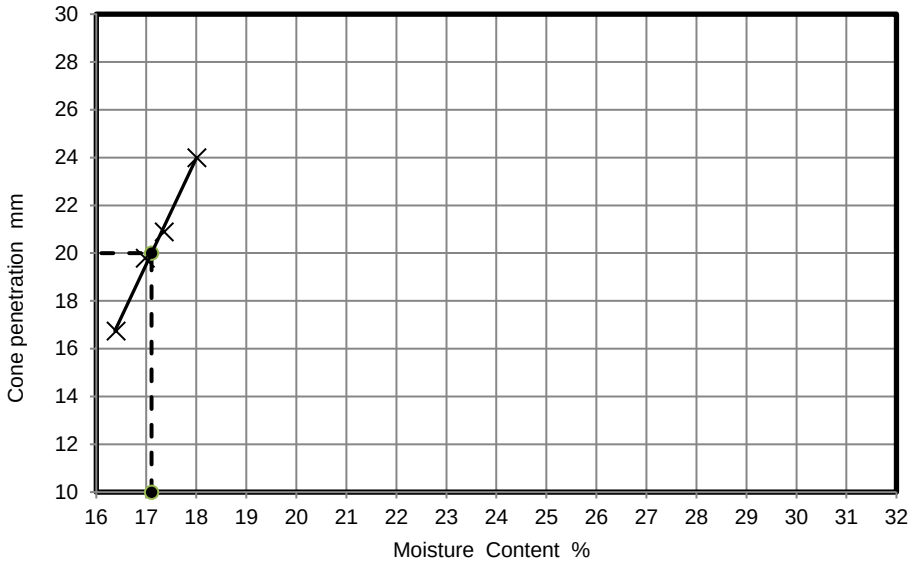
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/11/2022

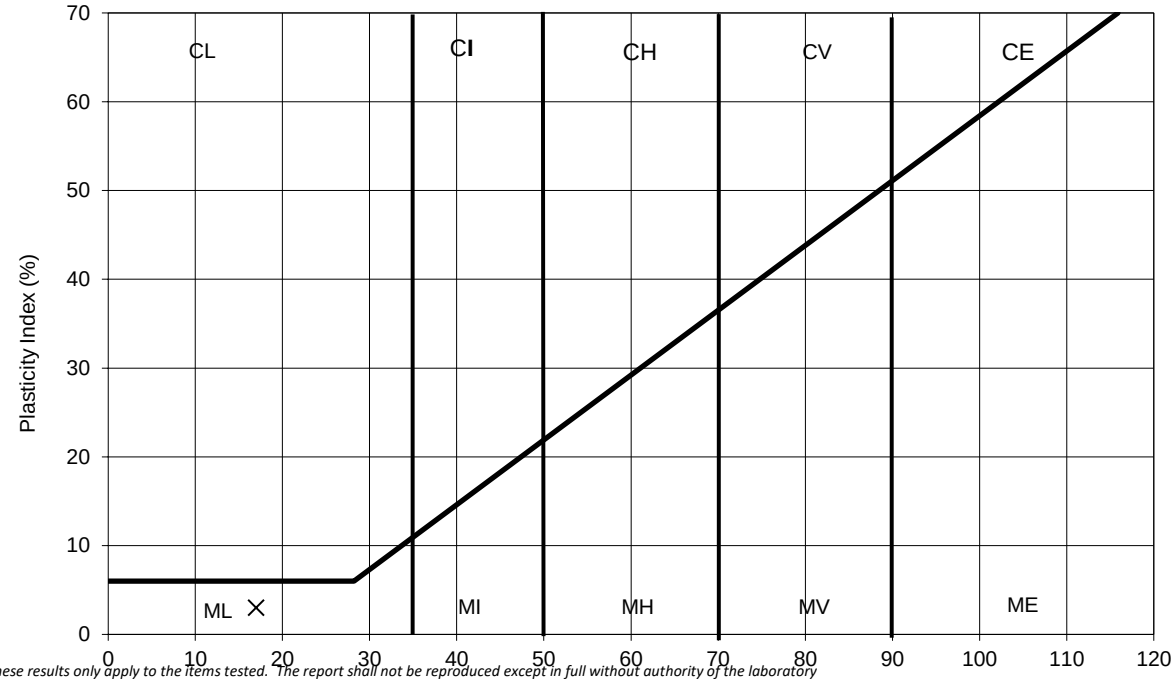


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**44**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**3**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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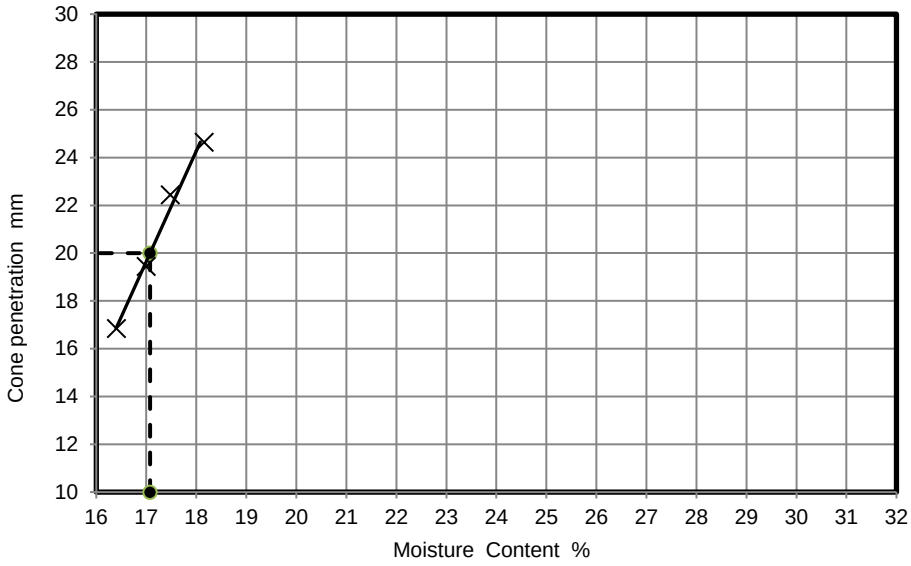
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark grey and brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

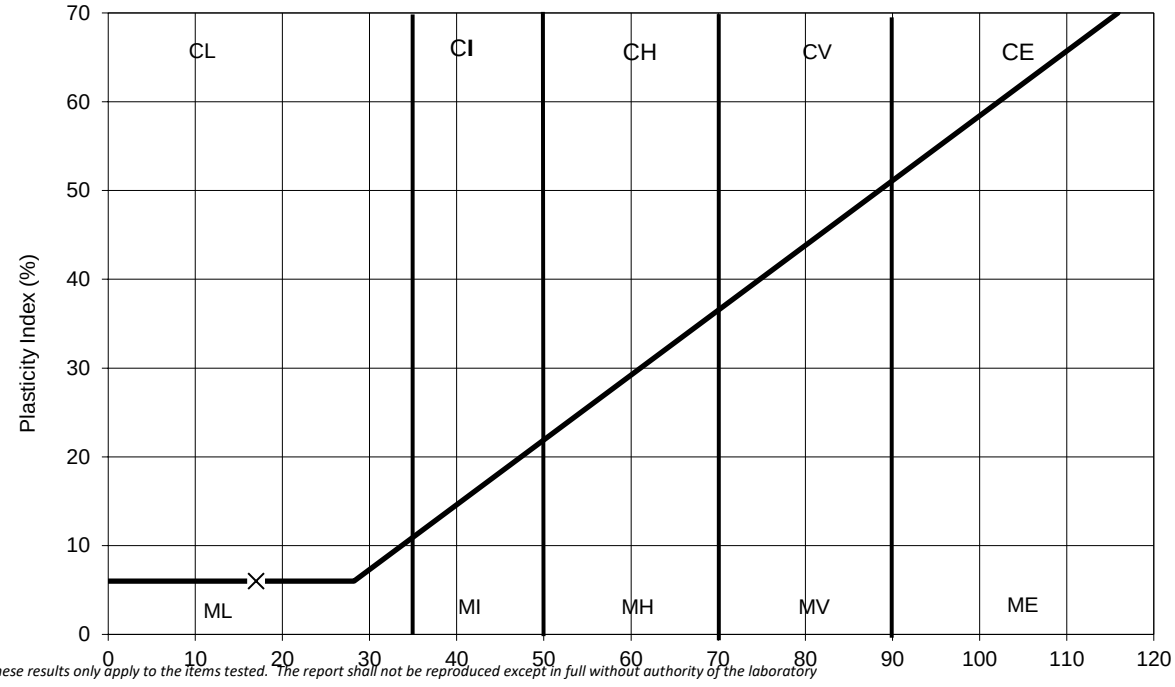


NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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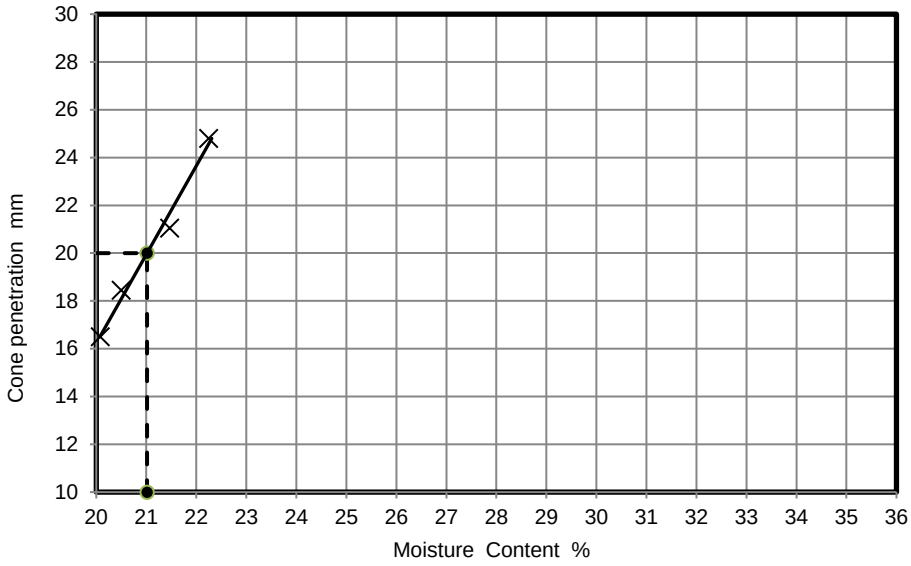
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99204
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

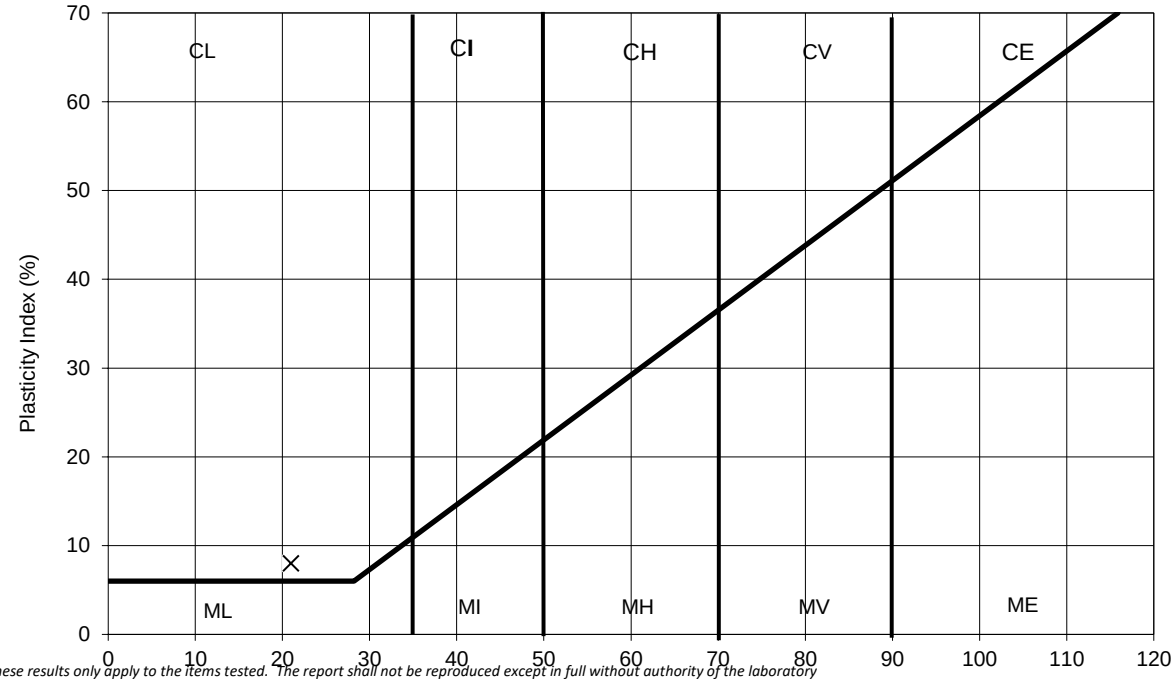


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**42**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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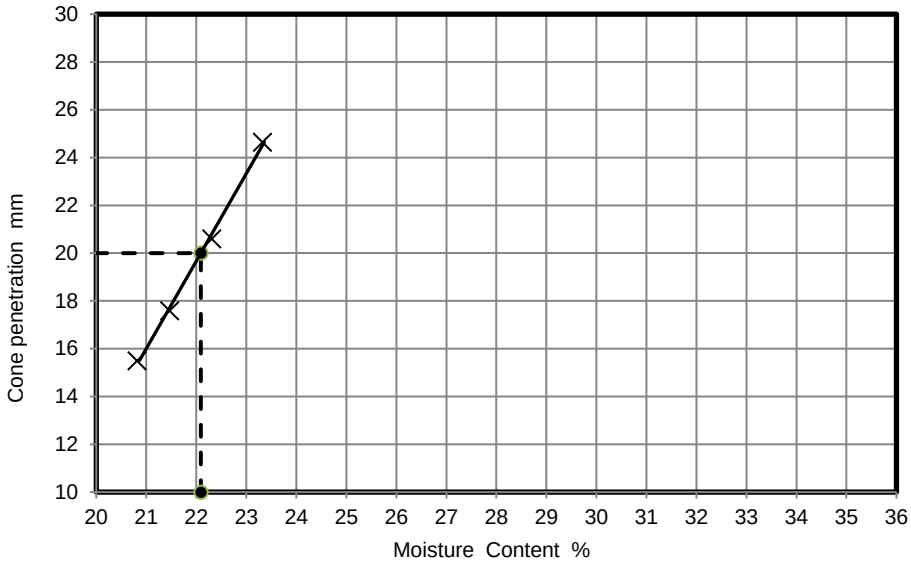
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99204
Site Name	WSP Eastern & Midlands Region			Sample No.	20
Project No.	2021OY102	Client	Irish Drilling	Depth Top	7.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

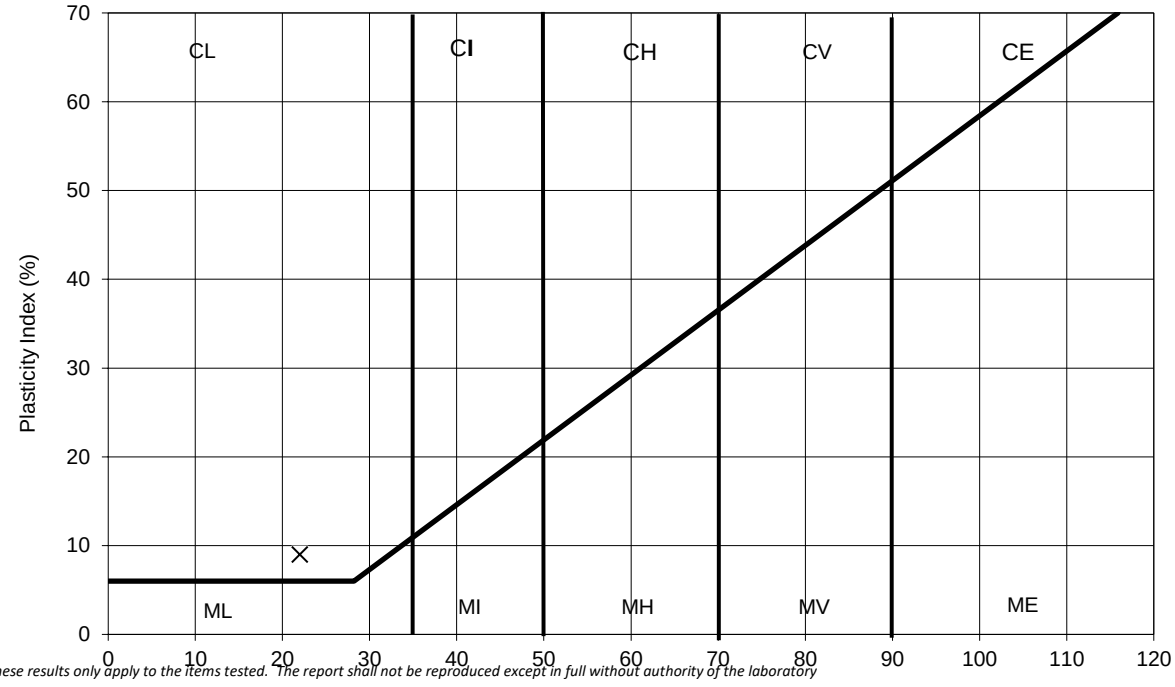


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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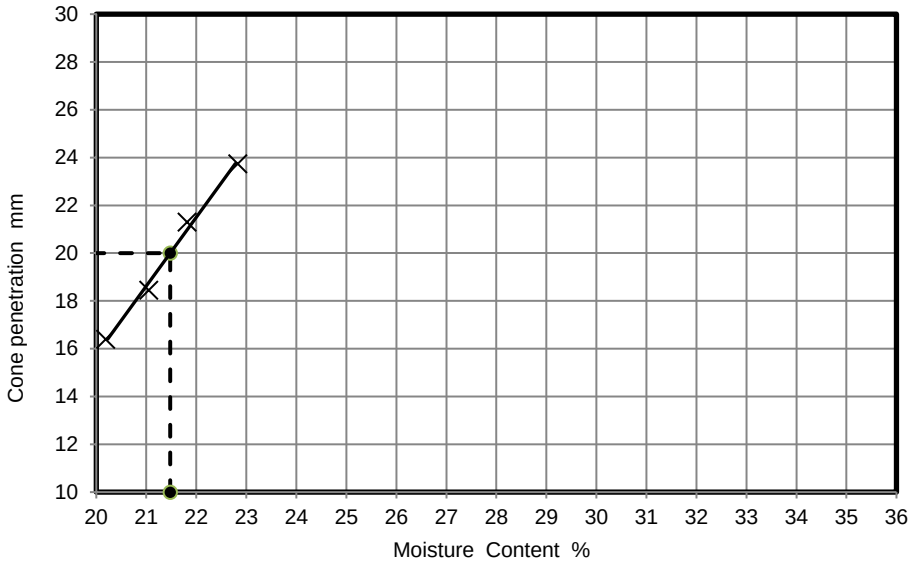
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99777
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

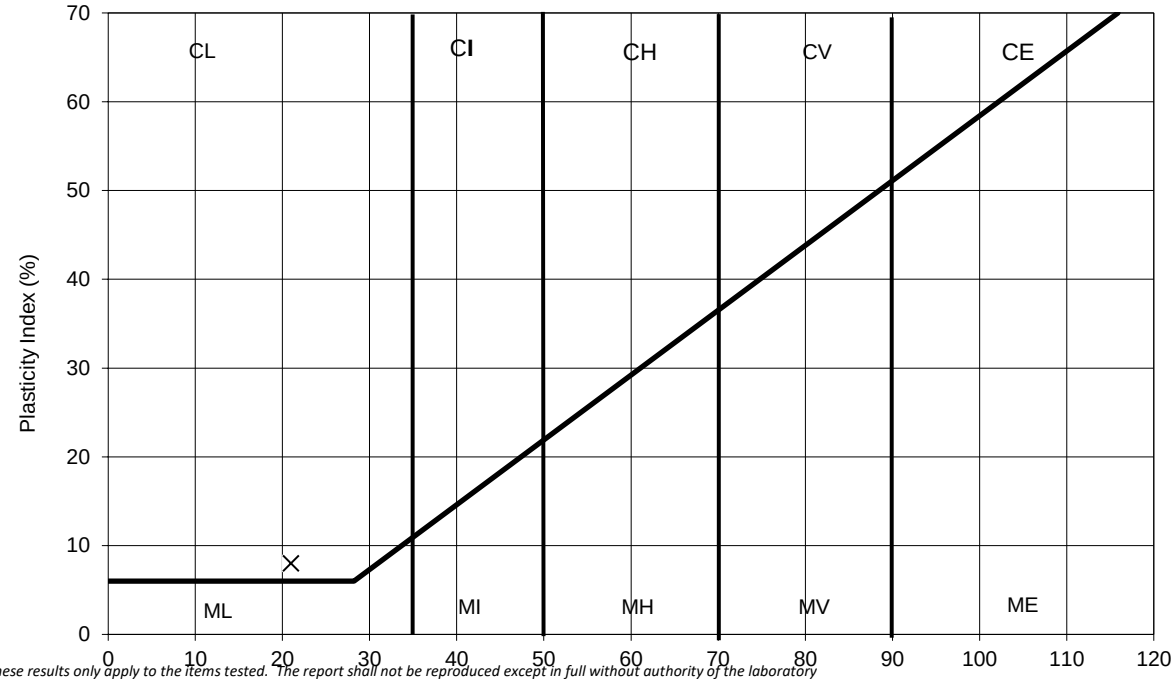


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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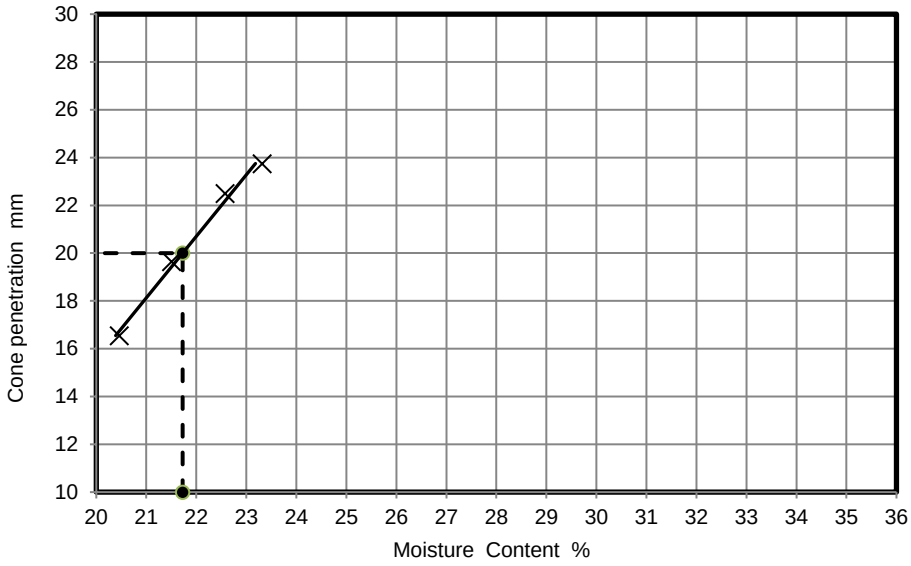
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	BH-99777
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark grey and greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	01/12/2022

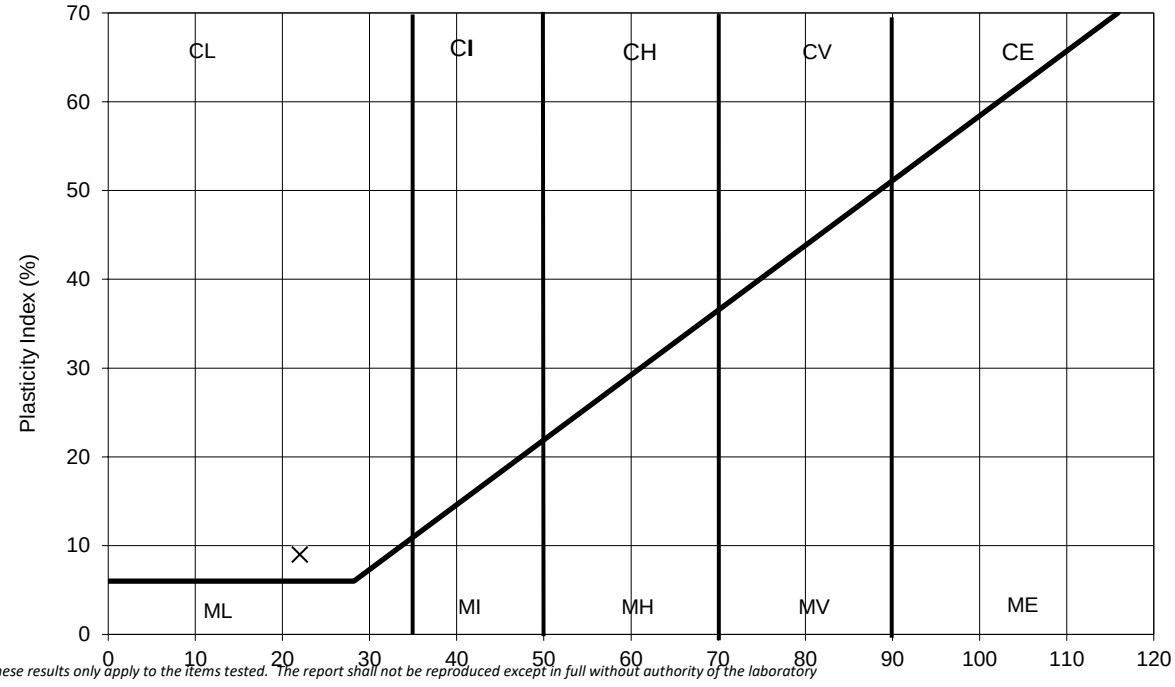


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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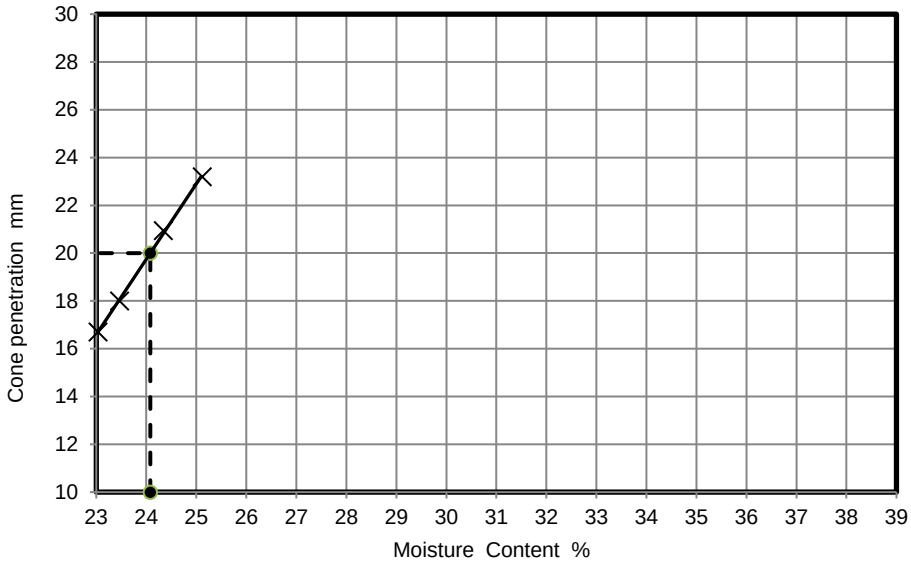
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

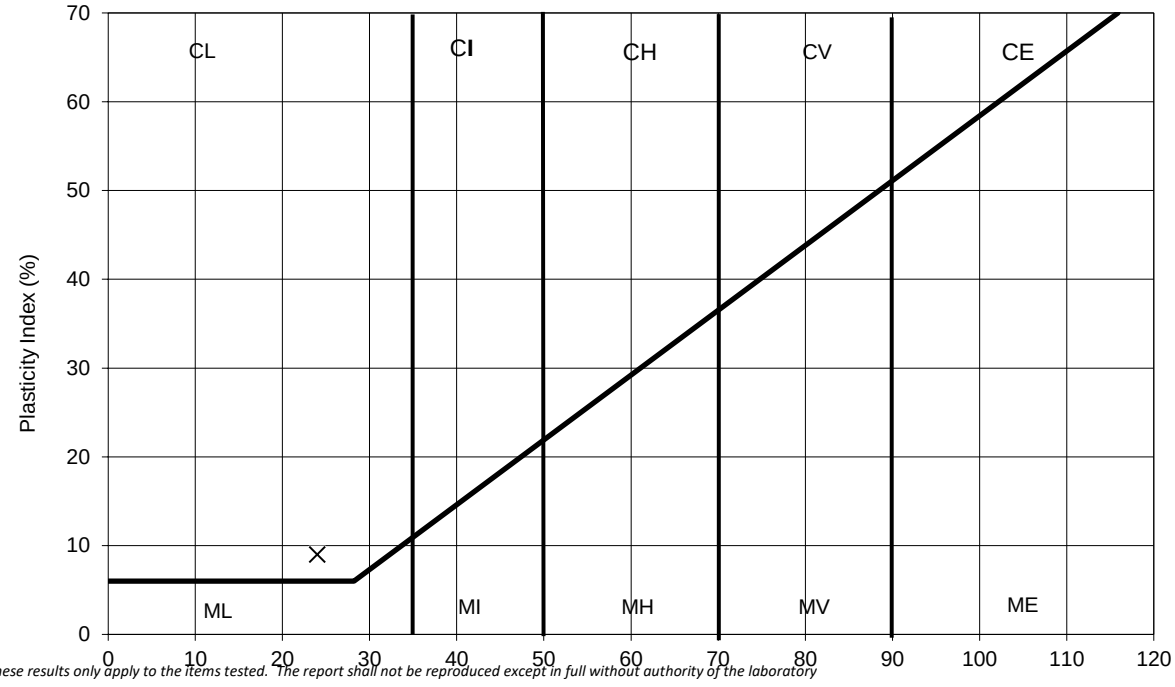
Job No.	32282				
Borehole/Pit No.	TP-100304				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey sandy silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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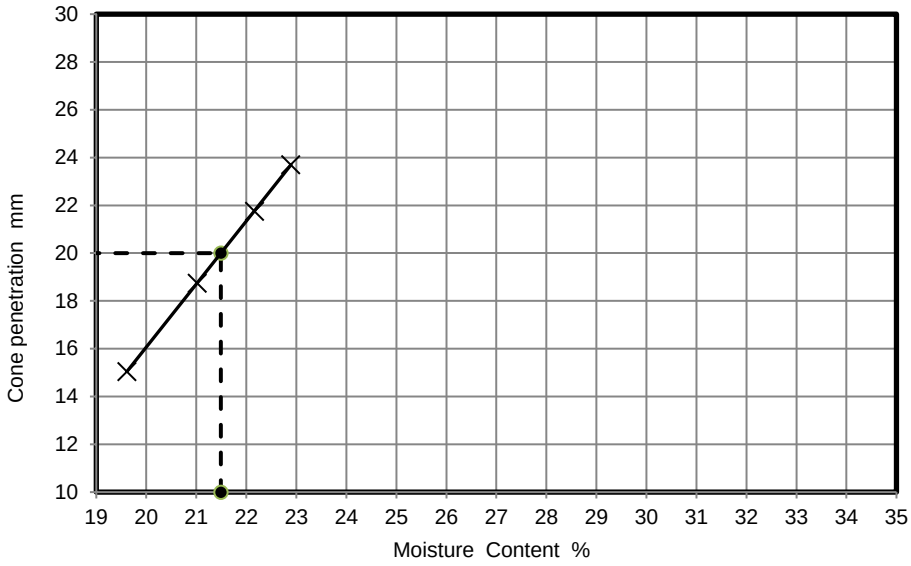
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

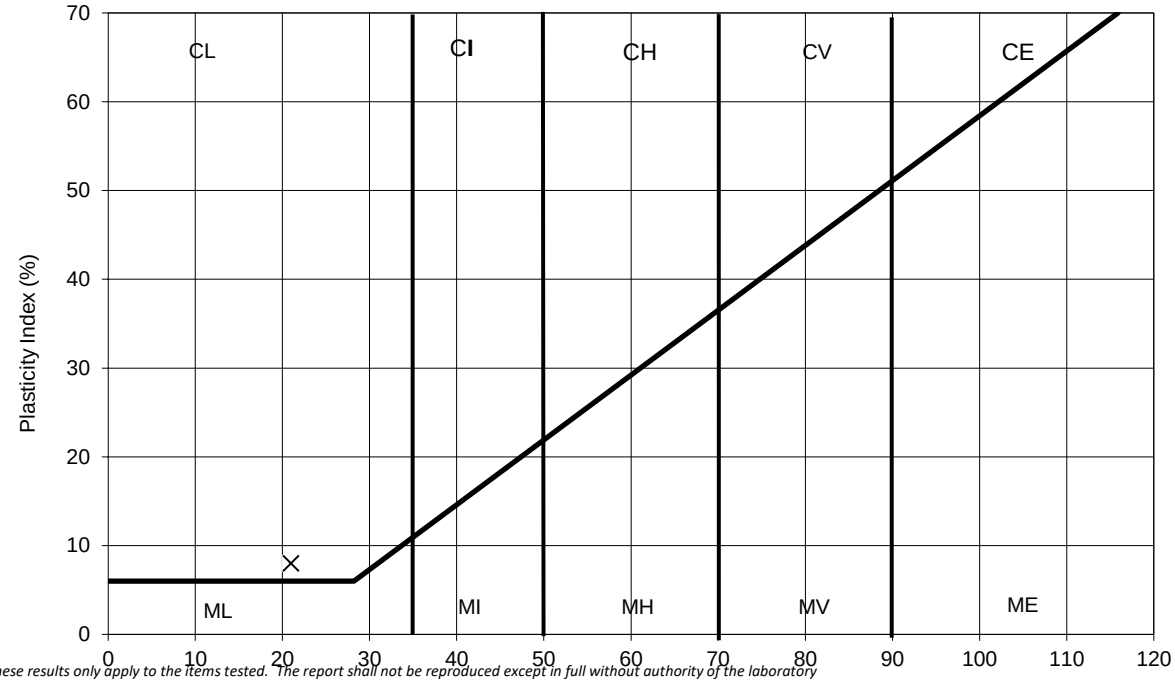
Job No.	32282				
Borehole/Pit No.	TP-100304				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Bluish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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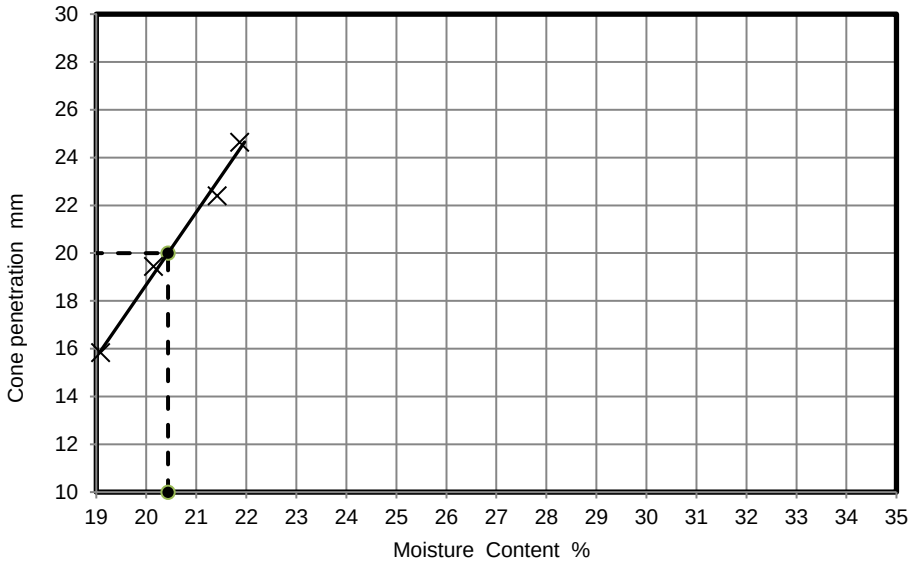
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

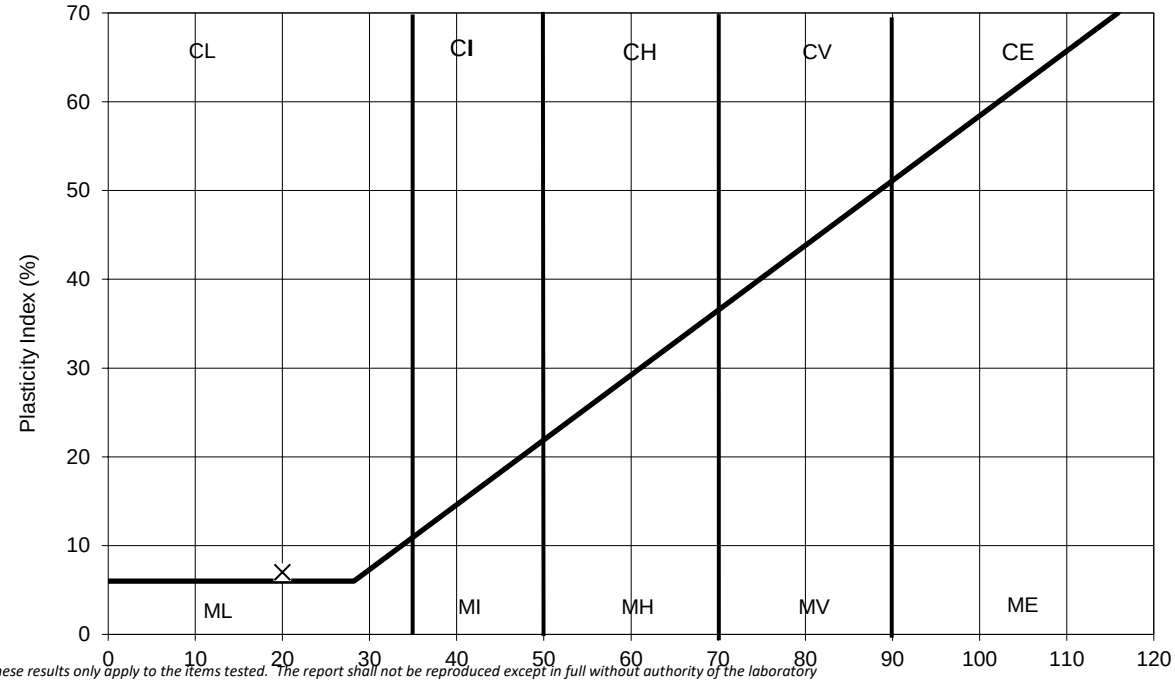
				Job No.	32282
				Borehole/Pit No.	TP-100304
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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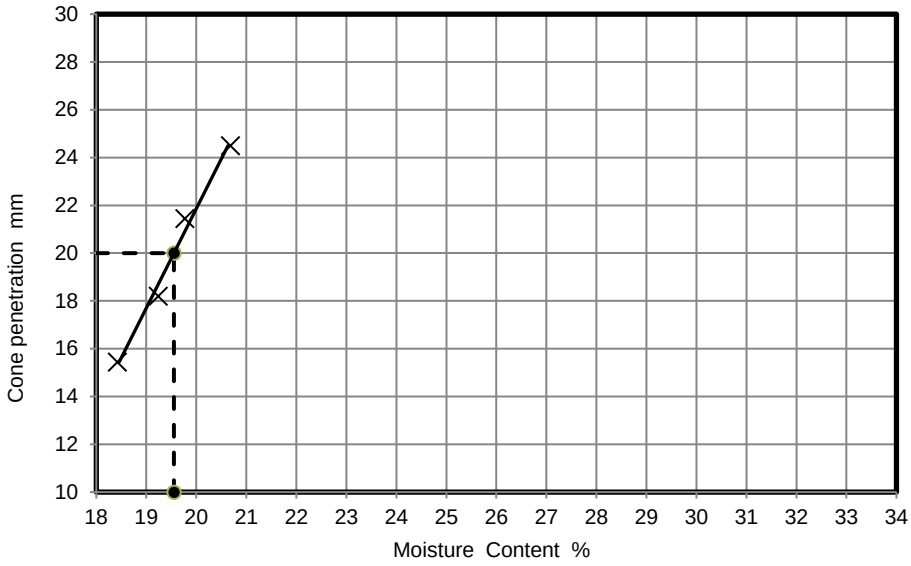
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-100407
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brownish grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

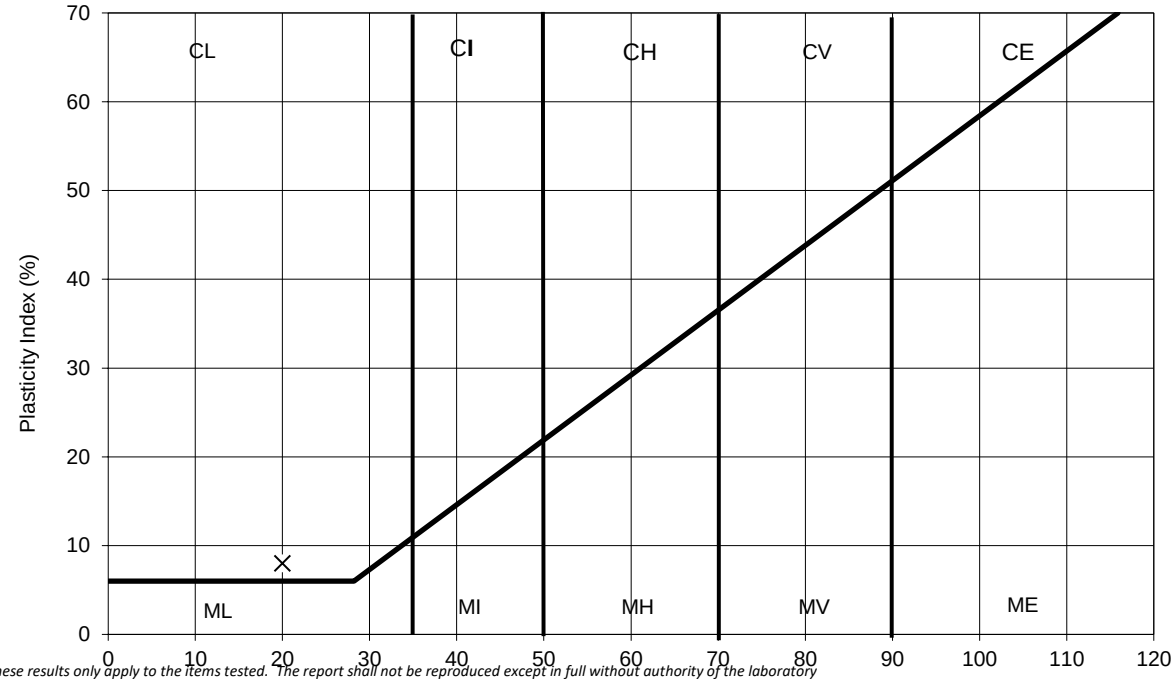


NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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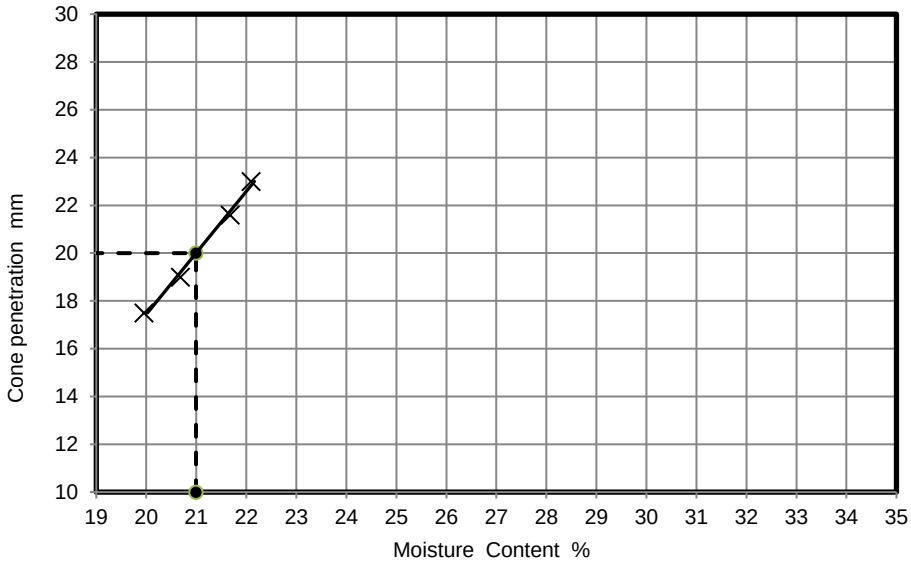
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-100407				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

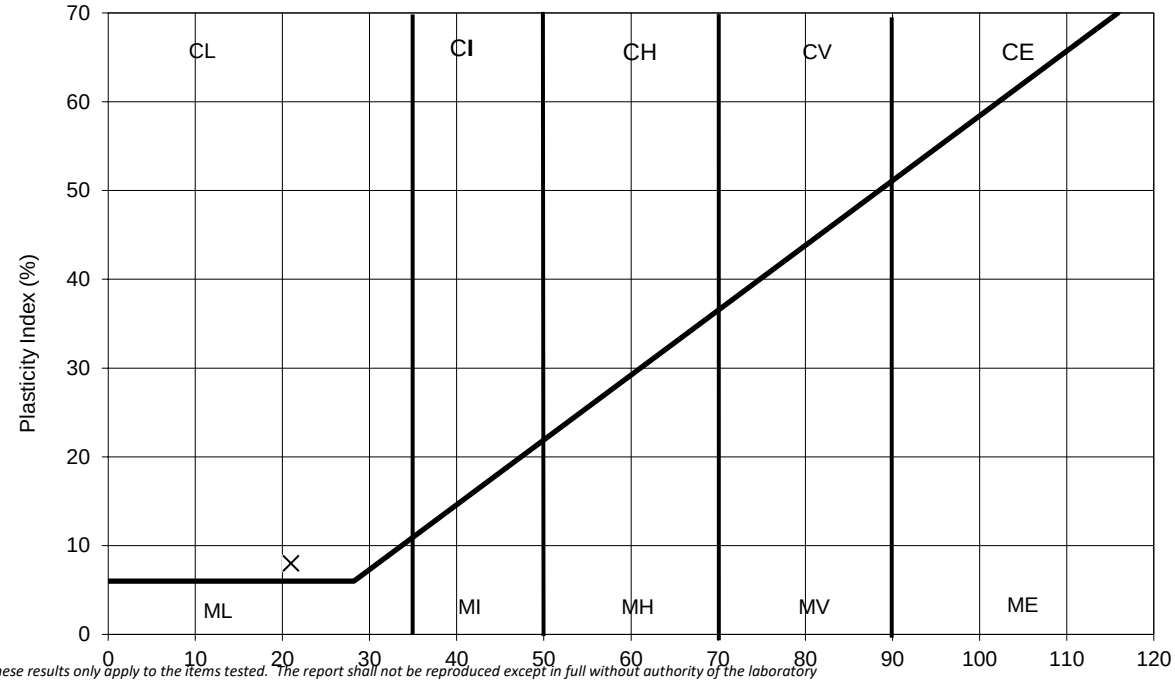


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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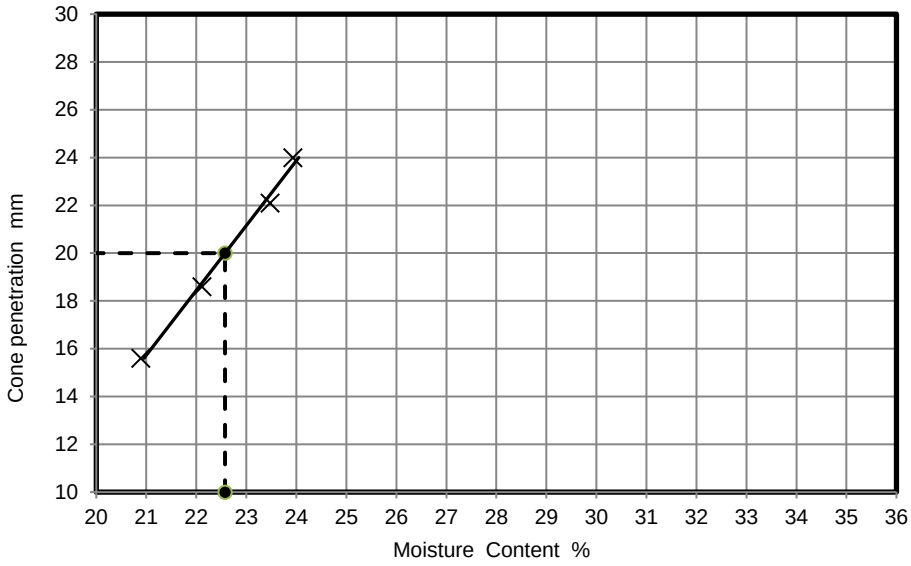
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

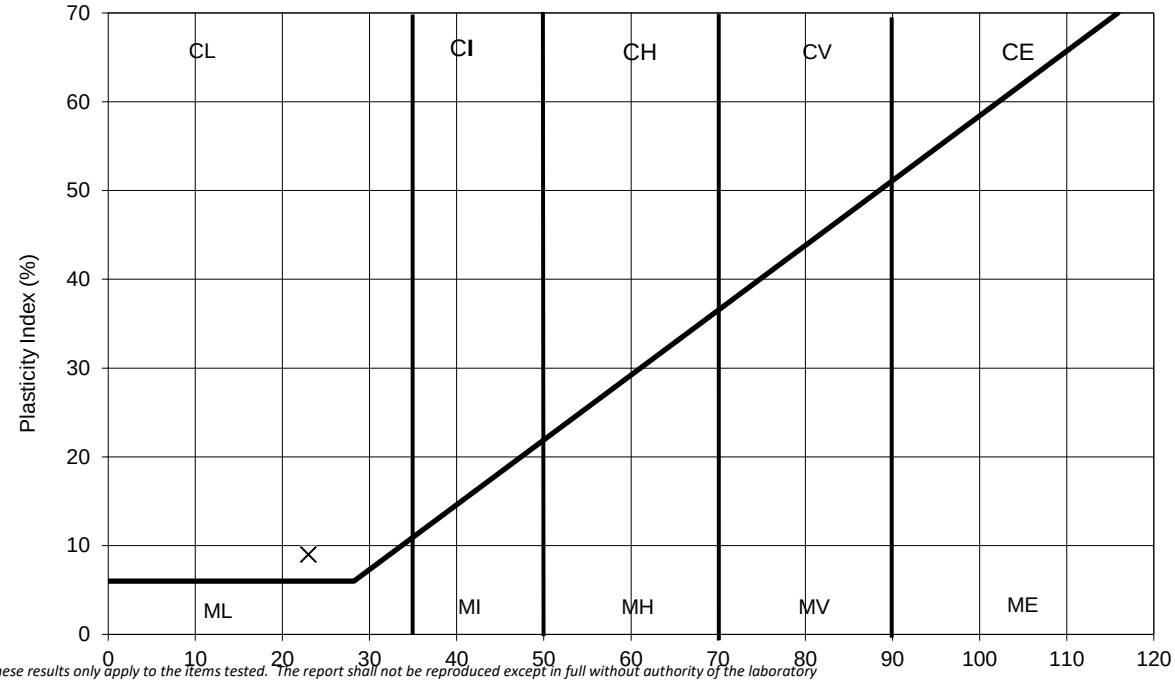
				Job No.	32282
				Borehole/Pit No.	TP-100449
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Light grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Date: 15/12/2022

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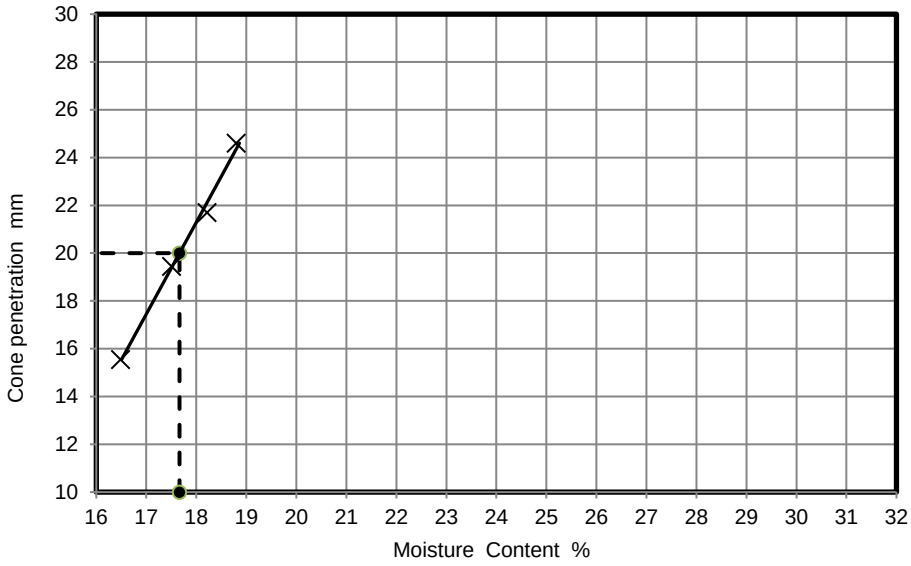
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

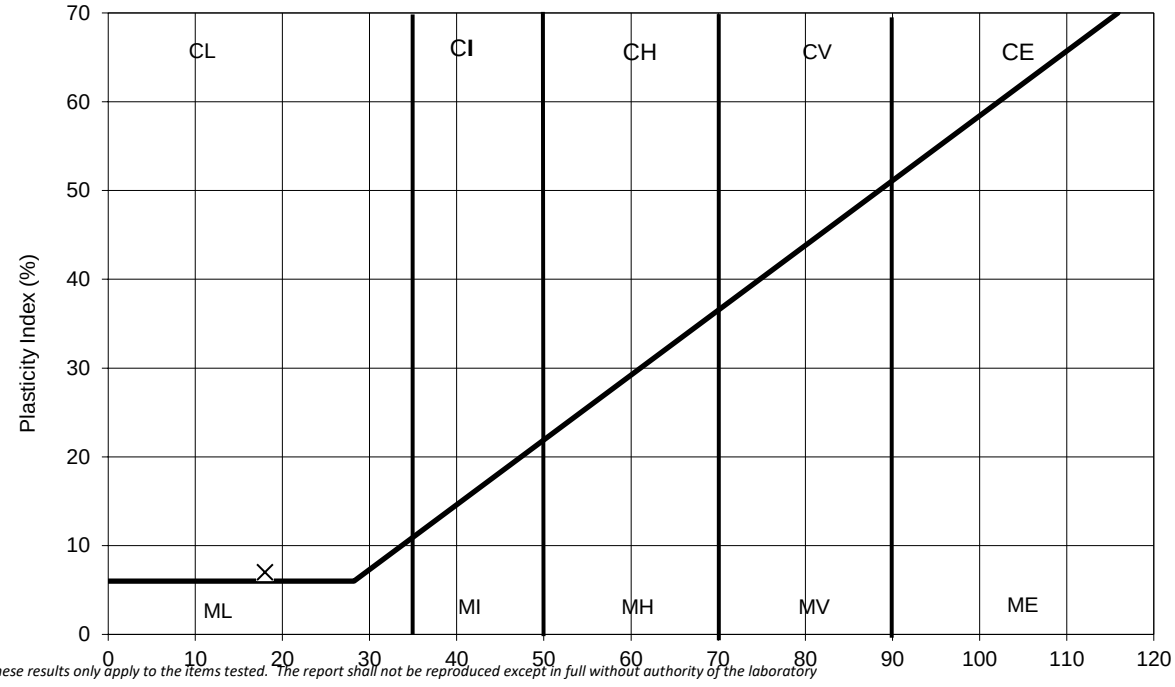
Job No.	32282				
Borehole/Pit No.	TP-100449				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Light brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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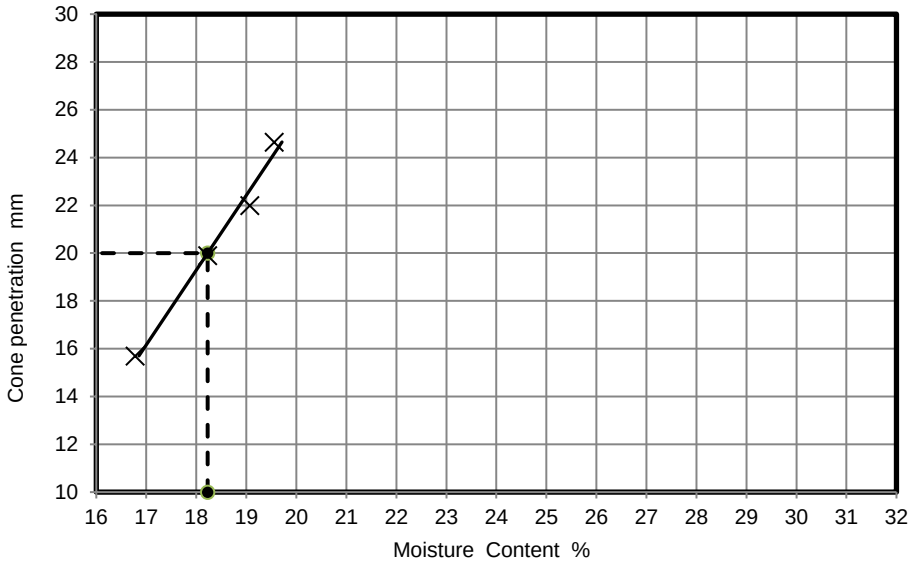
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

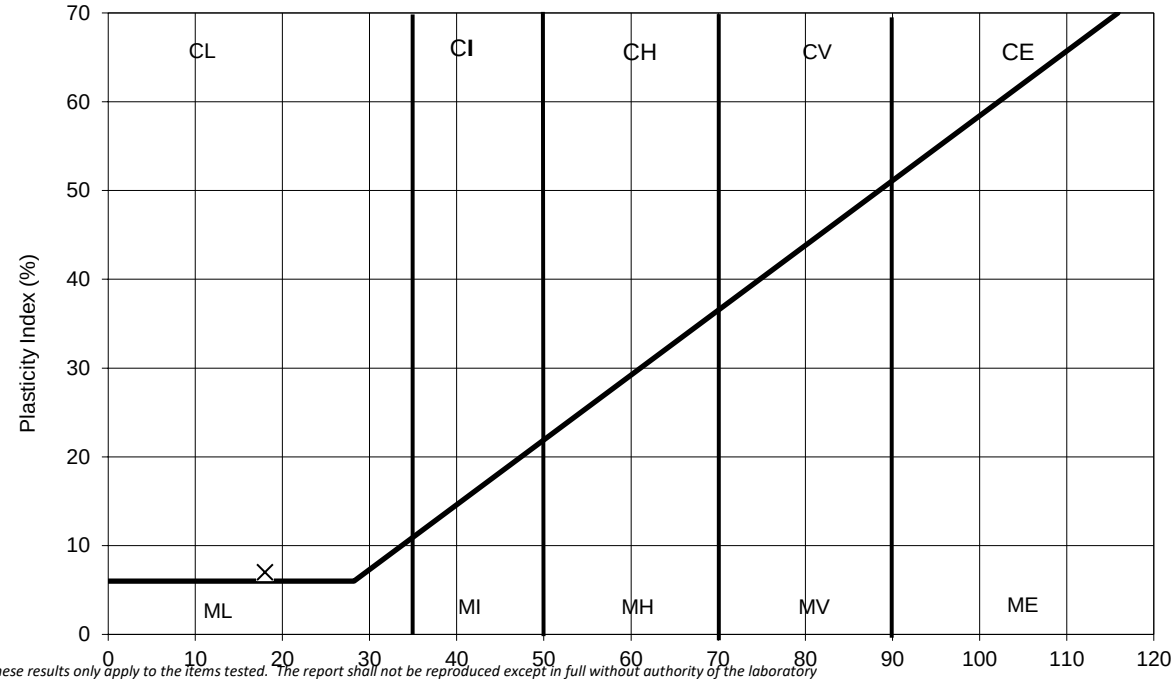
Borehole/Pit No. TP-100449



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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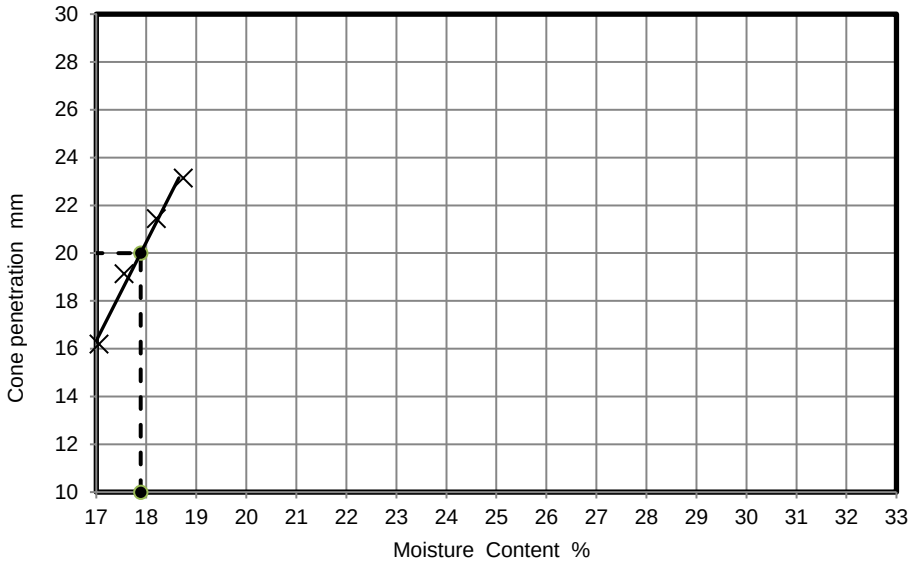
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

Job No. 32282

Borehole/Pit No. TP-100485

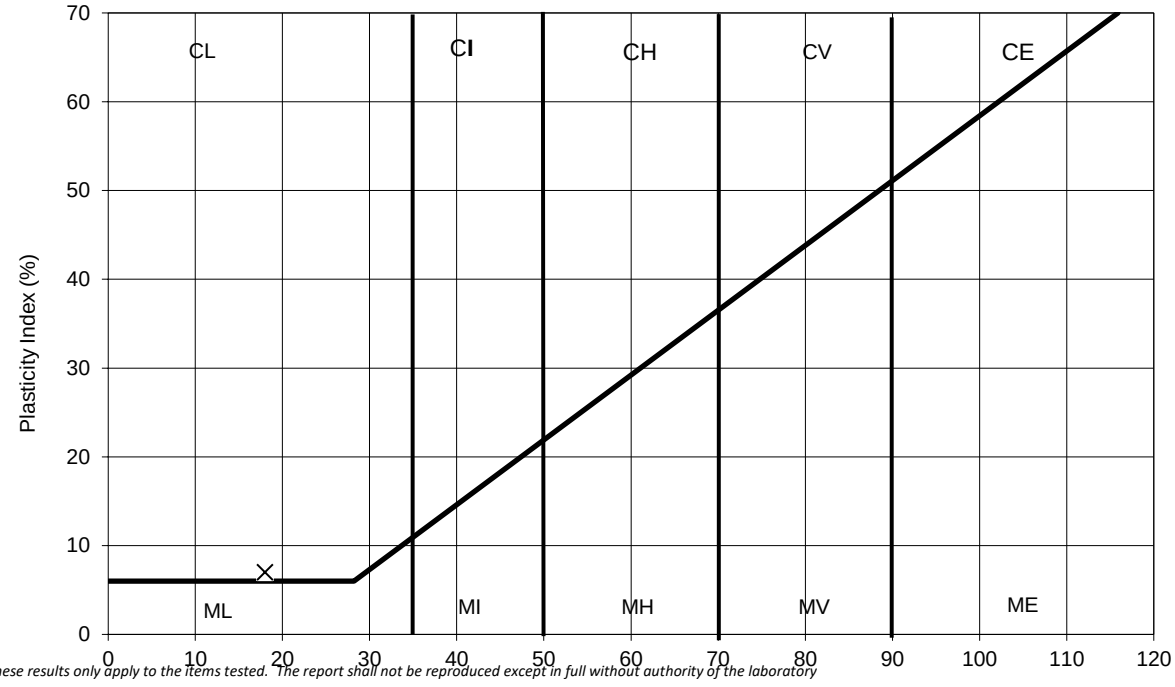


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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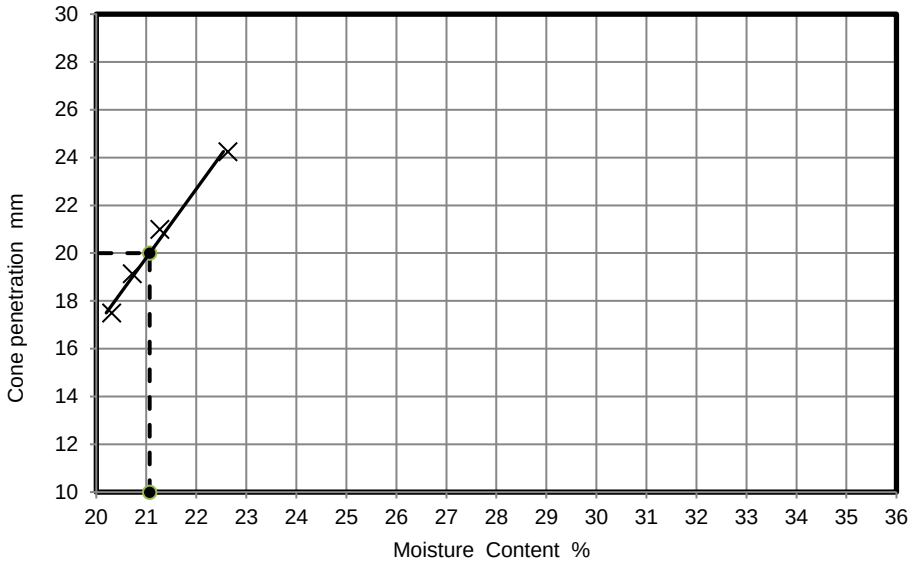
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-100485
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

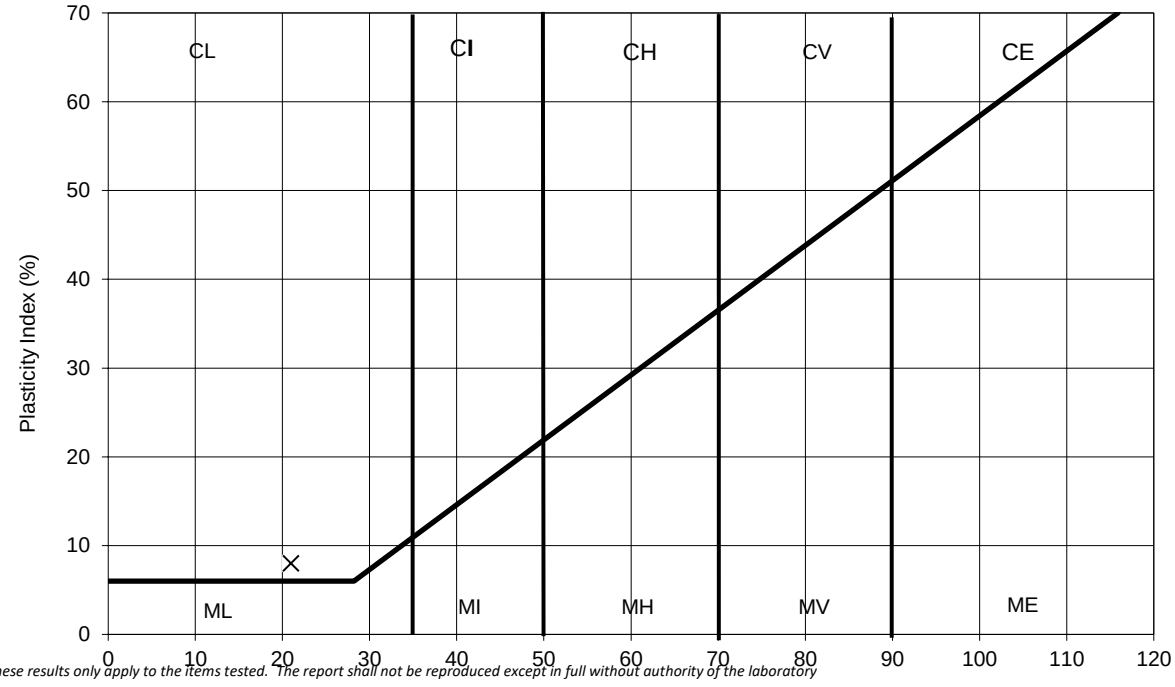


NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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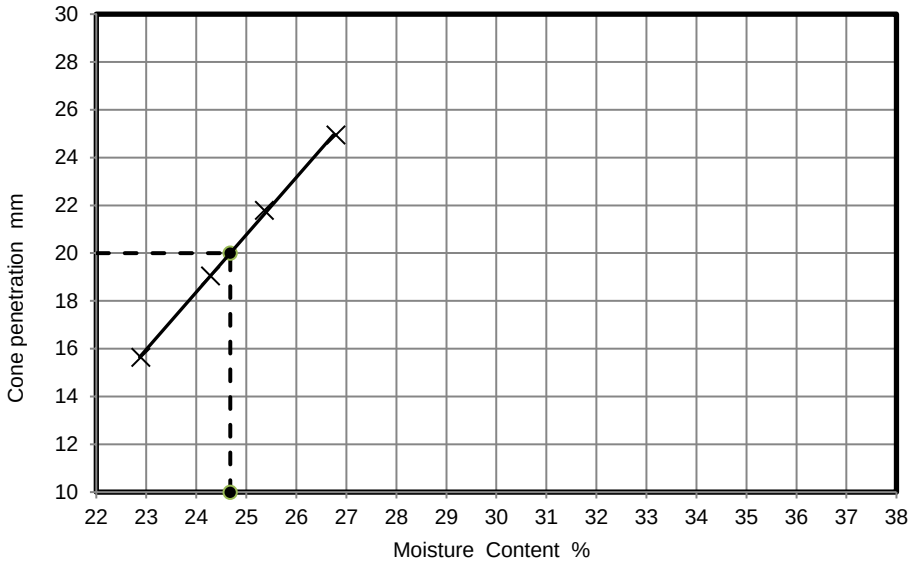
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly gravelly sandy silty CLAY with traces of roots (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

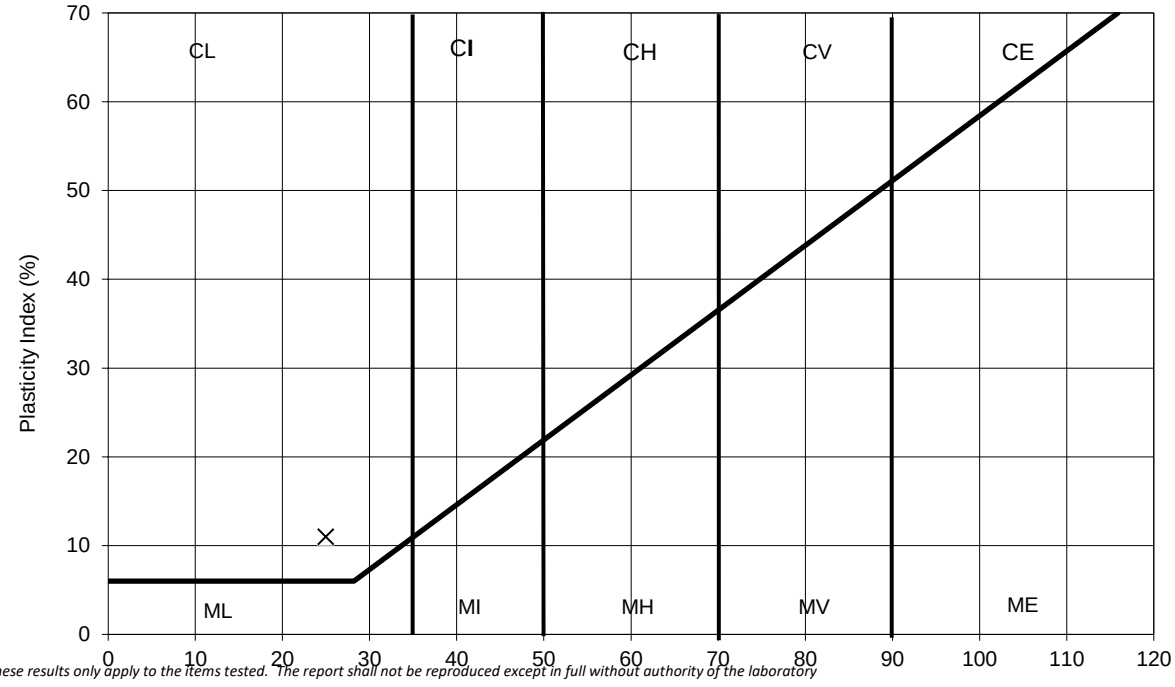
Borehole/Pit No. TP-100503



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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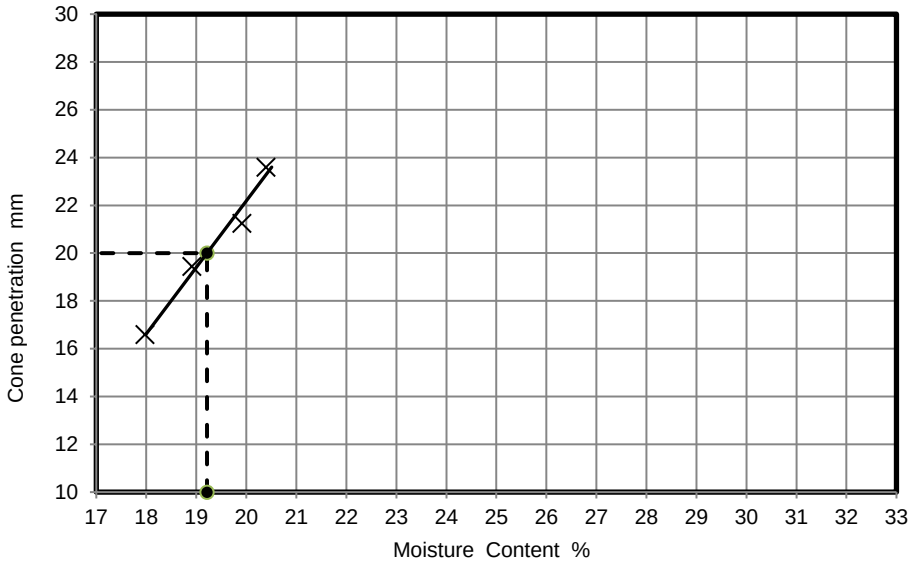
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-100503
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

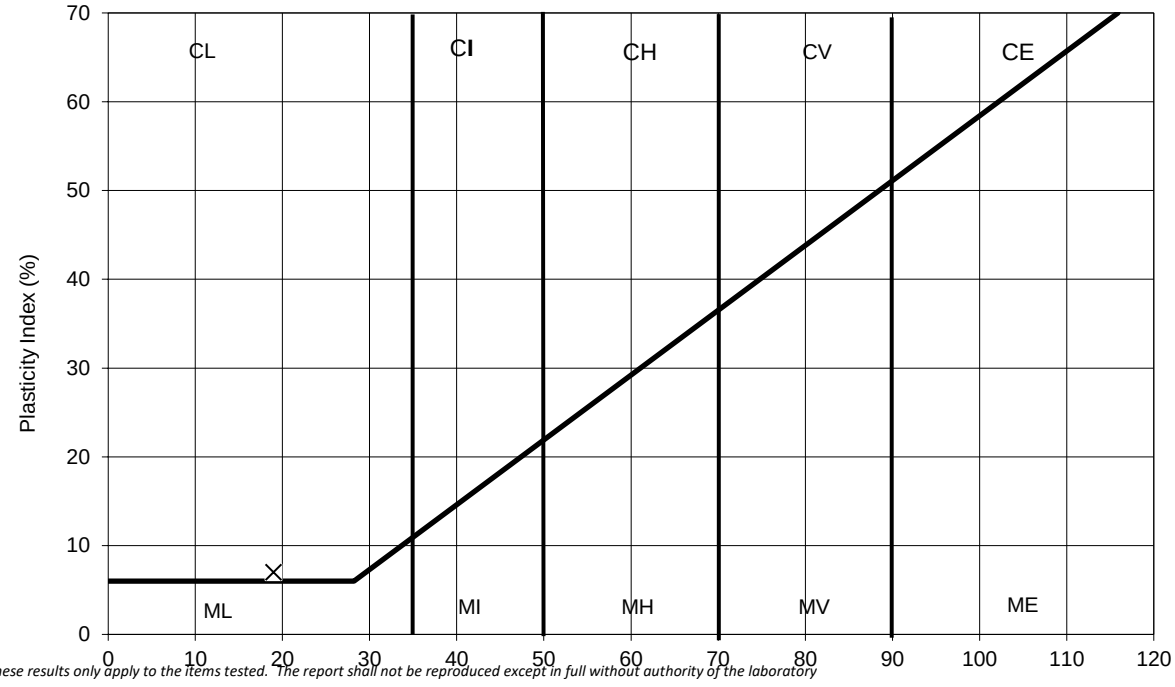


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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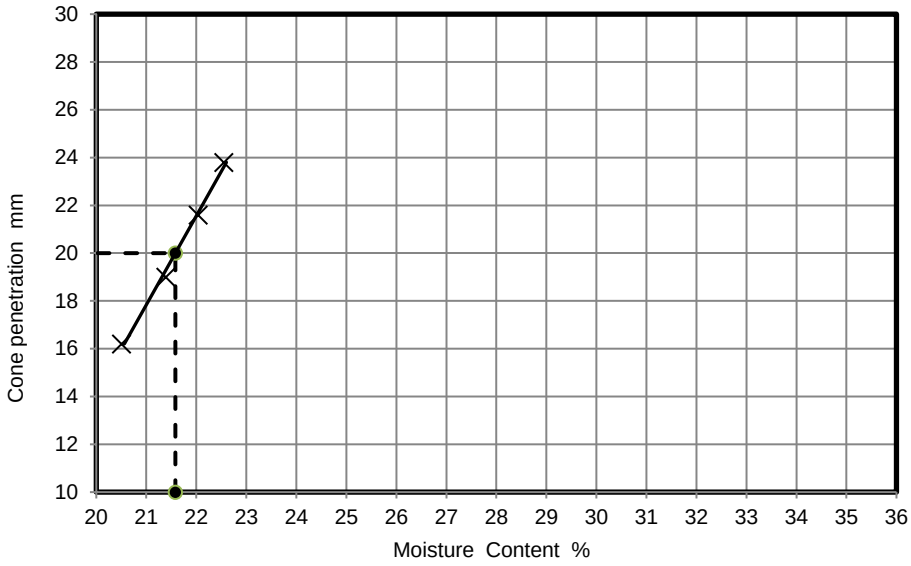
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

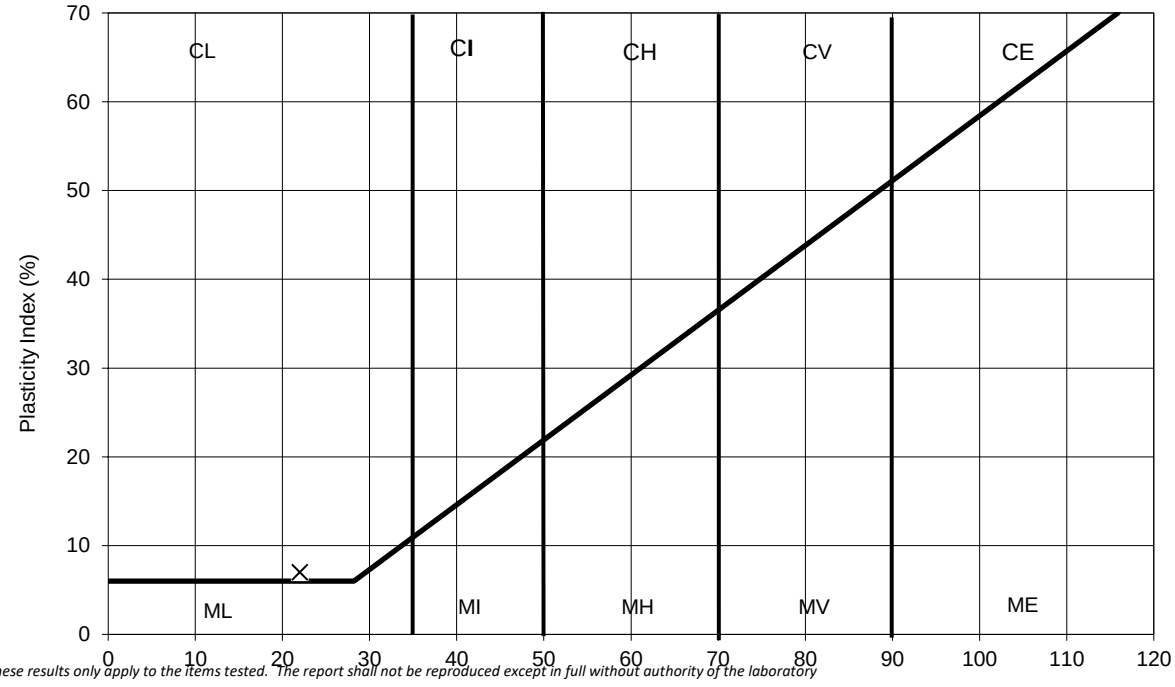
				Job No.	32282
				Borehole/Pit No.	TP-100517
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**72**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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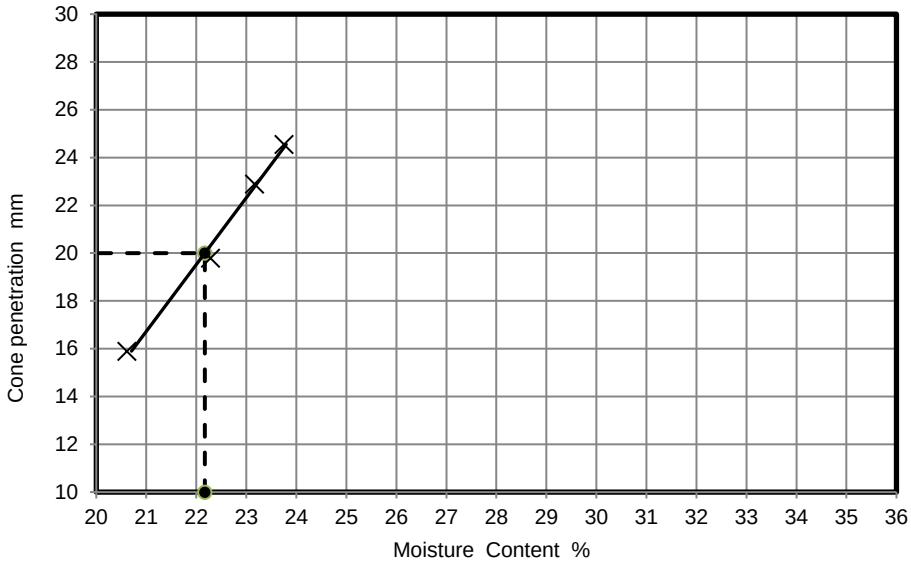
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

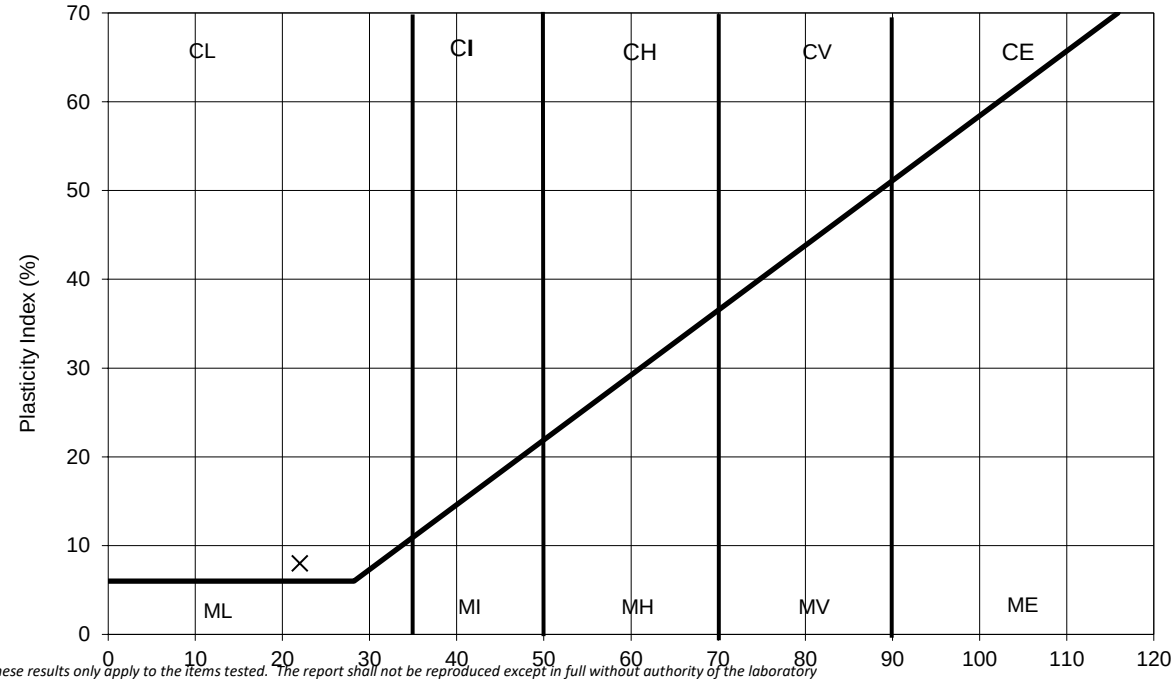
Job No.	32282				
Borehole/Pit No.	TP-100517				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Orangish brown and grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

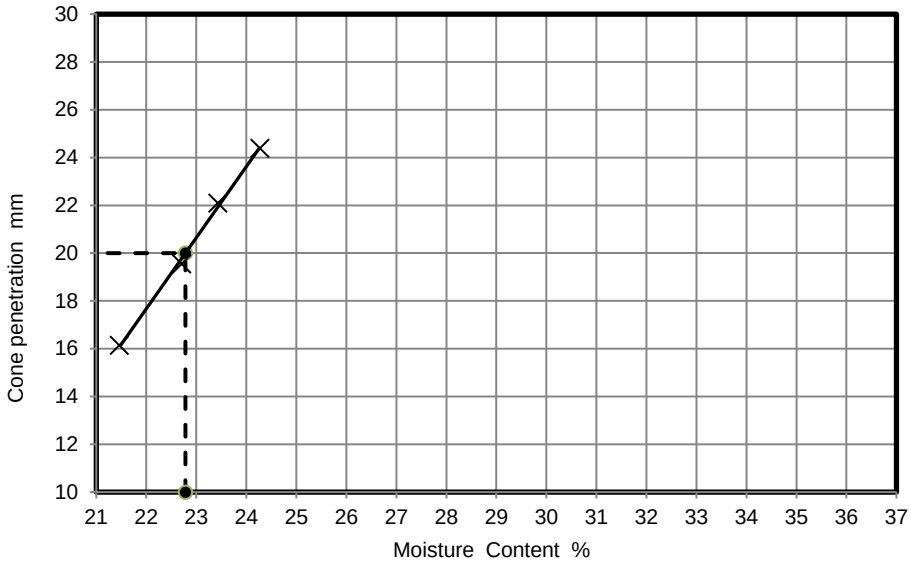
Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

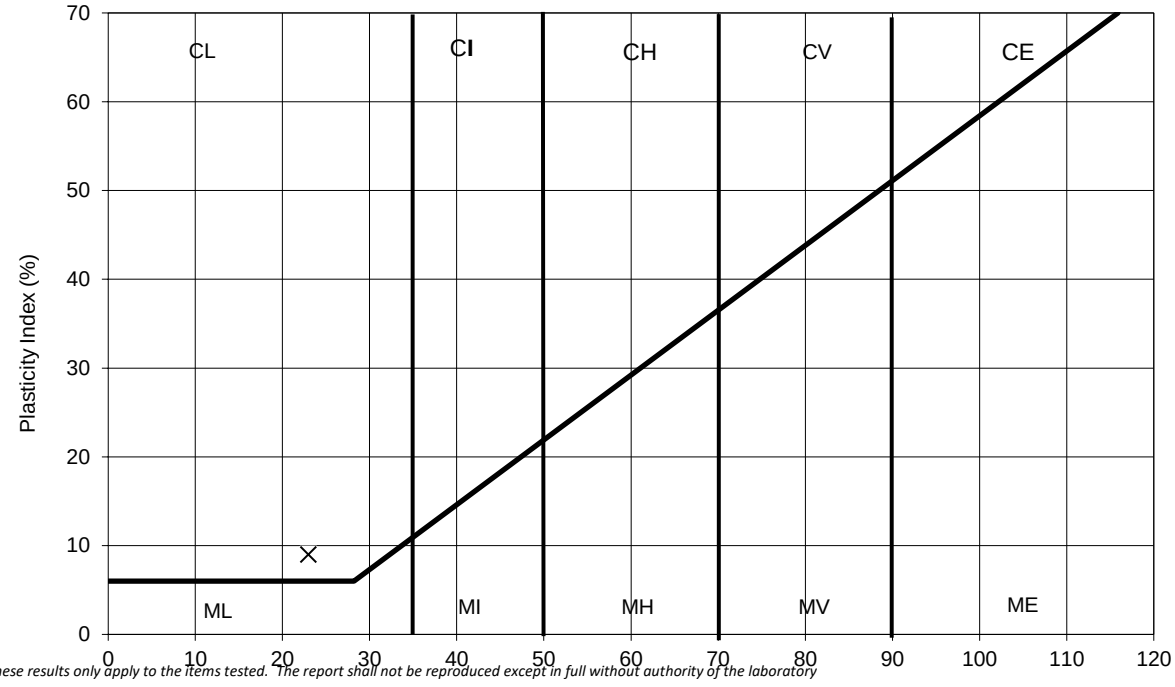
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-100517
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/11/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**93**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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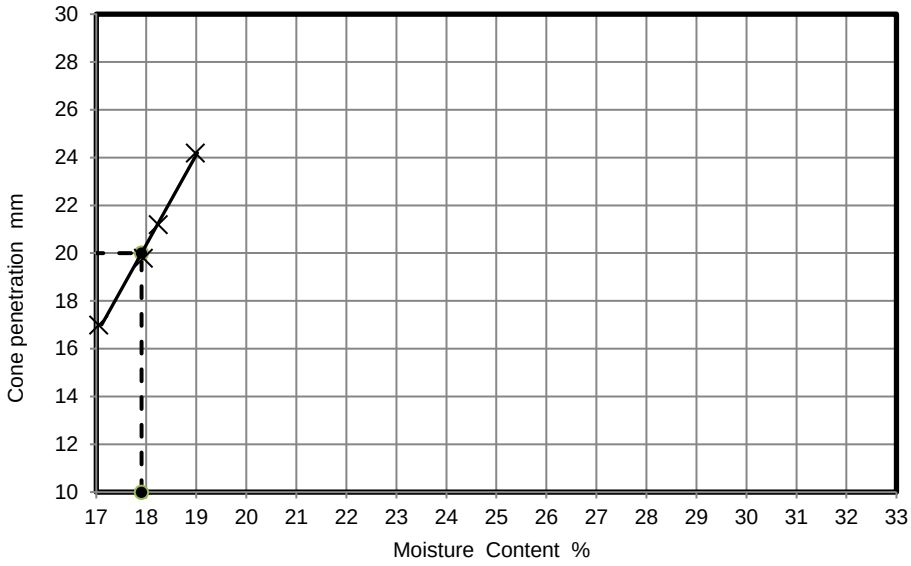
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

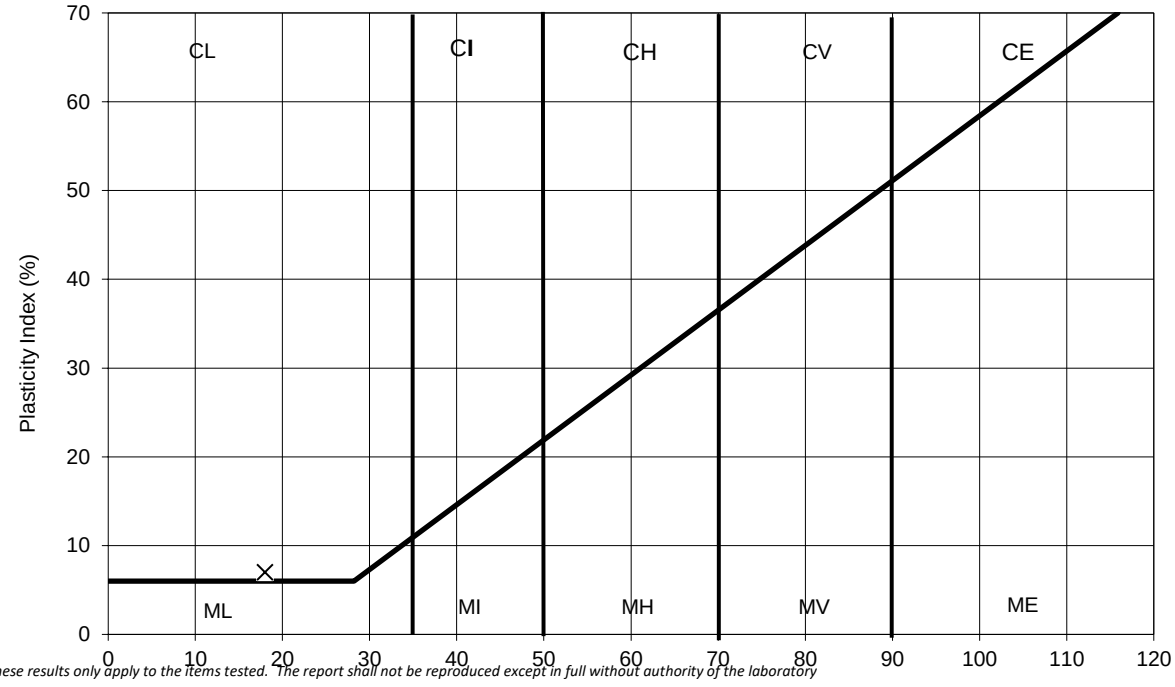
				Job No.	32282
				Borehole/Pit No.	TP-100605
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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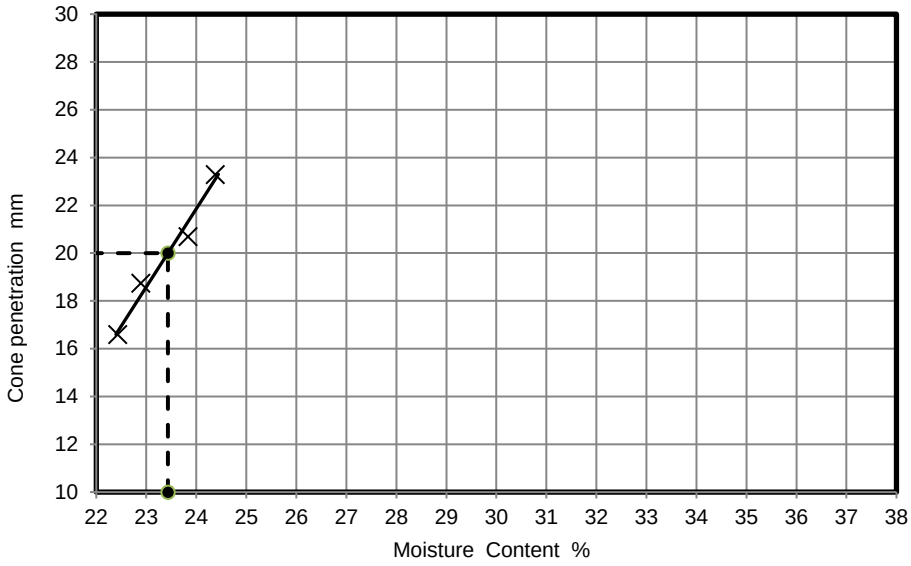
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

Job No. 32282

Borehole/Pit No. TP-101206

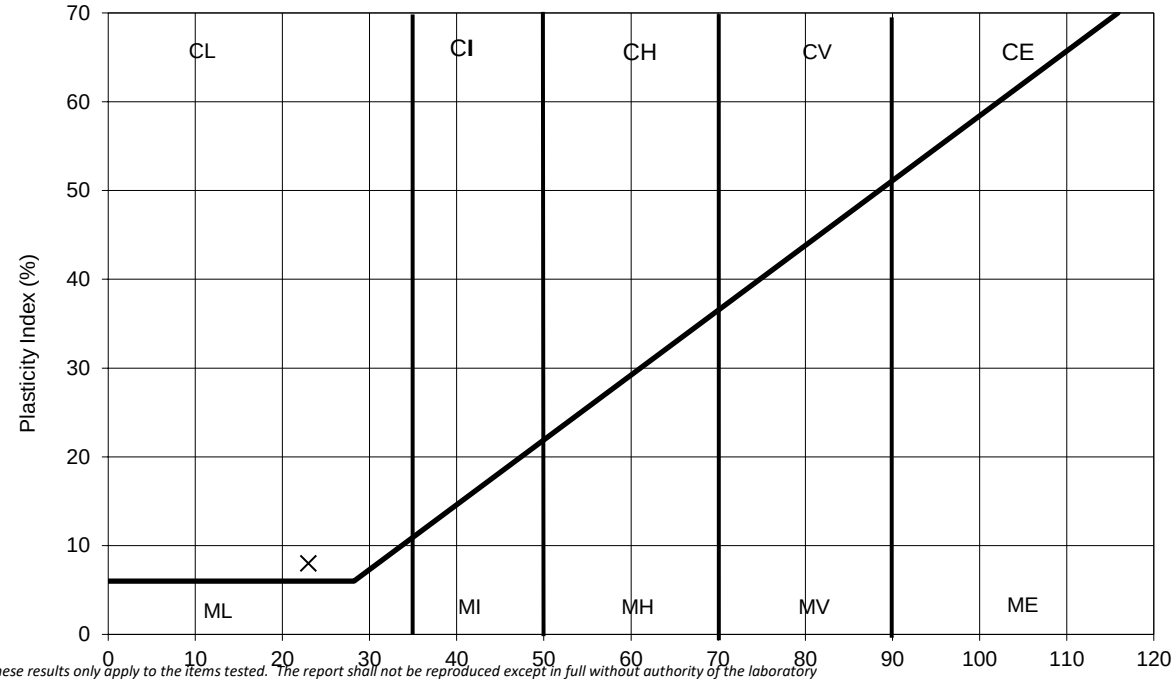


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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UKAS TESTING

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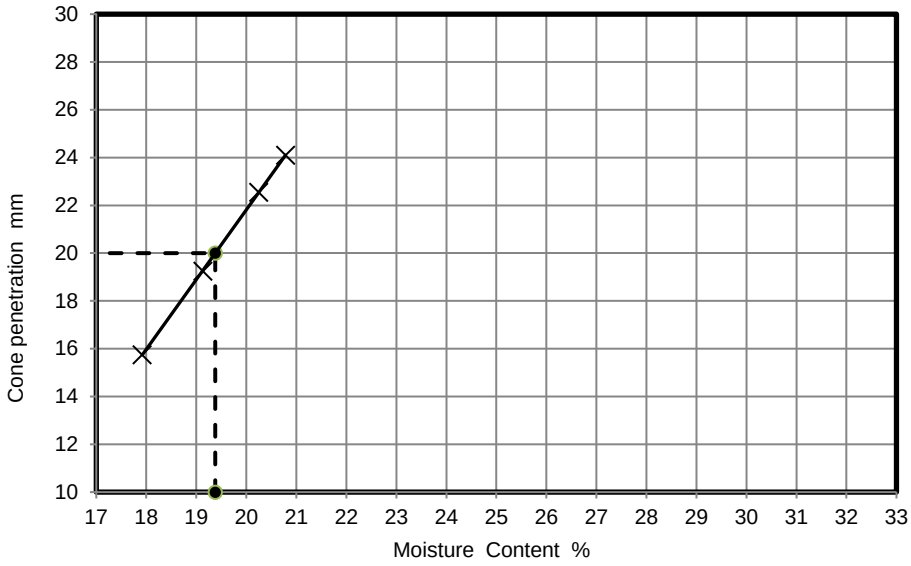
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

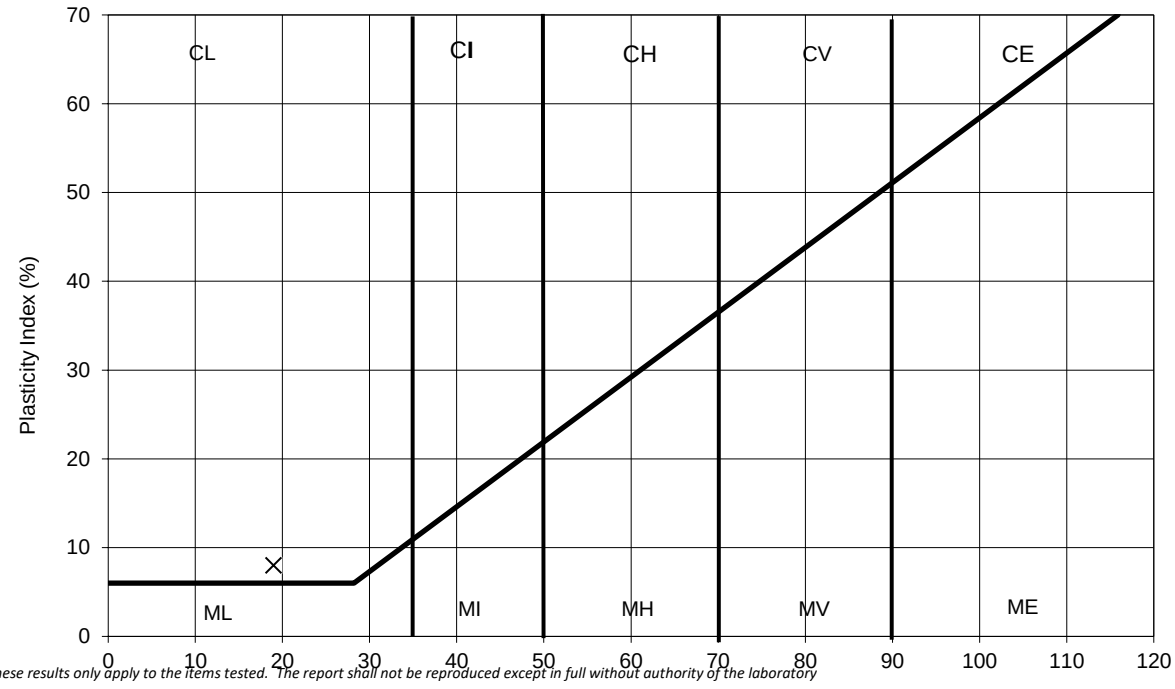
				Job No.	32282
				Borehole/Pit No.	TP-101206
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

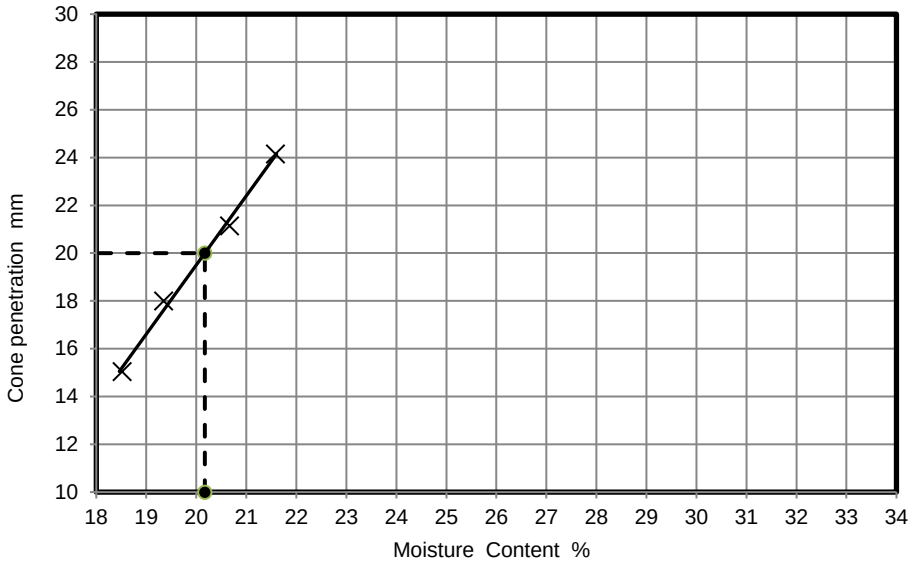
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Light brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

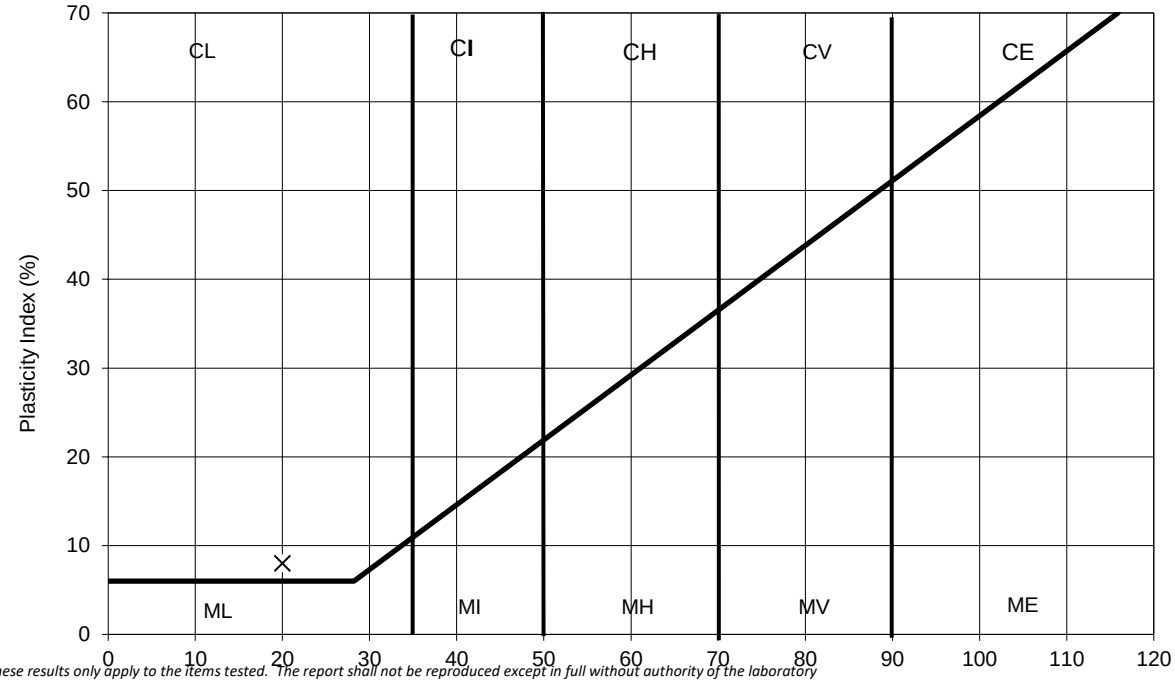
Borehole/Pit No. TP-101304



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

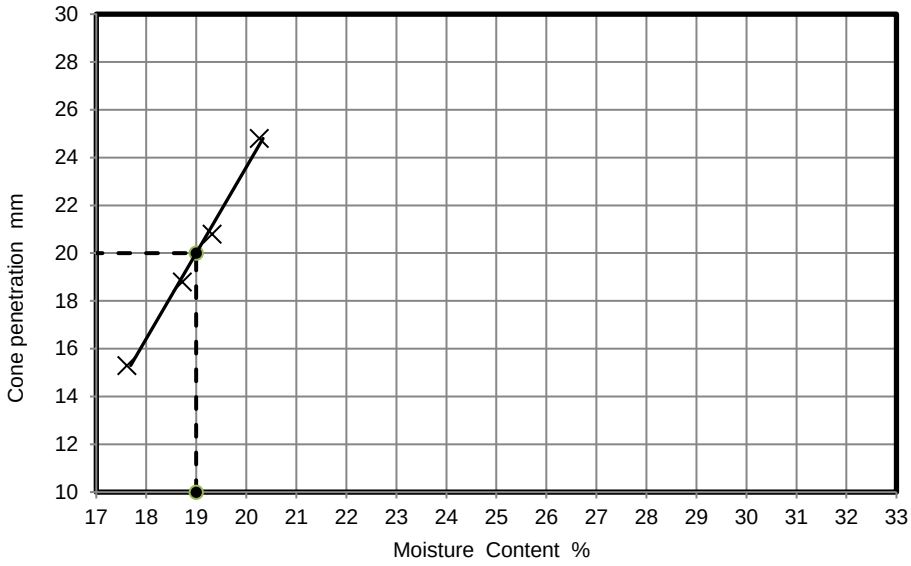
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022

Job No. 32282

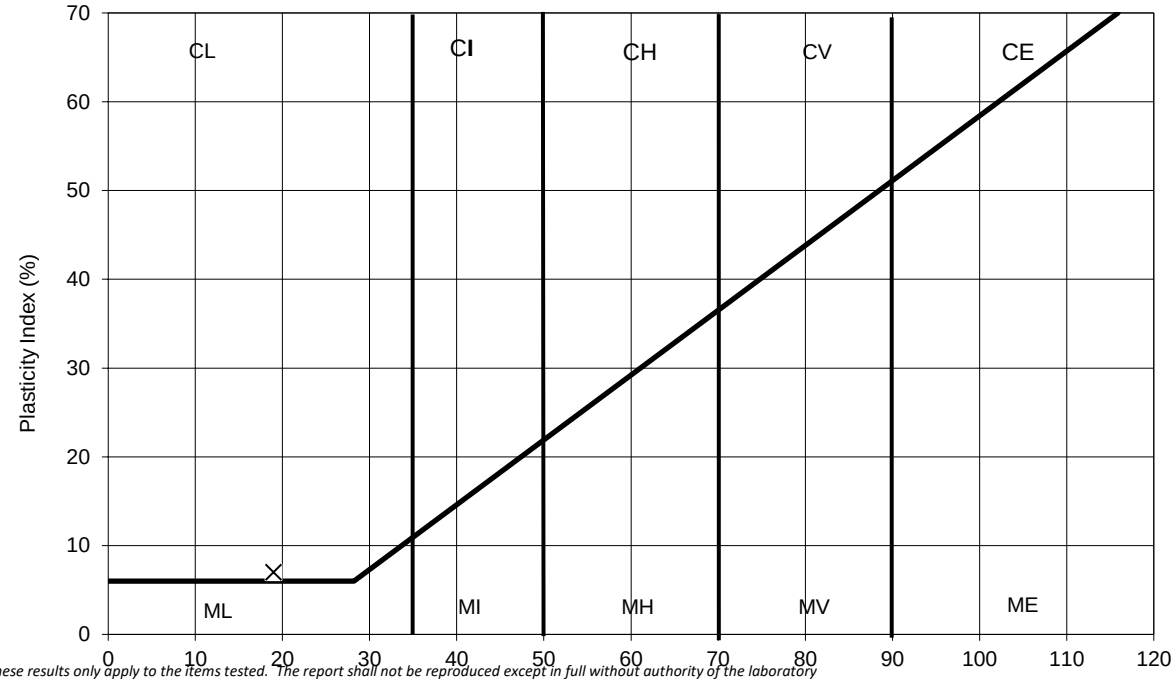
Borehole/Pit No. TP-101407



NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

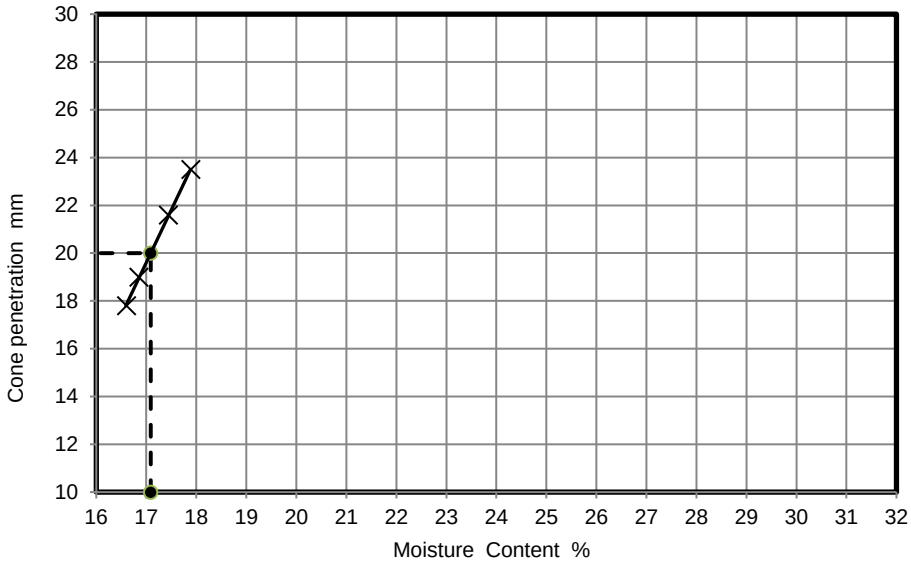
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

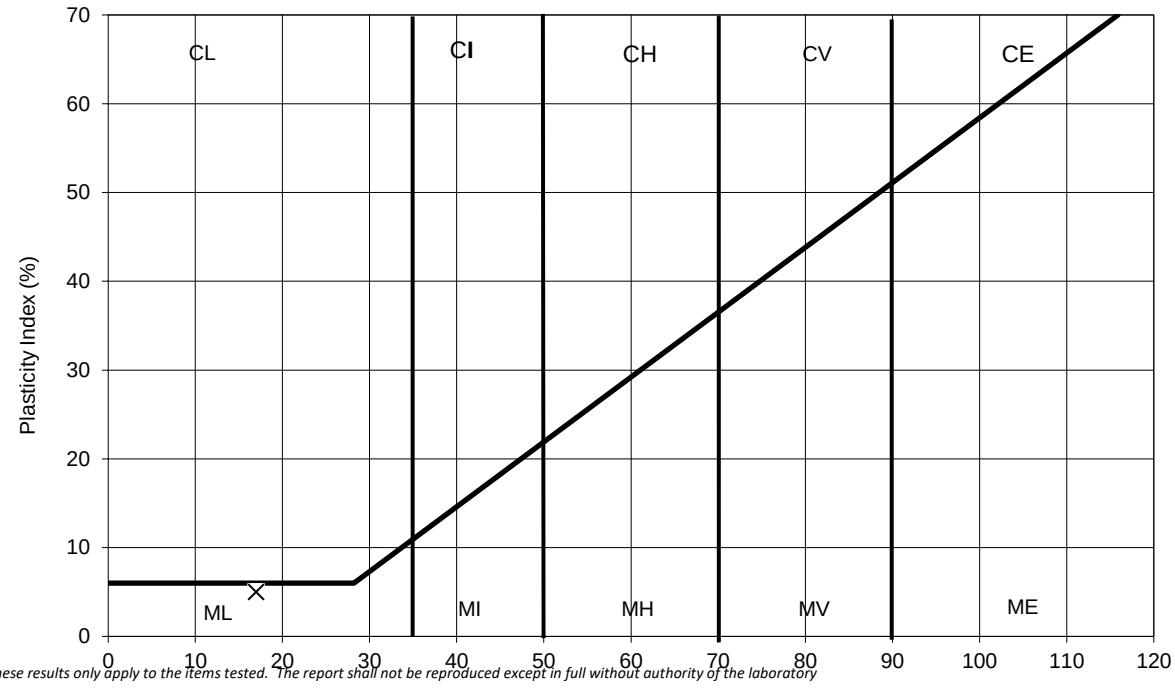
Borehole/Pit No. TP-101407



NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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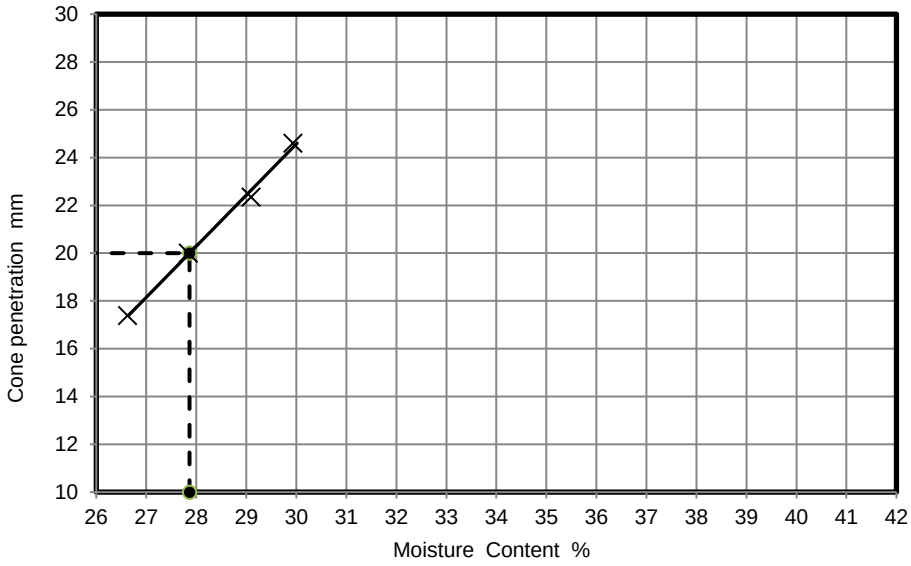
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

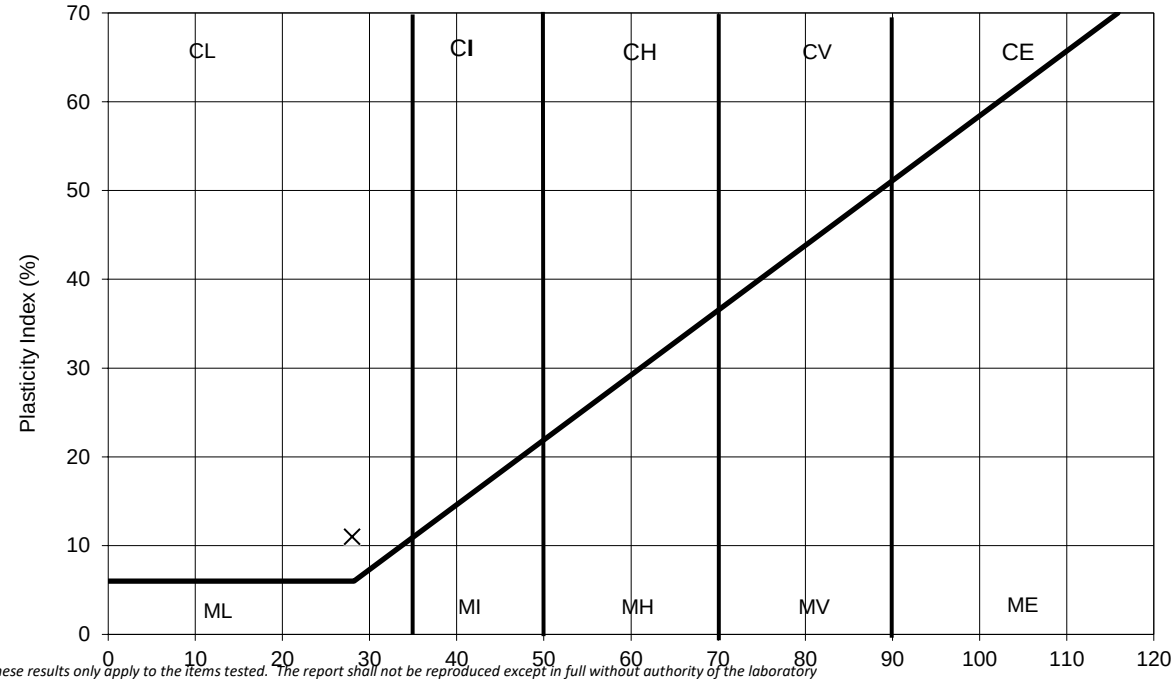
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown fine sandy very silty CLAY with rare fine sub-angular gravel and traces of fine rootlets			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022
				Job No.	32282
				Borehole/Pit No.	TP-101503



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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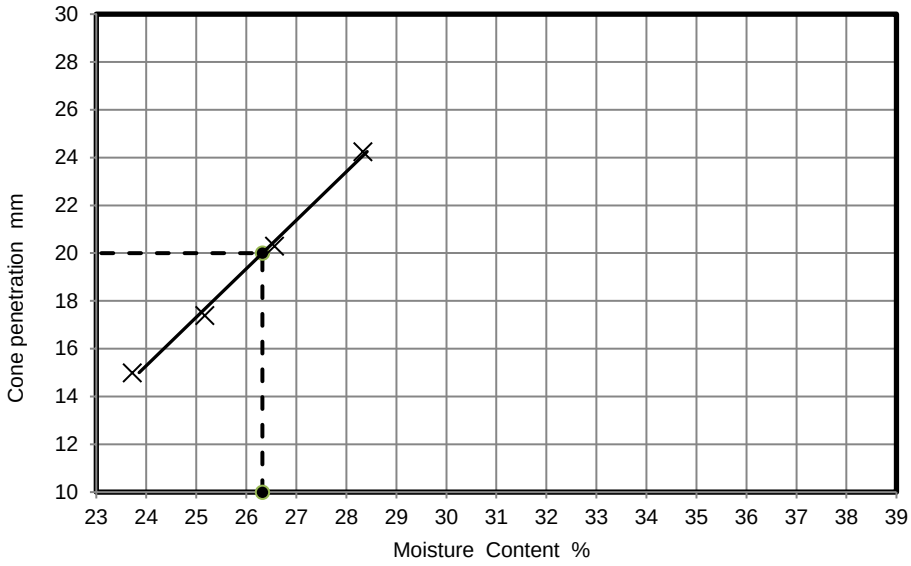
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

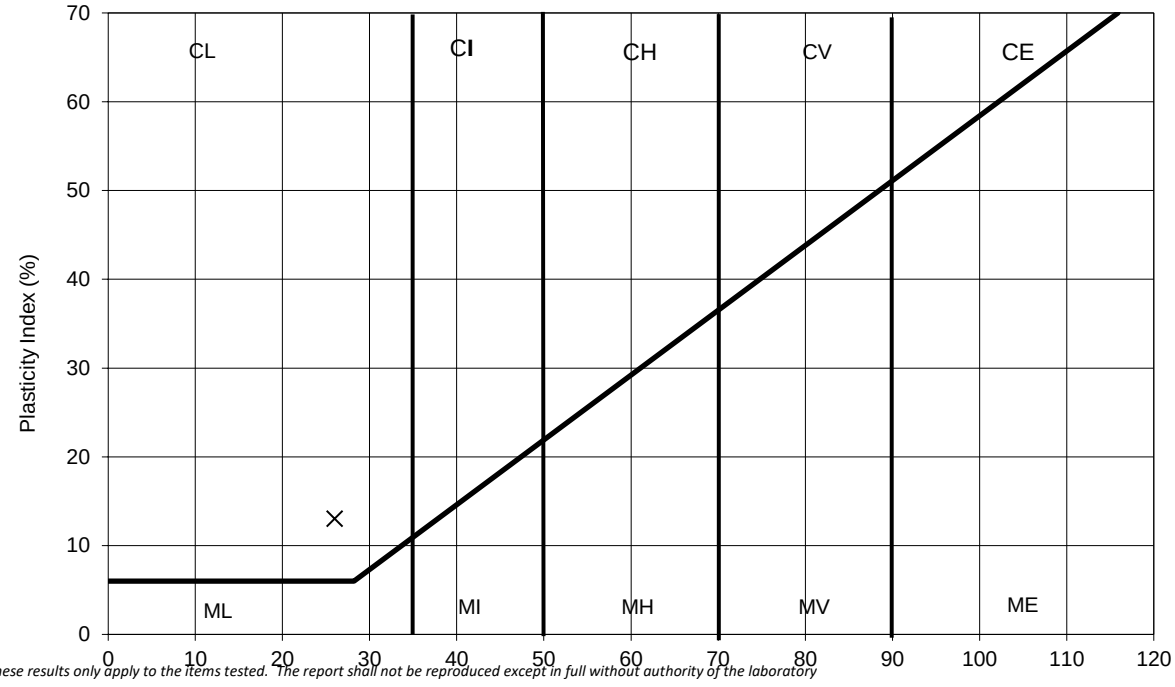
Job No.	32282				
Borehole/Pit No.	TP-101503				
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**13**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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UKAS TESTING

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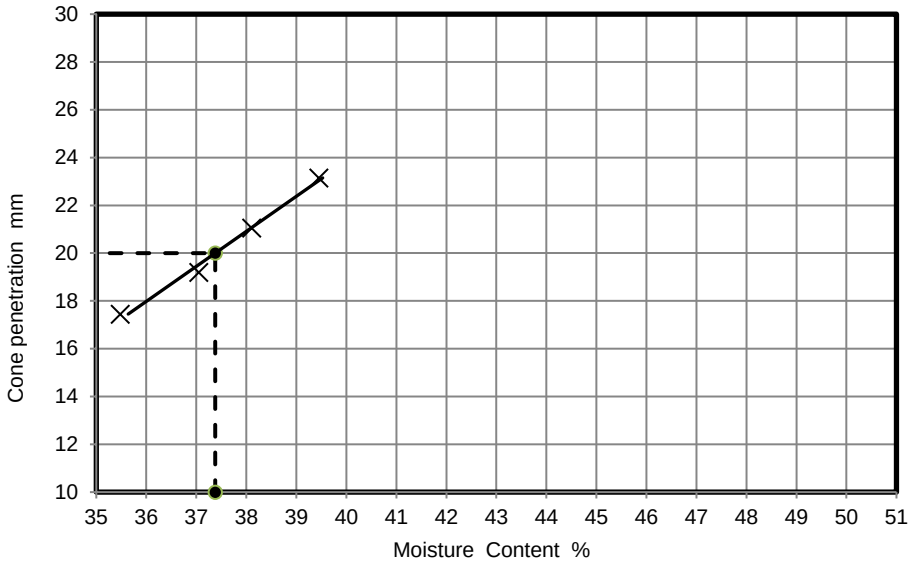
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

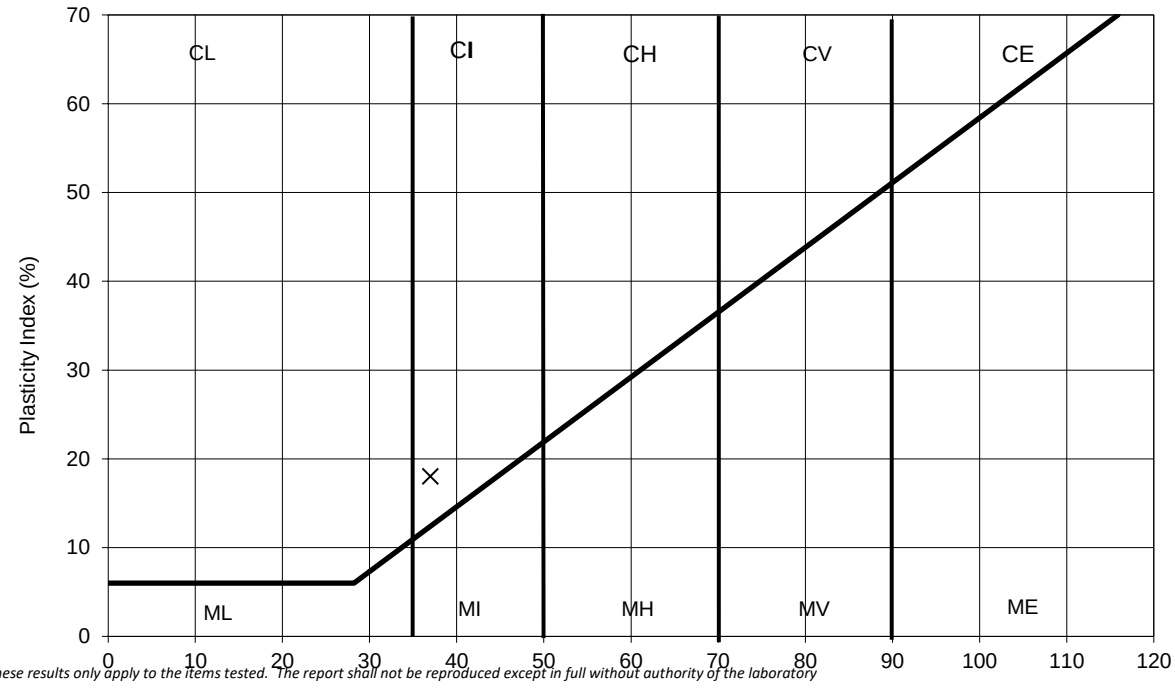
				Job No.	32282
				Borehole/Pit No.	TP-101600
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**22**	**%**
% PASSING 425µm SIEVE	**95**	**%**
LIQUID LIMIT	**37**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**18**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

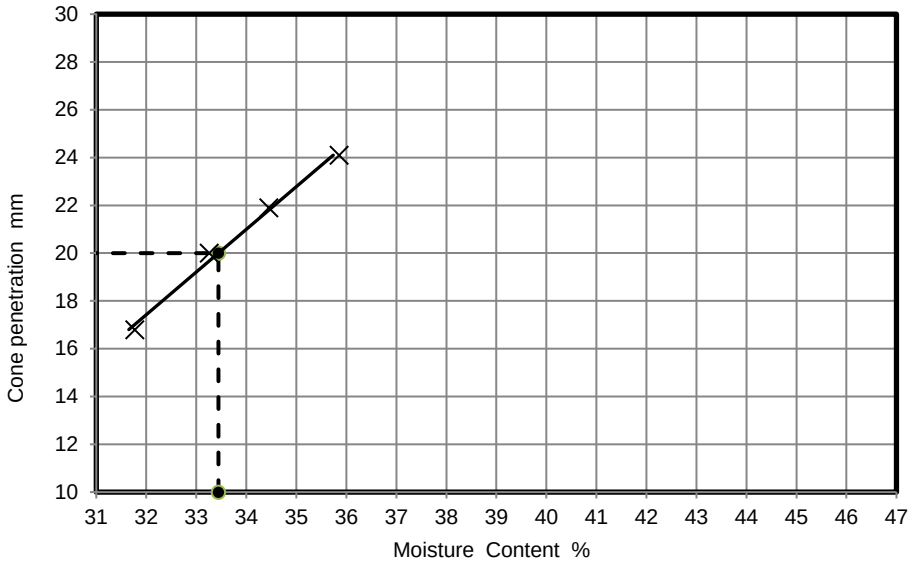
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

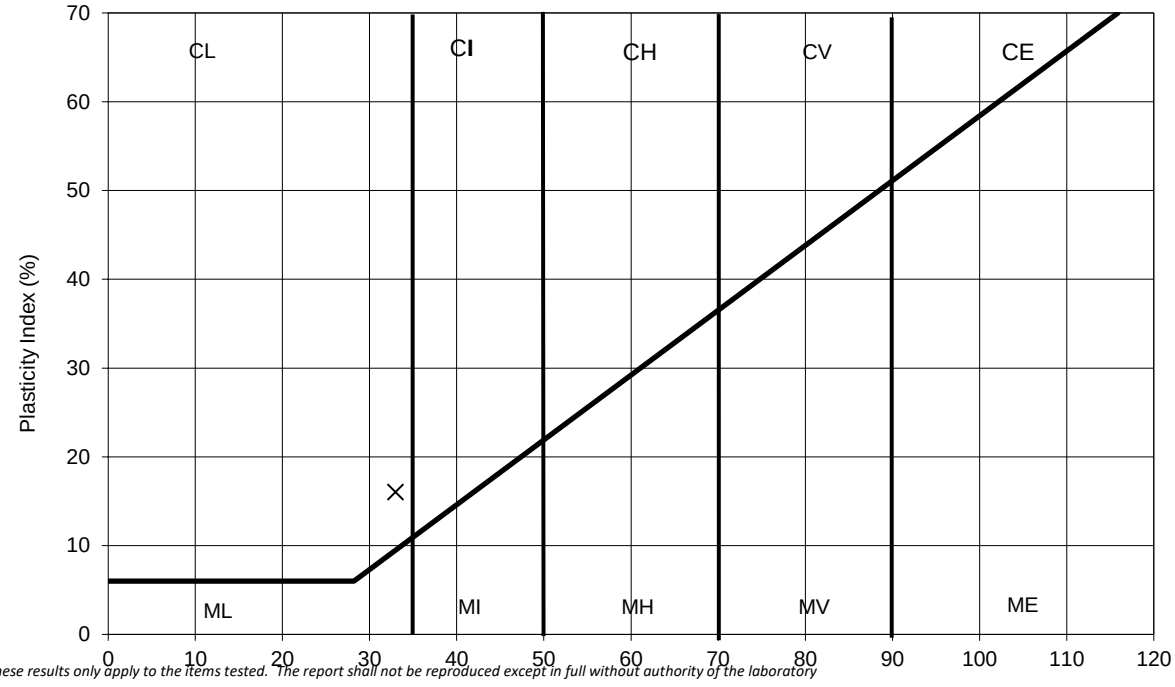
				Job No.	32282
				Borehole/Pit No.	TP-101600
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy silty CLAY with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**33**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**16**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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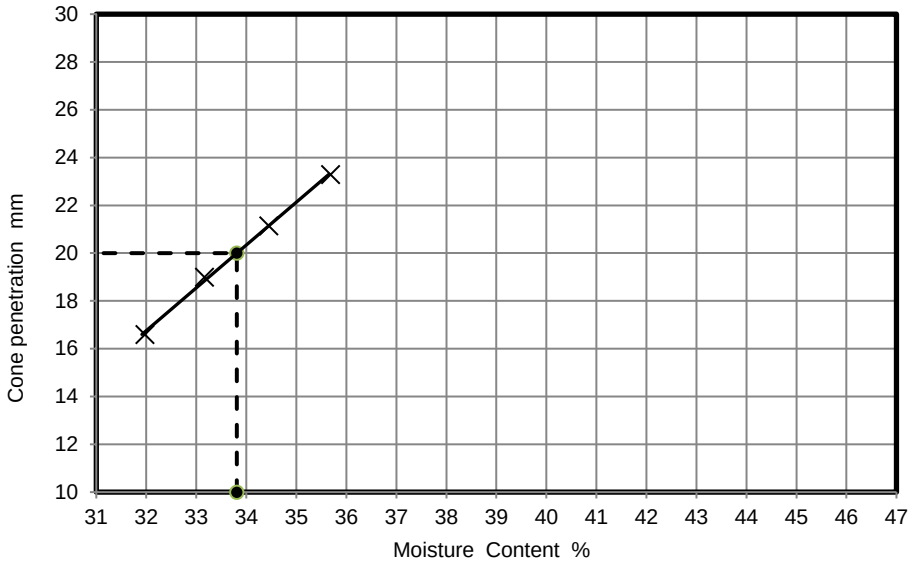
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

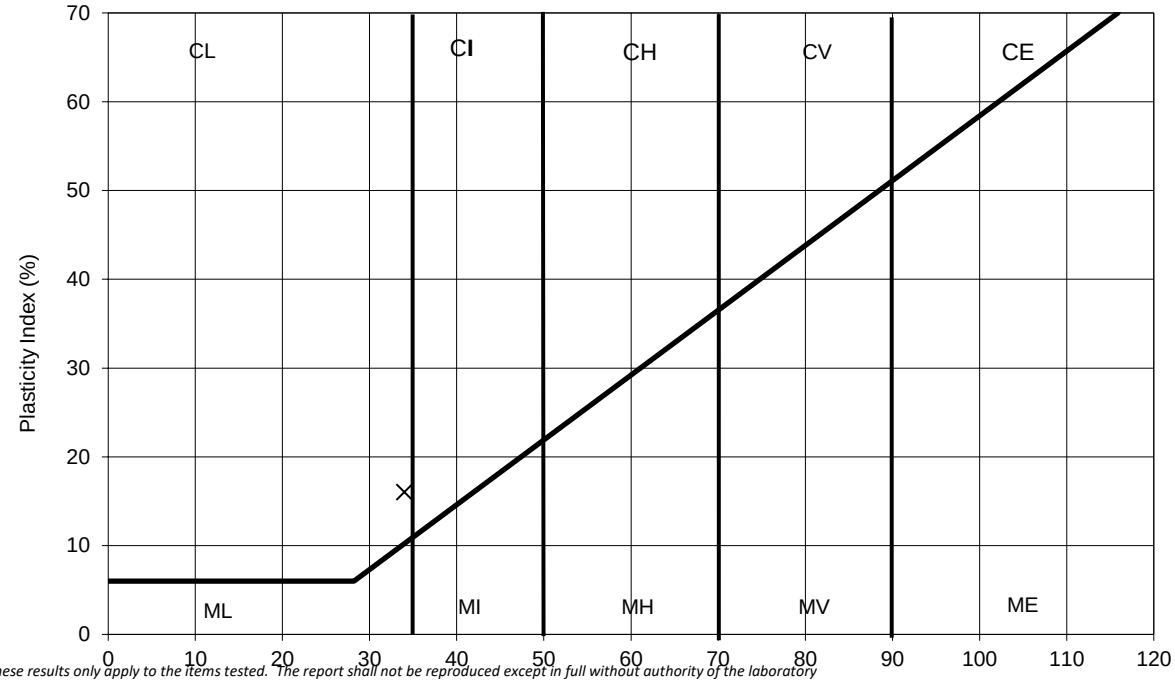
Job No.	32282				
Borehole/Pit No.	TP-101704				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**22**	**%**
% PASSING 425µm SIEVE	**94**	**%**
LIQUID LIMIT	**34**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**16**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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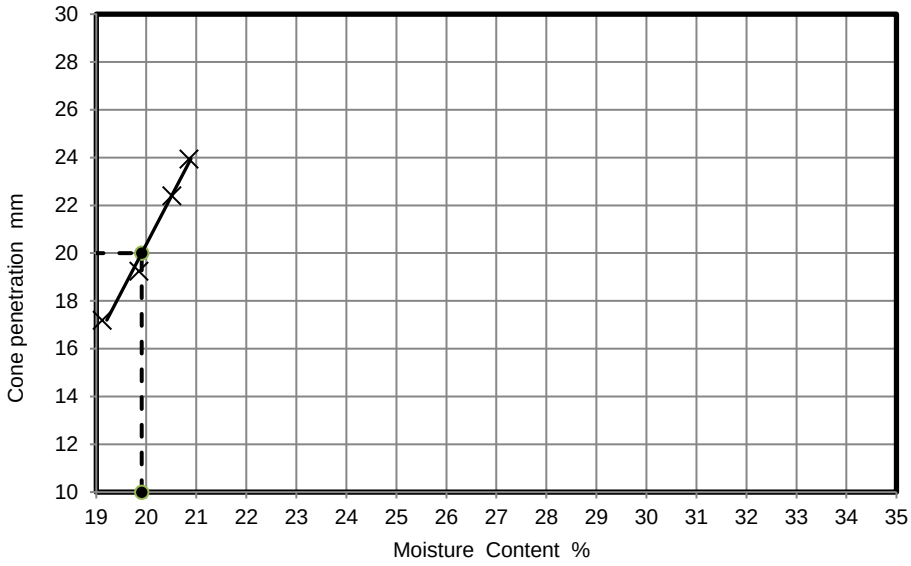
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

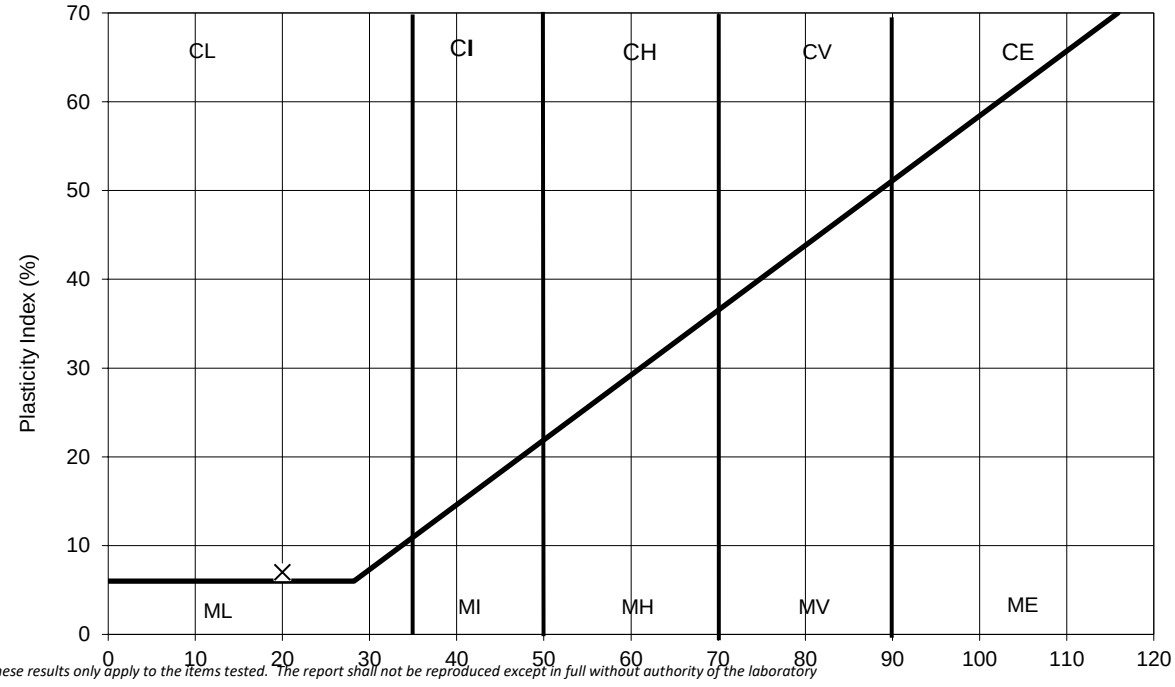
				Job No.	32282
				Borehole/Pit No.	TP-101704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**90**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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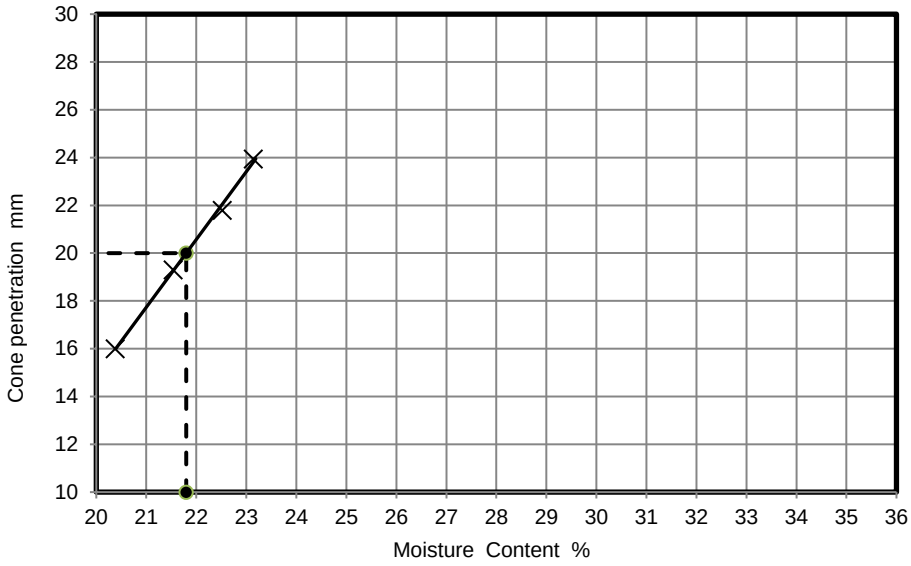
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

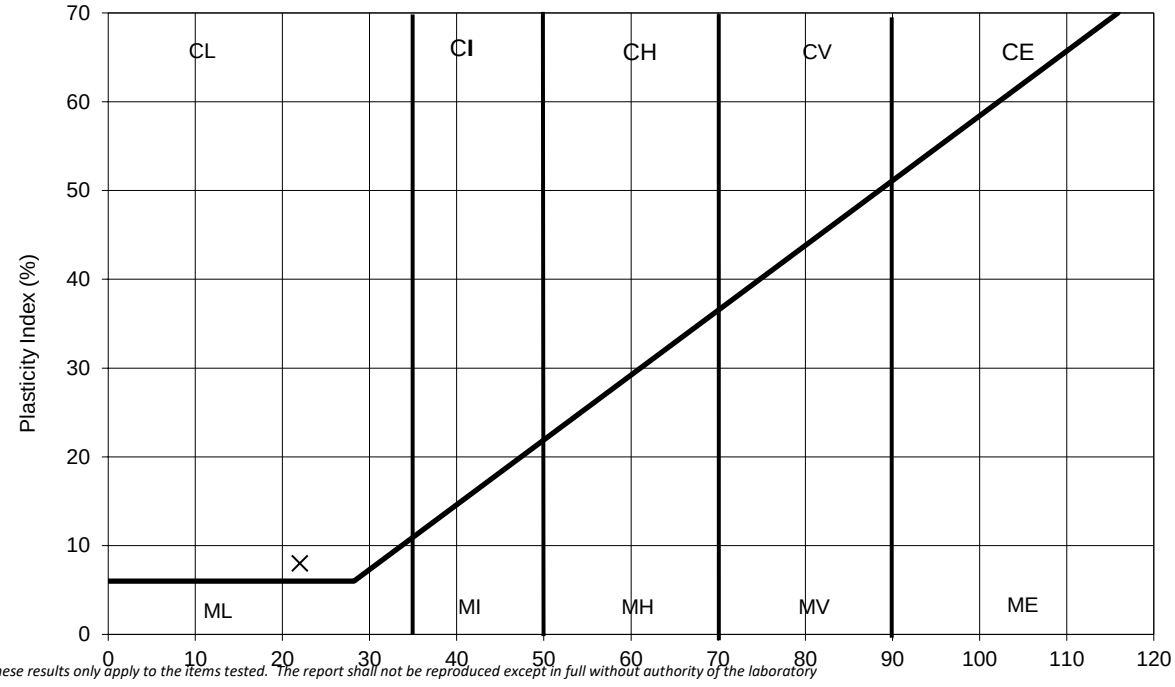
				Job No.	32282
				Borehole/Pit No.	TP-101804
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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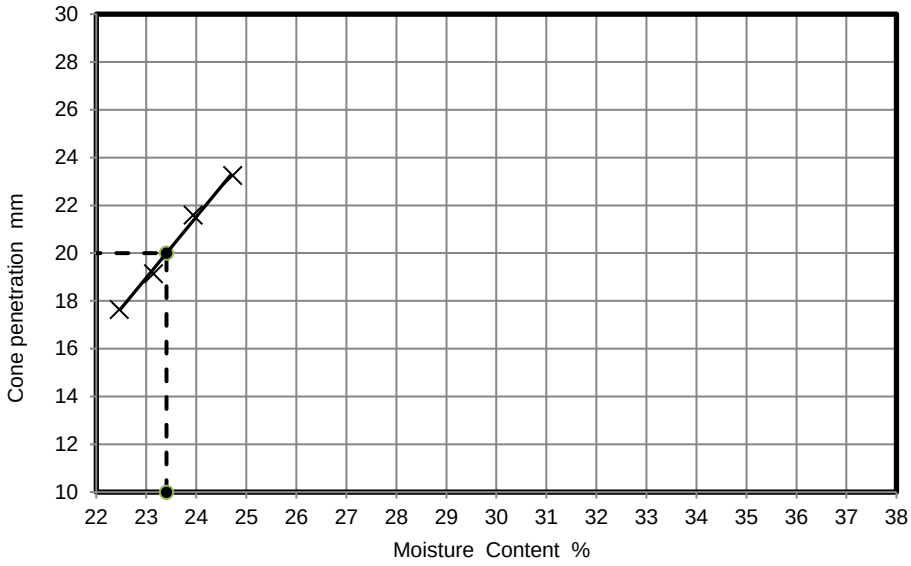
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

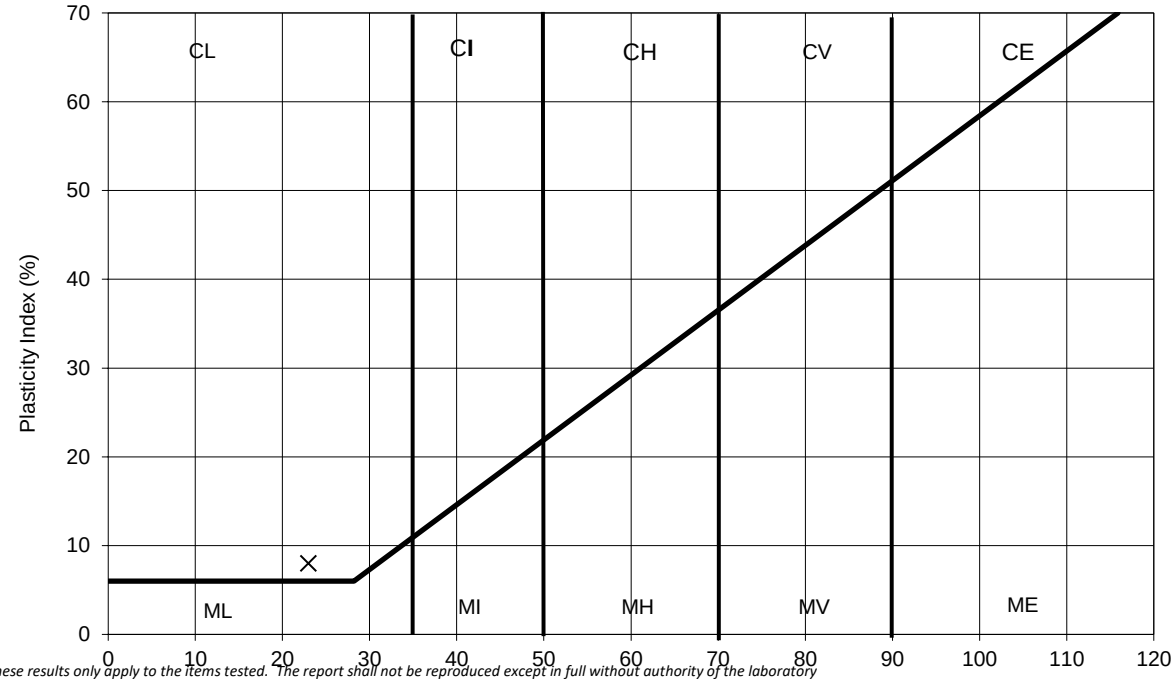
				Job No.	32282
				Borehole/Pit No.	TP-101804
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Dark grey fine sandy very silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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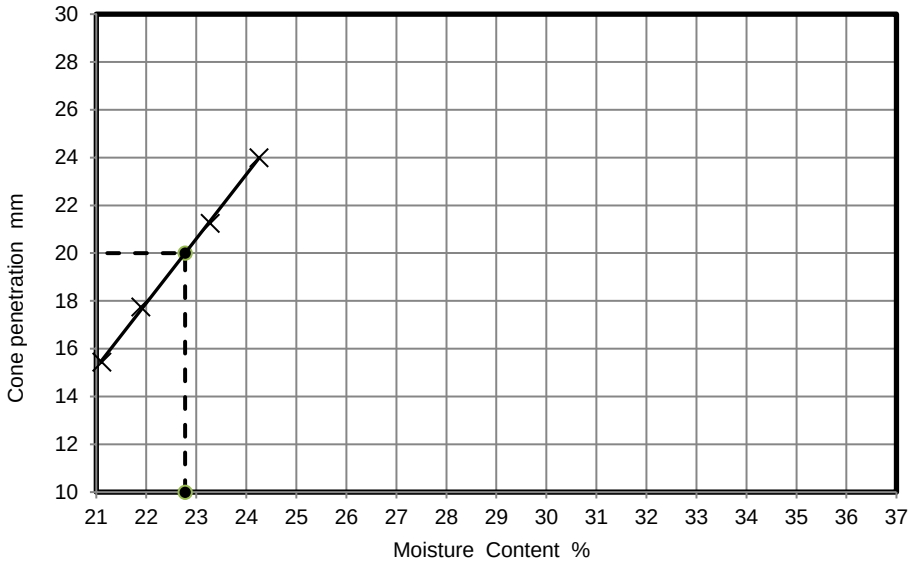
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

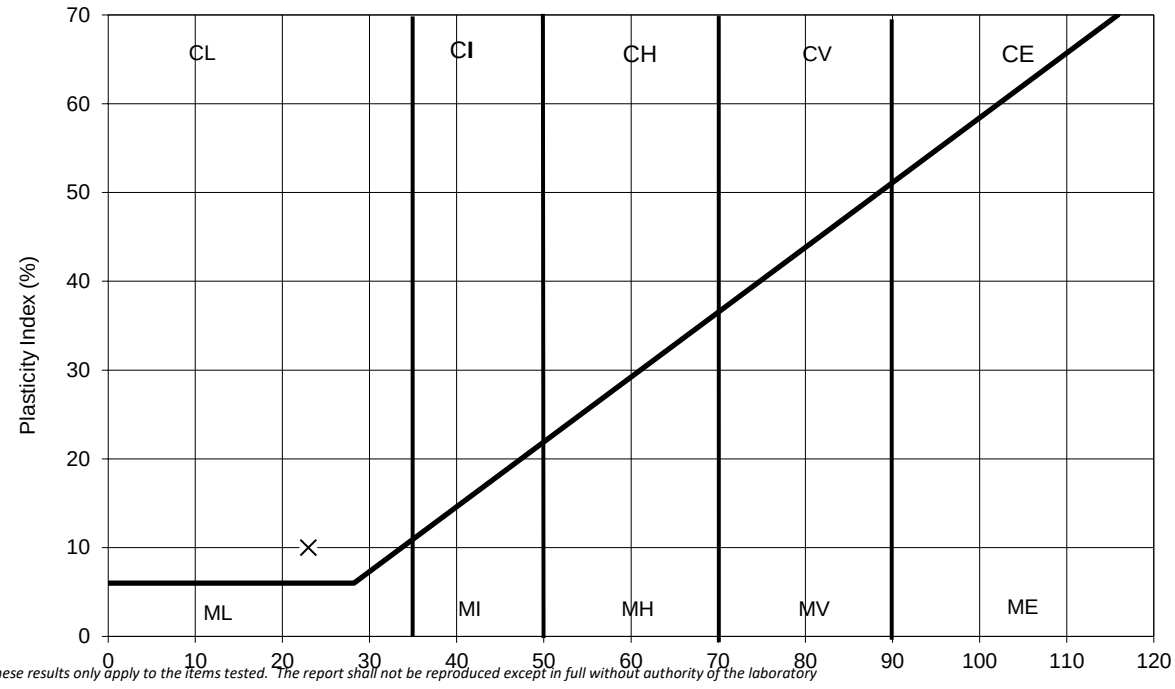
Borehole/Pit No. TP-102105



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**92**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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UKAS TESTING

2519

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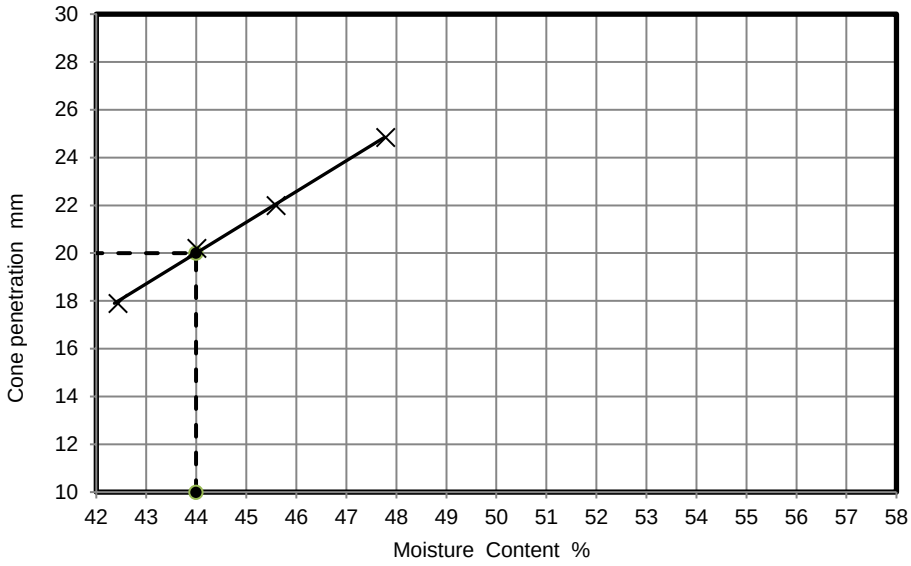
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

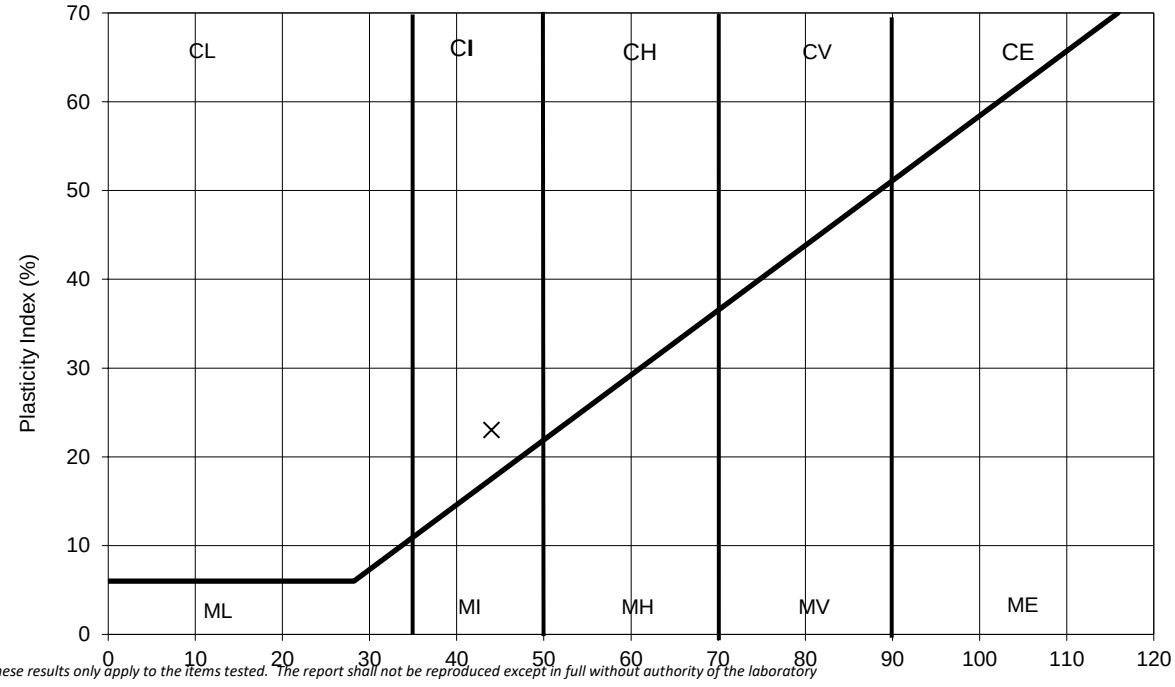
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly sandy silty CLAY with rare fm sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022
				Job No.	32282
				Borehole/Pit No.	TP-102204



NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**44**	**%**
PLASTIC LIMIT	**21**	**%**
PLASTICITY INDEX	**23**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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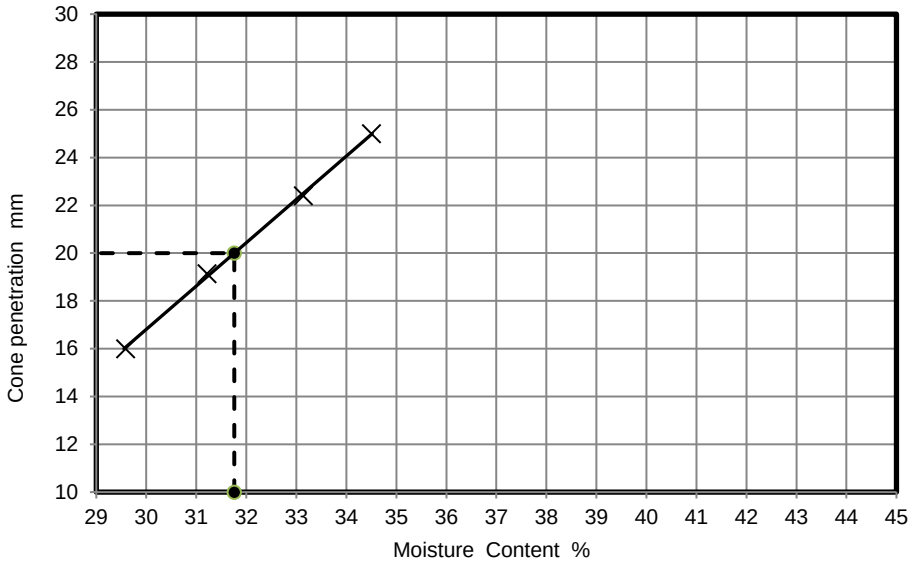
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

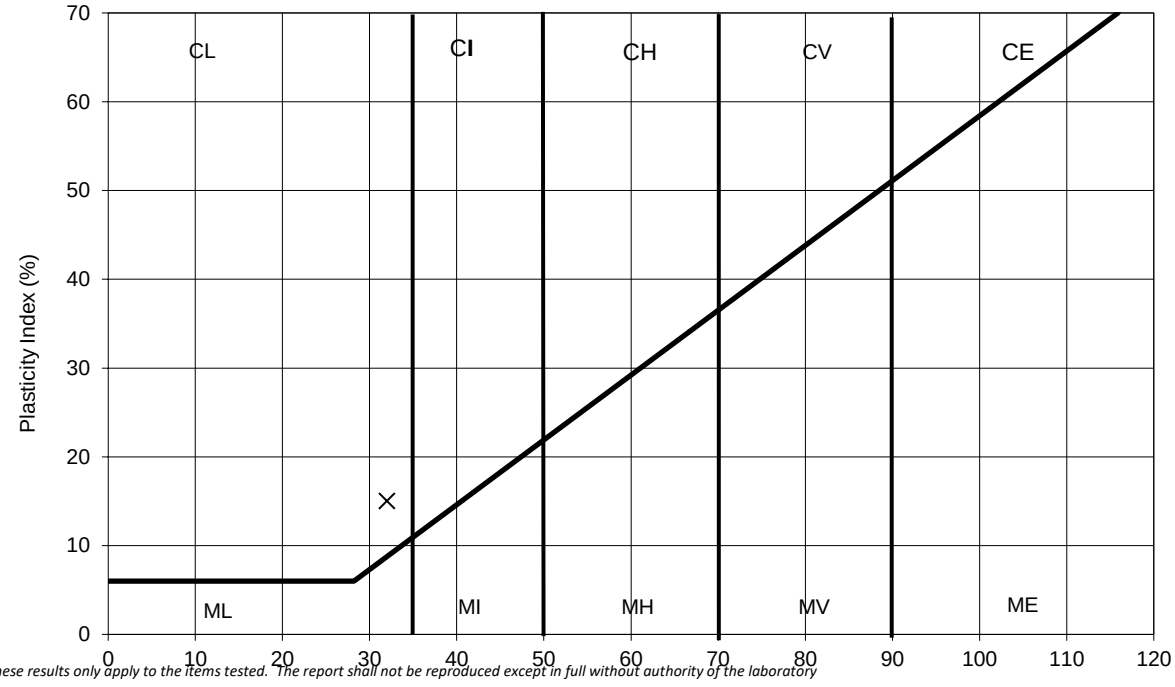
				Job No.	32282
				Borehole/Pit No.	TP-102204
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**92**	**%**
LIQUID LIMIT	**32**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**15**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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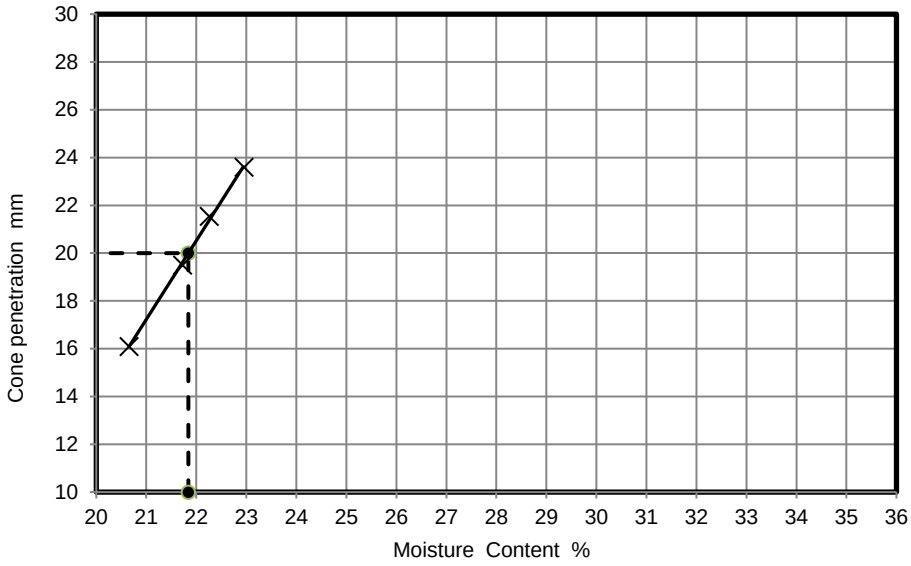
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

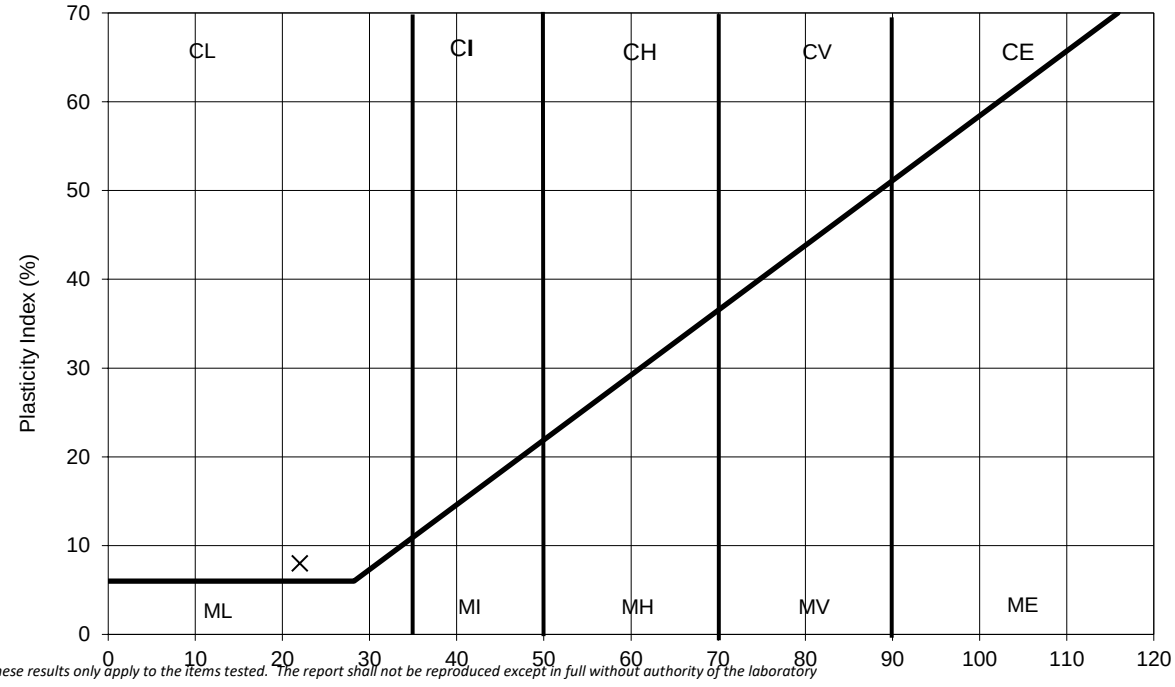
Job No.	32282				
Borehole/Pit No.	TP-102303				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly gravelly fine sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**85**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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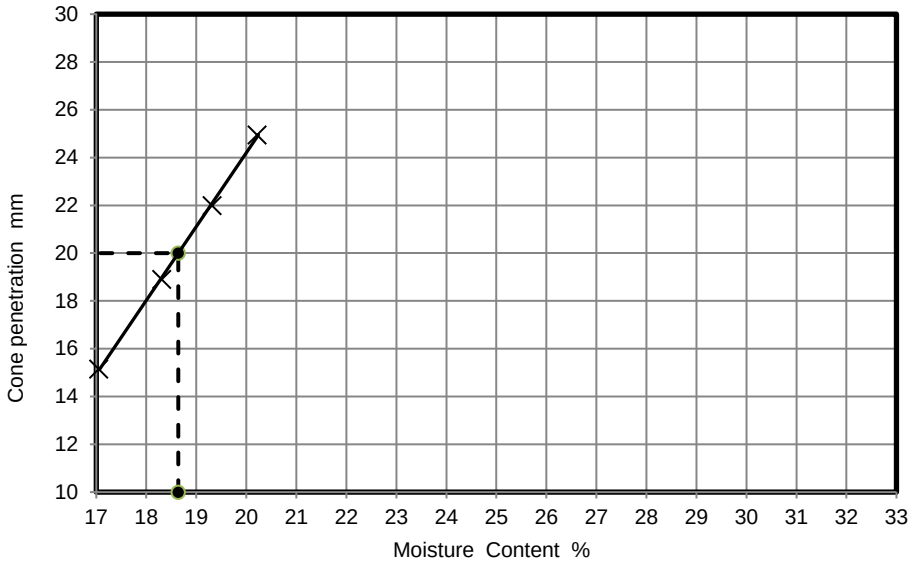
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

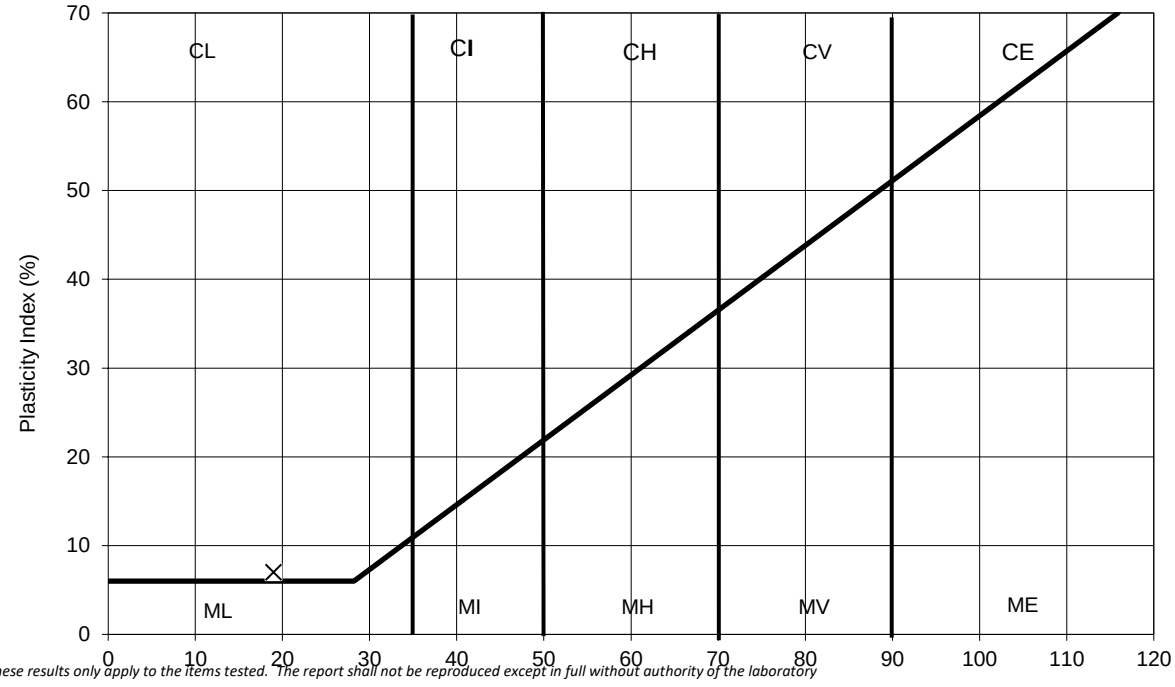
Job No.	32282				
Borehole/Pit No.	TP-102303				
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**8.9**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

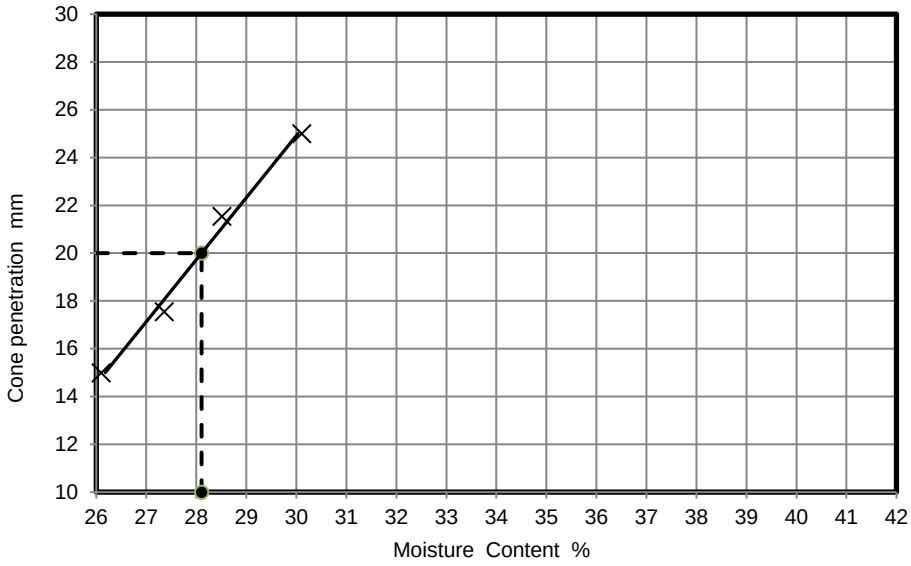
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

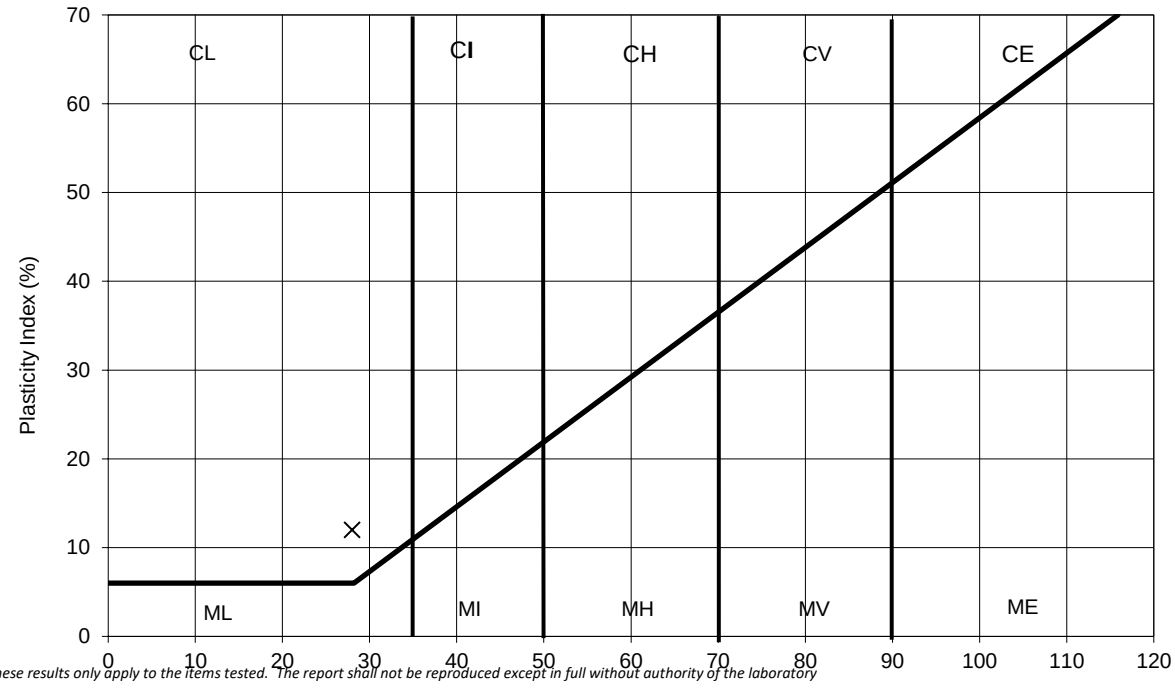
Borehole/Pit No. TP-102488



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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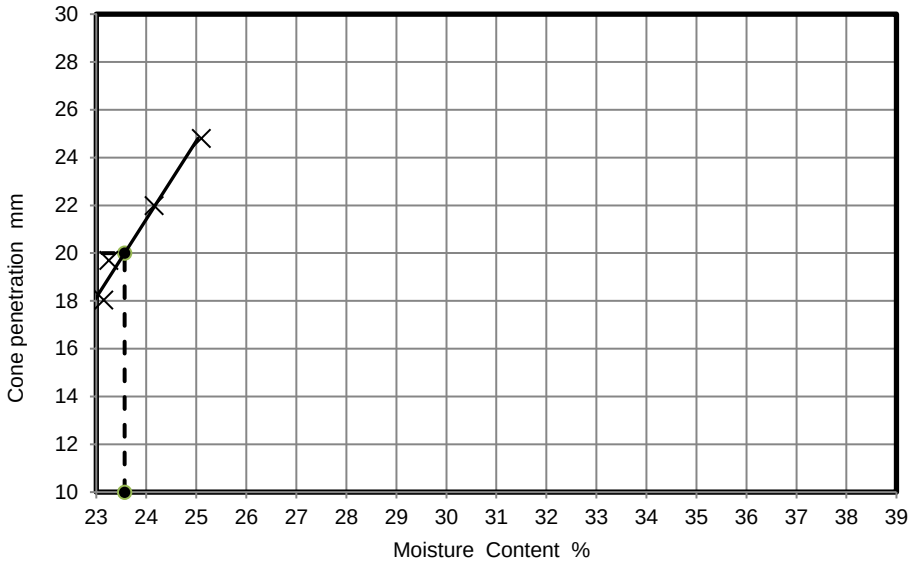
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-102617
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

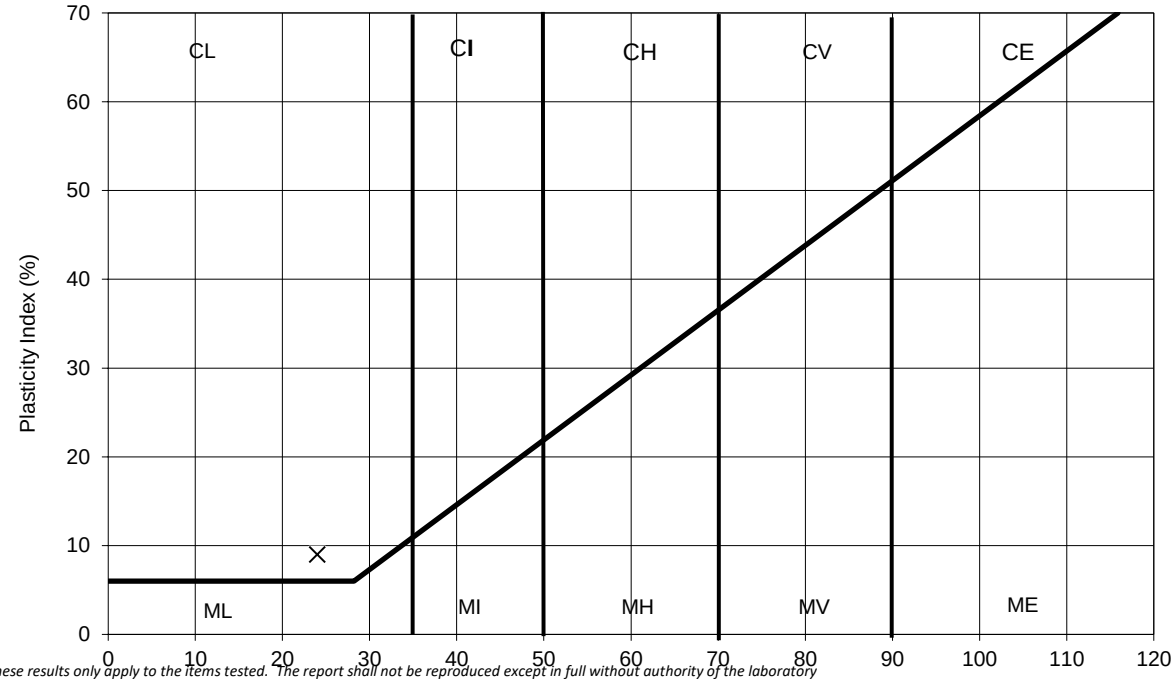


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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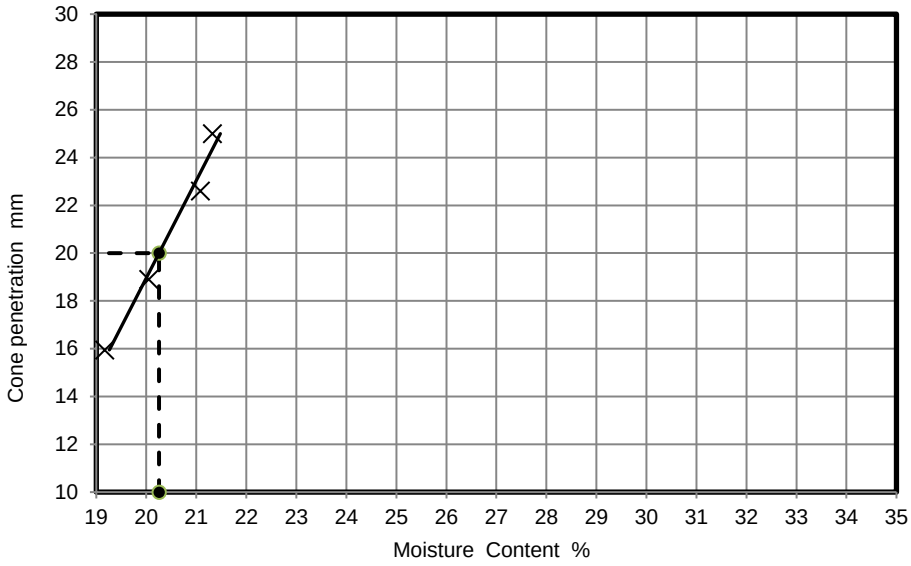
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

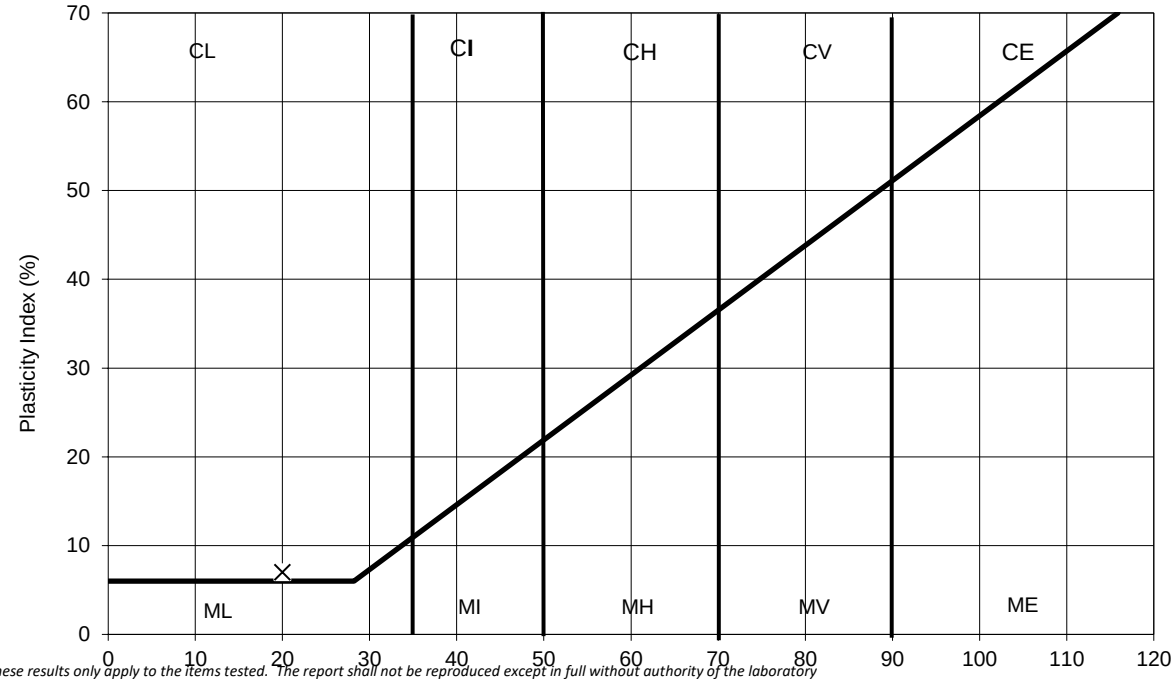
				Job No.	32282
				Borehole/Pit No.	TP-102617
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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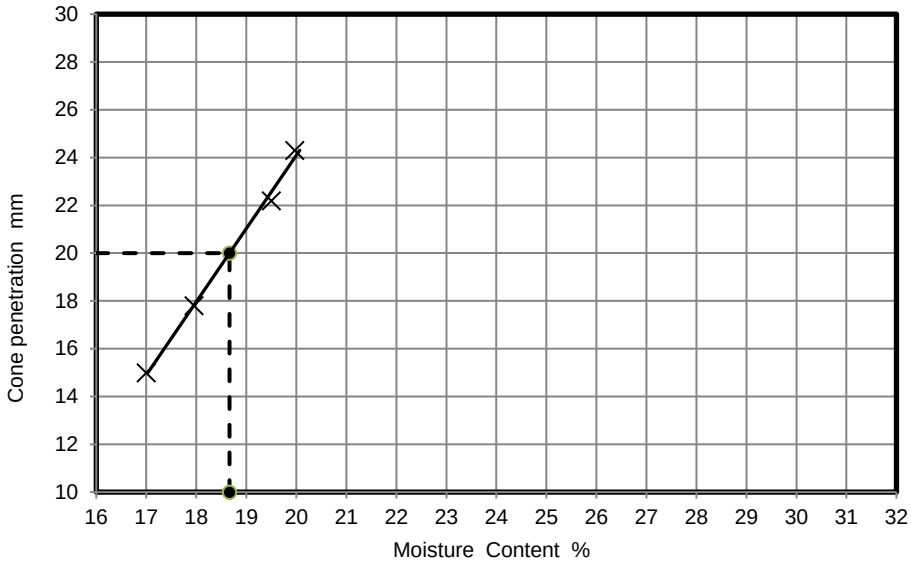
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

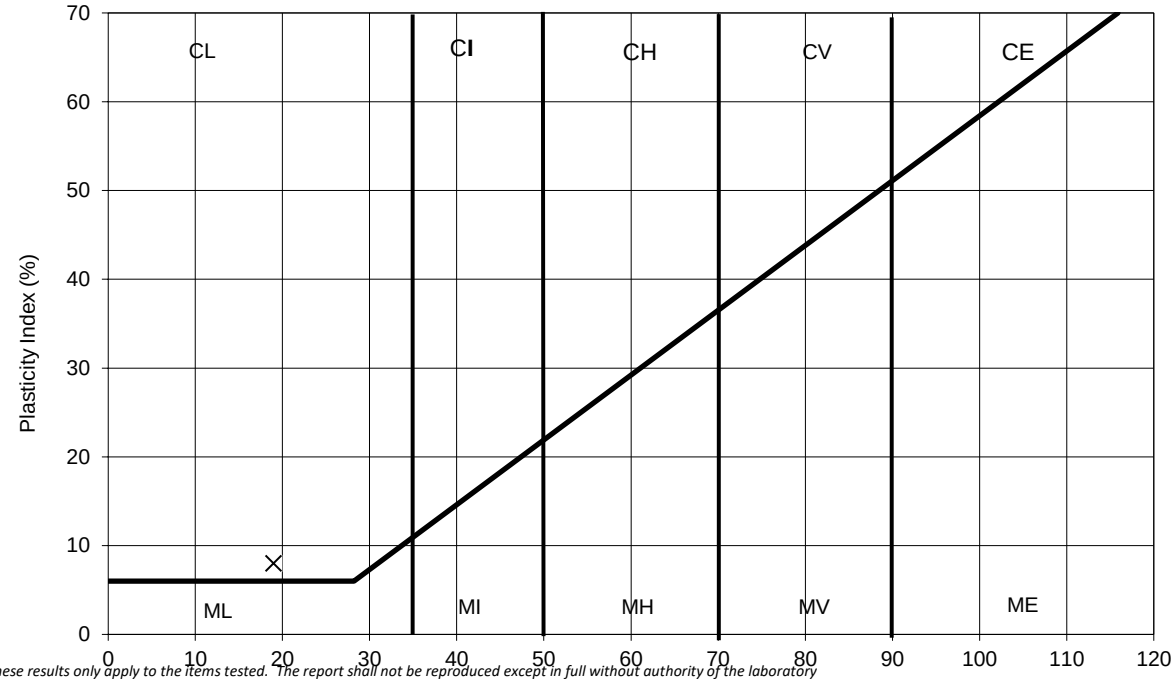
				Job No.	32282
				Borehole/Pit No.	TP-102704
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Dark grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**82**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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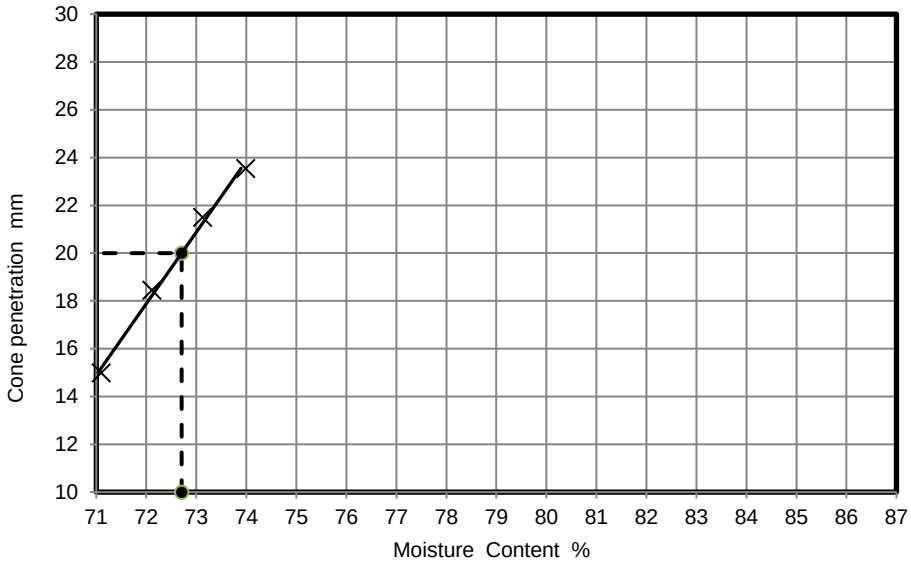
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-56220
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Dark grey slightly sandy gravelly clayey very PEAT with rootlets (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

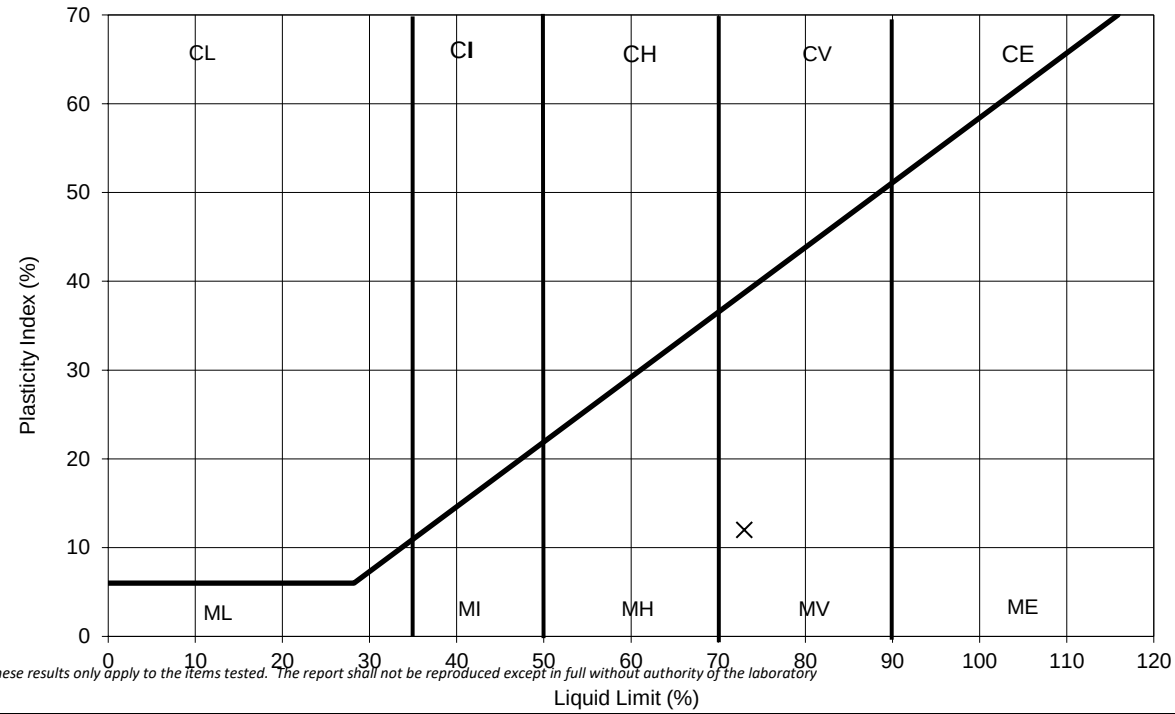


NATURAL MOISTURE CONTENT	**82**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**73**	**%**
PLASTIC LIMIT	**61**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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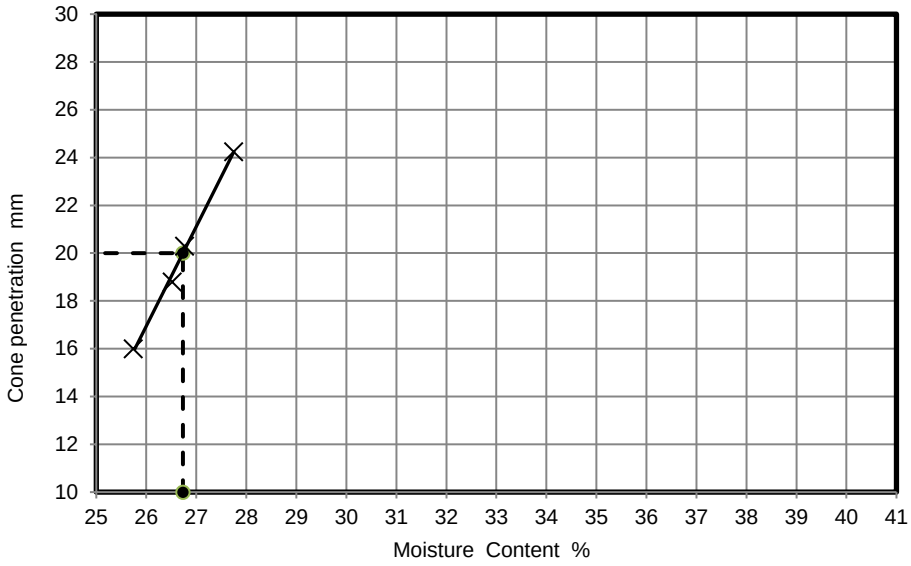
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brown gravelly clayey very silty SAND (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

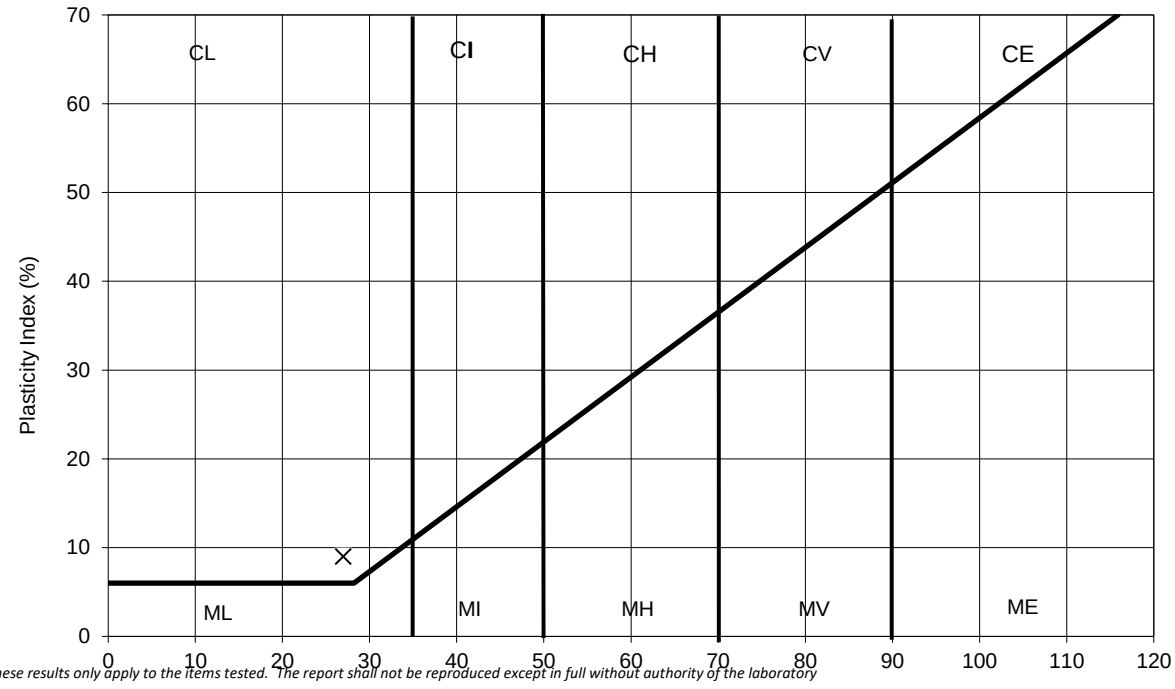


NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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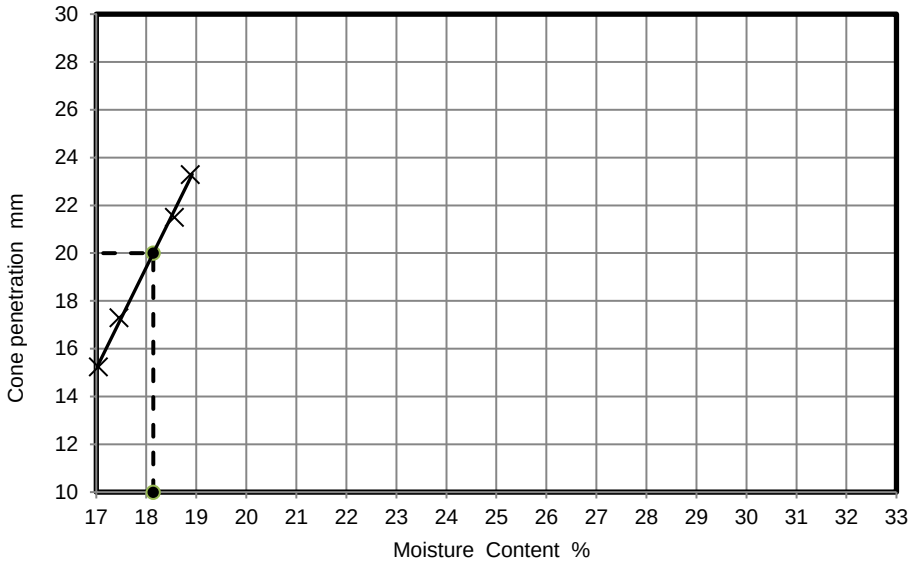
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Dark greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

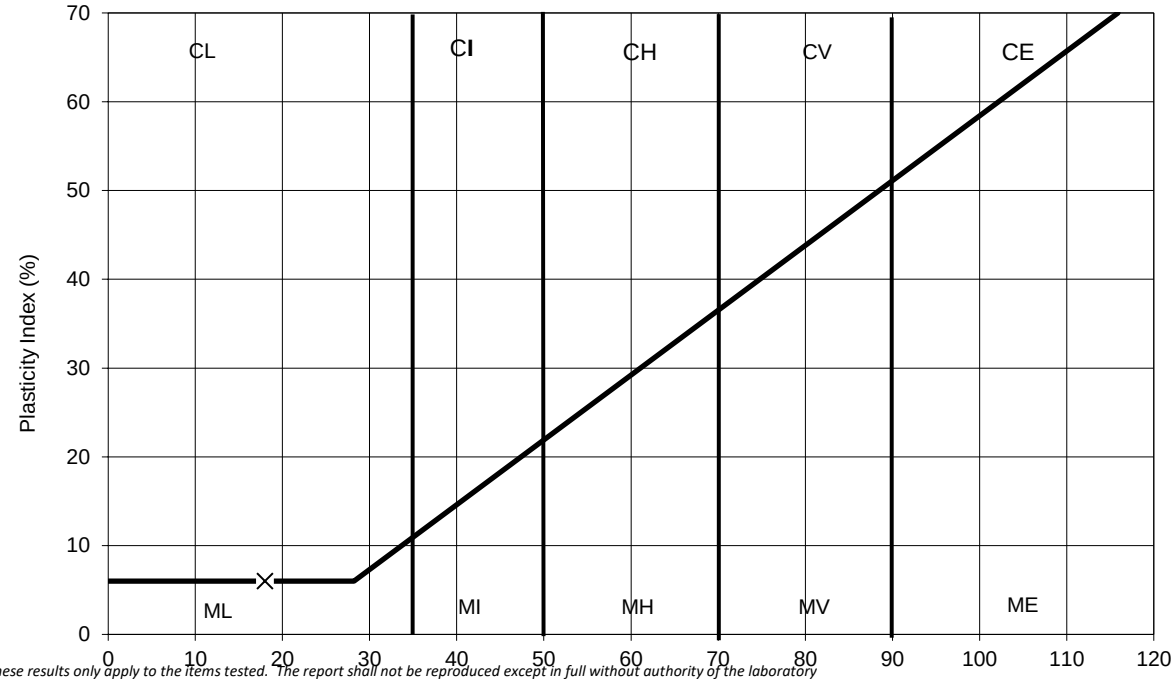


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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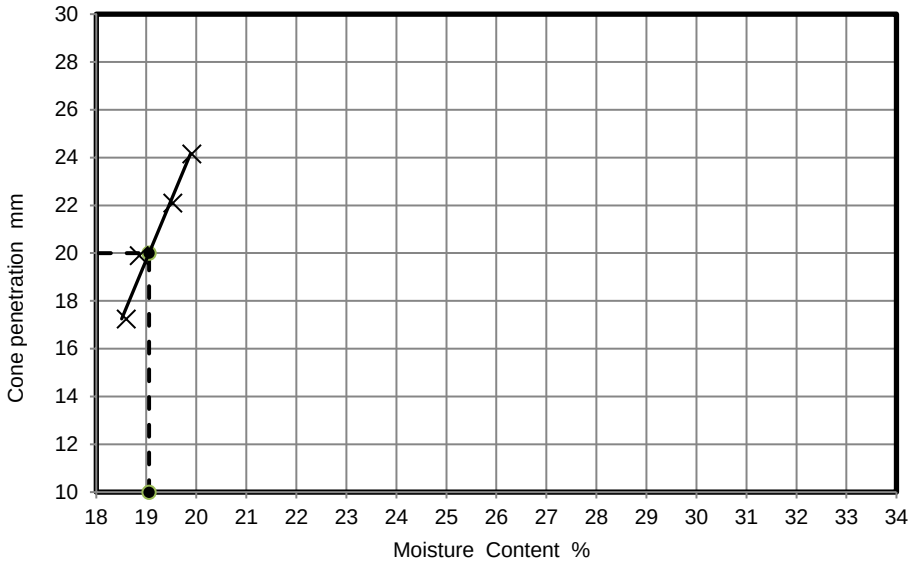
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

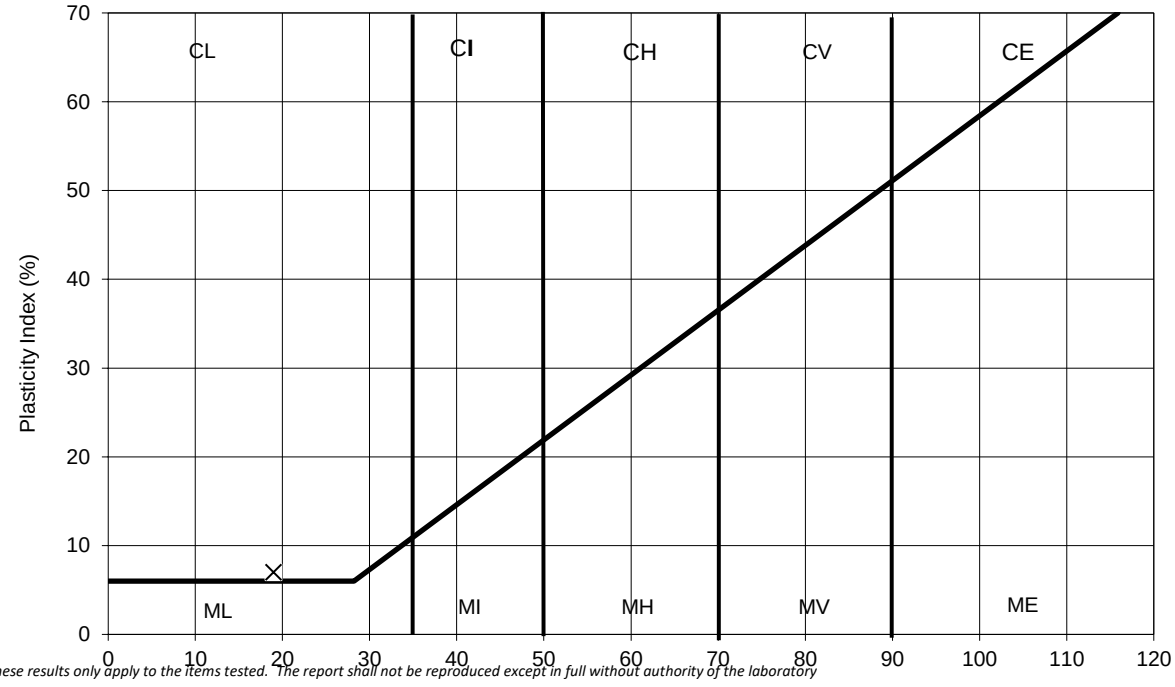


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**46**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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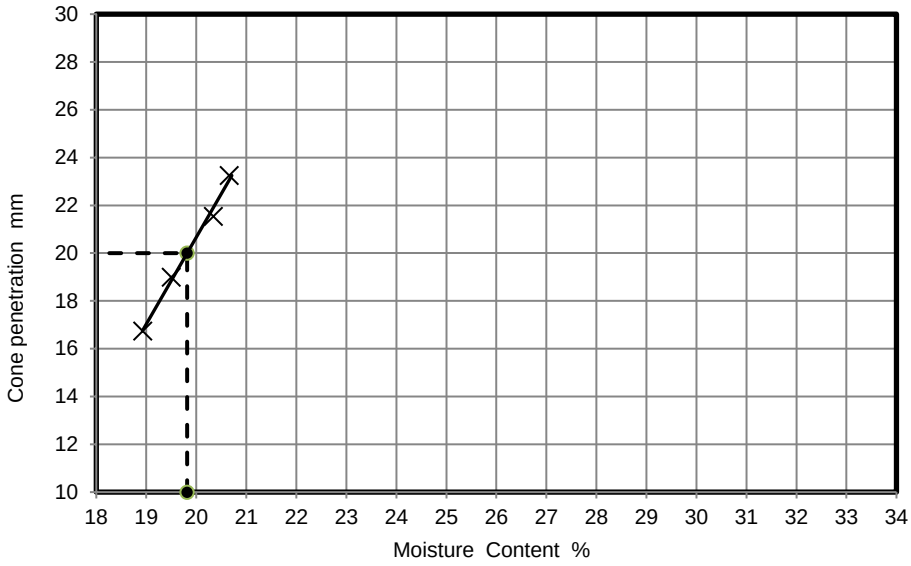
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

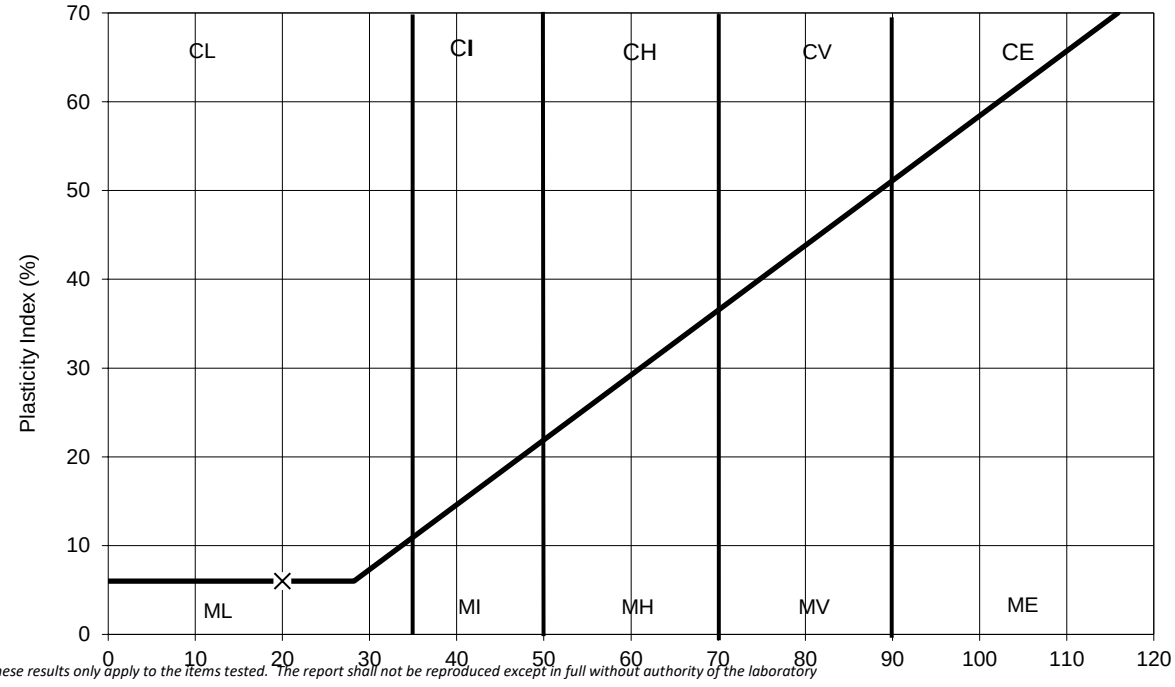


NATURAL MOISTURE CONTENT	**9.1**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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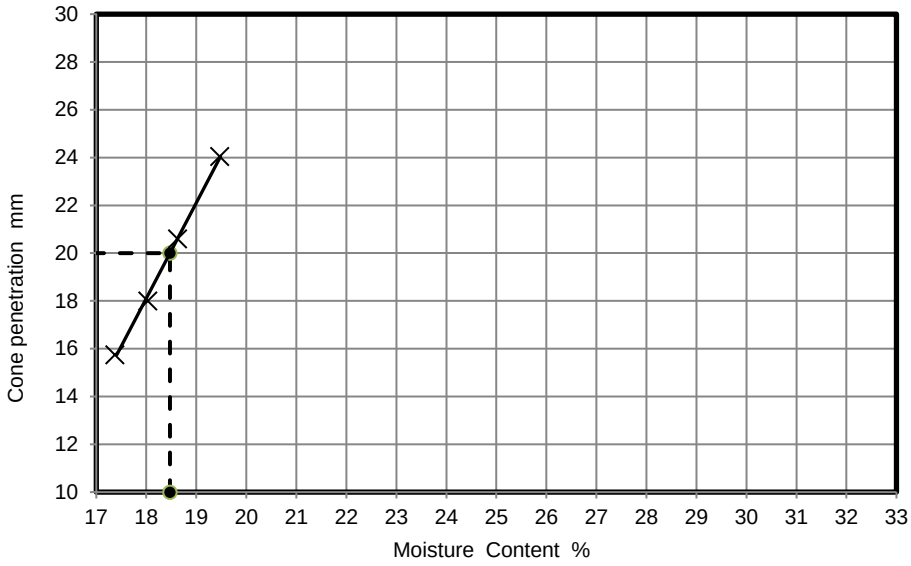
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-73504
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

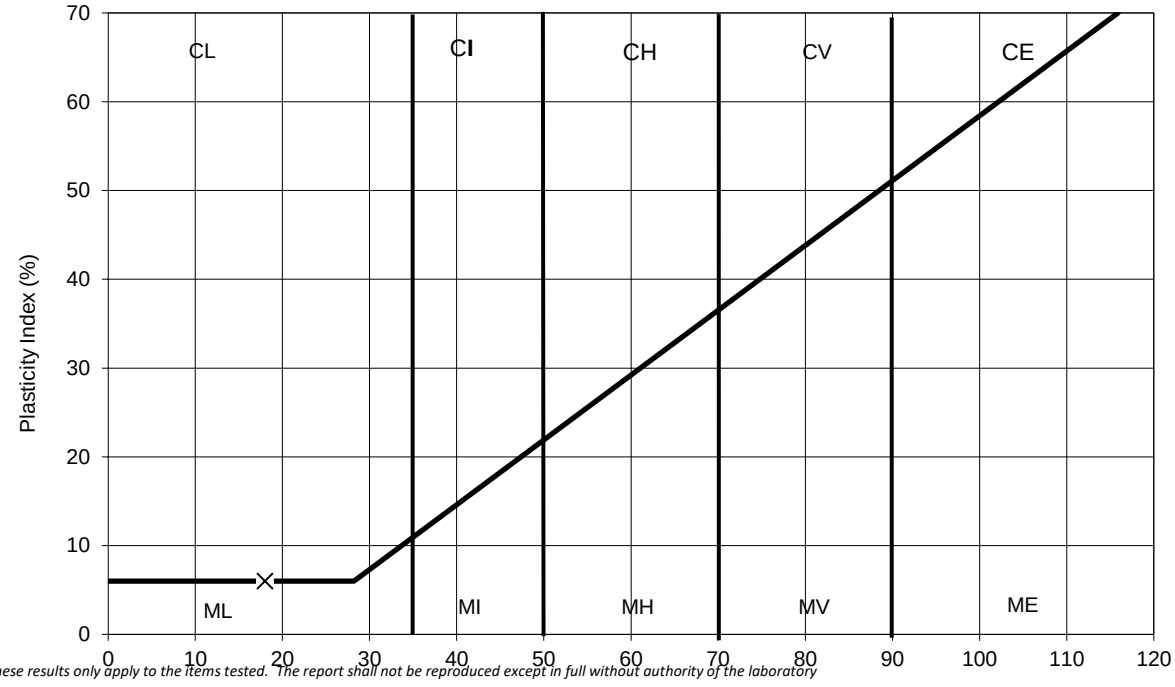


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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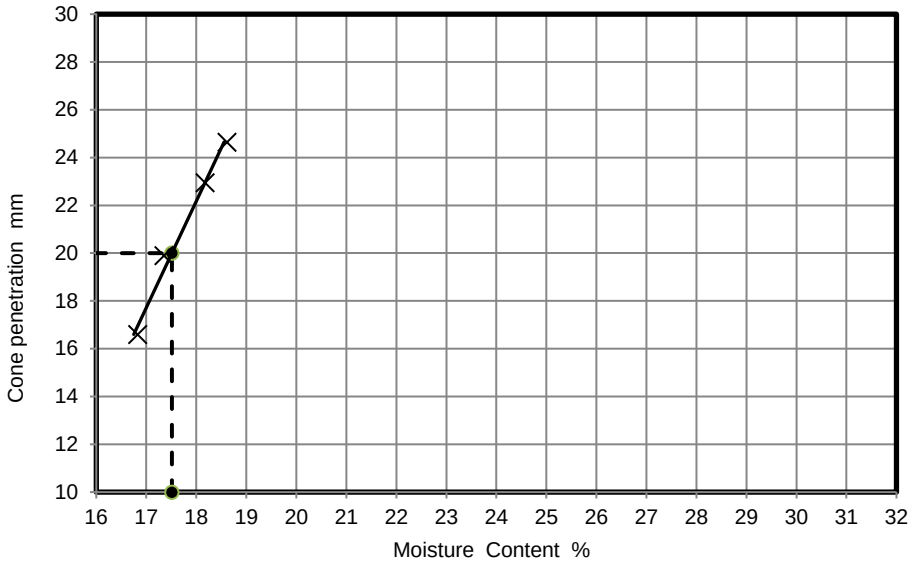
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82812
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly clayey gravelly very silty SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

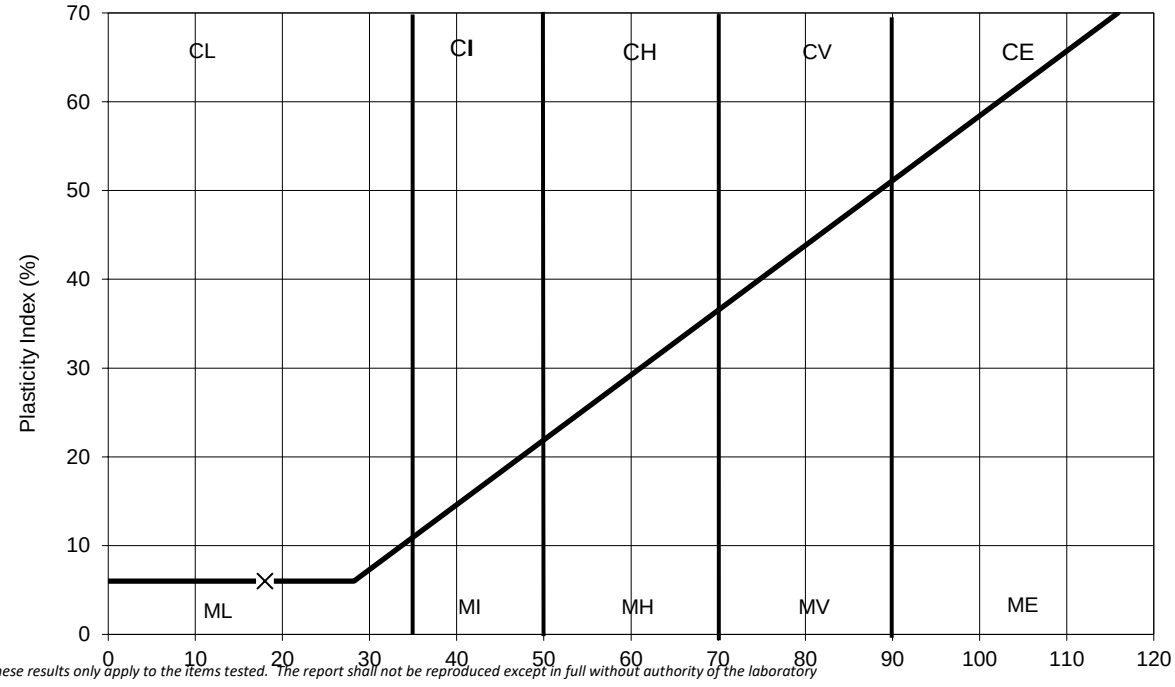


NATURAL MOISTURE CONTENT	**6.2**	**%**
% PASSING 425µm SIEVE	**36**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

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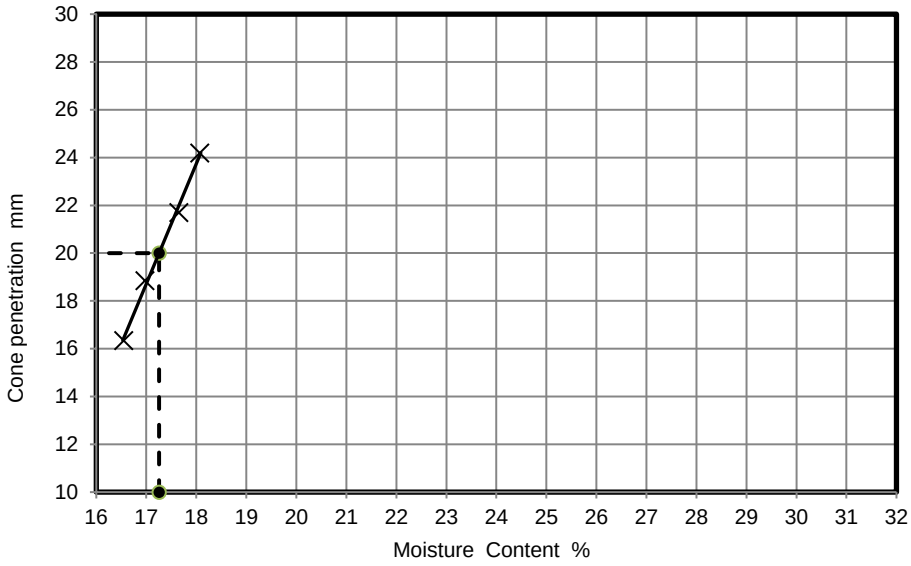
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82902
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

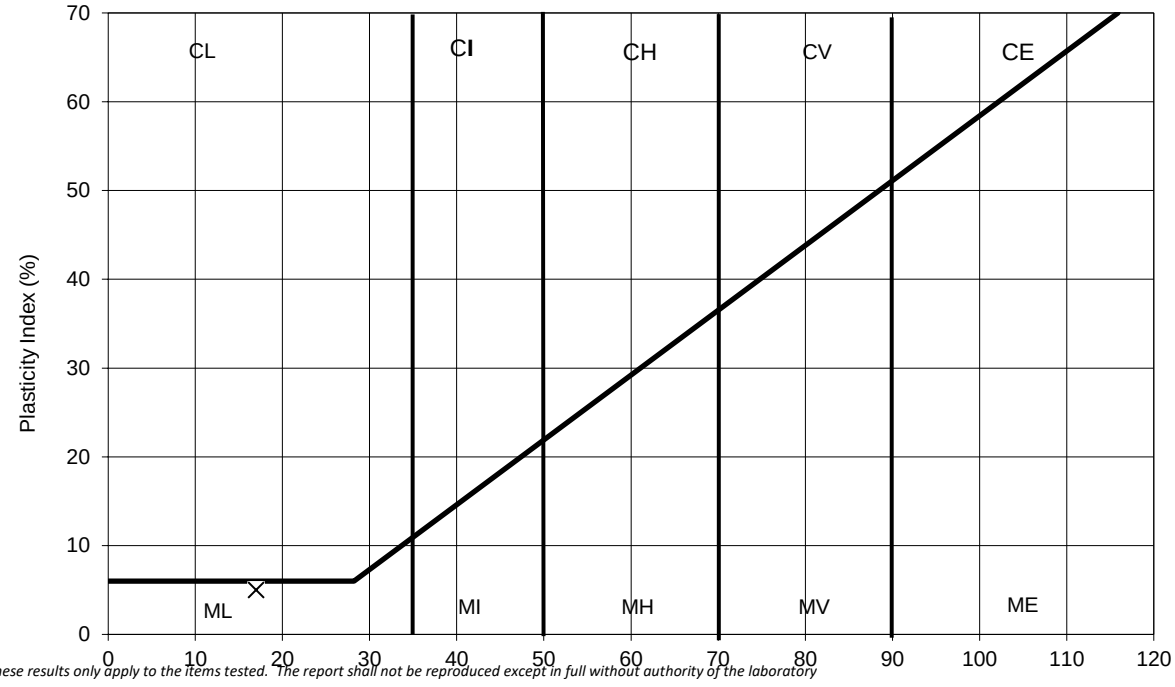


NATURAL MOISTURE CONTENT	**8.3**	**%**
% PASSING 425µm SIEVE	**44**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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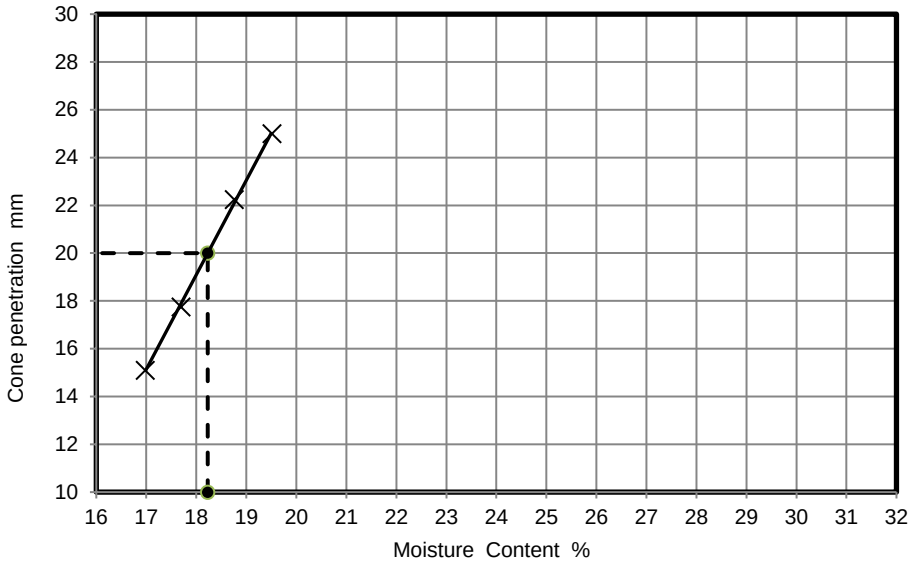
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82902
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

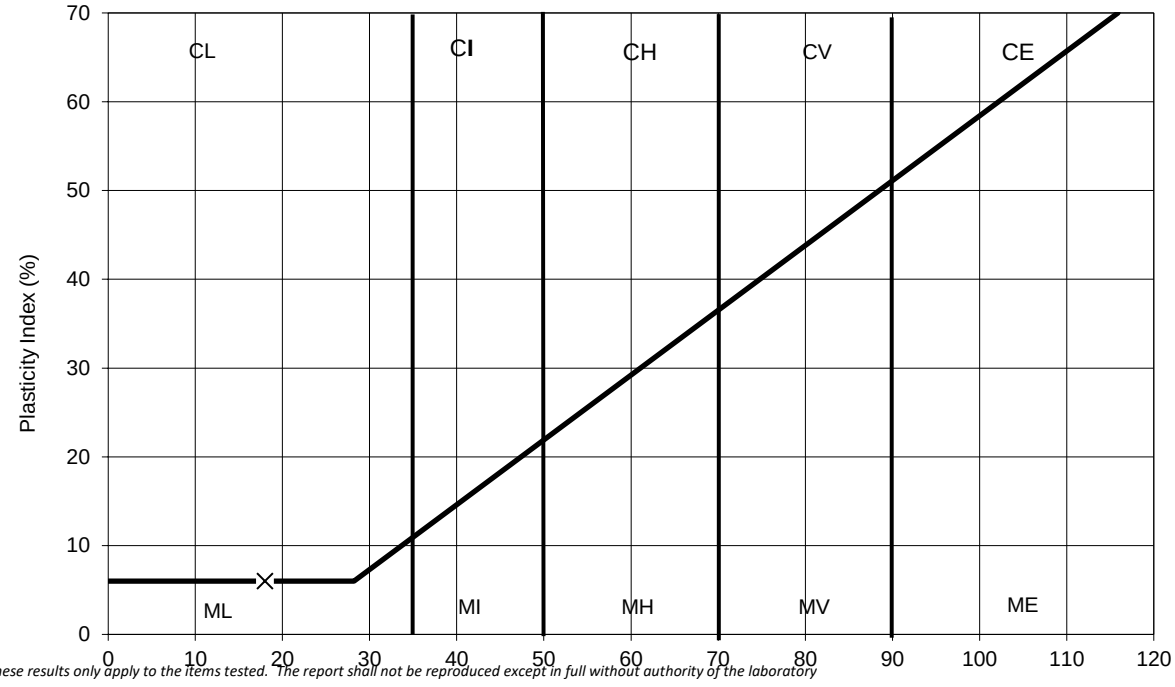


NATURAL MOISTURE CONTENT	**8.9**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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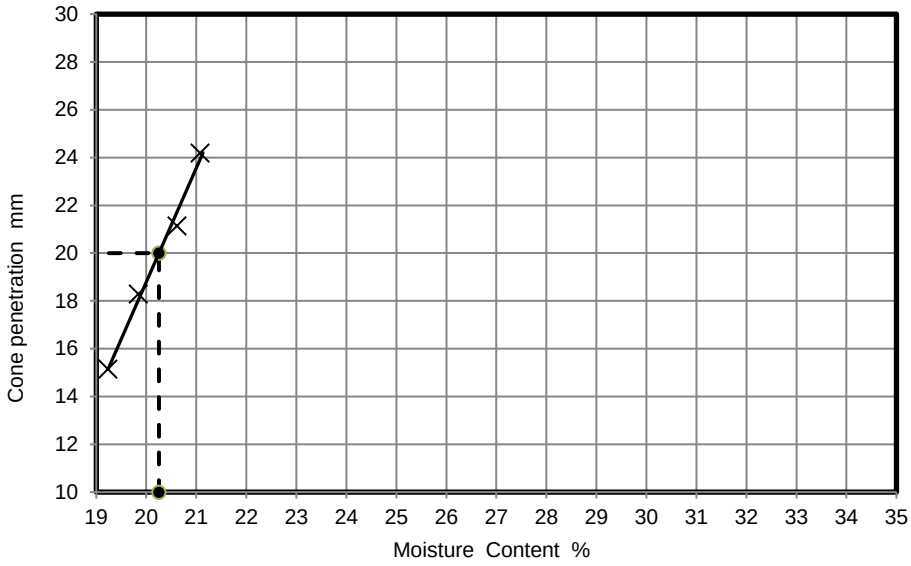
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82979
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

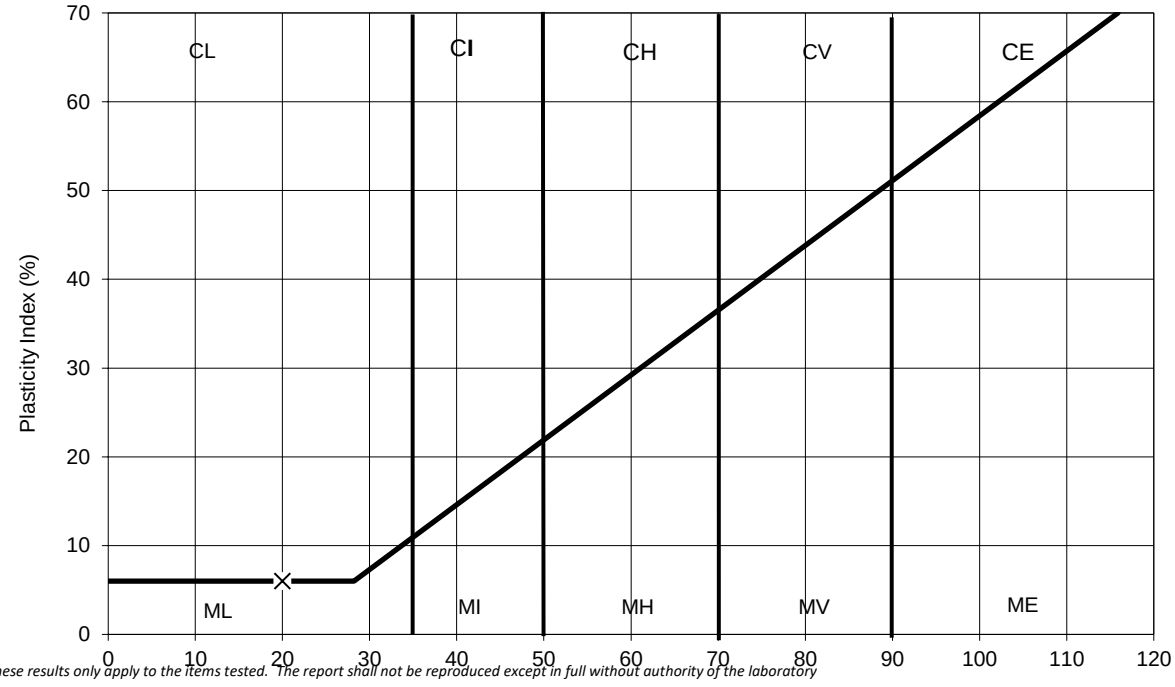


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**47**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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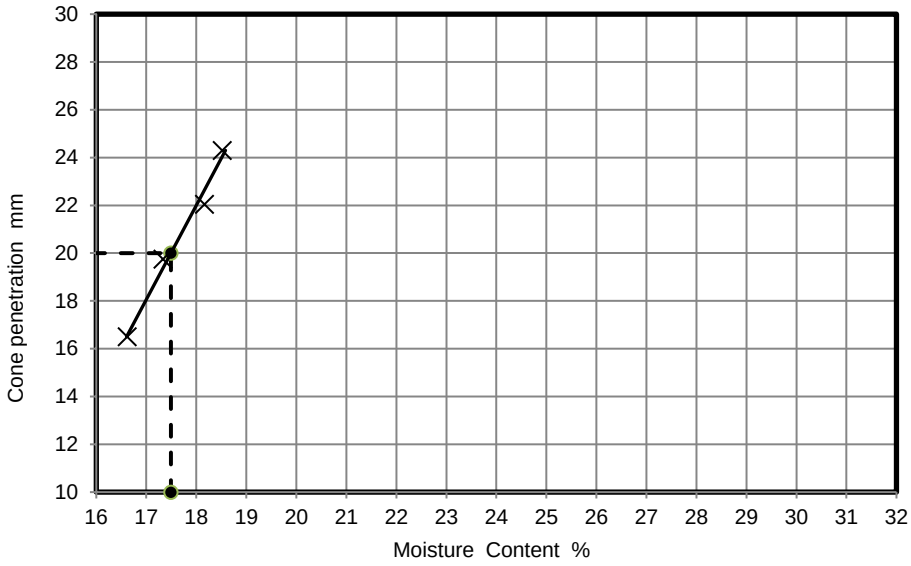
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-82979
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

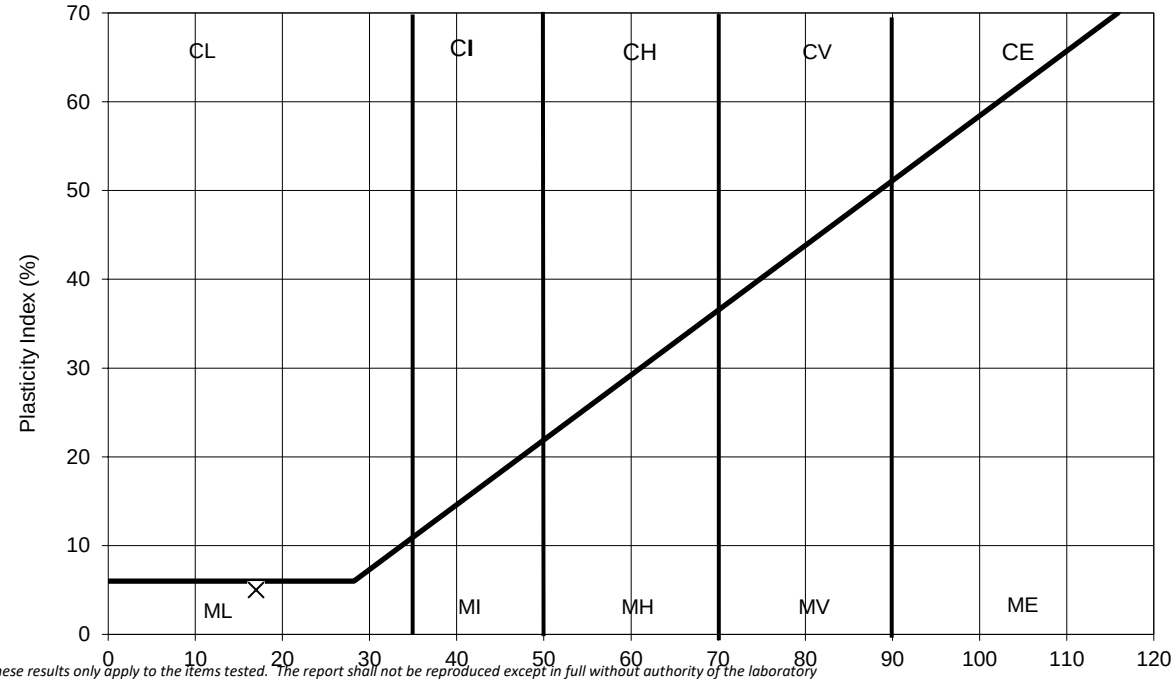


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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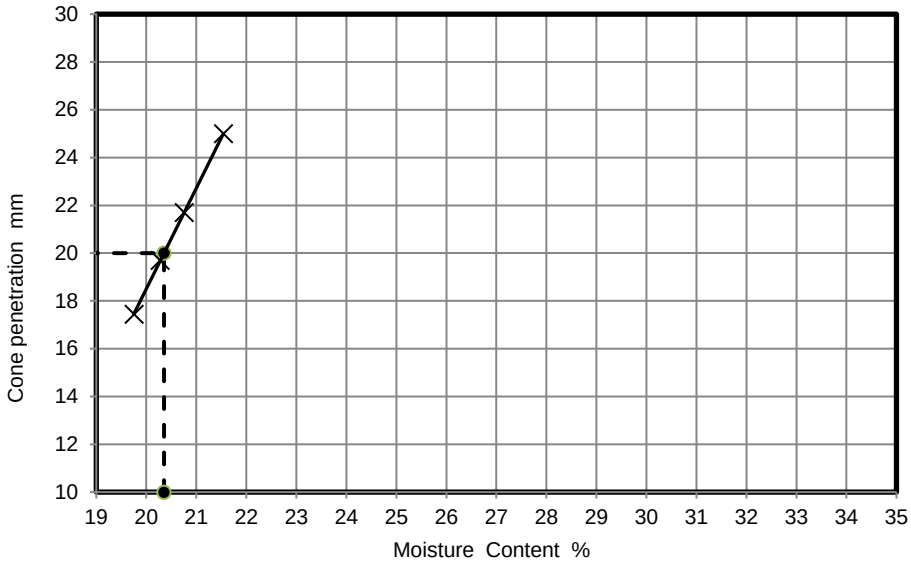
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

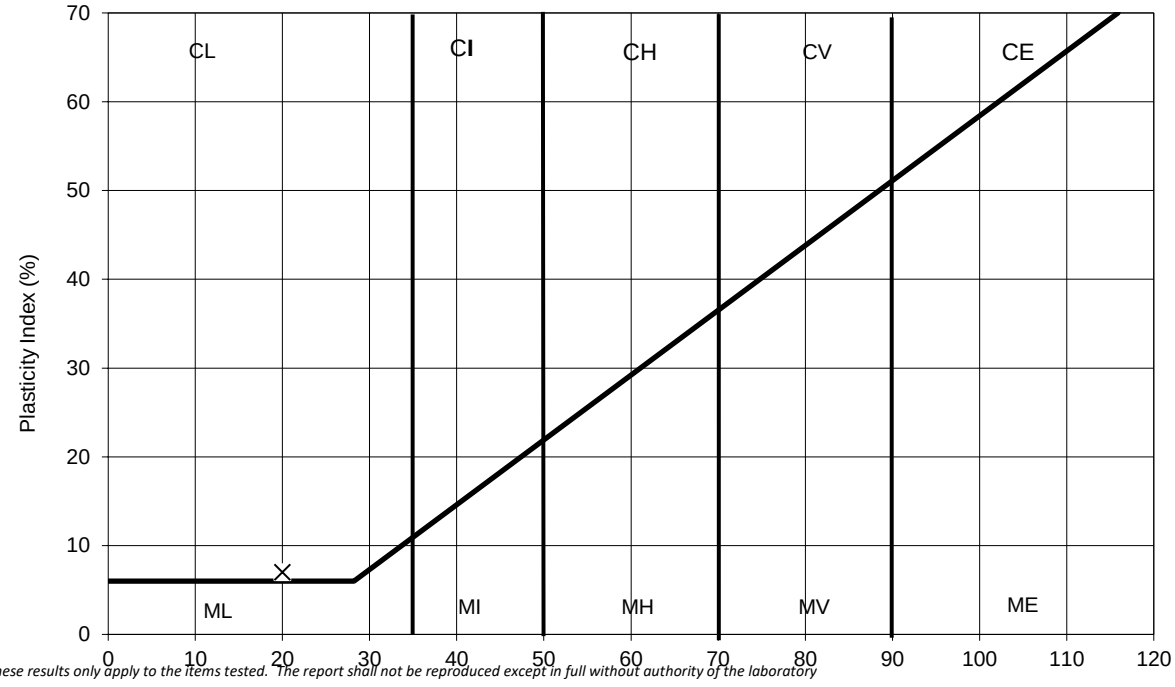


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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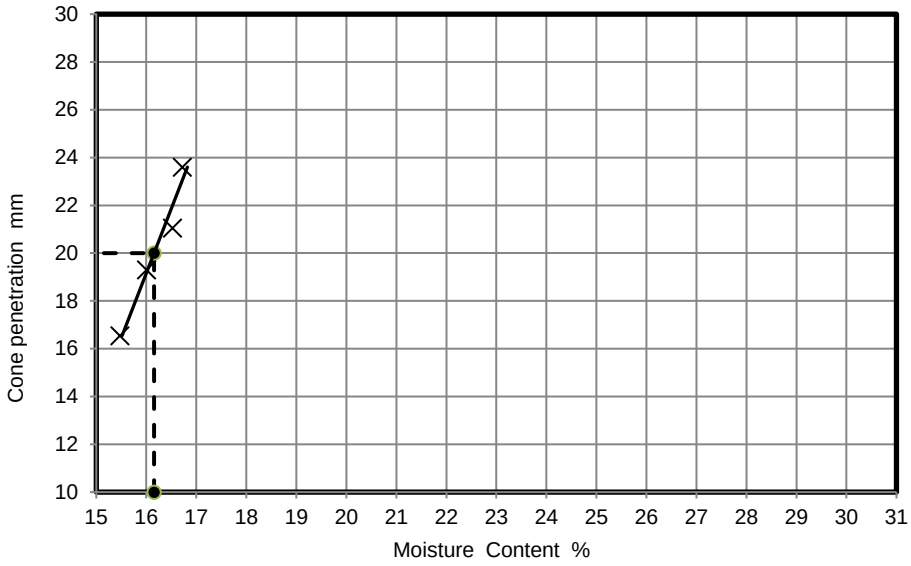
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

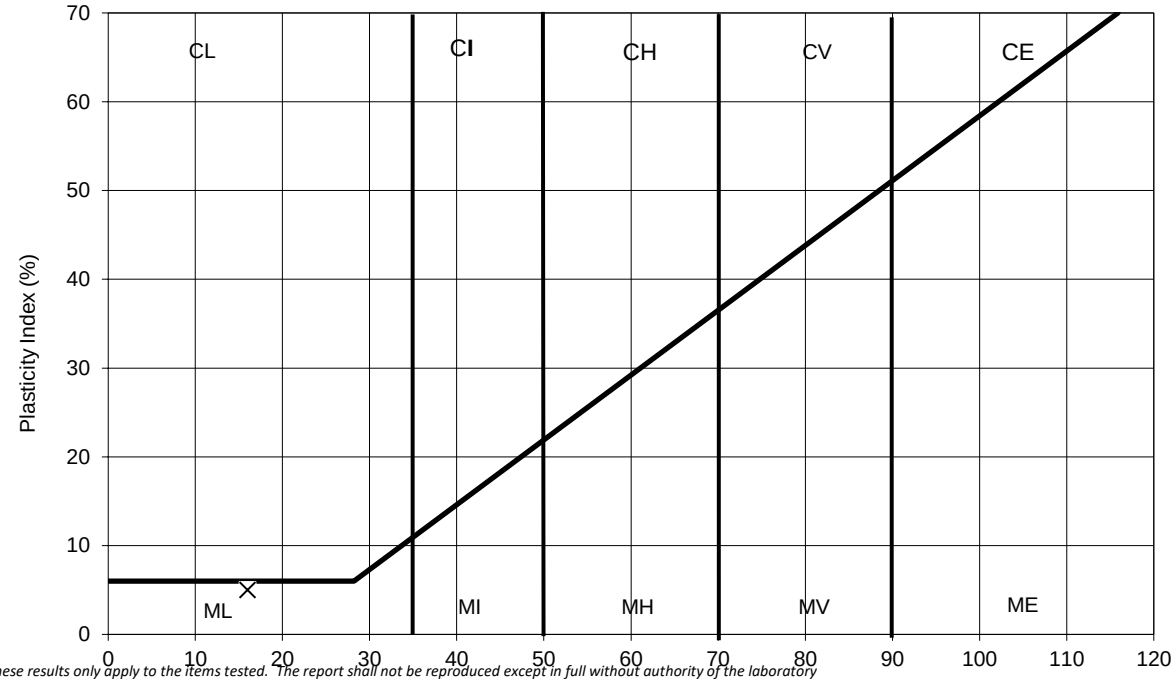


NATURAL MOISTURE CONTENT	**7.8**	**%**
% PASSING 425µm SIEVE	**46**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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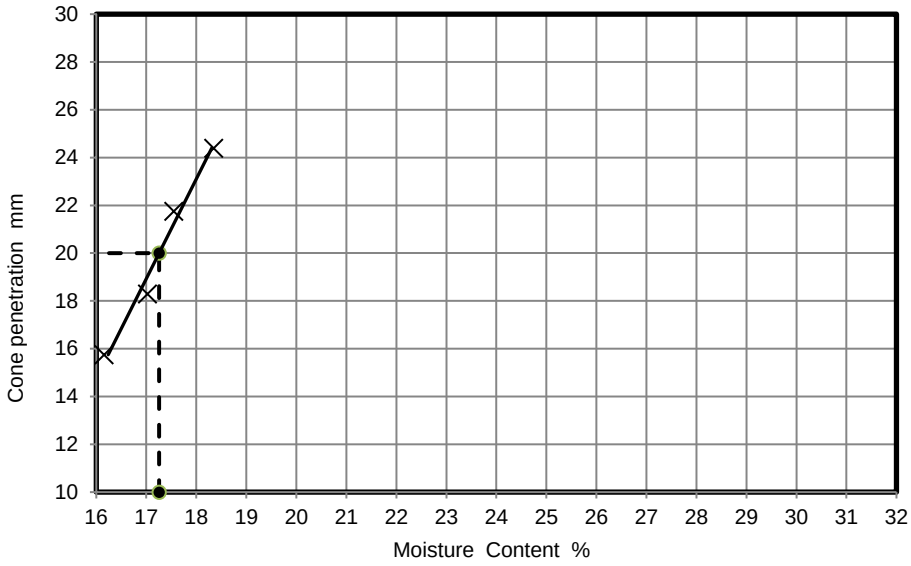
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.40 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

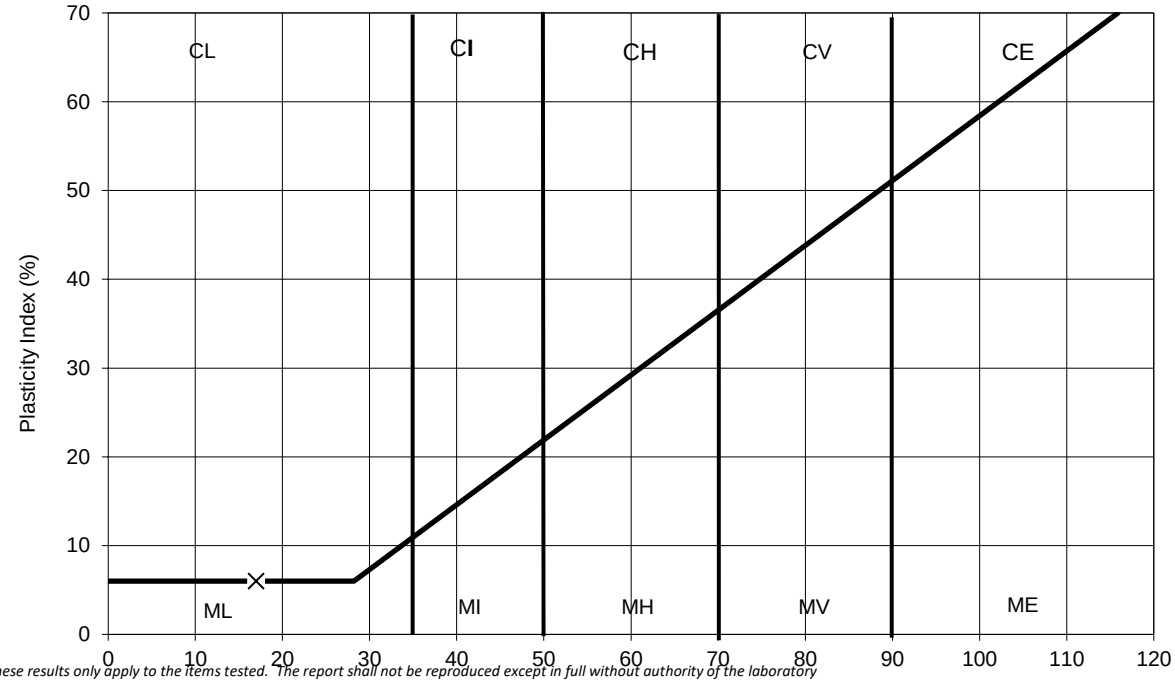


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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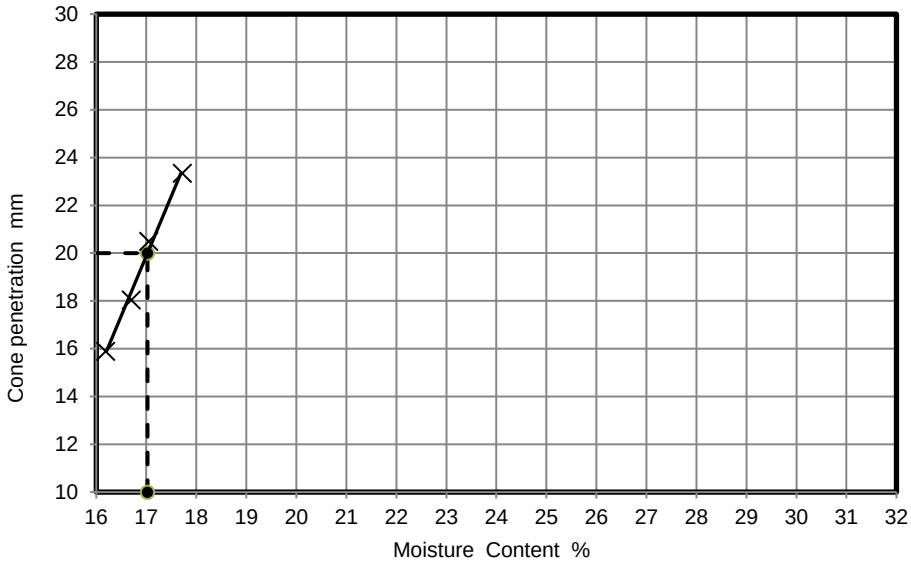
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-83303
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown gravelly very sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

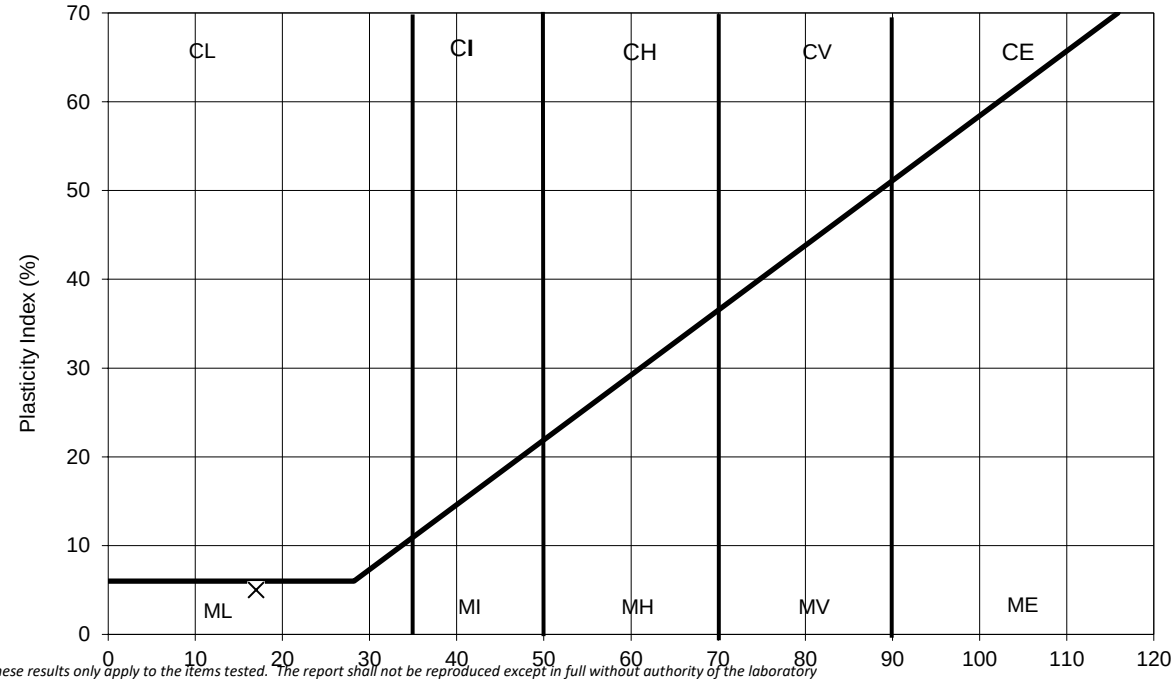


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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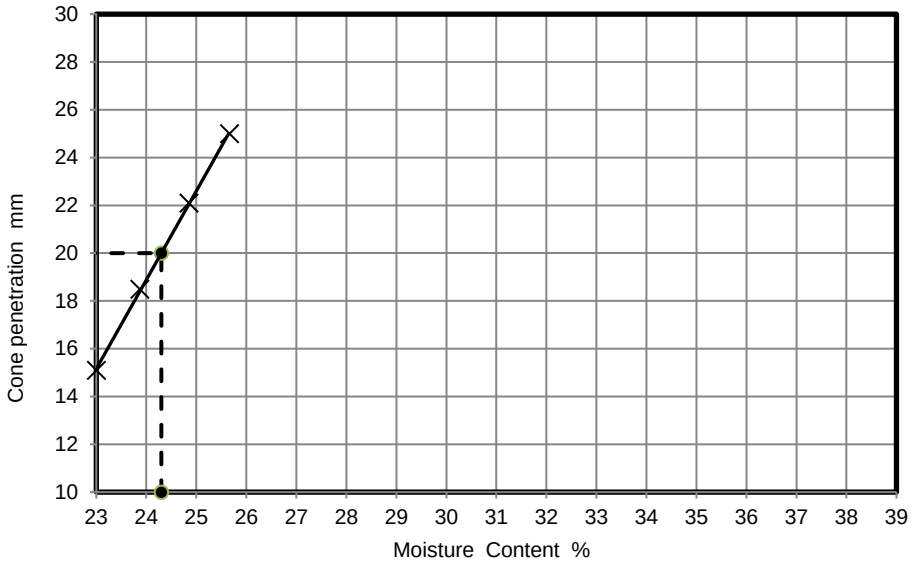
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-84901
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

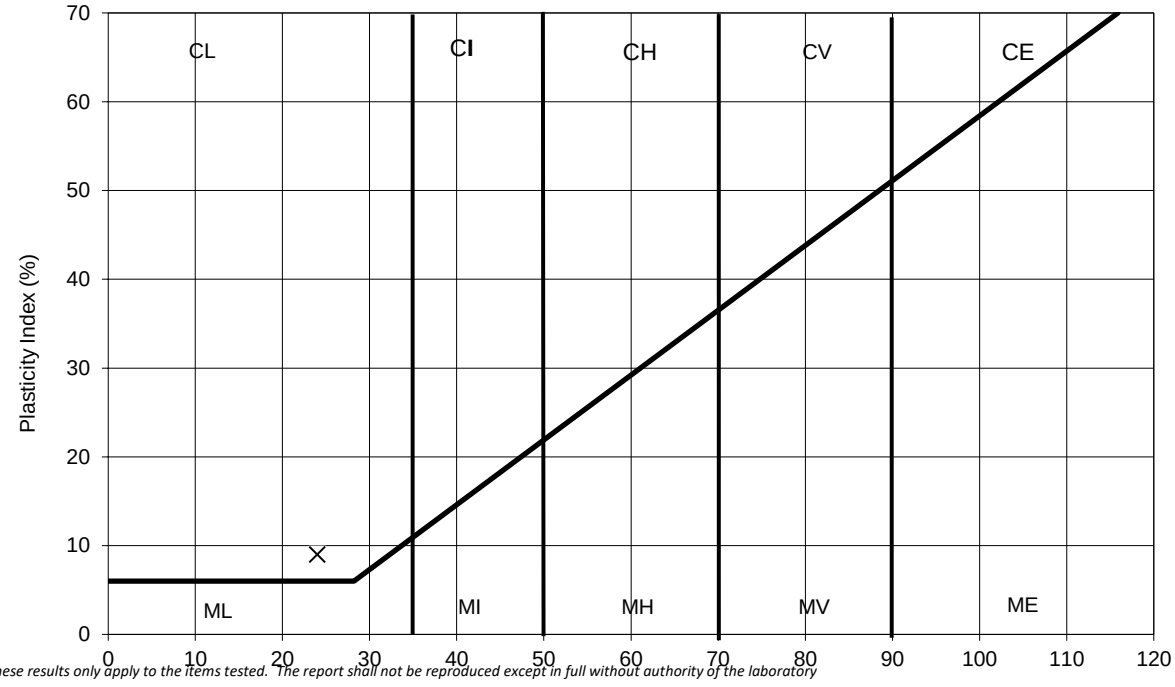


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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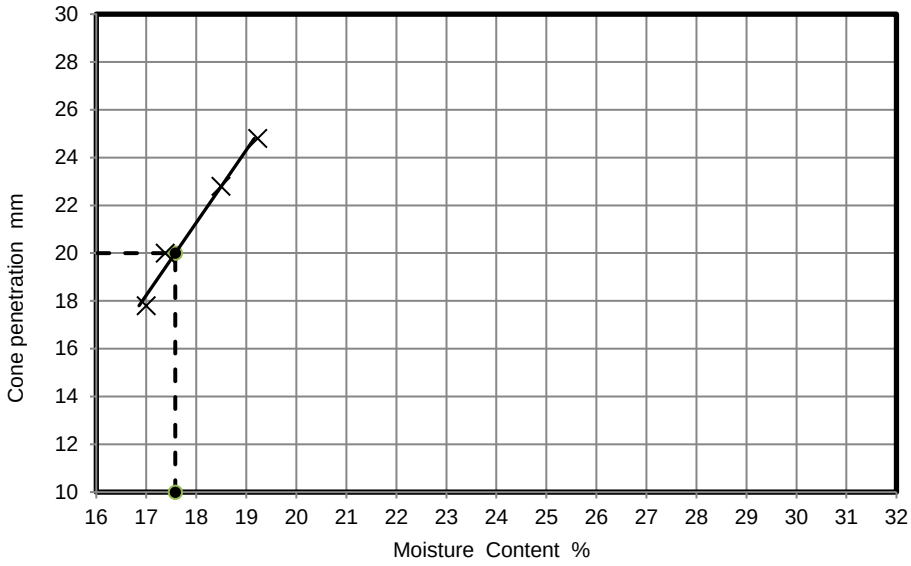
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-84901
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

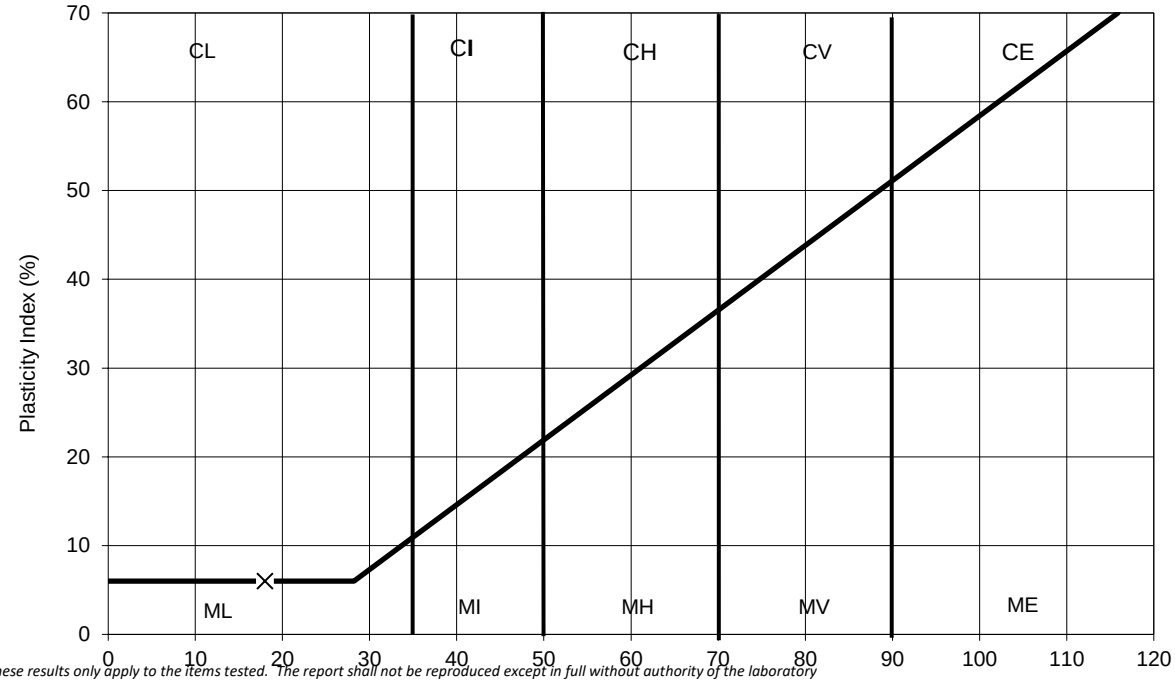


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

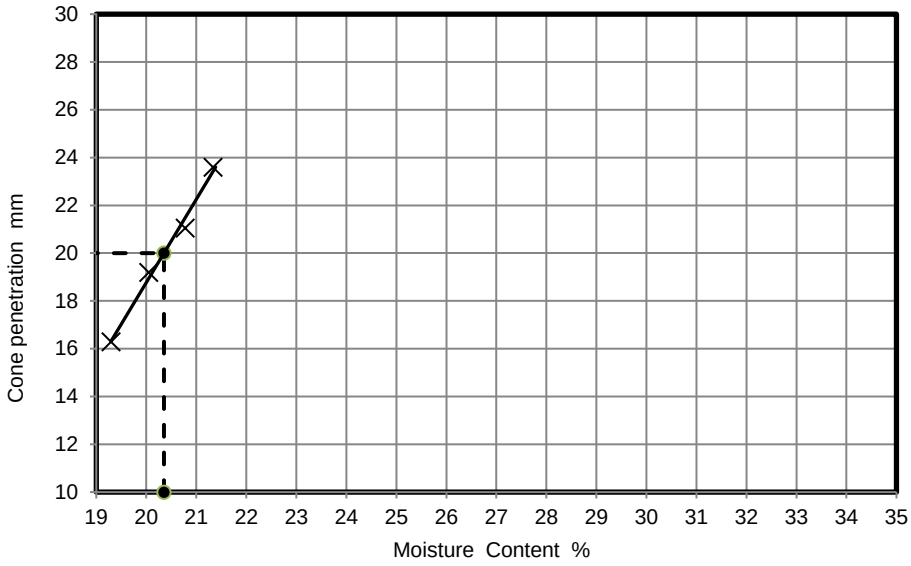
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

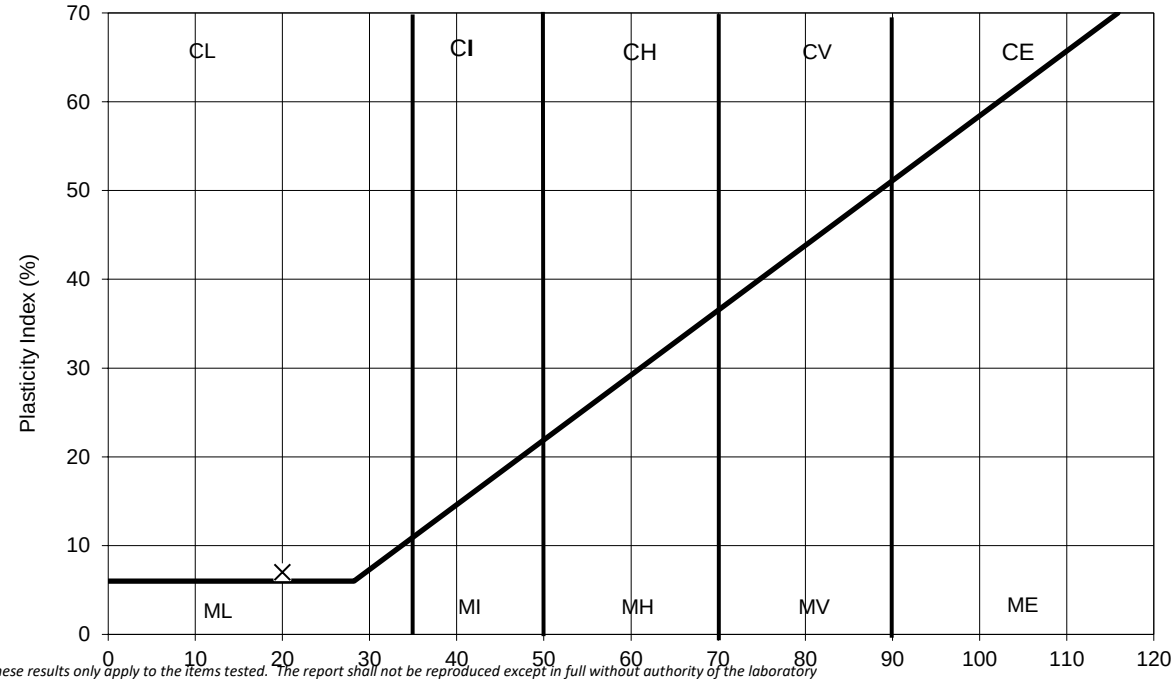
				Job No.	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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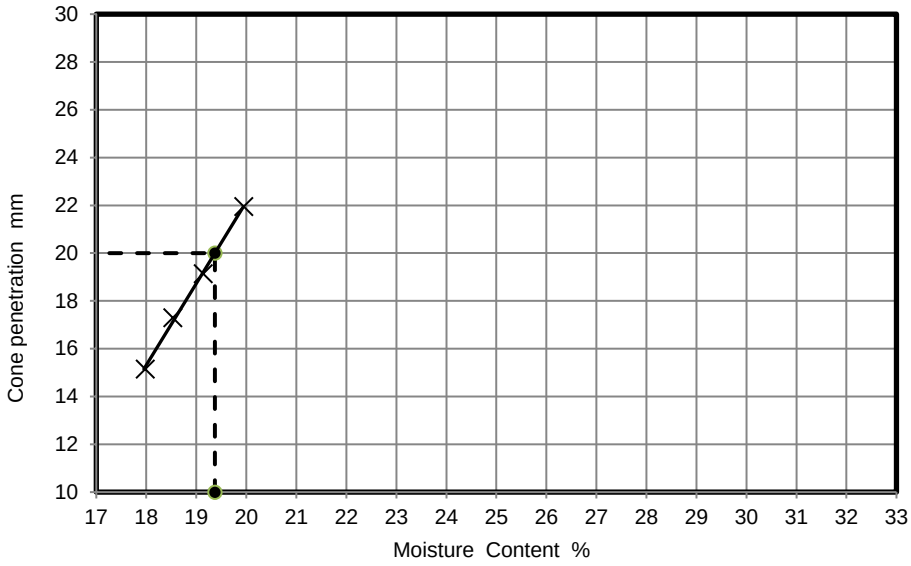
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

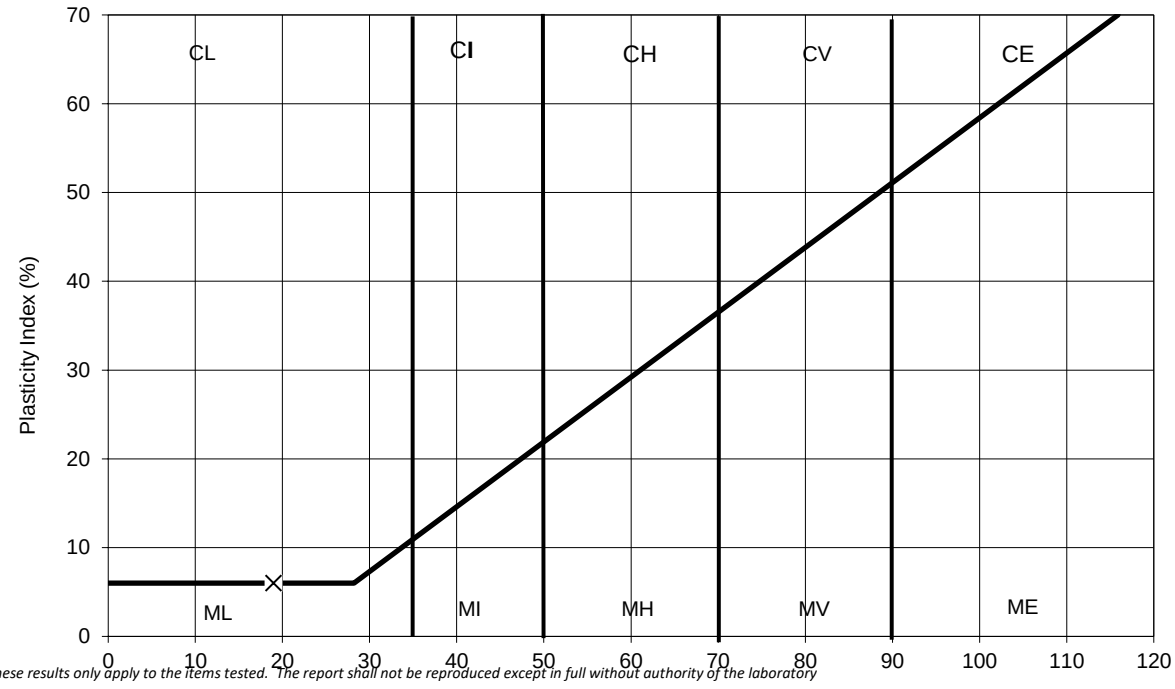


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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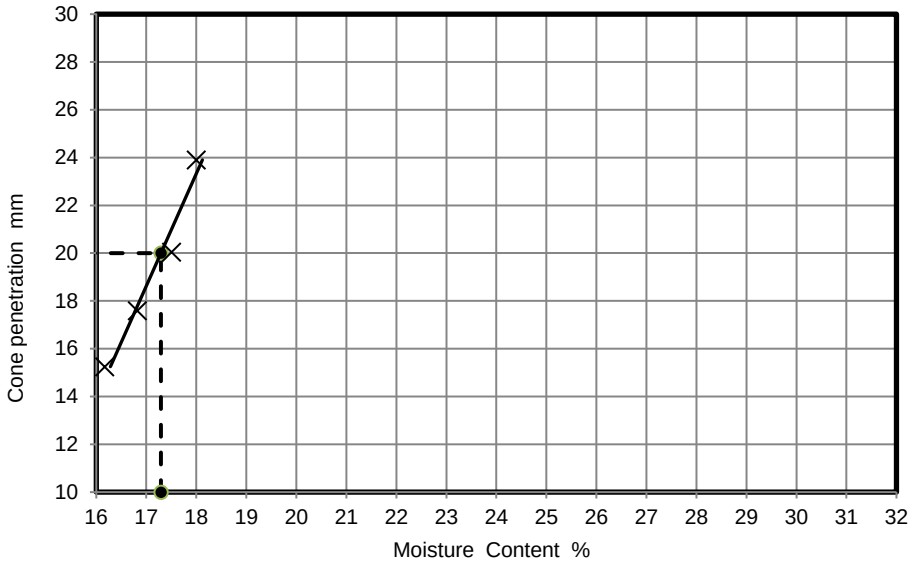
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

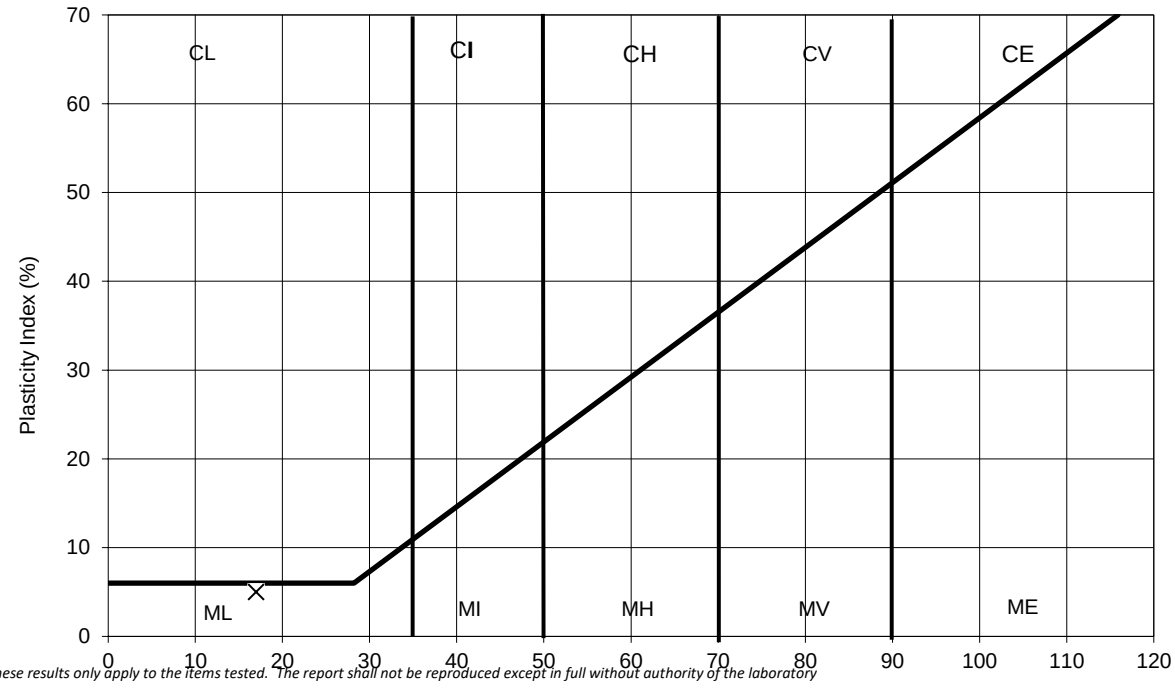


NATURAL MOISTURE CONTENT	**6.1**	**%**
% PASSING 425µm SIEVE	**37**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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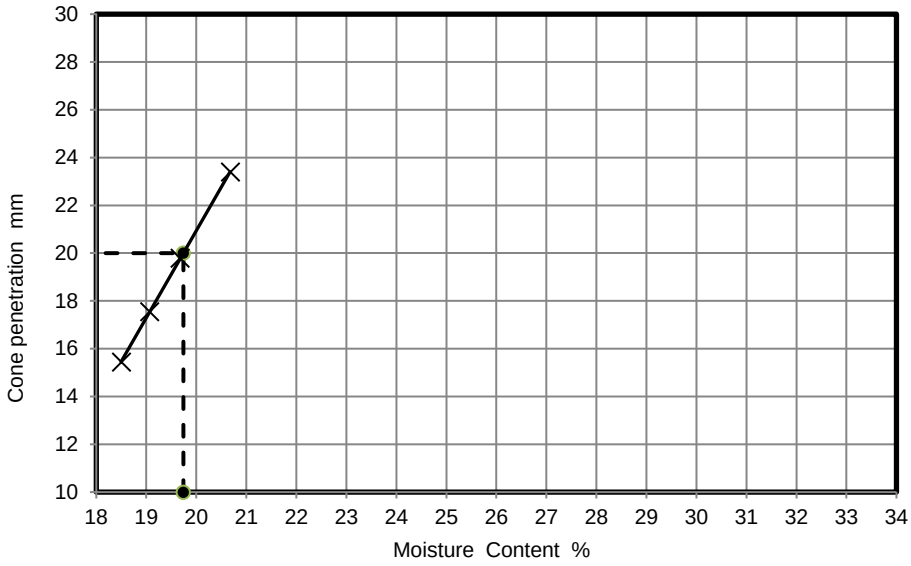
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85102
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

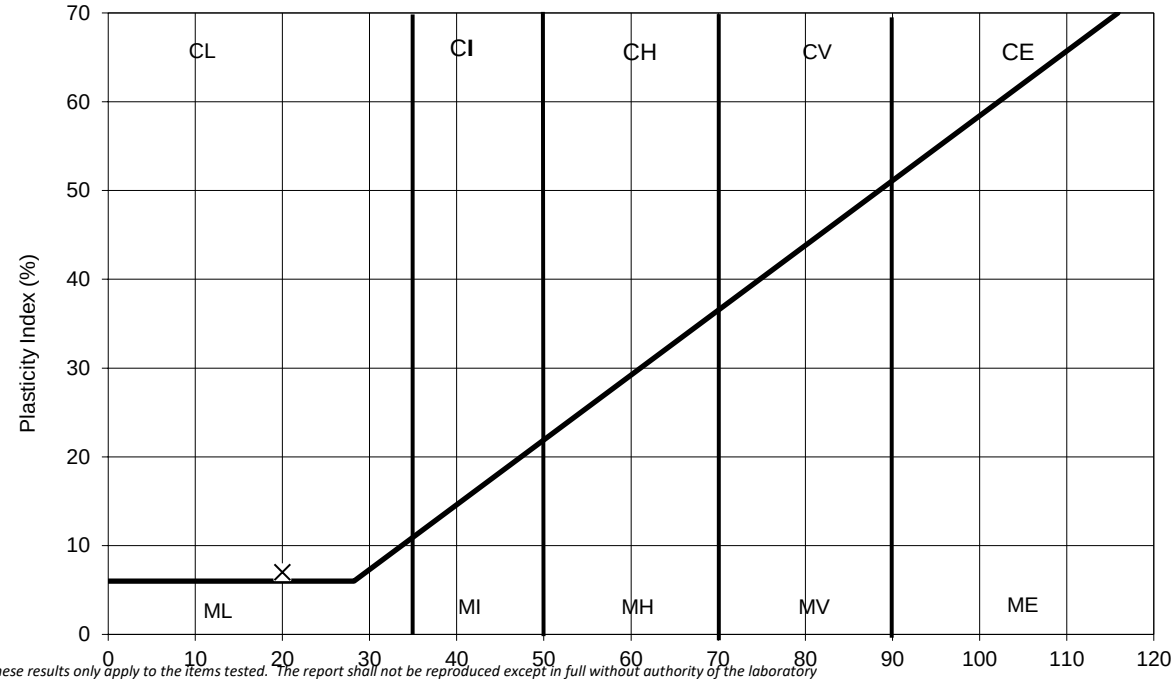


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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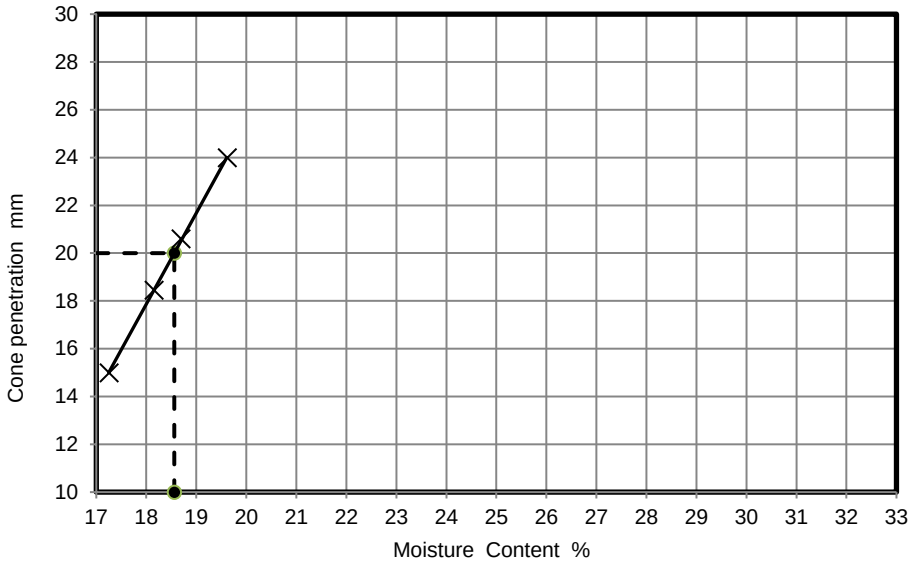
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85102
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.90 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

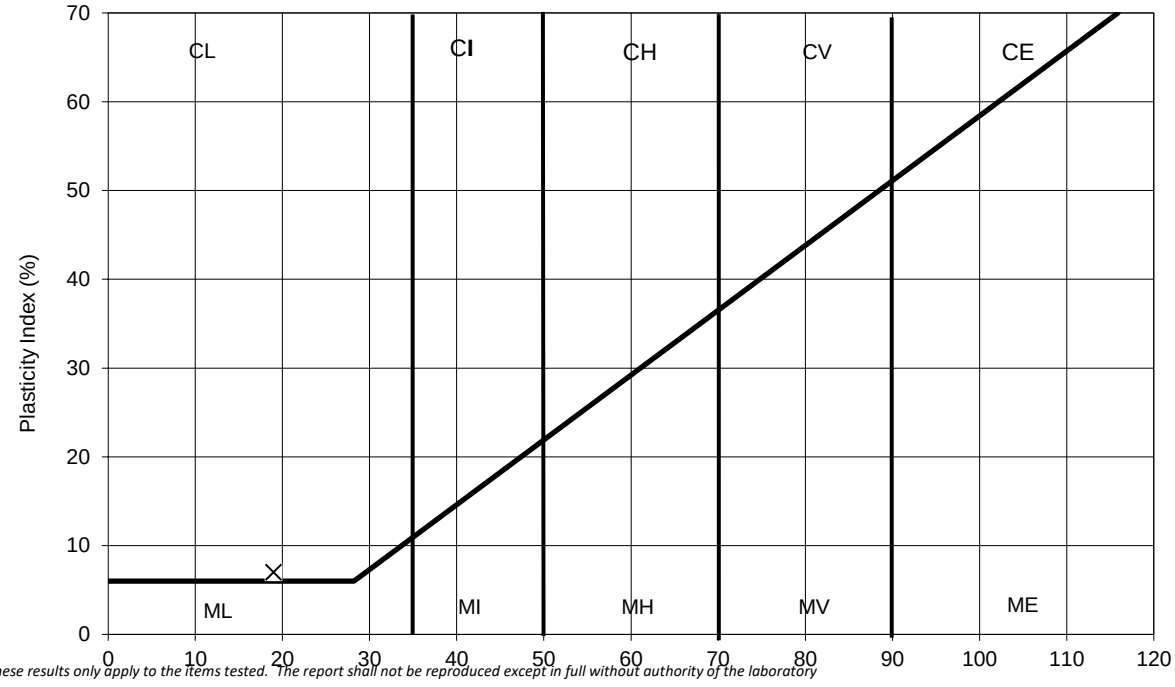


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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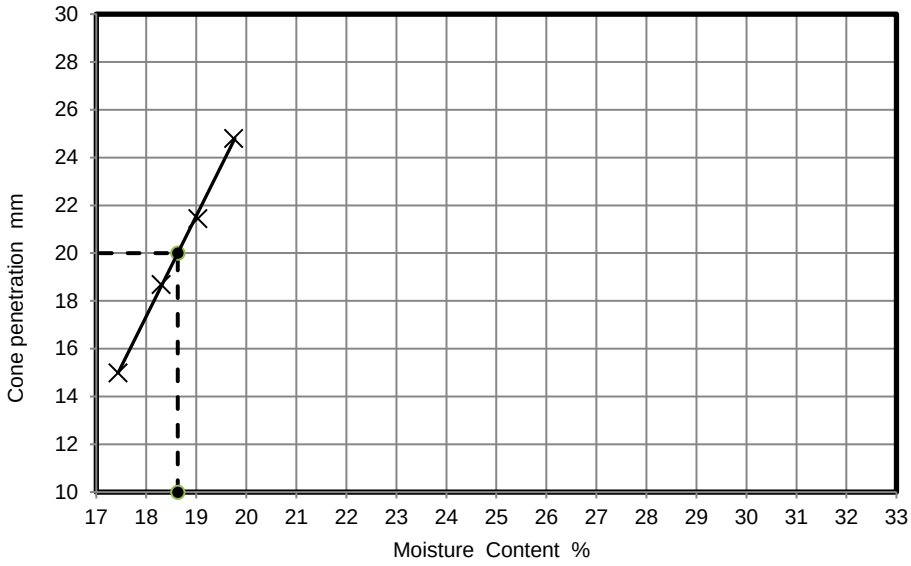
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85302
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

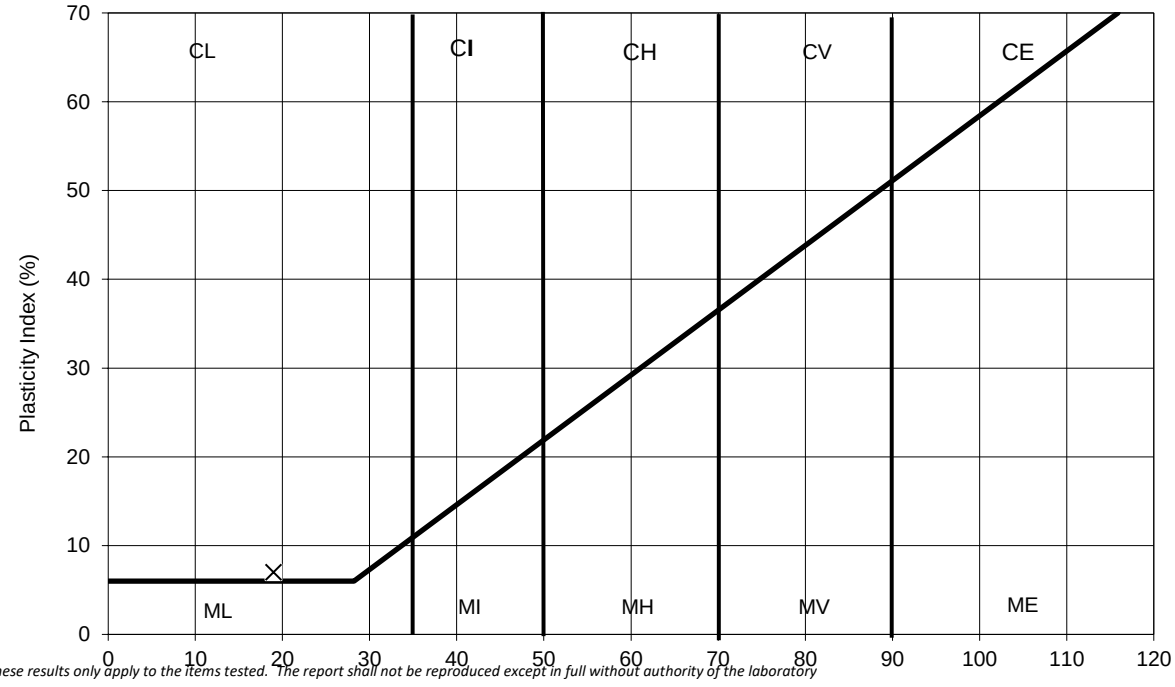


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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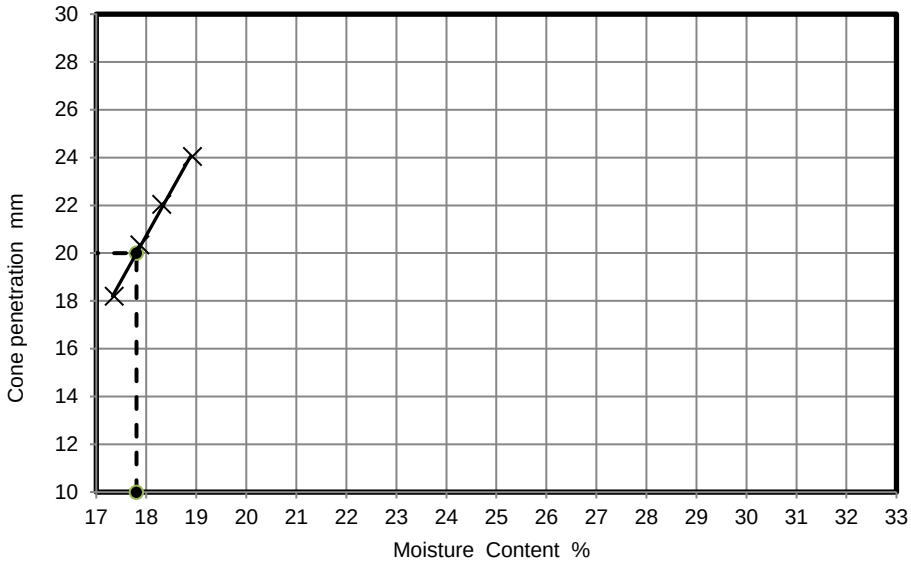
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85302
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

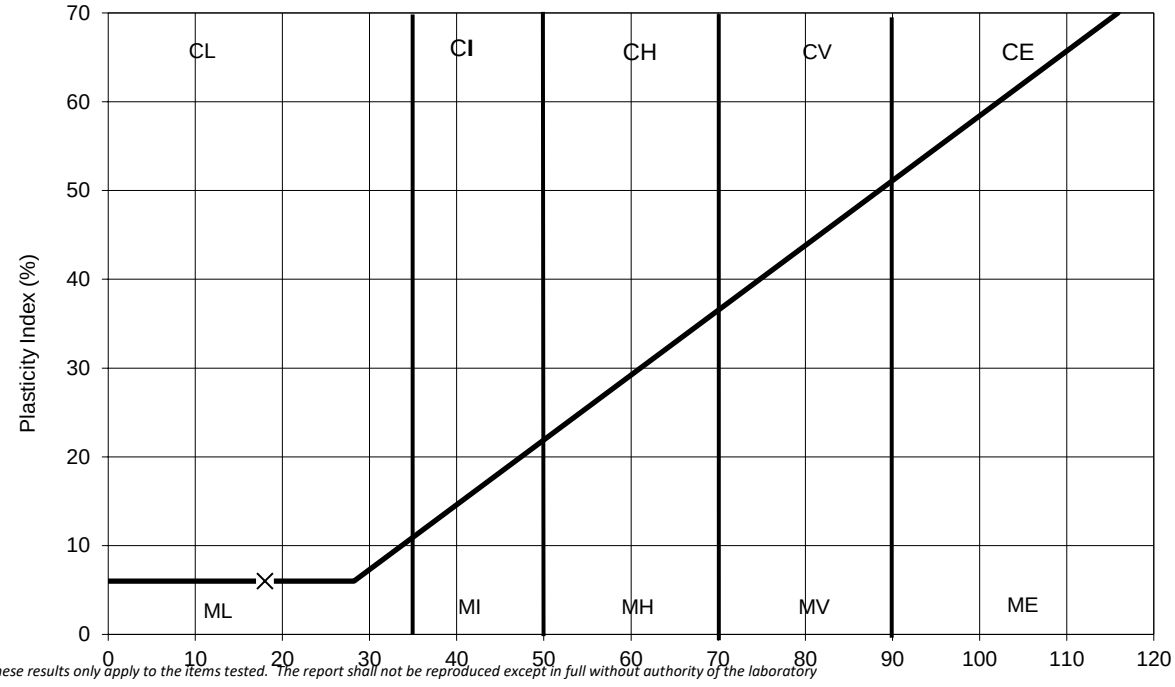


NATURAL MOISTURE CONTENT	**8.7**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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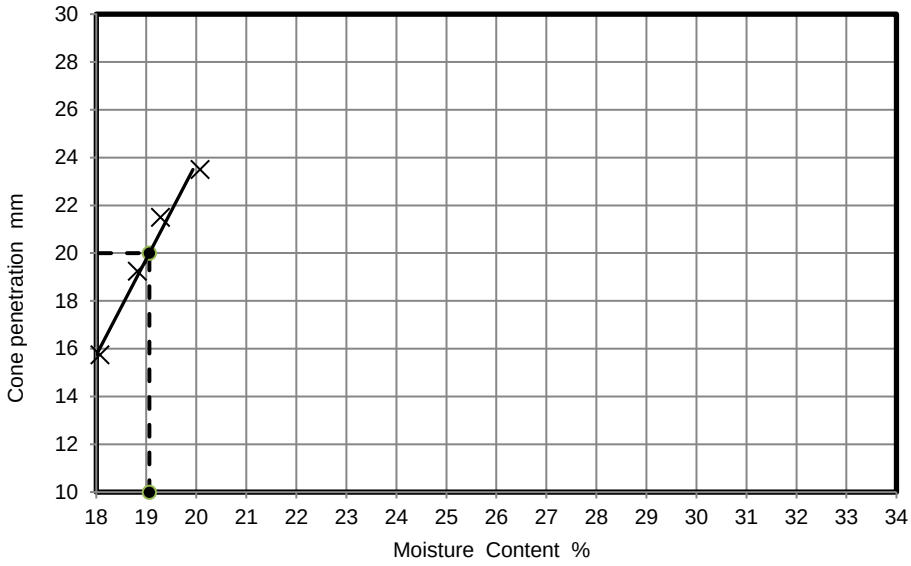
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

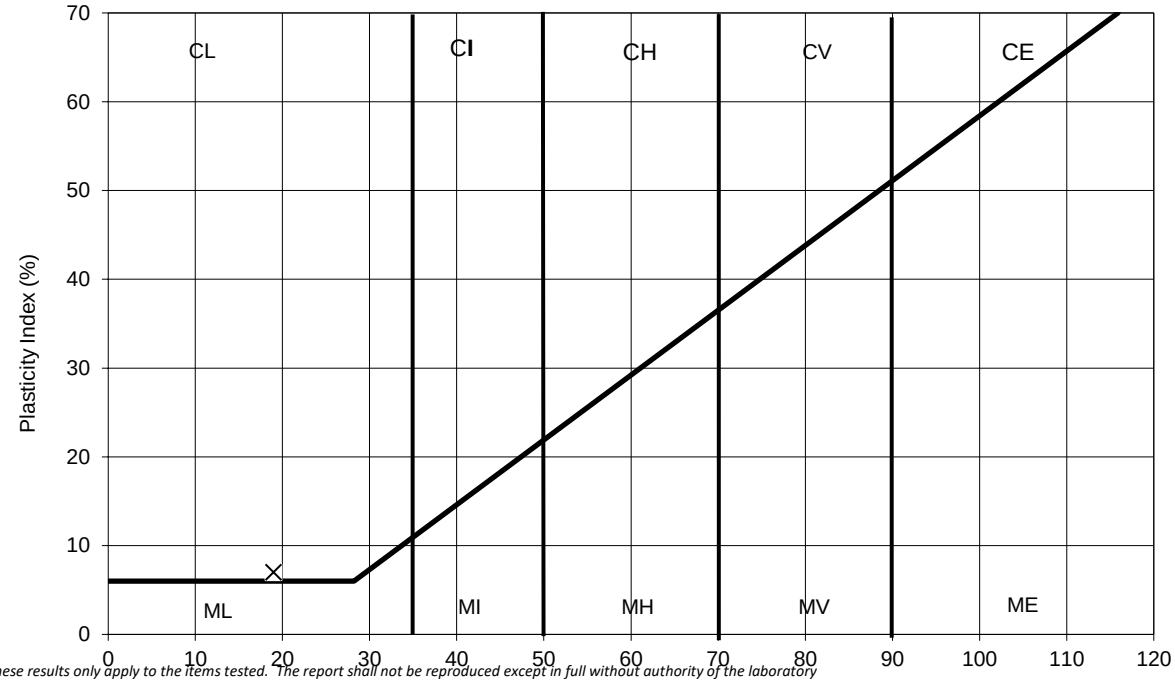


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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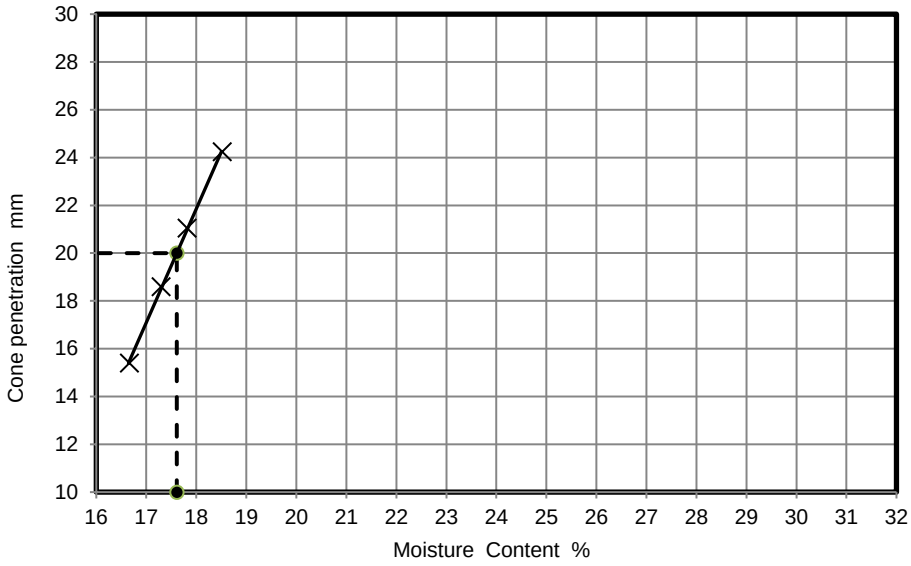
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

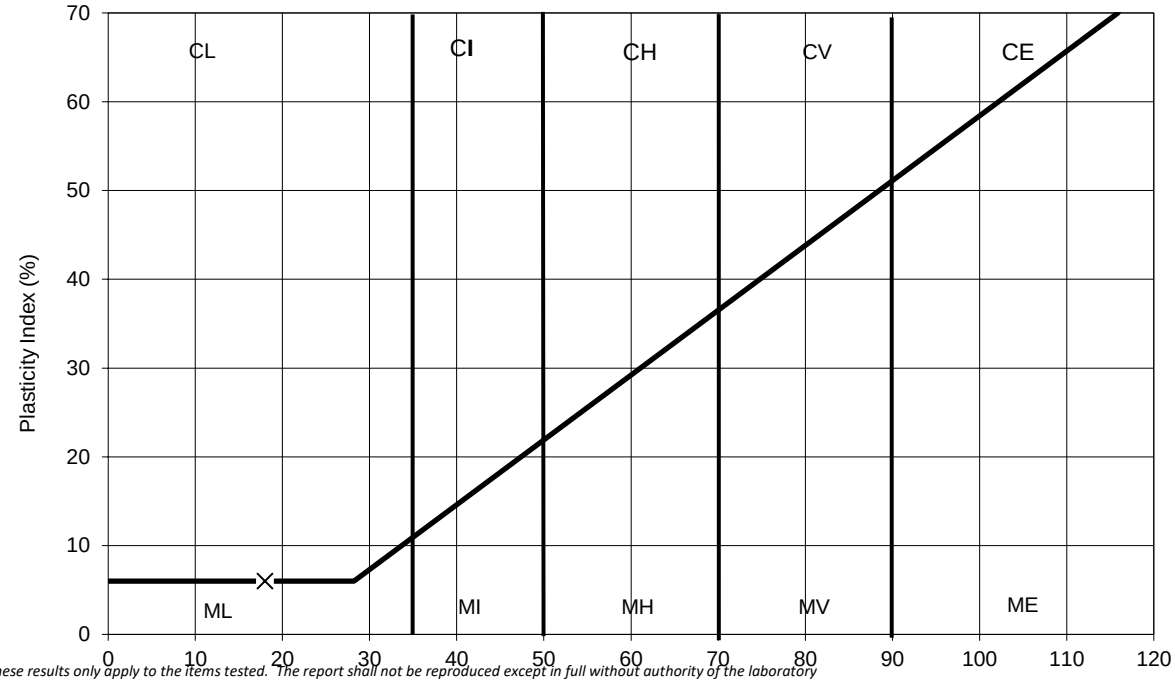


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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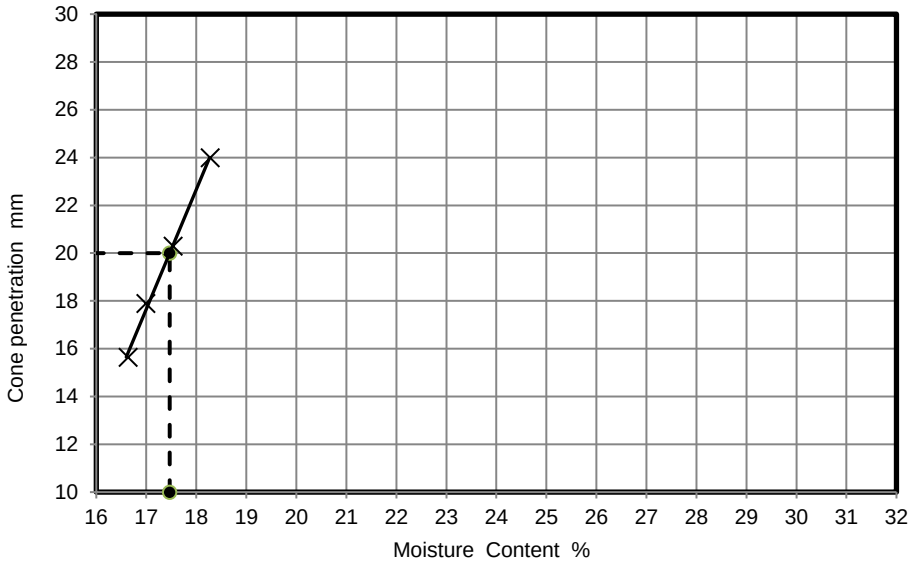
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-87206
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

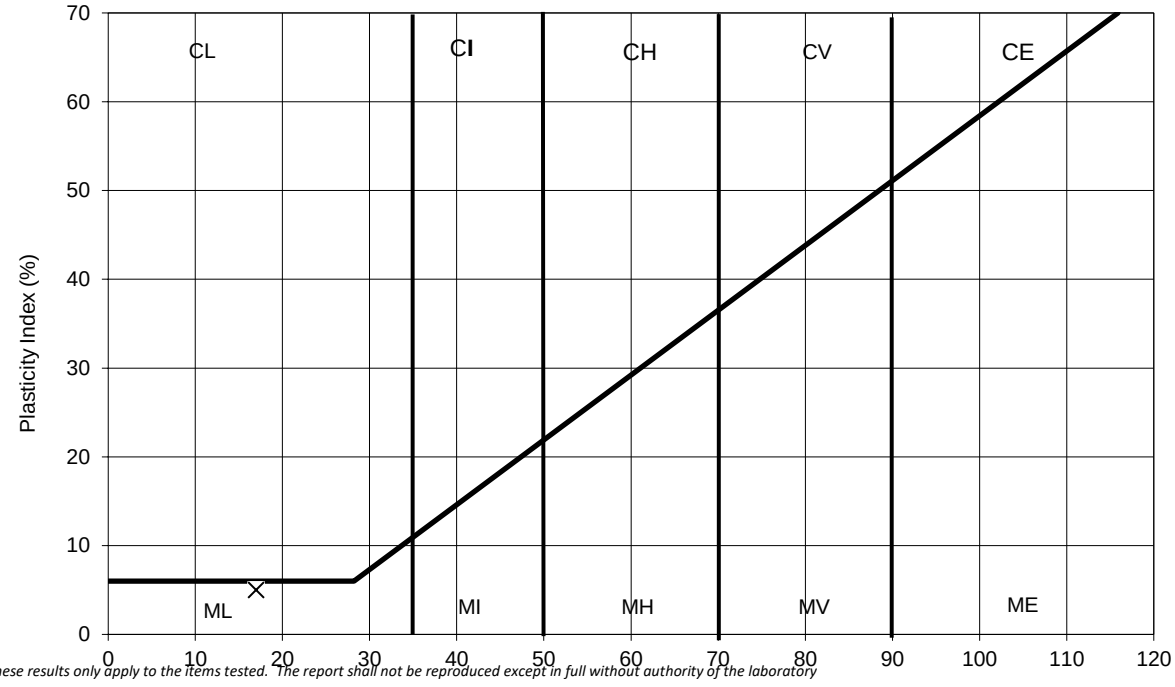


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

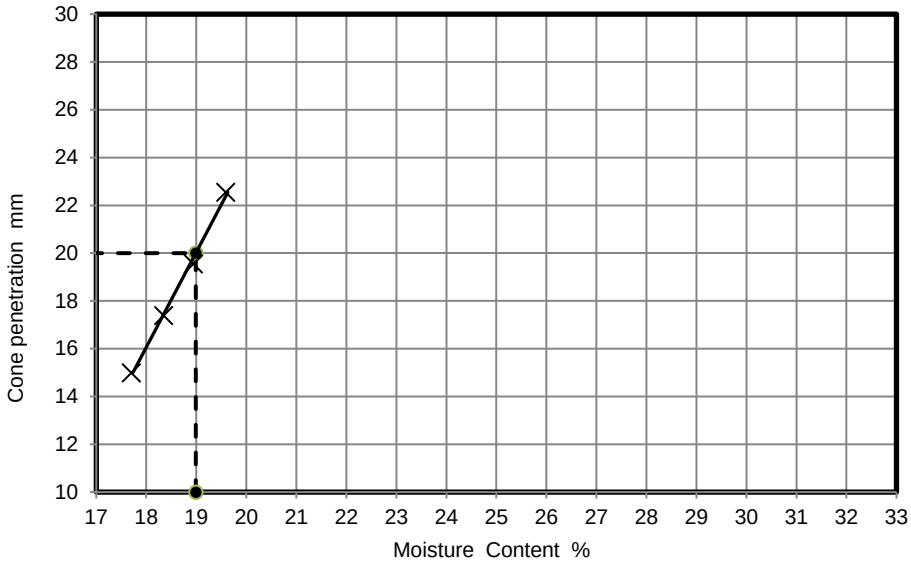
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-87304
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

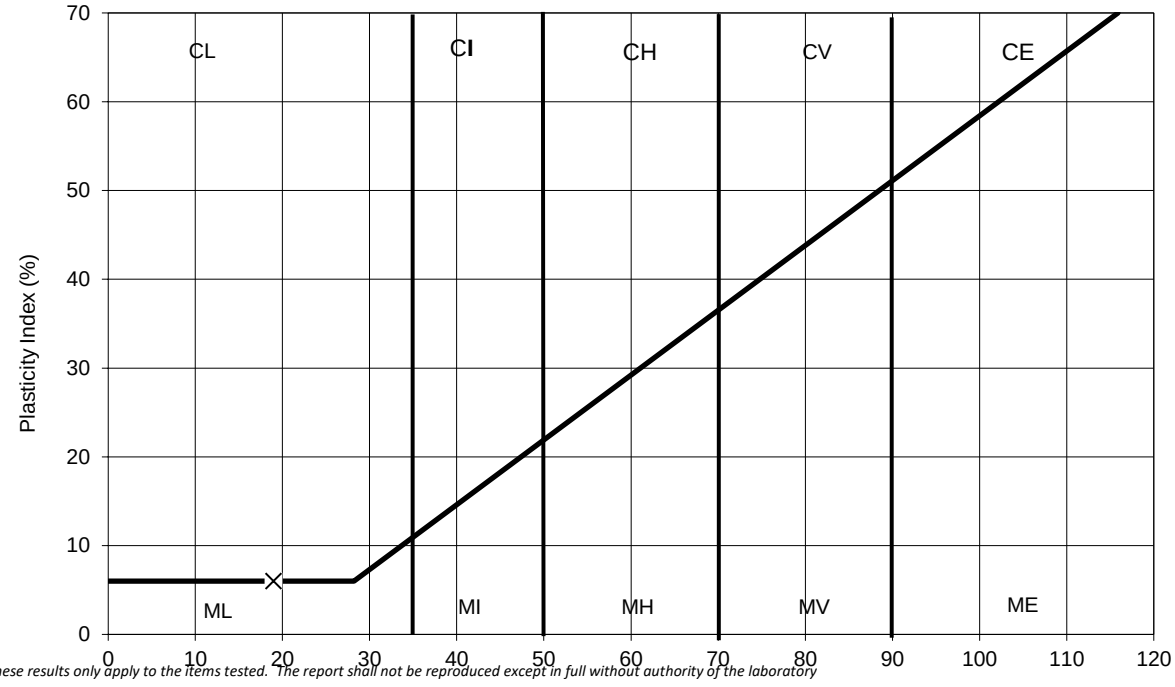


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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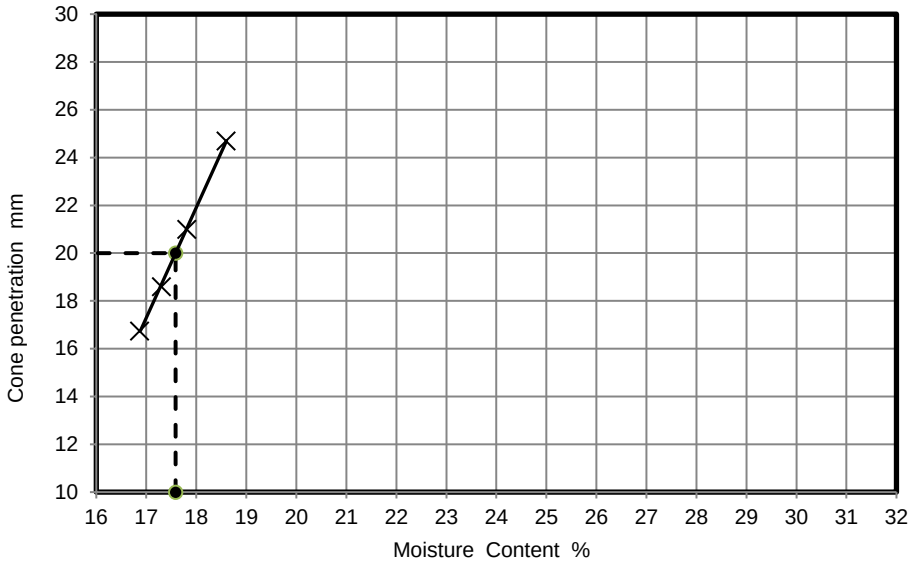
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

Job No. 32282

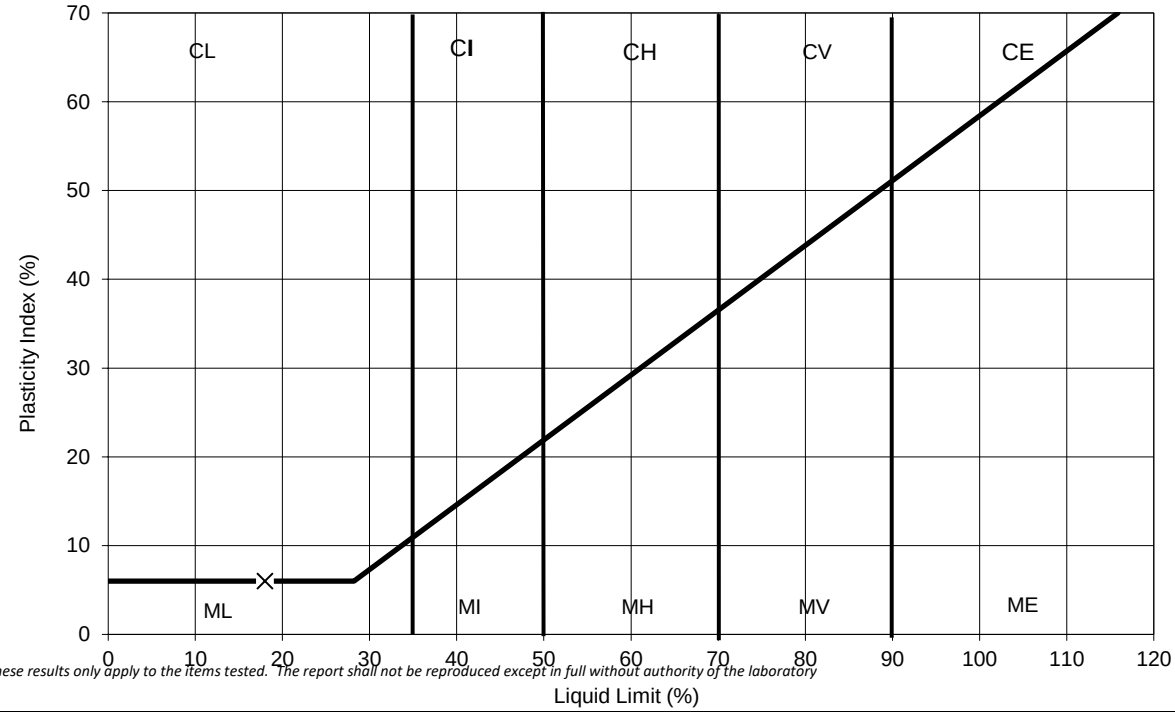
Borehole/Pit No. TP-87803



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

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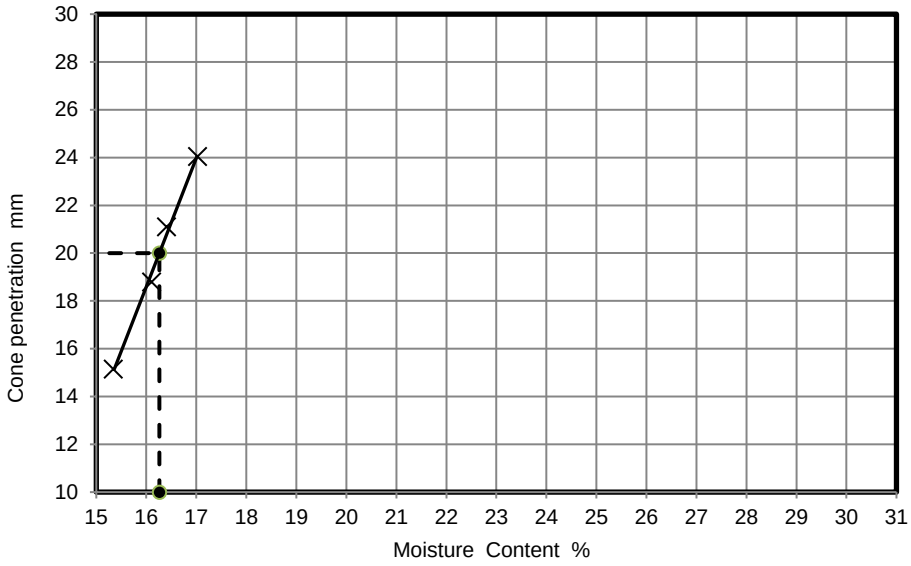
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

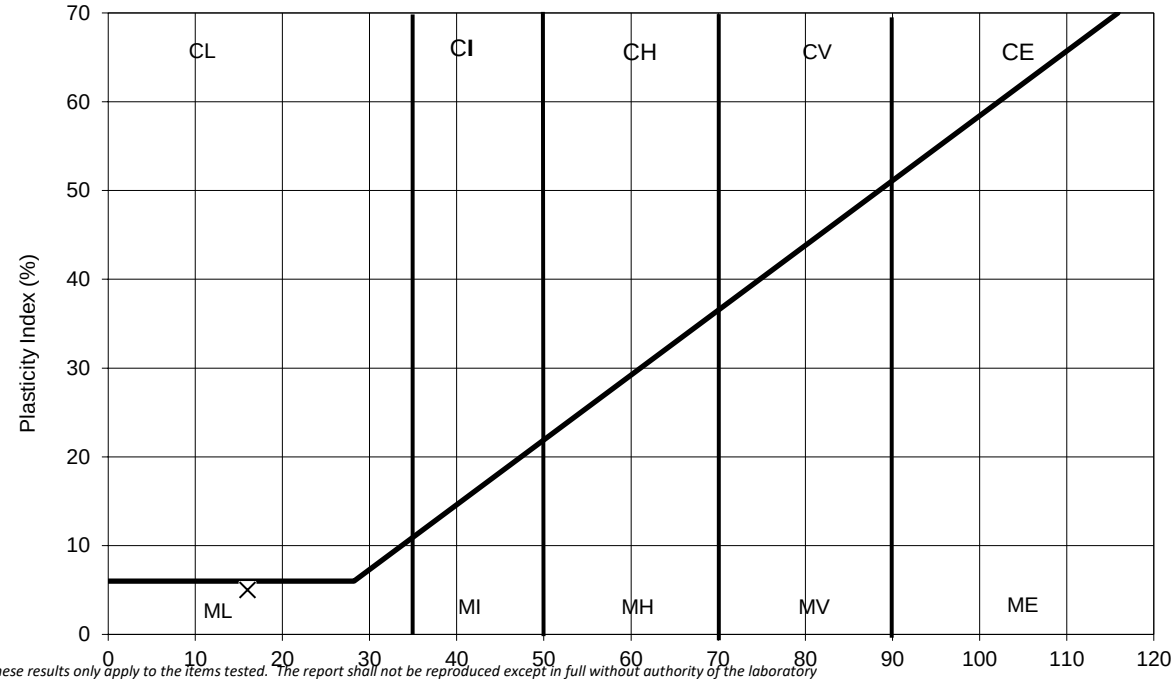
				Job No.	32282
				Borehole/Pit No.	TP-88303
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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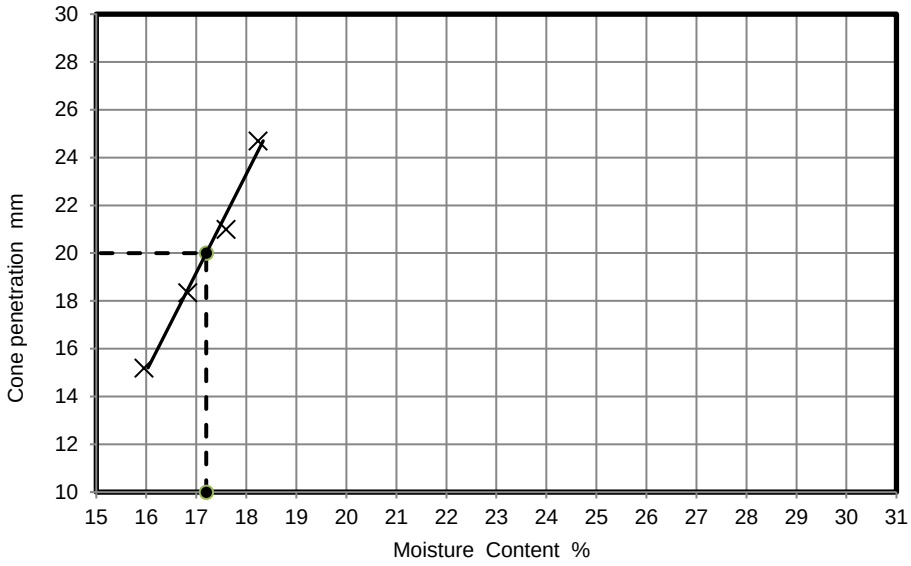
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88303
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

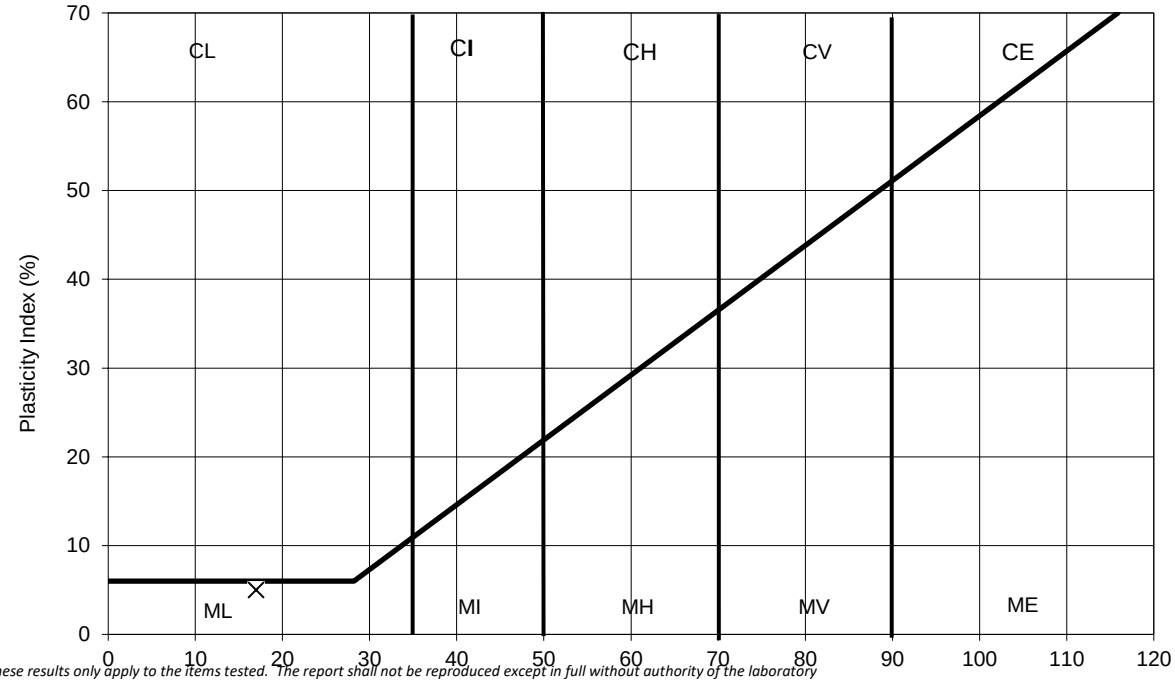


NATURAL MOISTURE CONTENT	**8.5**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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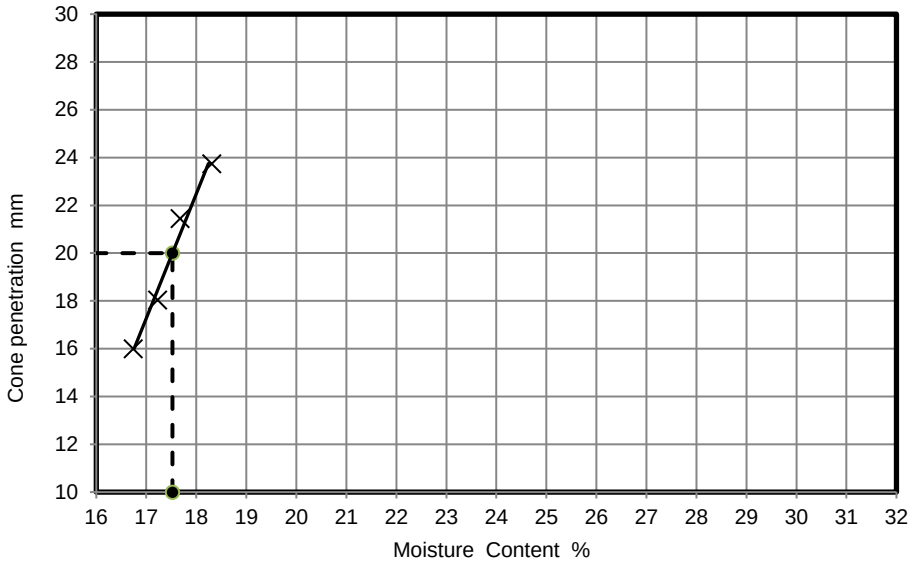
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022
				Job No.	32282
				Borehole/Pit No.	TP-88402

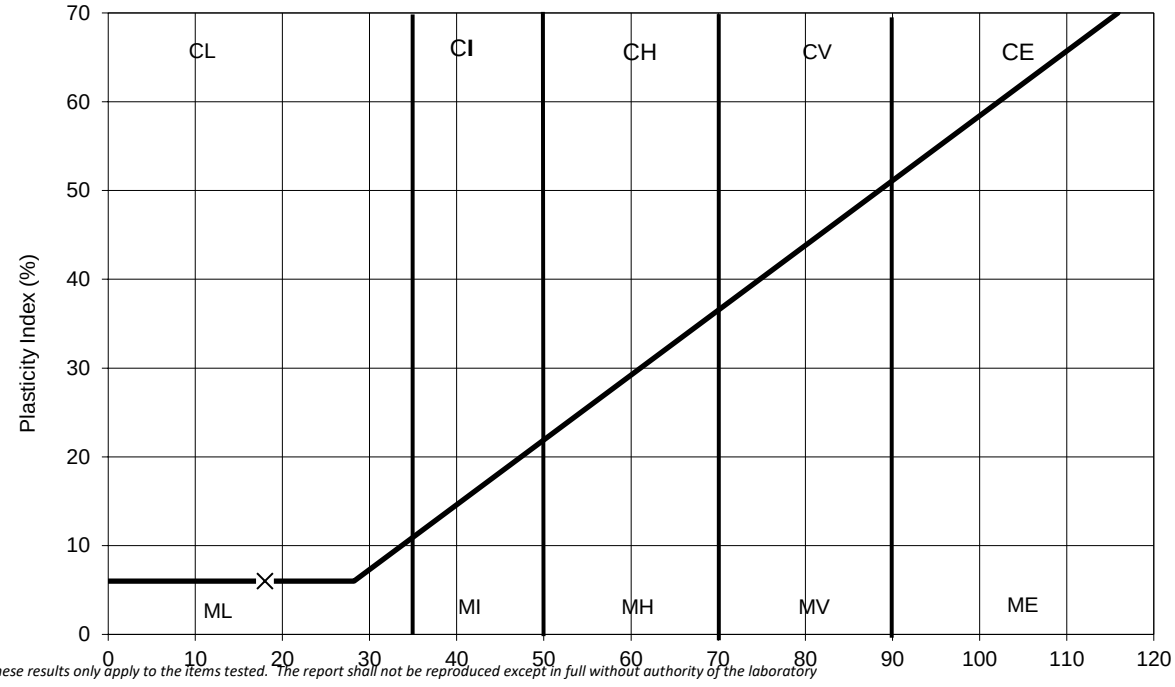


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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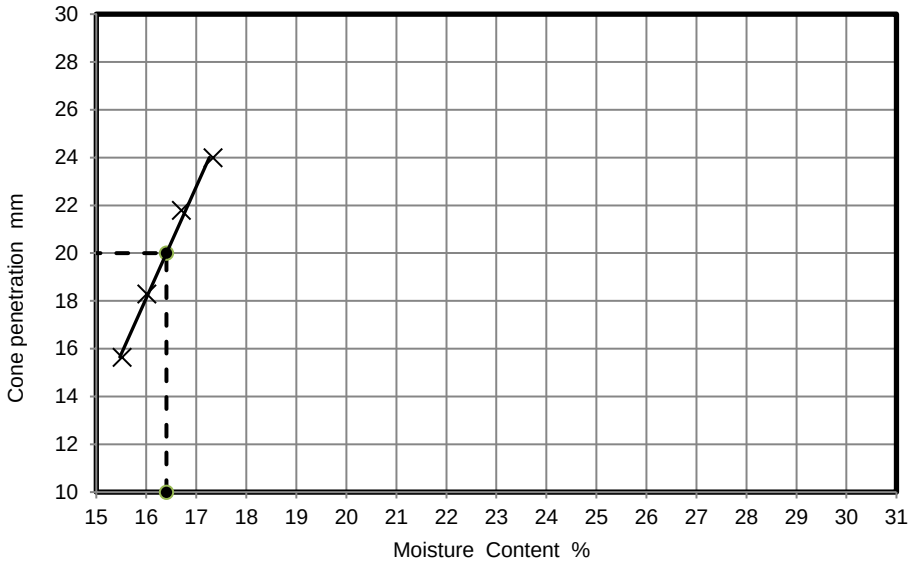
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

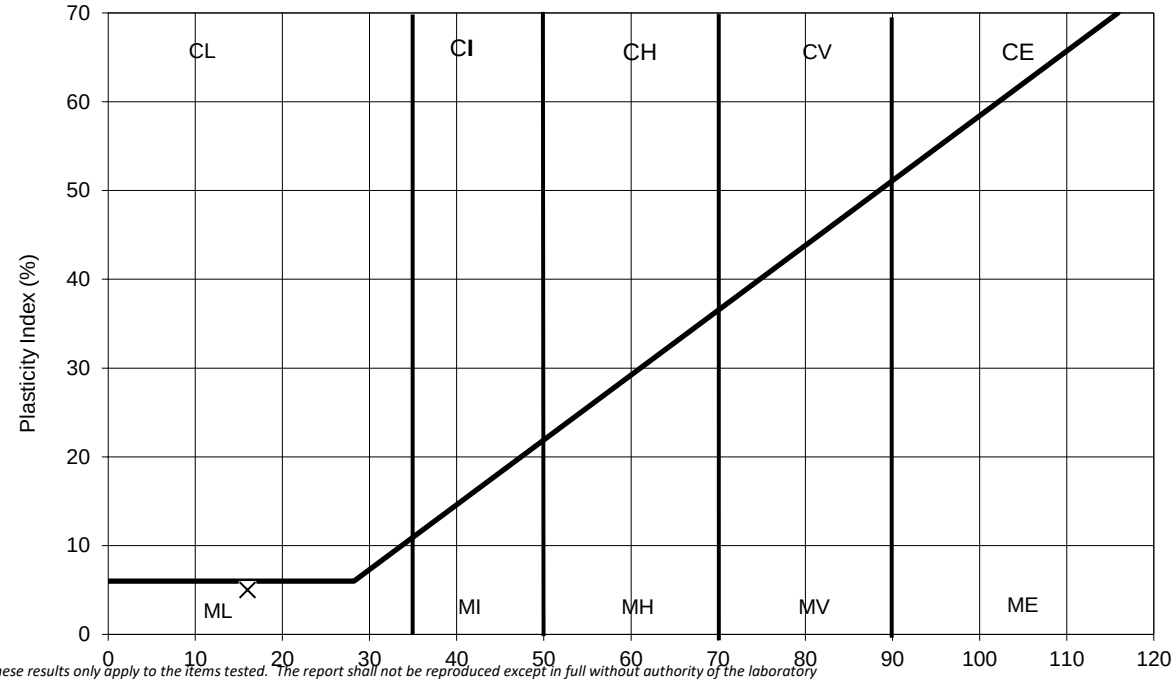


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**34**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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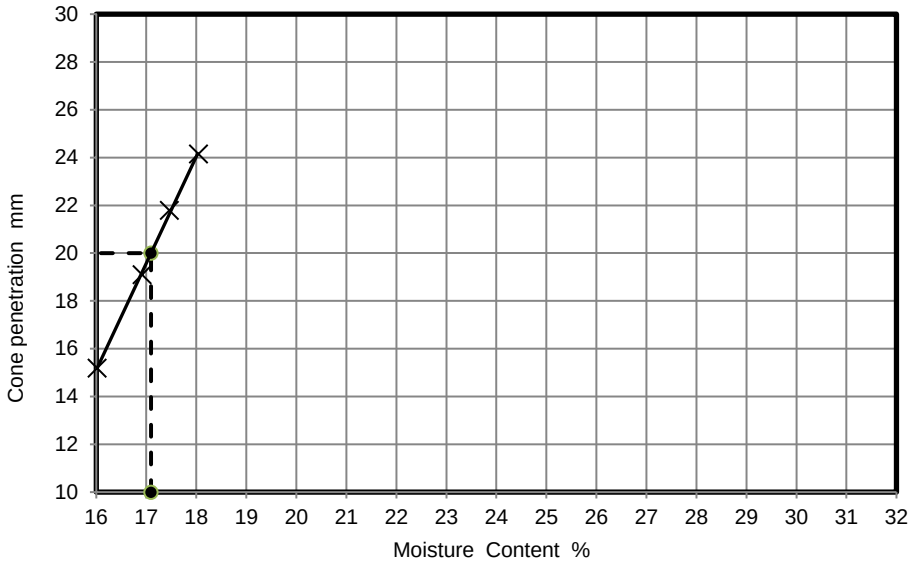
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-88703
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

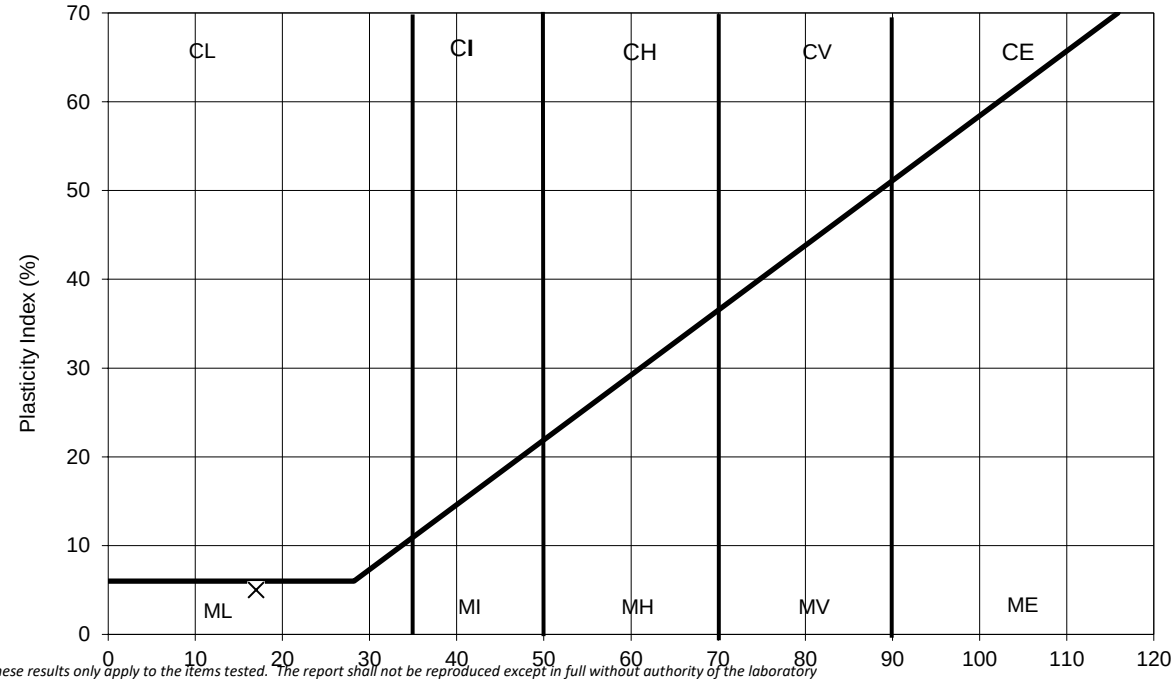


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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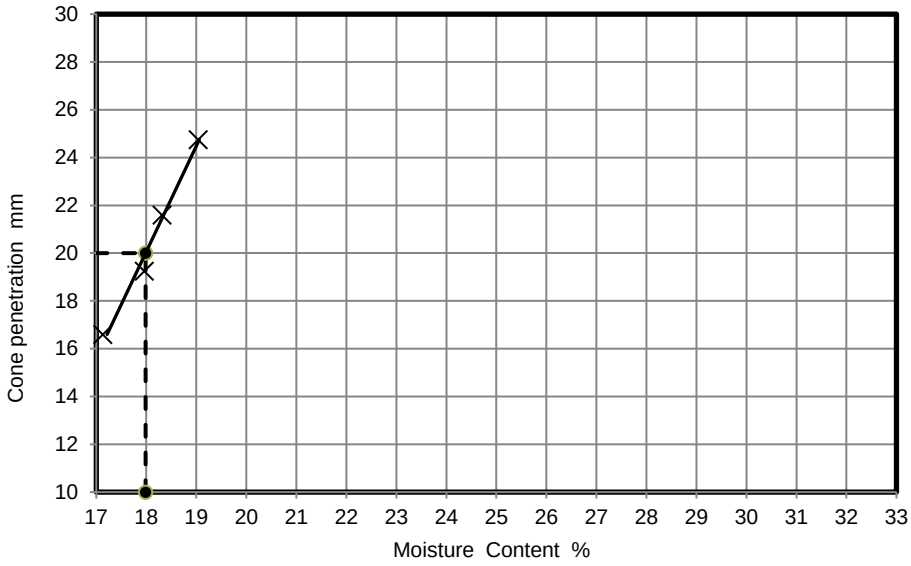
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Brownish grey gravelly clayey very silty SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

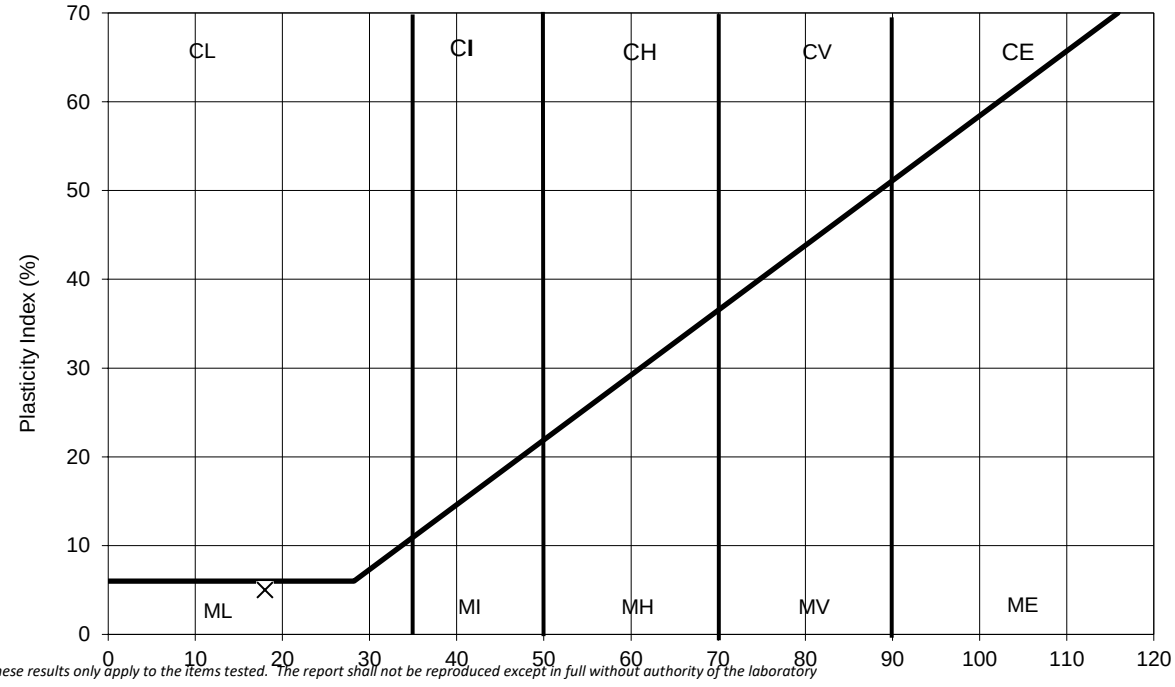


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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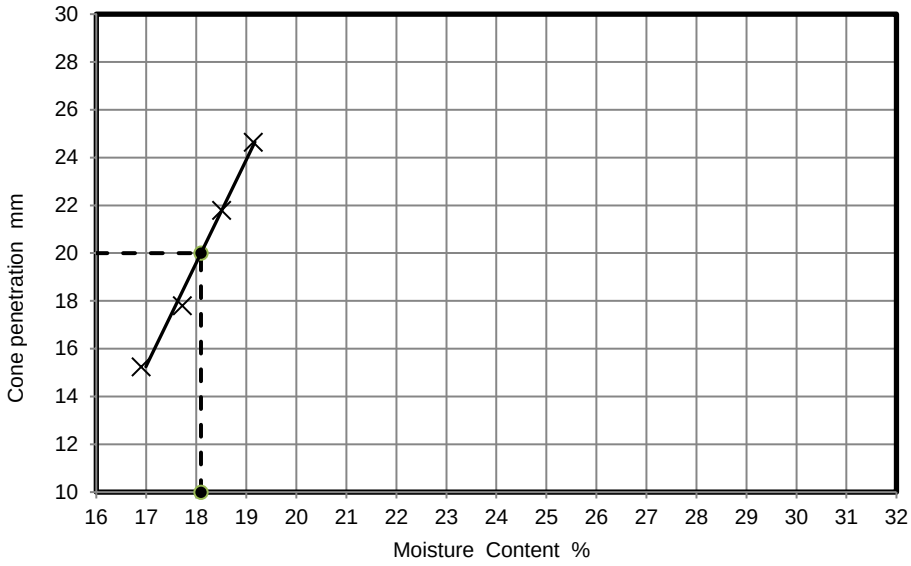
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

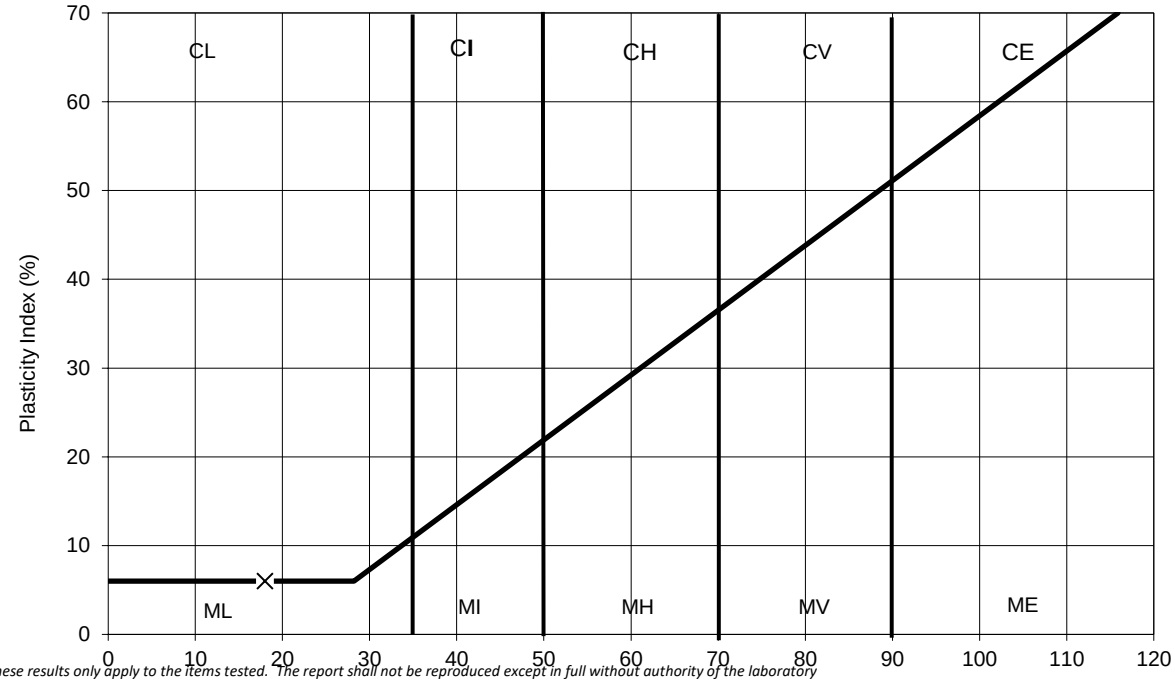


NATURAL MOISTURE CONTENT	**5.8**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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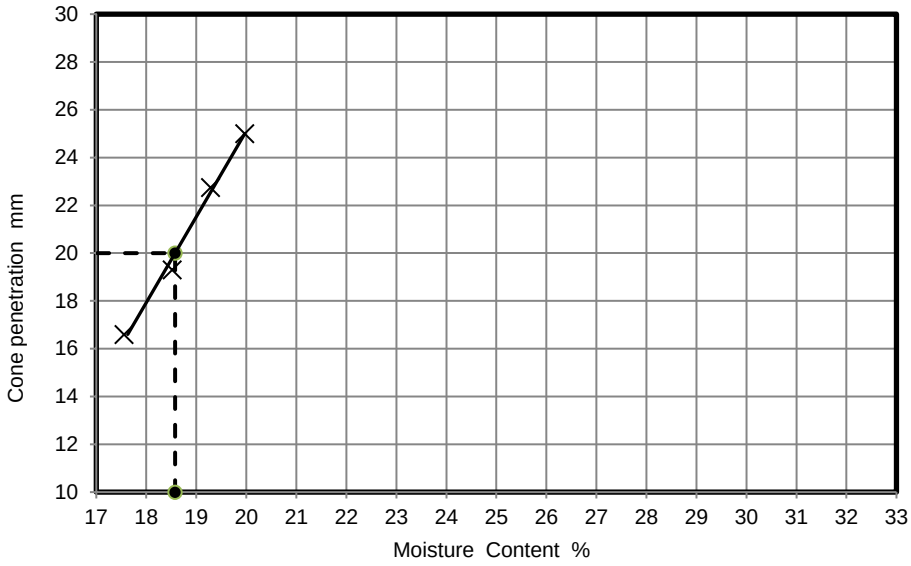
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

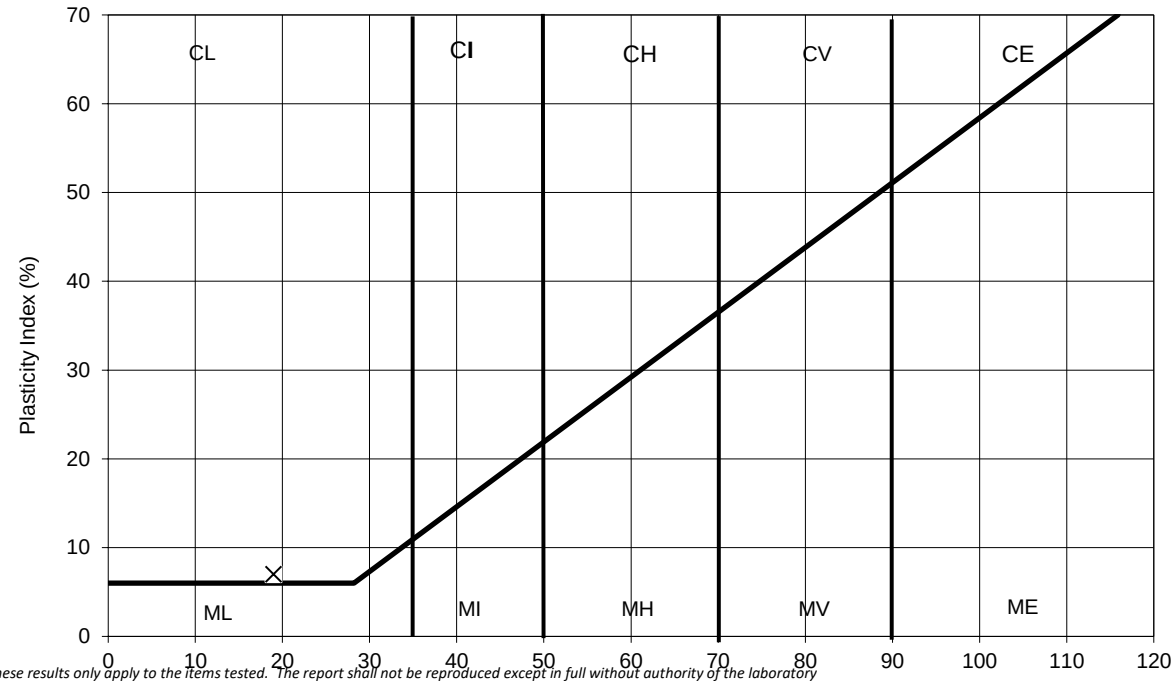


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

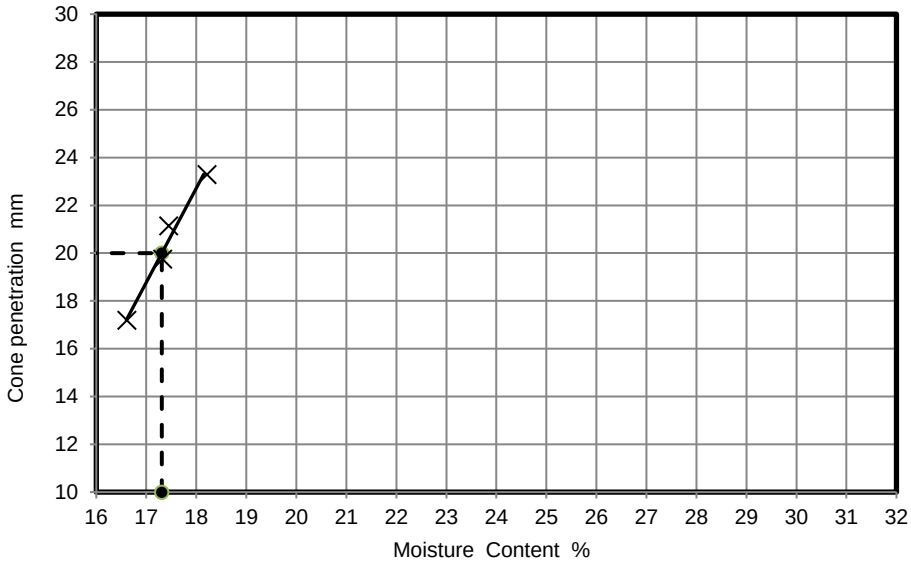
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89003
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

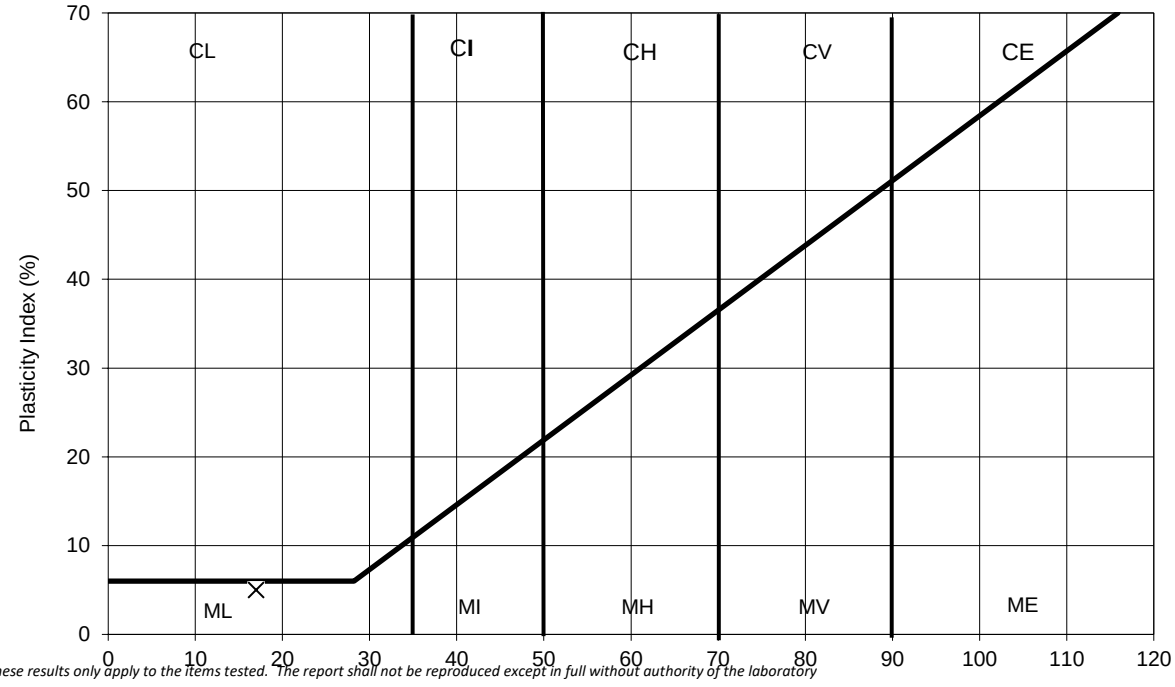


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**69**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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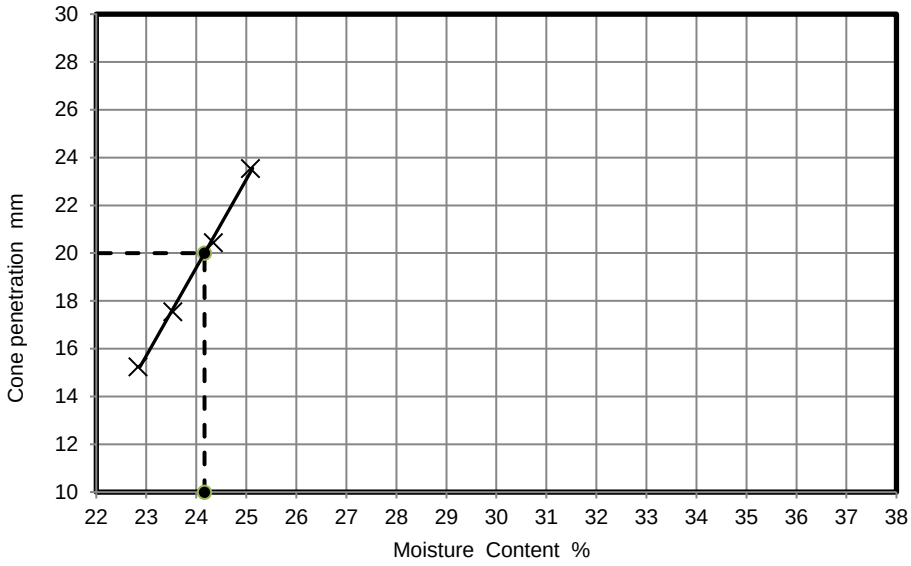
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89104
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

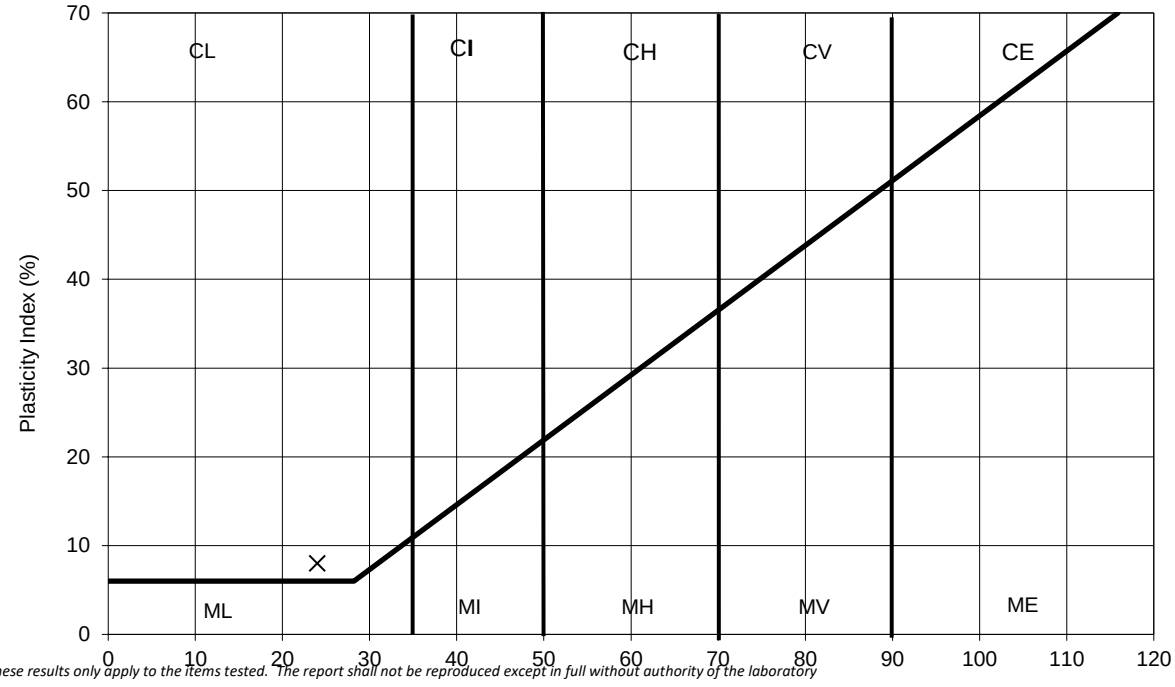


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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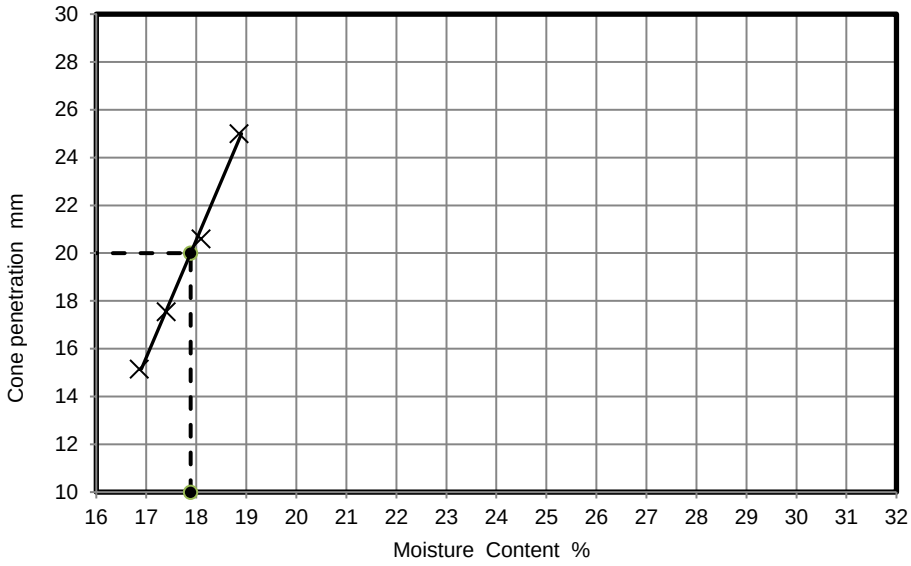
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-89205				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

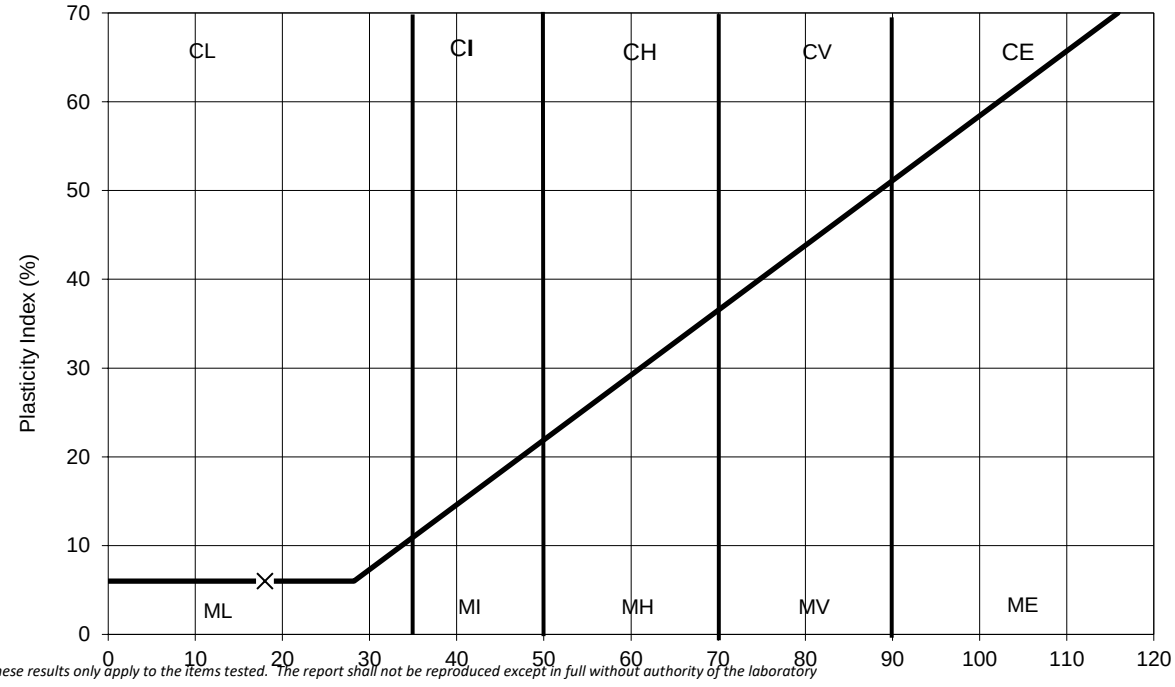


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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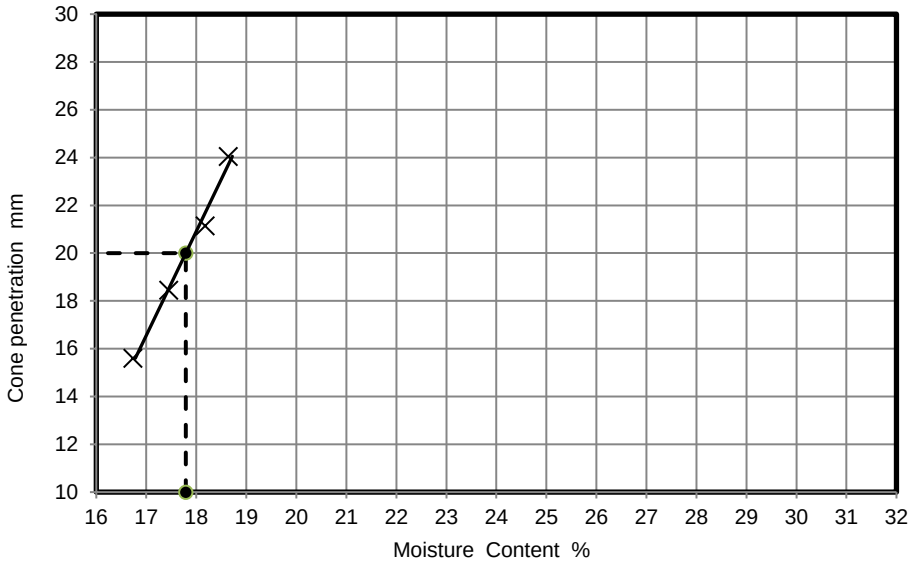
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89303
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

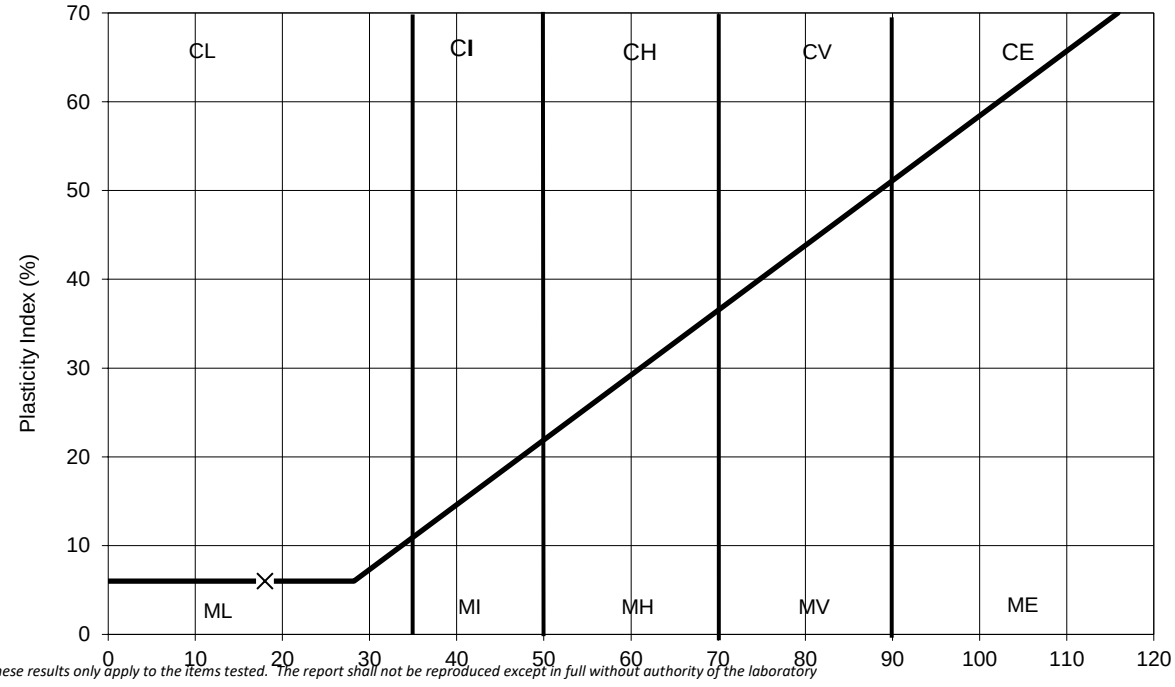


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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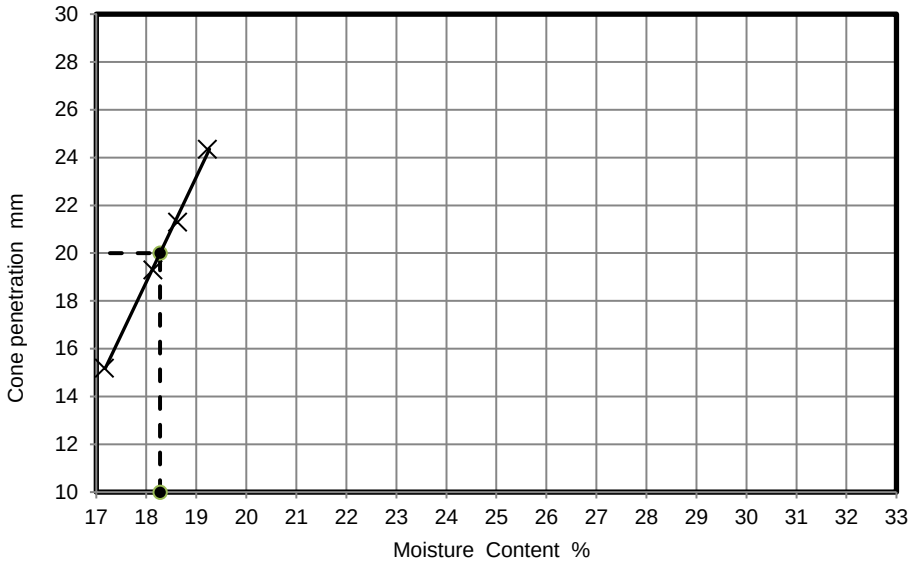
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-89405
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

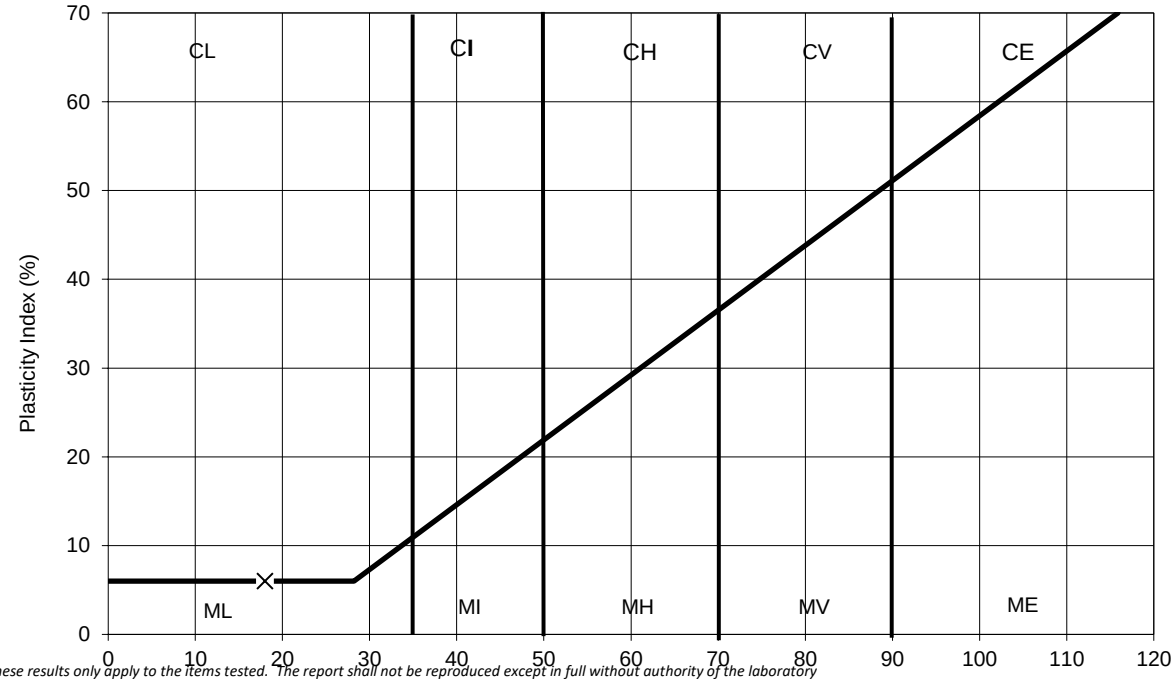


NATURAL MOISTURE CONTENT	**8.2**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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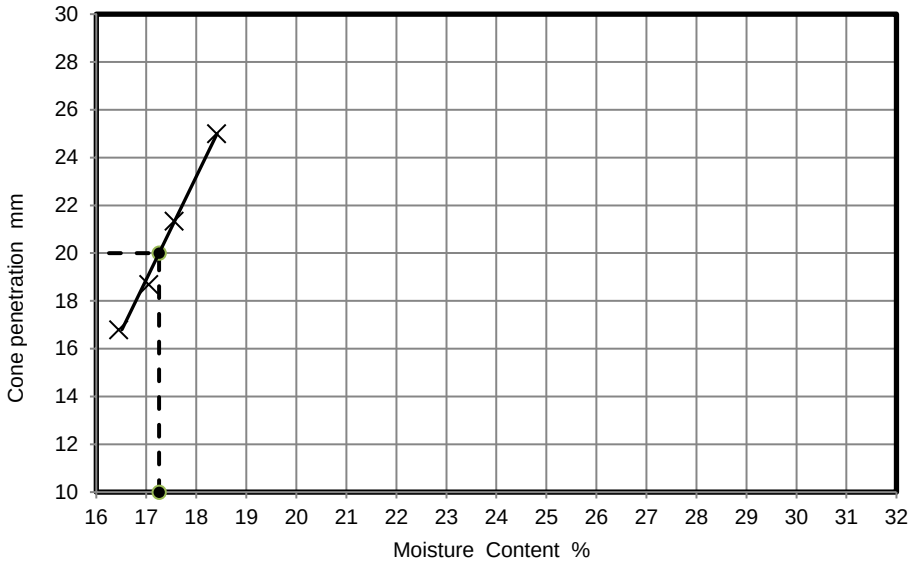
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-89555				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

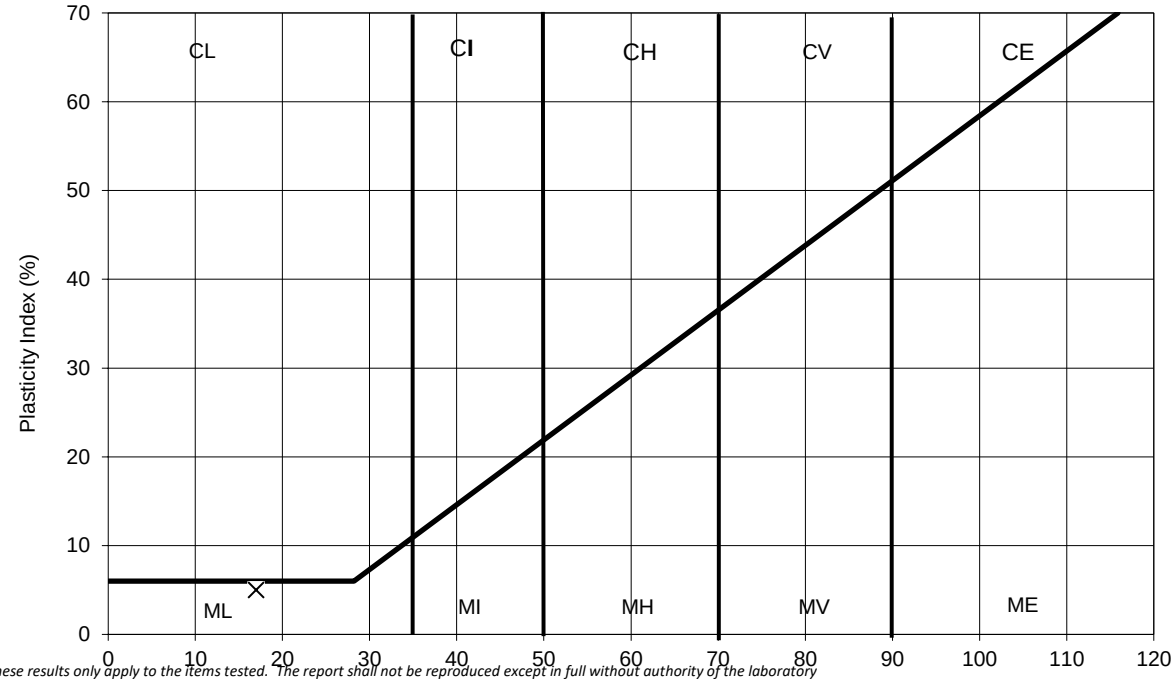


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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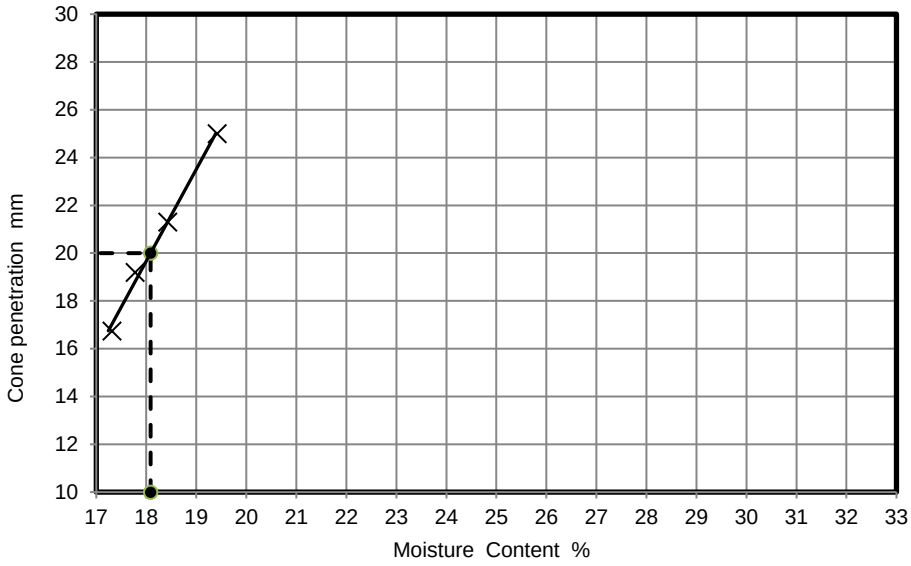
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-90401				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

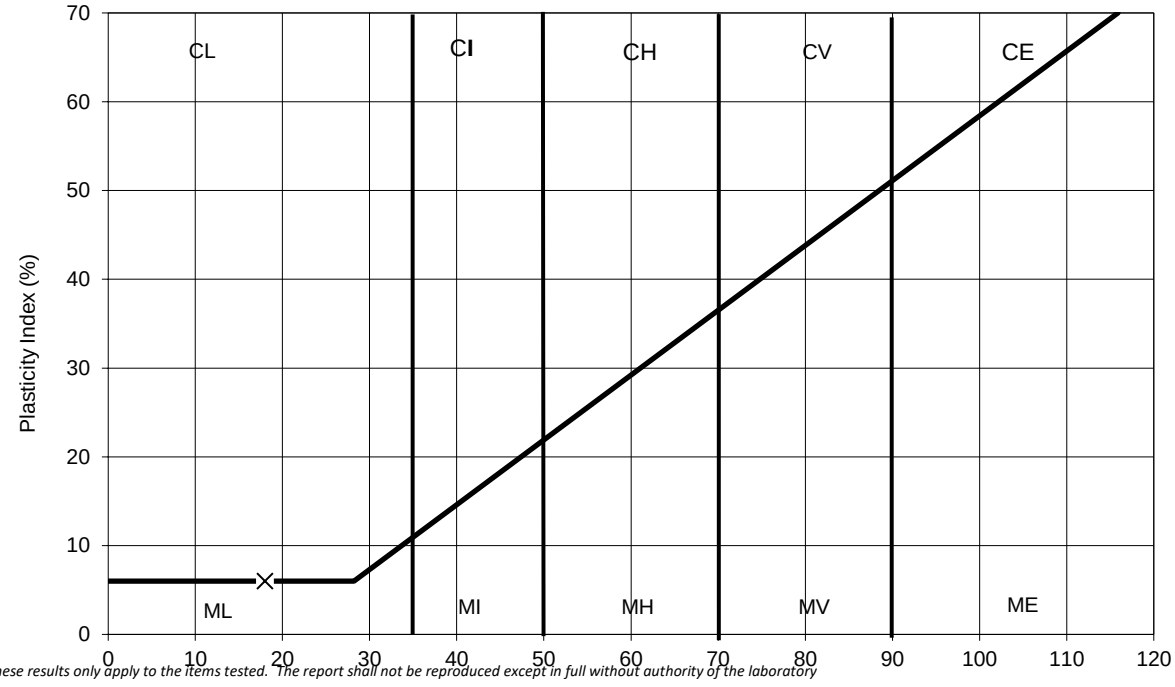


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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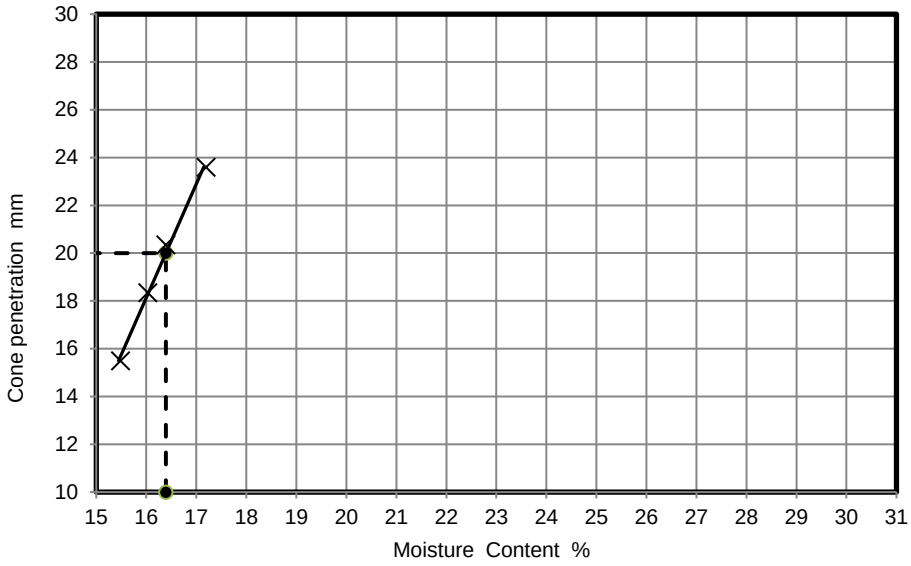
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D

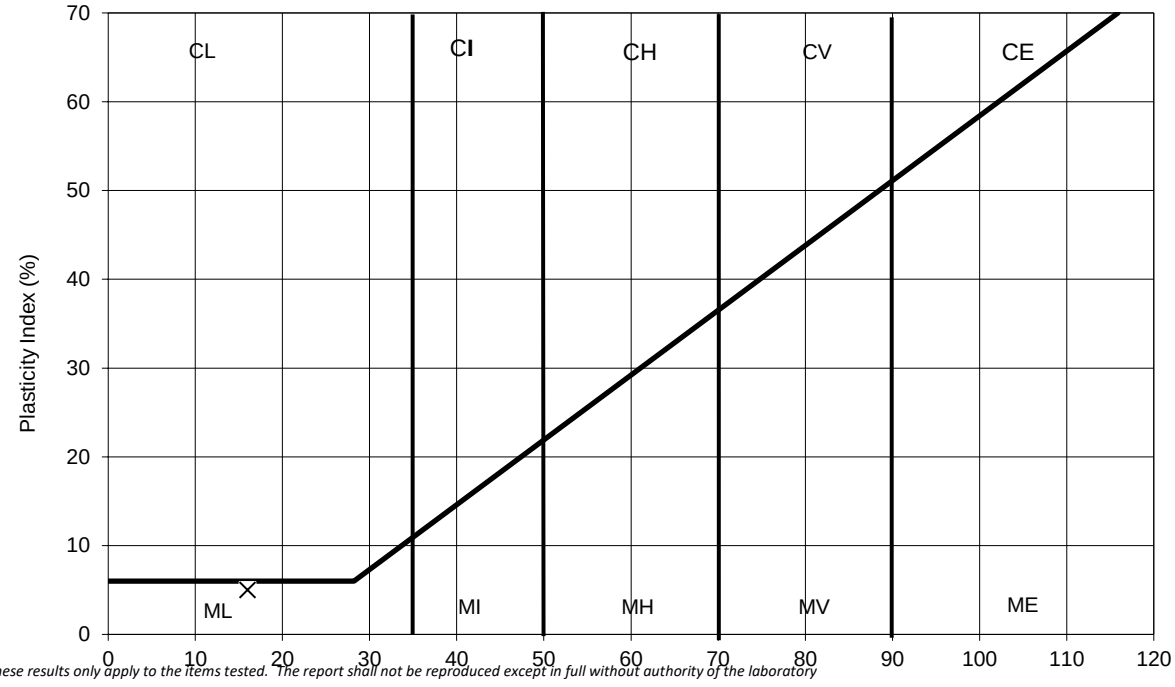
Job No.	32282
Borehole/Pit No.	TP-90401
Samples received	16/08/2022
Schedules received	11/08/2022
Project Started	17/08/2022
Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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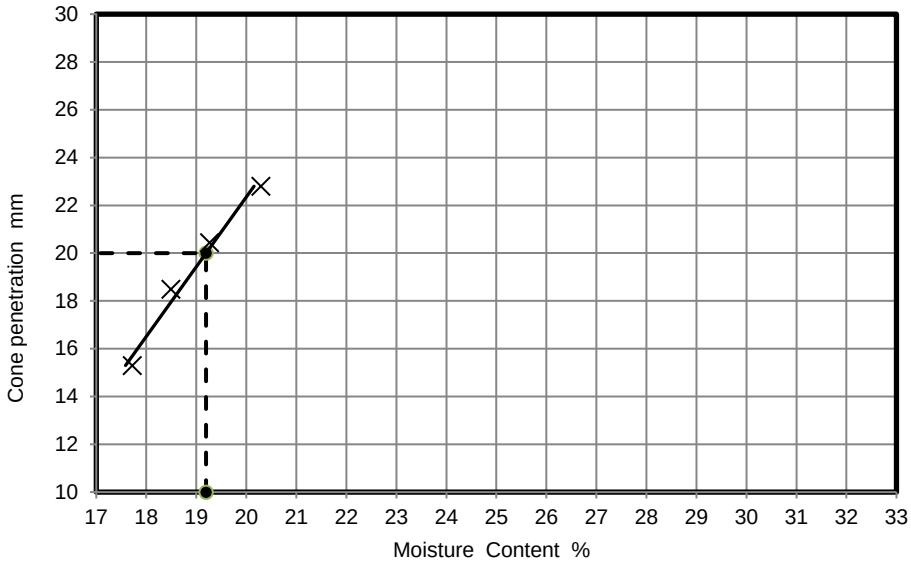
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

Job No. 32282

Borehole/Pit No. TP-90401

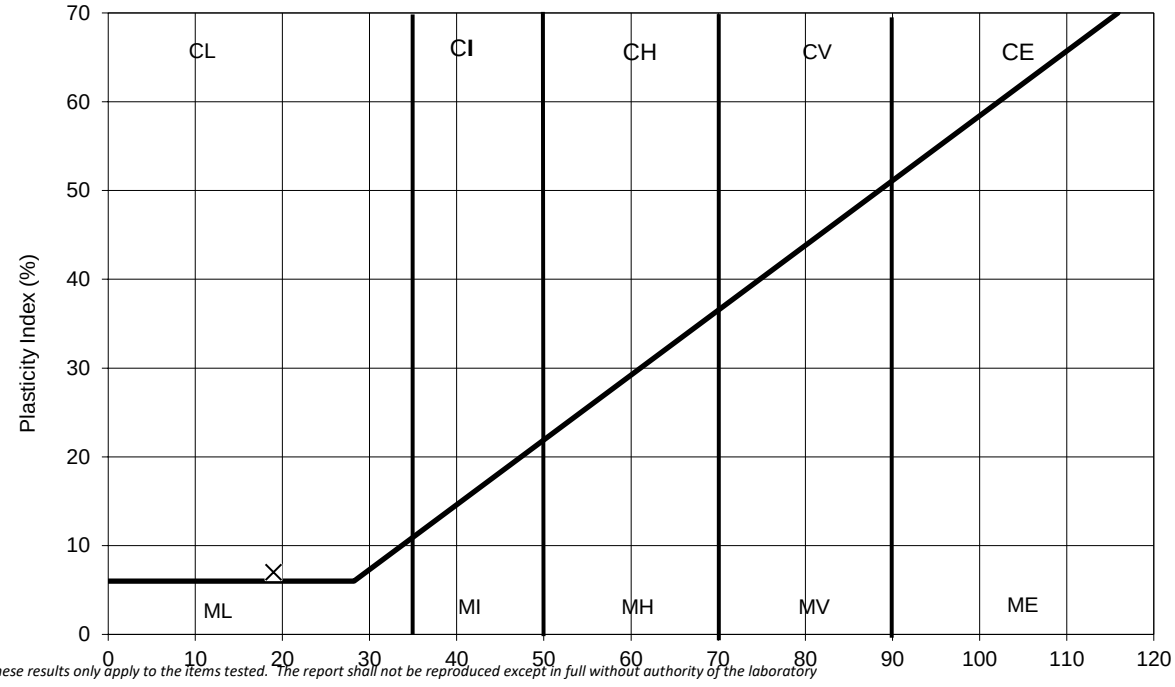


NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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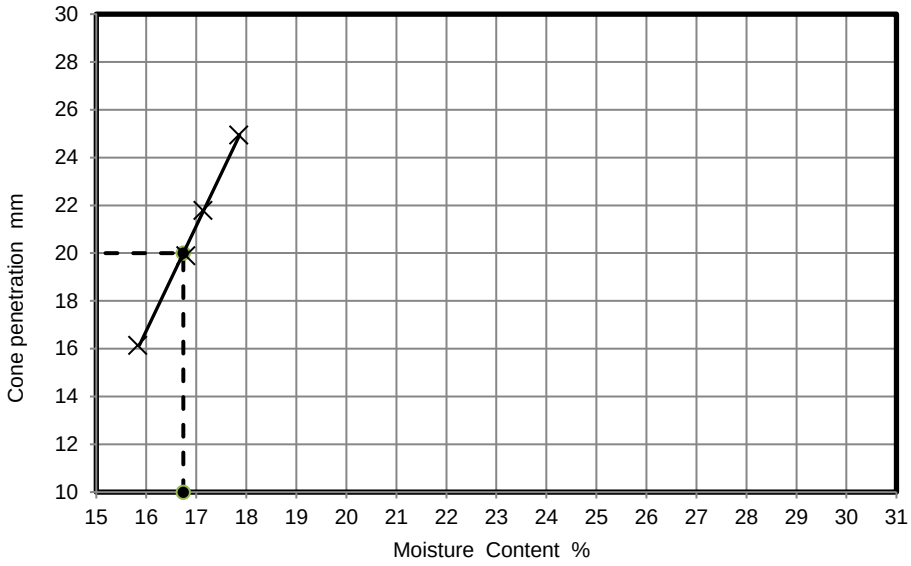
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

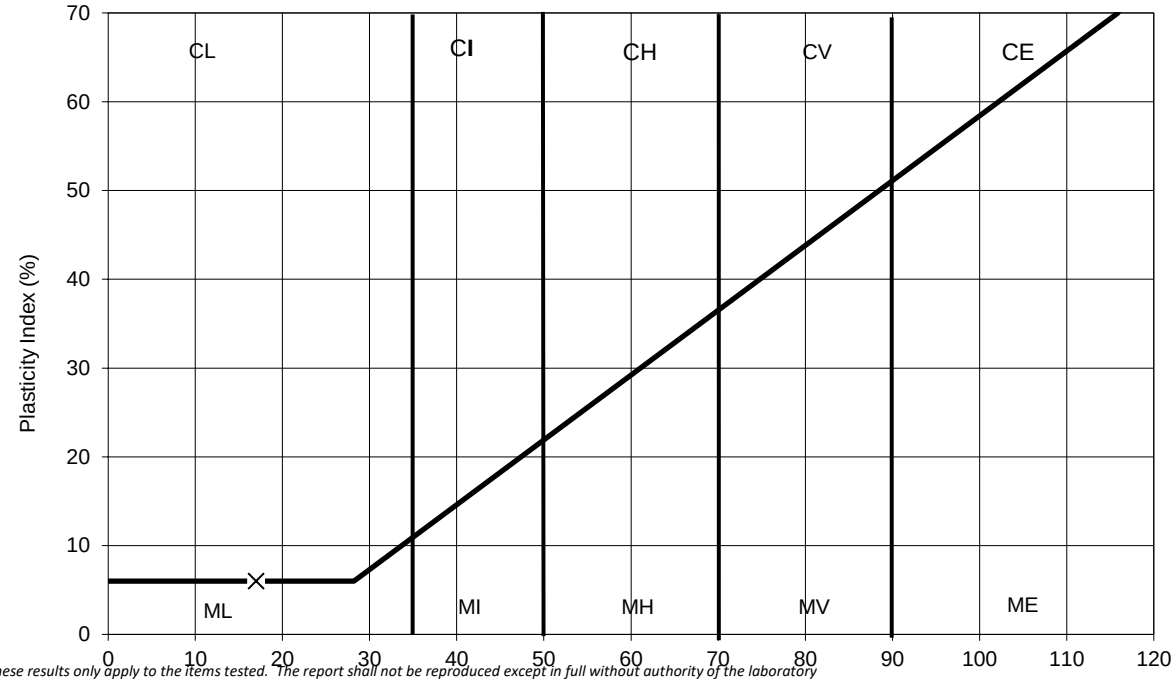
				Job No.	32282
				Borehole/Pit No.	TP-90503
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

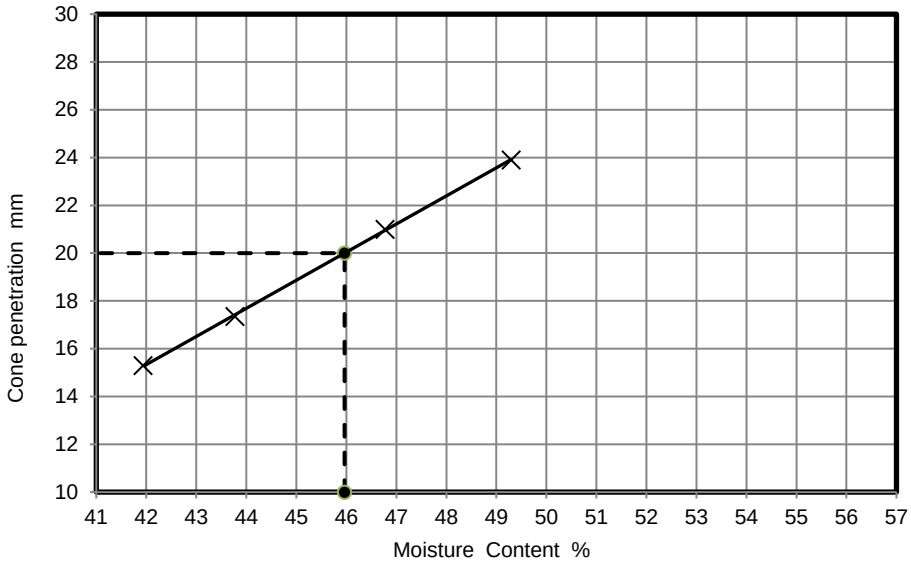
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-90604				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown and brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

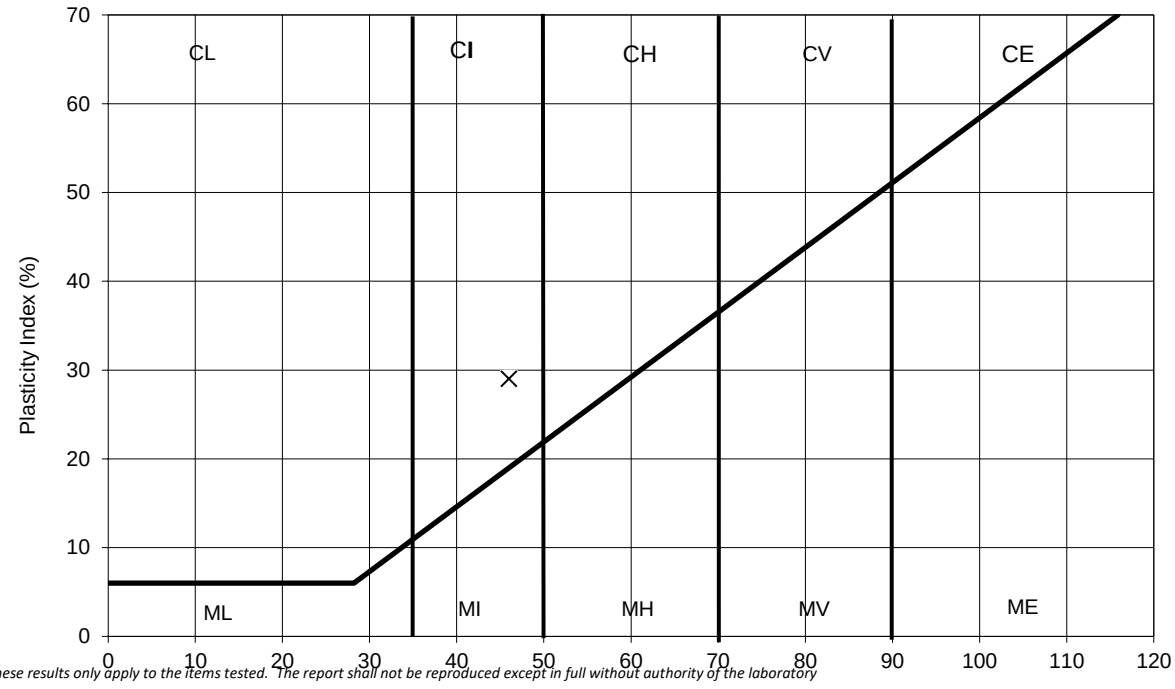


NATURAL MOISTURE CONTENT	**27**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**46**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**29**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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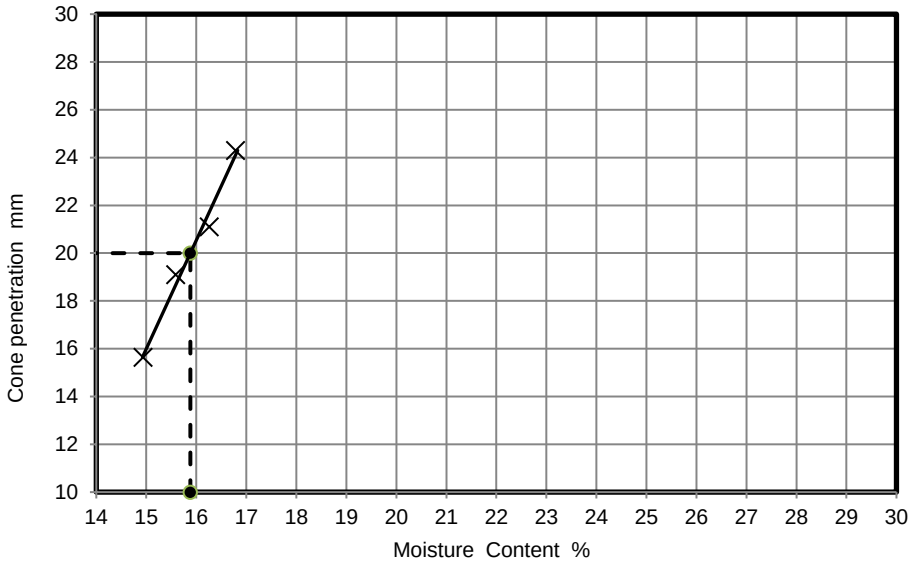
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

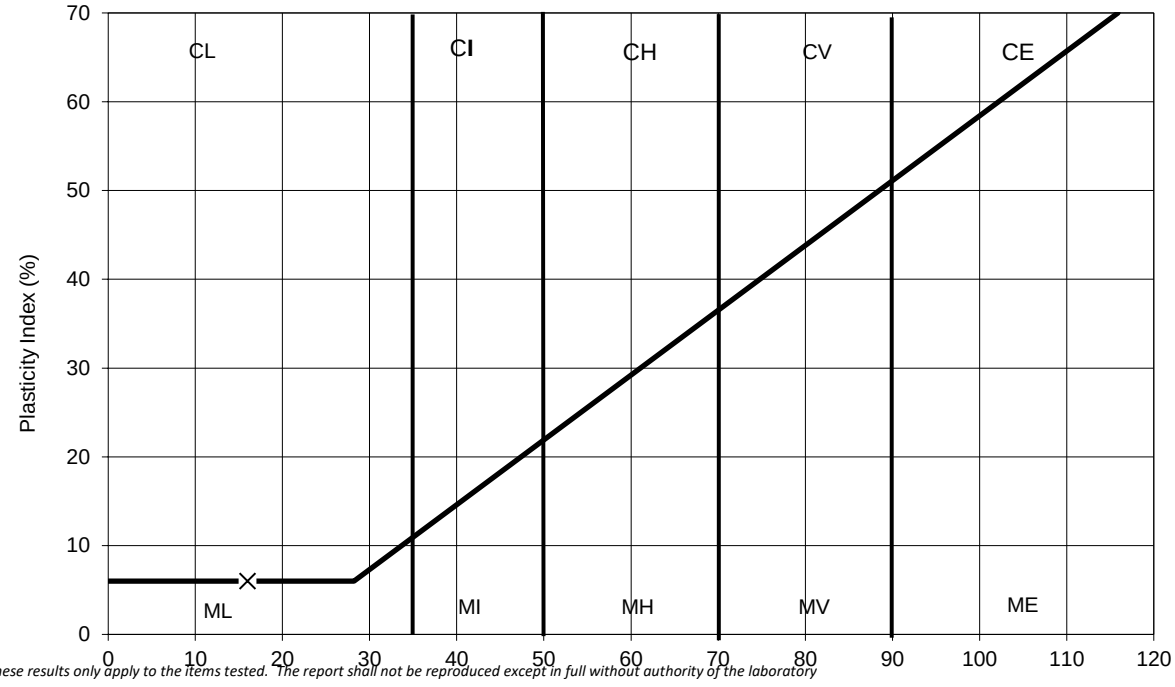
Job No.	32282				
Borehole/Pit No.	TP-90604				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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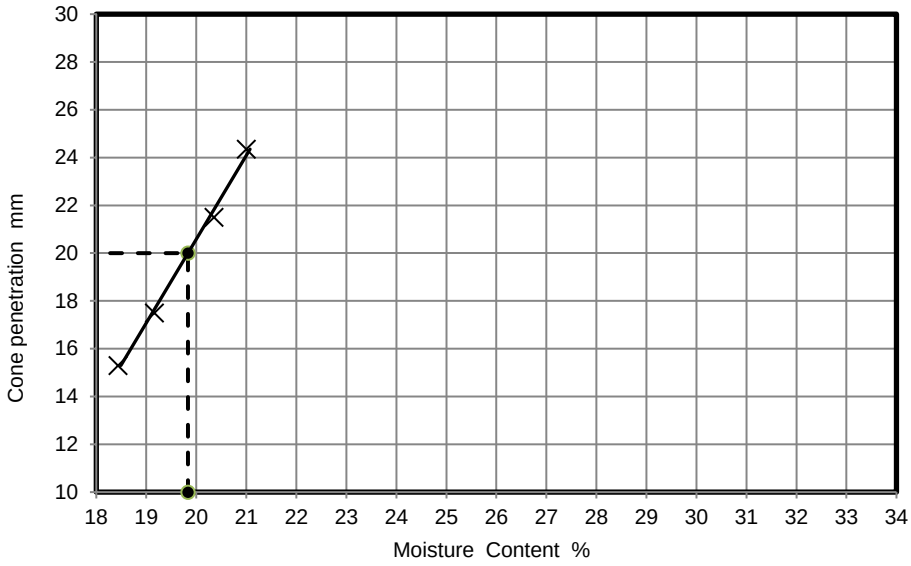
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90704
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

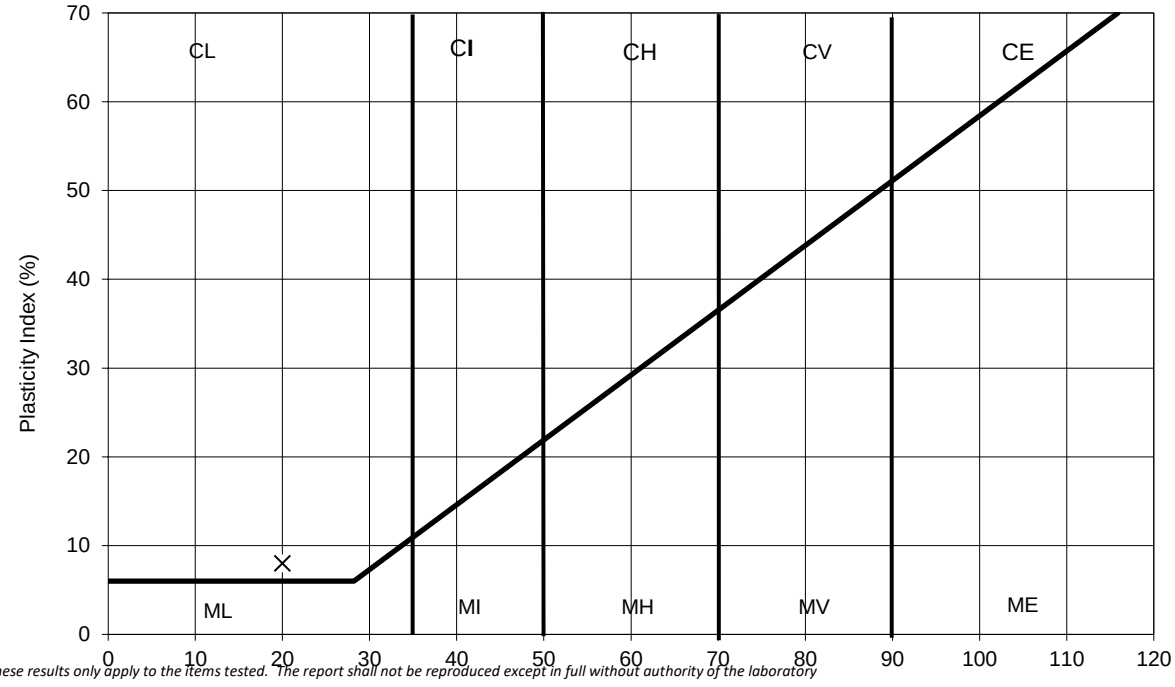


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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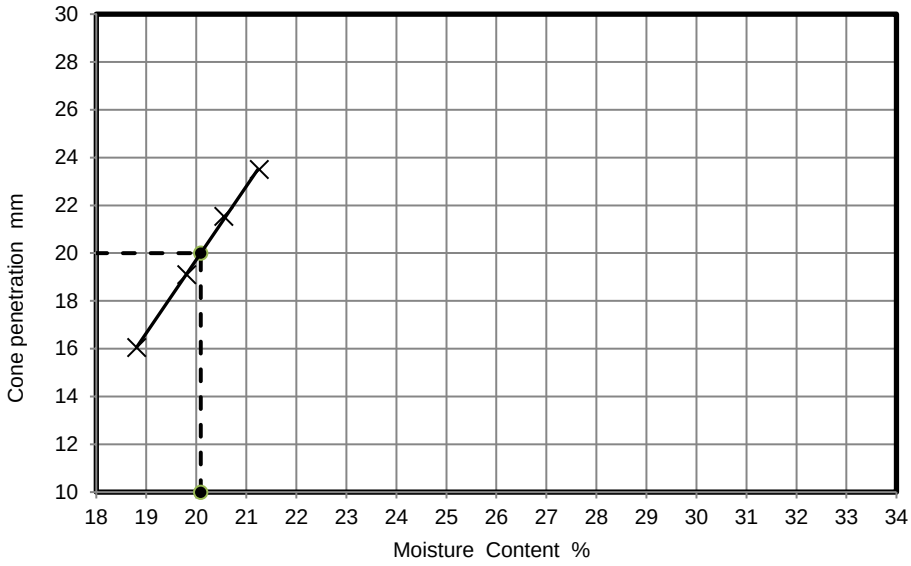
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

Job No. 32282

Borehole/Pit No. TP-90800

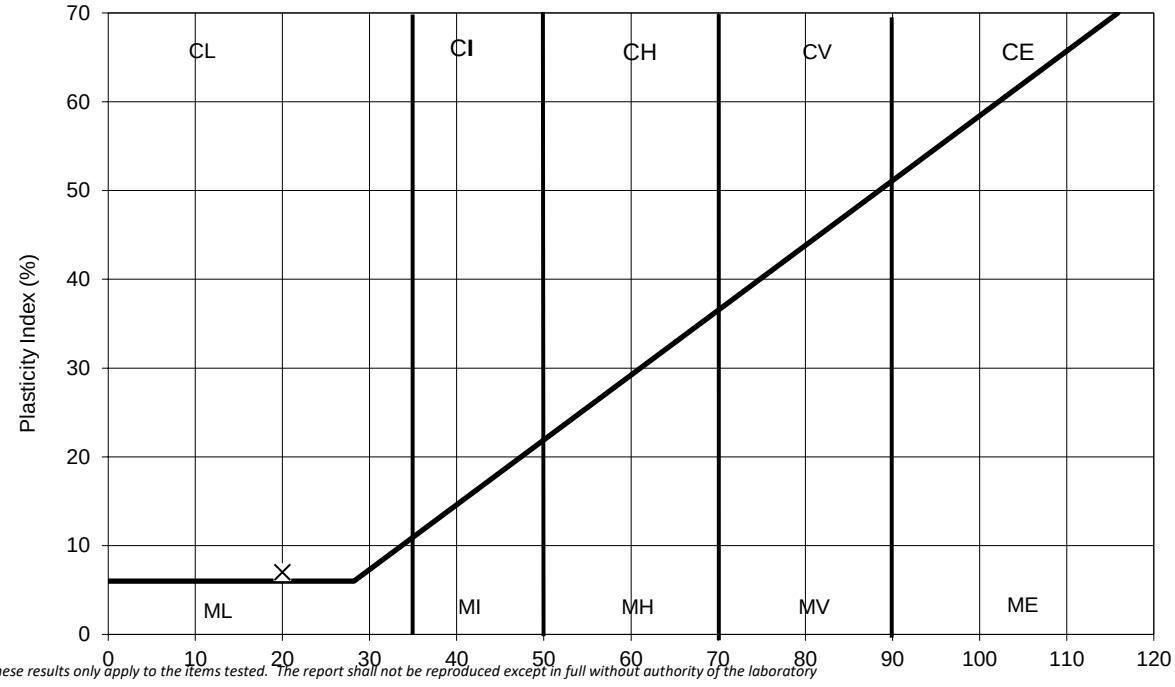


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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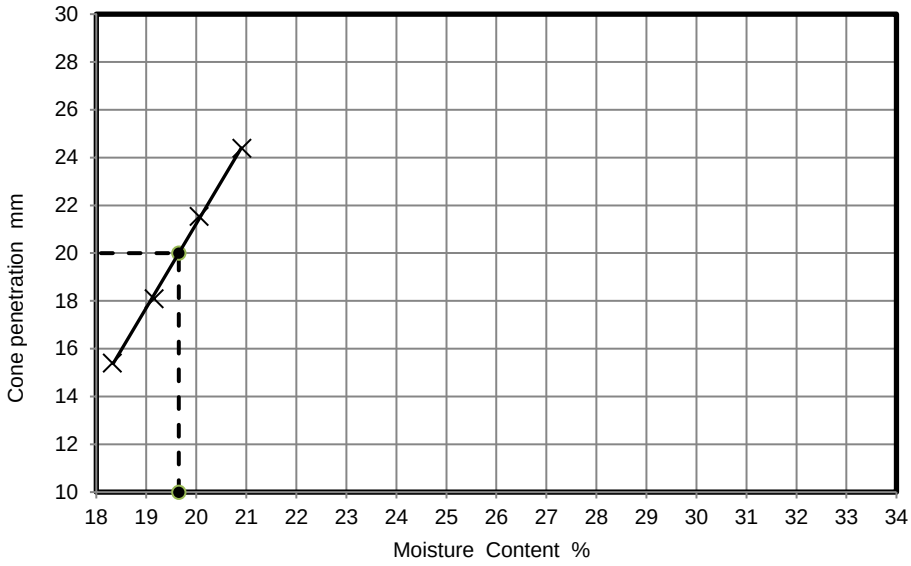
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90800
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

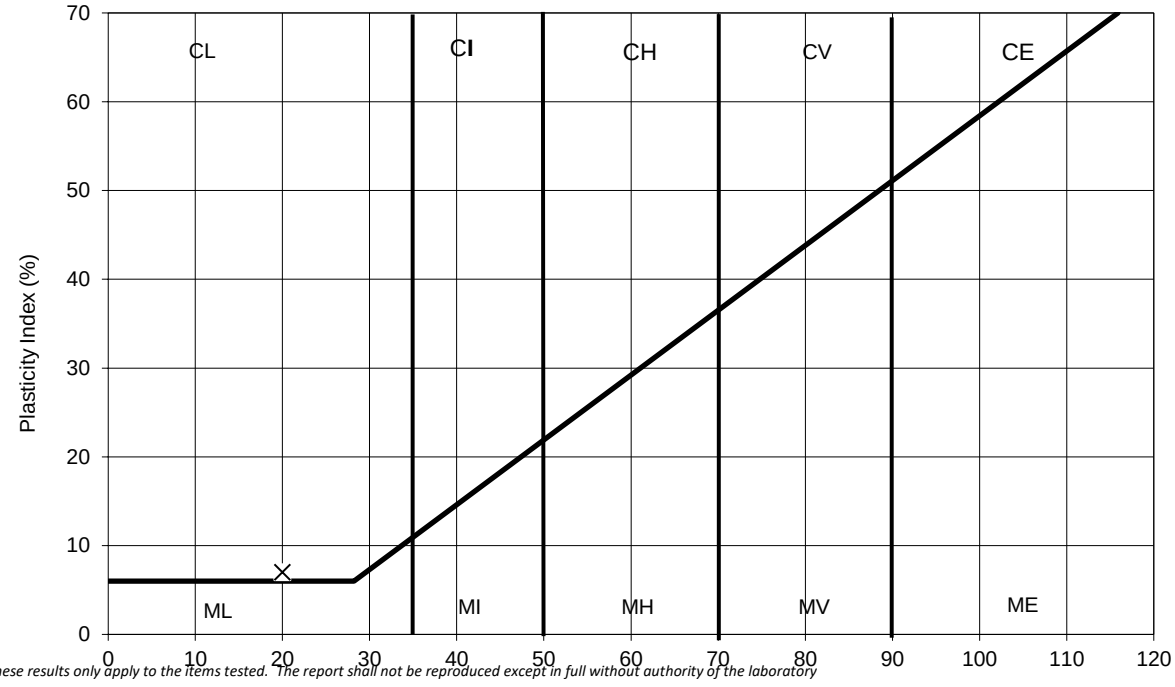


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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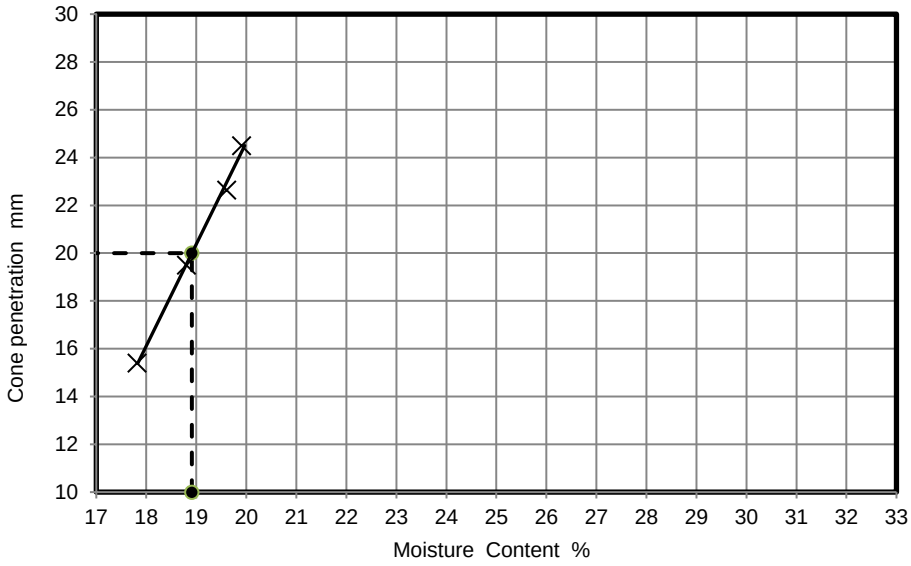
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90894
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

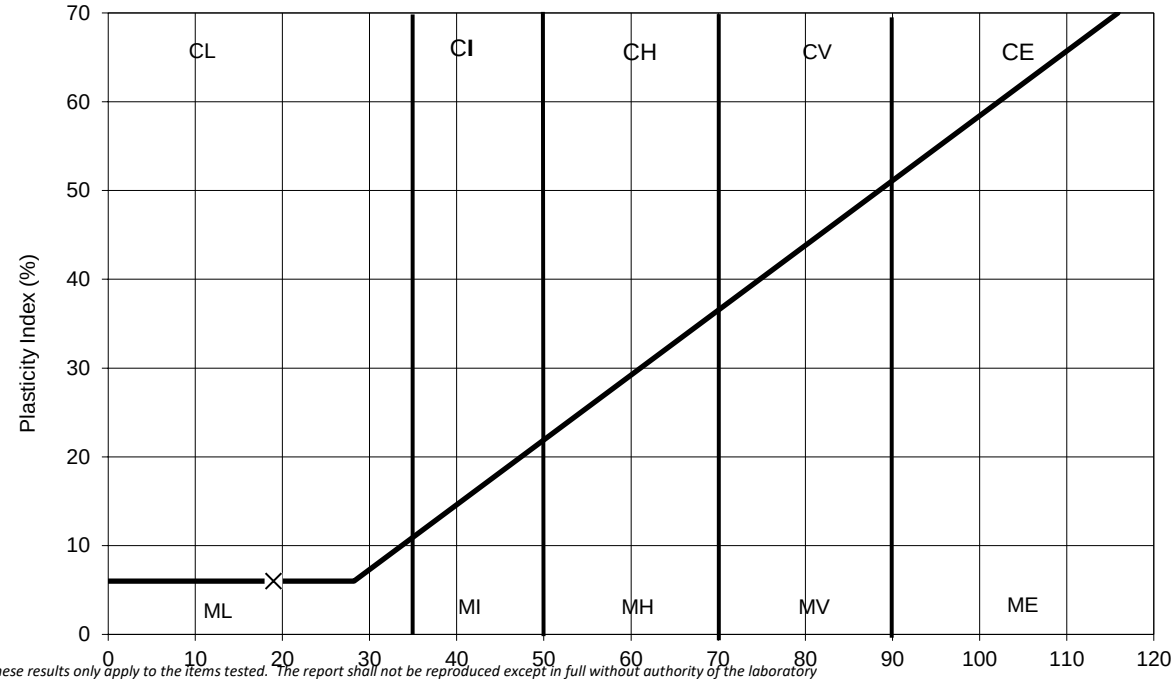


NATURAL MOISTURE CONTENT	**8.6**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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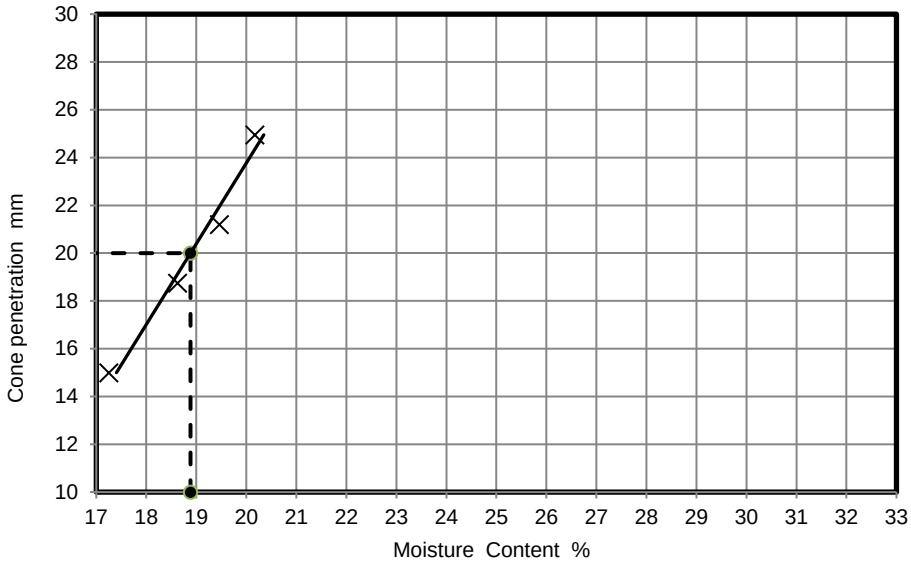
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-90894
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022

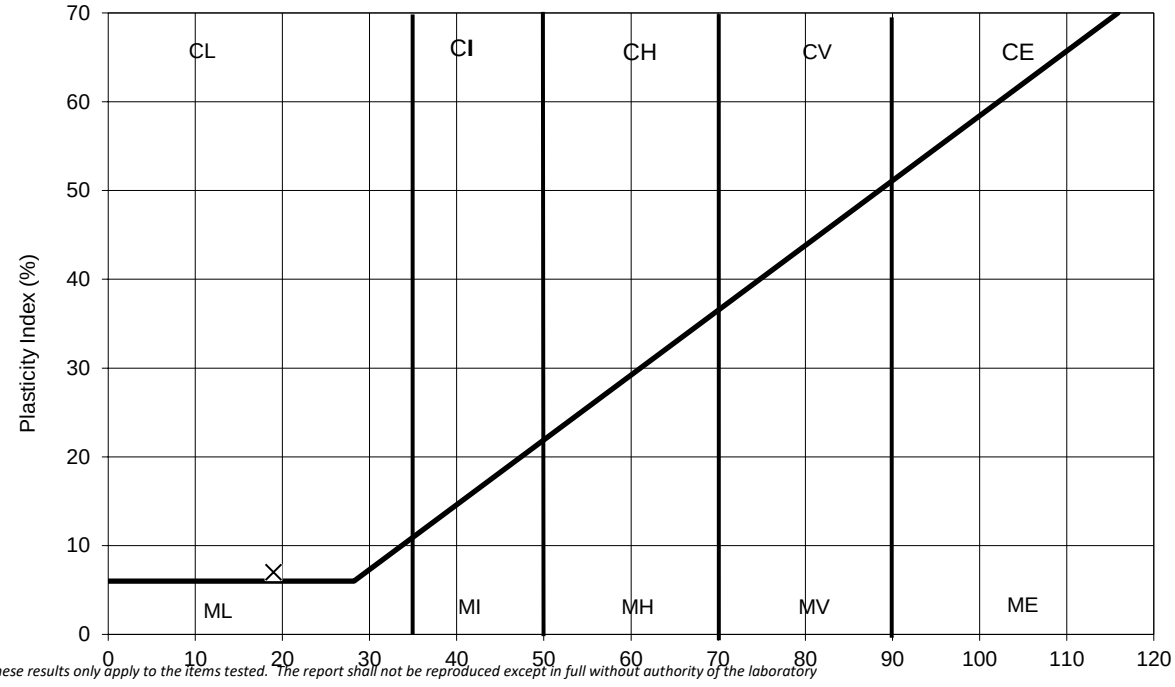


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**61**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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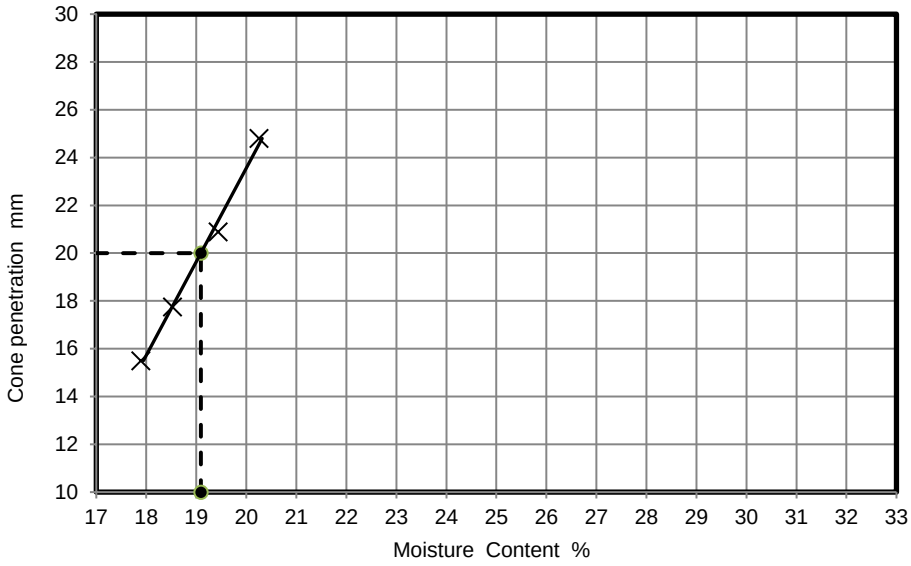
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/11/2022

Job No. 32282

Borehole/Pit No. TP-91012

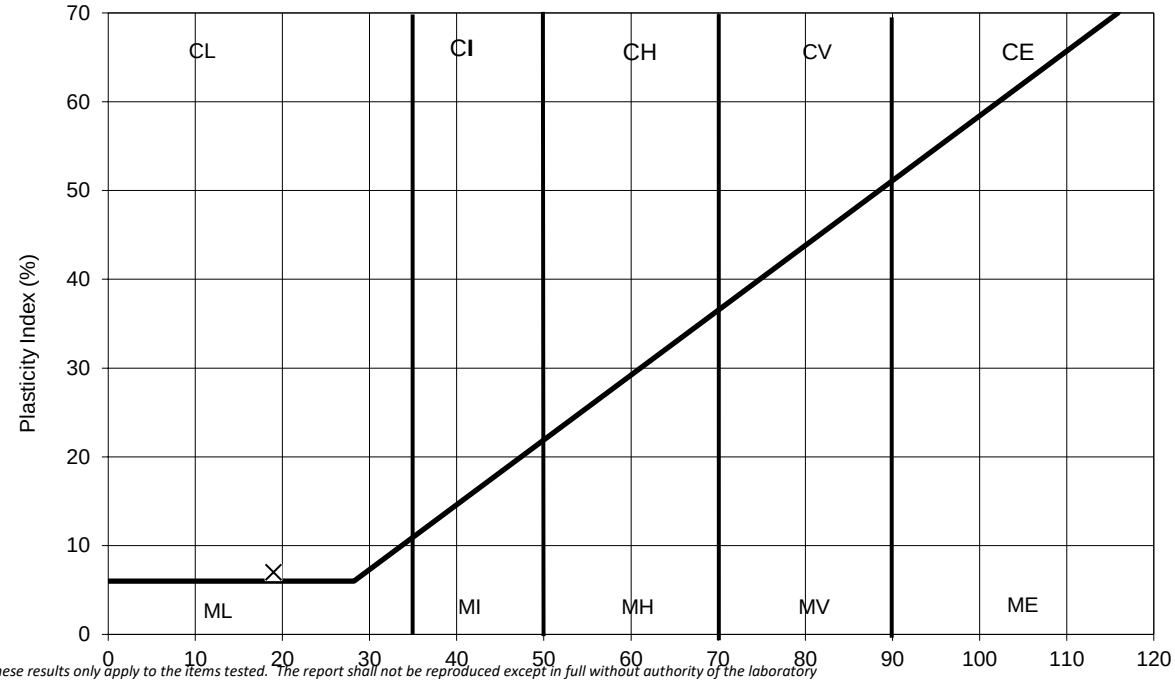


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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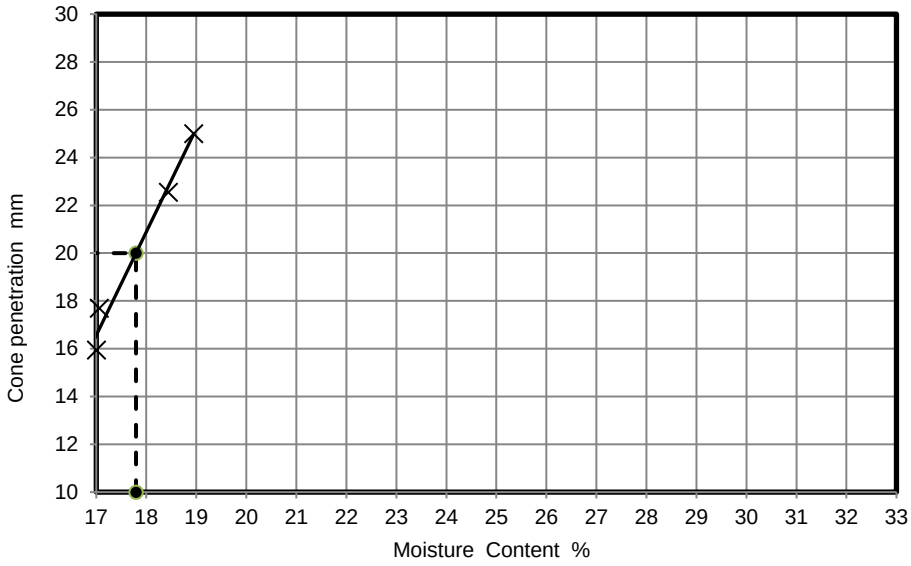
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

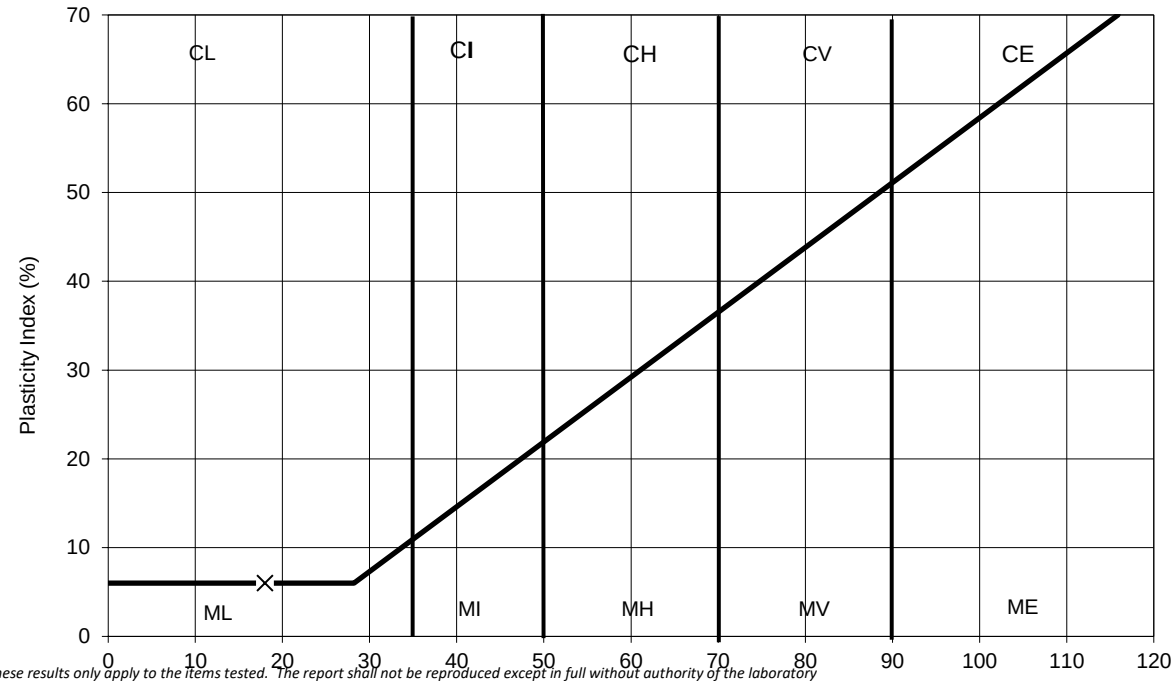
				Job No.	32282
				Borehole/Pit No.	TP-91012
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**72**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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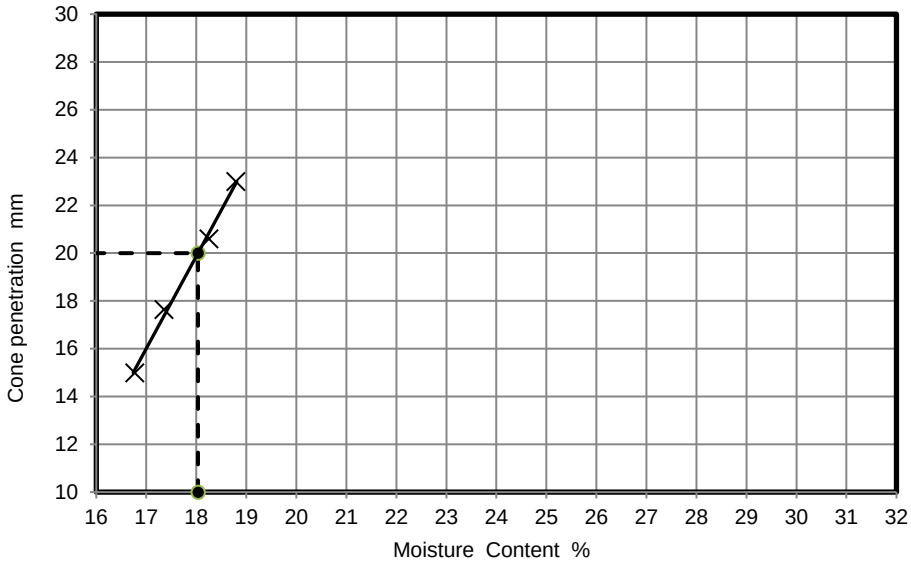
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91104
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

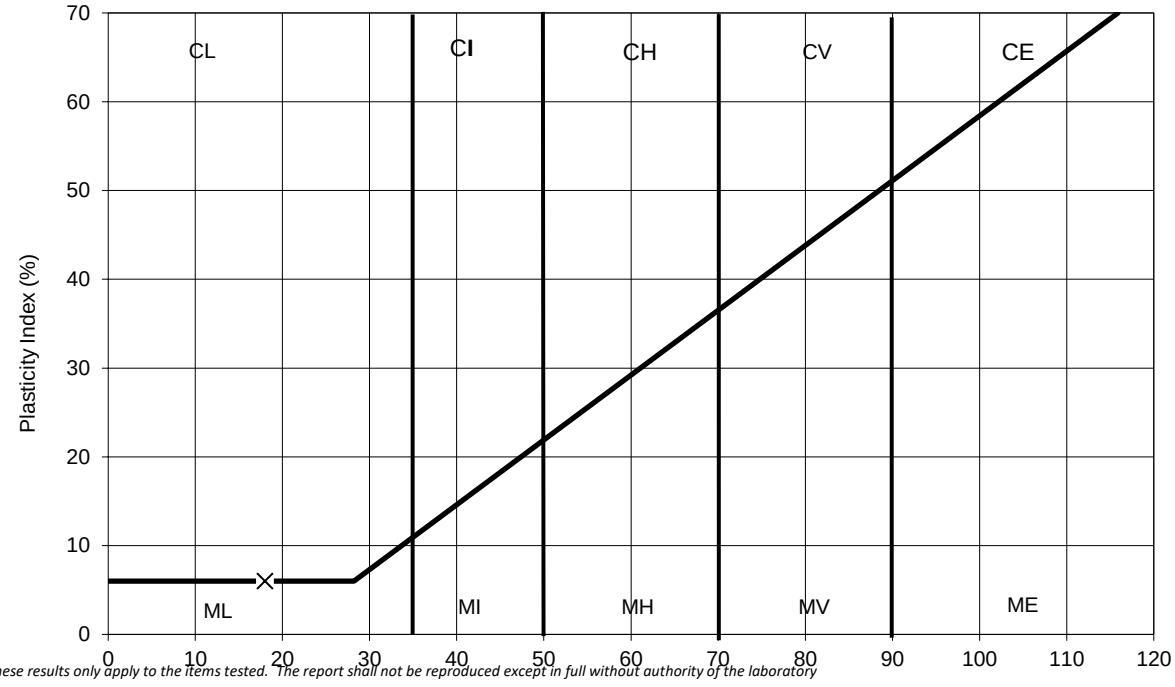


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

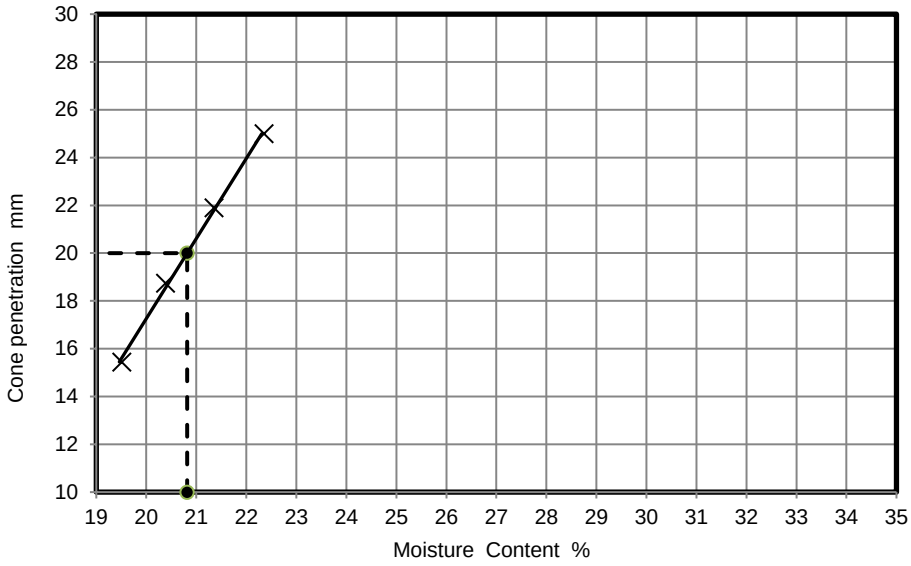
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91193
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

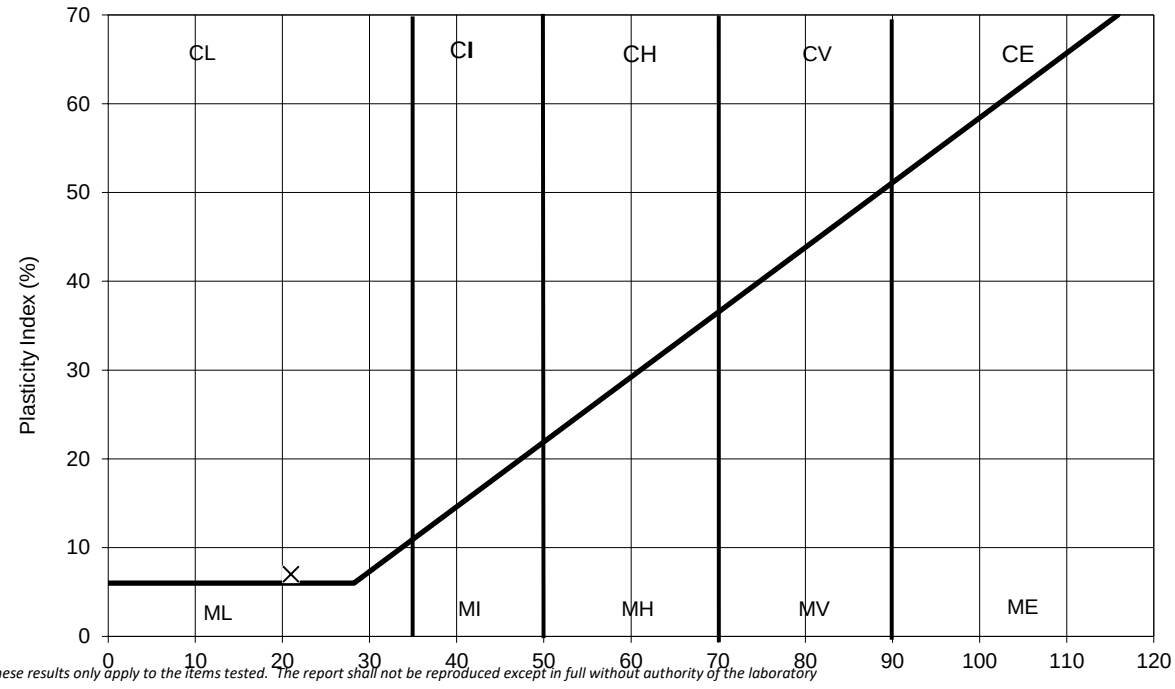


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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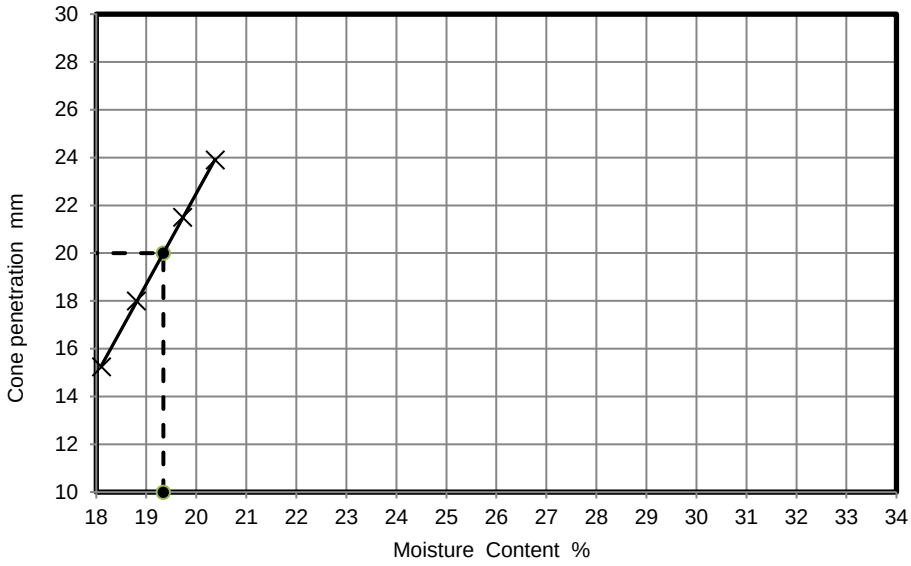
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91193
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

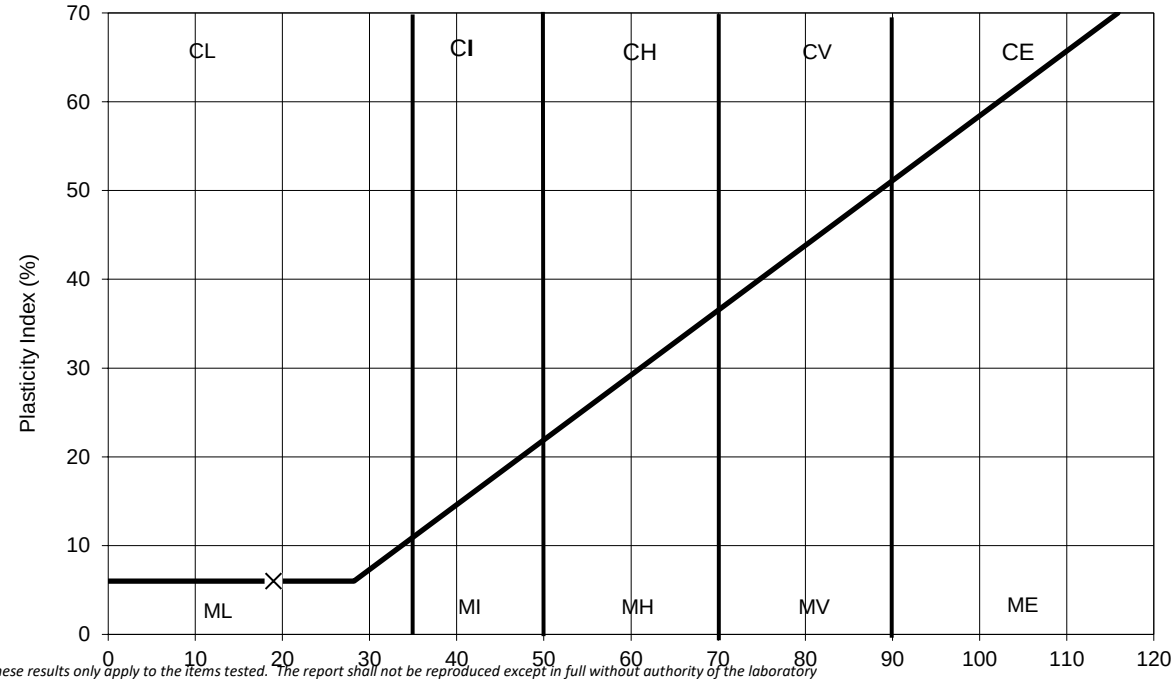


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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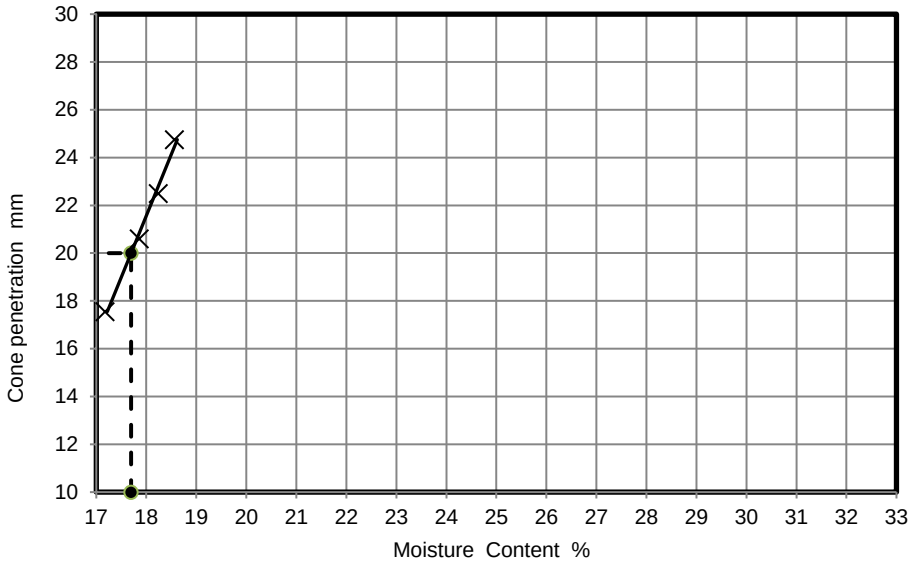
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

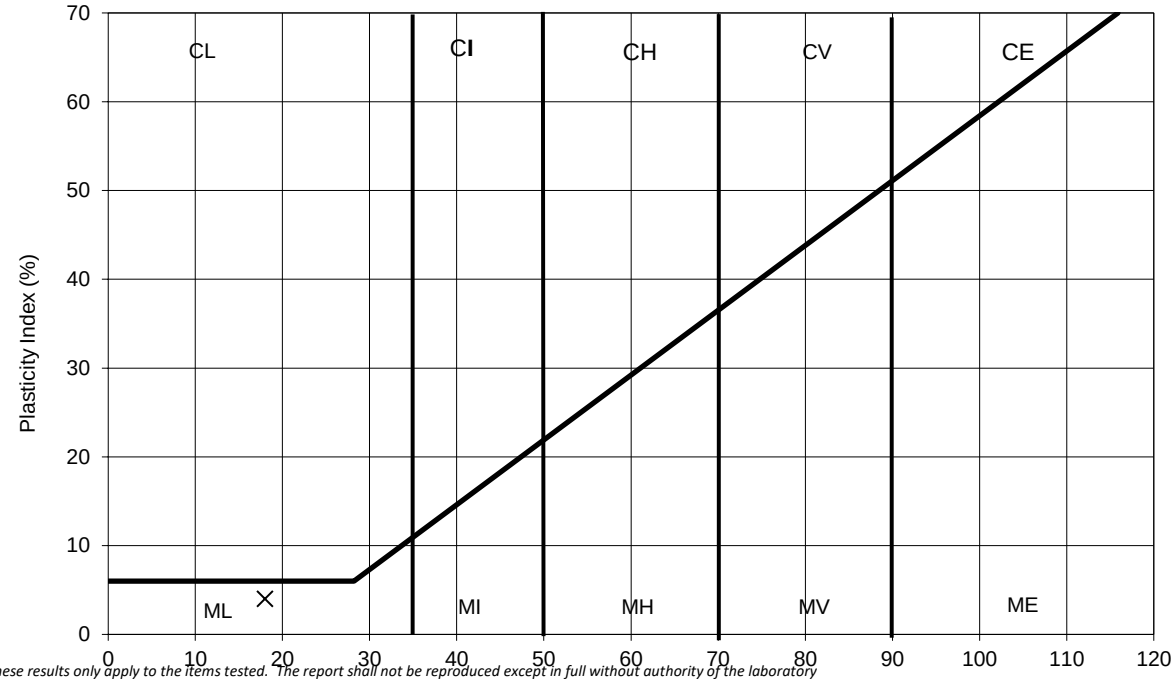


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**4**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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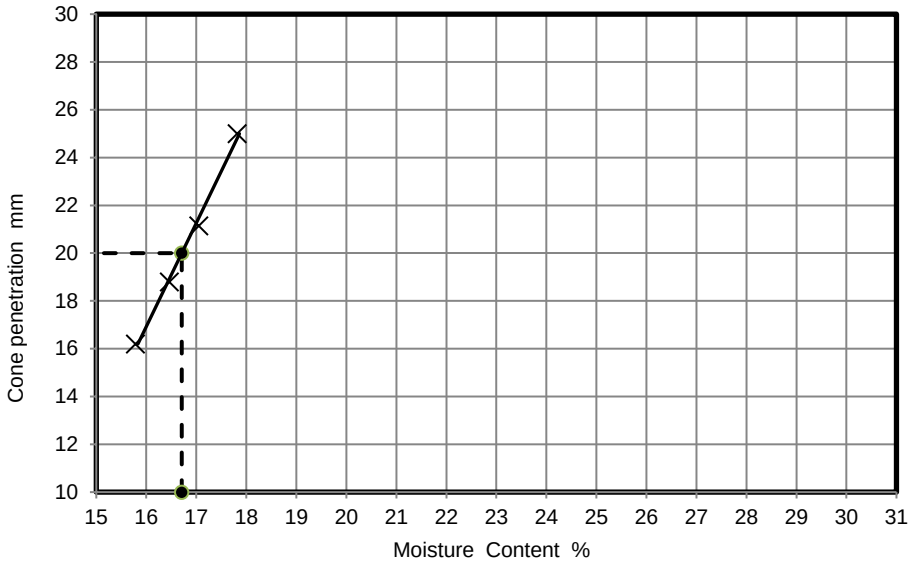
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

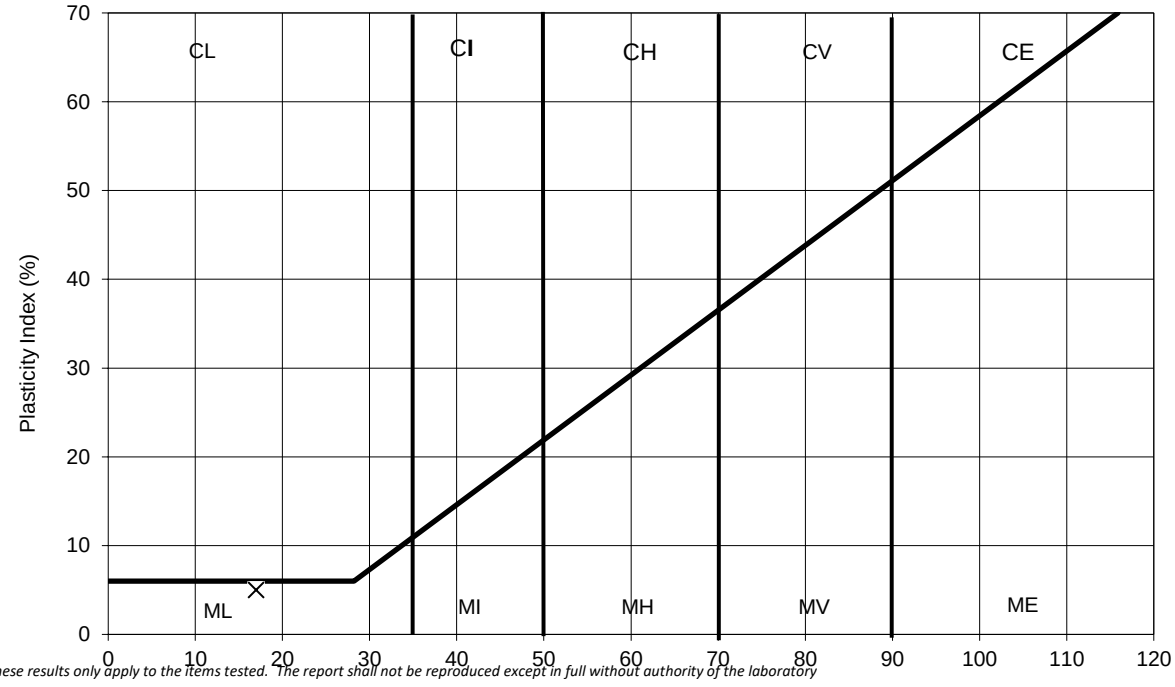


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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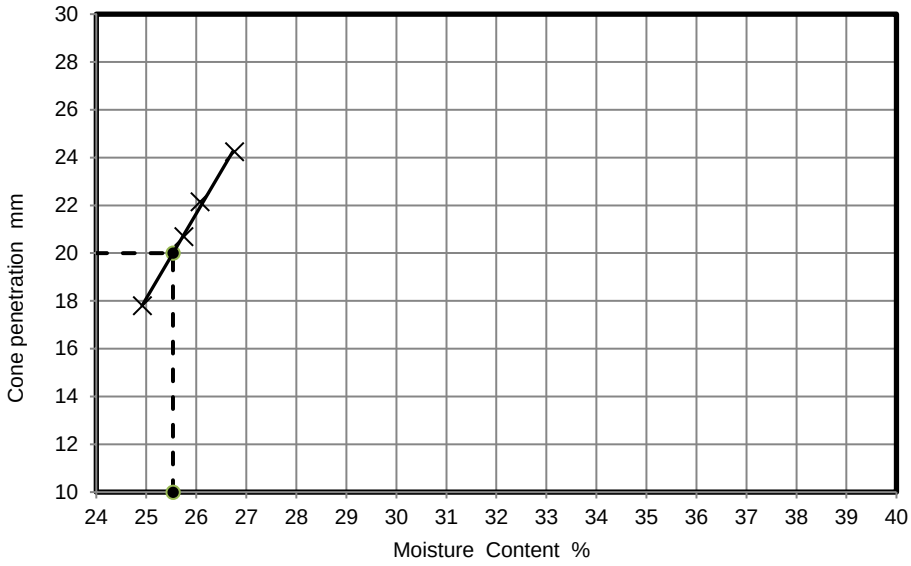
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91406
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

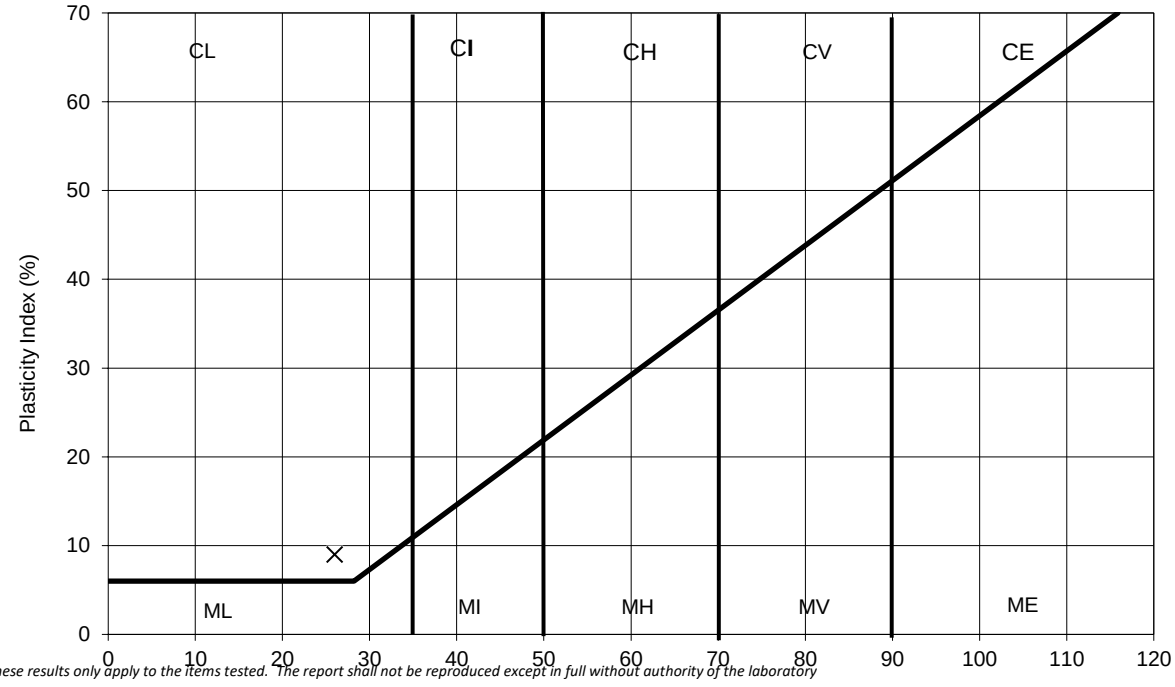


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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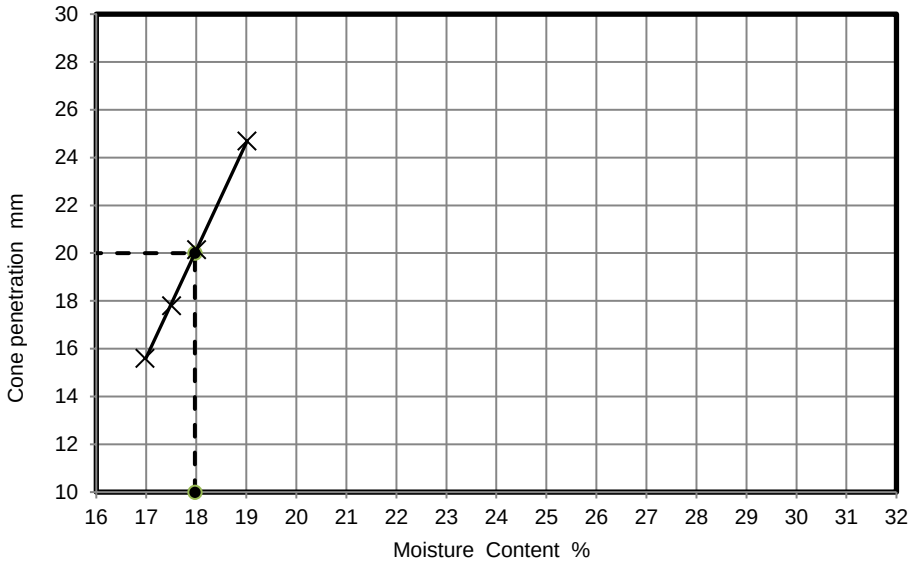
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

Job No. 32282

Borehole/Pit No. TP-91406

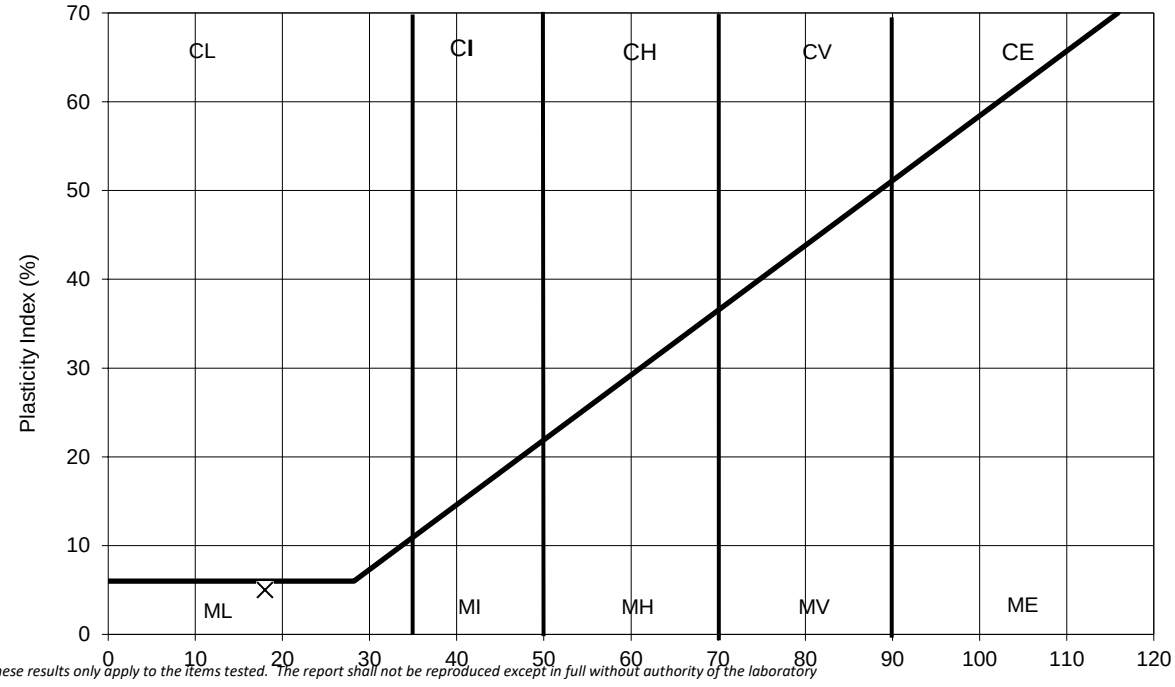


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

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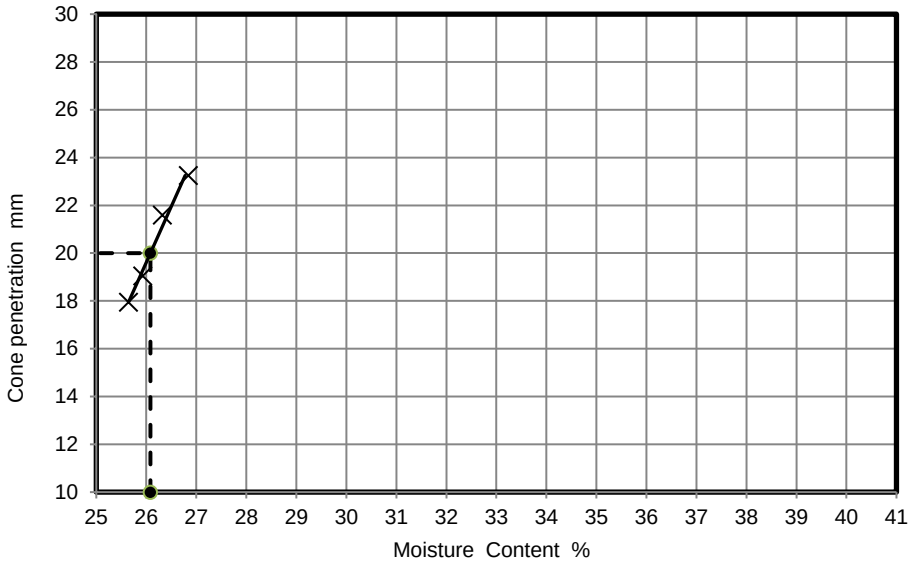
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly clayey gravelly silty SAND (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

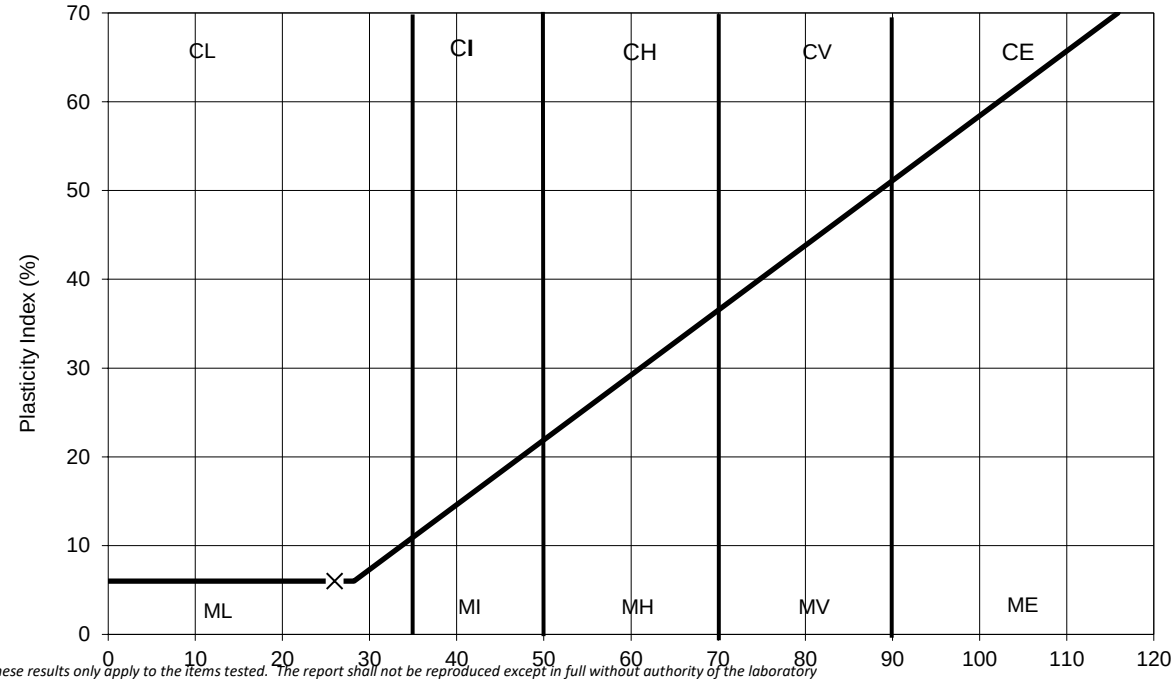


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**20**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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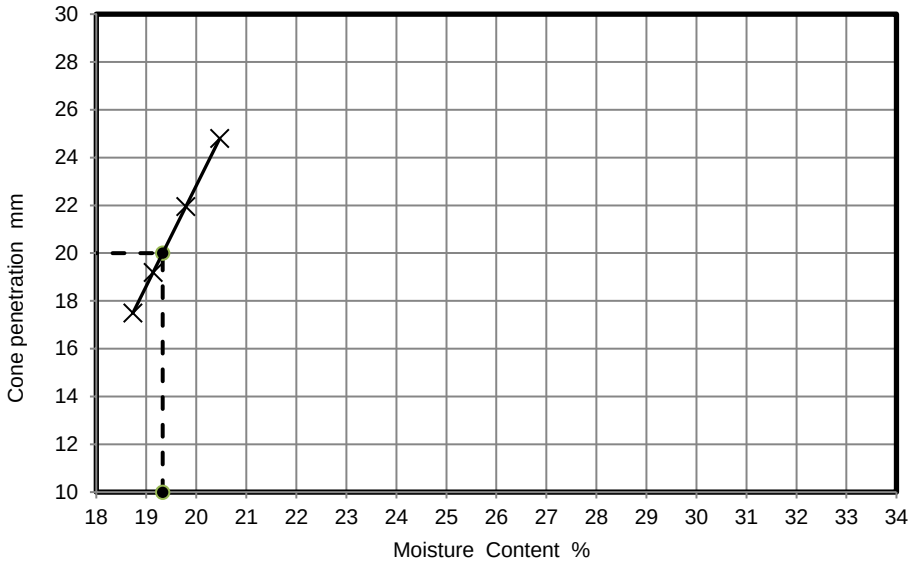
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-91705
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022

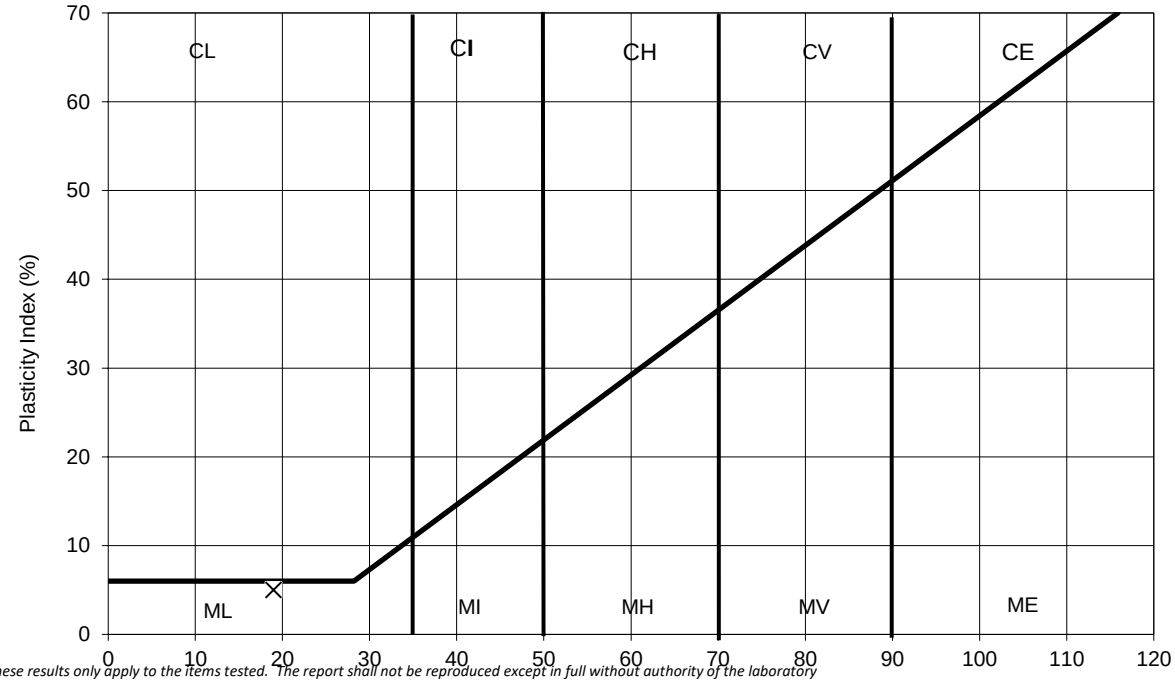


NATURAL MOISTURE CONTENT	**8.7**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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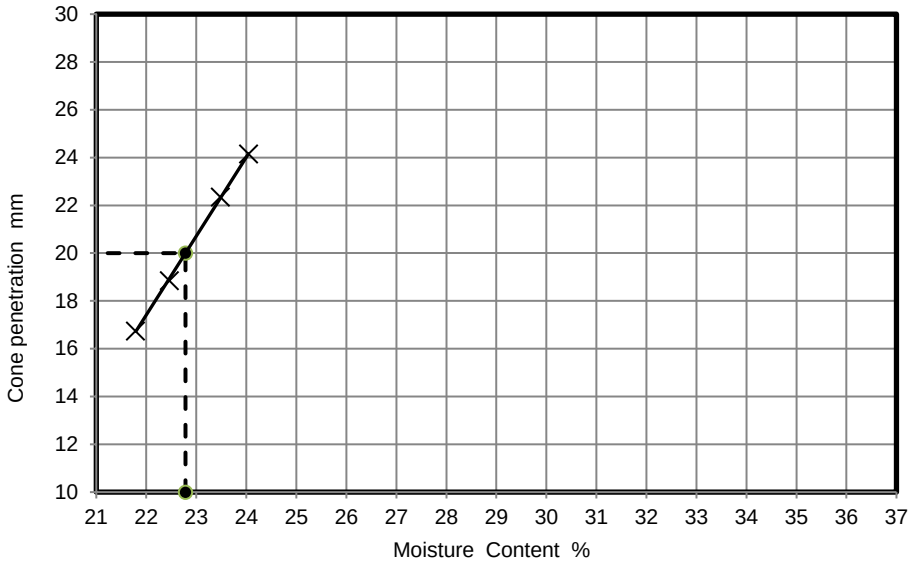
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-91805
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

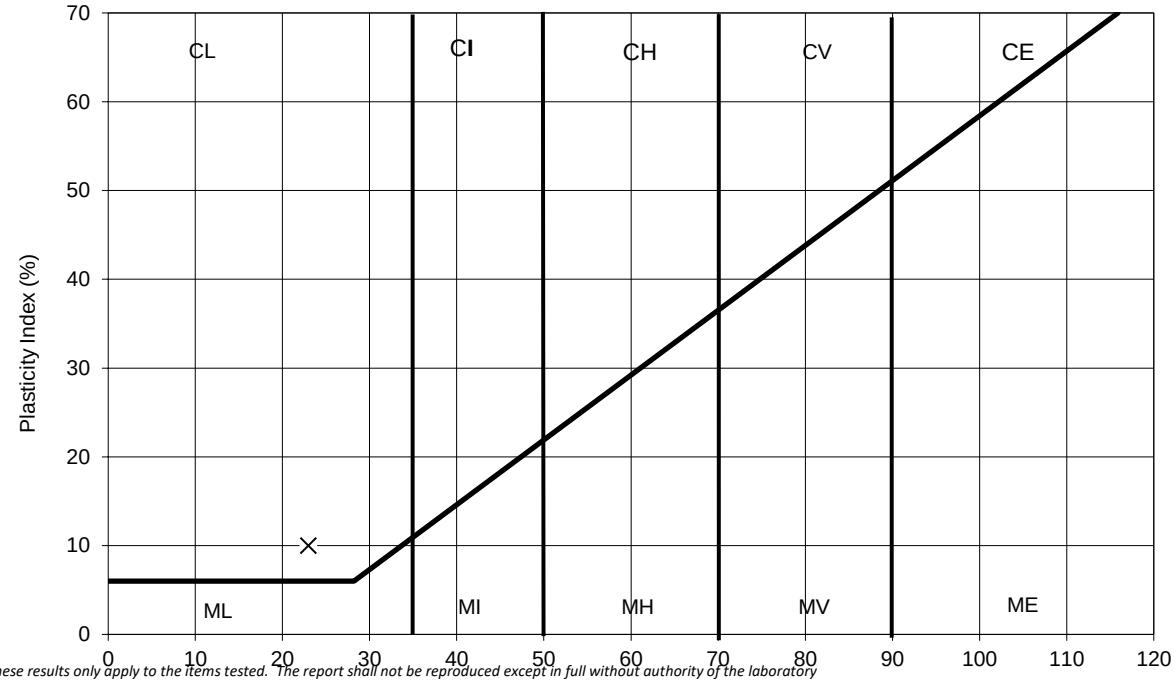


NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**68**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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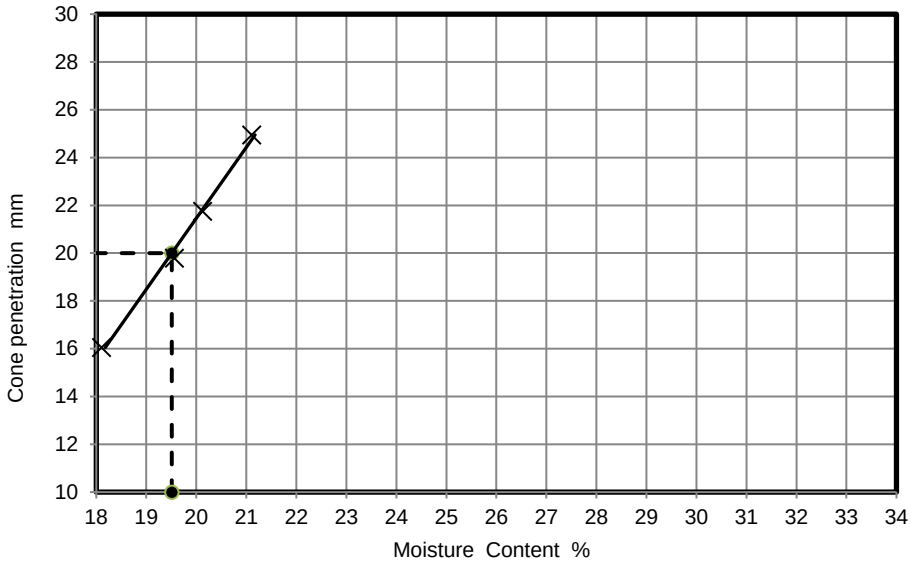
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

Job No. 32282

Borehole/Pit No. TP-91805

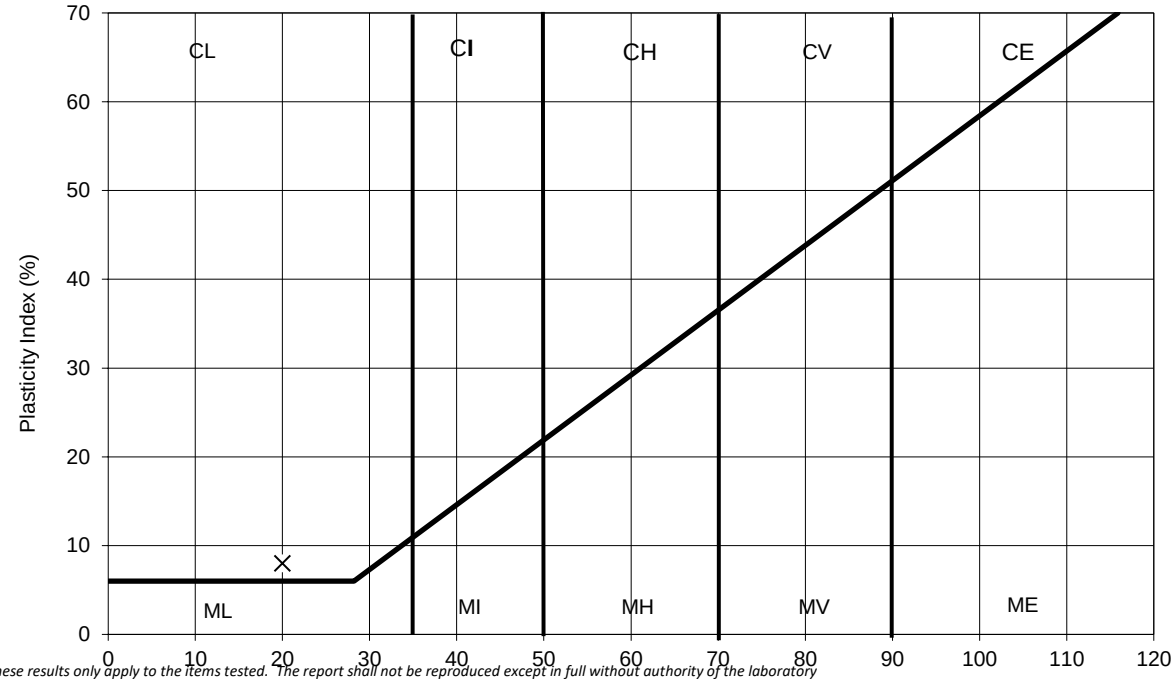


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

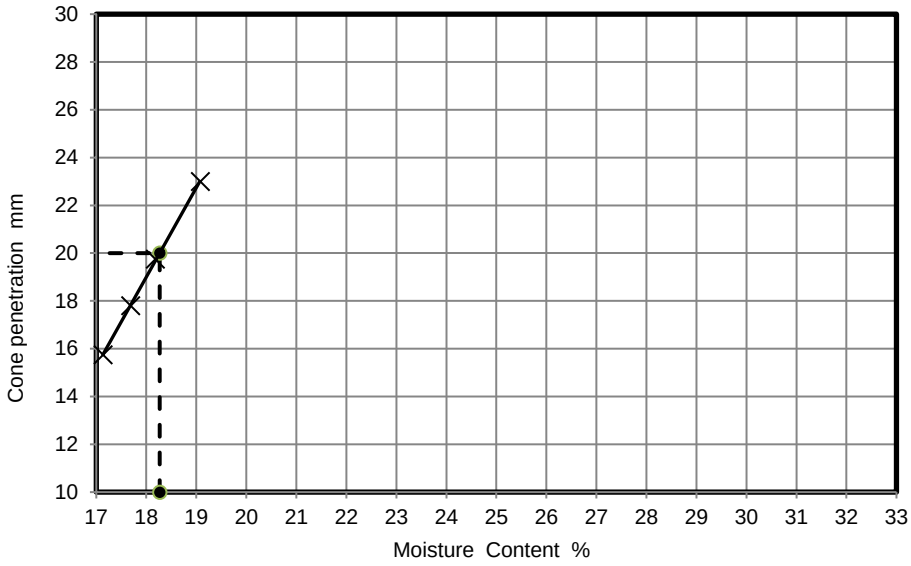
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

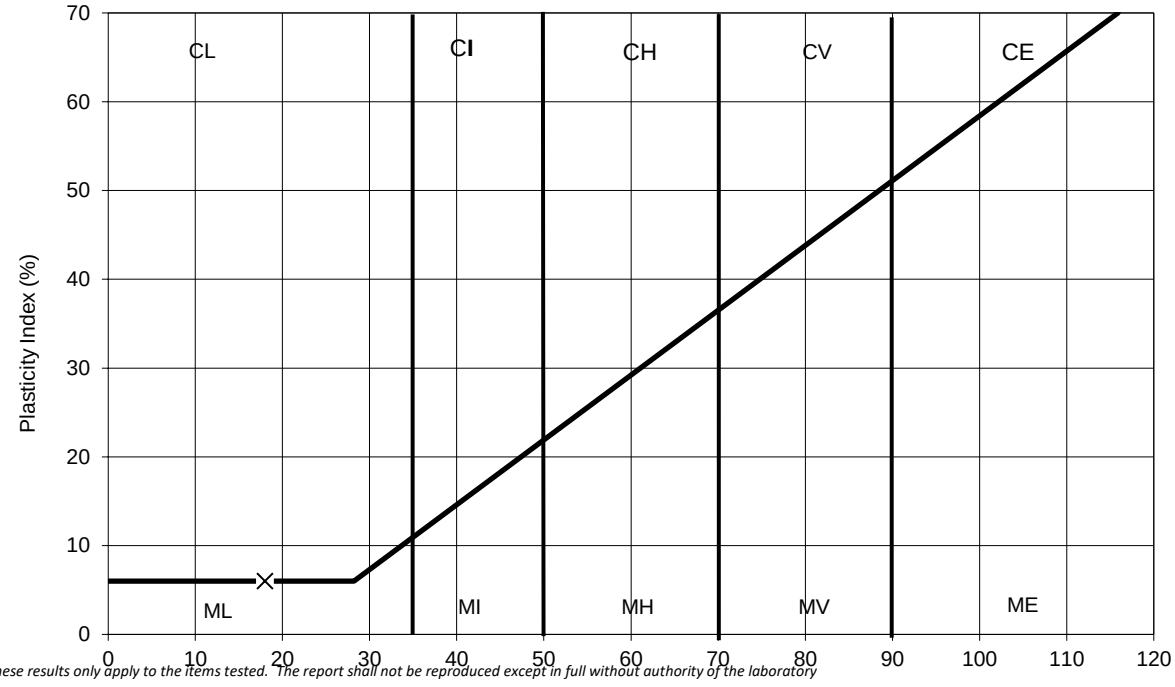
Job No.	32282				
Borehole/Pit No.	TP-91905				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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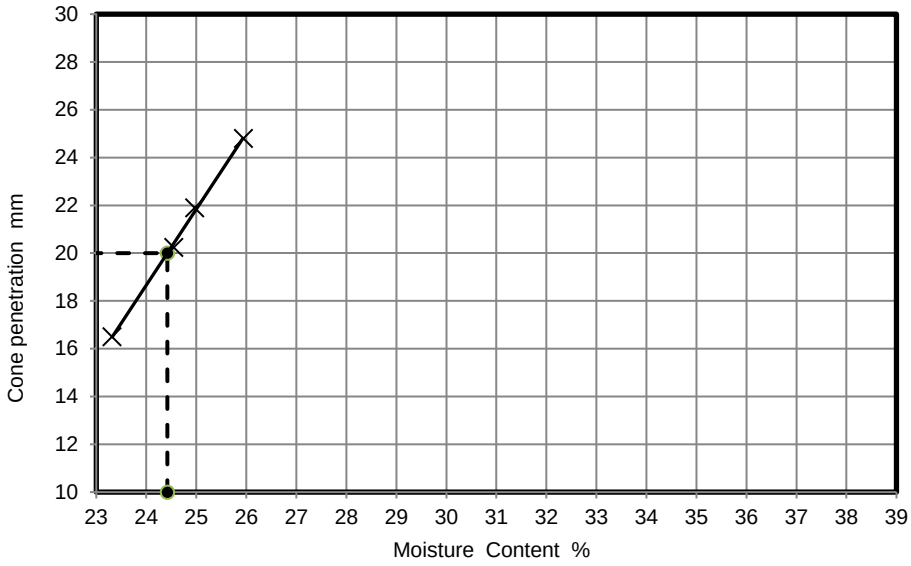
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

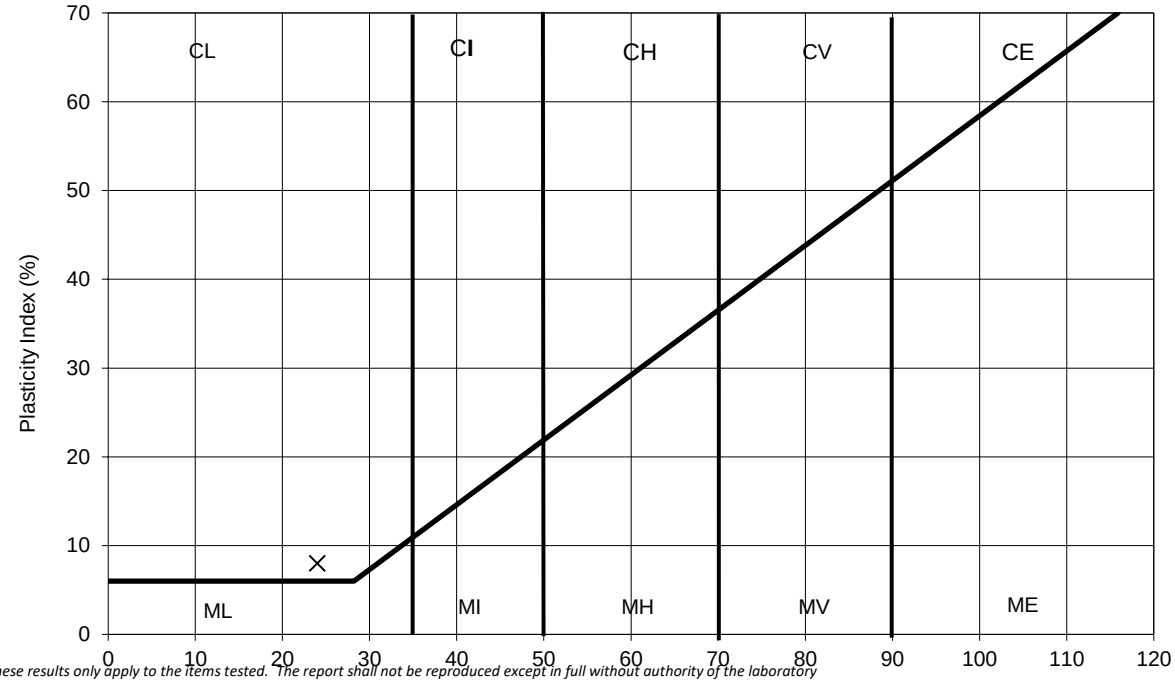
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022
				Job No.	32282
				Borehole/Pit No.	TP-92029



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**79**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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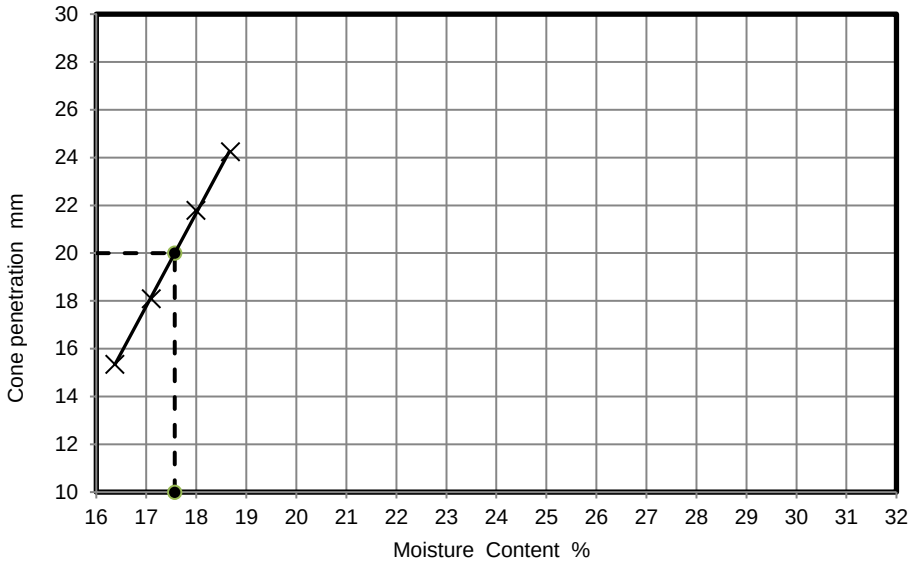
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

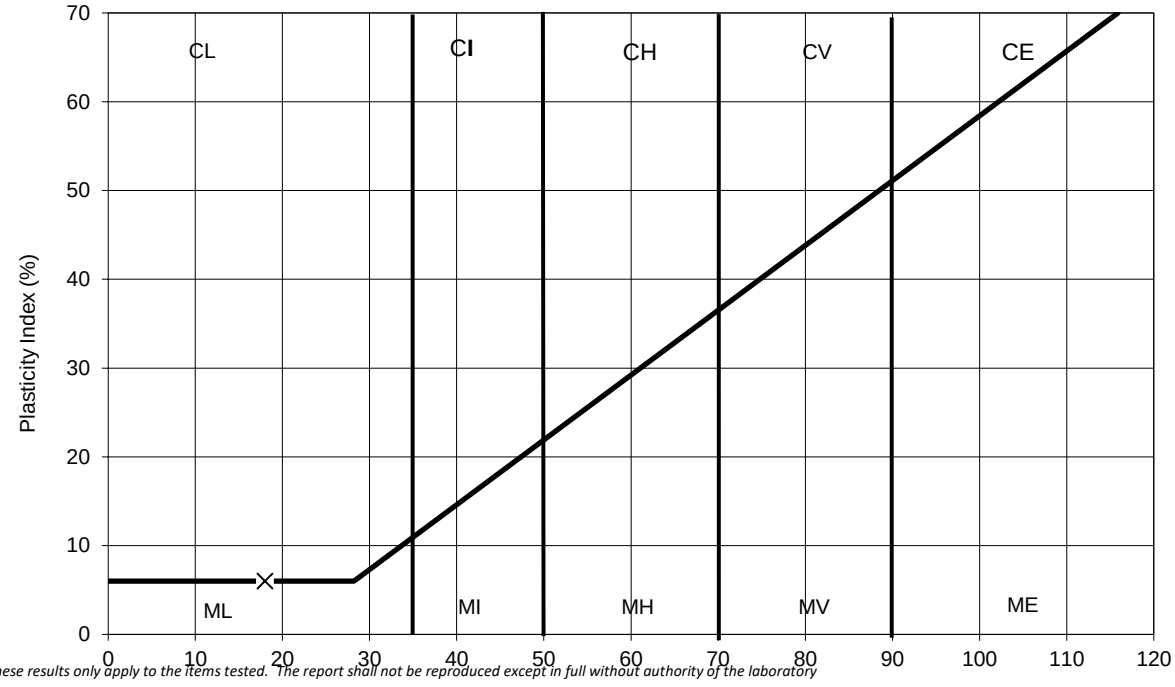
				Job No.	32282
				Borehole/Pit No.	TP-92029
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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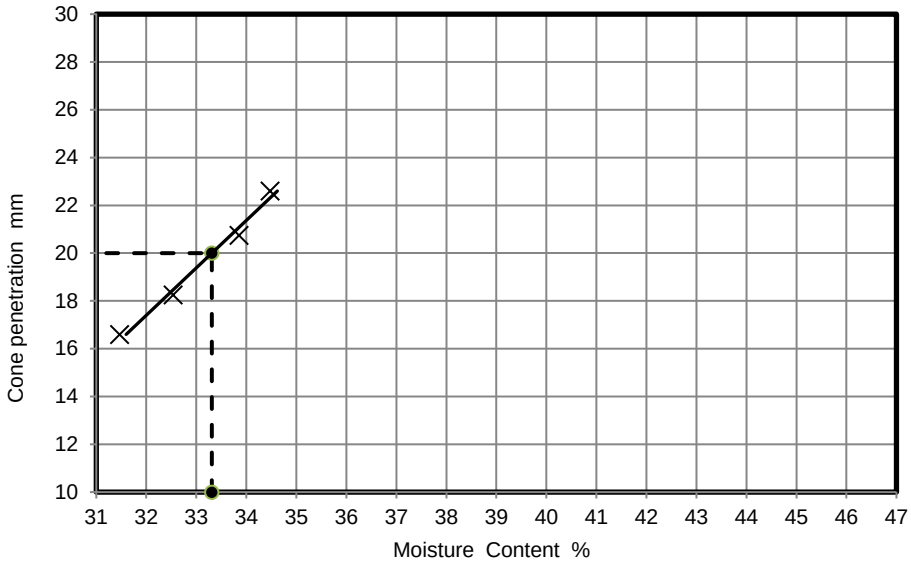
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

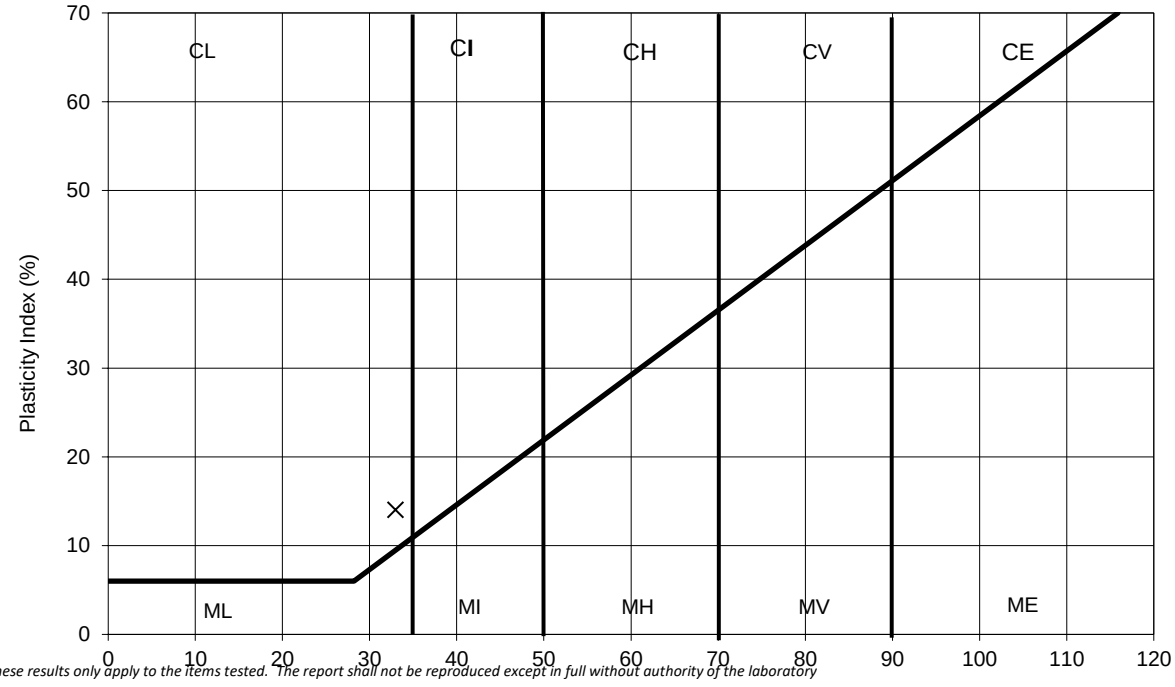
				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**33**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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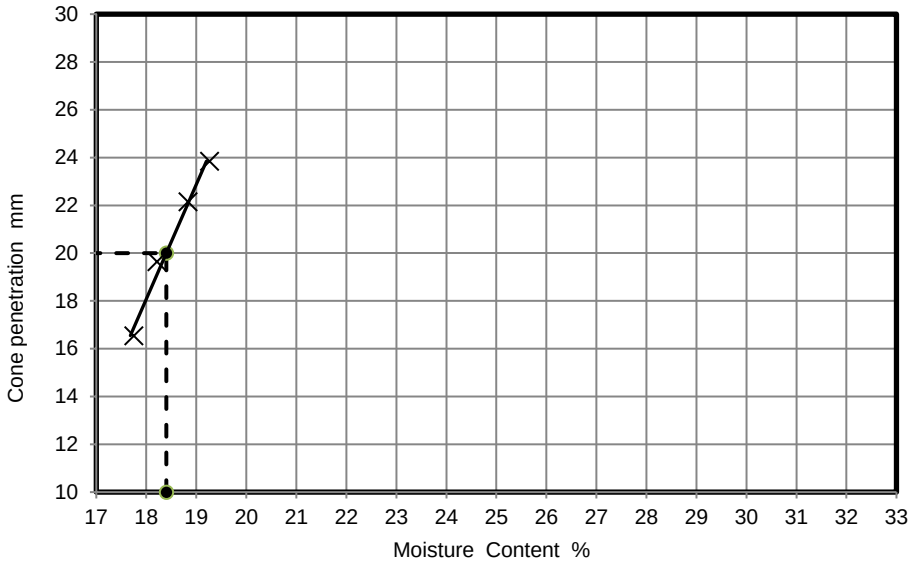
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Light brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

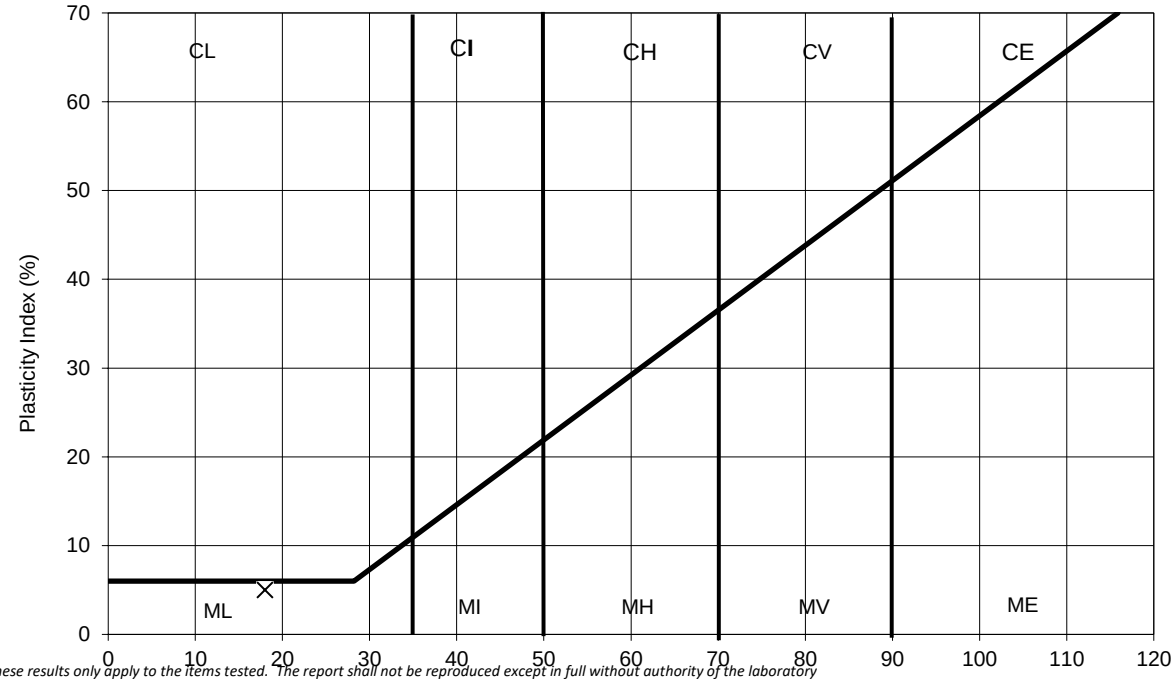


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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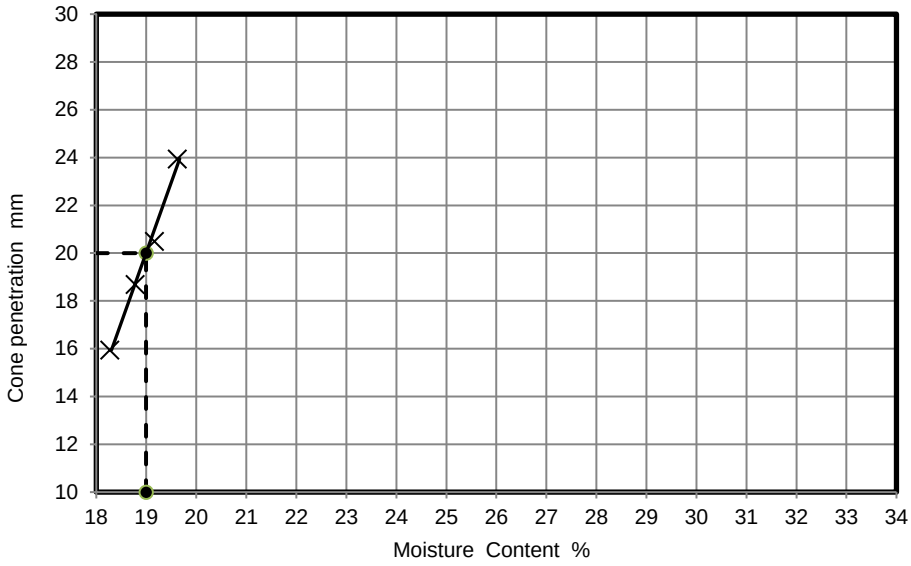
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/09/2022

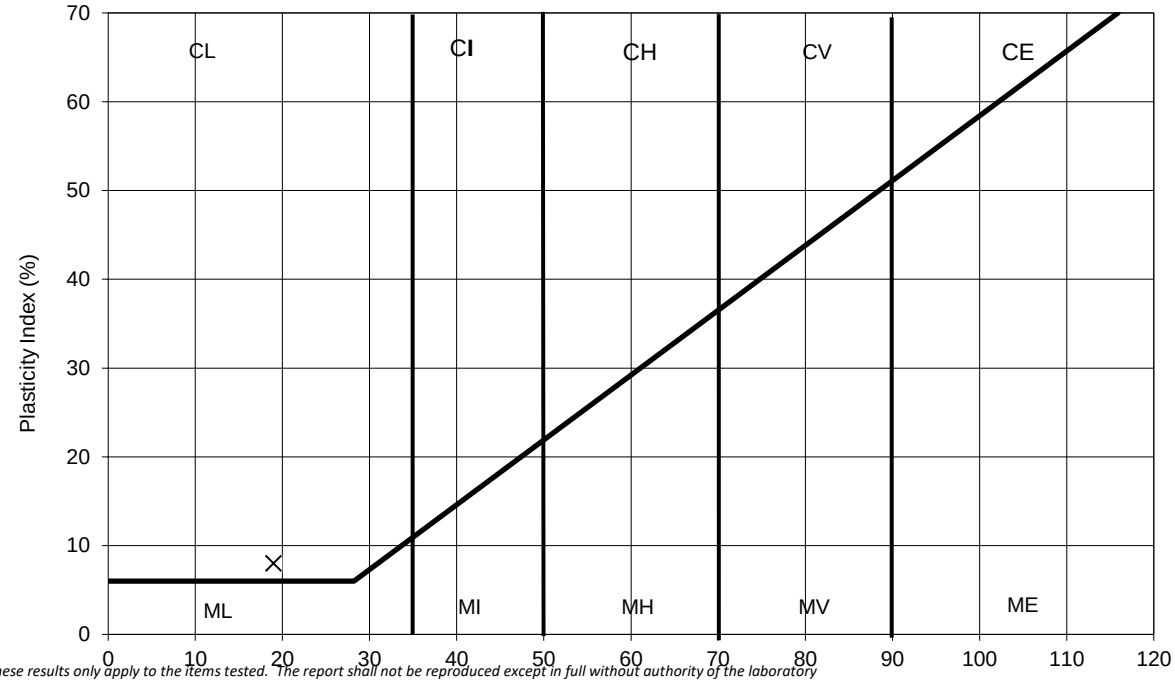


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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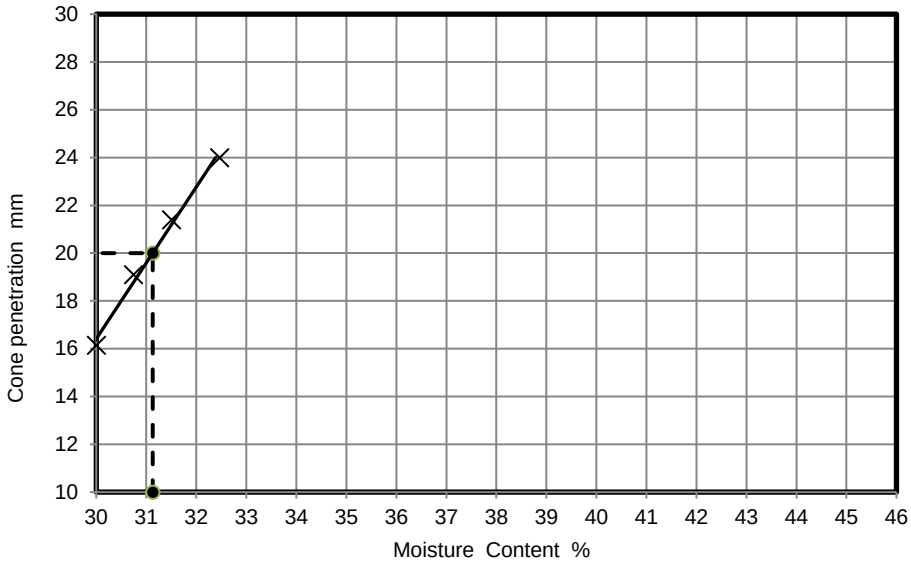
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D

Job No.	32282
Borehole/Pit No.	TP-92306
Samples received	16/08/2022
Schedules received	11/08/2022
Project Started	17/08/2022
Date Tested	22/11/2022

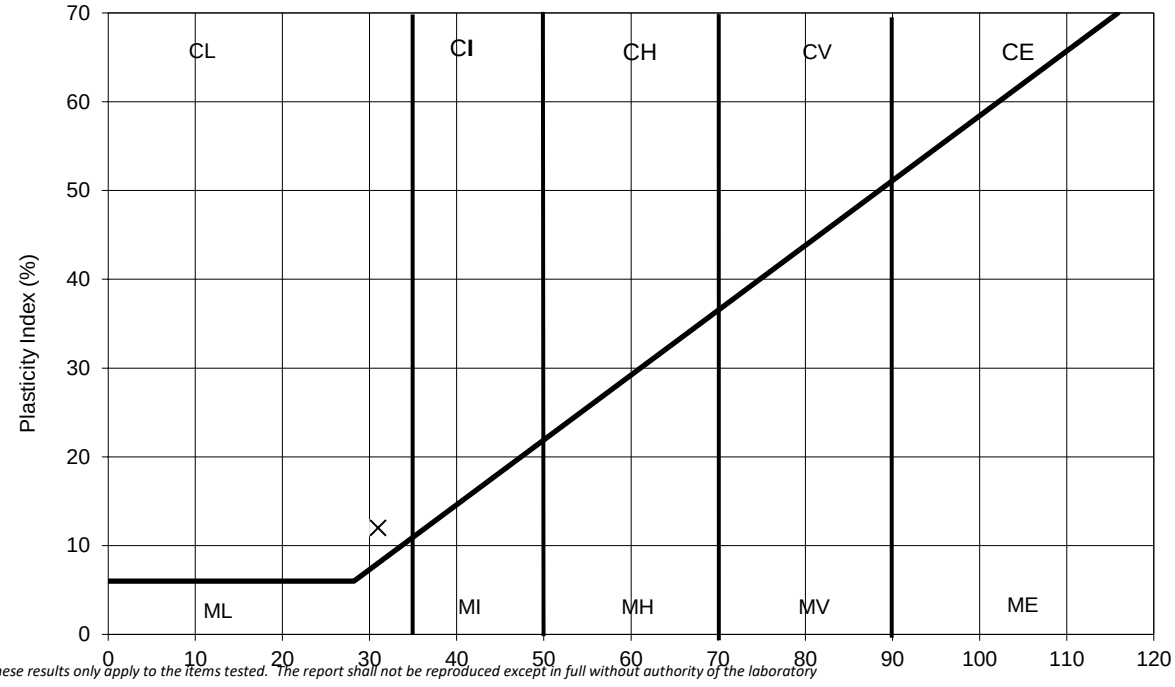


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**31**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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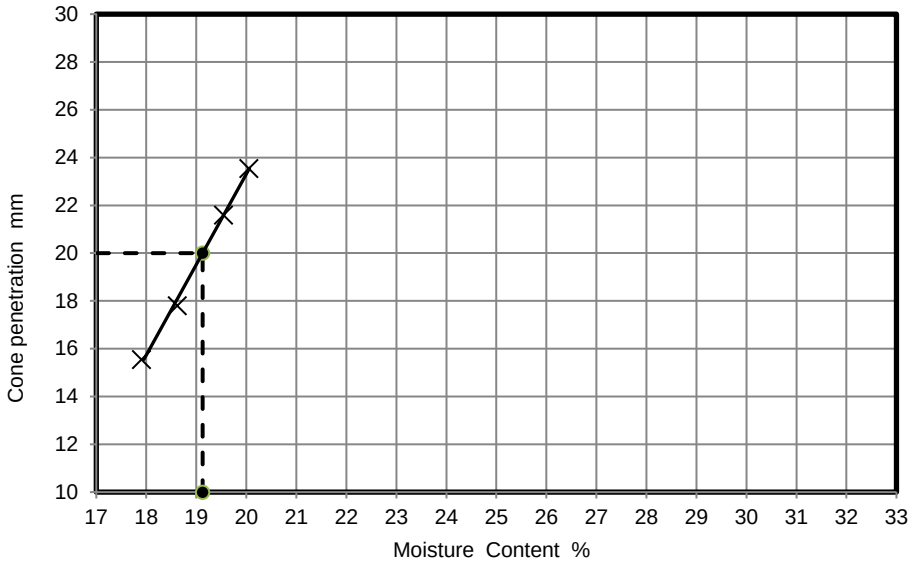
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92306
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

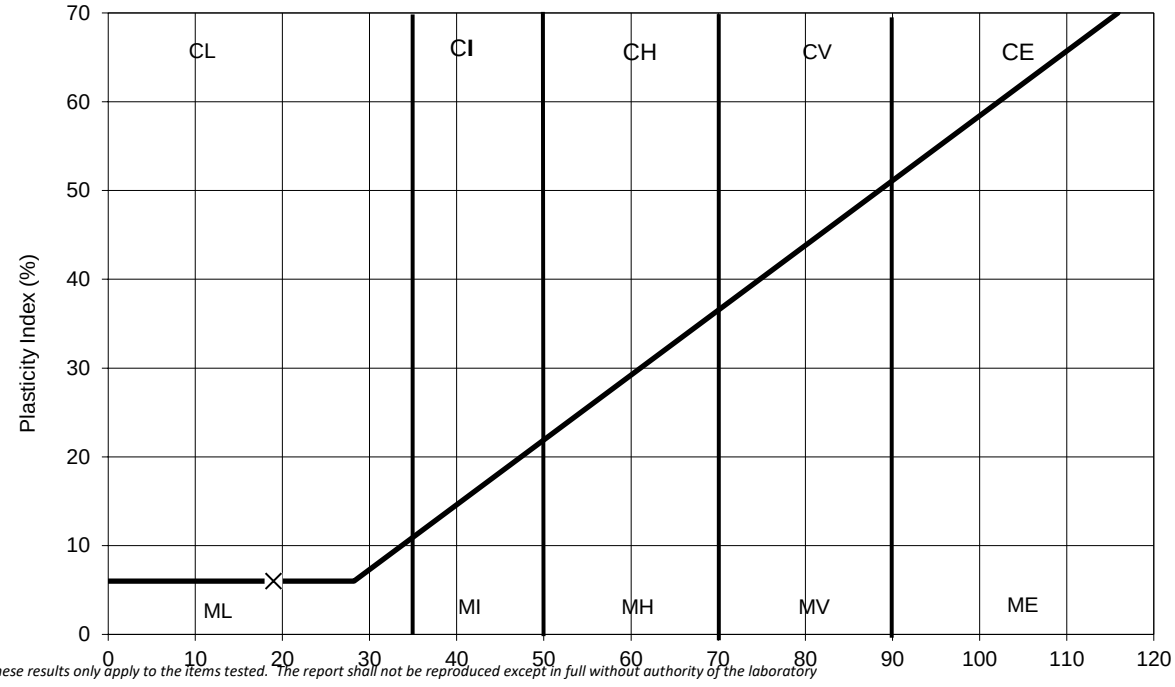


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**72**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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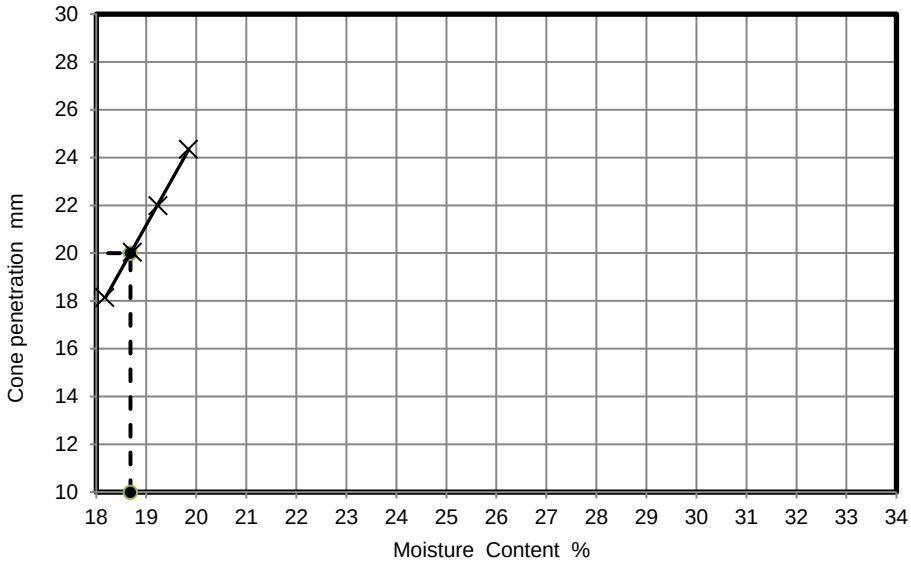
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-92306
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

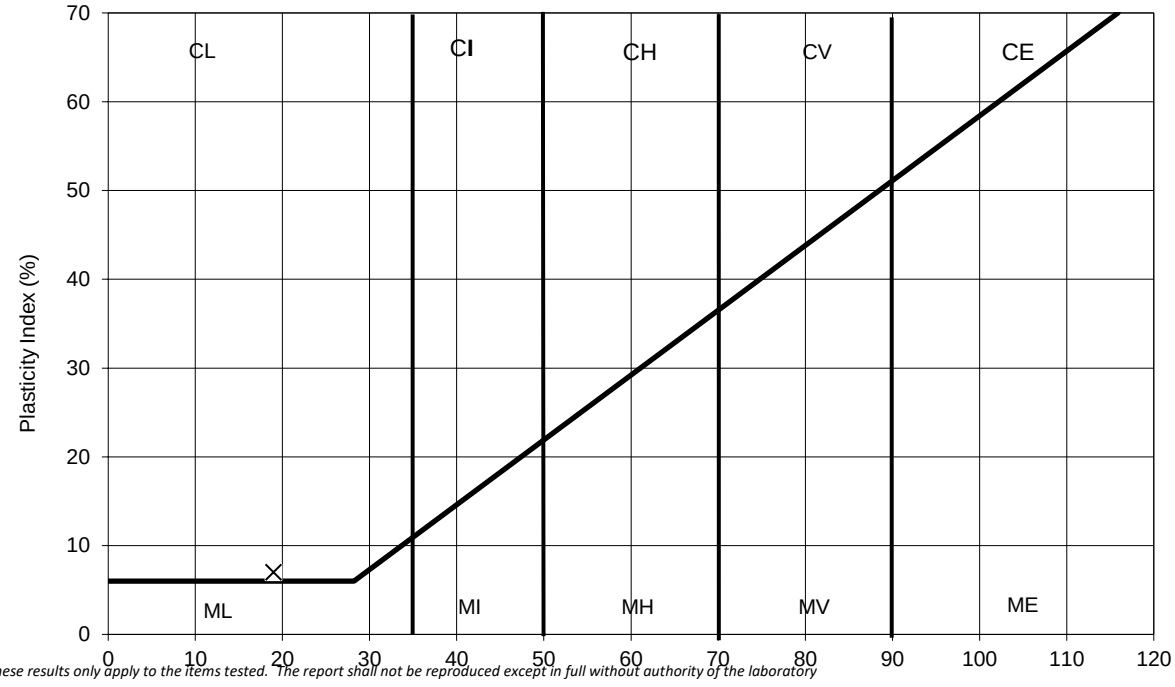


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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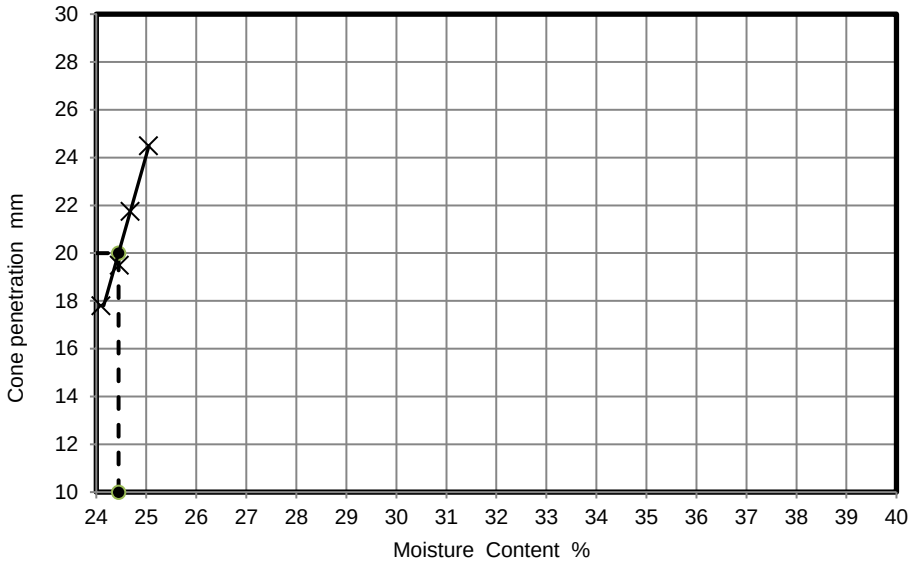
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly clayey very silty SAND (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

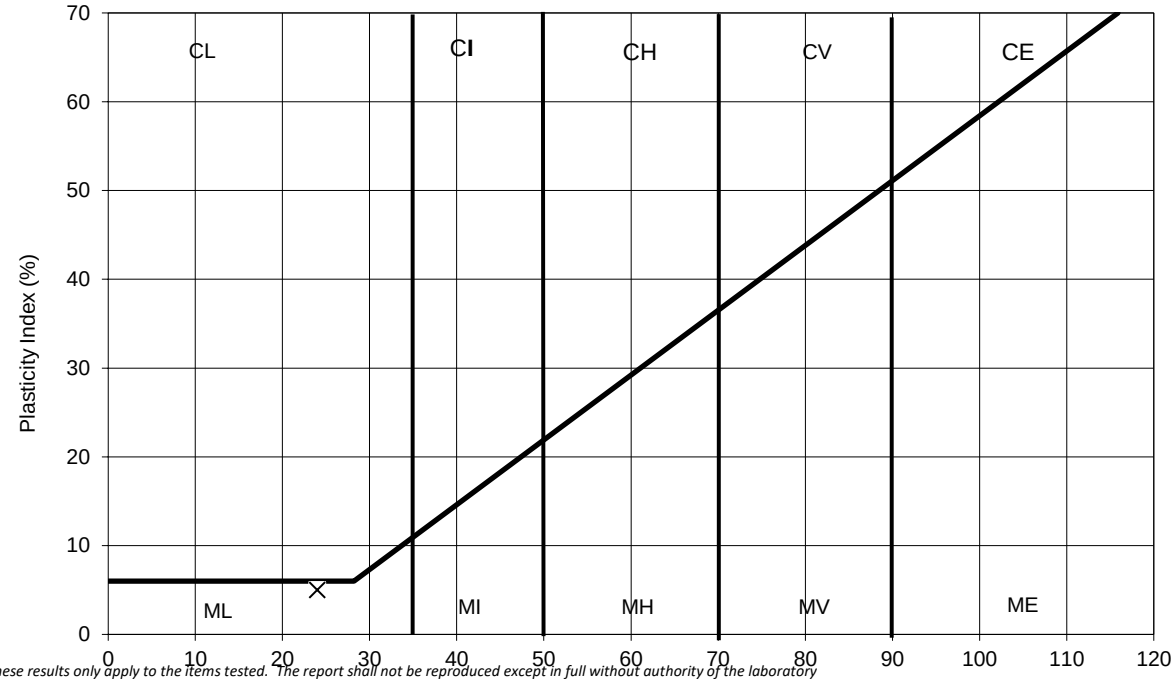


NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

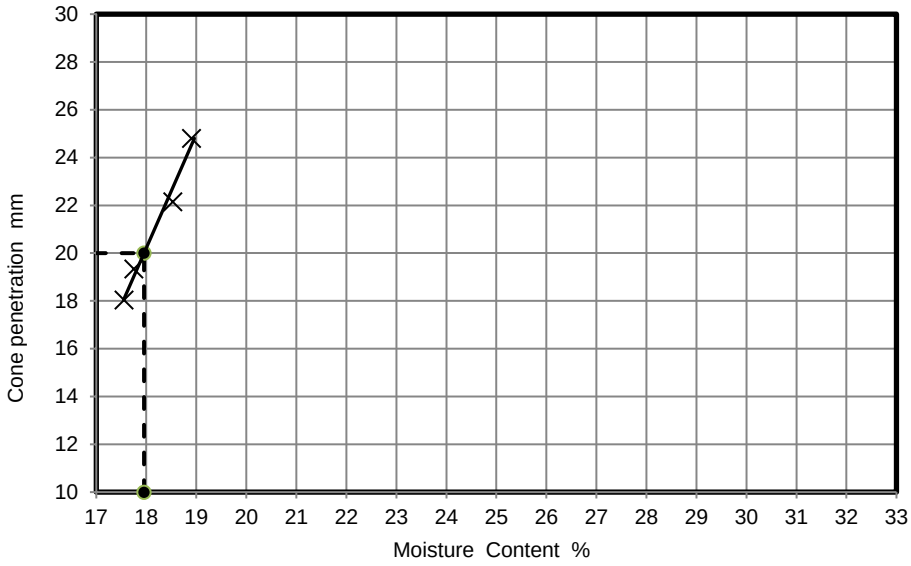
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown gravelly sandy very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

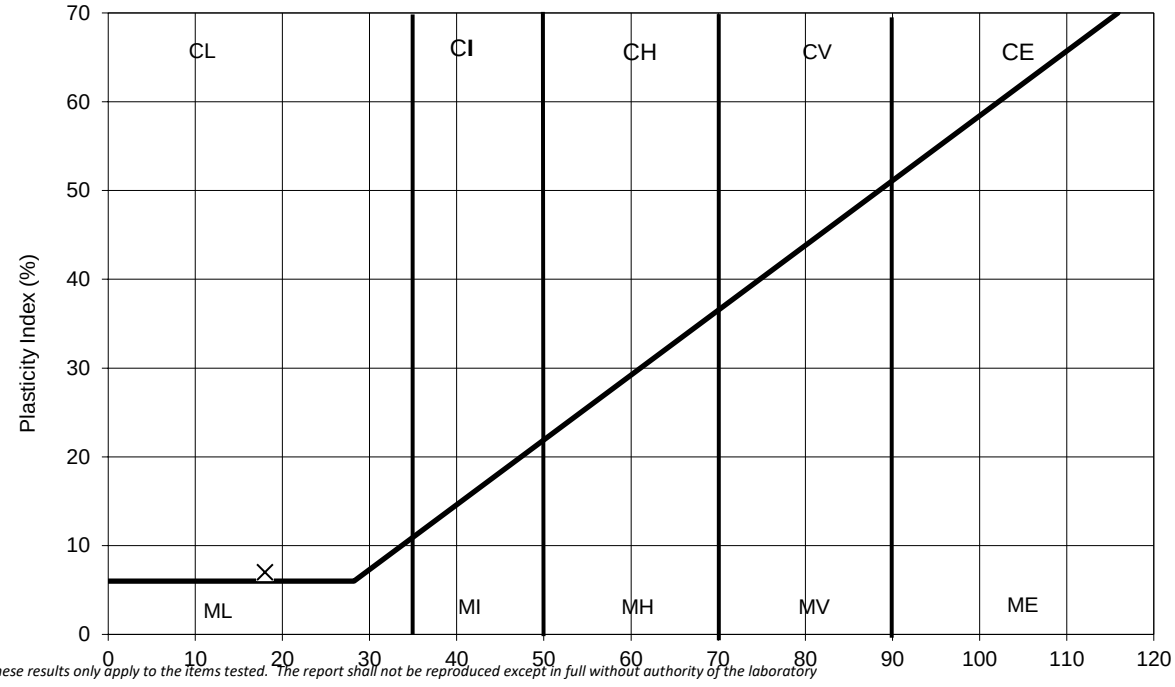


NATURAL MOISTURE CONTENT	**7.3**	**%**
% PASSING 425µm SIEVE	**52**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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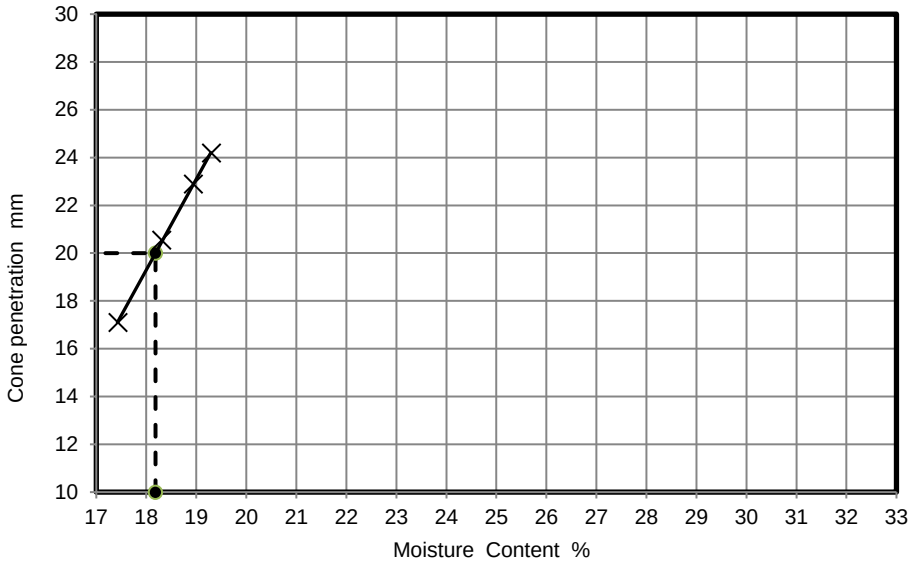
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

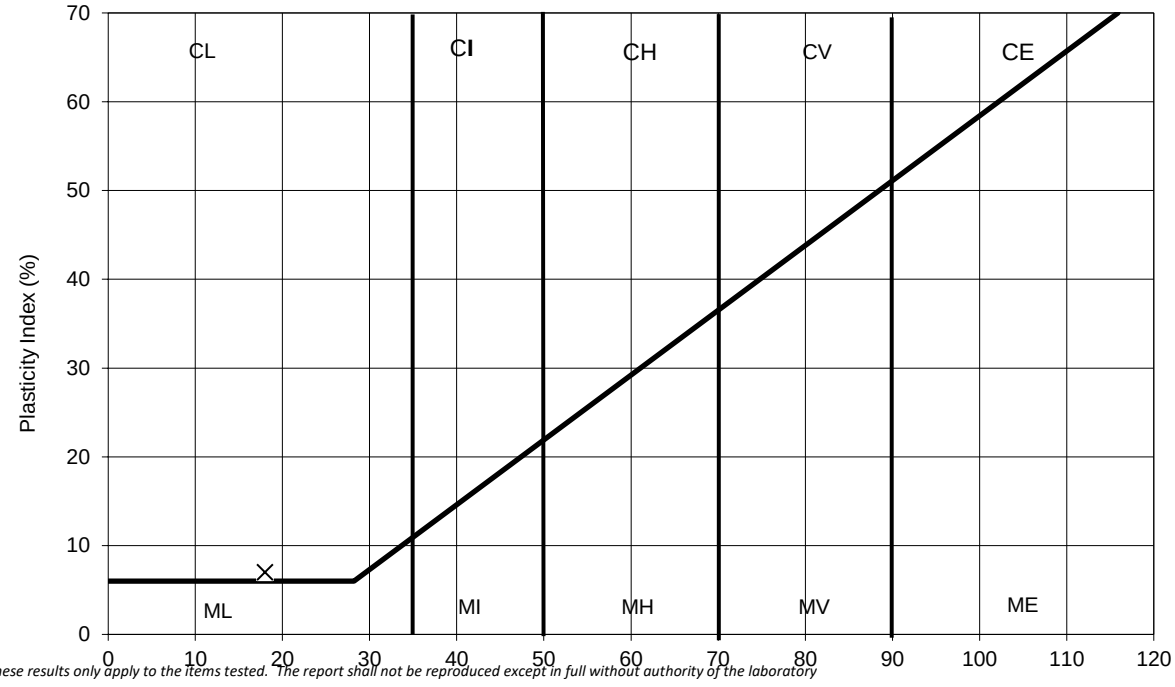


NATURAL MOISTURE CONTENT	**7.8**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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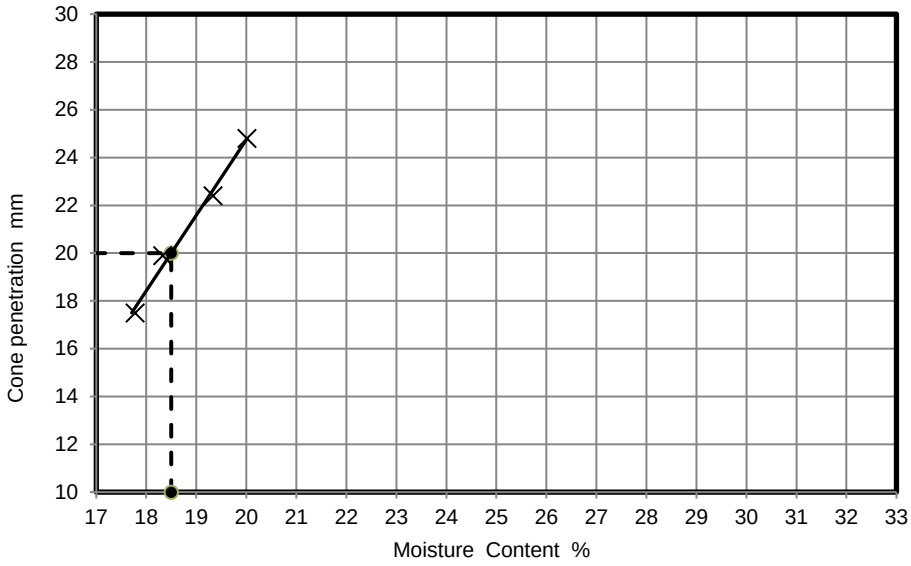
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92506
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

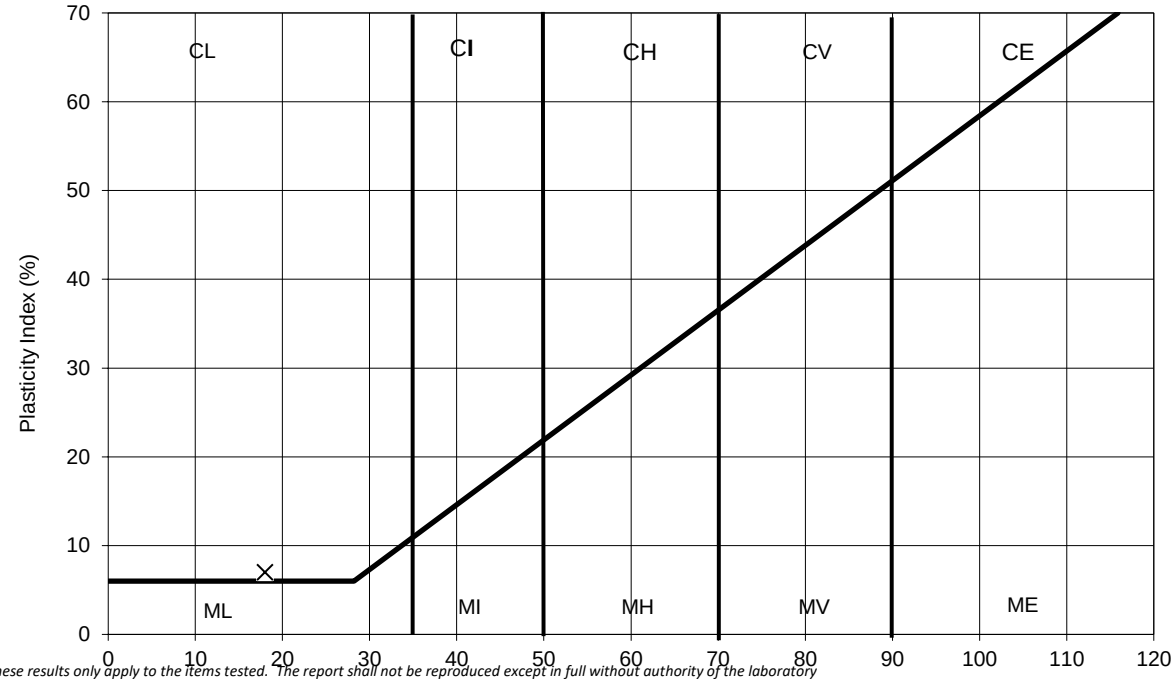


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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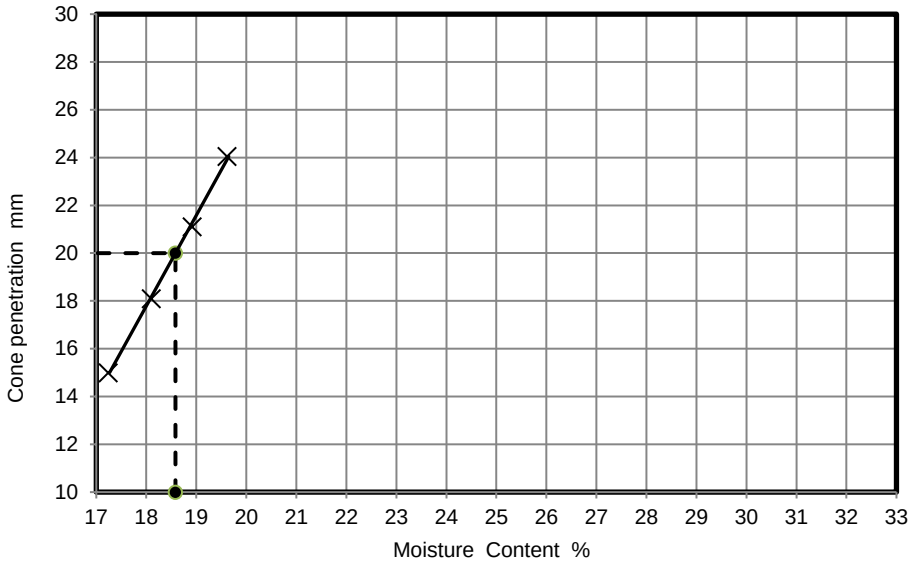
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Dark greyish brown gravelly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

Job No. 32282

Borehole/Pit No. TP-92506

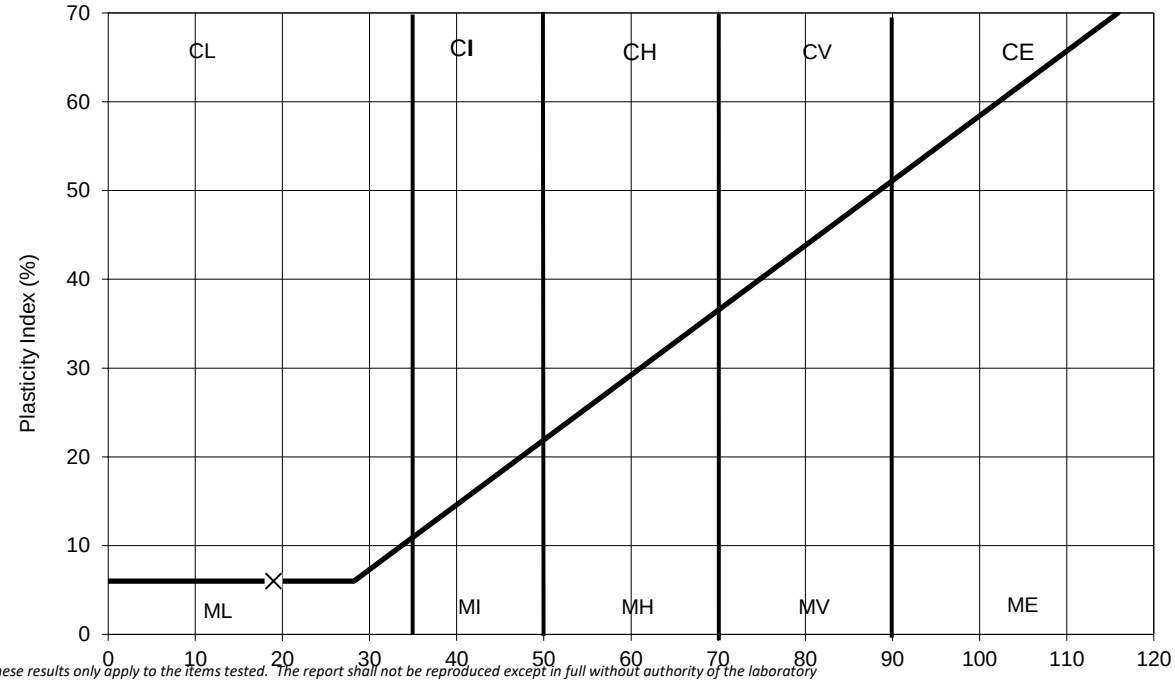


NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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UKAS TESTING

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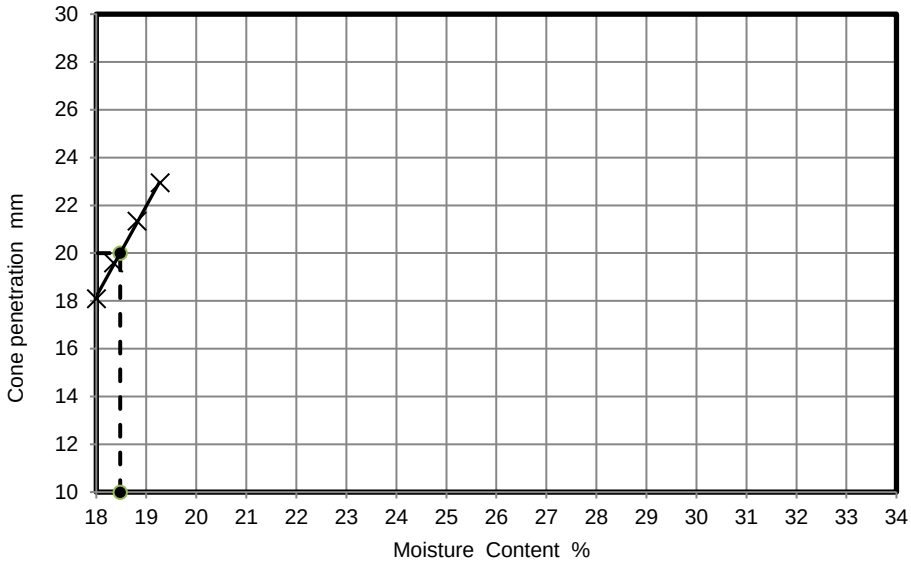
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92506
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

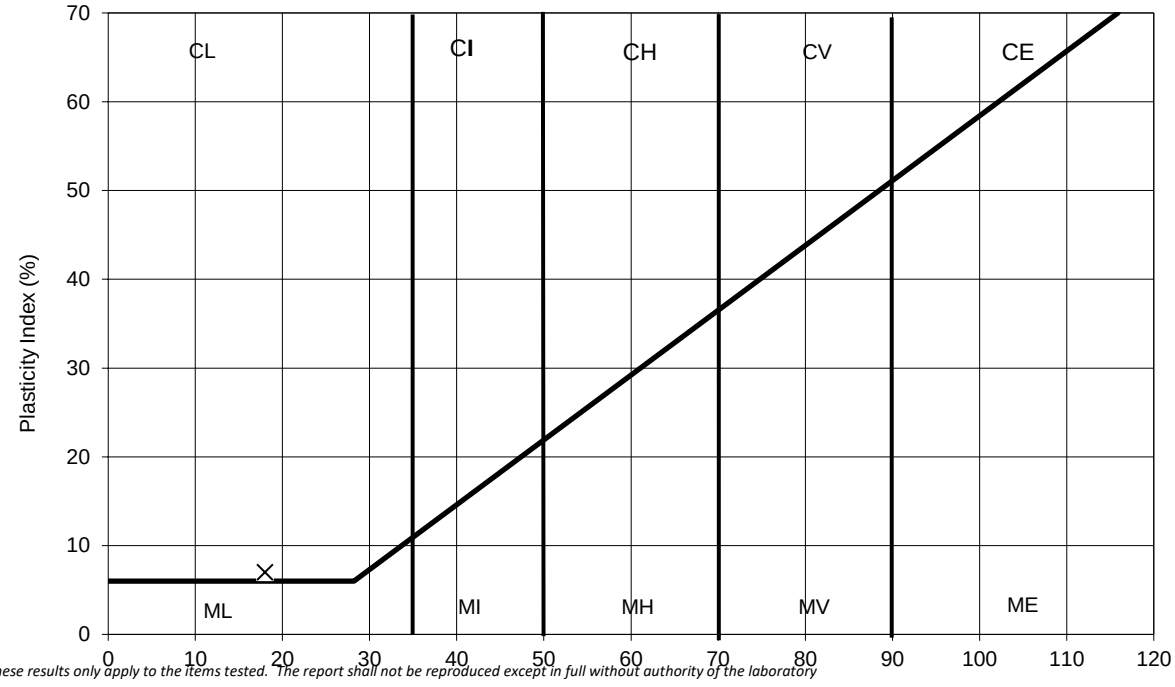


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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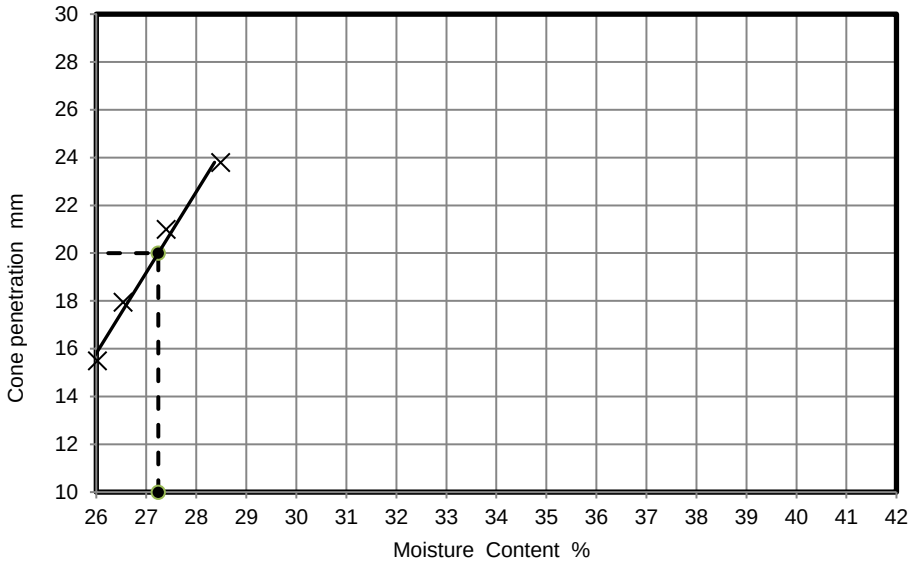
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly very sandy very silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

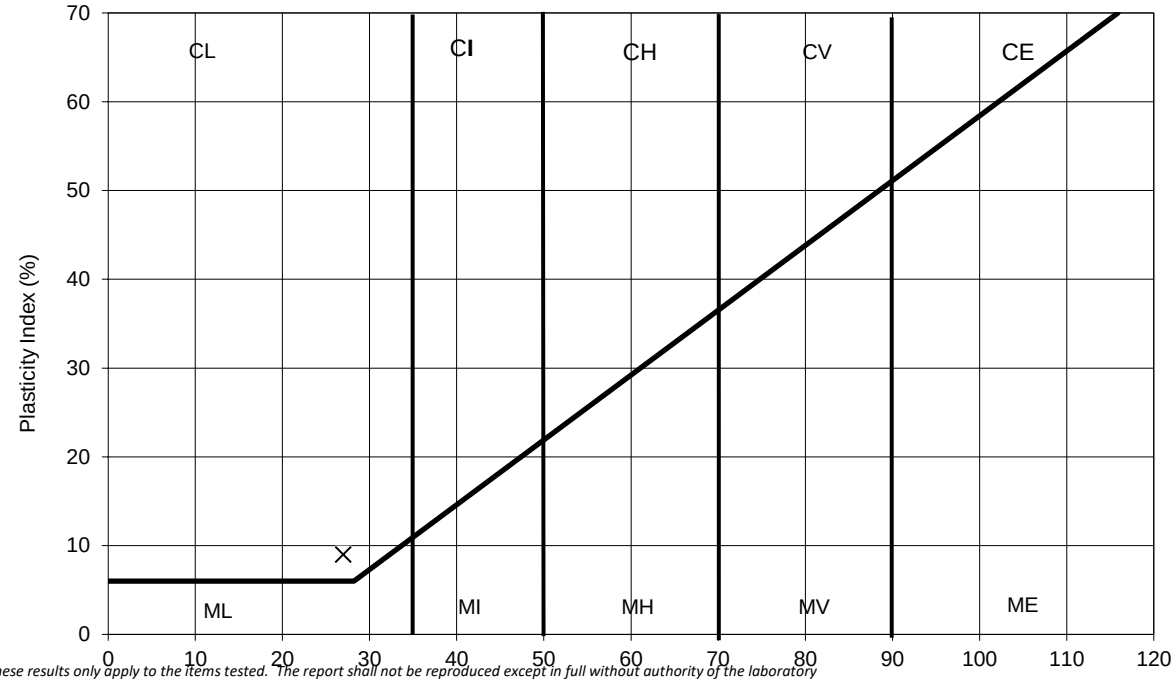


NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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UKAS TESTING

2519

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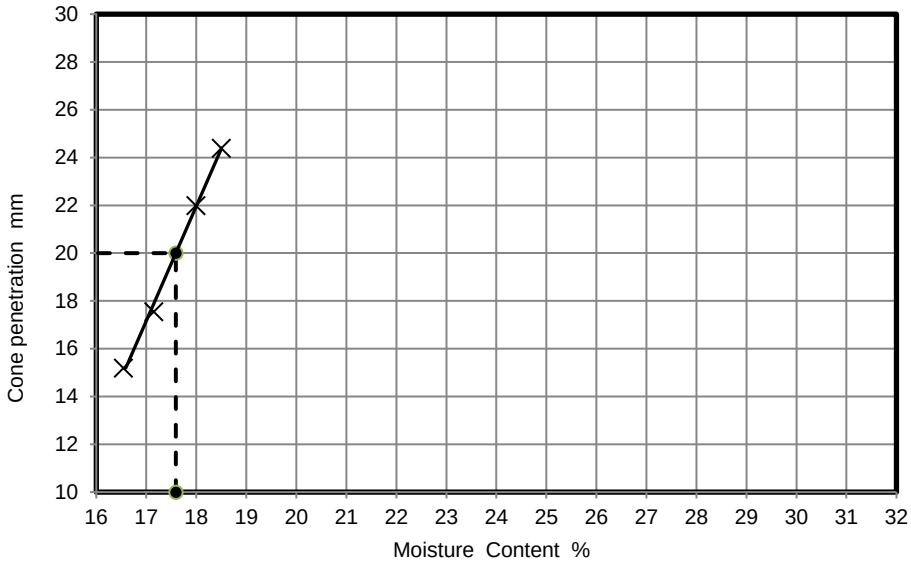
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

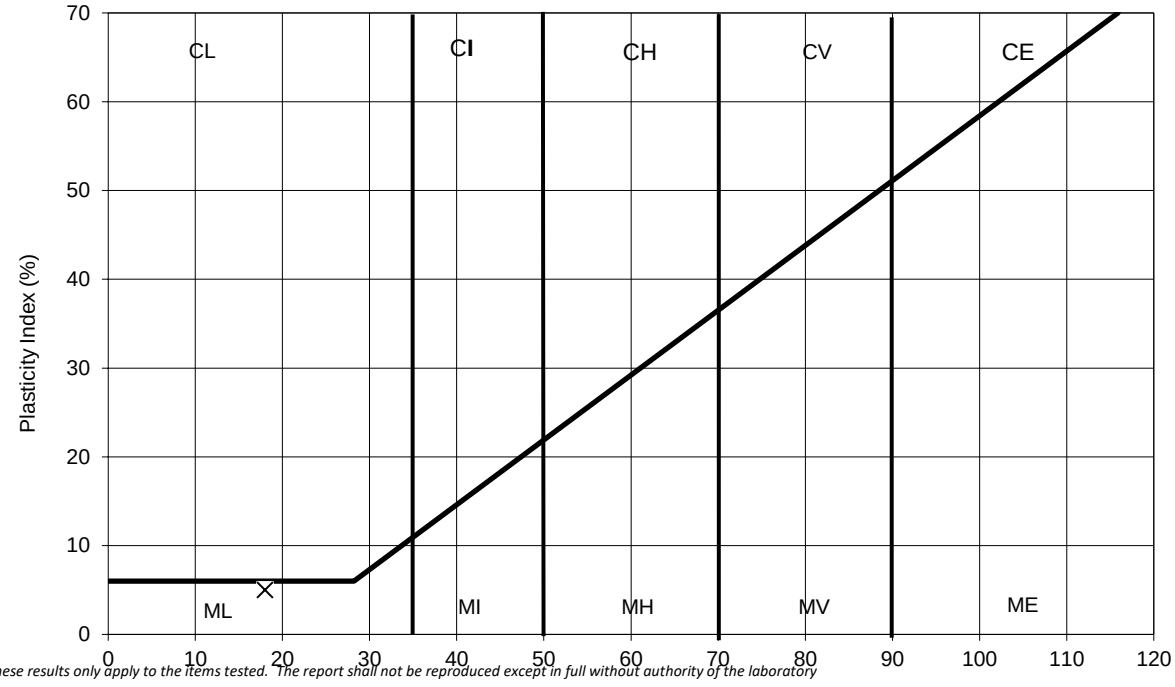


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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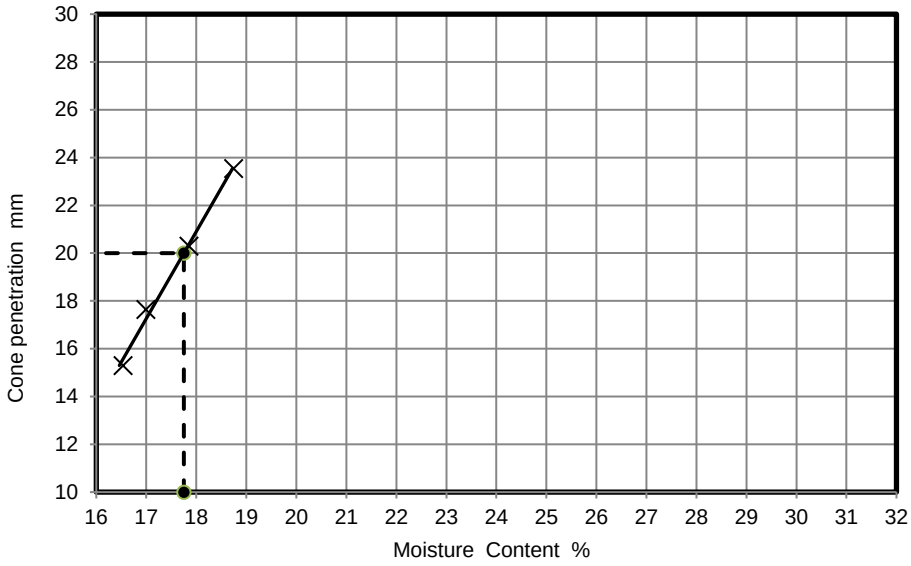
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

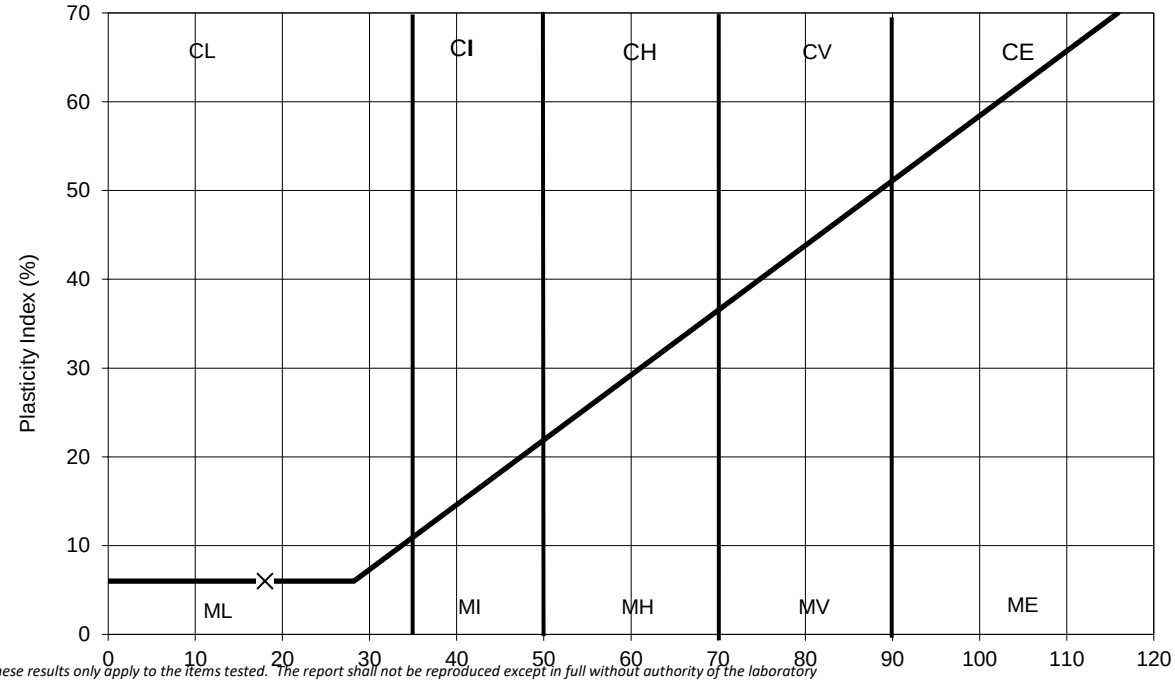


NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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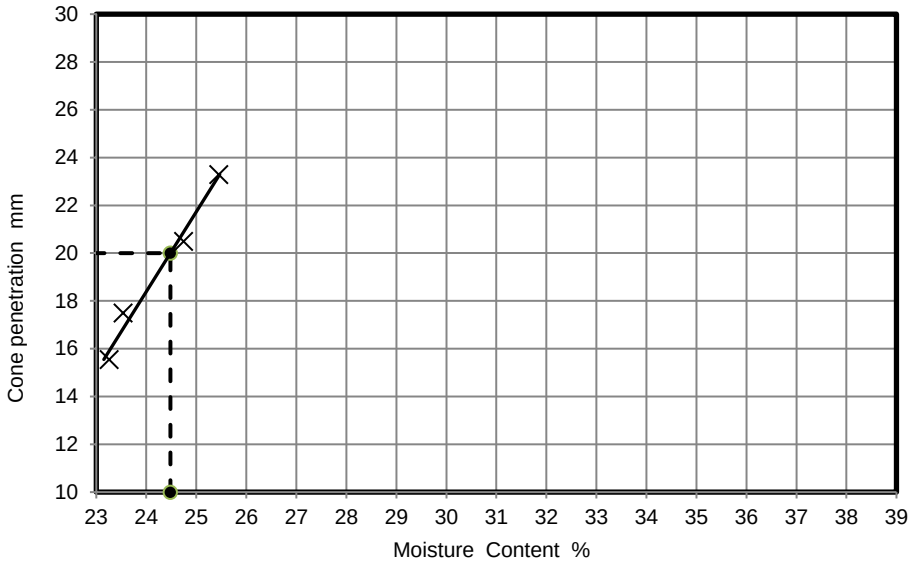
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92706
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

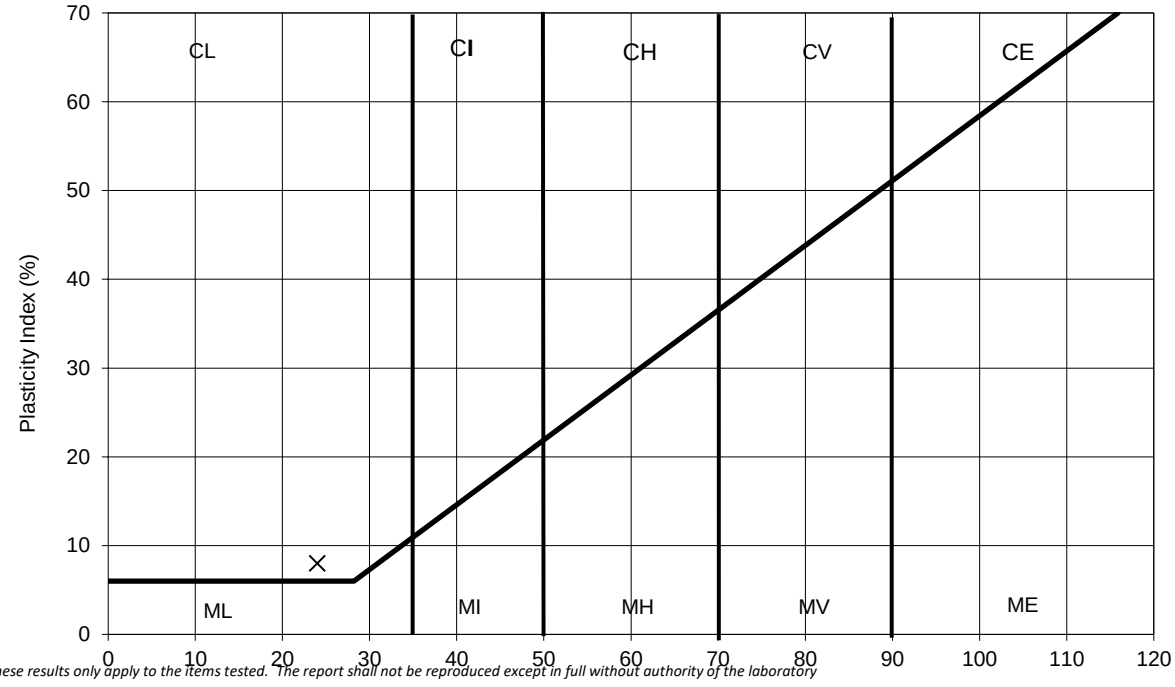


NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**78**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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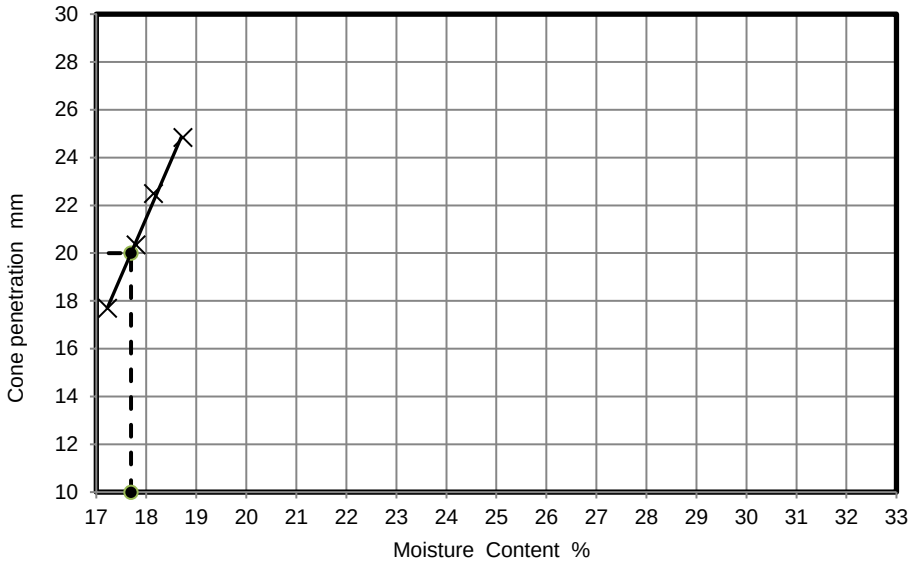
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92706
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

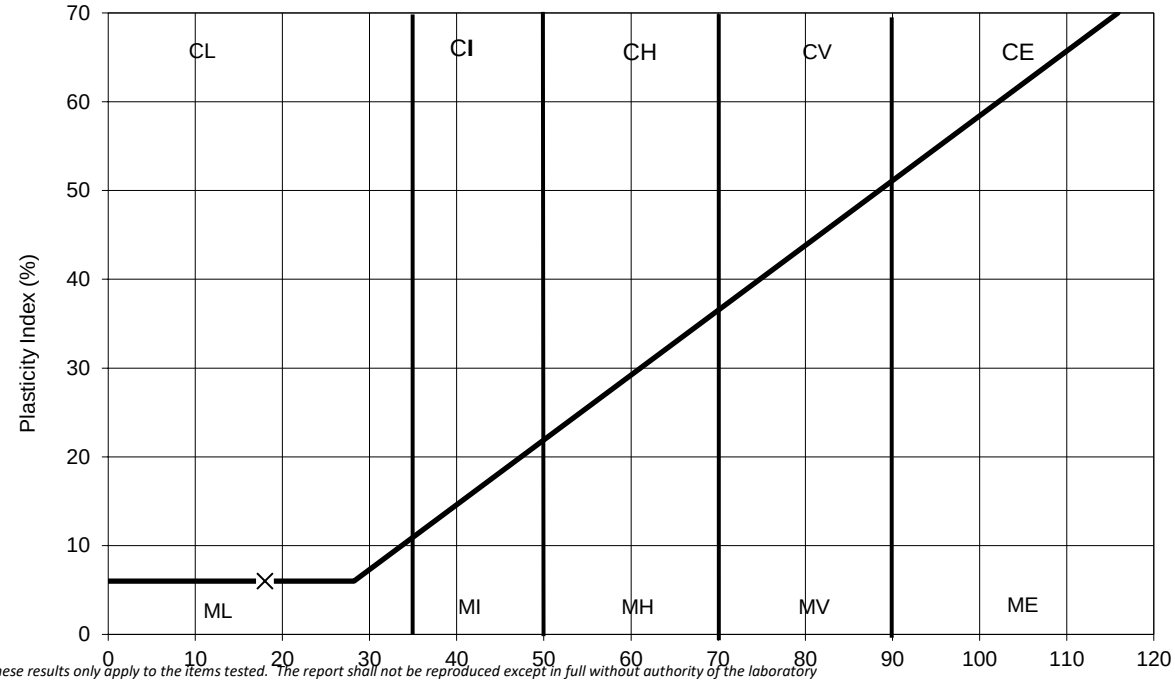


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

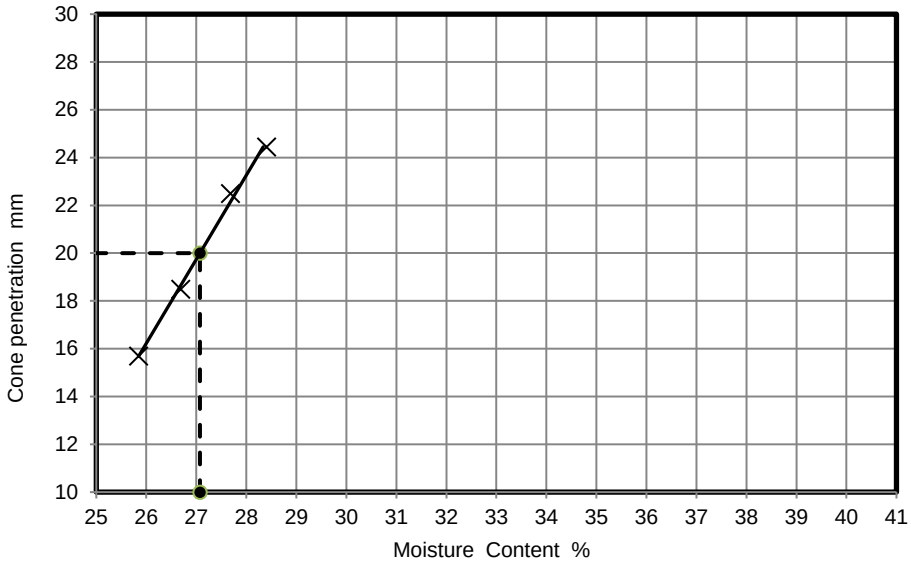
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92804
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly gravelly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

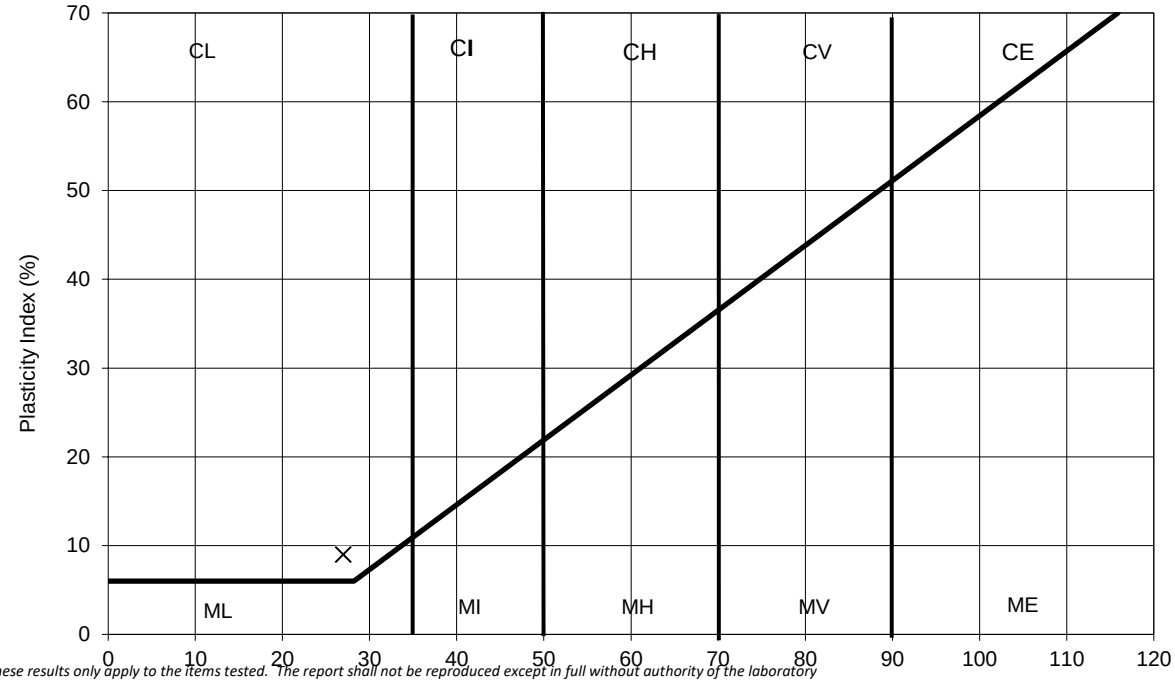


NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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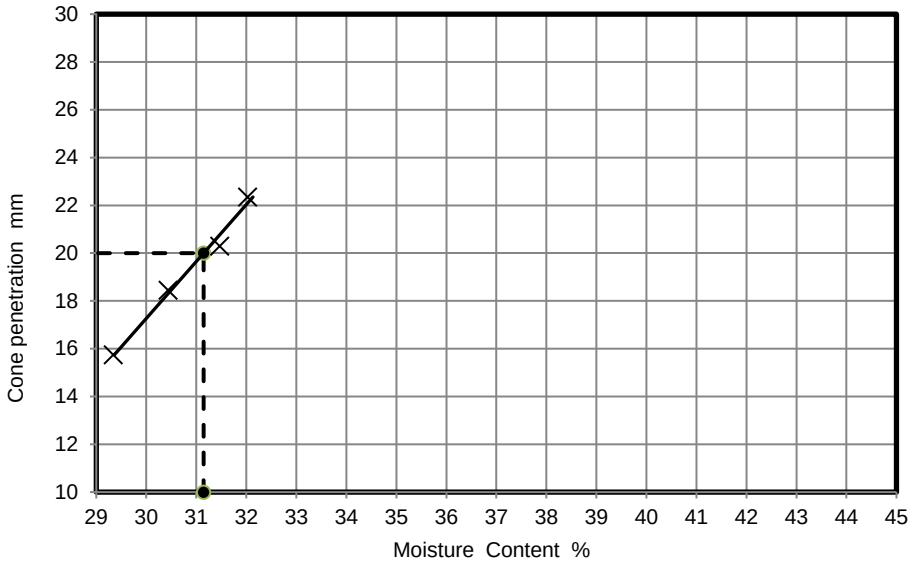
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

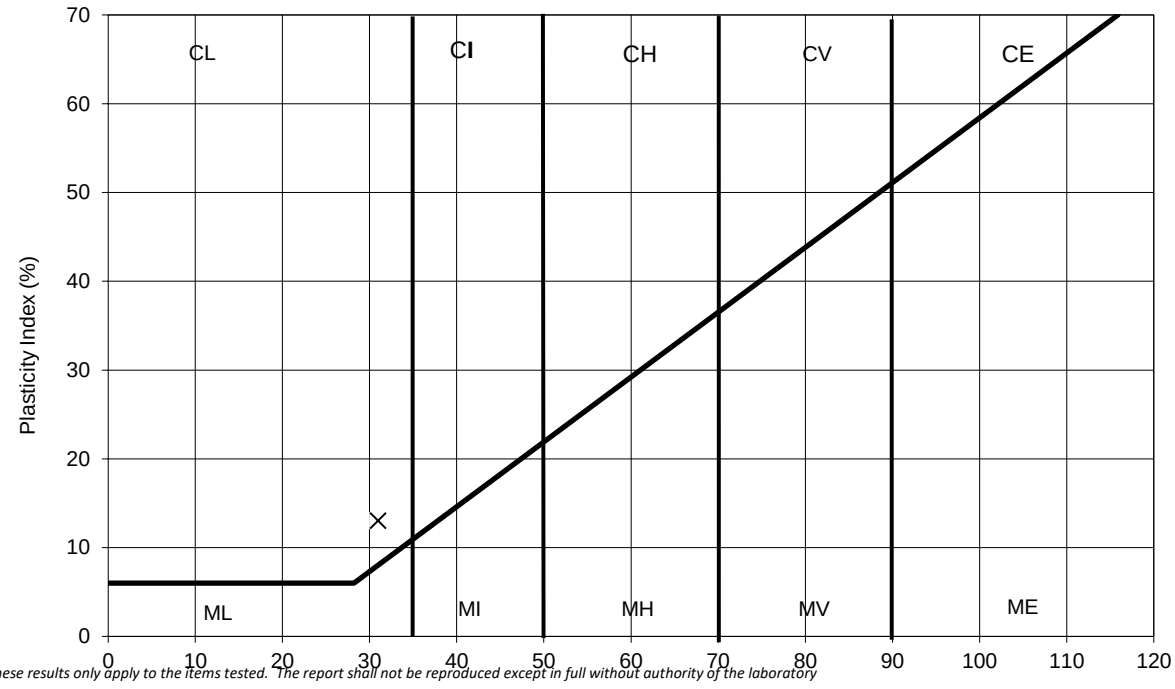
				Job No.	32282
				Borehole/Pit No.	TP-92904
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022



NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**95**	**%**
LIQUID LIMIT	**31**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**13**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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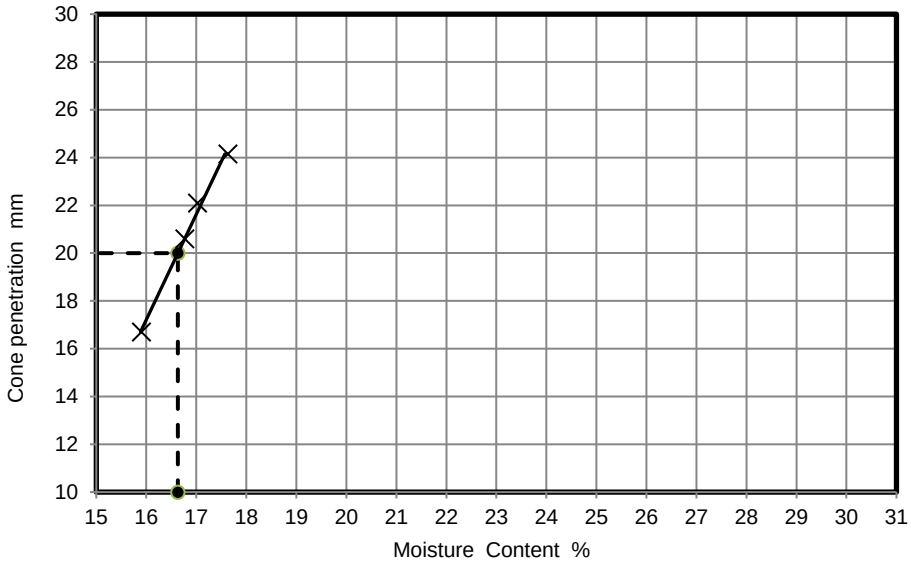
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92904
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

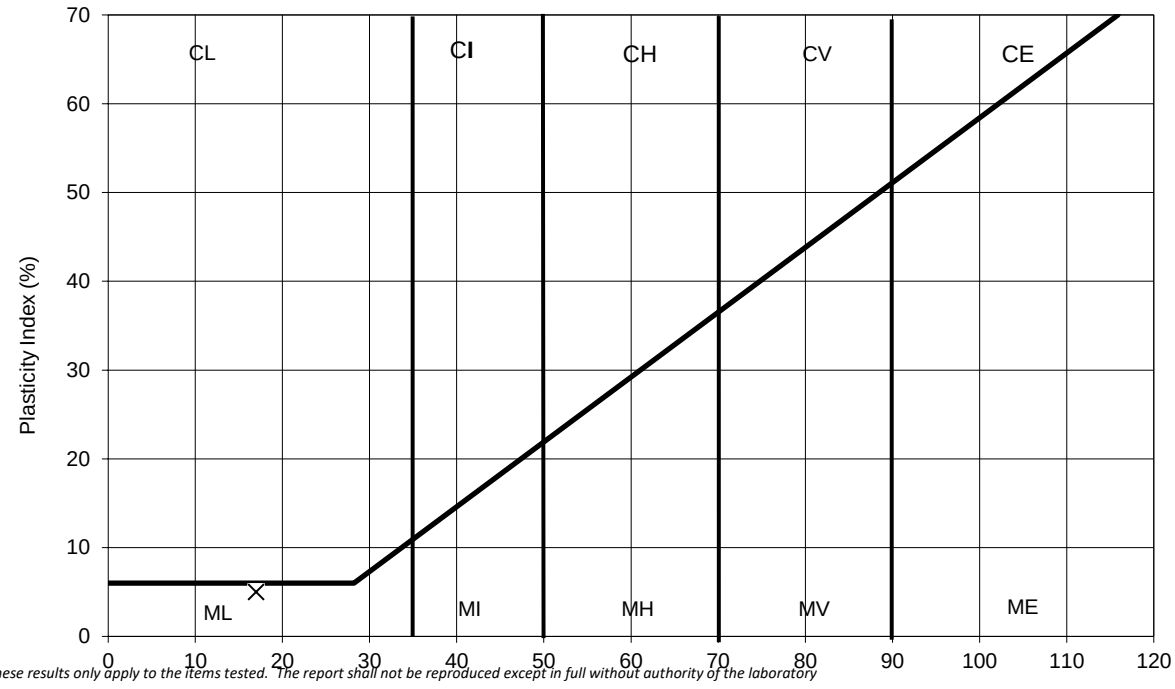


NATURAL MOISTURE CONTENT	**8.7**	**%**
% PASSING 425µm SIEVE	**56**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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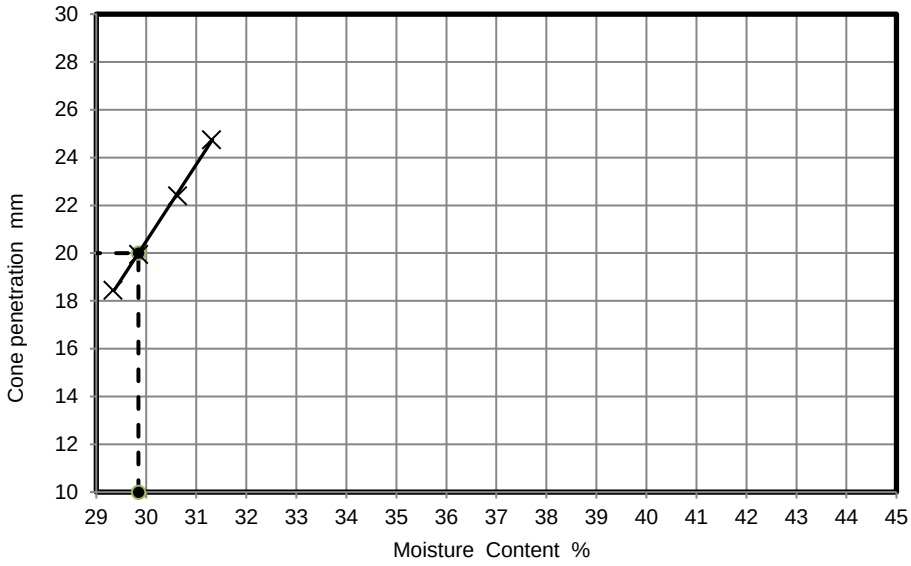
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

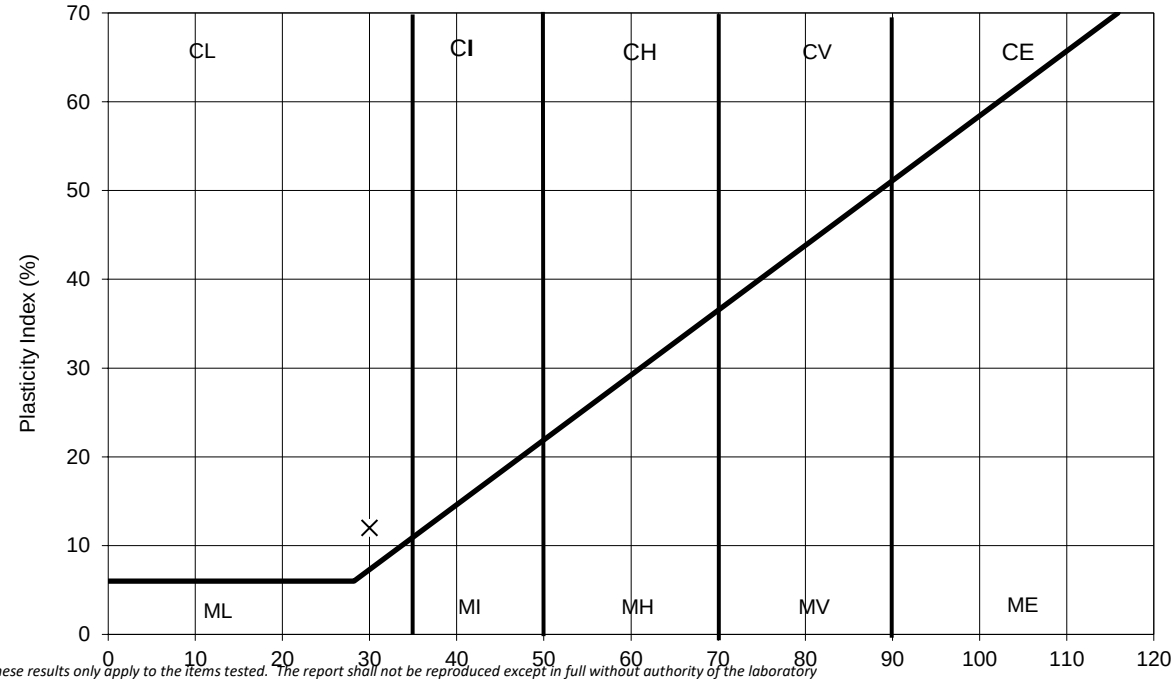
				Job No.	32282
				Borehole/Pit No.	TP-93003
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**30**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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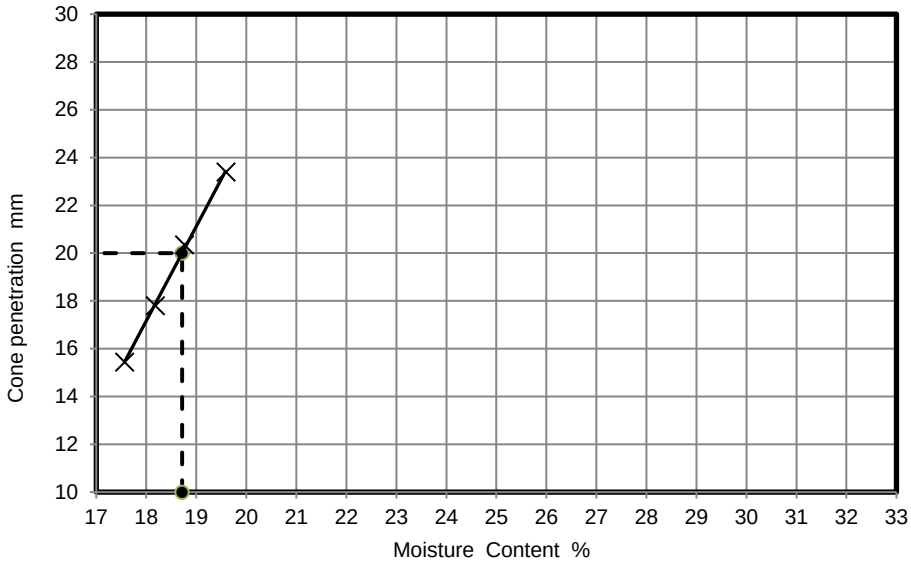
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93003
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

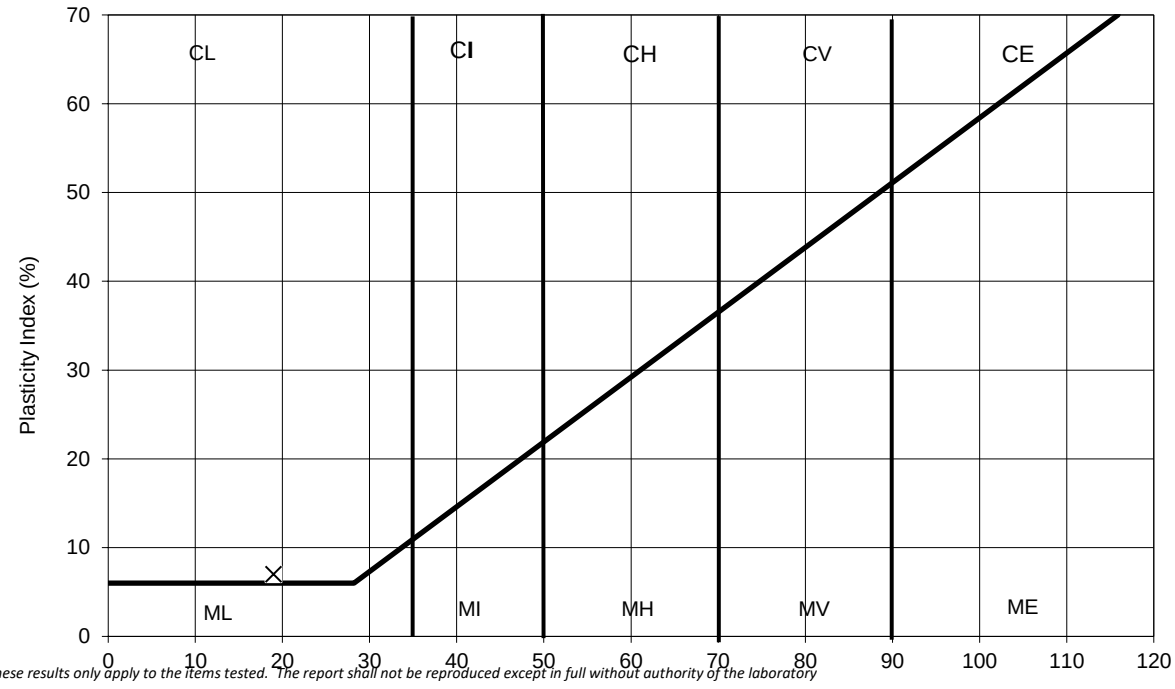


NATURAL MOISTURE CONTENT	**7.4**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

2519

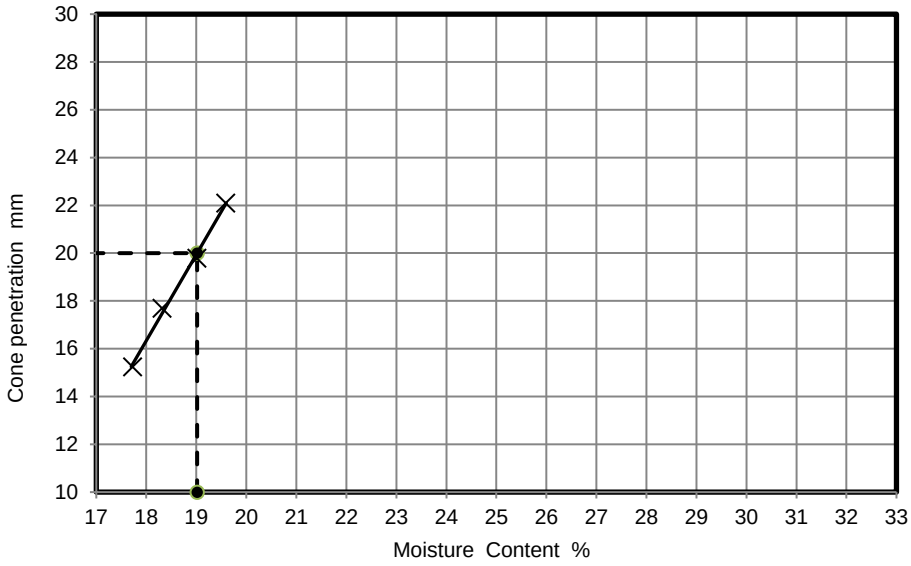
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/11/2022

Job No. 32282

Borehole/Pit No. TP-93106

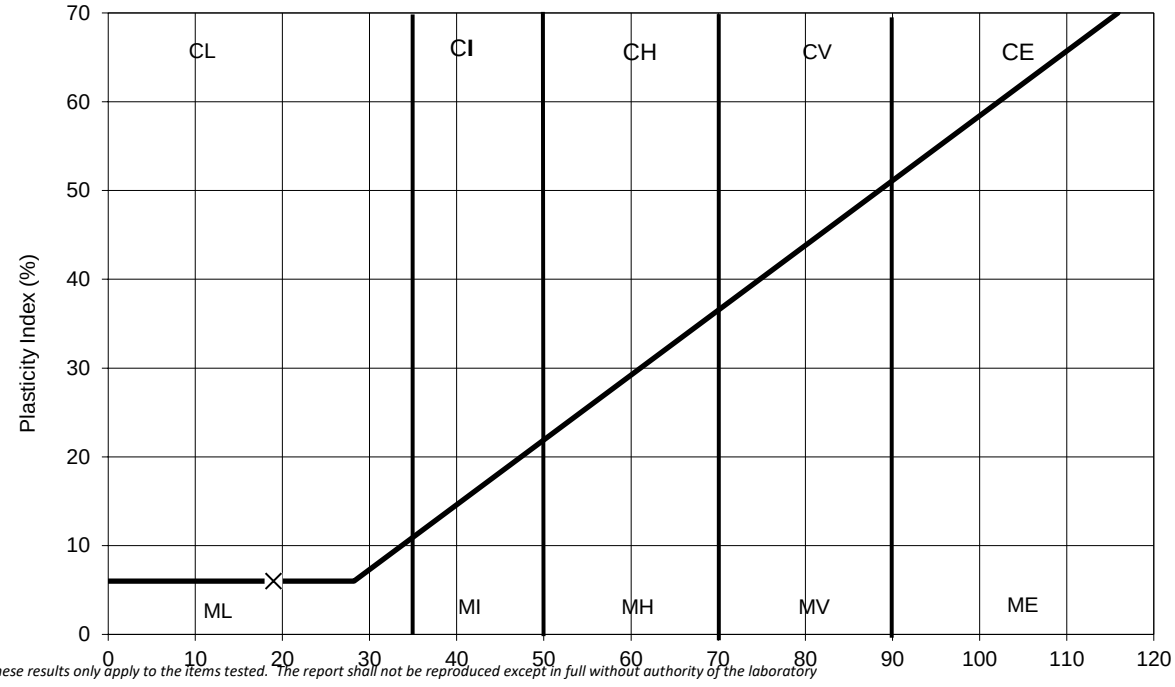


NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**76**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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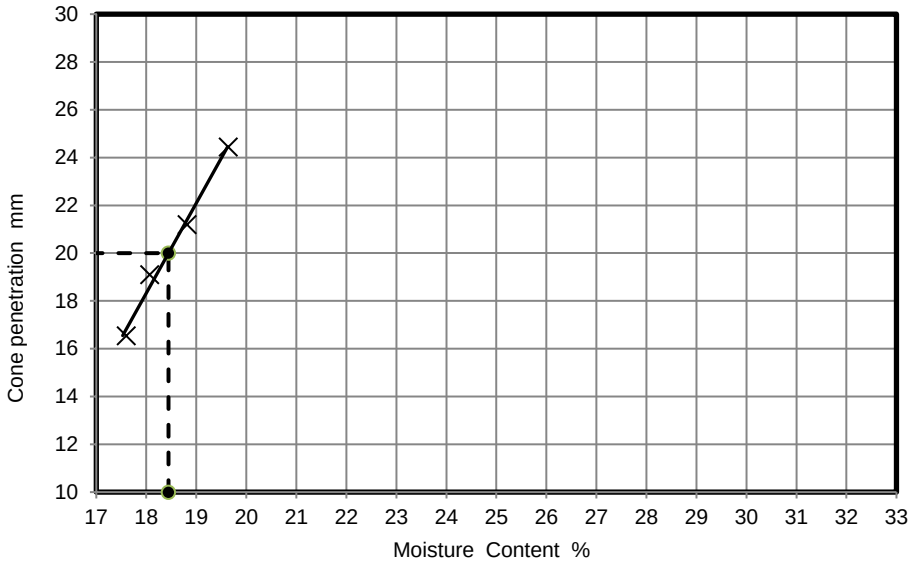
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93106
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.10 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

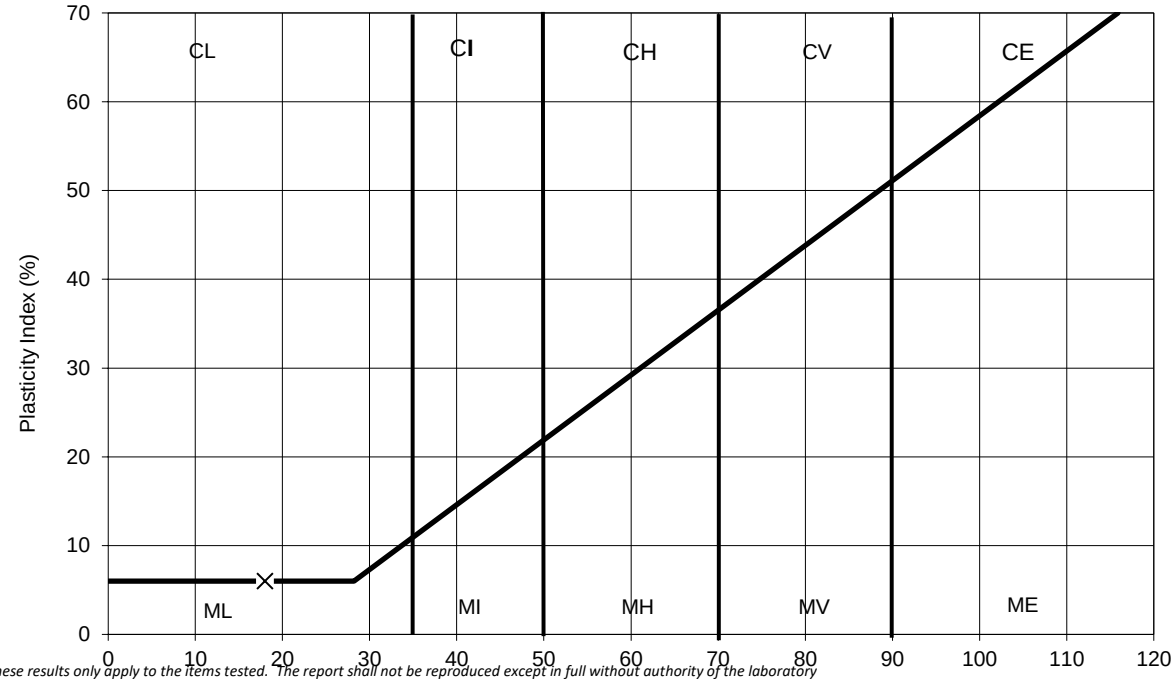


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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Date: 15/12/2022

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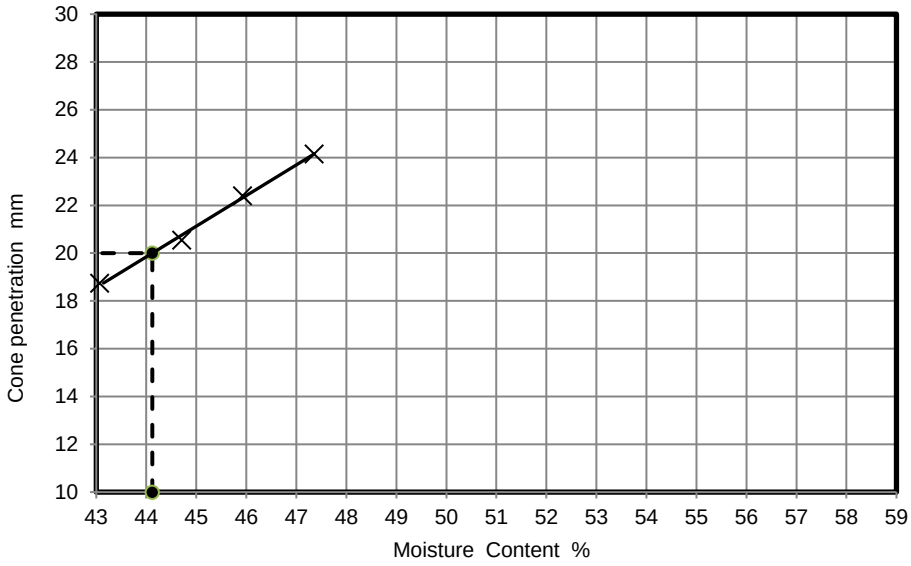
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

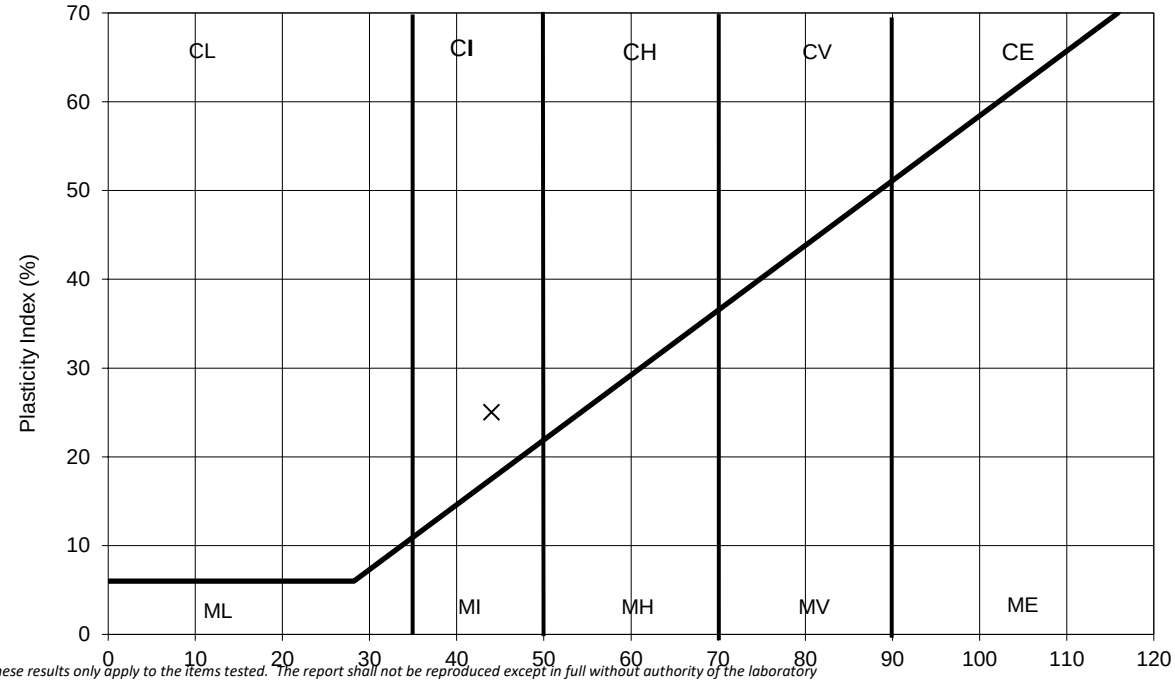
				Job No.	32282
				Borehole/Pit No.	TP-93174
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	25/11/2022



NATURAL MOISTURE CONTENT	**25**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**44**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**25**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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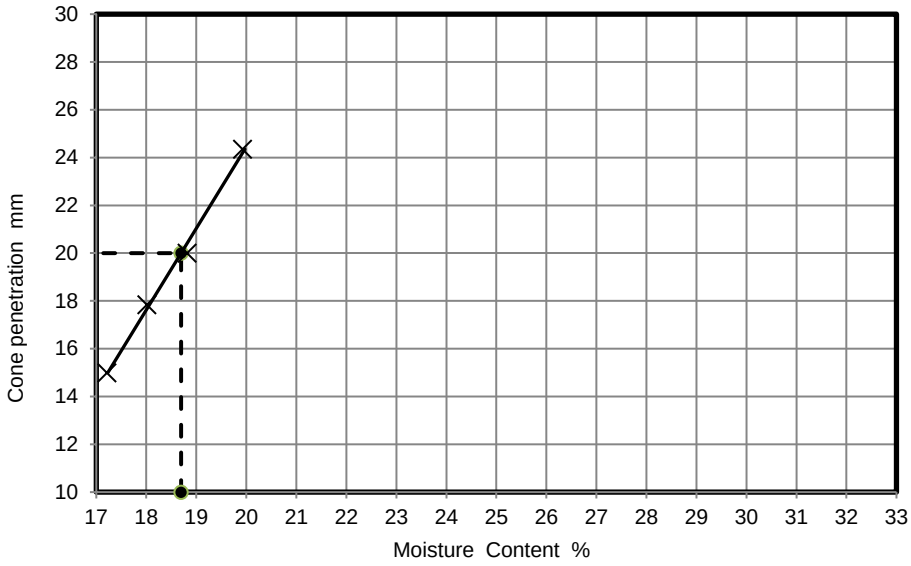
	LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX			Job No.	32282
				Borehole/Pit No.	TP-93174
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

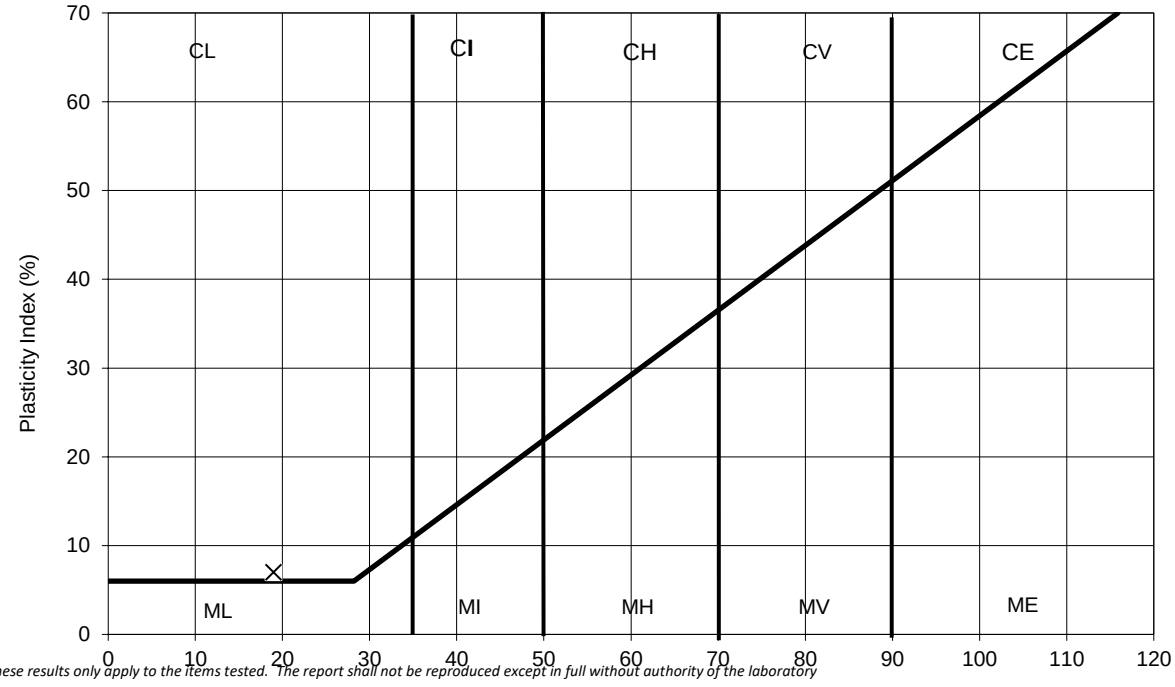


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**74**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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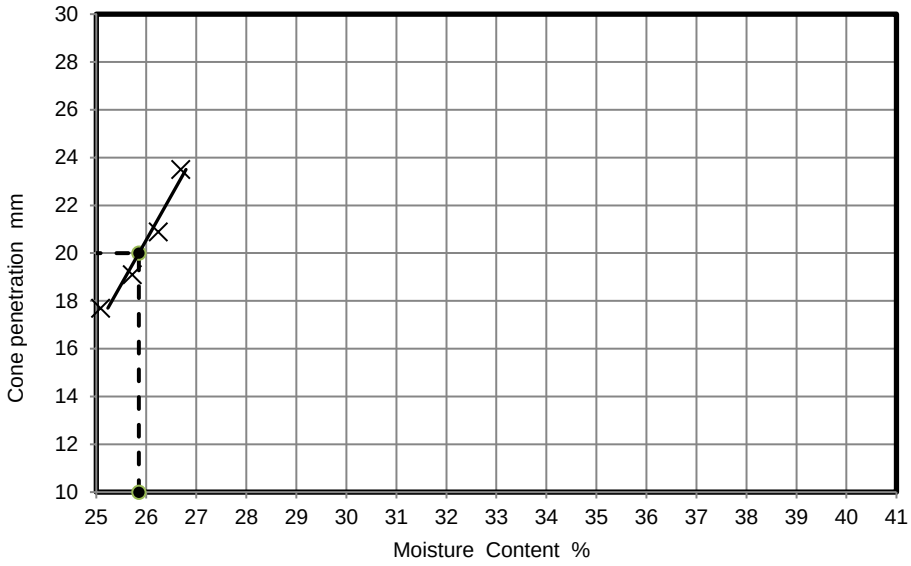
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown gravelly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

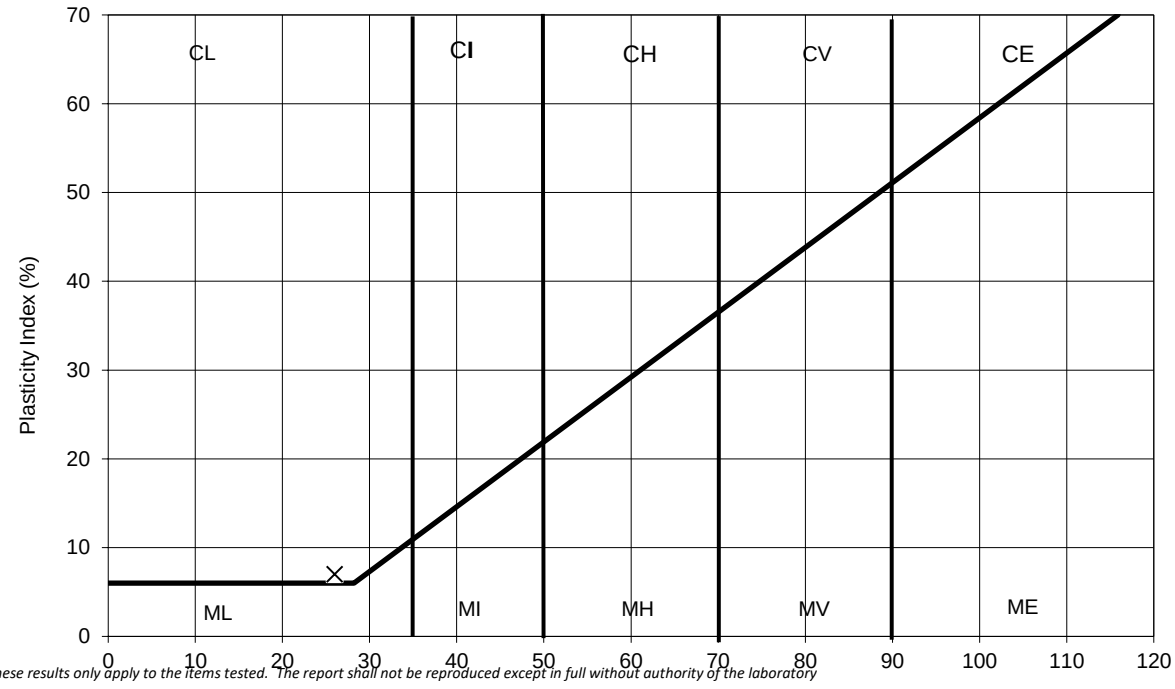


NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

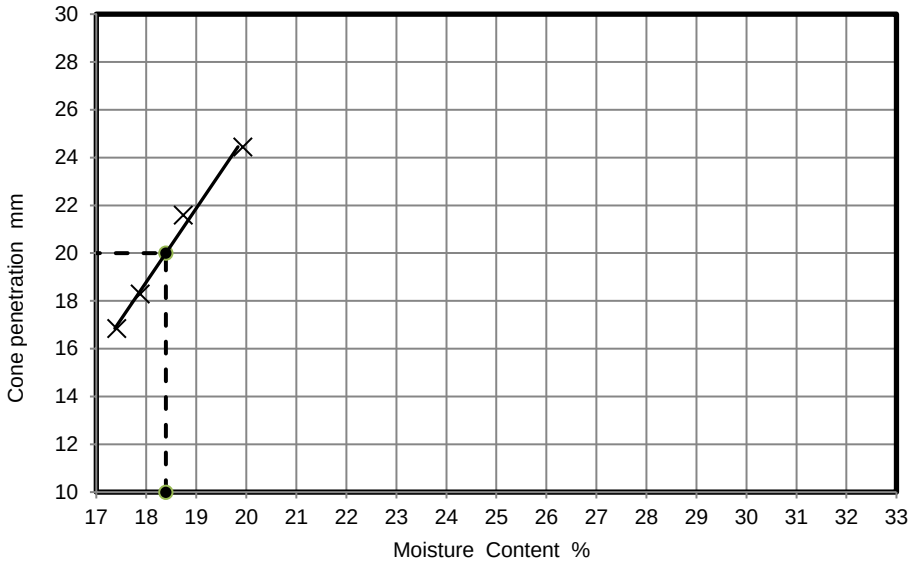
Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

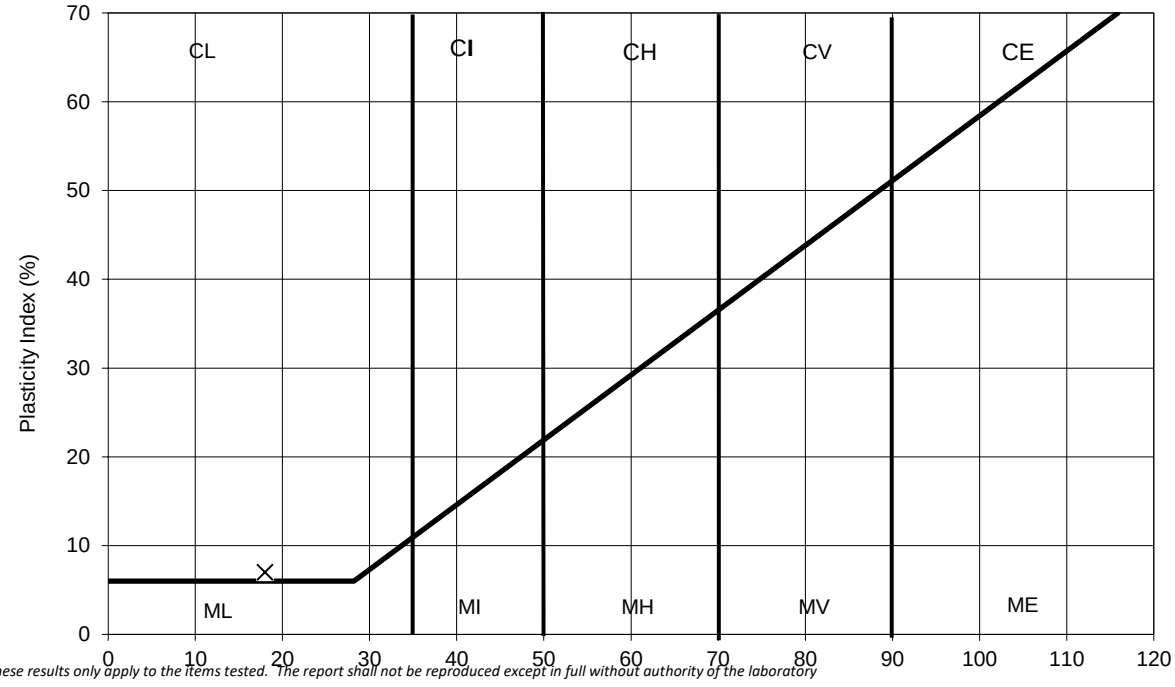


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**69**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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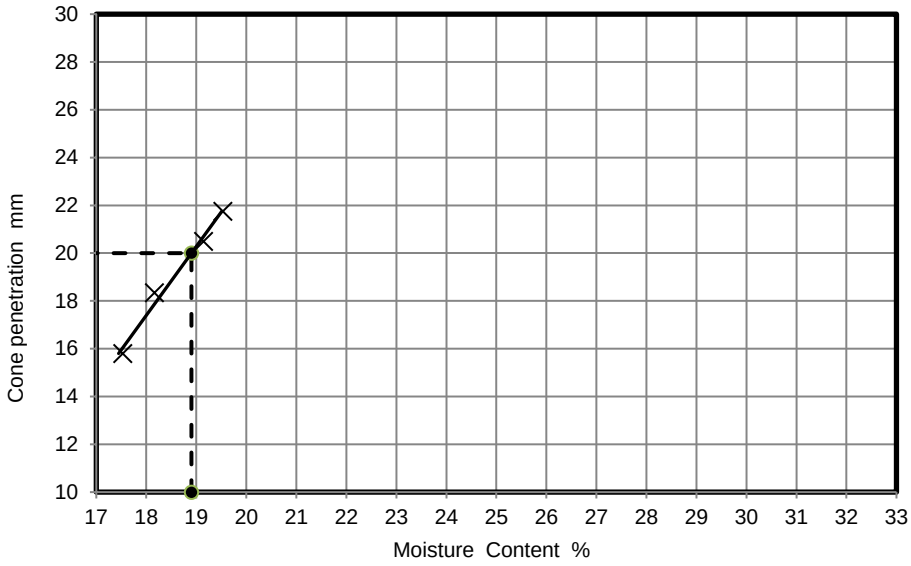
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93505
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

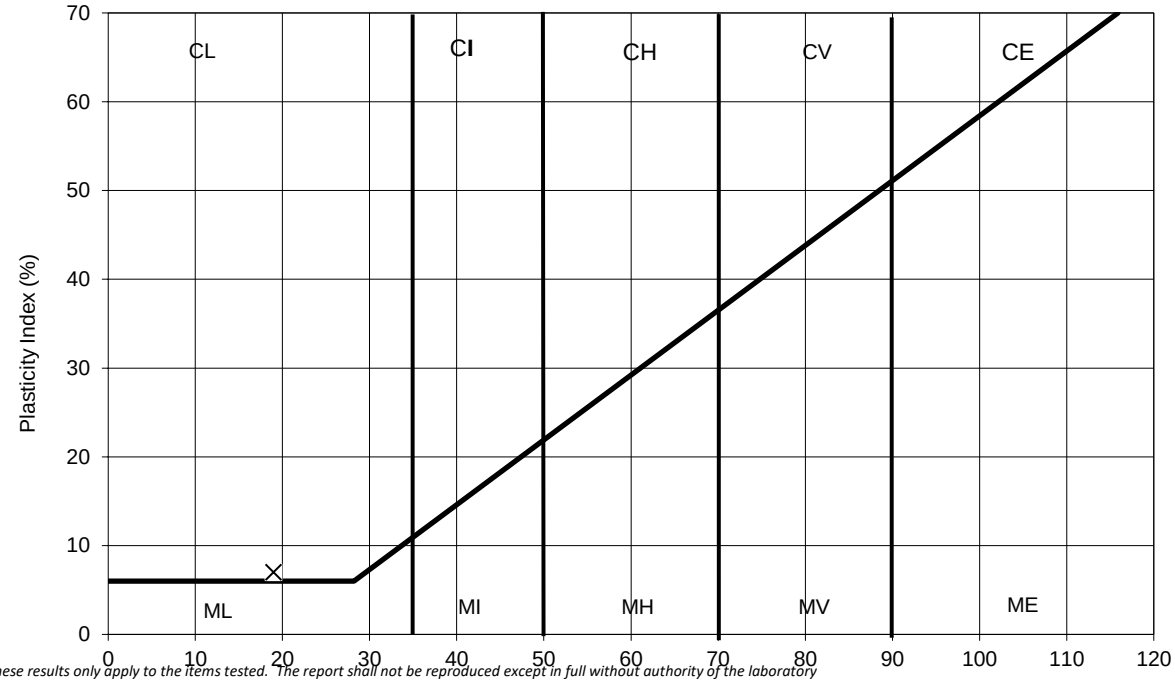


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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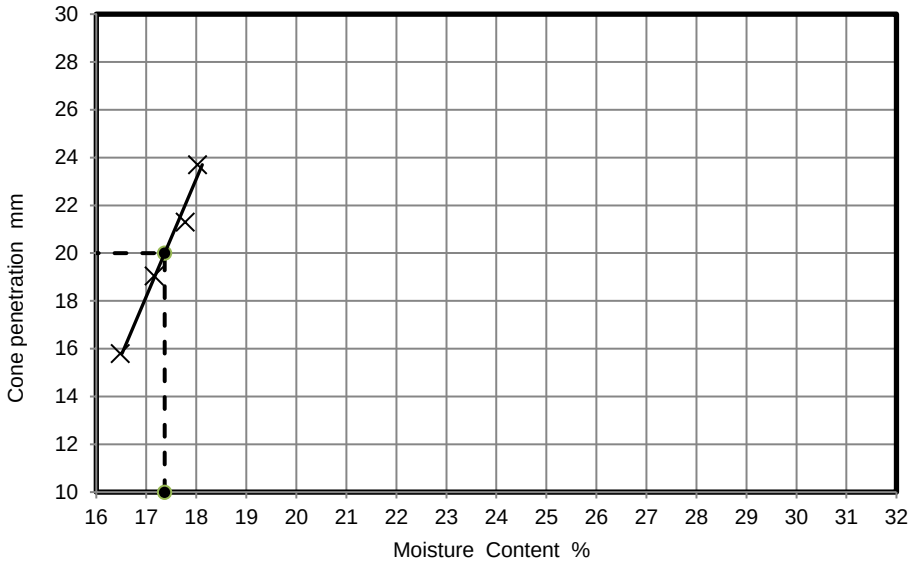
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93505
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Grey sandy fmc sub-angular to sub-rounded gravel in a silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

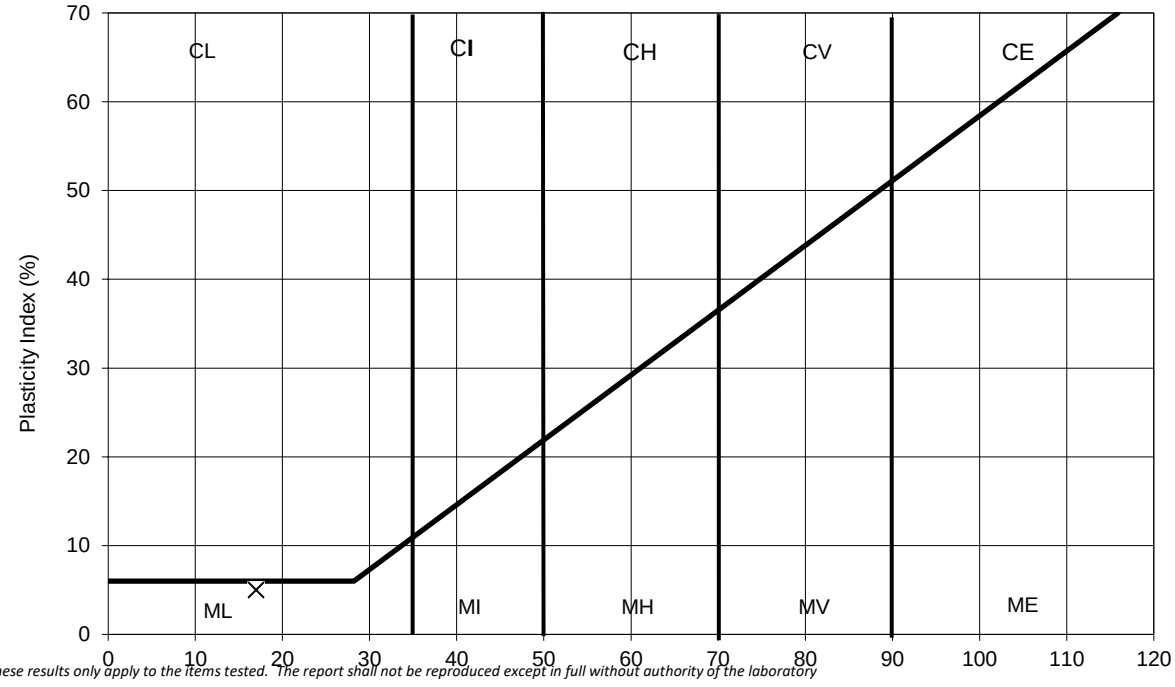


NATURAL MOISTURE CONTENT	**7.3**	**%**
% PASSING 425µm SIEVE	**42**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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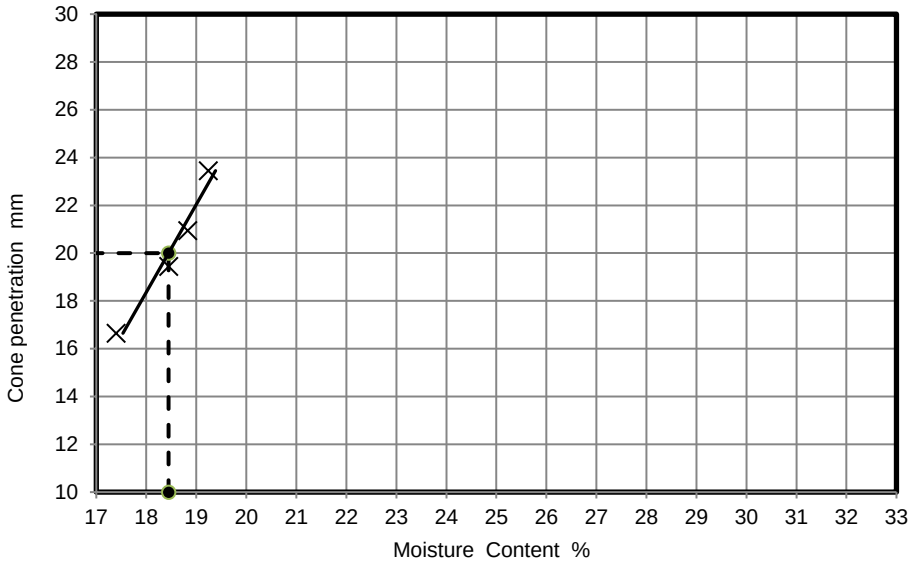
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

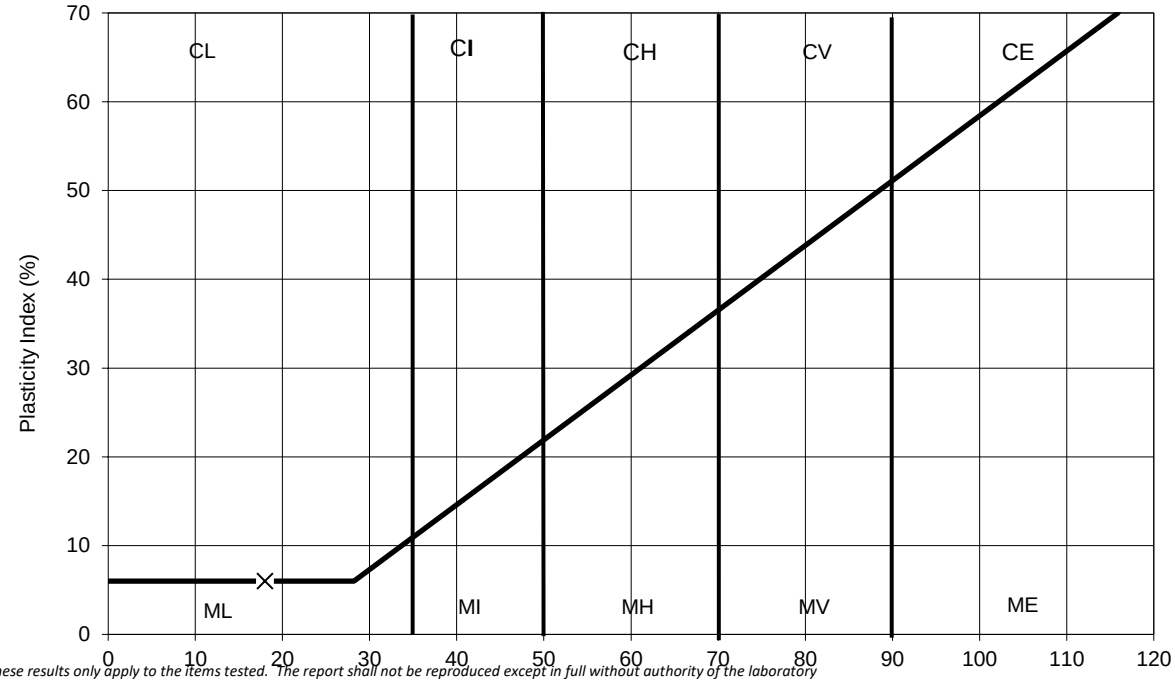
				Job No.	32282
				Borehole/Pit No.	TP-93602
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022



NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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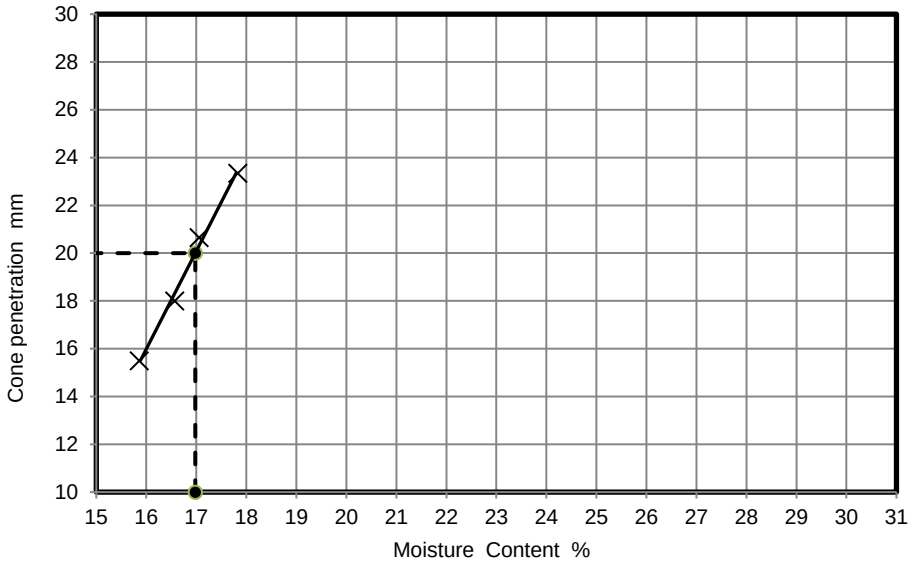
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93703
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

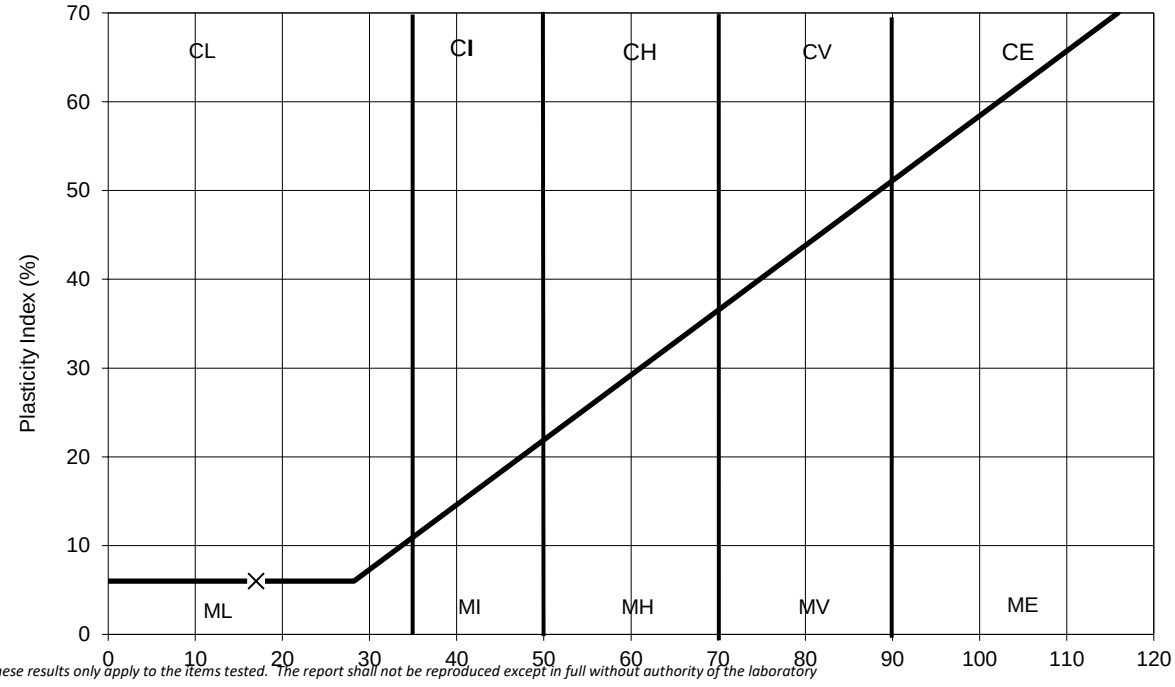


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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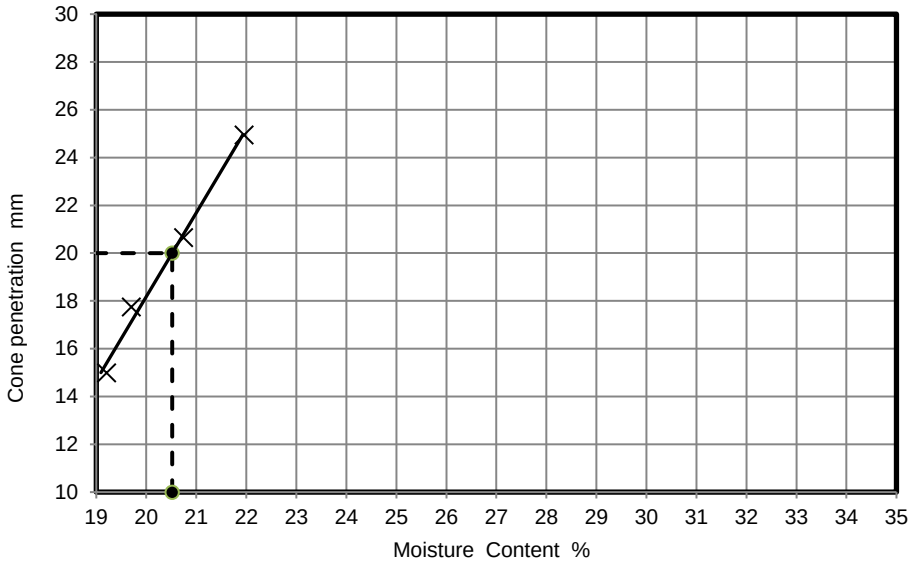
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93803
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

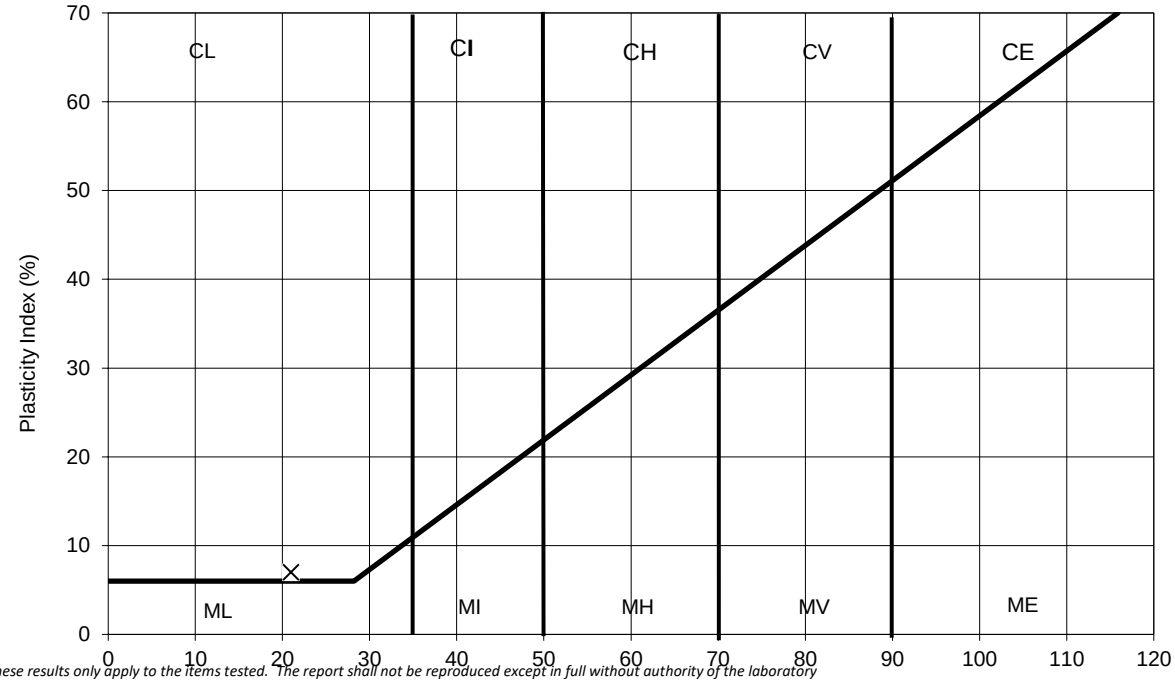


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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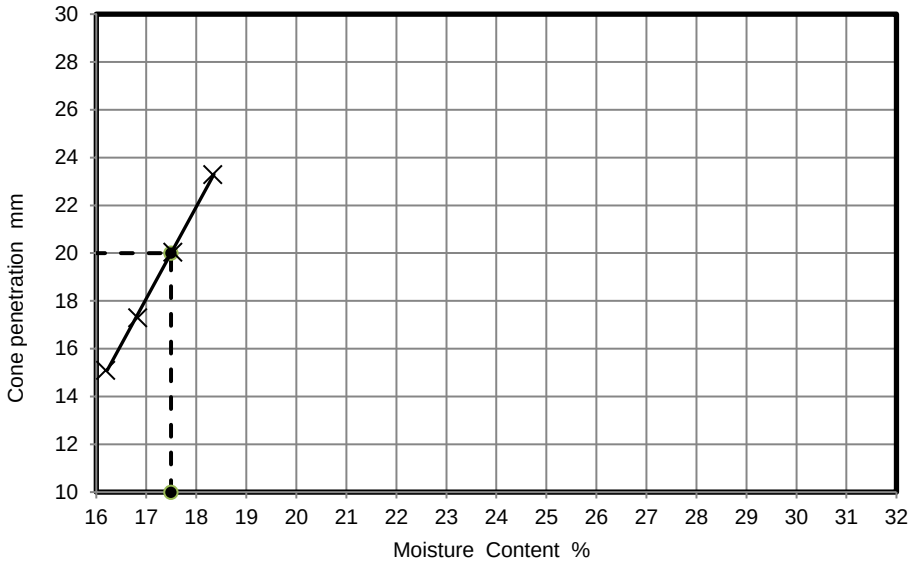
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93902
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

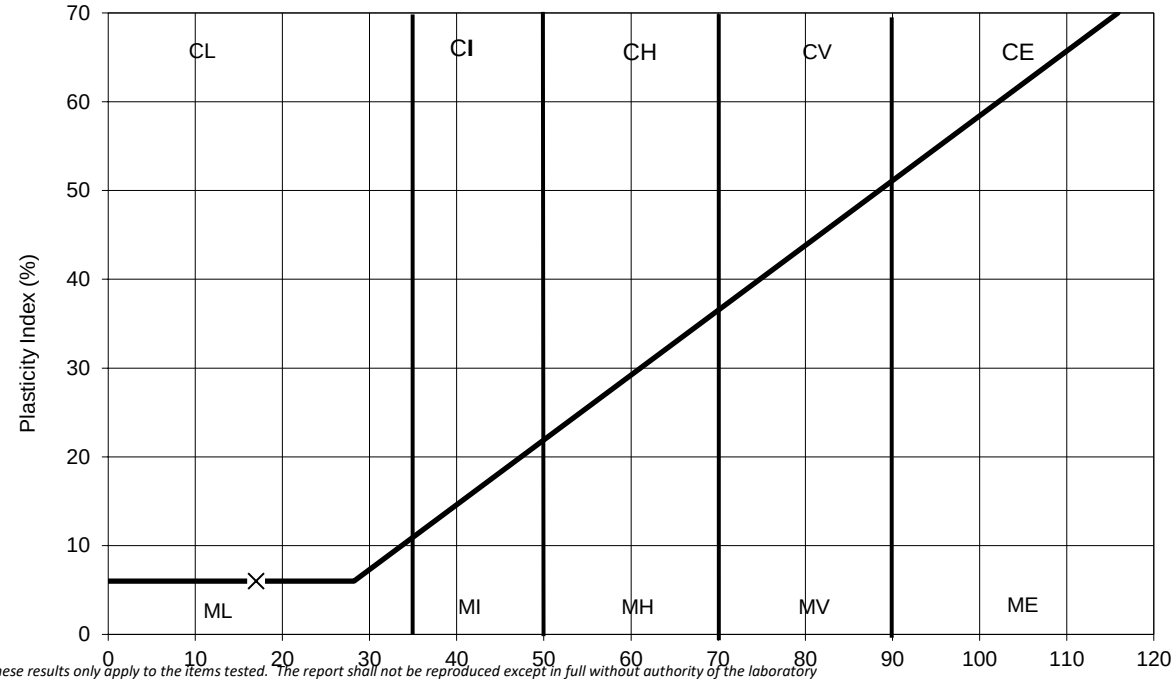


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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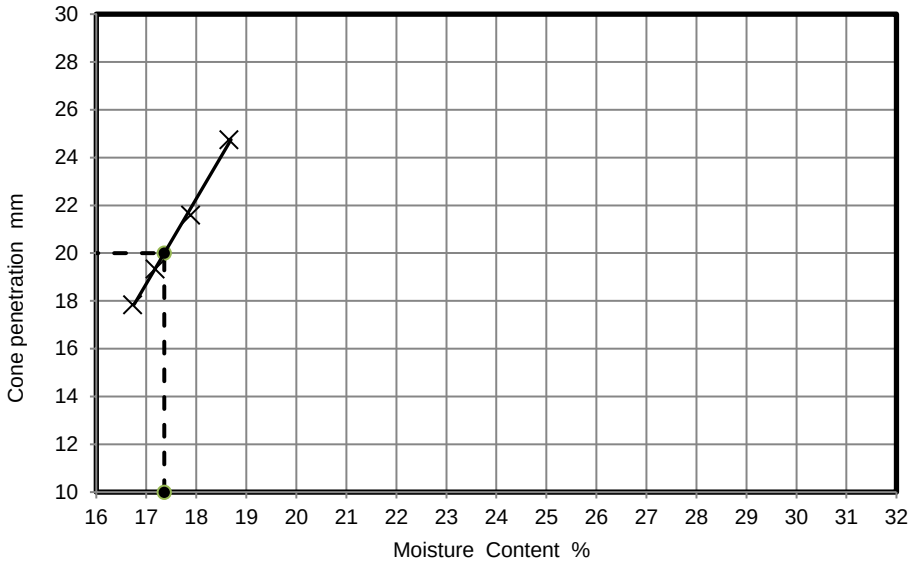
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

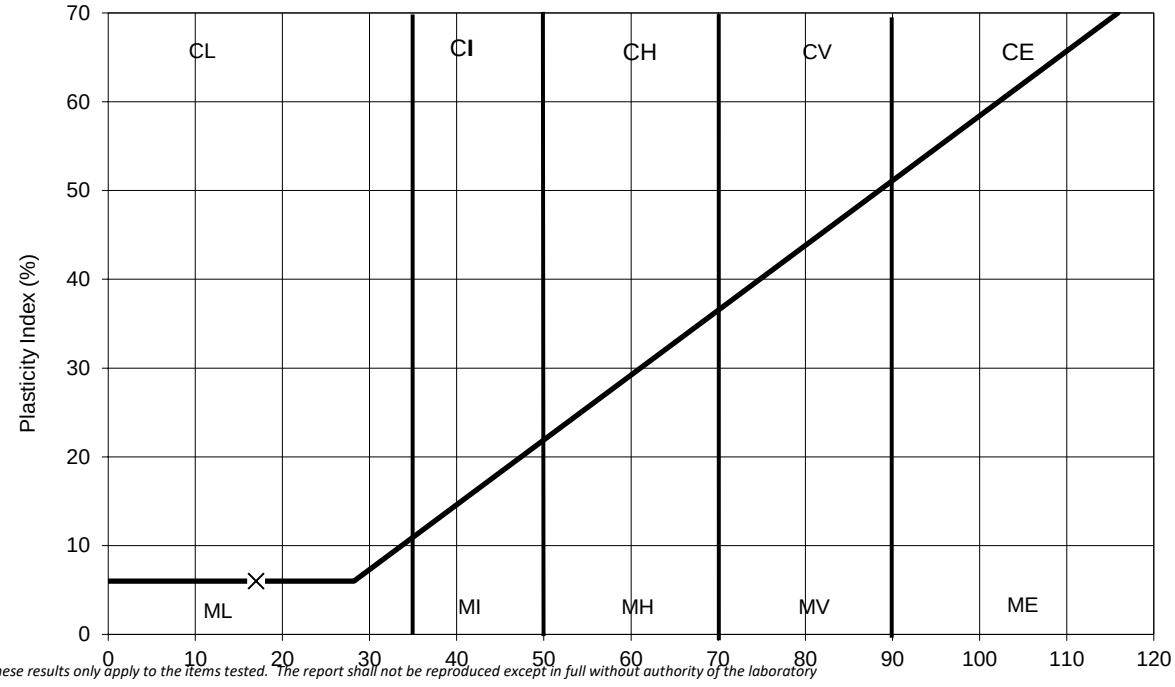
				Job No.	32282
				Borehole/Pit No.	TP-94198
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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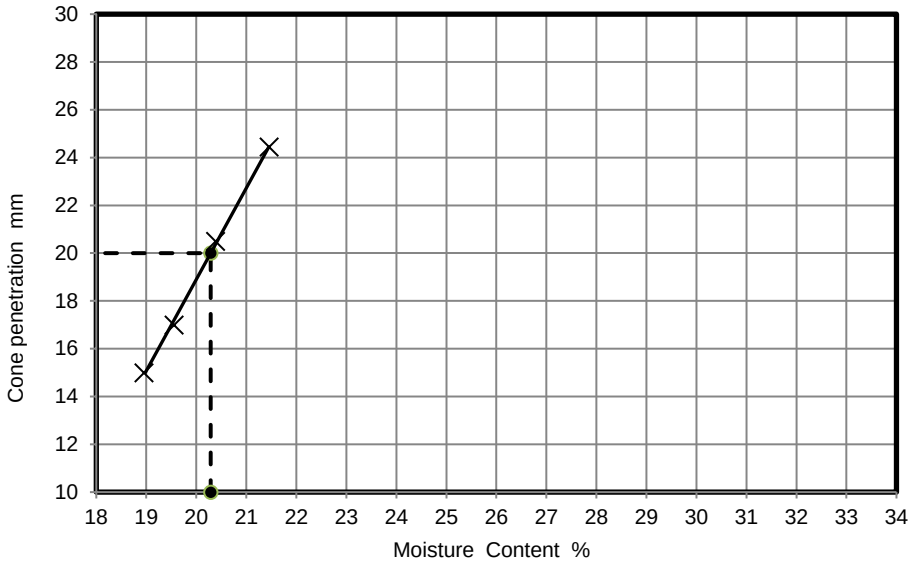
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fm and angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

Job No. 32282

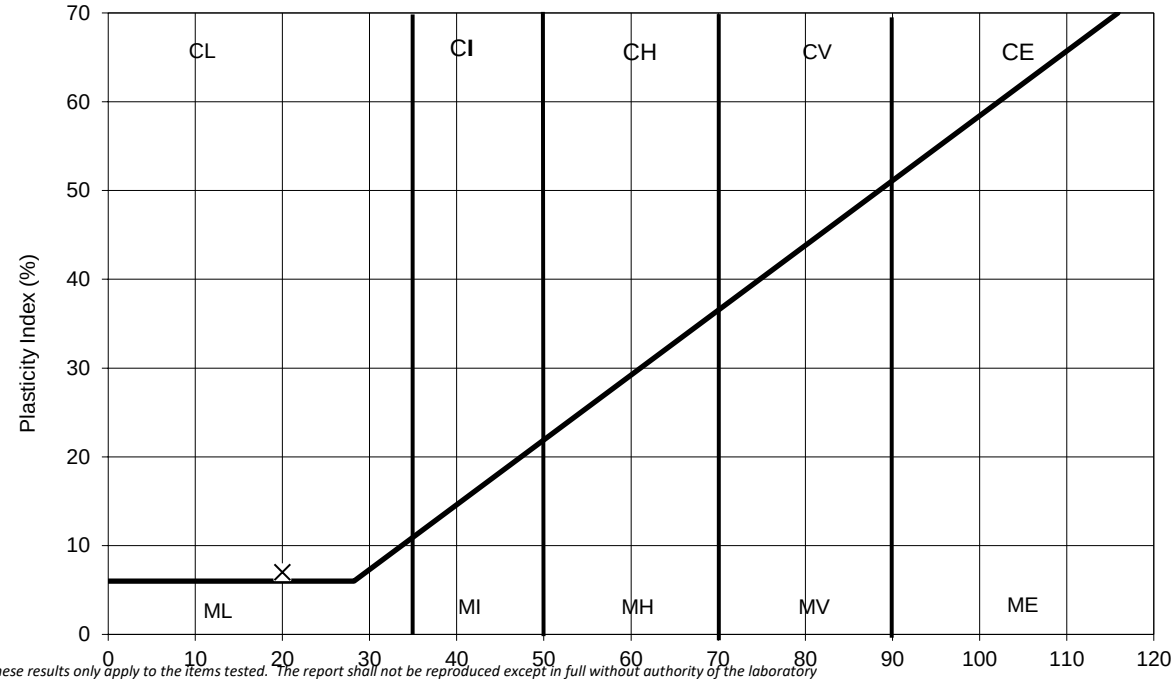
Borehole/Pit No. TP-94401



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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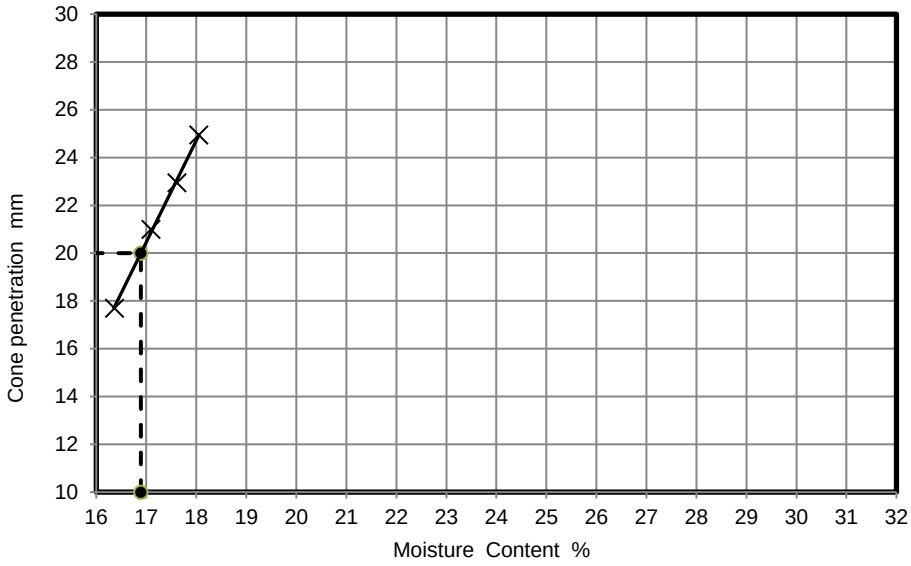
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

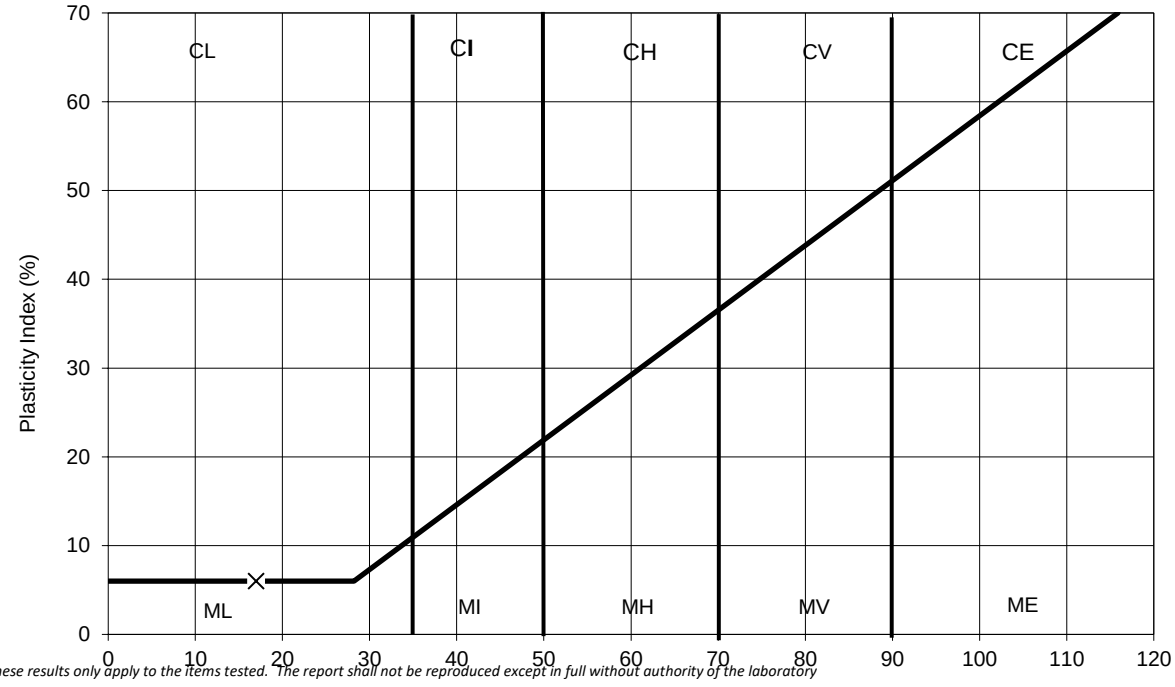
				Job No.	32282
				Borehole/Pit No.	TP-94401
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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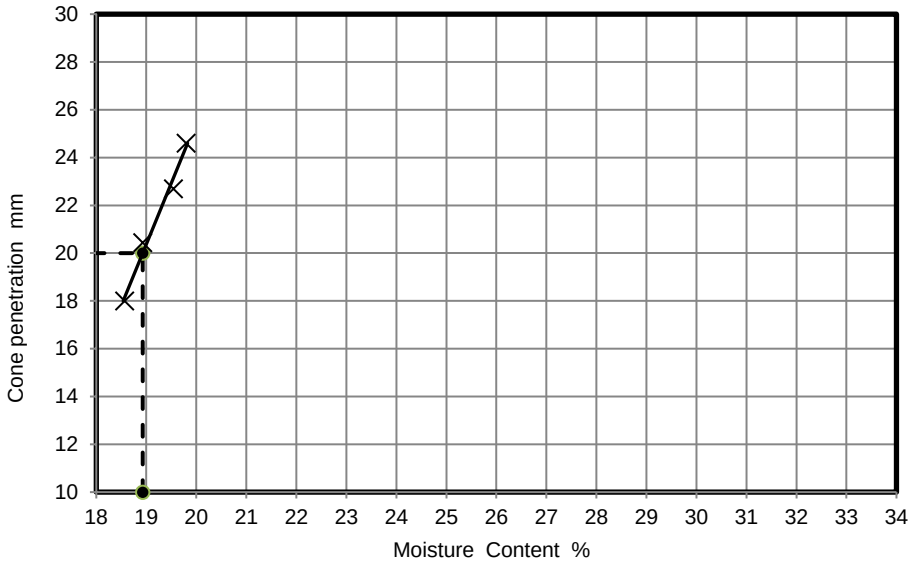
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

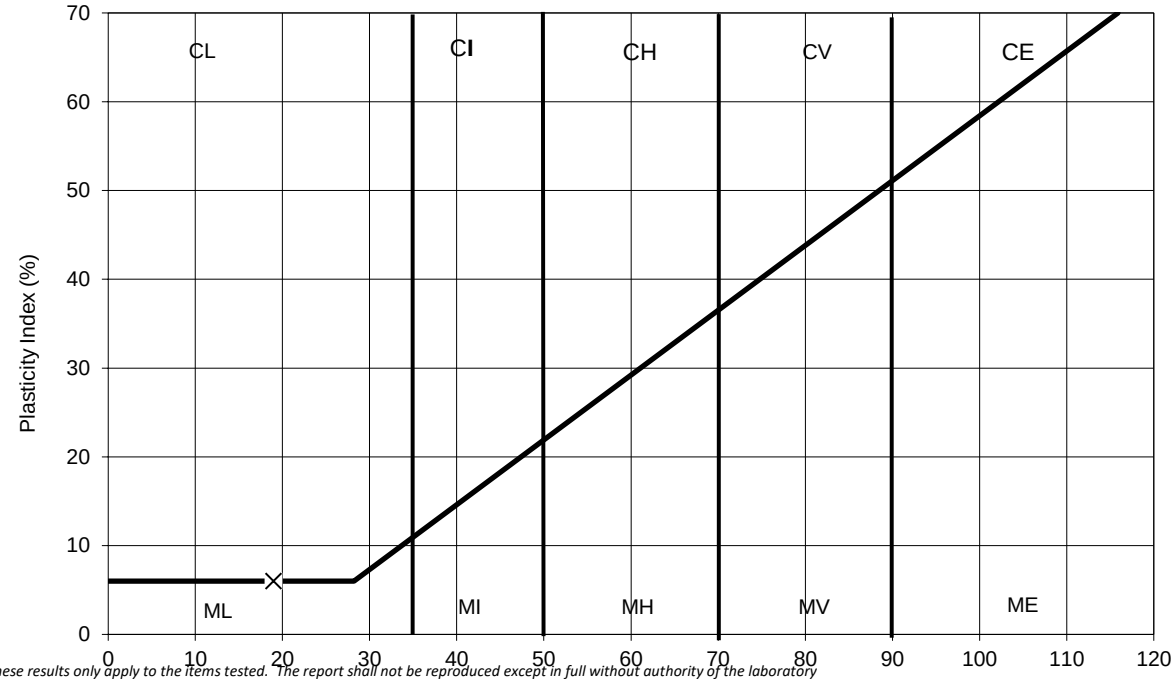
				Job No.	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

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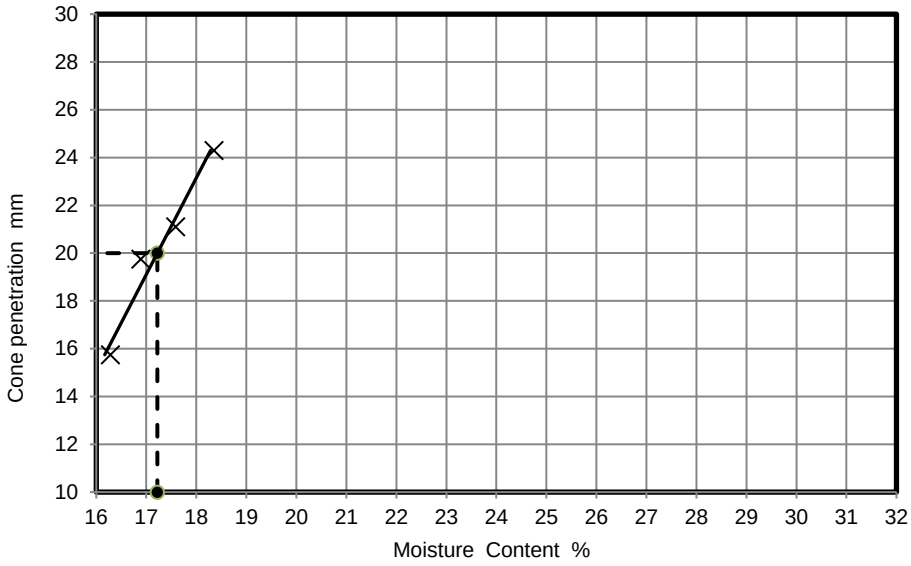
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greenish grey and brown gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

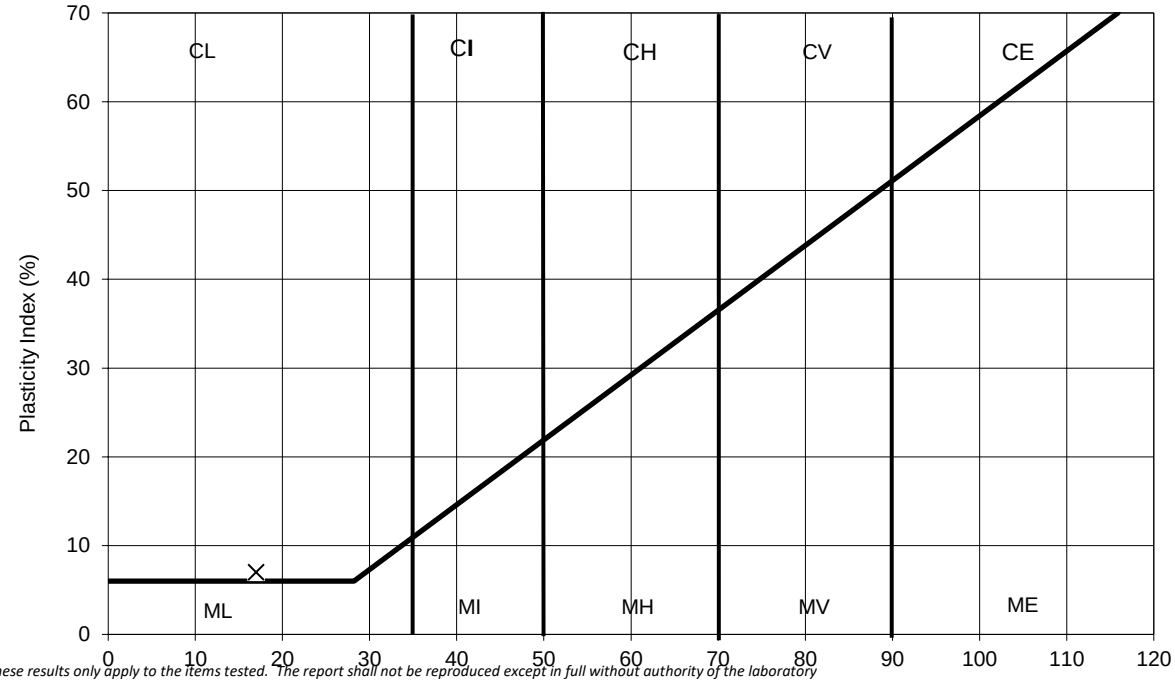


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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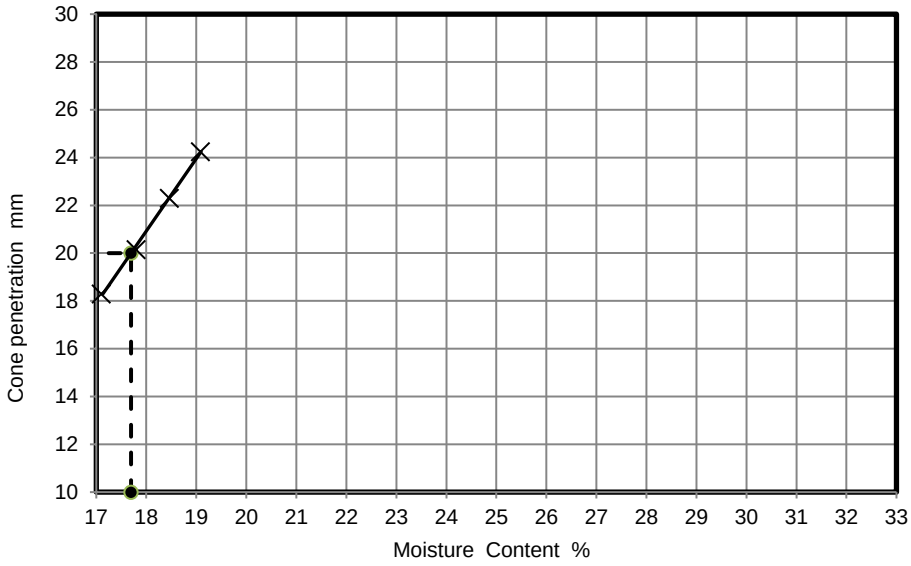
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94608
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

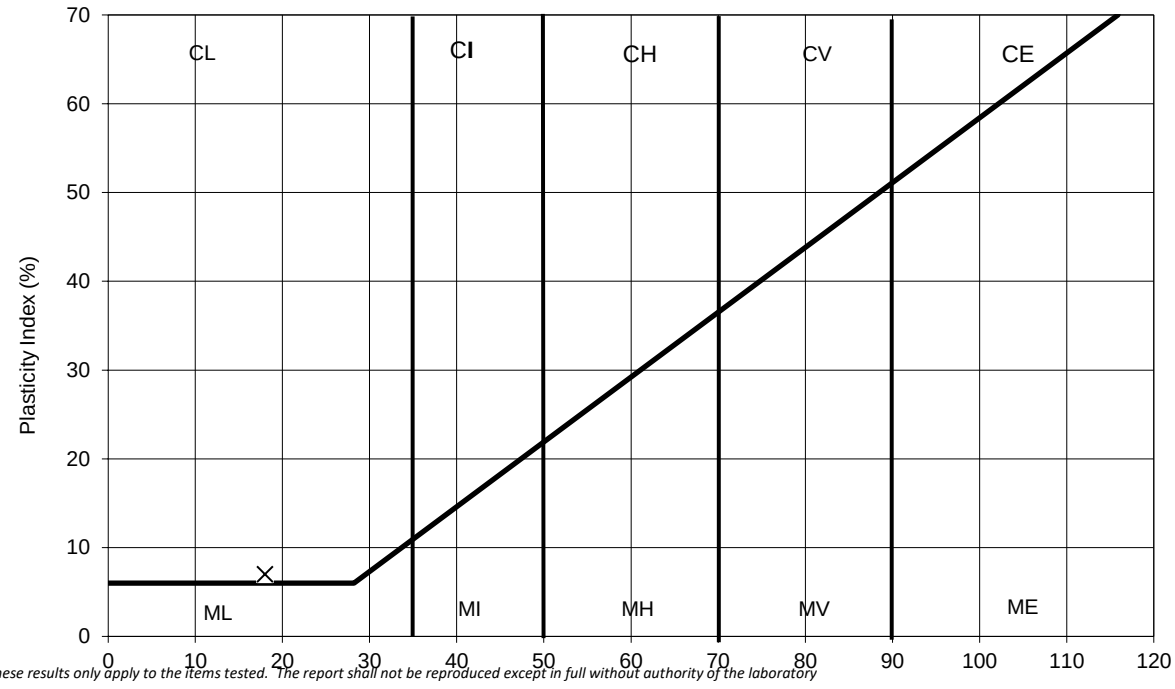


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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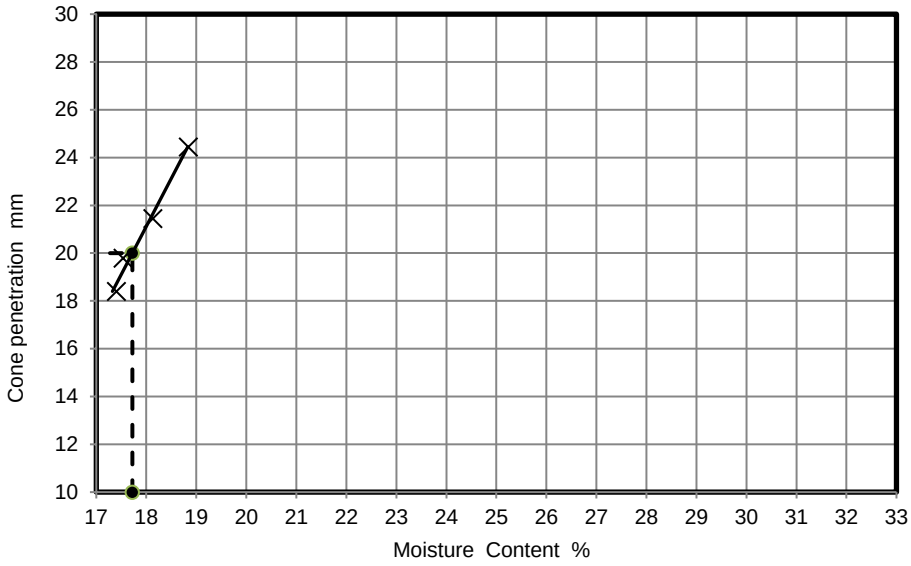
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

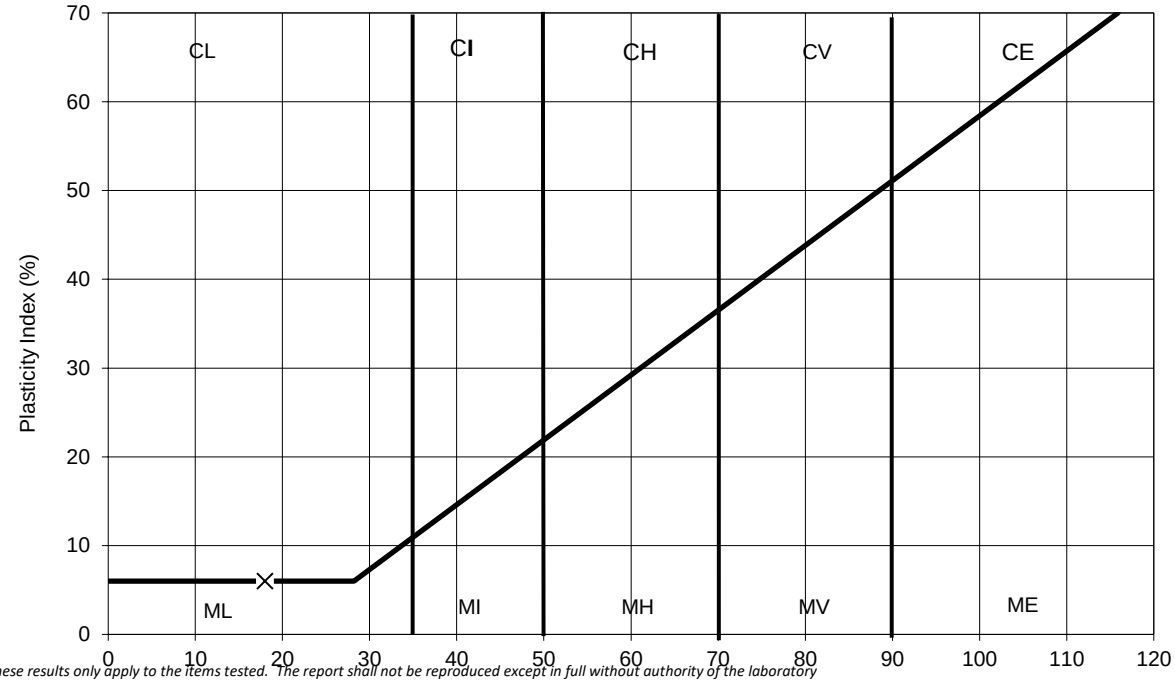


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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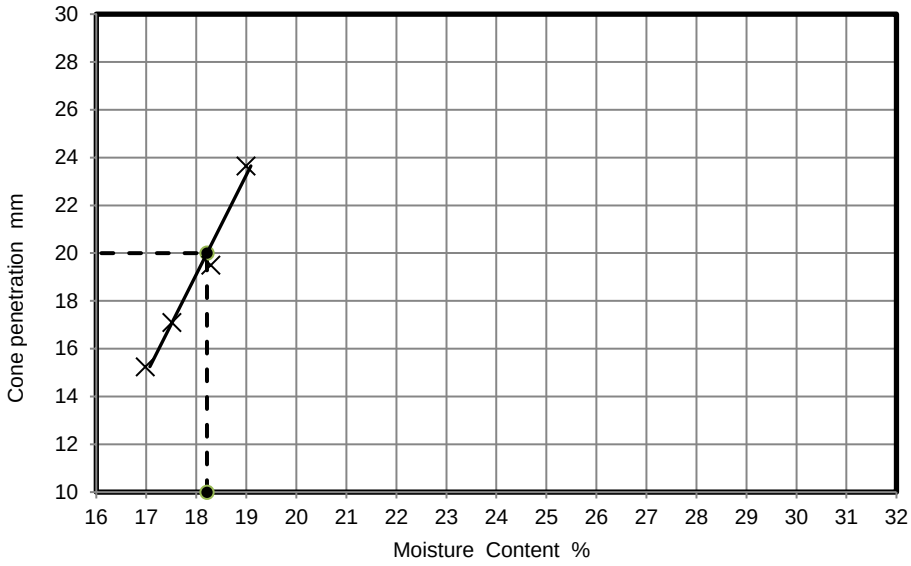
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94809
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

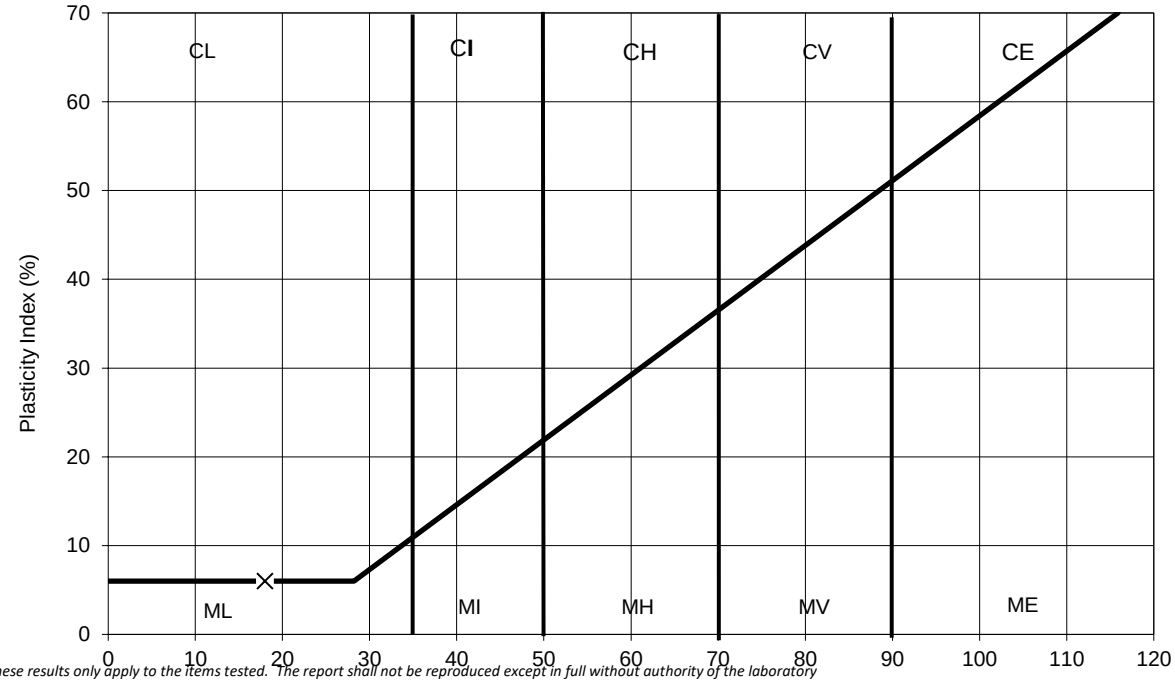


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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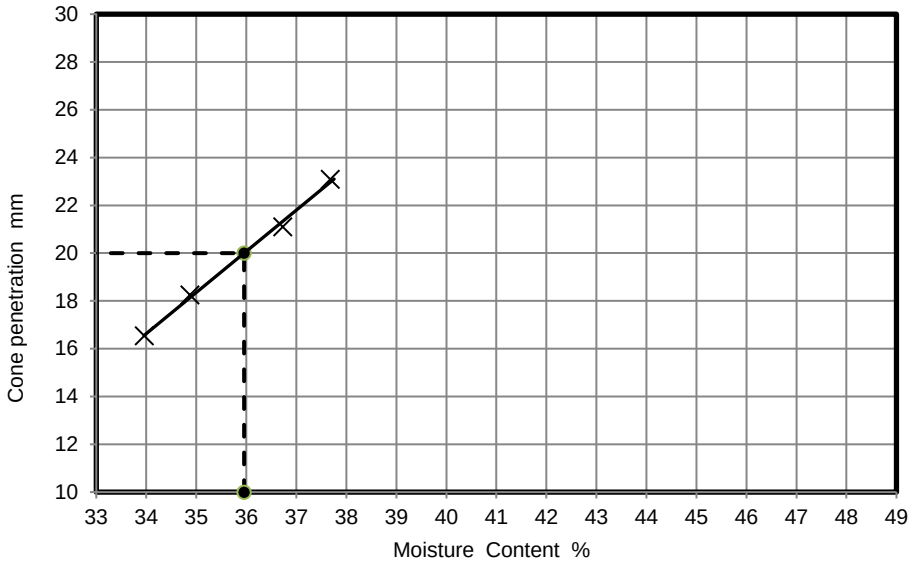
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

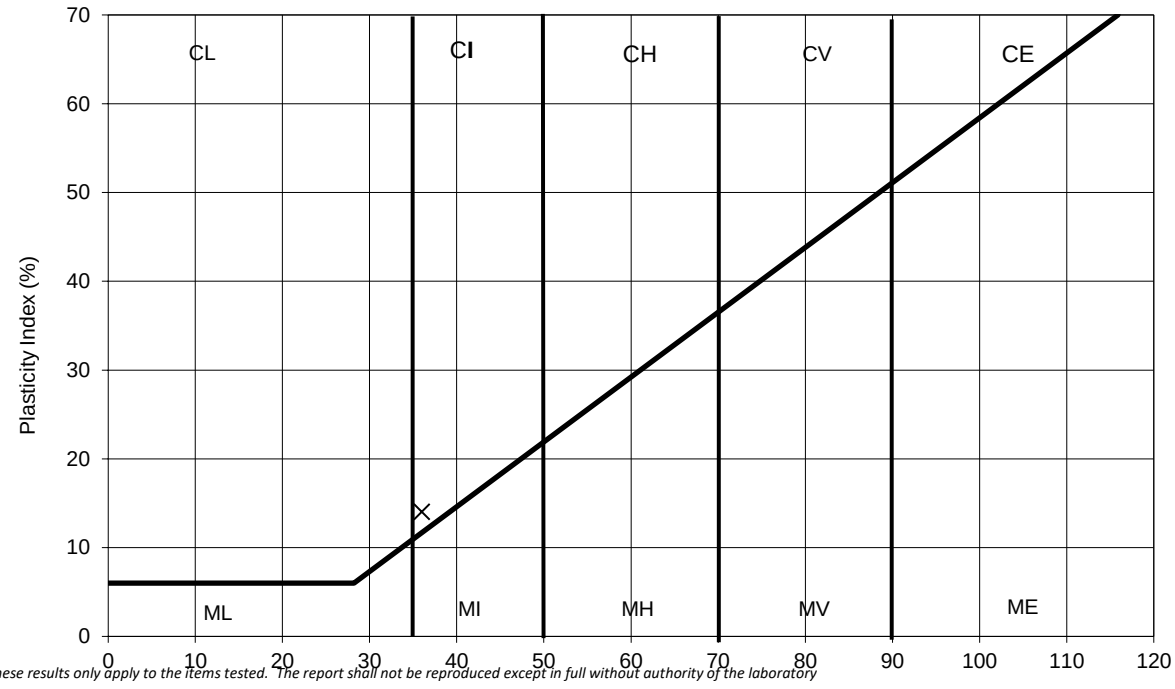
				Job No.	32282
				Borehole/Pit No.	TP-94905
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown and light grey sandy silty CLAY with rare fm sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022



NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**36**	**%**
PLASTIC LIMIT	**22**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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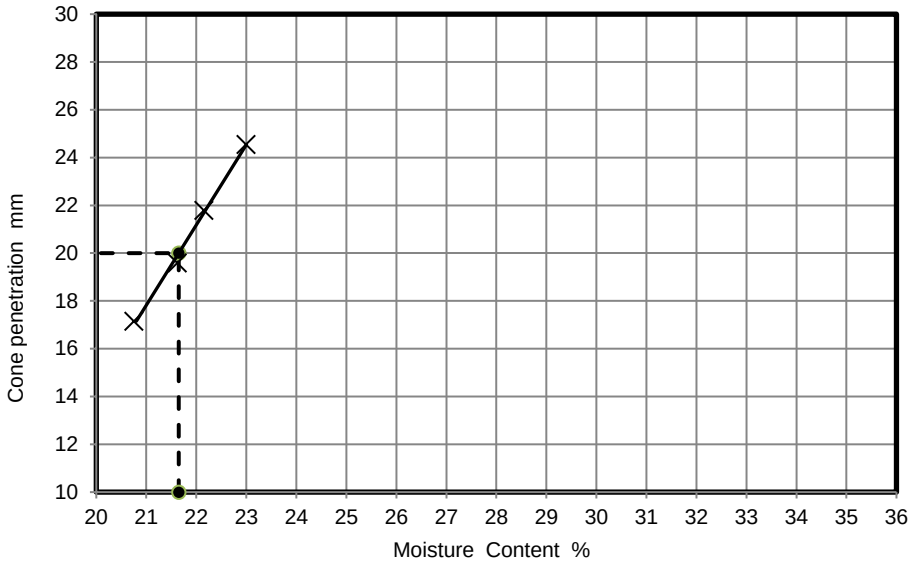
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

Job No. 32282

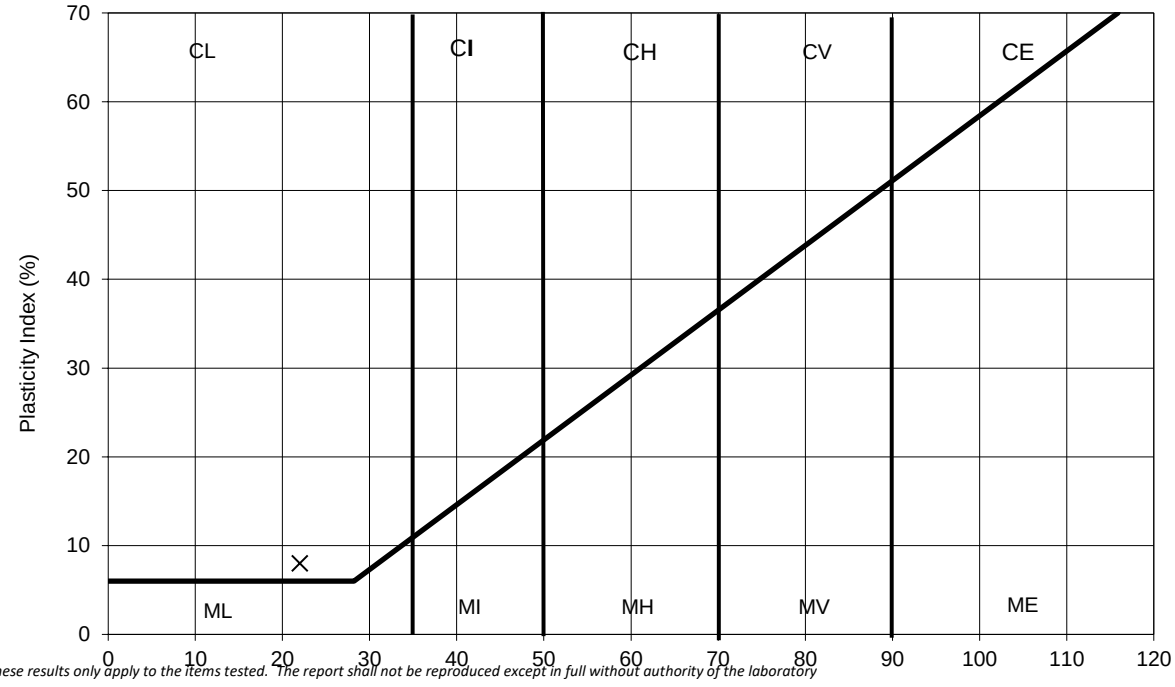
Borehole/Pit No. TP-95003



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**47**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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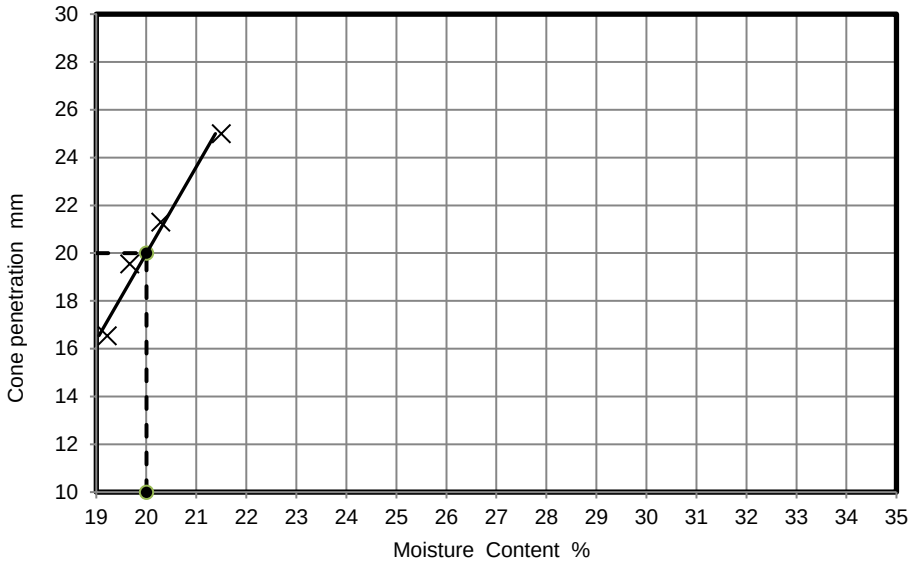
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

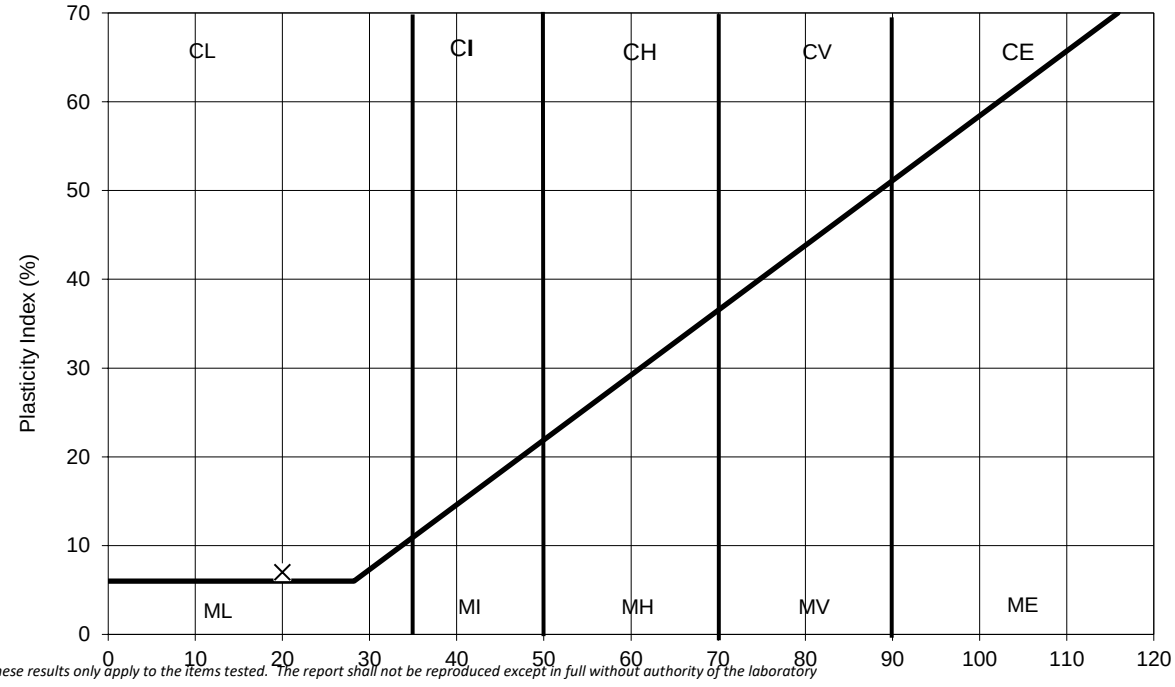
				Job No.	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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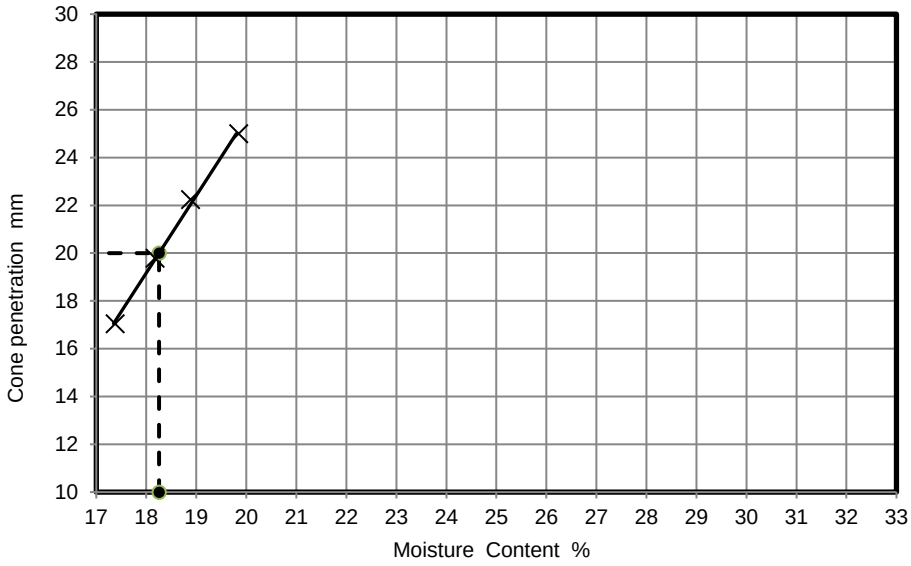
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

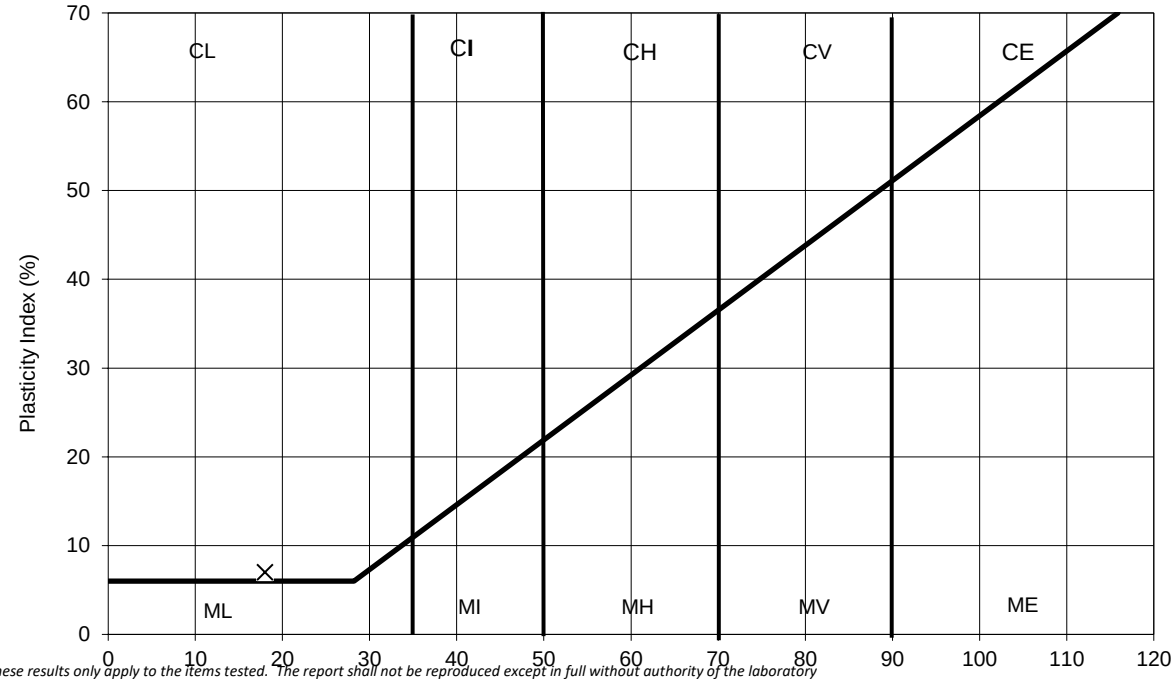
Job No.	32282				
Borehole/Pit No.	TP-95408				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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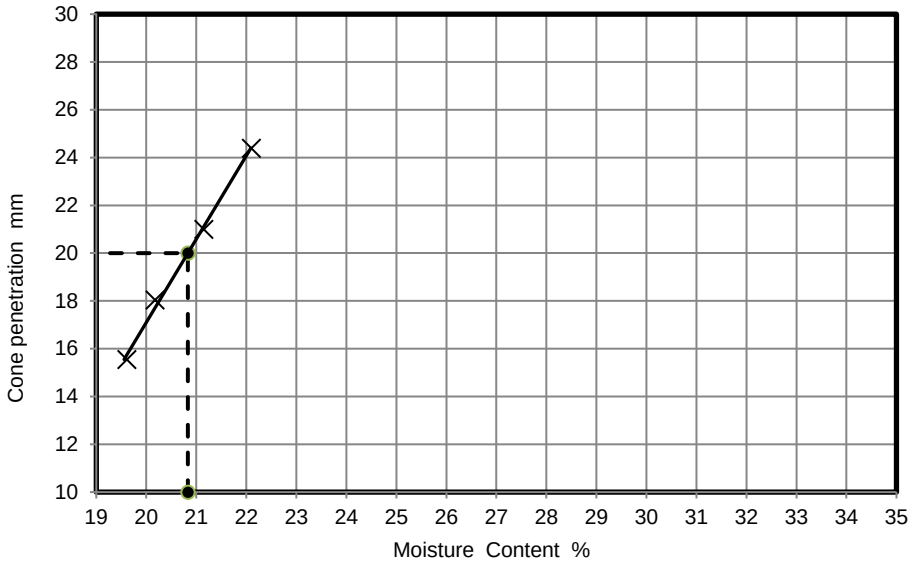
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022

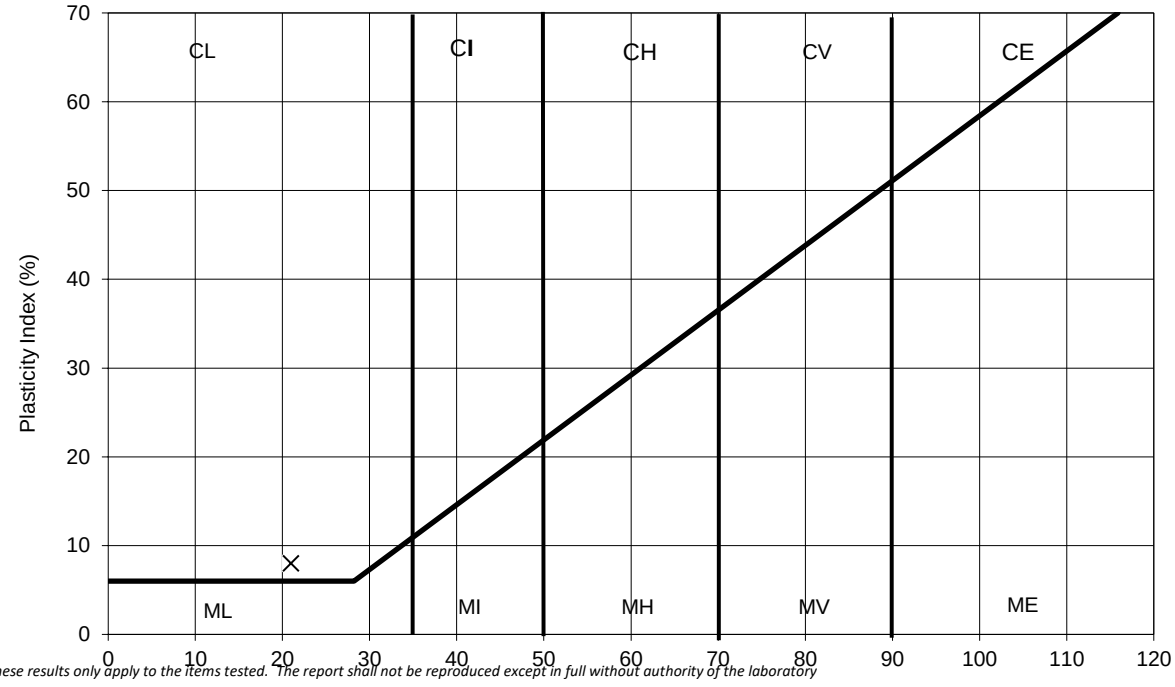


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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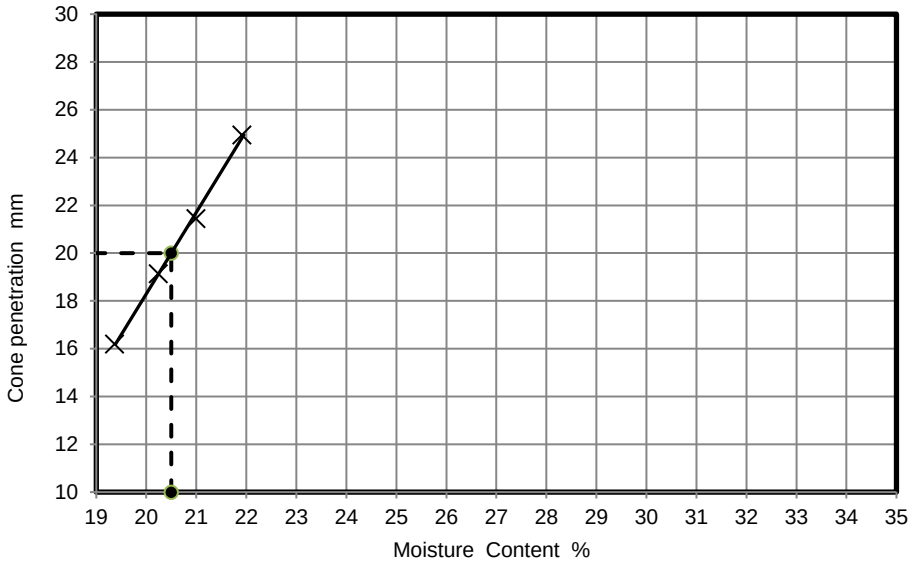
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

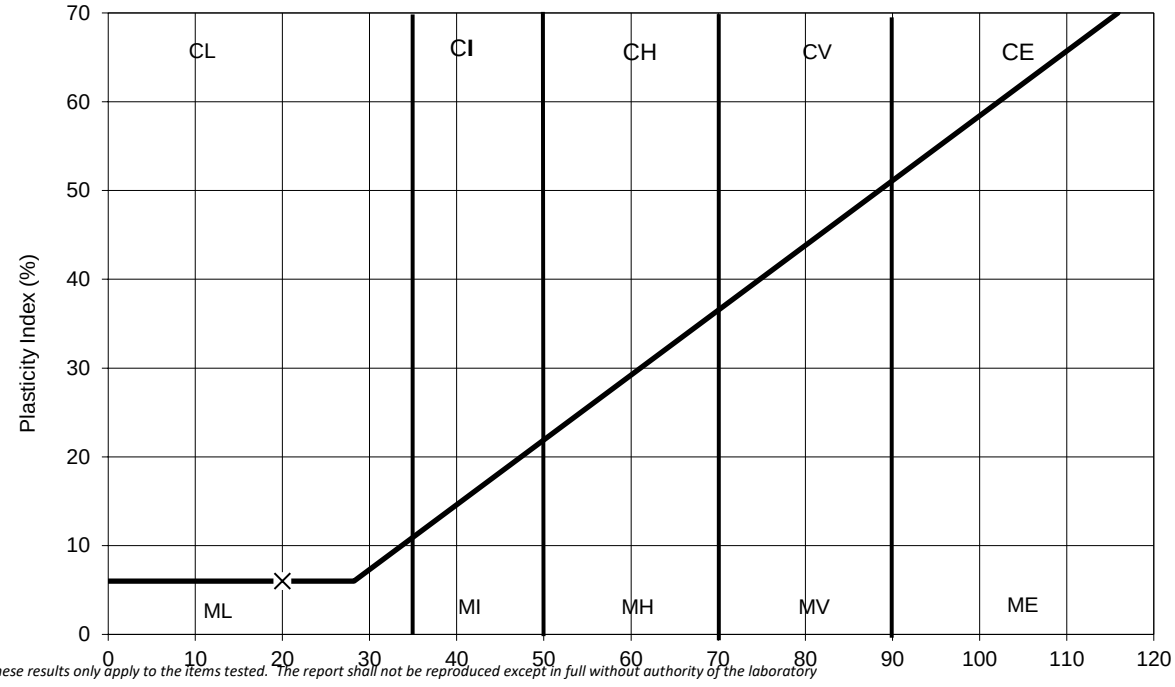
				Job No.	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

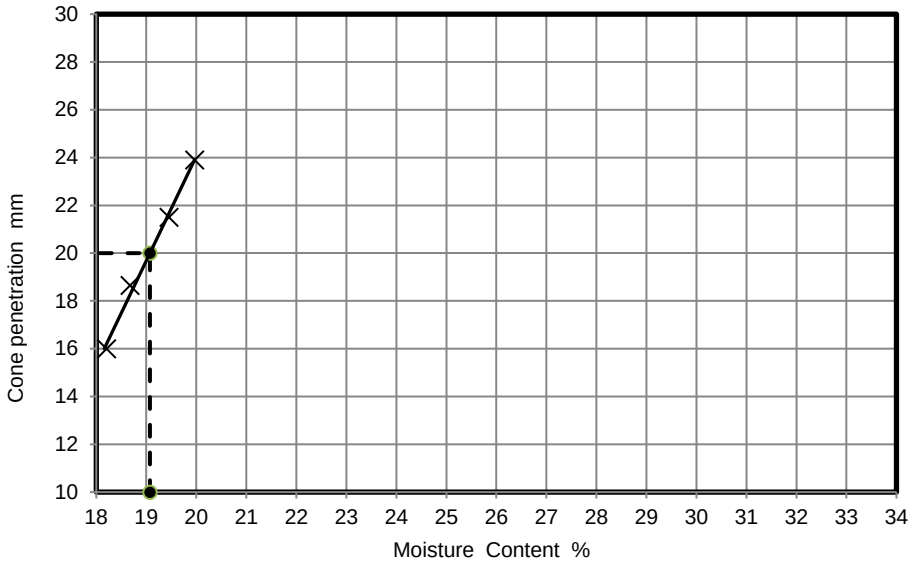
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022

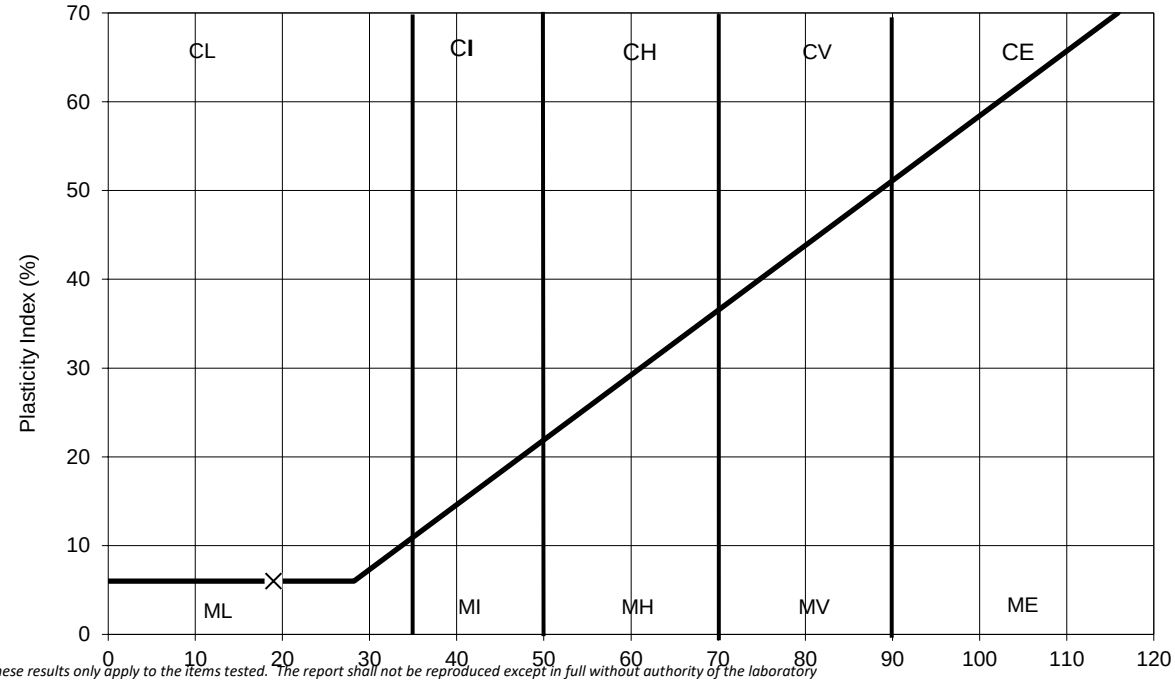


NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**41**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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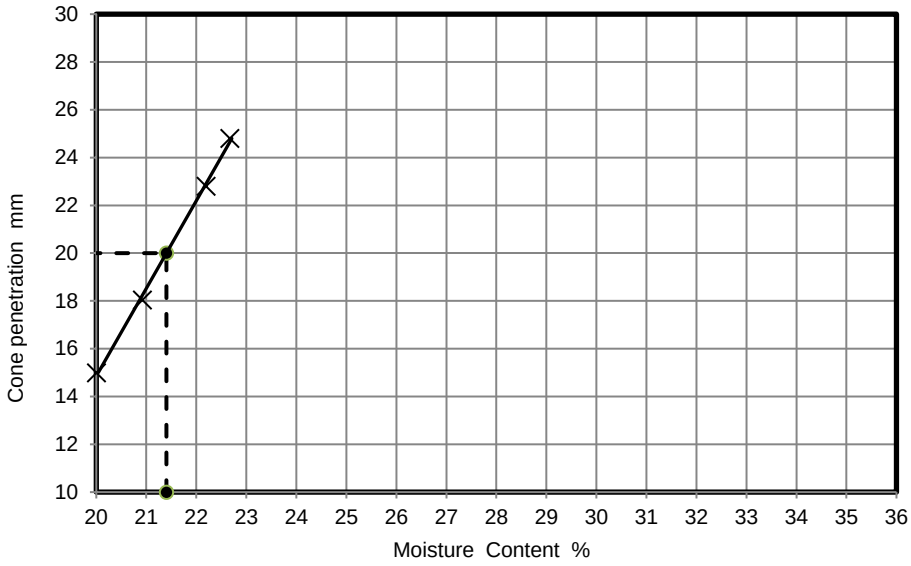
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95905
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc angular to sub-angular and tabular gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022

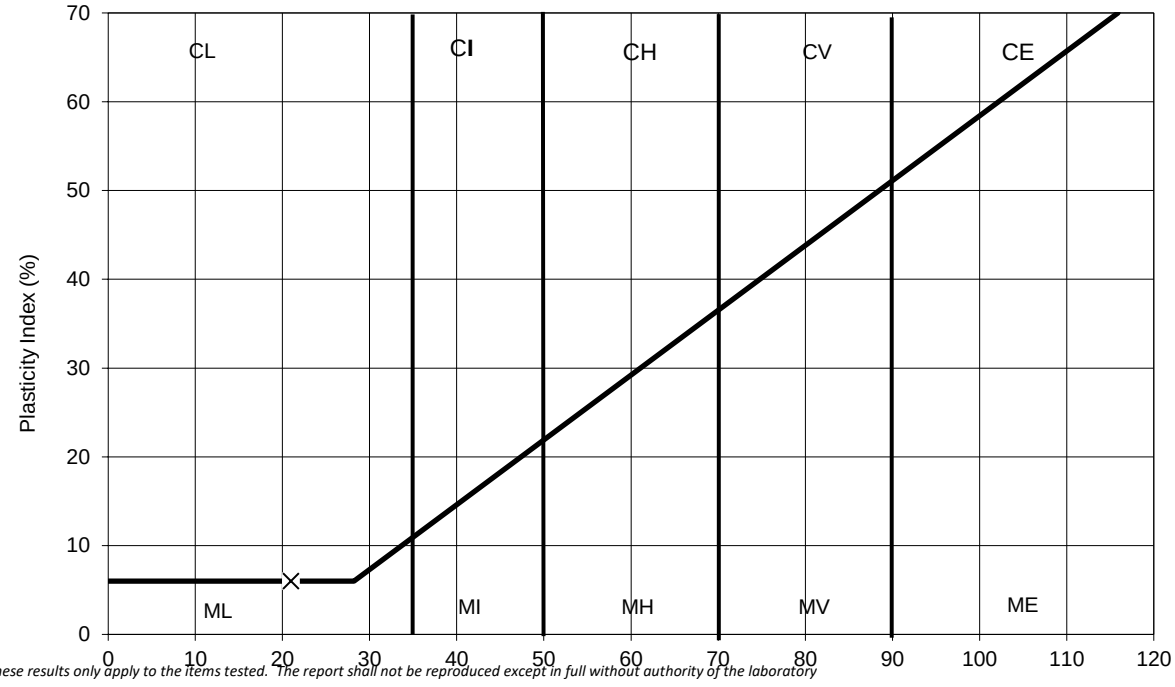


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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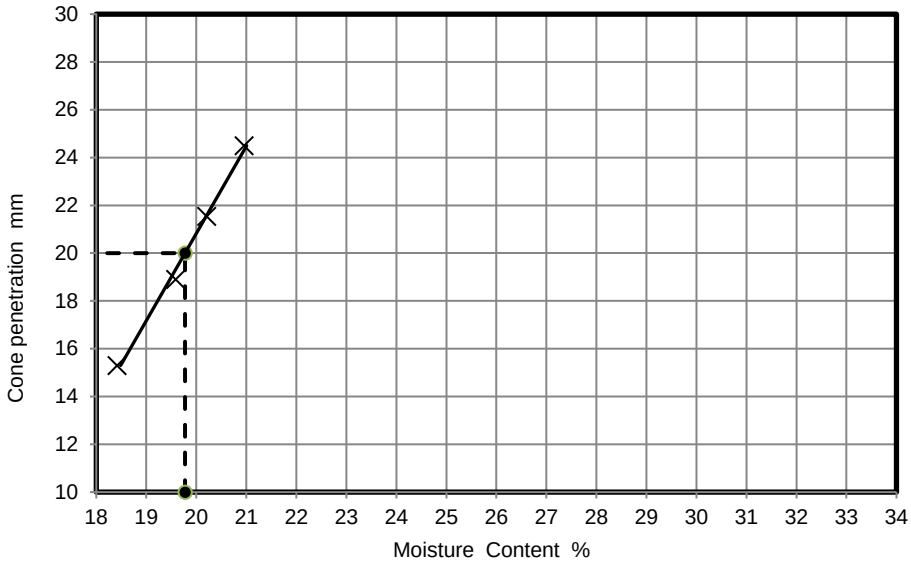
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

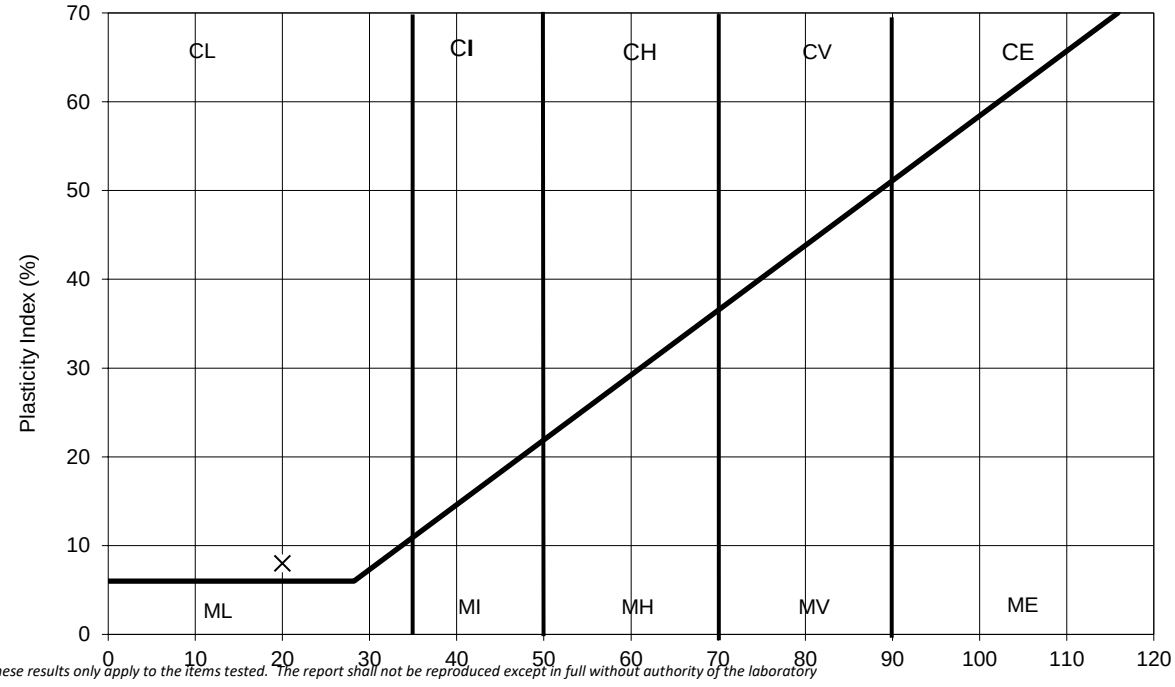
				Job No.	32282
				Borehole/Pit No.	TP-95999
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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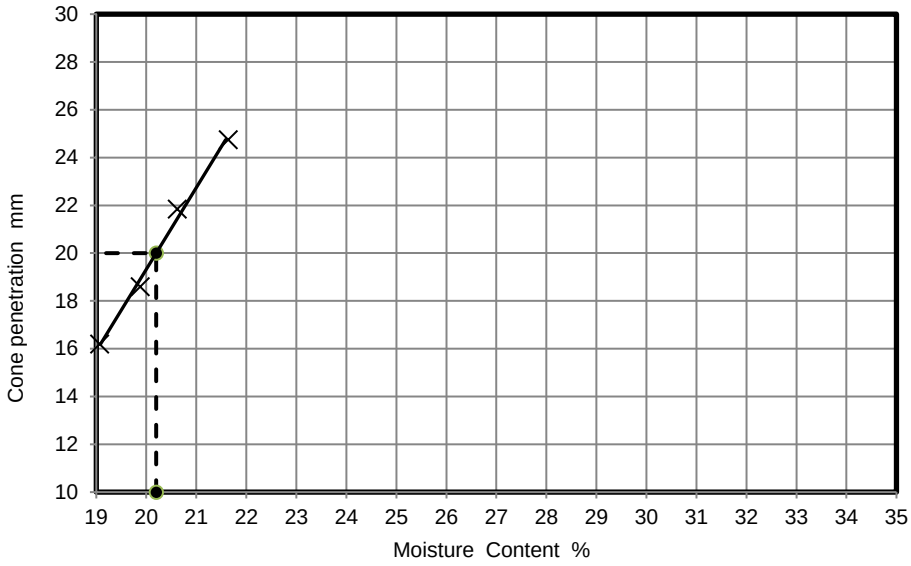
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

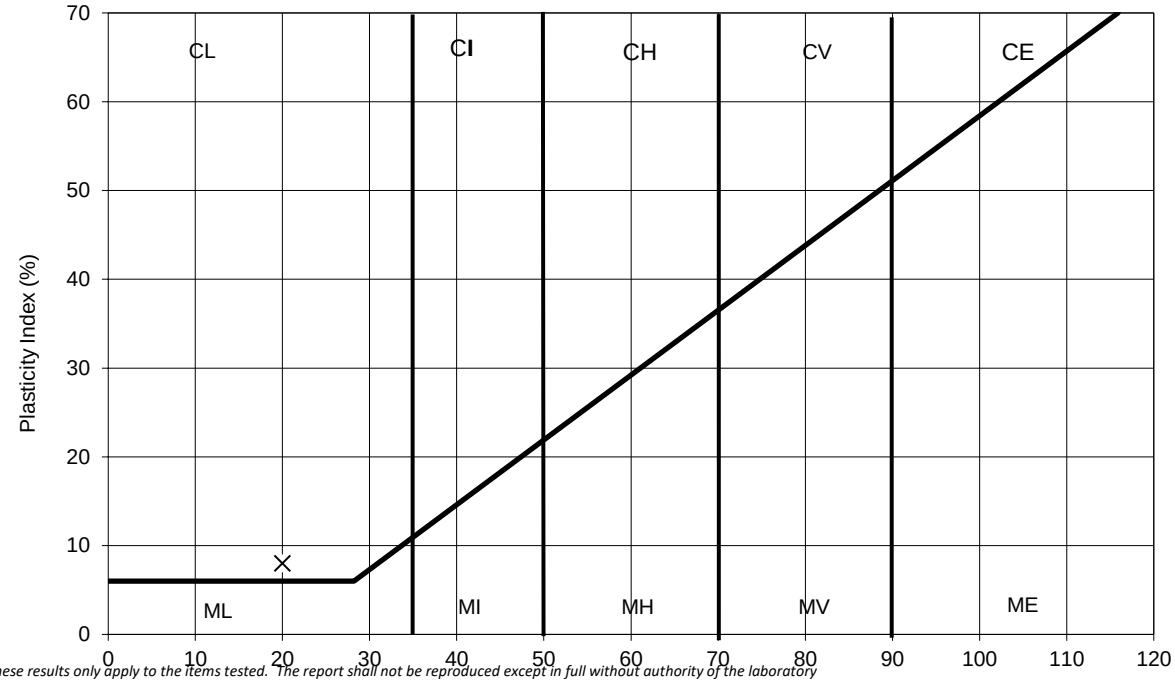
Job No.	32282				
Borehole/Pit No.	TP-96105				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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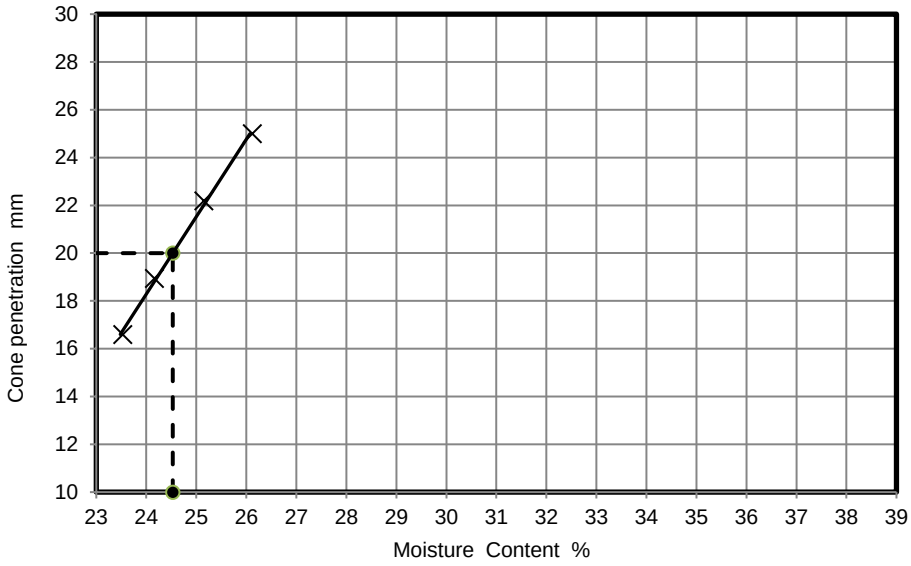
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-96204
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc angular to sub-angular and tabular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022

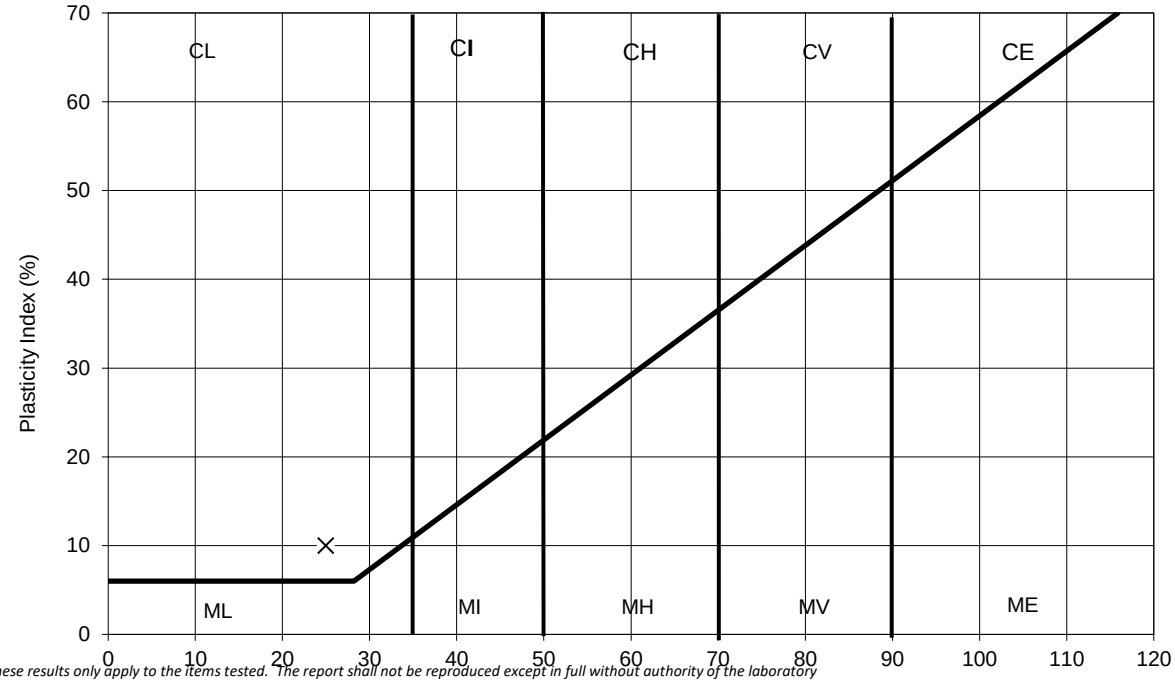


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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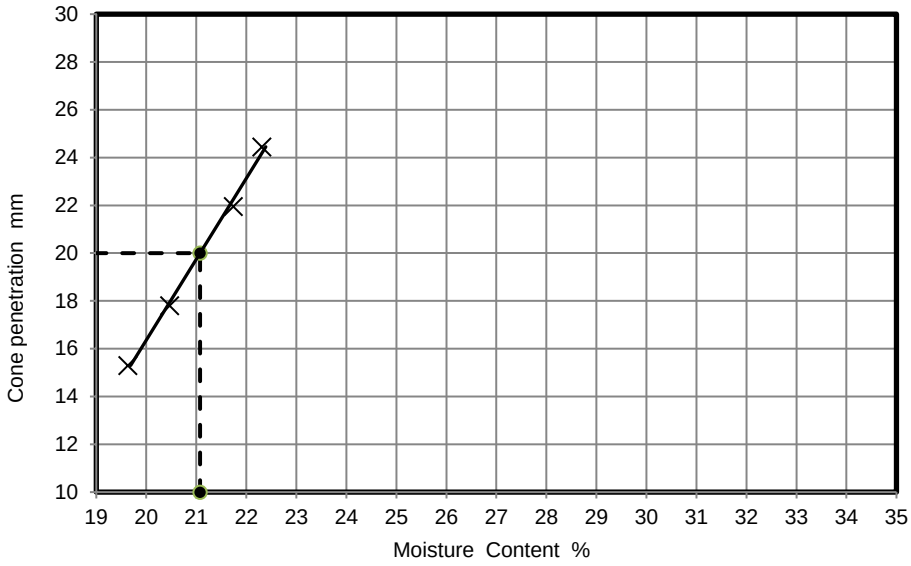
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

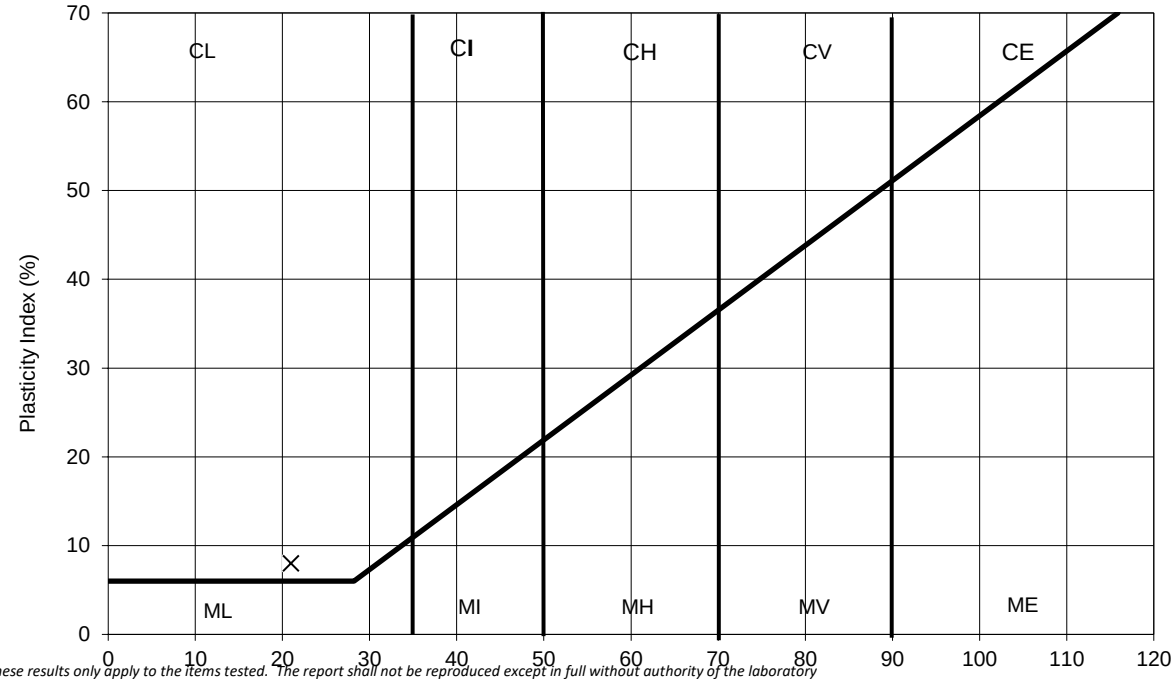
Job No.	32282				
Borehole/Pit No.	TP-96304				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**8.9**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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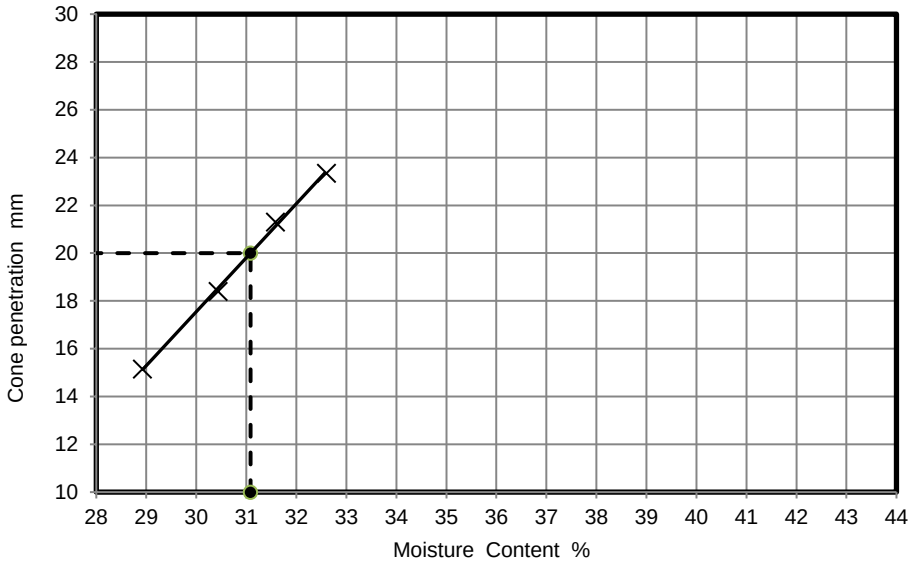
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

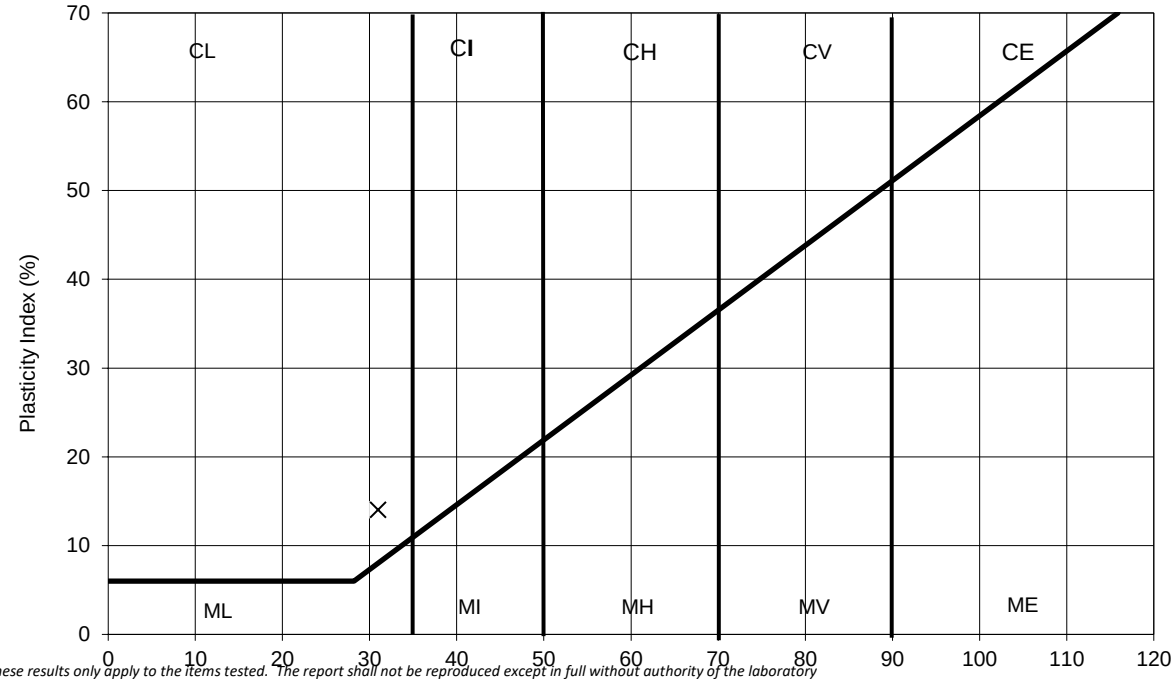
				Job No.	32282
				Borehole/Pit No.	TP-96387
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**93**	**%**
LIQUID LIMIT	**31**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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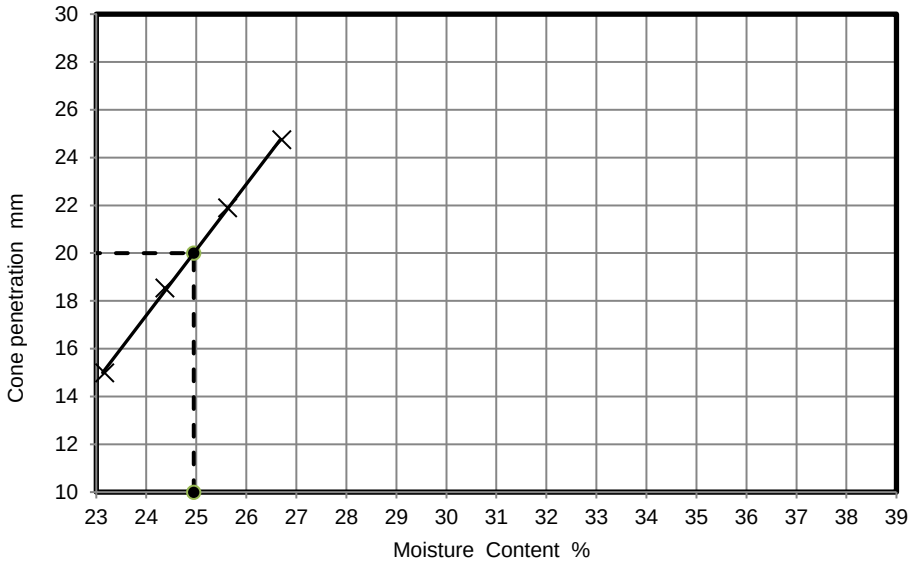
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

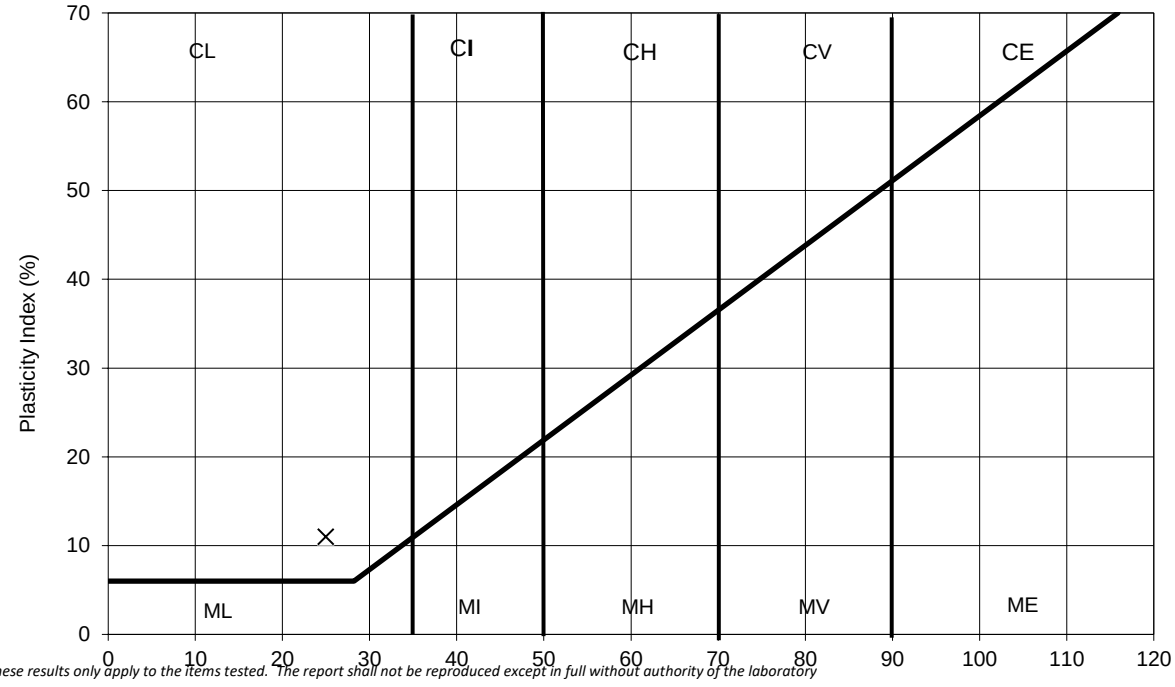
				Job No.	32282
				Borehole/Pit No.	TP-96608
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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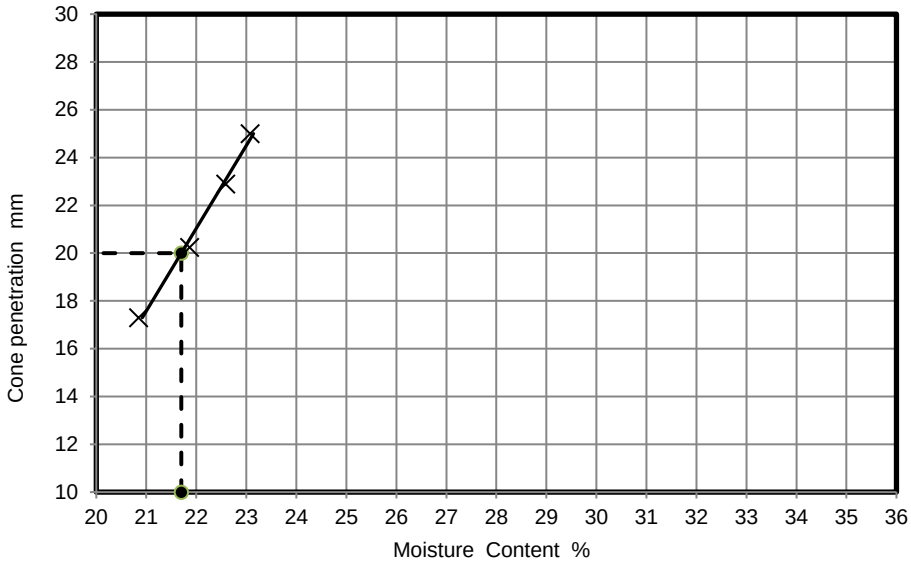
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

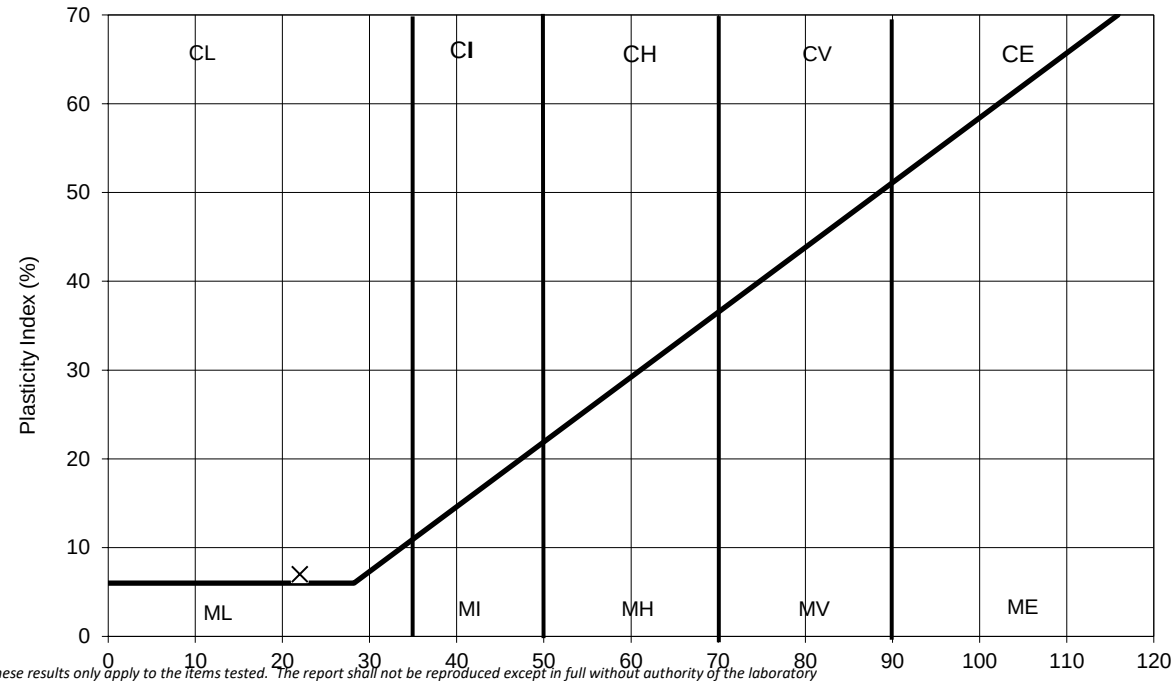
				Job No.	32282
				Borehole/Pit No.	TP-96705
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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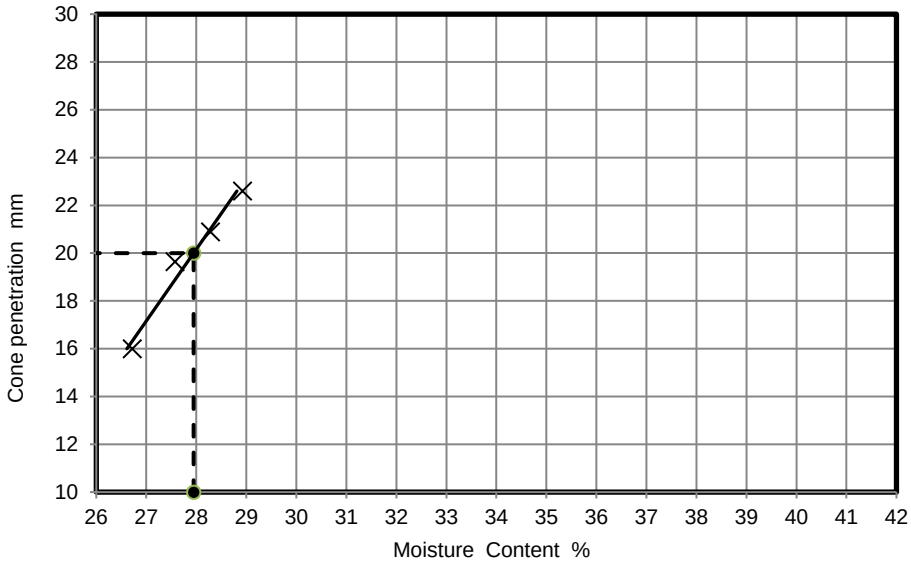
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown and grey mottled slightly gravelly slightly sandy silty CLAY (gravel is fm)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022

Job No. 32282

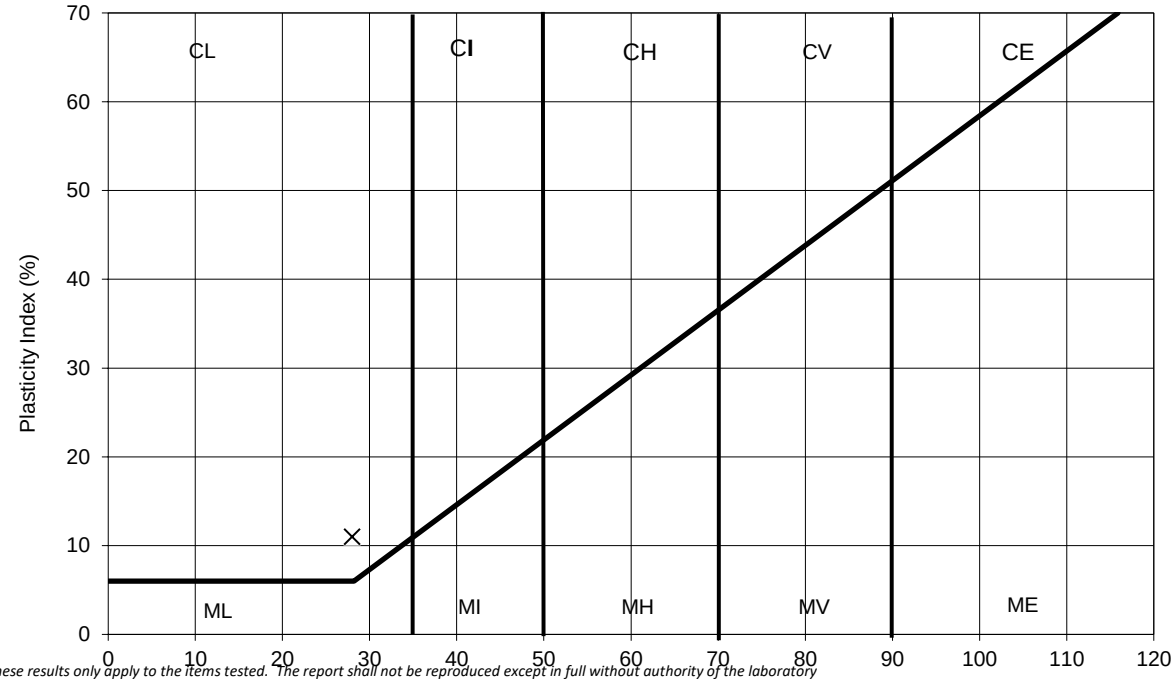
Borehole/Pit No. TP-96831



NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**95**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

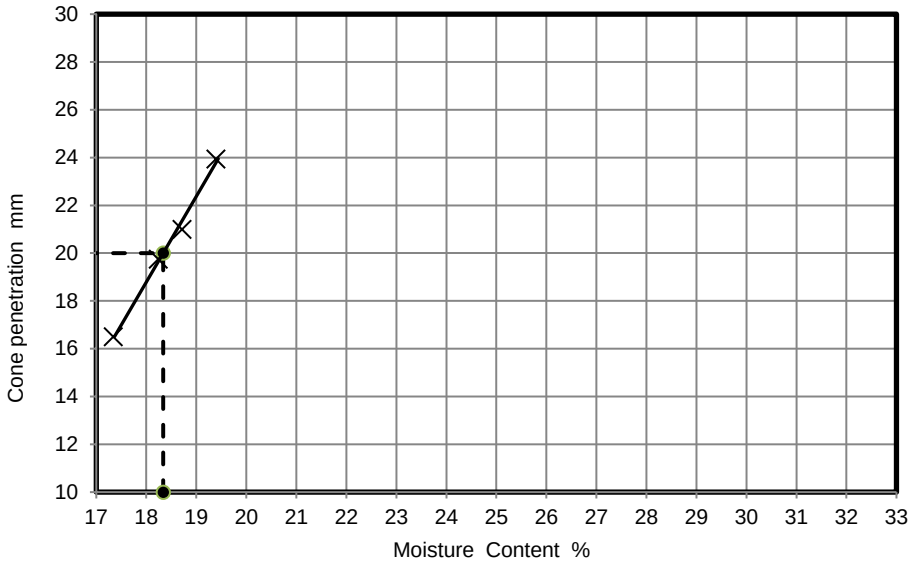
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

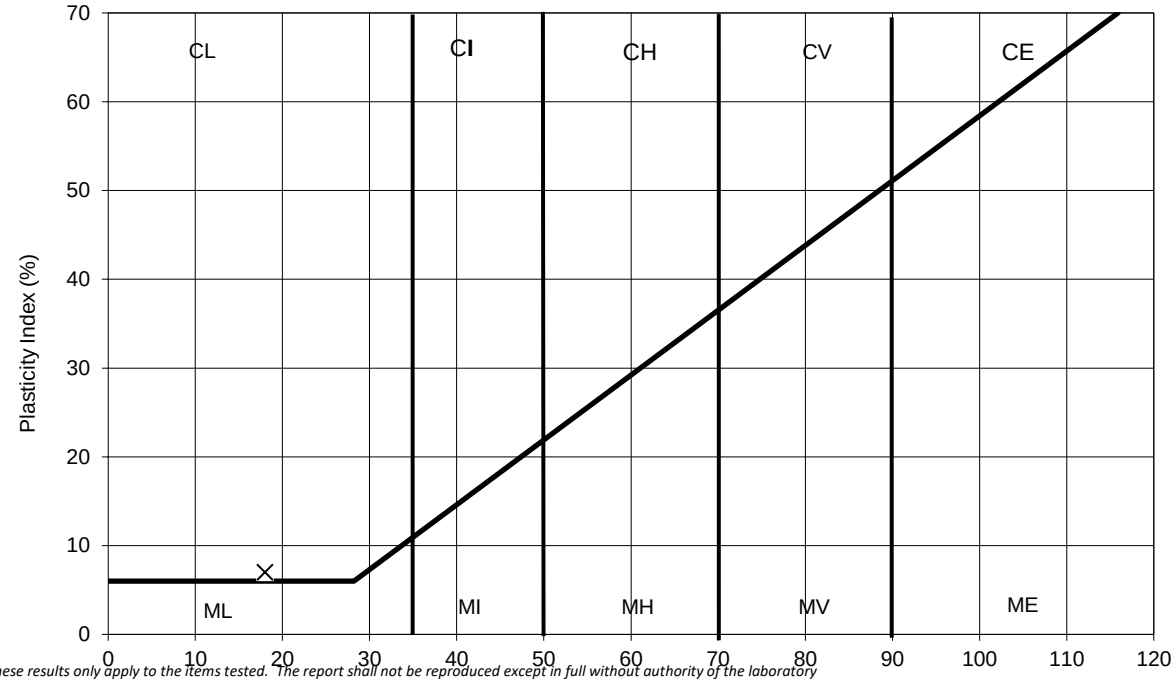
				Job No.	32282
				Borehole/Pit No.	TP-96831
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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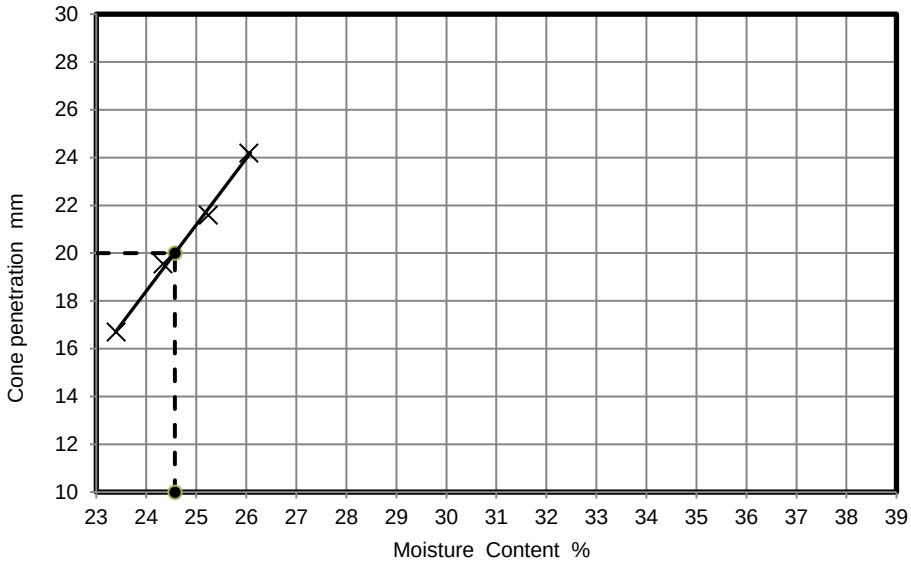
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022

Job No. 32282

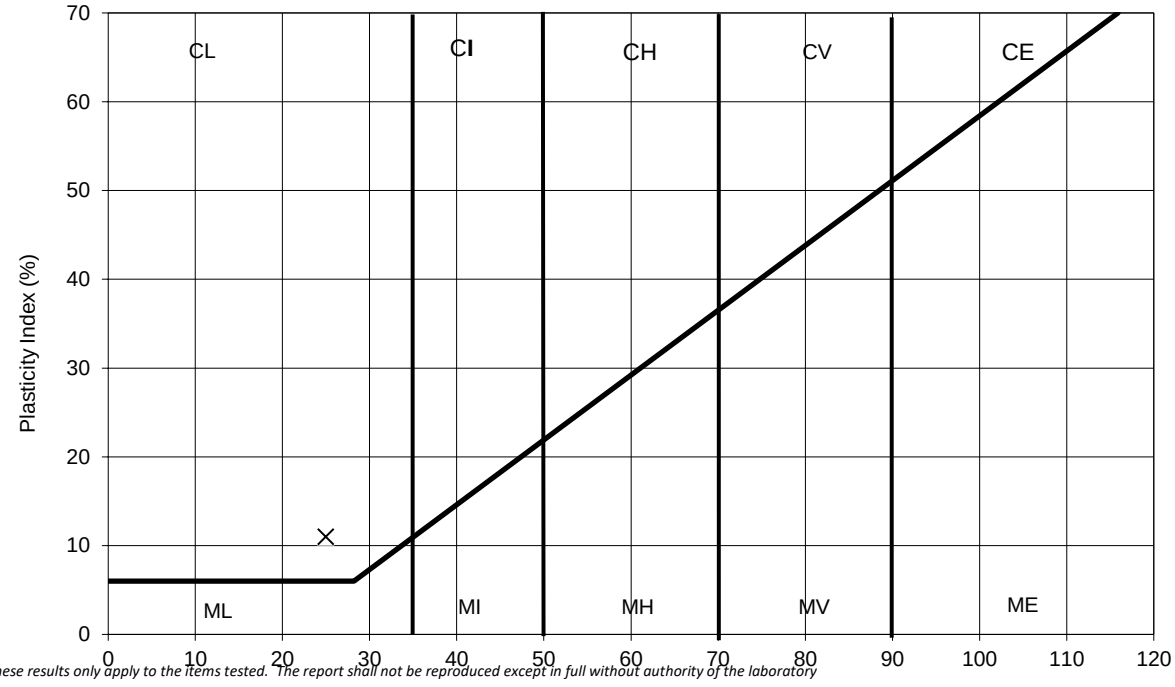
Borehole/Pit No. TP-96905



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

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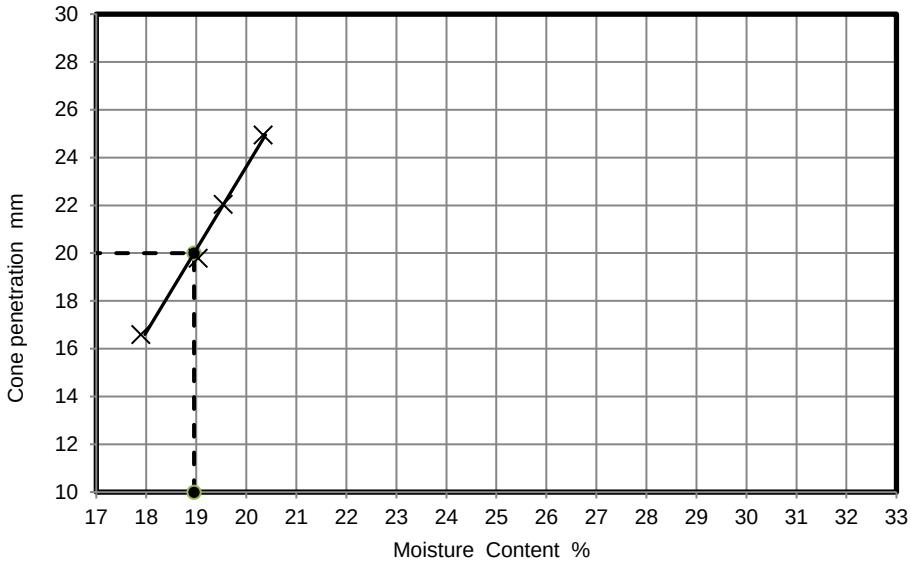
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022

Job No. 32282

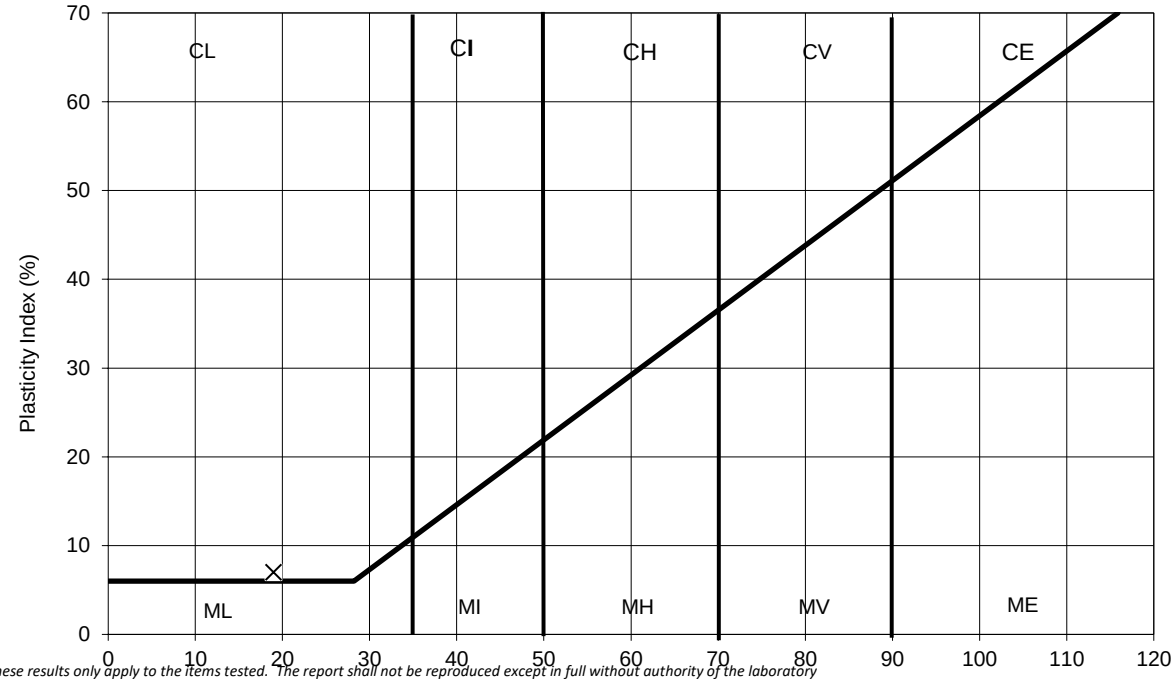
Borehole/Pit No. TP-96905



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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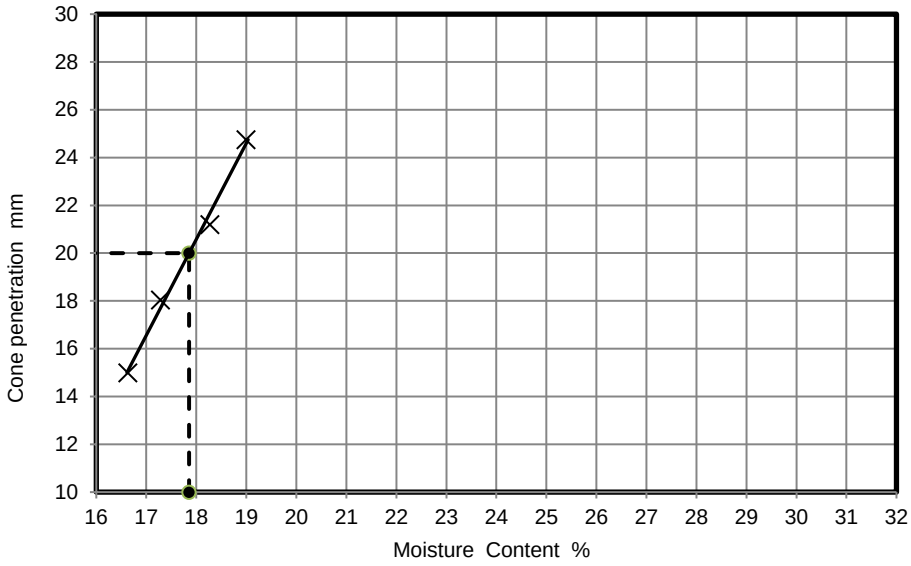
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

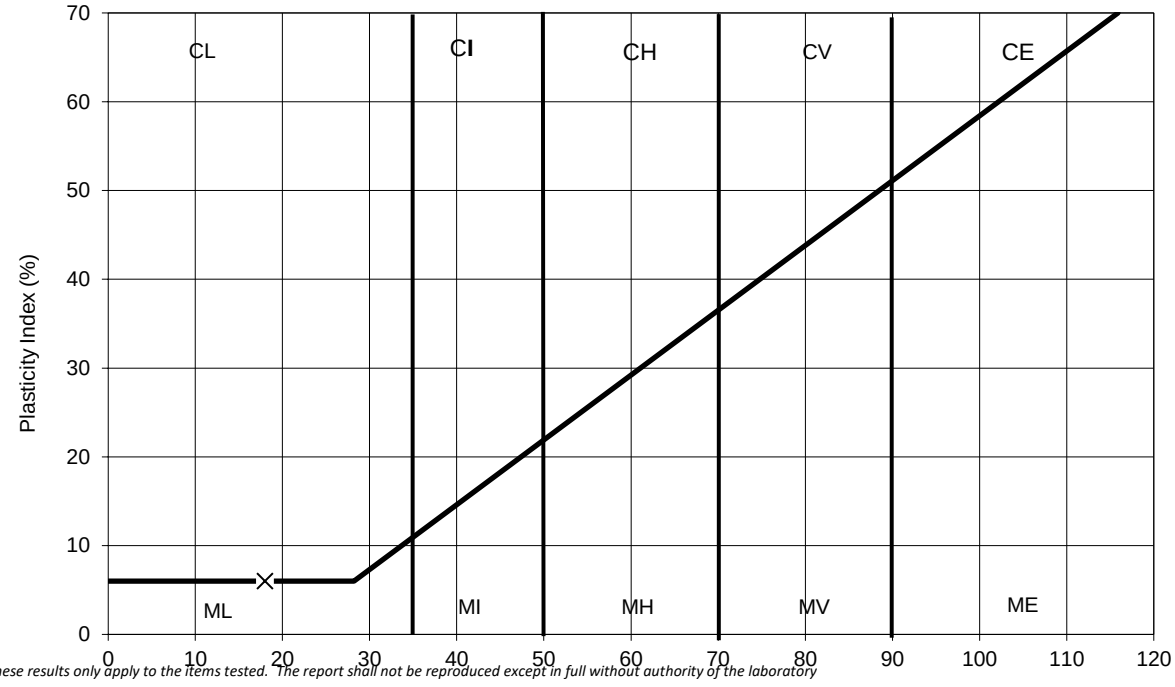
				Job No.	32282
				Borehole/Pit No.	TP-97009
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/09/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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UKAS TESTING

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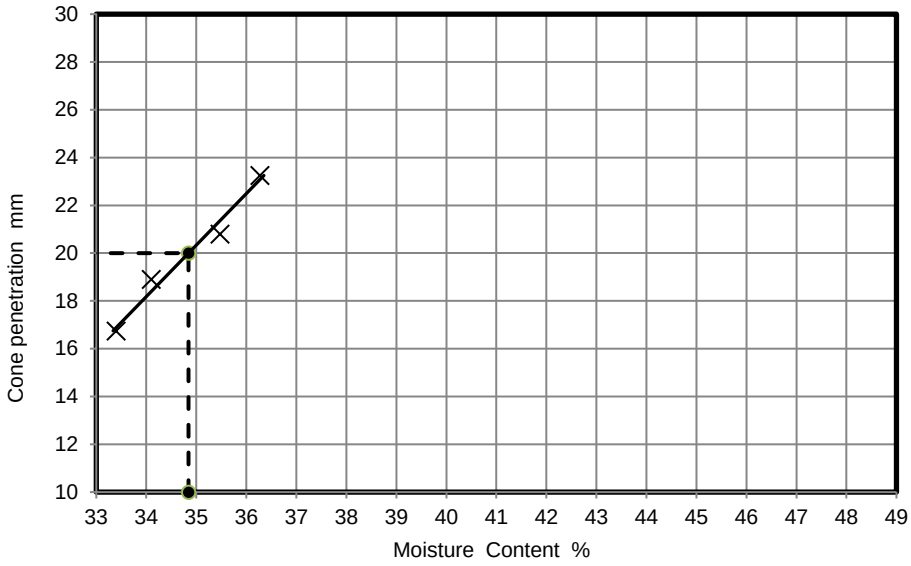
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

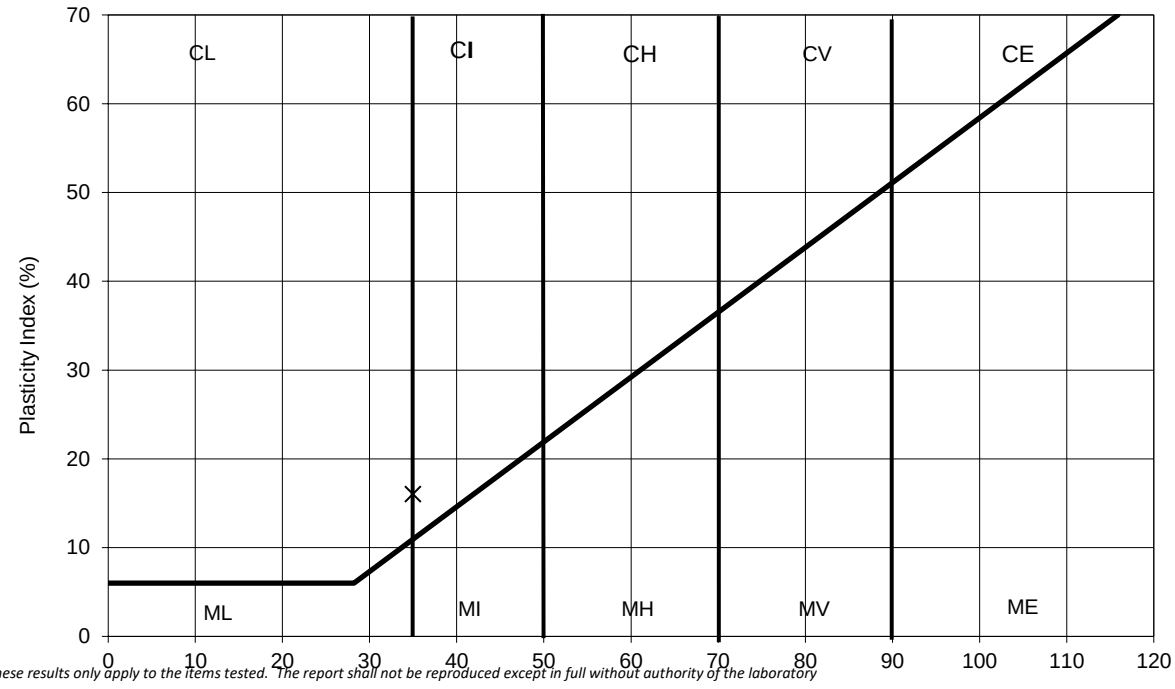
				Job No.	32282
				Borehole/Pit No.	TP-97108
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**35**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**16**	**%**

Remarks

PLASTICITY INDEX



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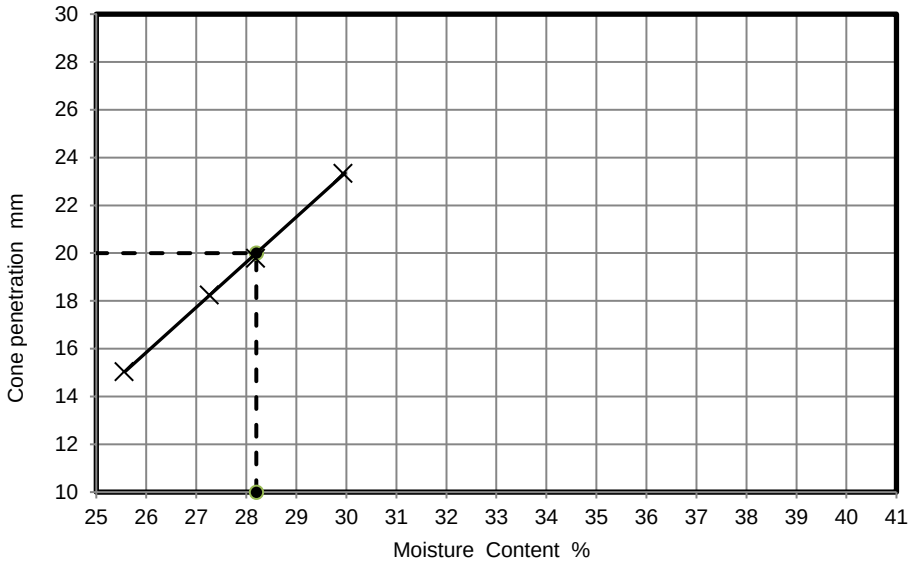
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

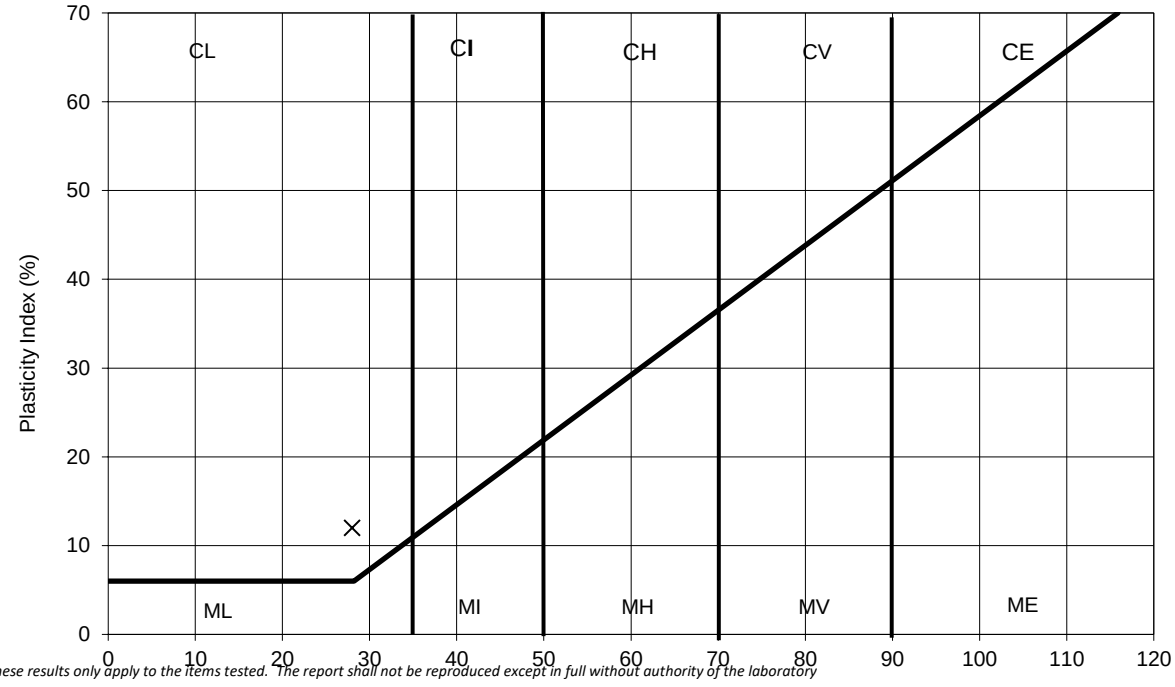
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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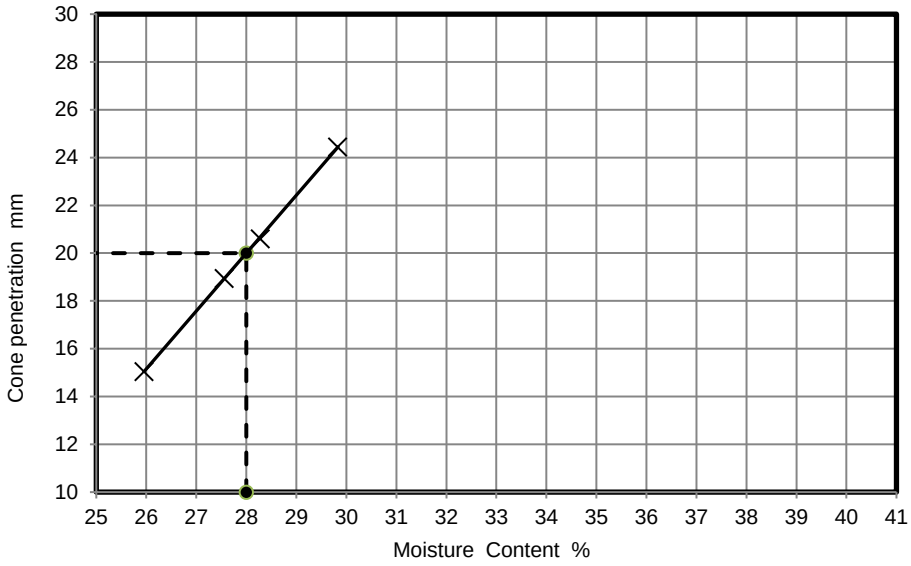
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

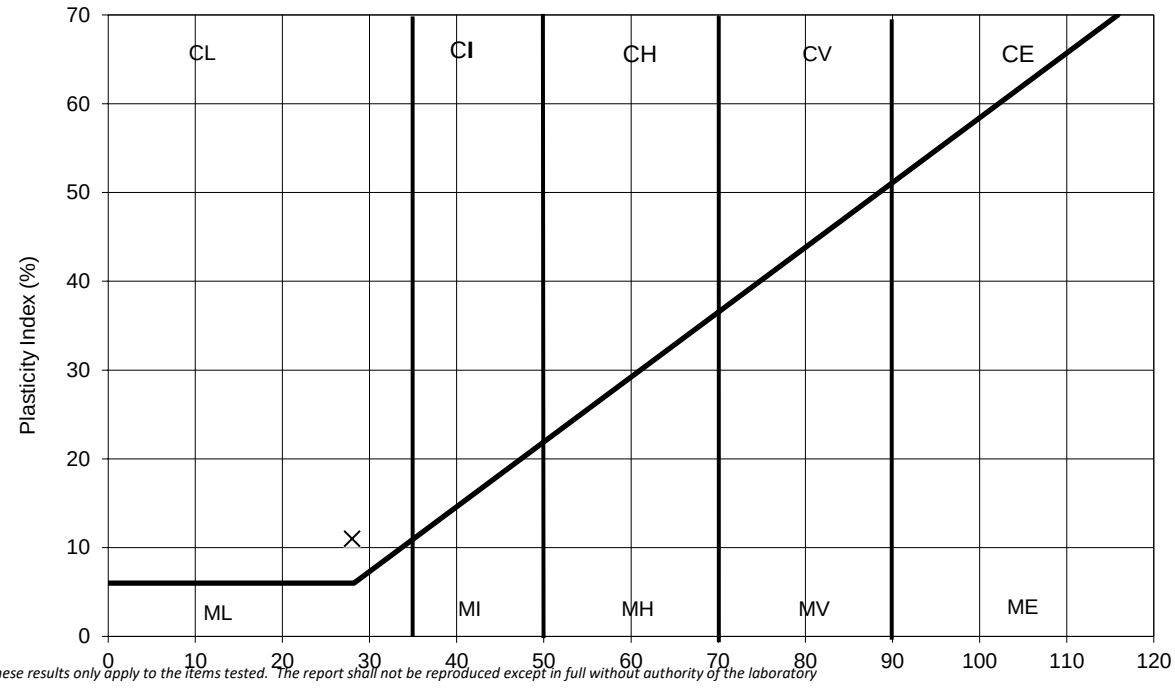
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Brown and grey mottled silty CLAY with sandy patches and rare fine gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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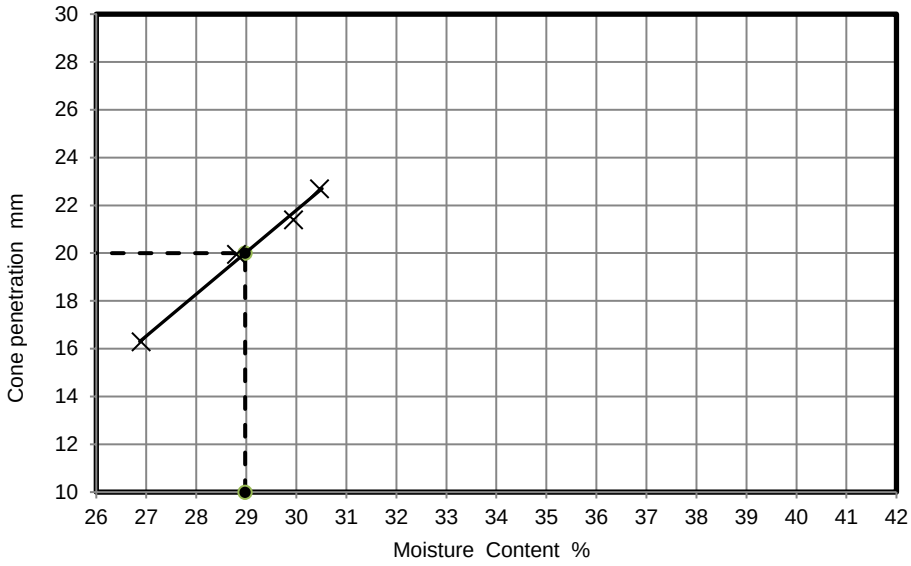
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

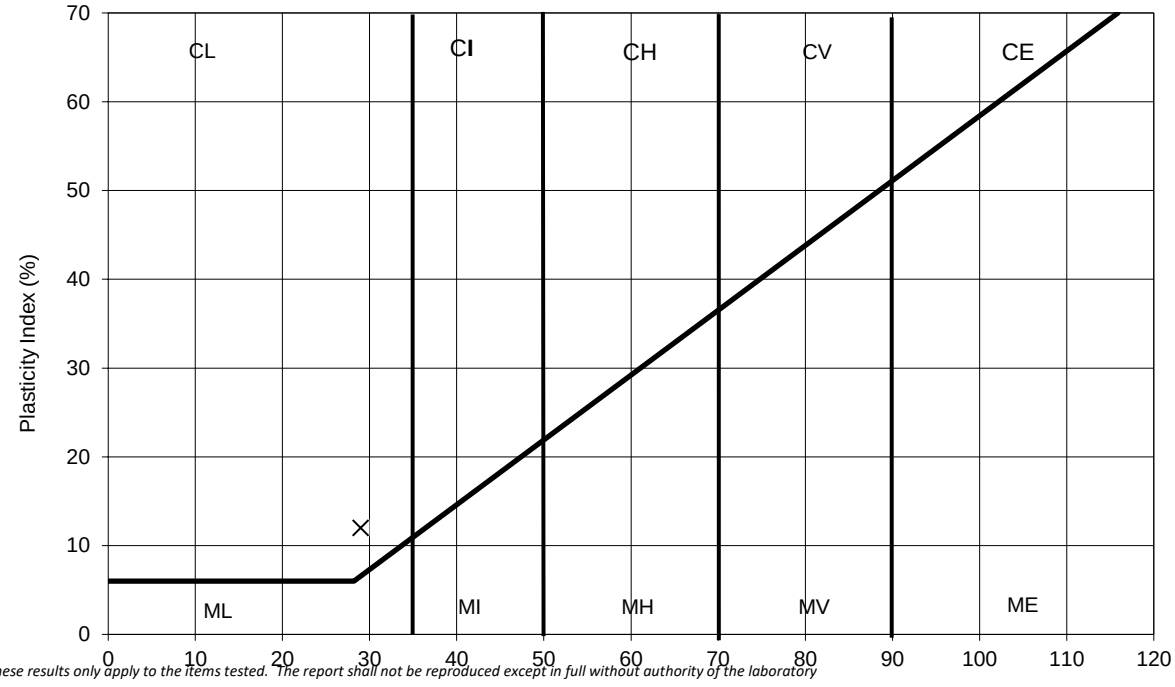
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Dark grey silty CLAY with rare fine gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**29**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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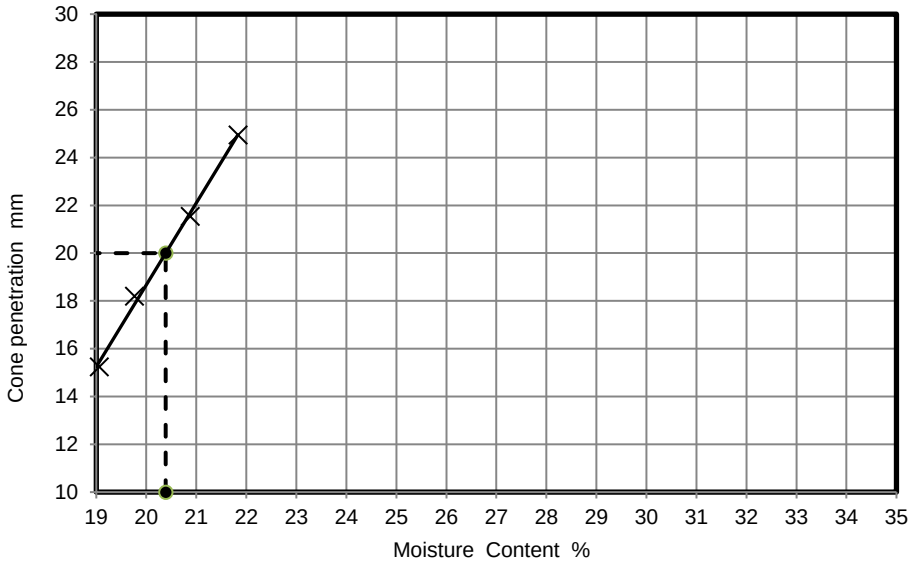
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

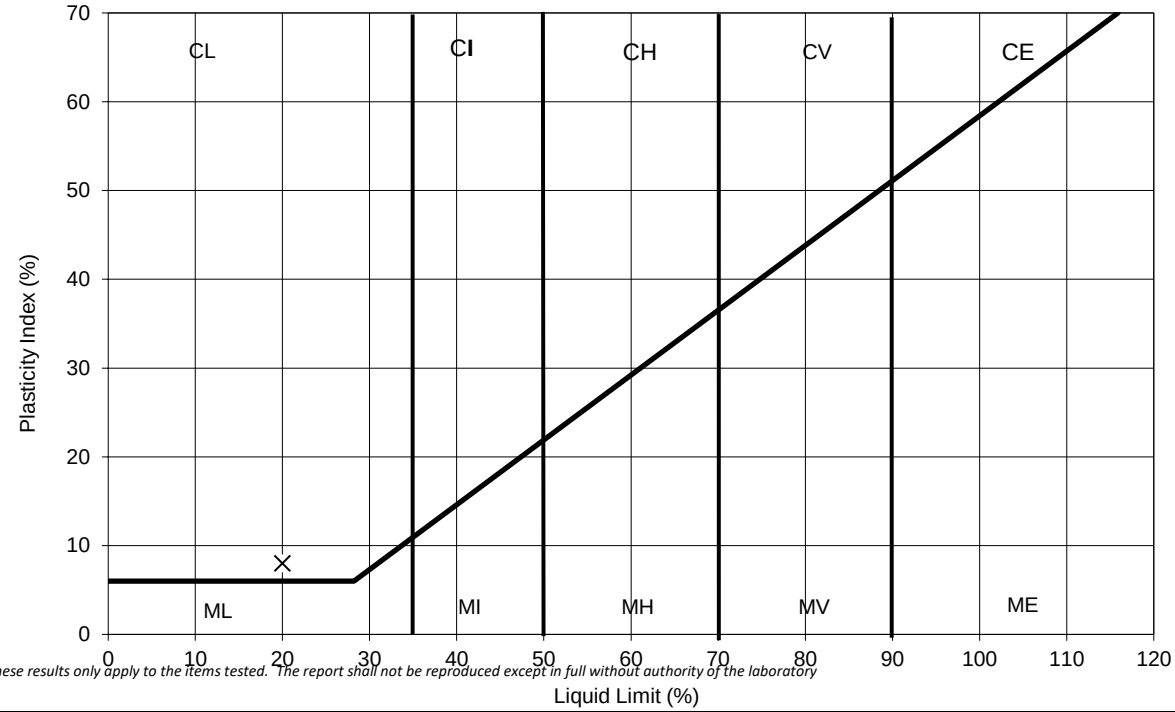
				Job No.	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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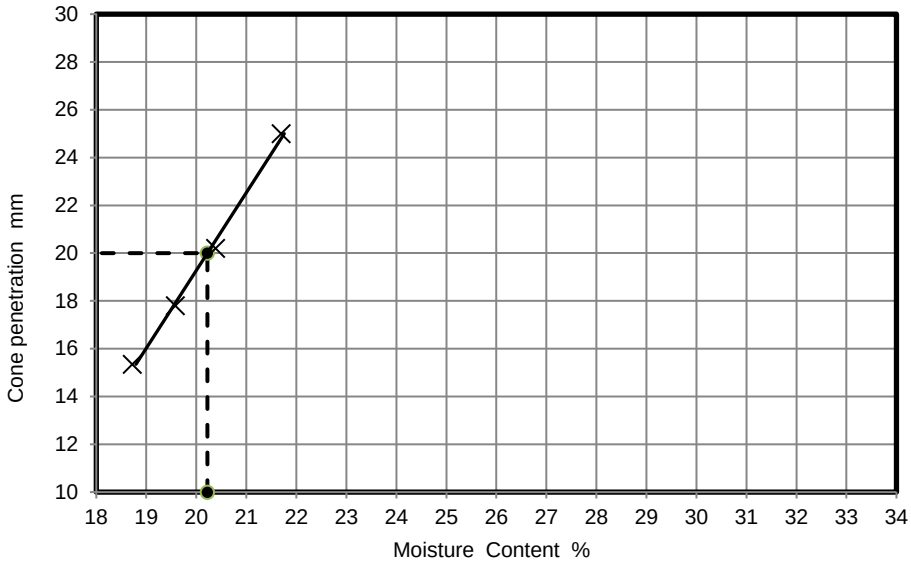
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

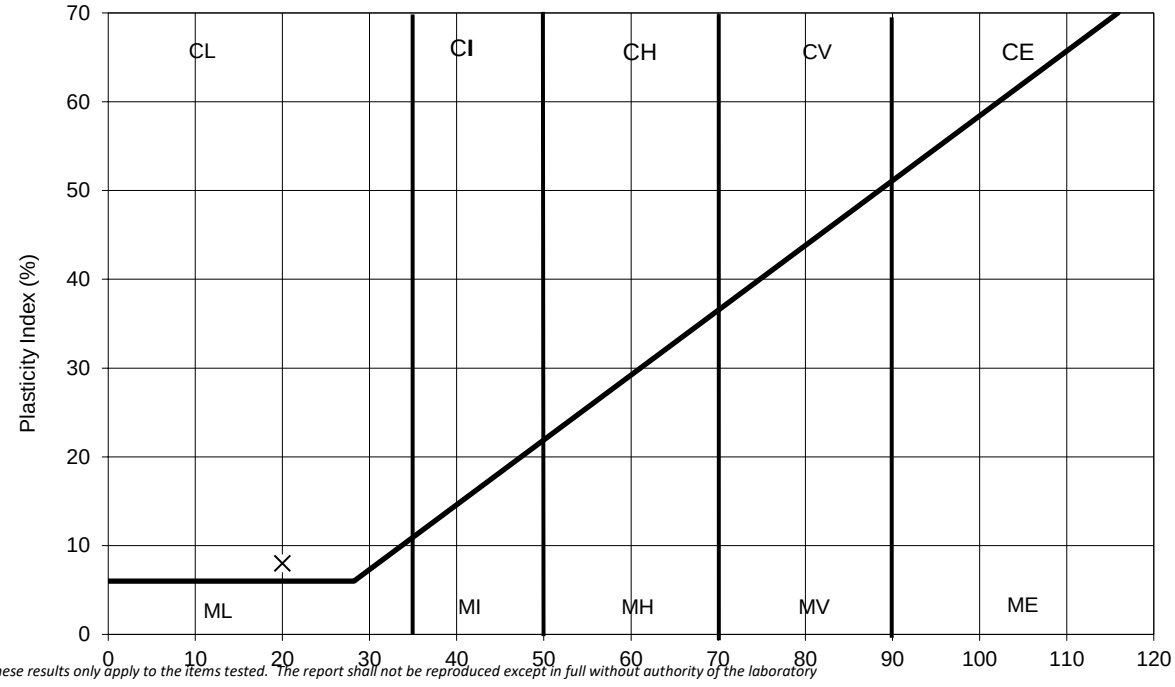
				Job No.	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

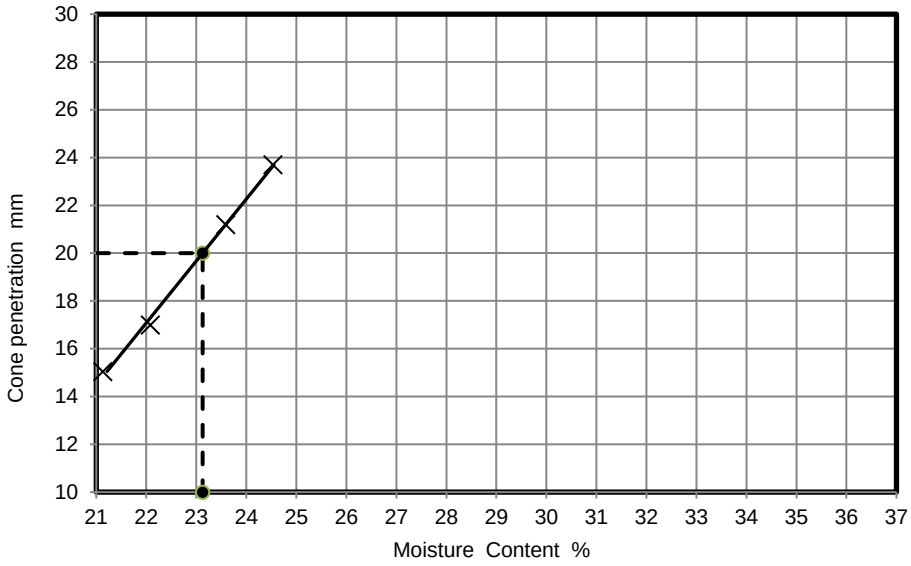
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

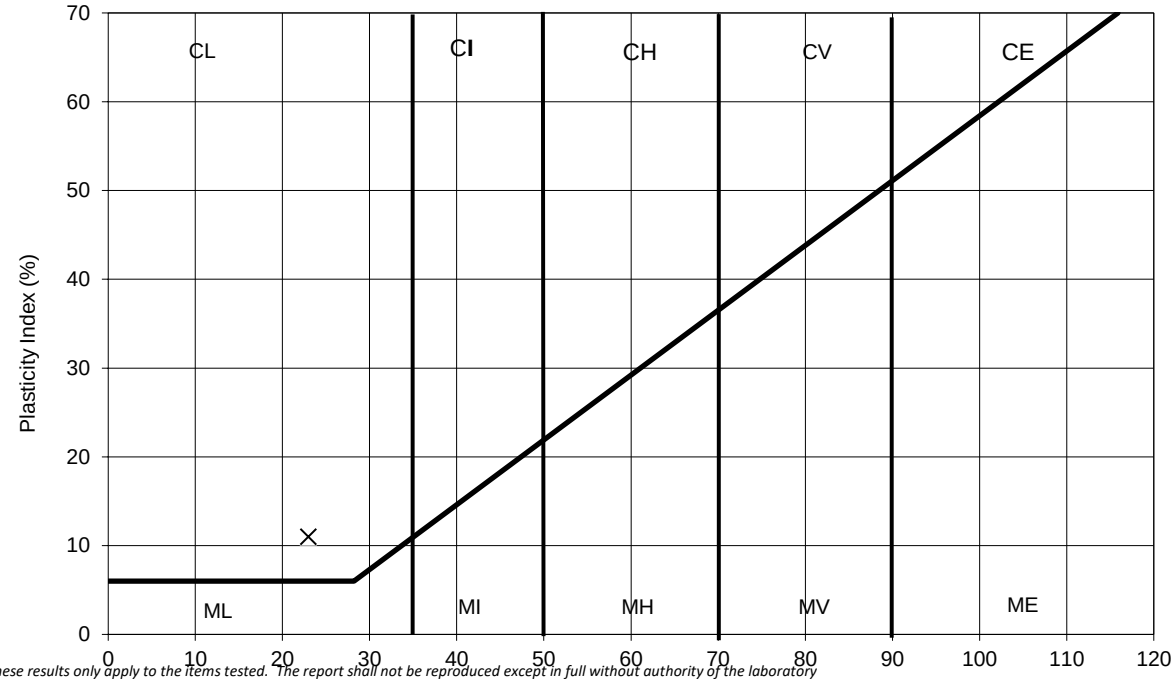
				Job No.	32282
				Borehole/Pit No.	TP-97505
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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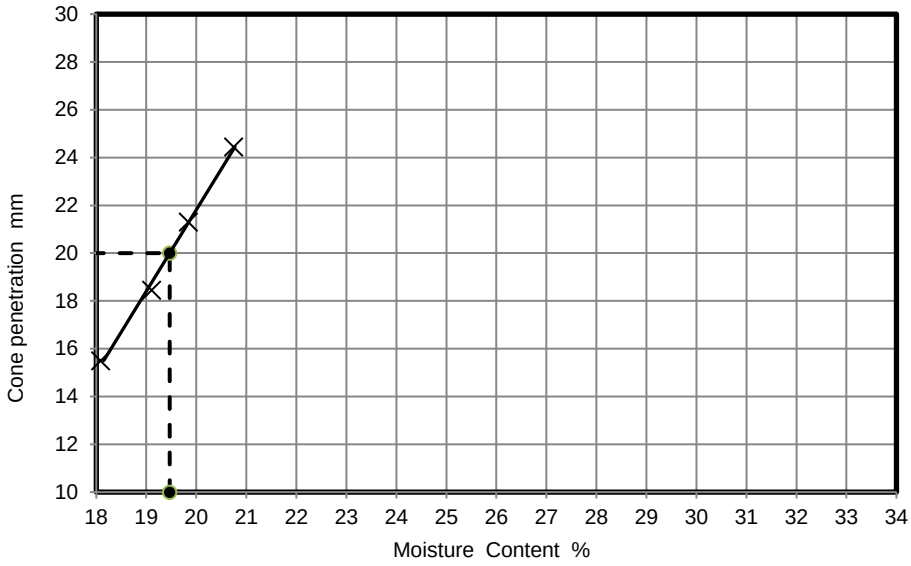
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/09/2022

Job No. 32282

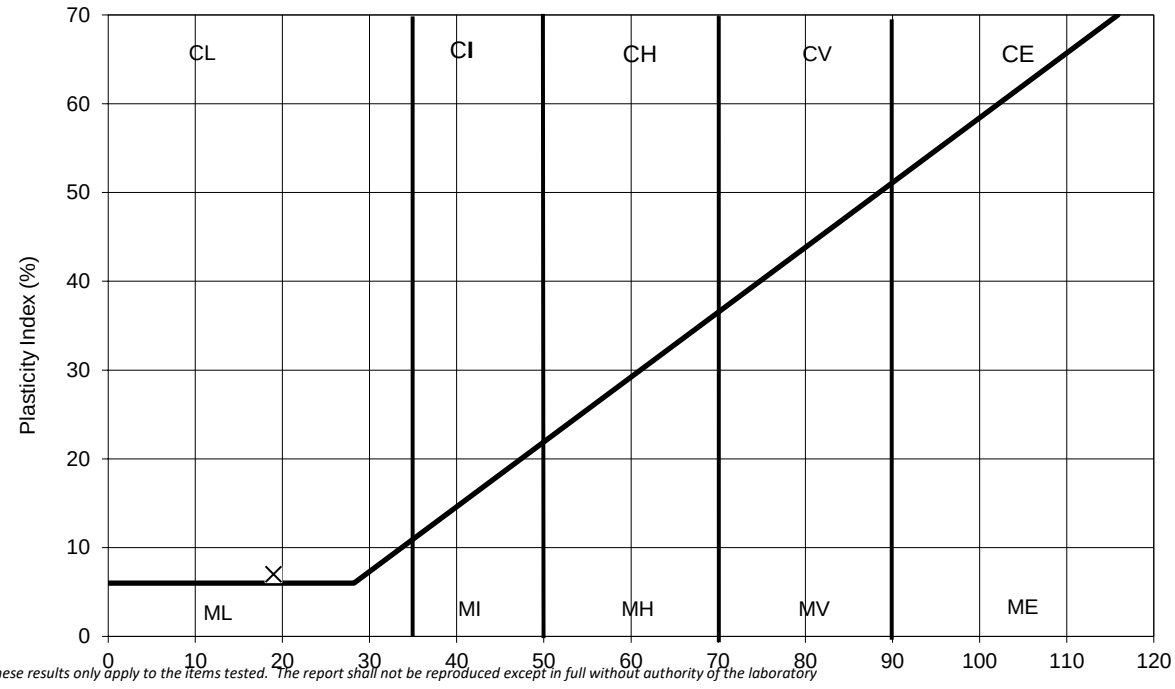
Borehole/Pit No. TP-97505



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**40**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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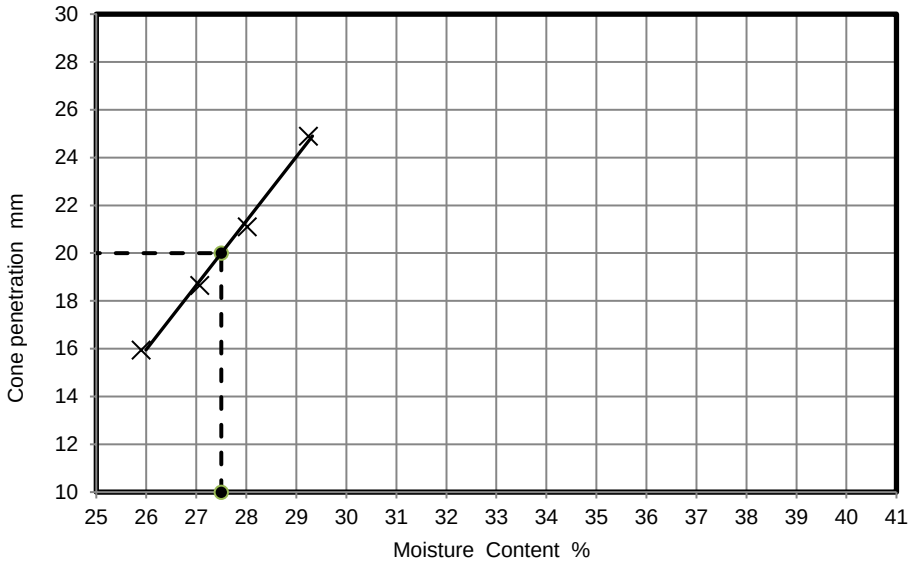
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

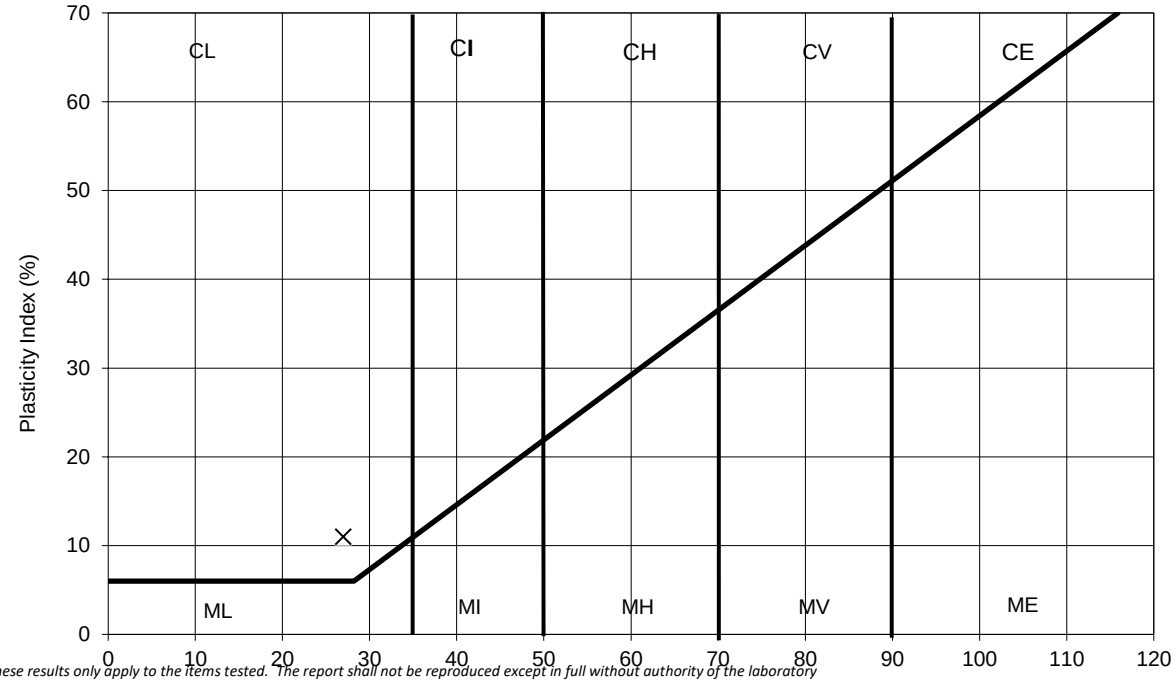
Job No.	32282				
Borehole/Pit No.	TP-97602				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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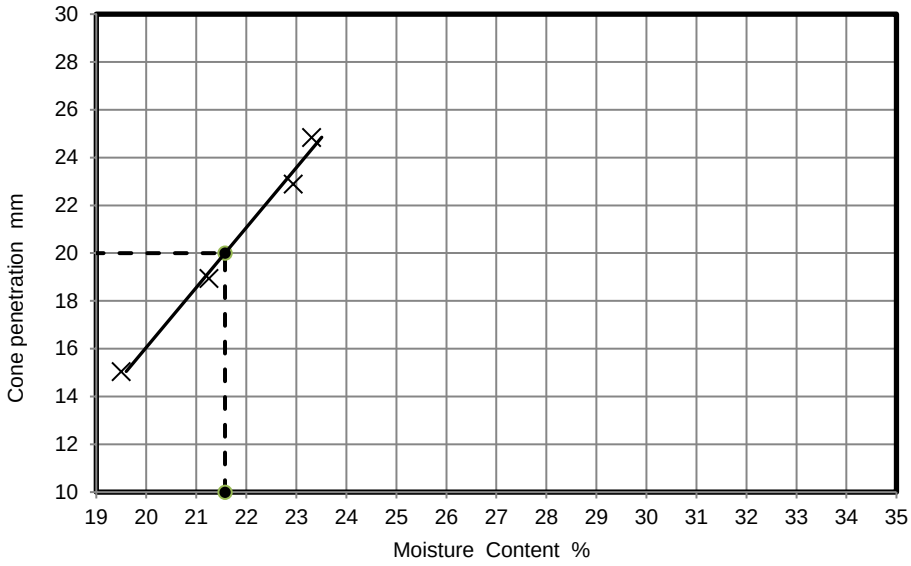
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

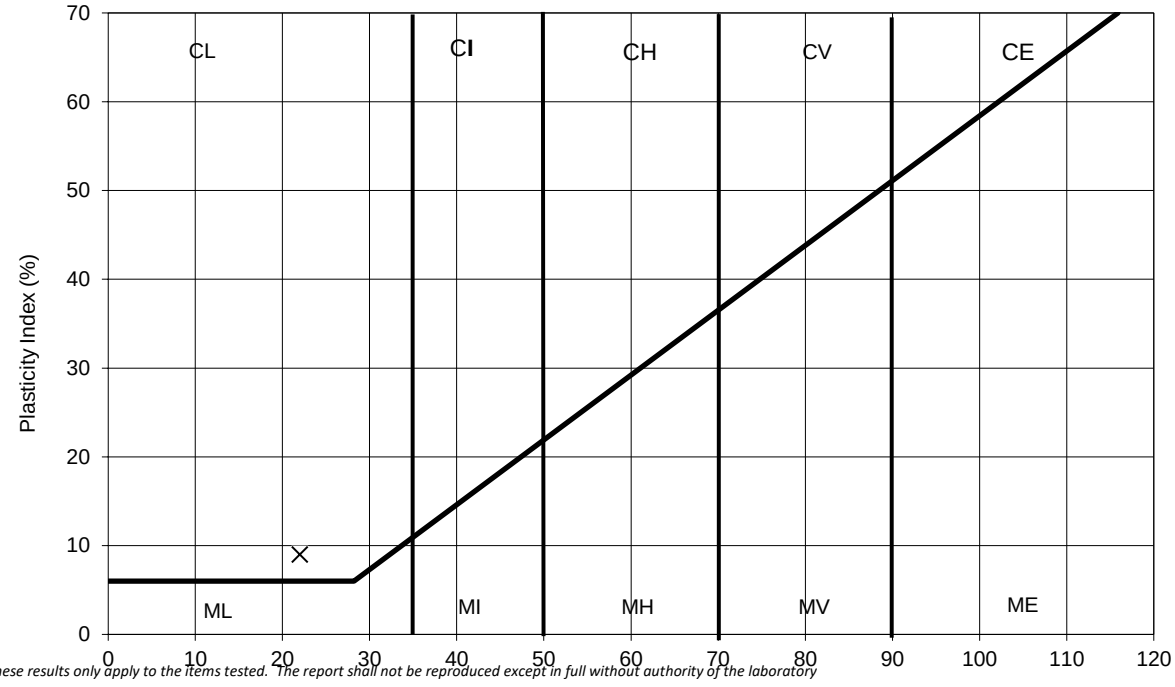
				Job No.	32282
				Borehole/Pit No.	TP-97602
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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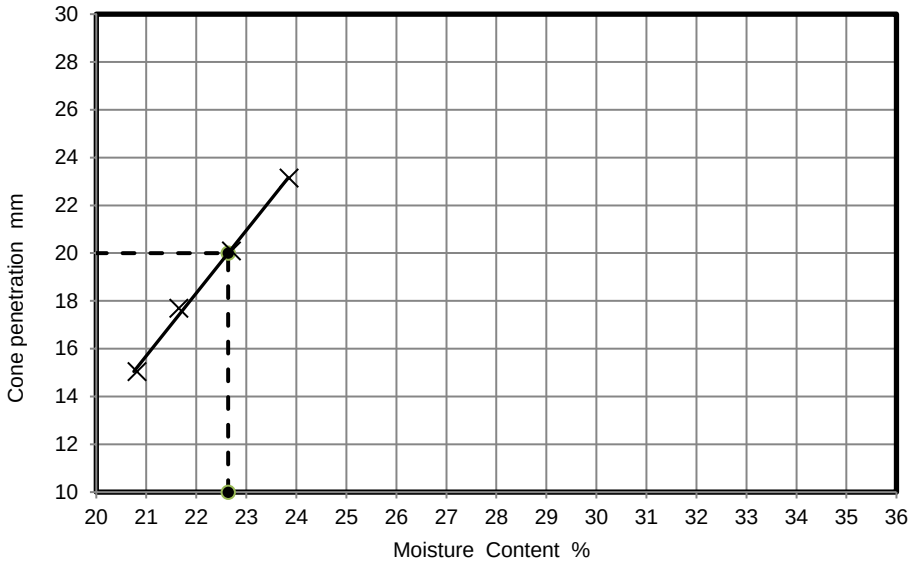
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

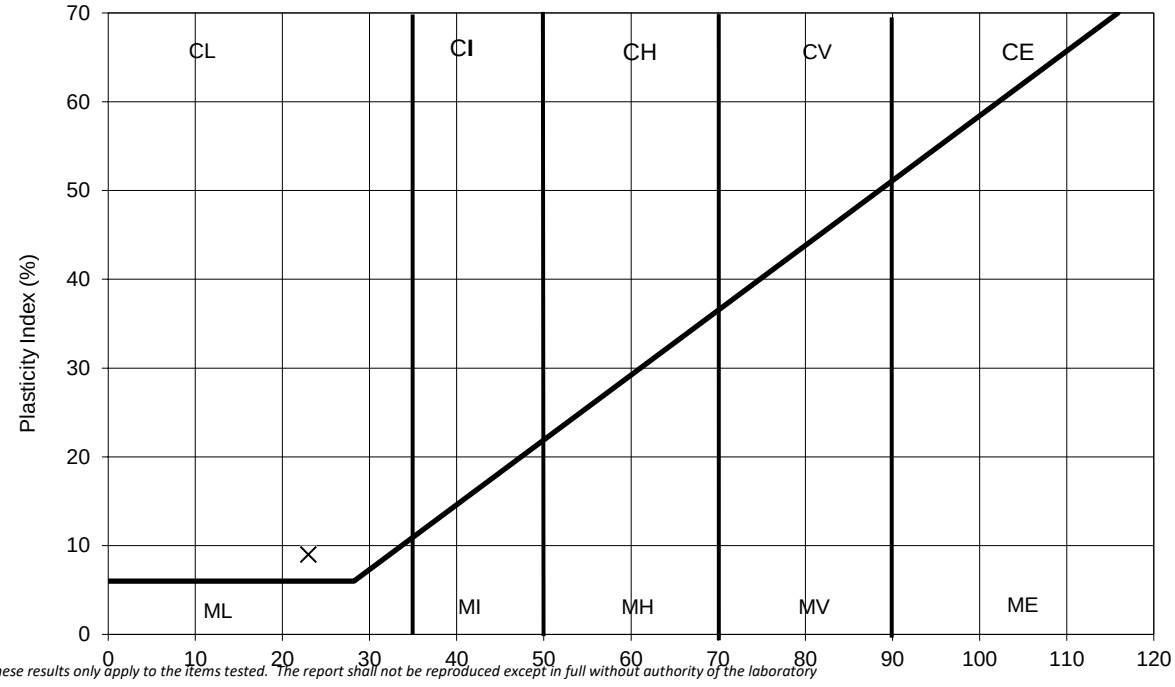
				Job No.	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**90**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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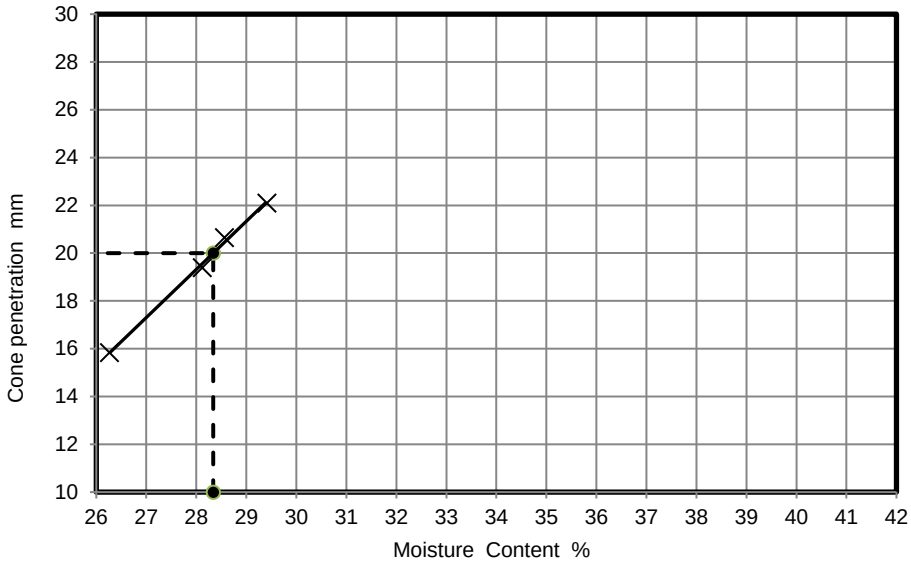
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

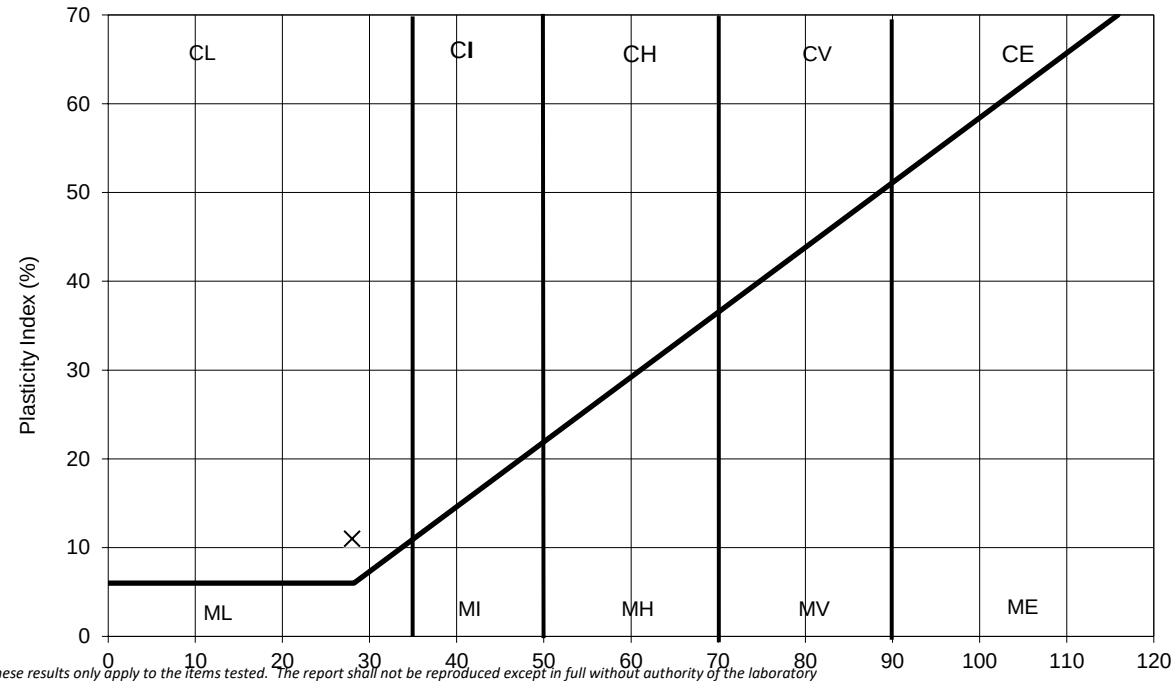
				Job No.	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Grey and brown mottled silty CLAY with sandy patches and rare fine gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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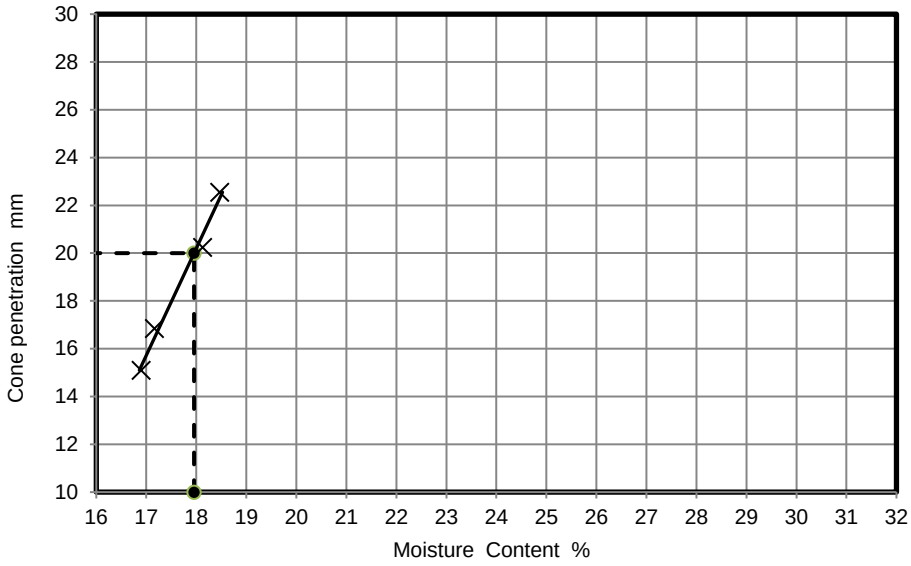
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

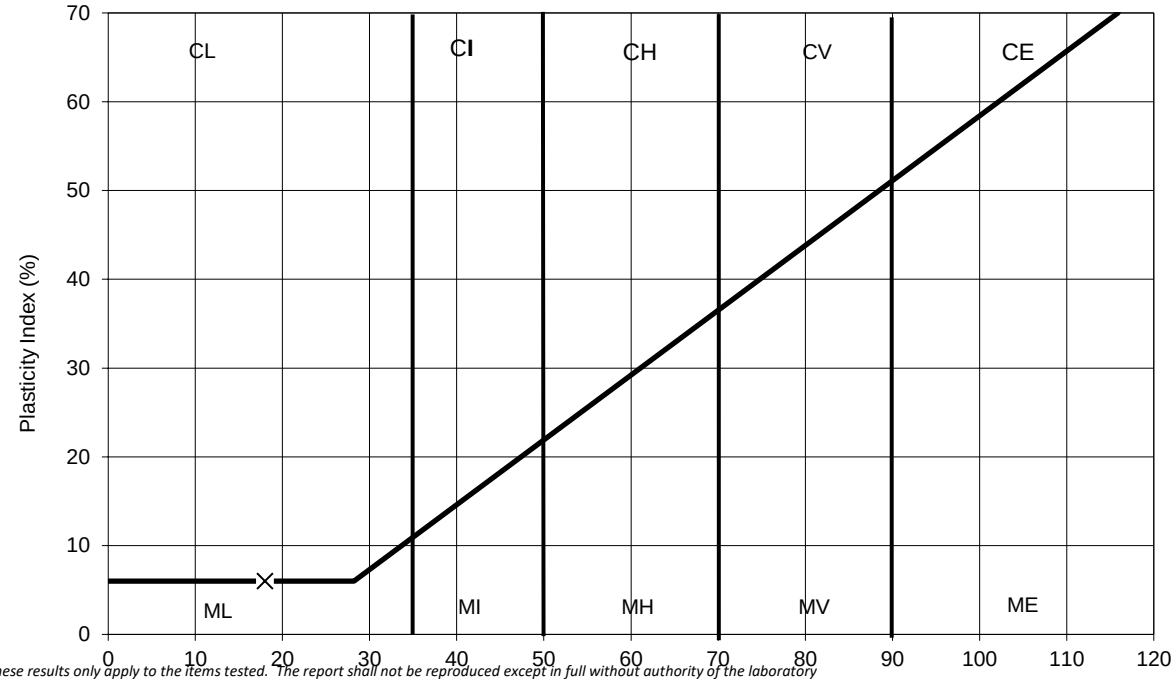
				Job No.	32282
				Borehole/Pit No.	TP-97777
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
Date: 15/12/2022

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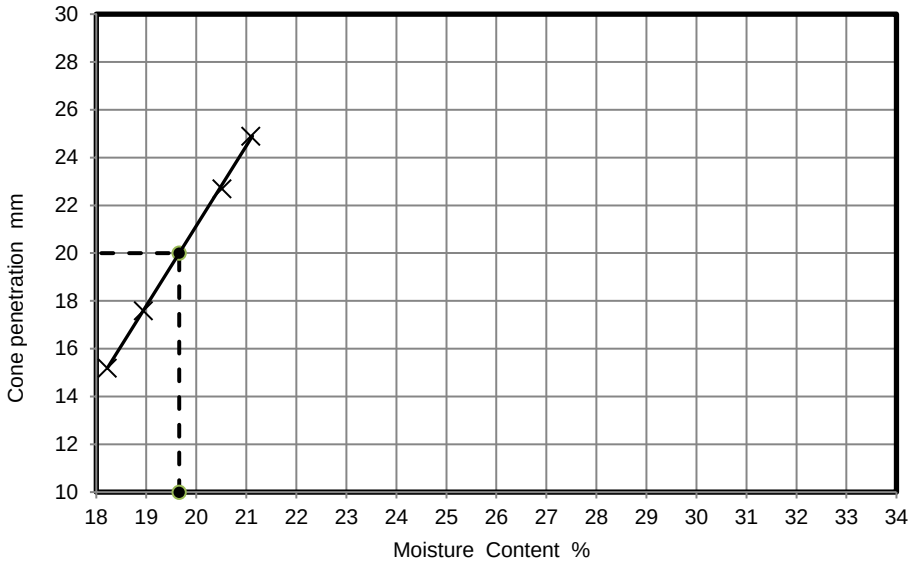
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

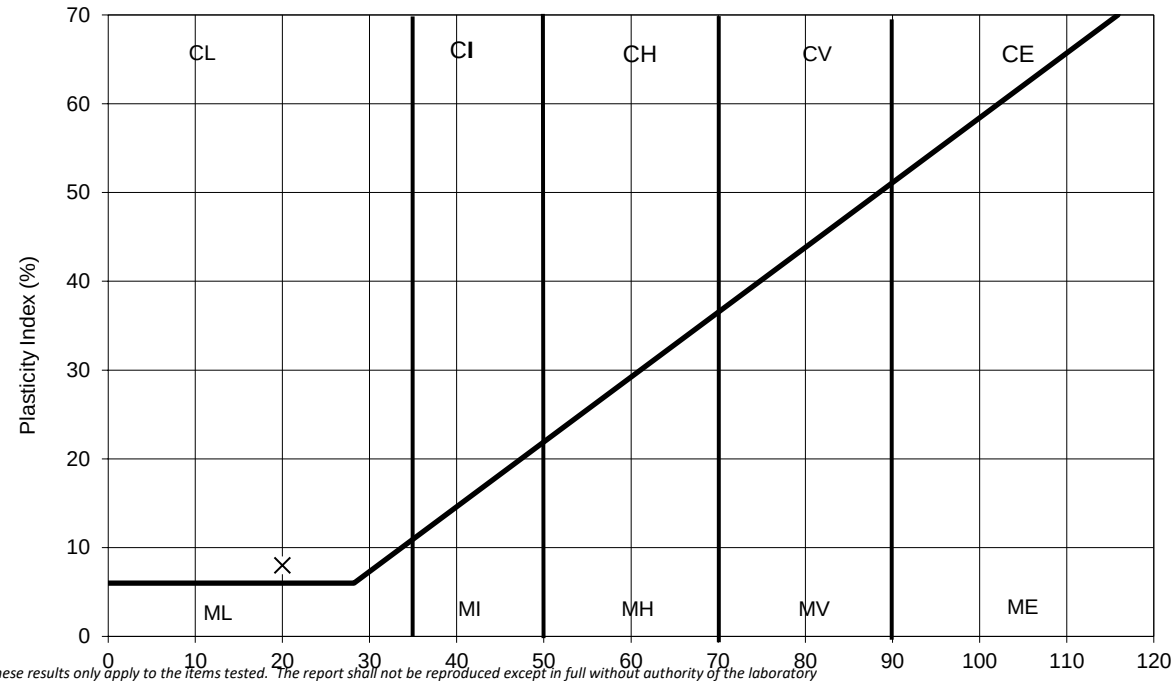
				Job No.	32282
				Borehole/Pit No.	TP-97998
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Dark greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**82**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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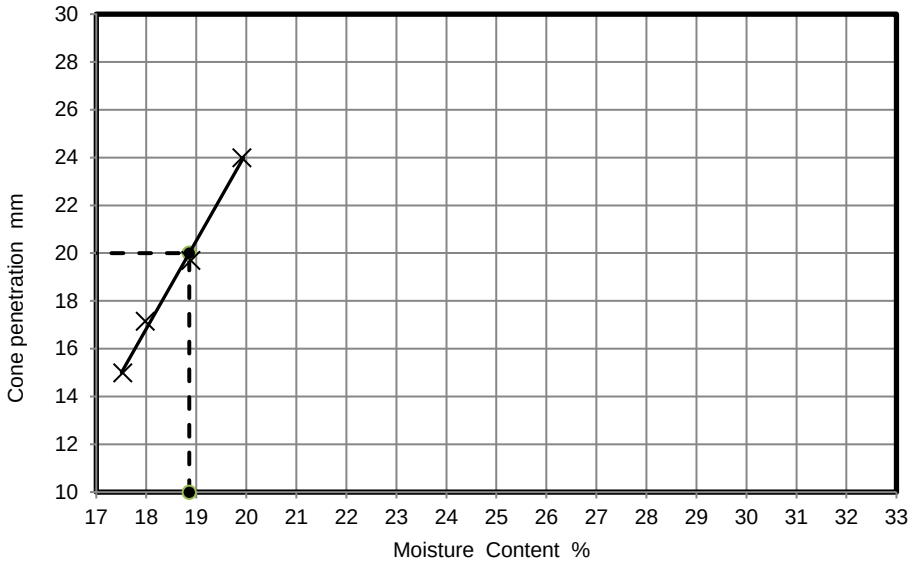
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

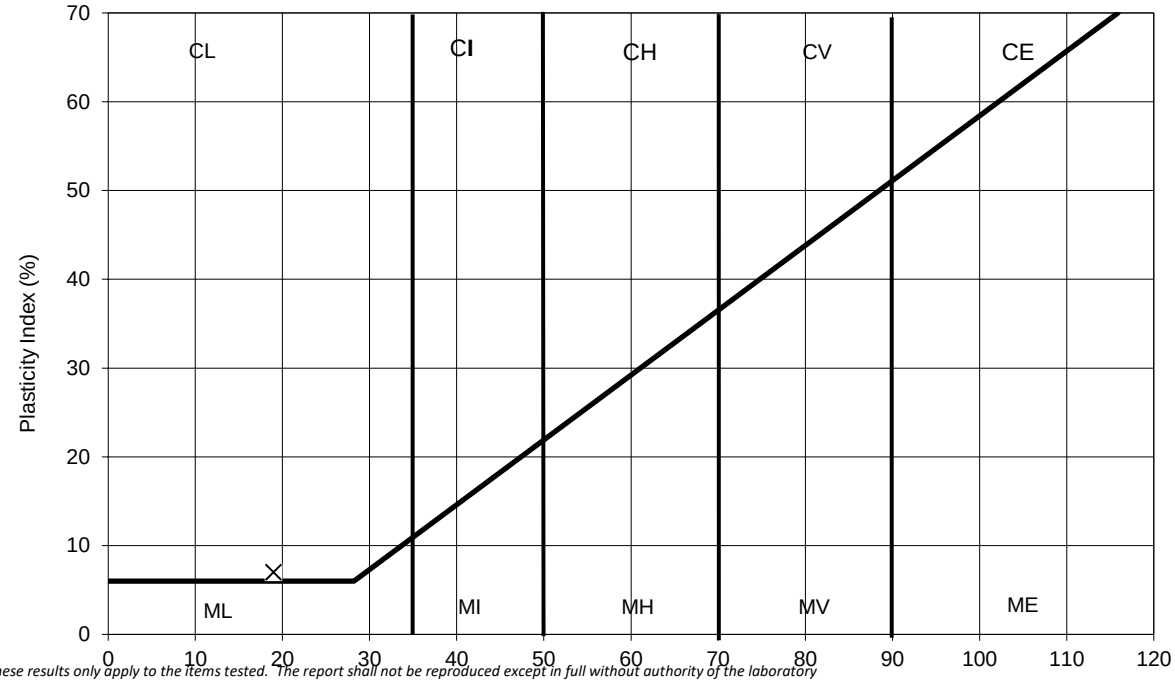
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Job No.	32282
				Borehole/Pit No.	TP-98105
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**7.0**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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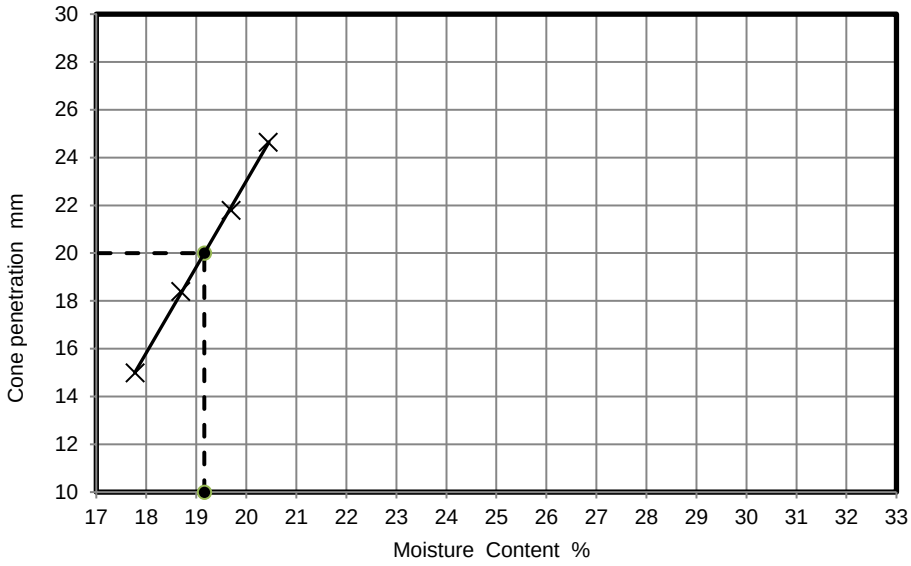
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

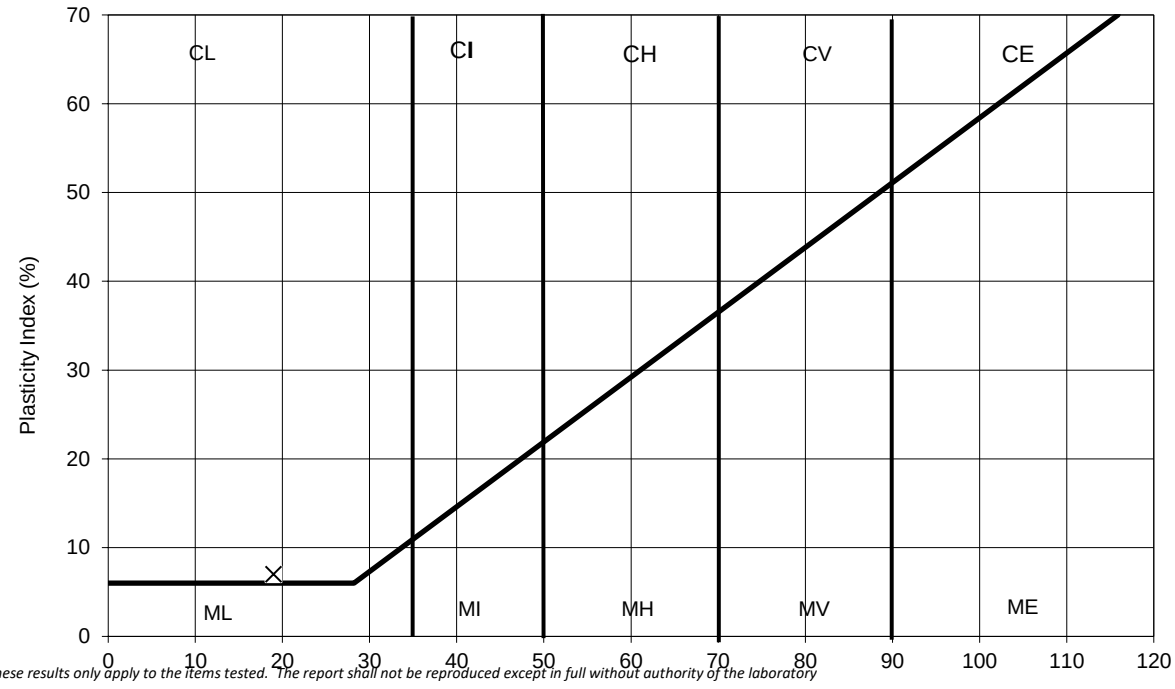
Job No.	32282				
Borehole/Pit No.	TP-98105				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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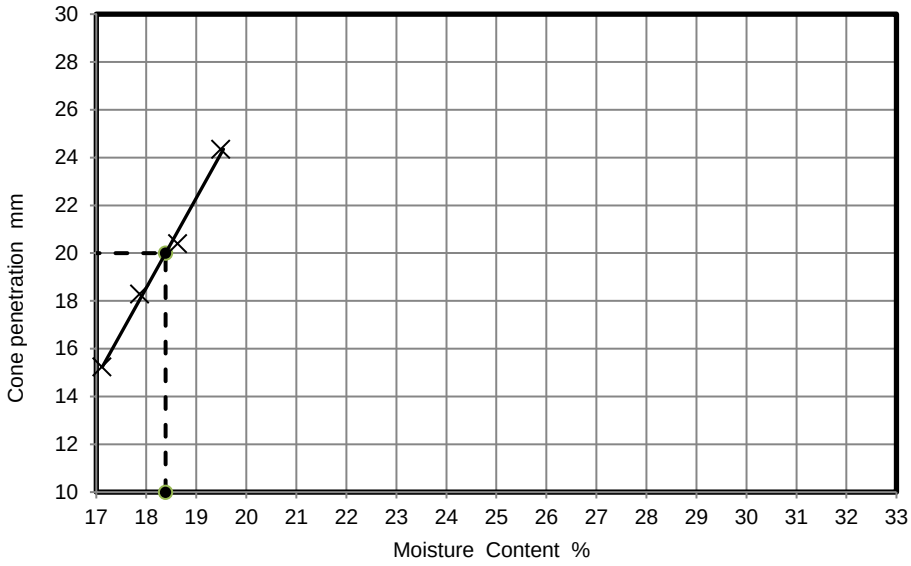
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022

Job No. 32282

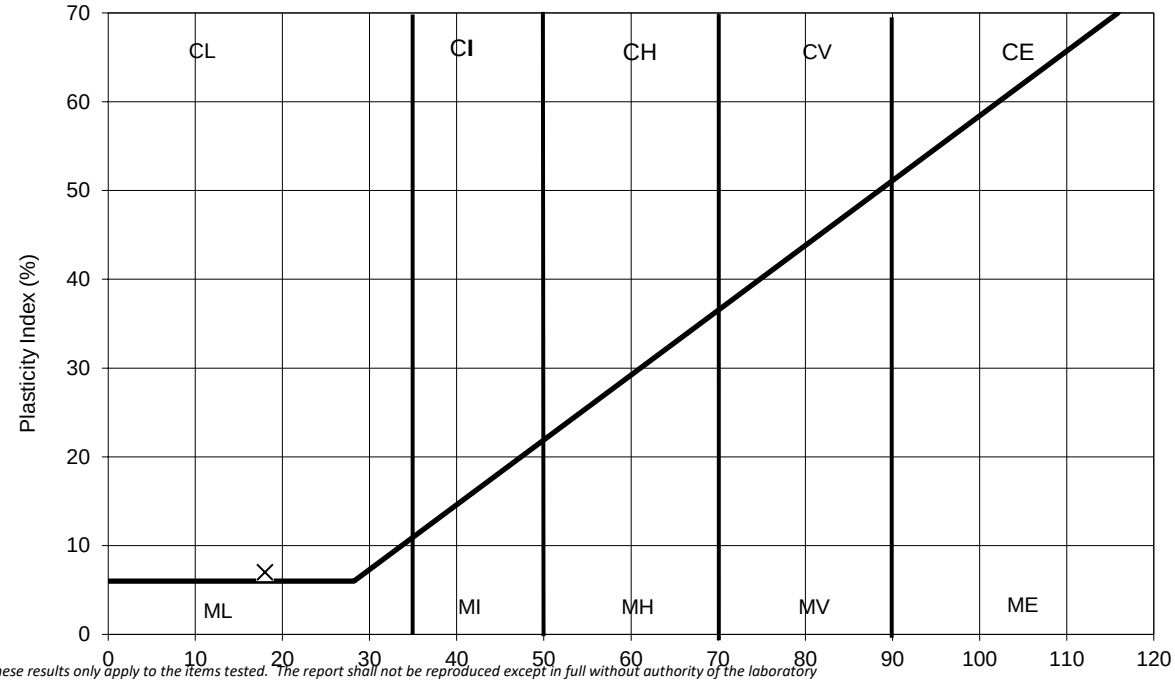
Borehole/Pit No. TP-98105



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

2519

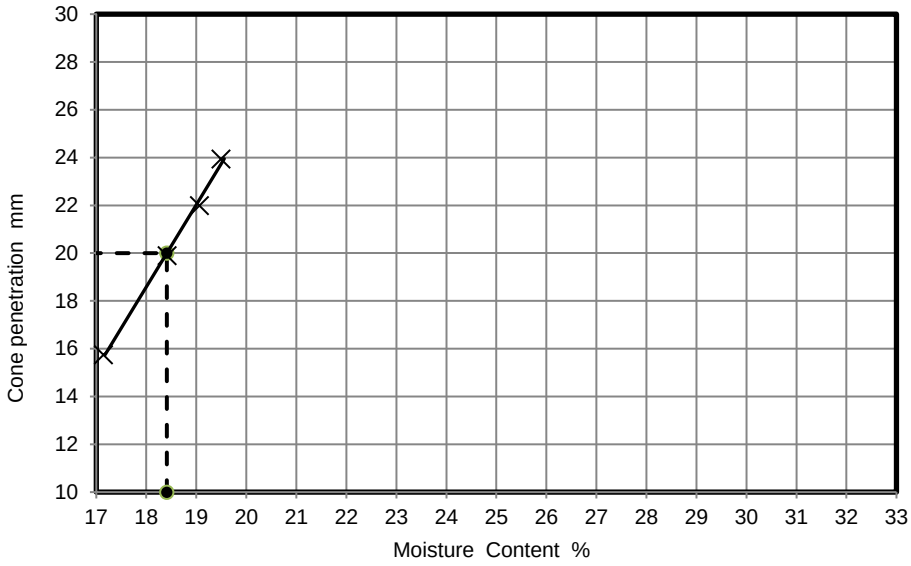
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Light greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

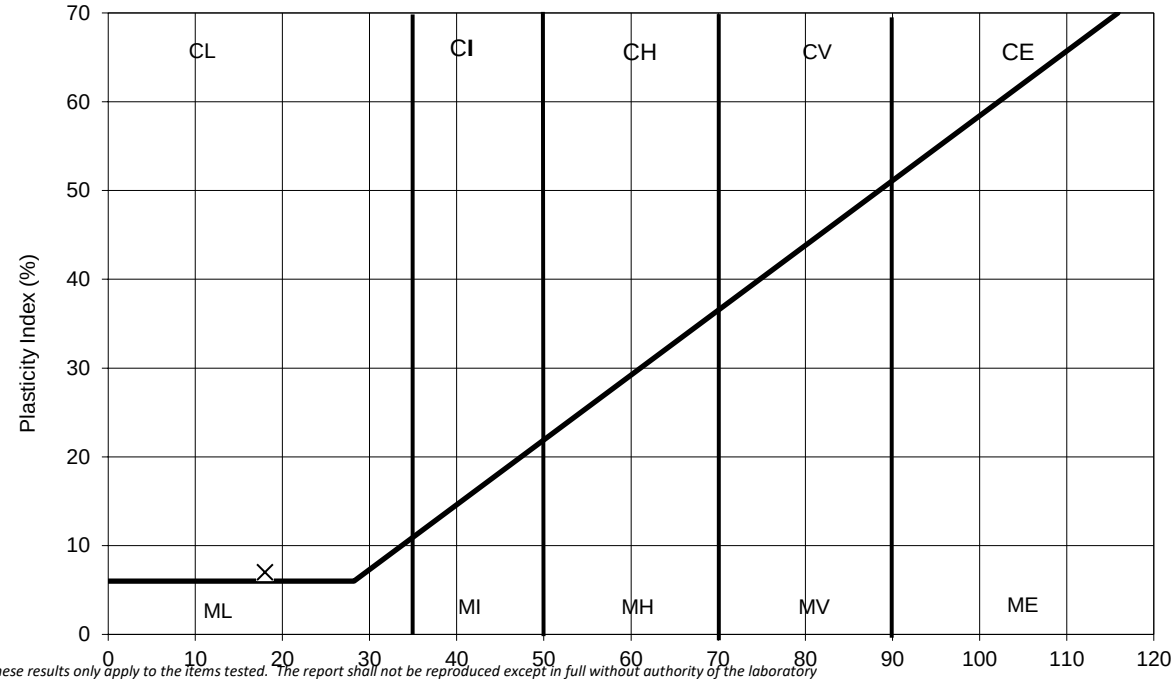
Borehole/Pit No. TP-98205



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

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UKAS TESTING

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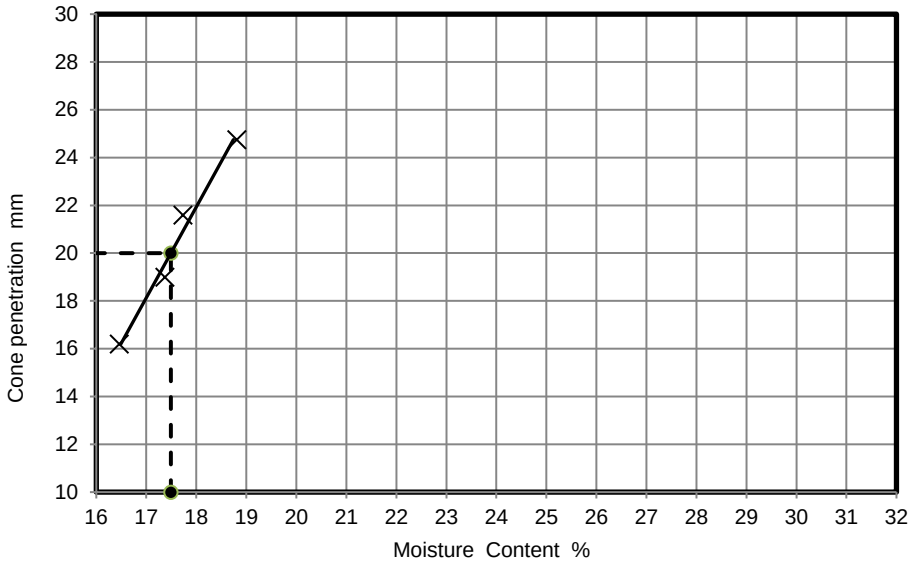
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

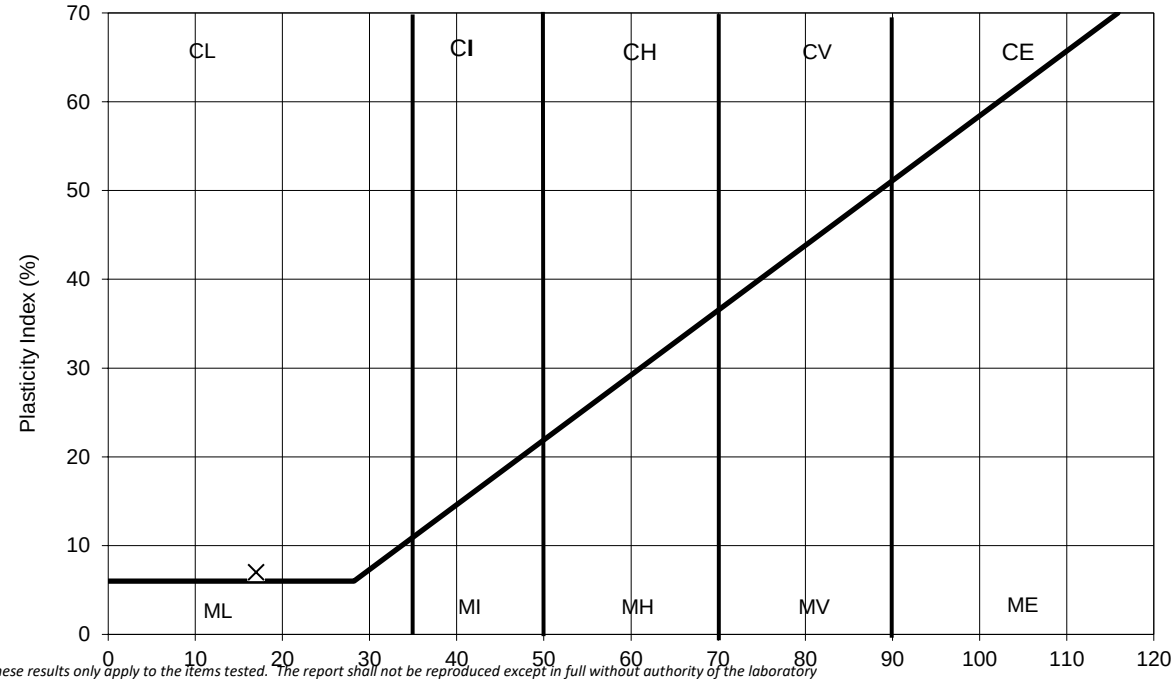
Job No.	32282				
Borehole/Pit No.	TP-98205				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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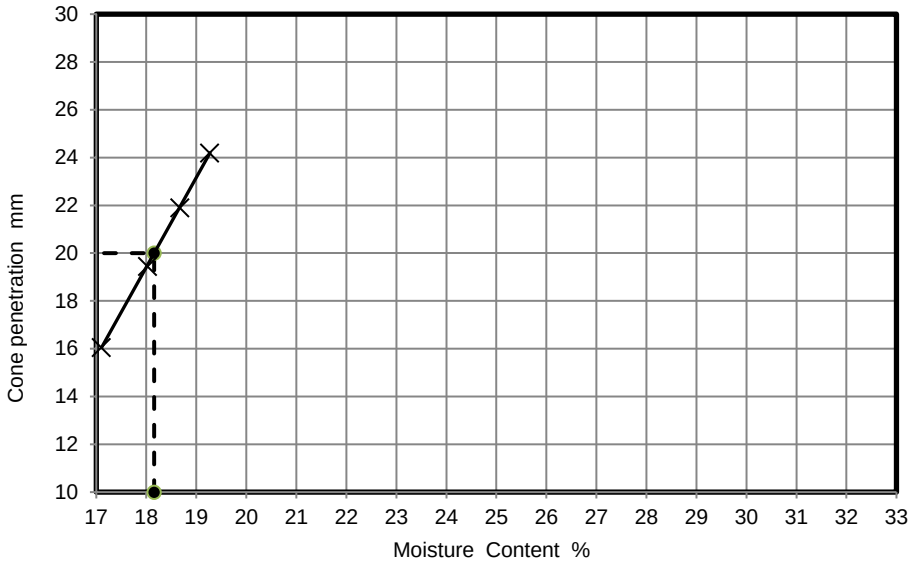
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey and orangish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

Job No. 32282

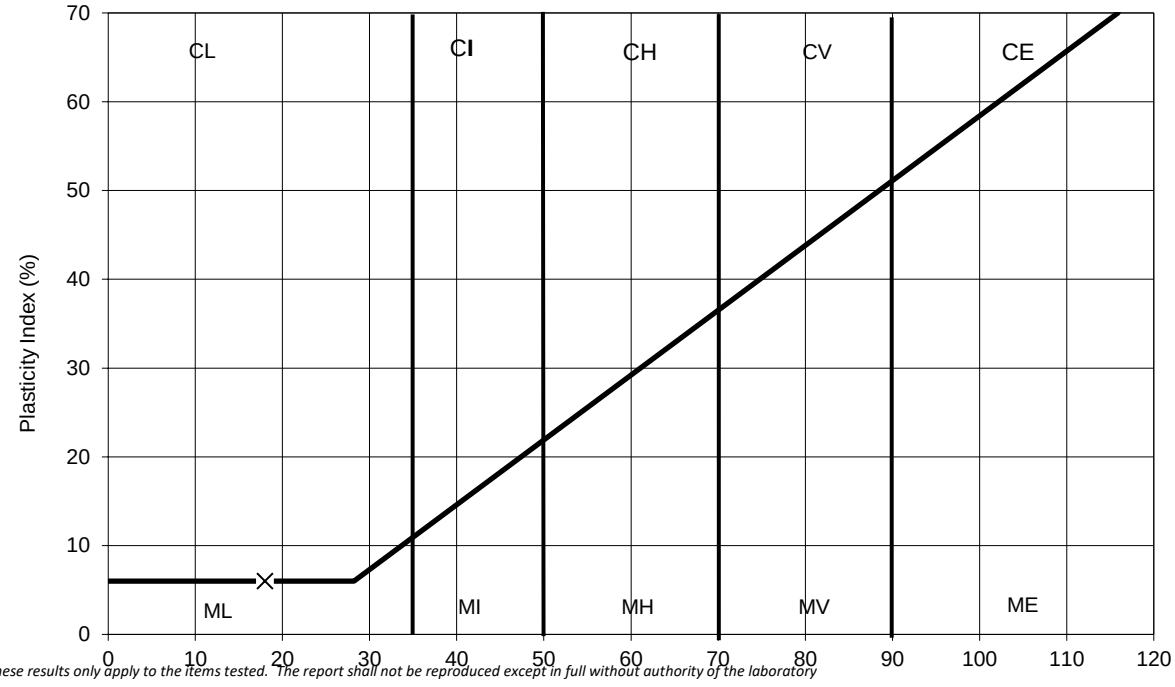
Borehole/Pit No. TP-98271



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

Date: 15/12/2022

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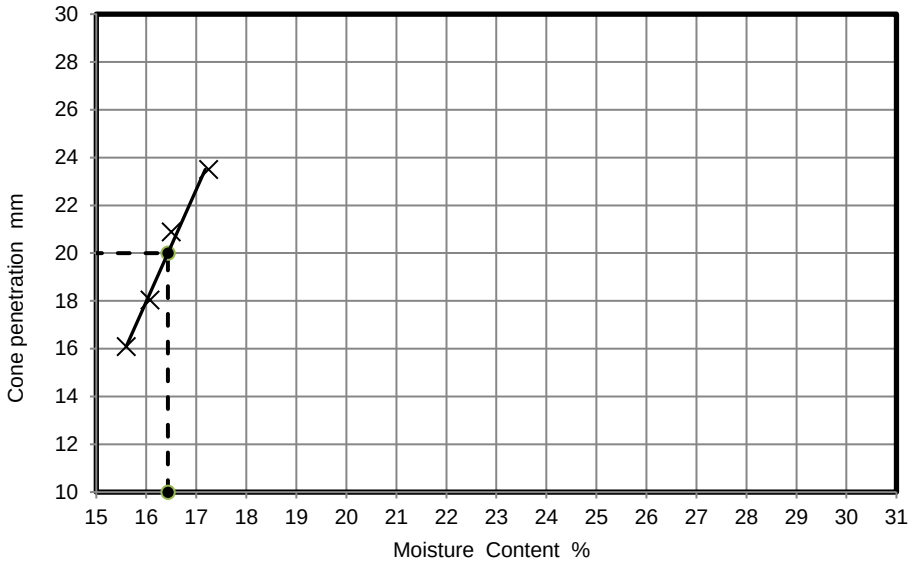
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-98271
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

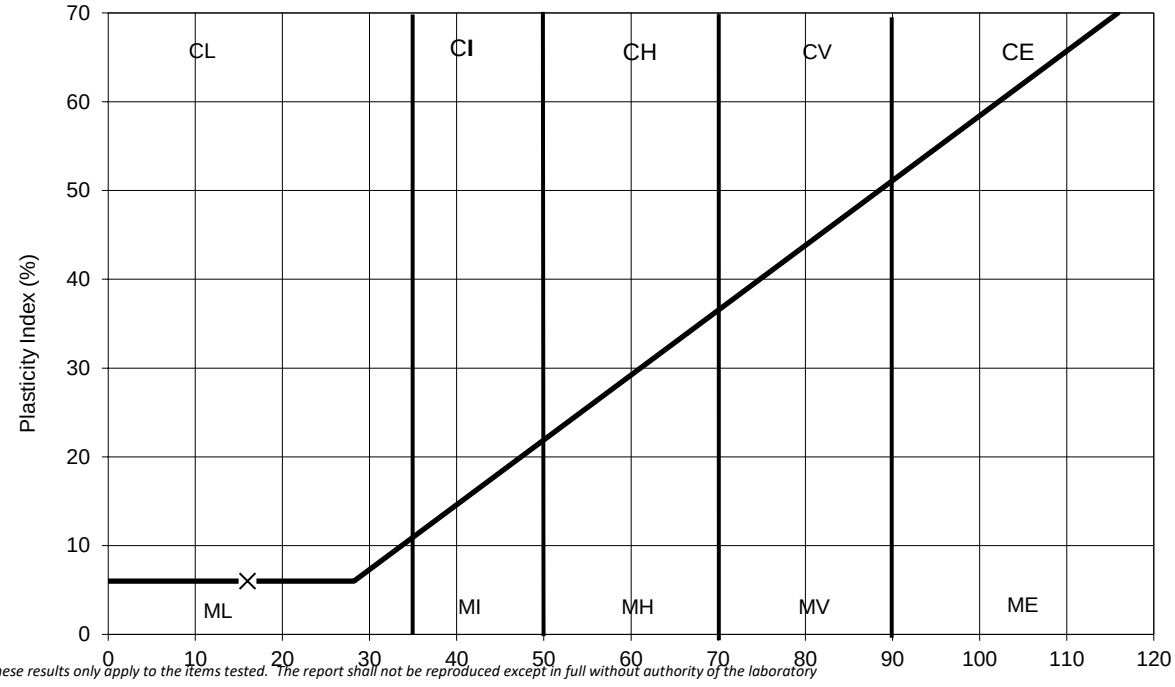


NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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UKAS TESTING

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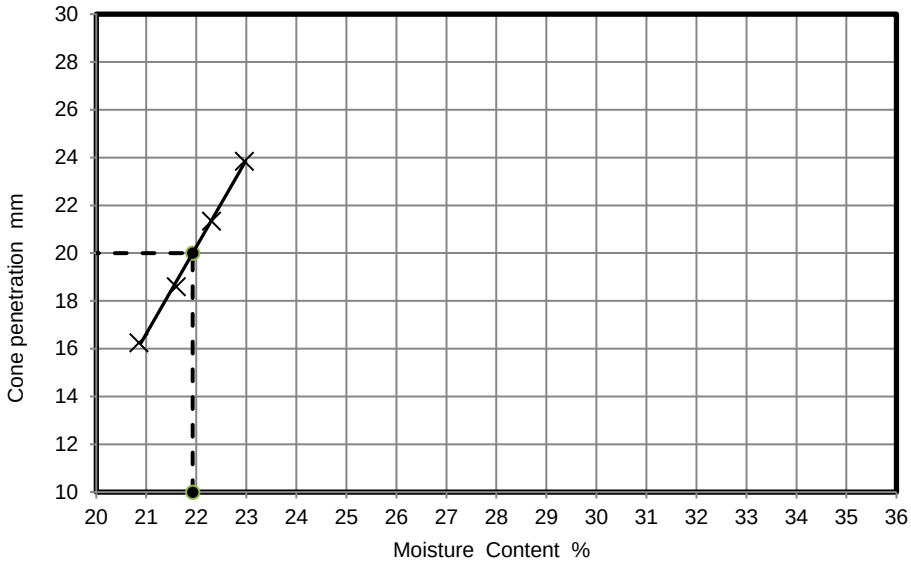
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

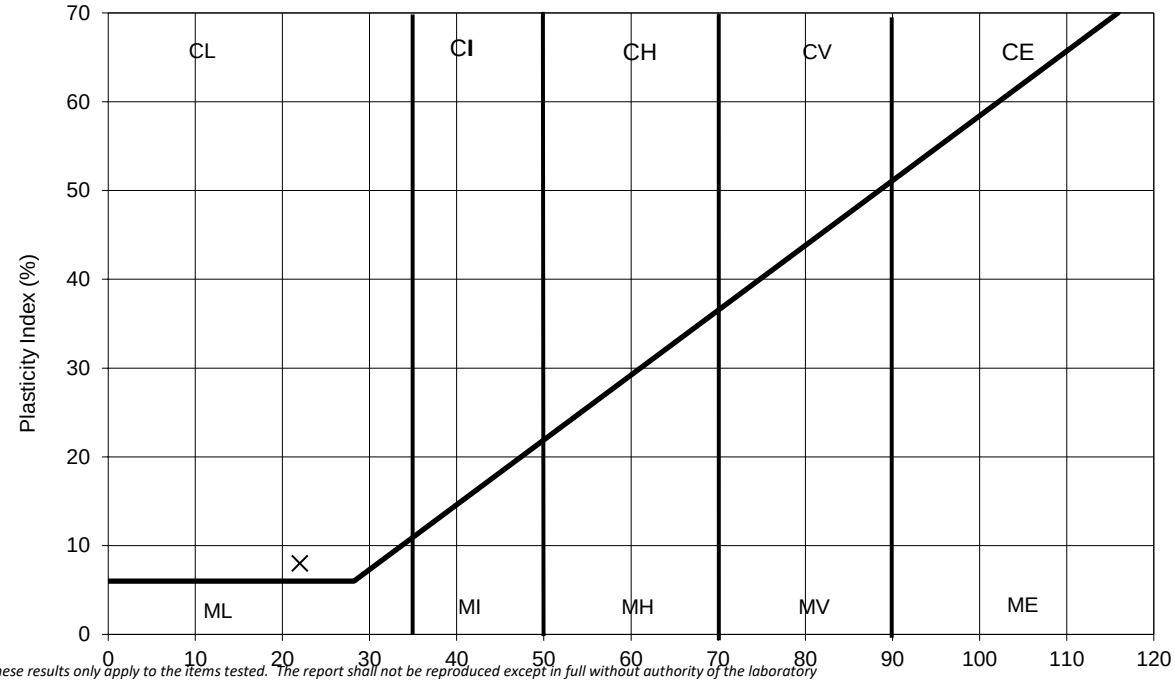
				Job No.	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	13/10/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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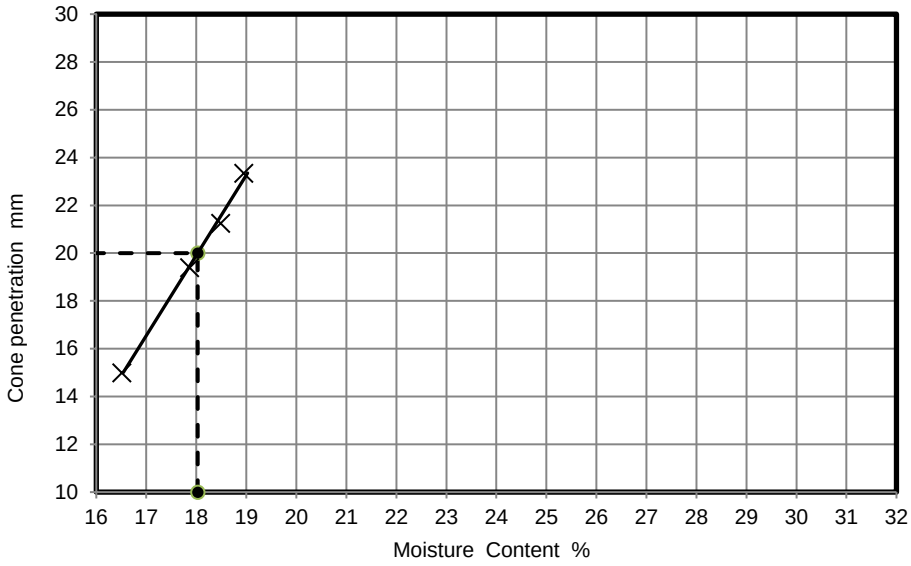
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

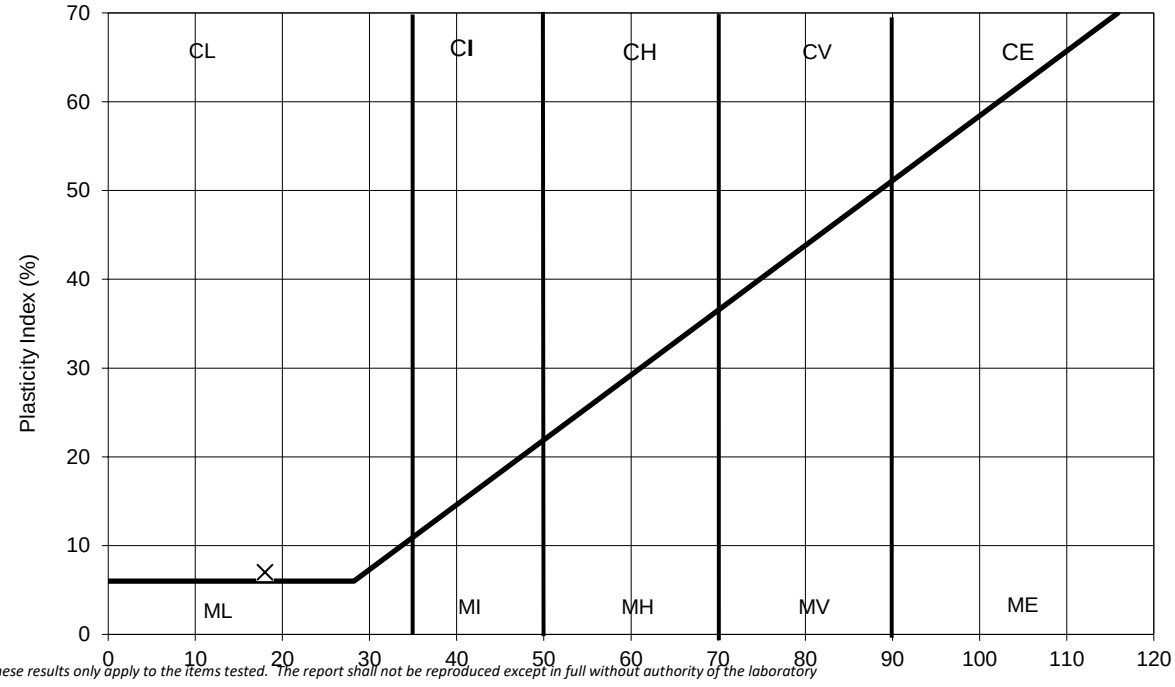
				Job No.	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Bluish grey and greenish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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UKAS TESTING

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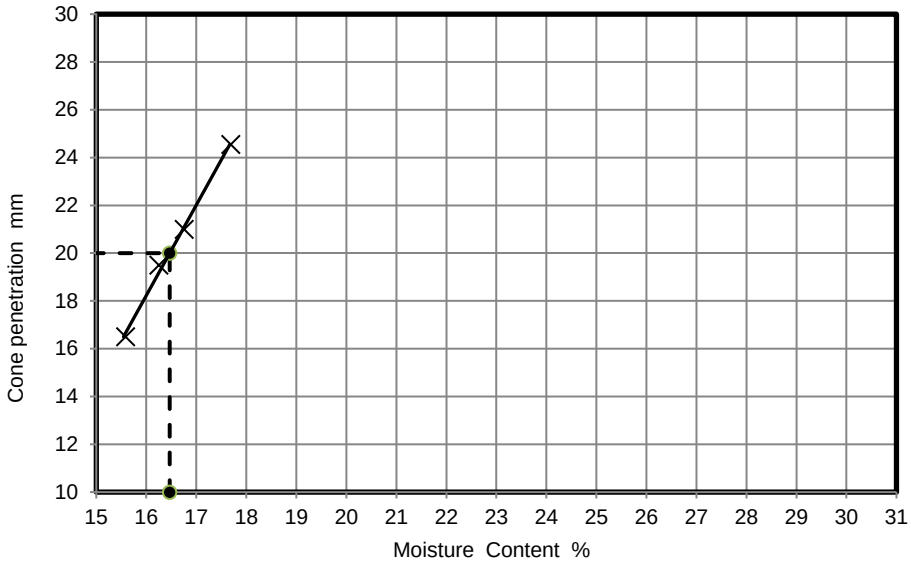
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

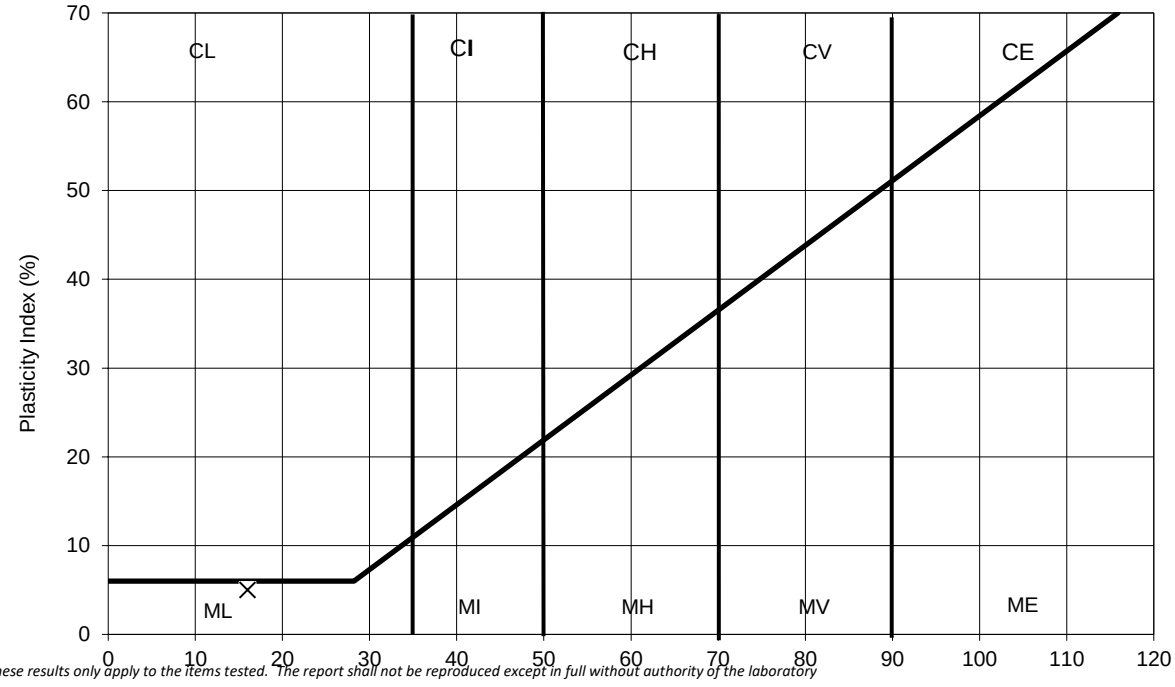
				Job No.	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**16**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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UKAS TESTING

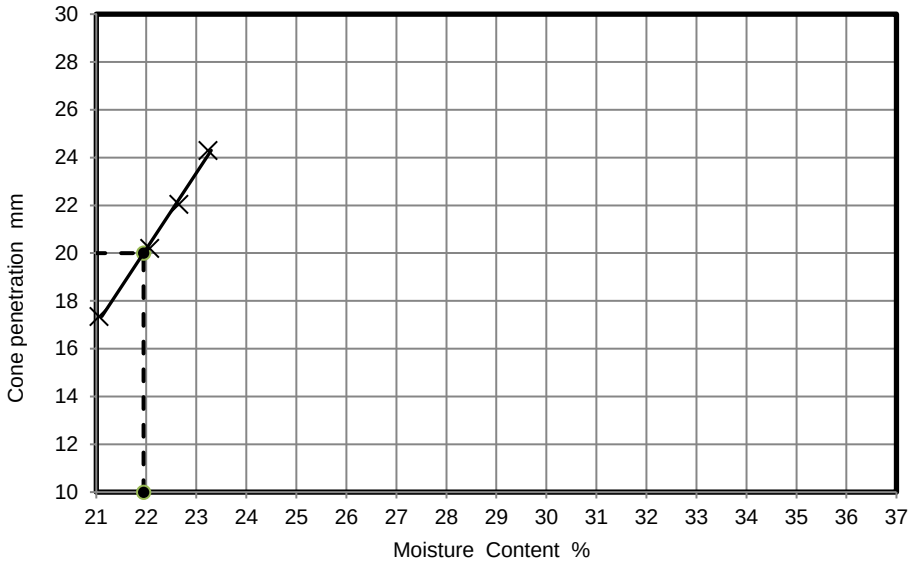
2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Orangish brown and light grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022

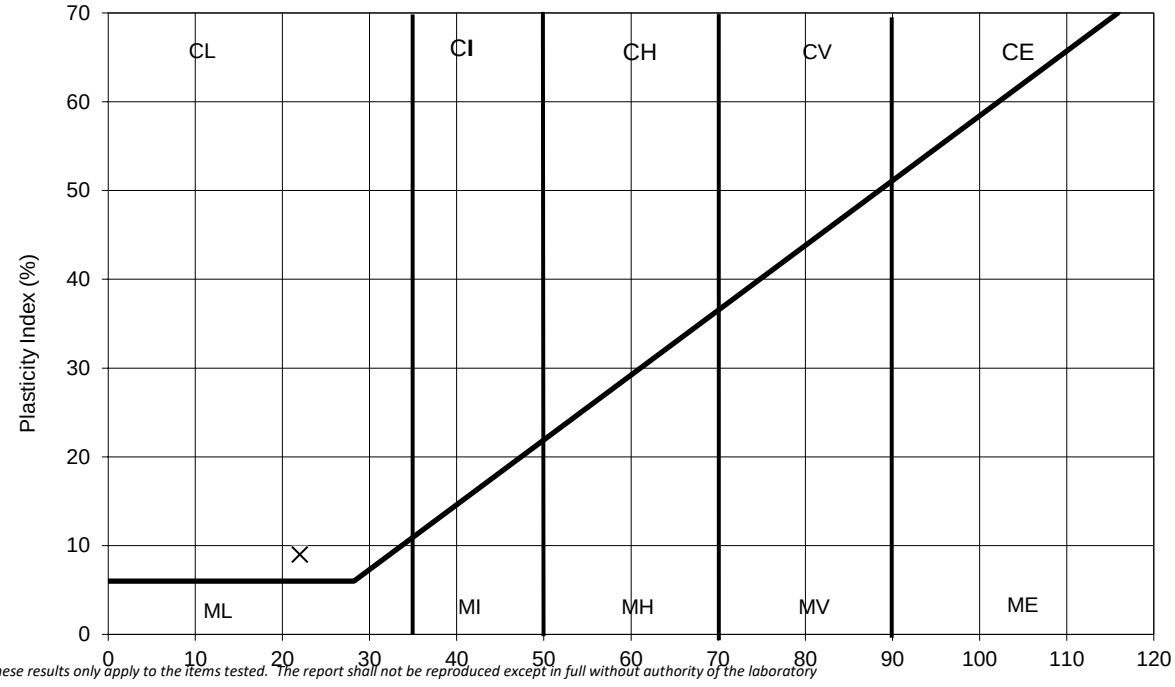
Job No.	32282
Borehole/Pit No.	TP-98502



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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UKAS TESTING

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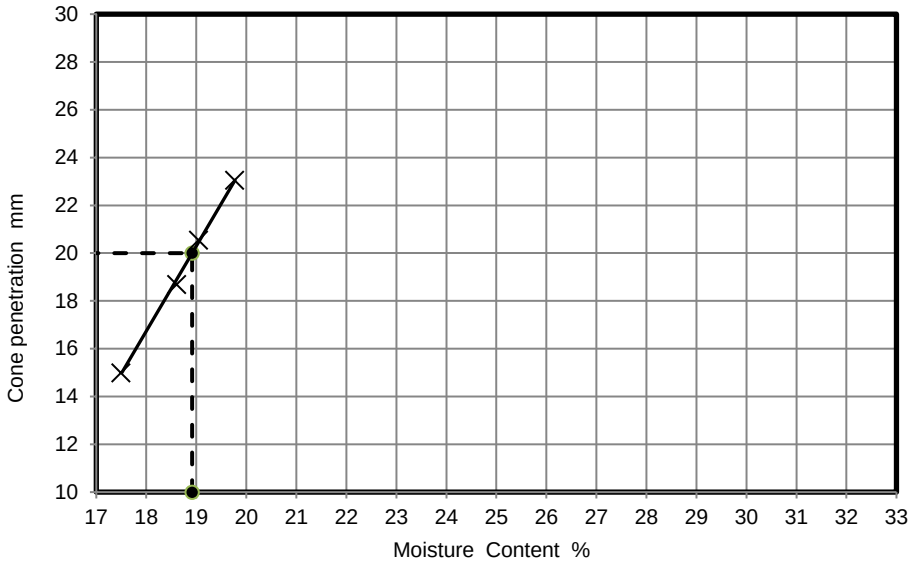
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

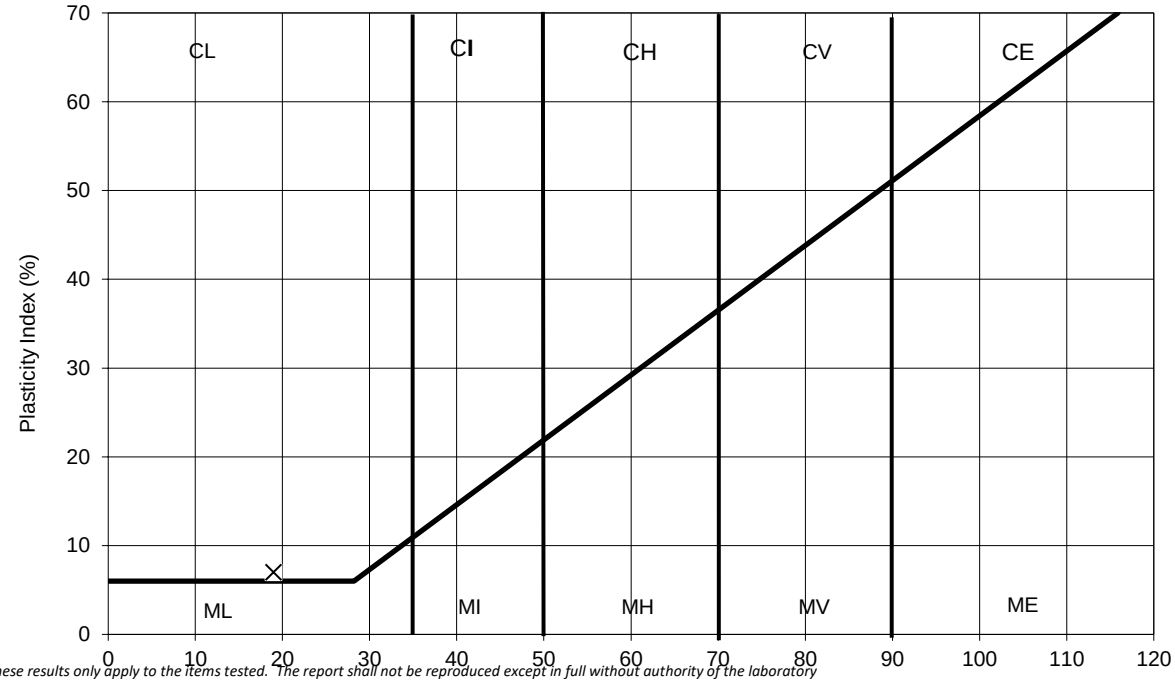
				Job No.	32282
				Borehole/Pit No.	TP-98502
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Light greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	17/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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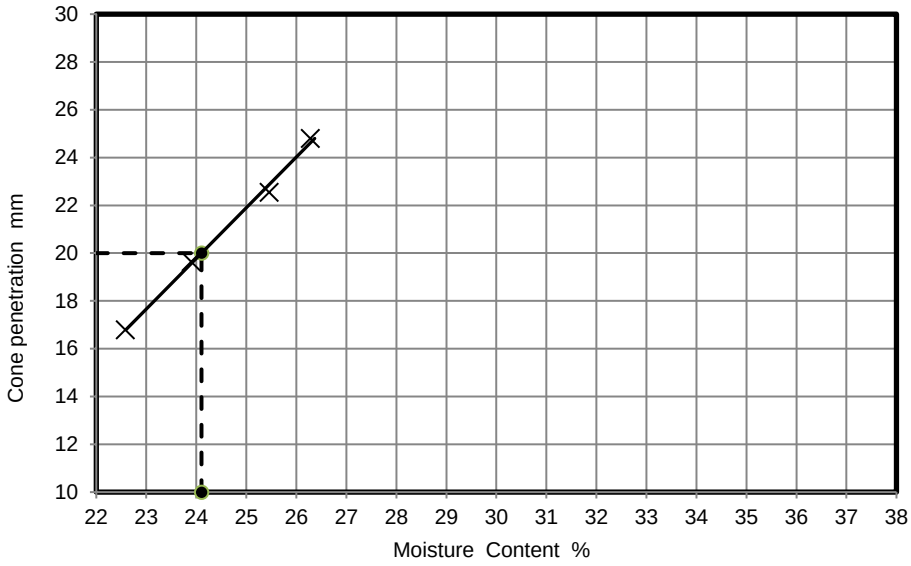
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fm and sub-anguar to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	11/10/2022

Job No. 32282

Borehole/Pit No. TP-98602

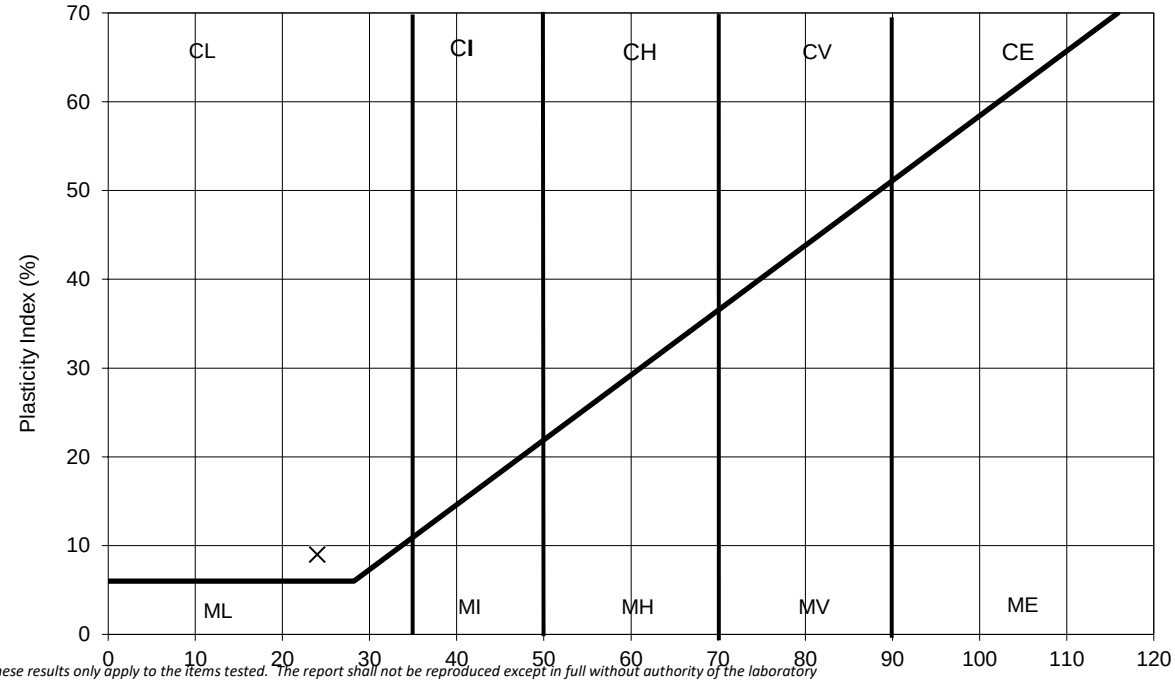


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**88**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

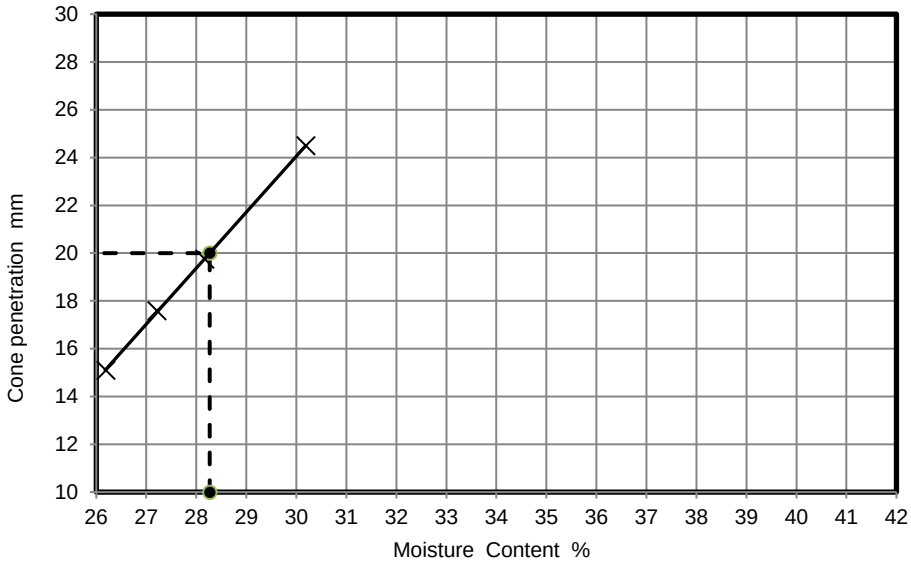
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-98702
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly sandy very silty CLAY with rare fmc angular to sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

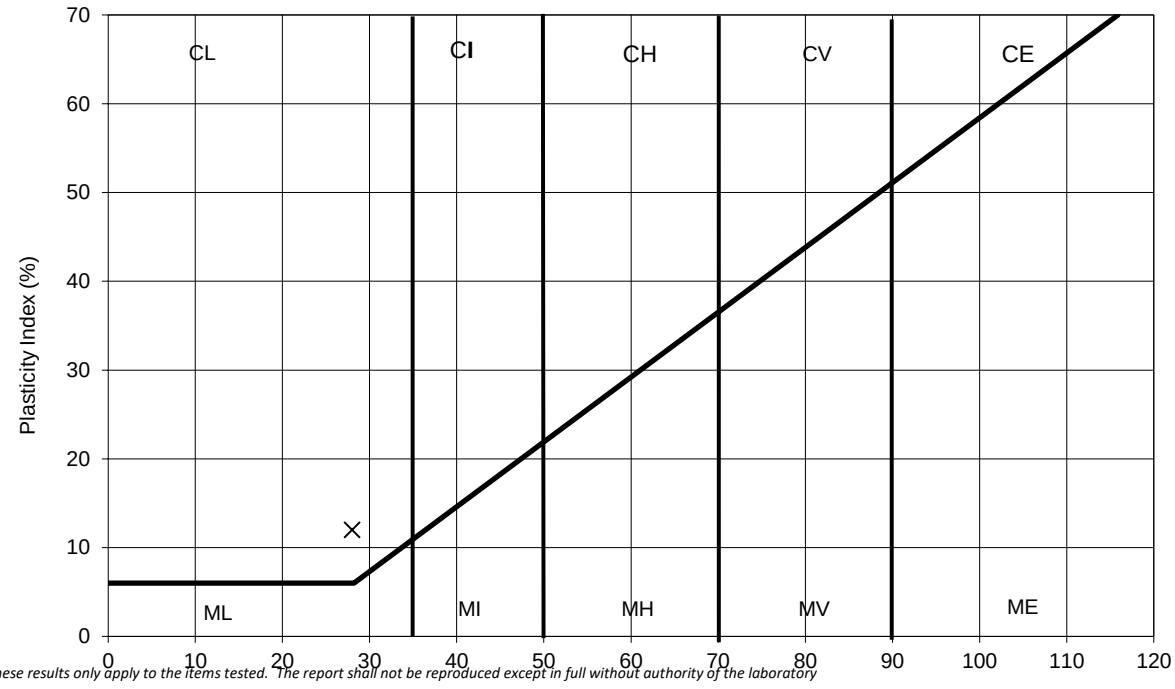


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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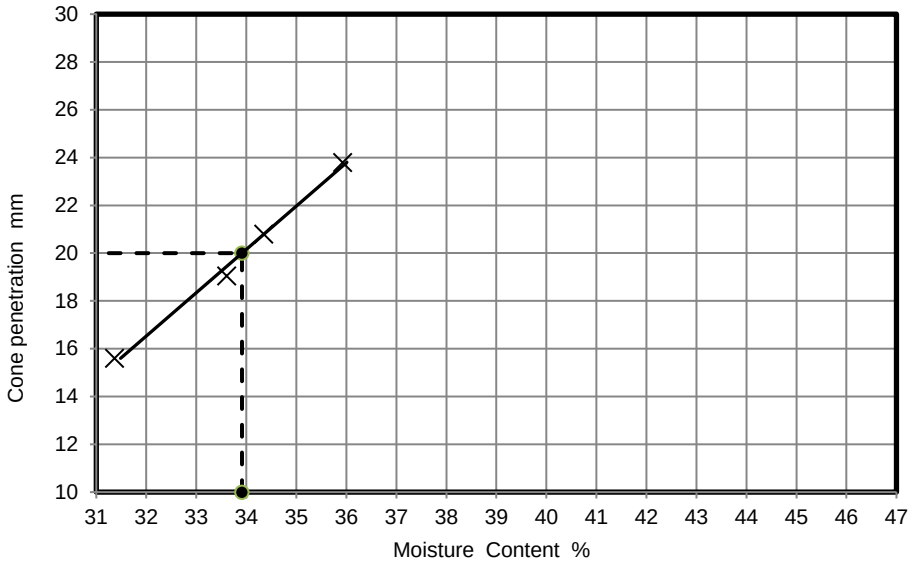
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

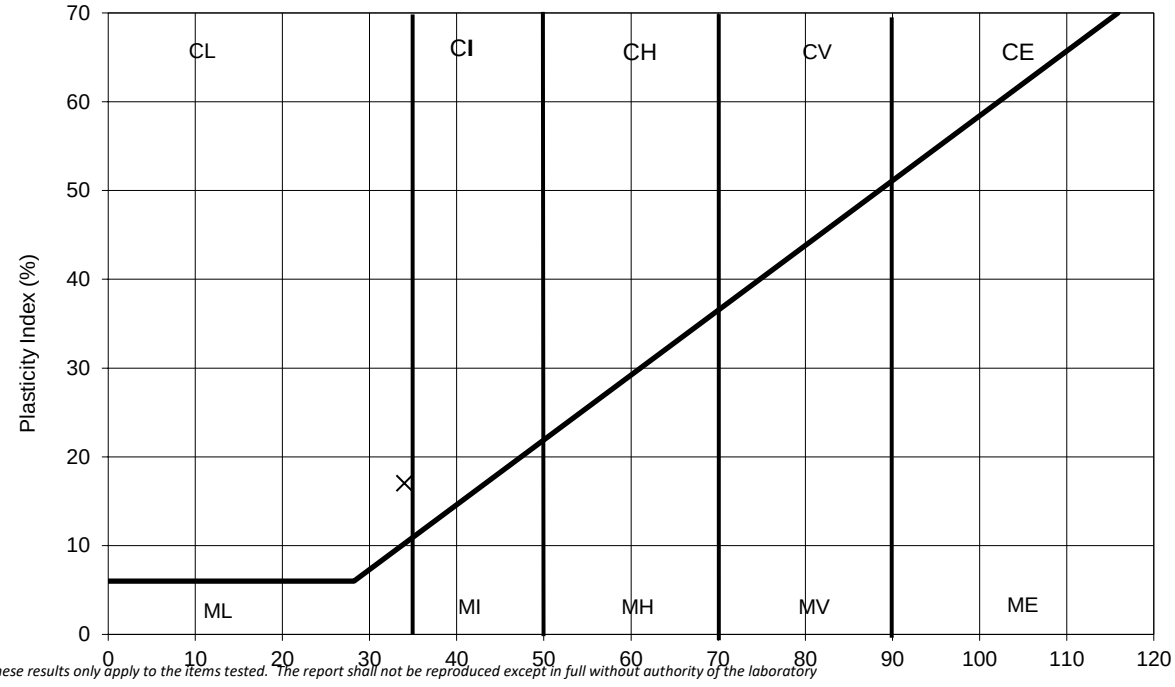
Job No.	32282				
Borehole/Pit No.	TP-98805				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**34**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**17**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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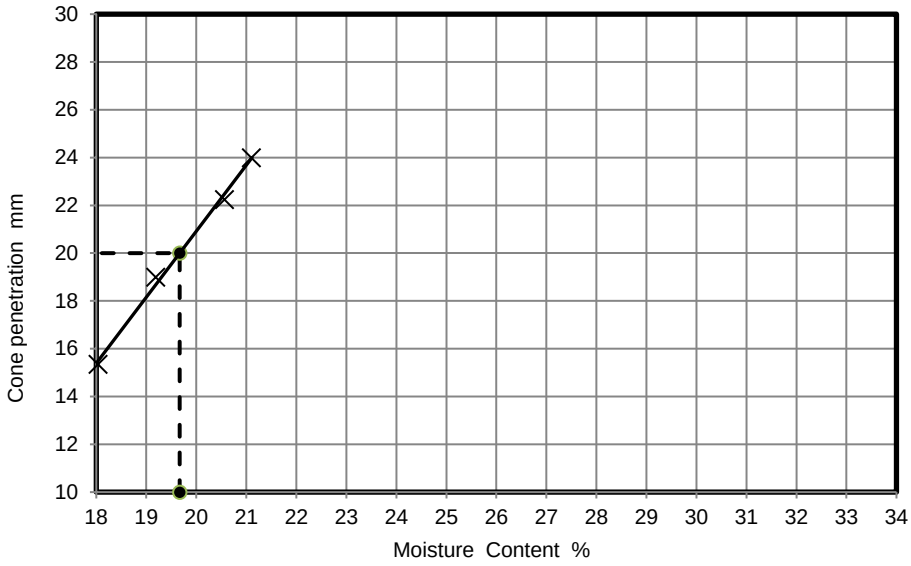
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

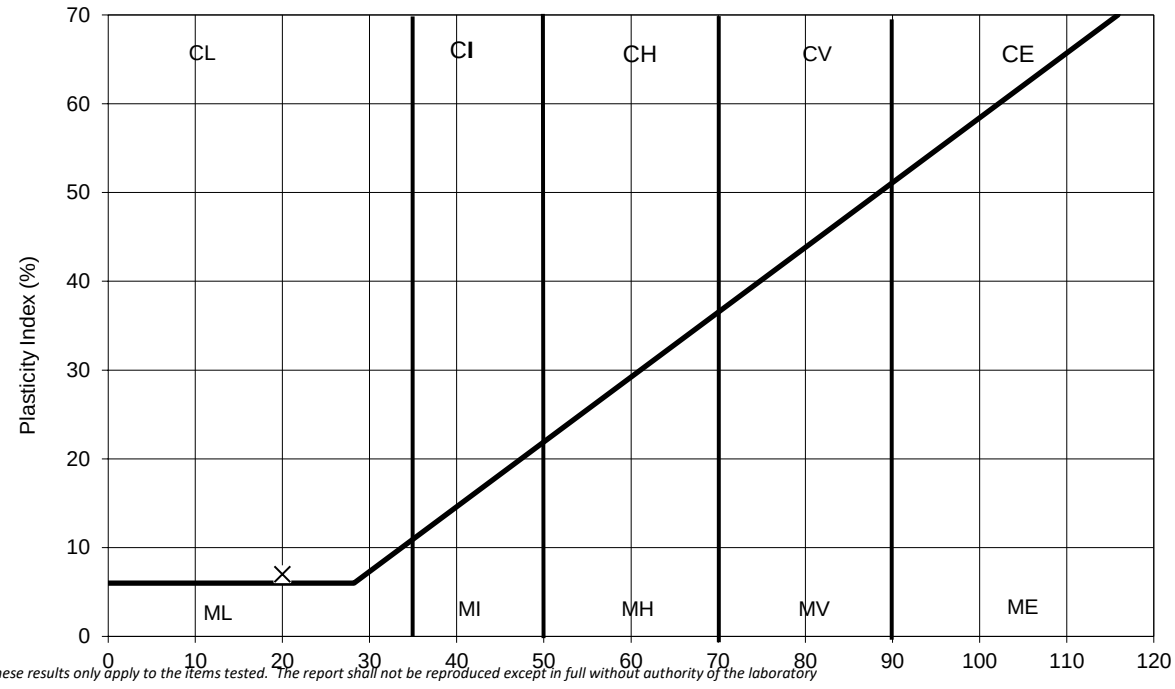
Job No.	32282				
Borehole/Pit No.	TP-98805				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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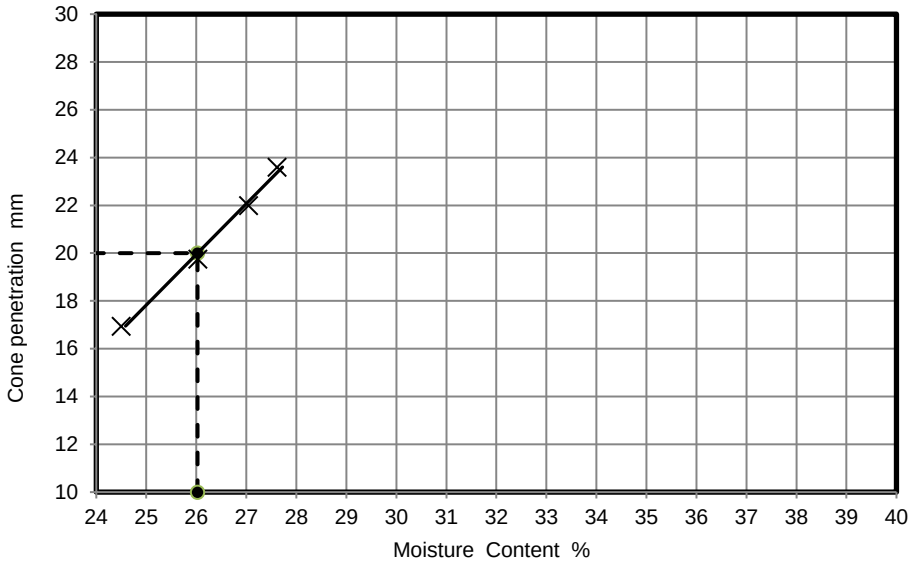
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

Job No. 32282

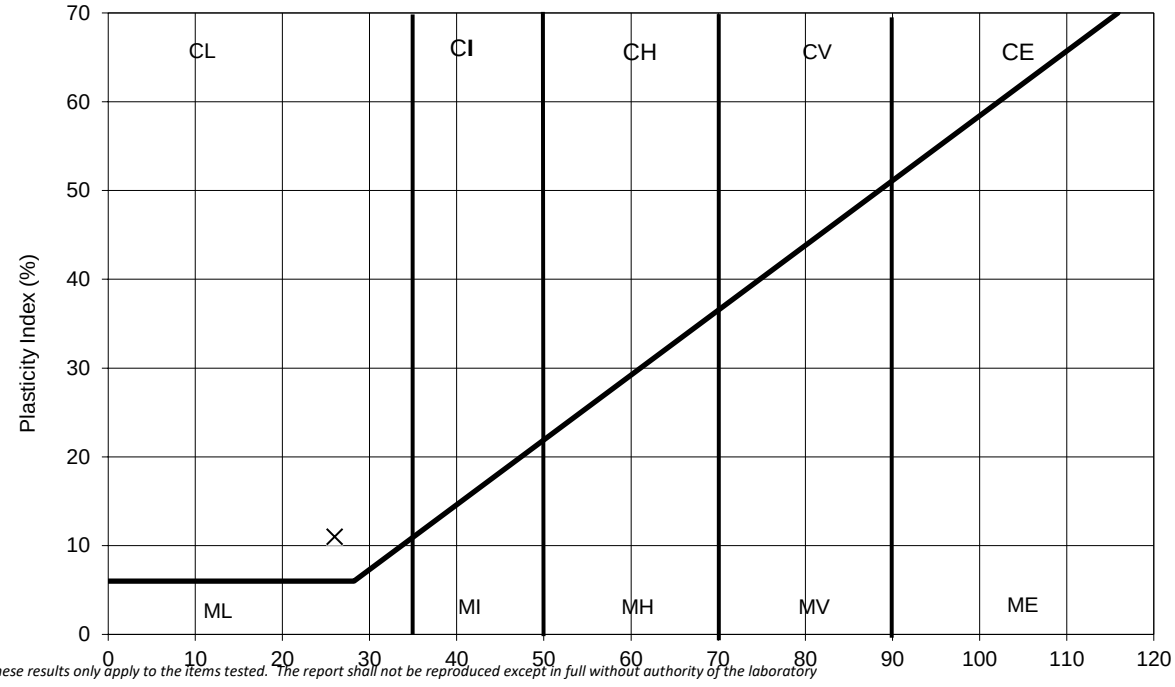
Borehole/Pit No. TP-98805



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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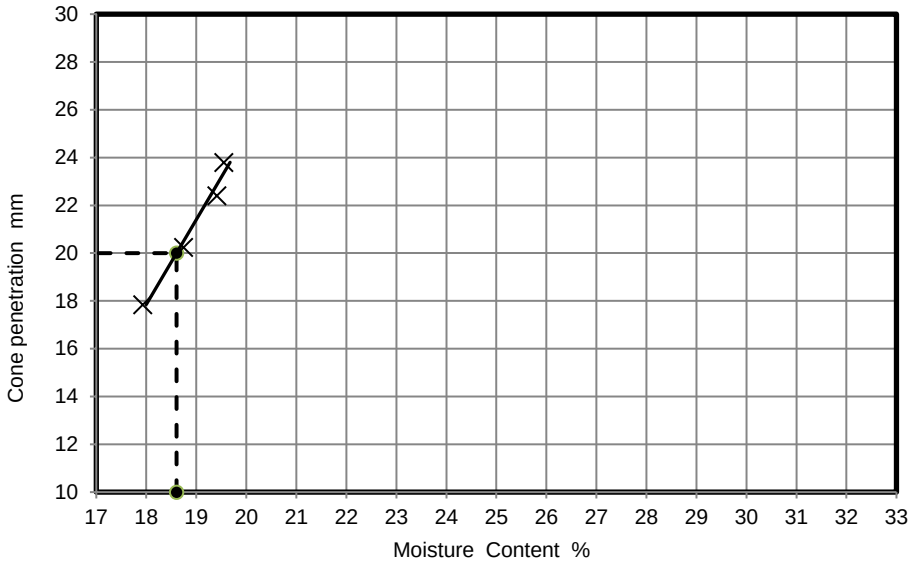
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

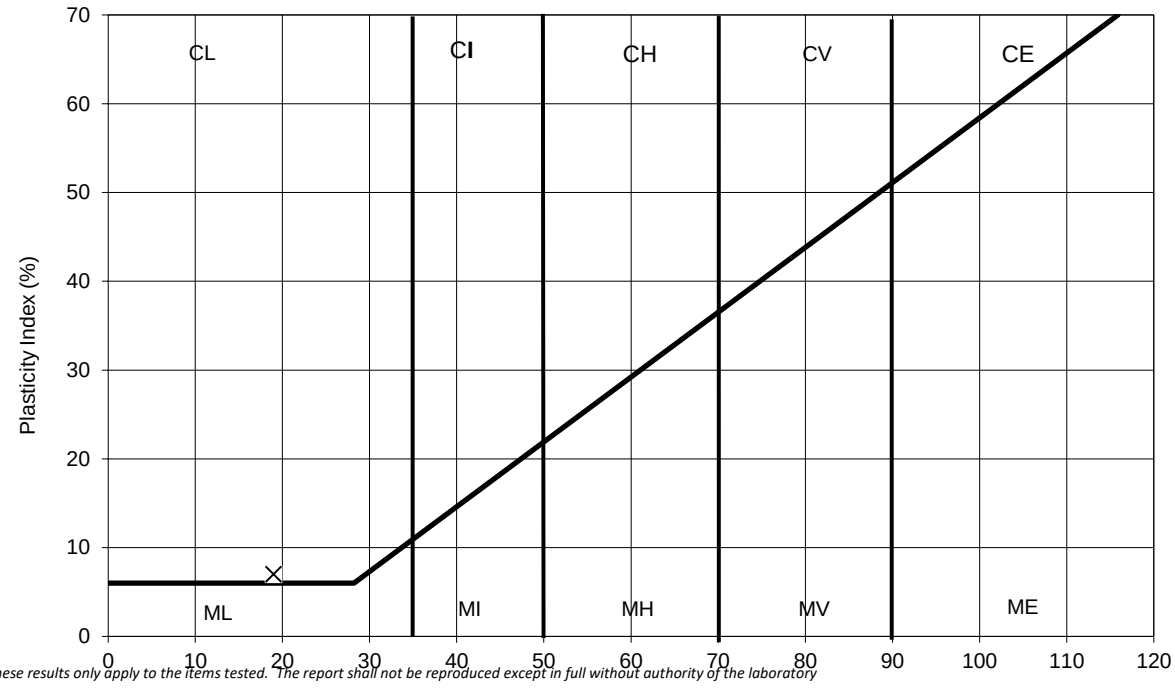
				Job No.	32282
				Borehole/Pit No.	TP-98904
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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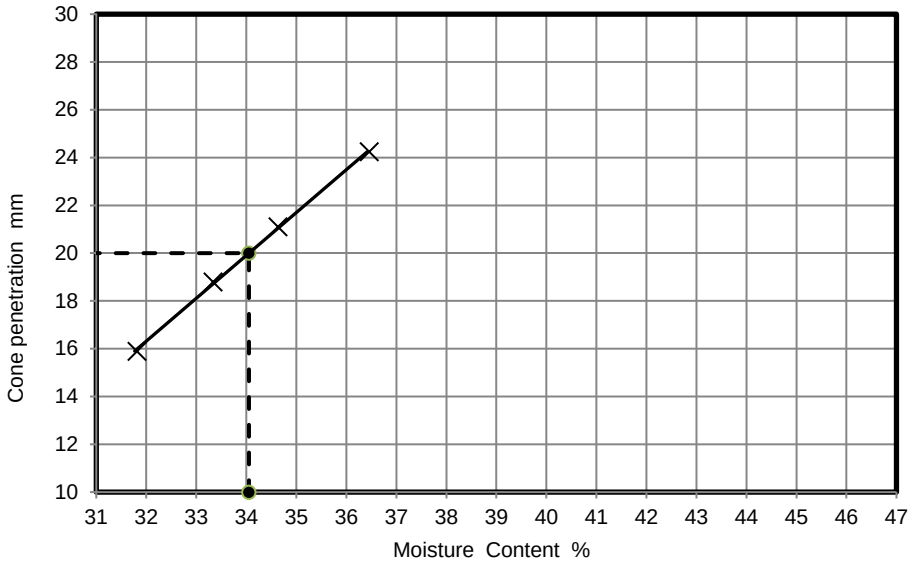
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

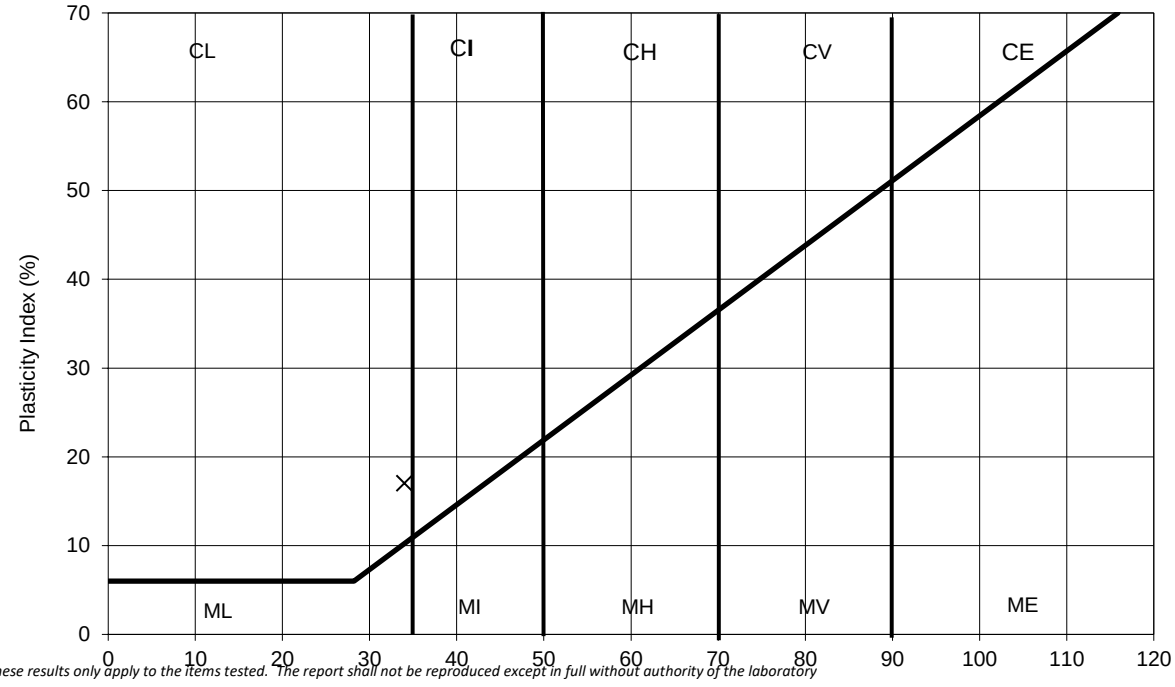
				Job No.	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**22**	**%**
% PASSING 425µm SIEVE	**84**	**%**
LIQUID LIMIT	**34**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**17**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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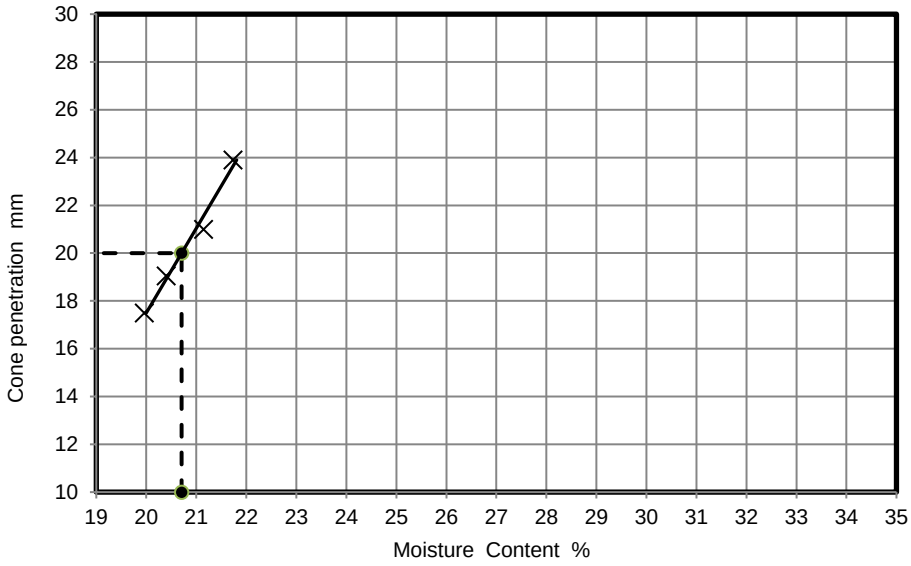
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

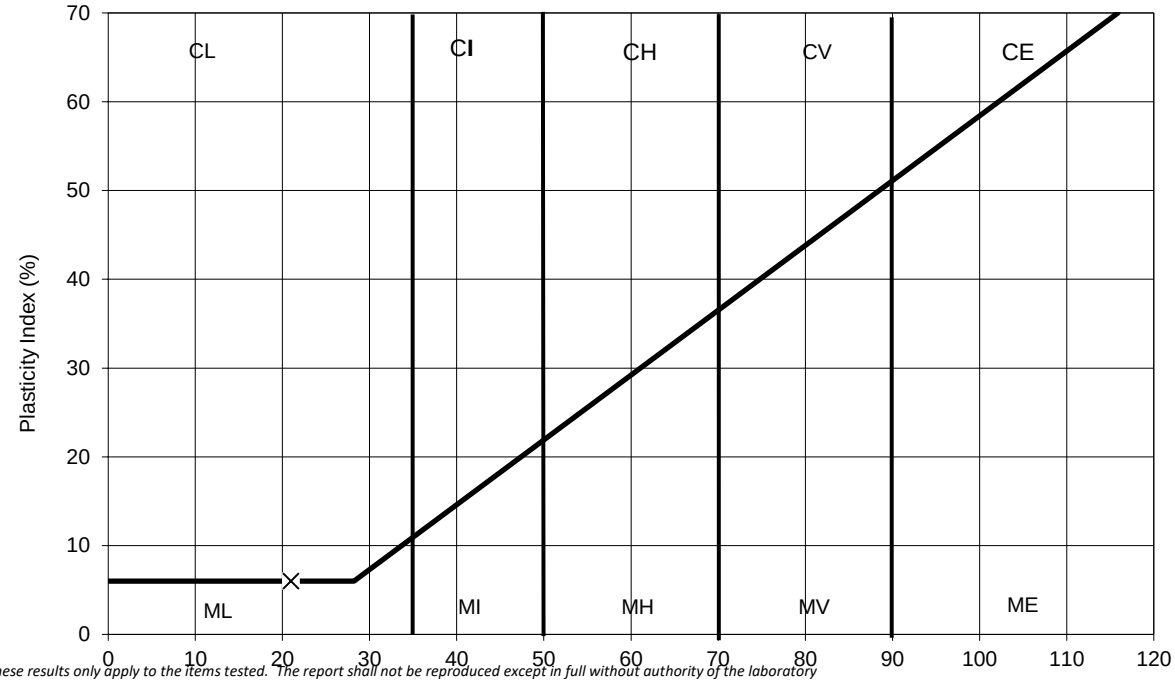
				Job No.	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly gravelly fine sandy clayey SILT (gravel is fm and sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**96**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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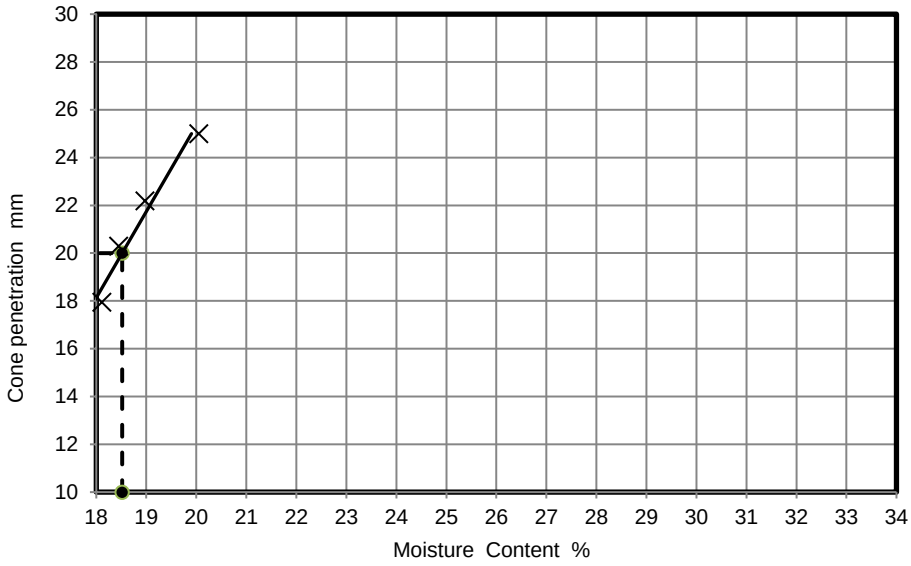
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

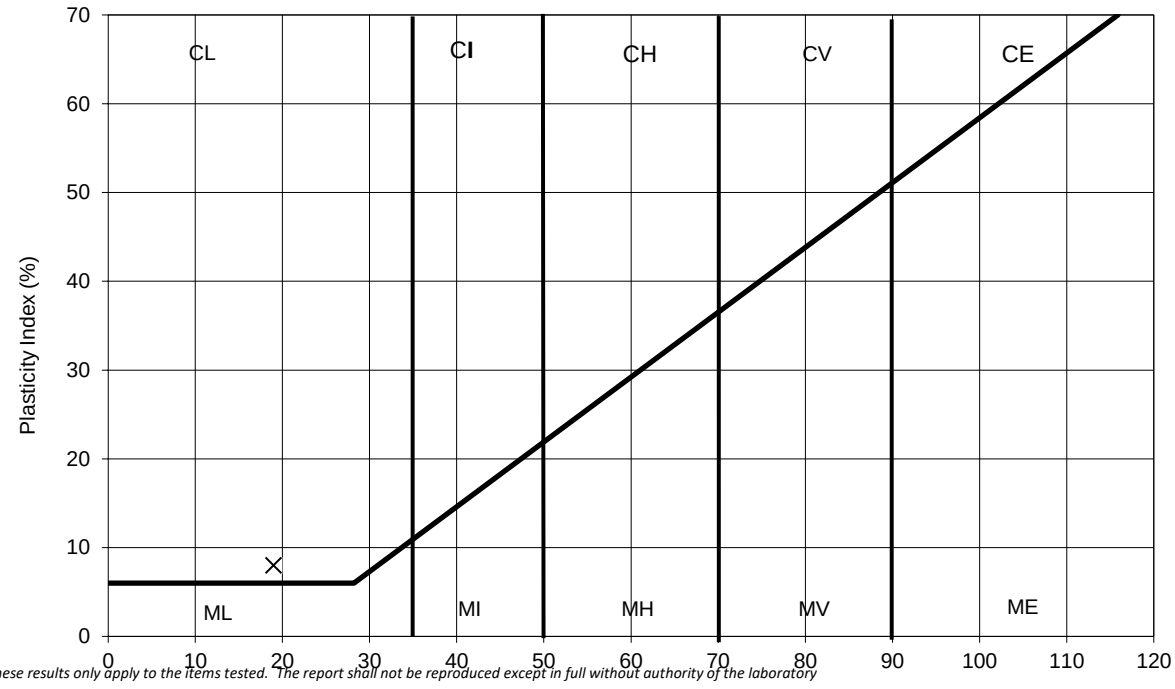
				Job No.	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**9.5**	**%**
% PASSING 425µm SIEVE	**77**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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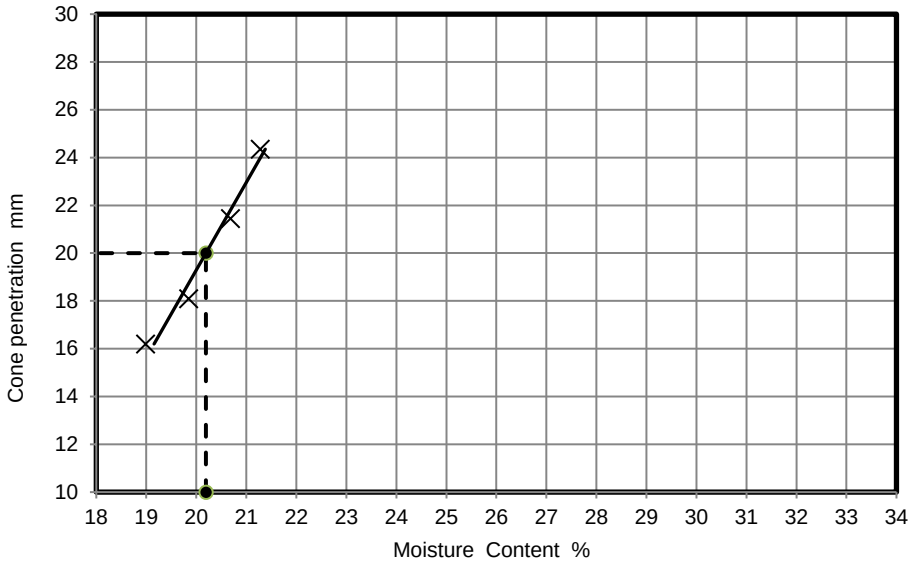
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99105
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

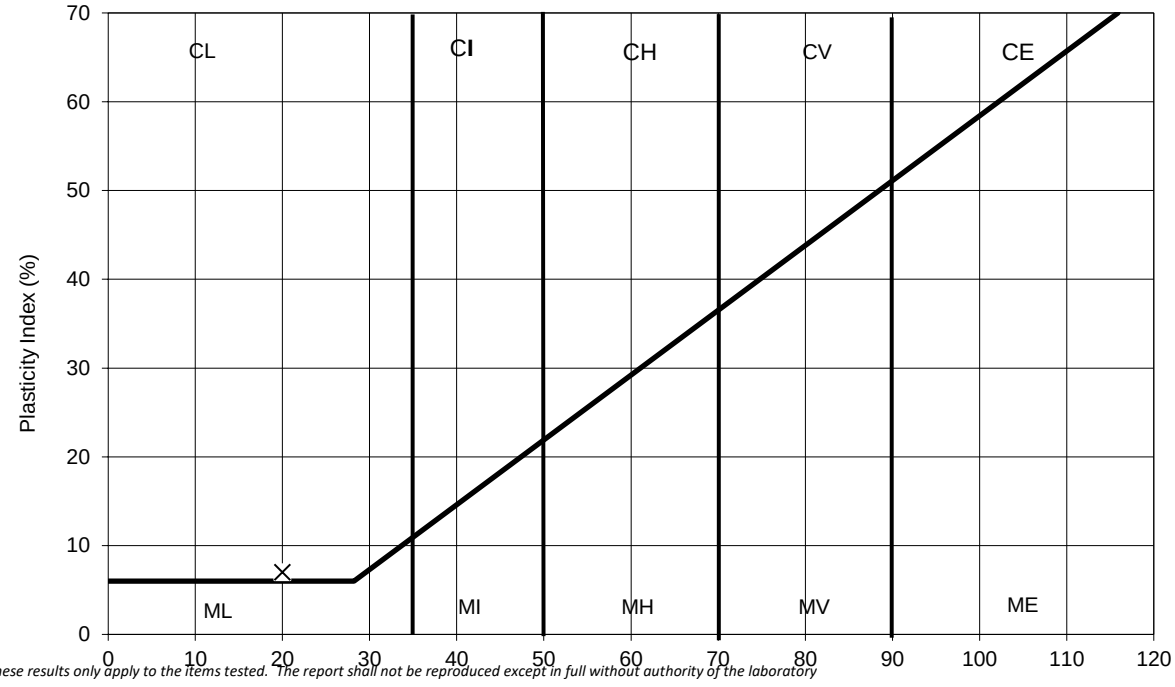


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**57**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Date: 15/12/2022

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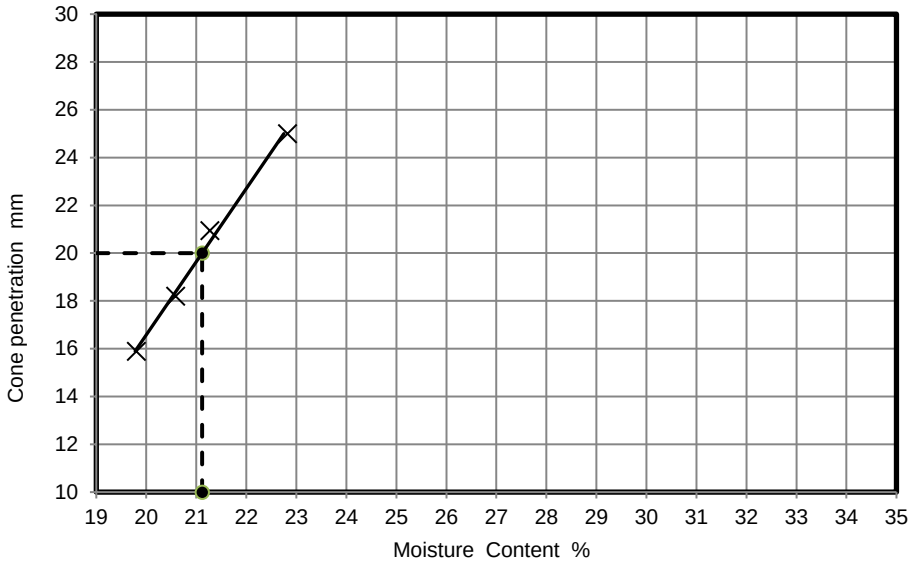
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-99105				
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

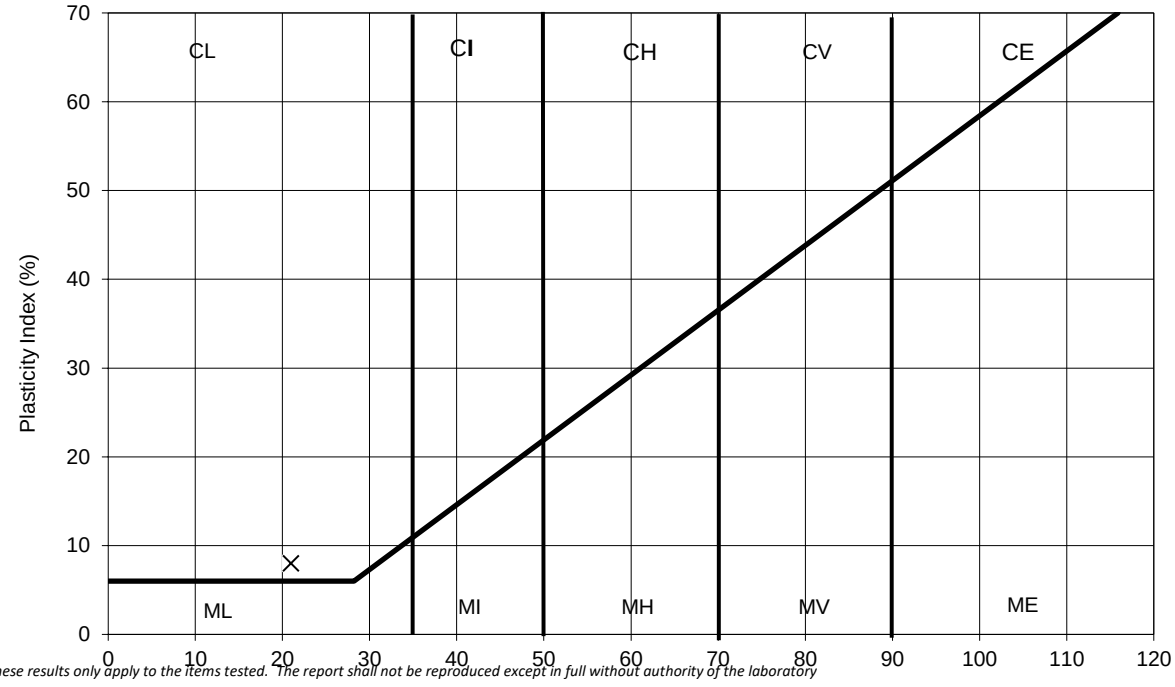


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

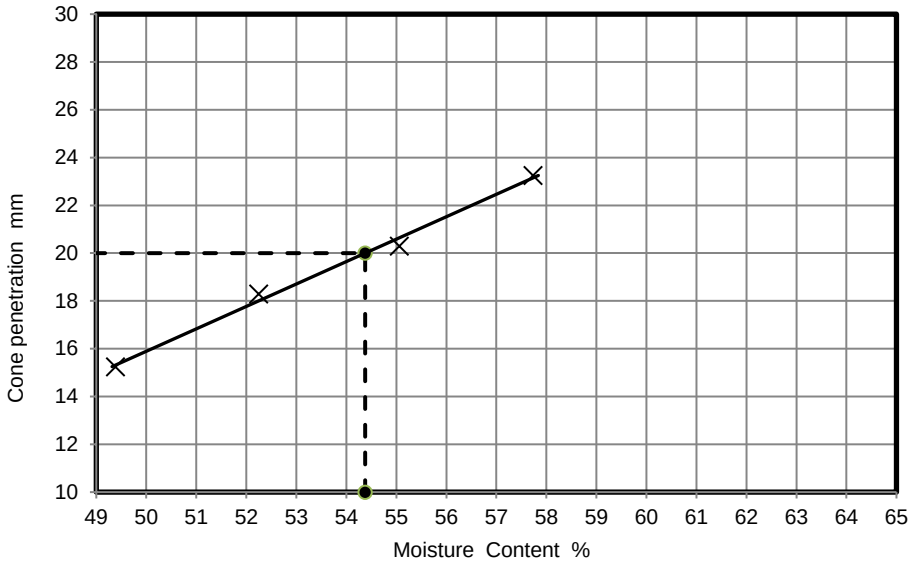
Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

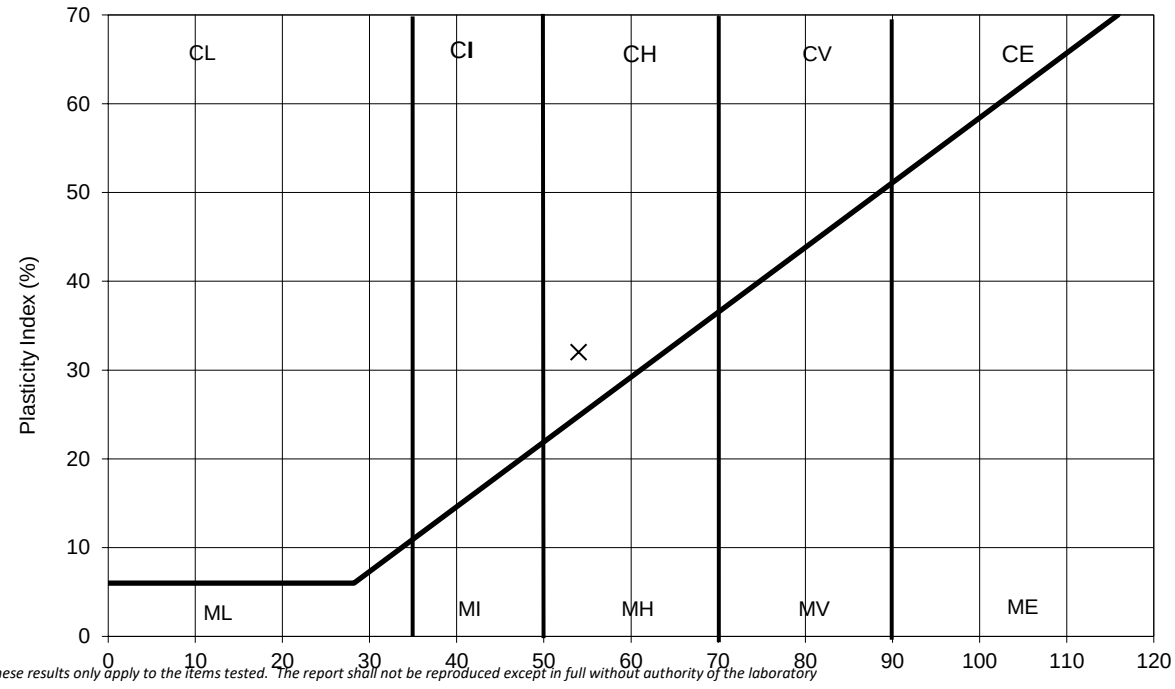
				Job No.	32282
				Borehole/Pit No.	TP-99206
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown slightly sandy silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	02/11/2022



NATURAL MOISTURE CONTENT	**27**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**54**	**%**
PLASTIC LIMIT	**22**	**%**
PLASTICITY INDEX	**32**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

2519

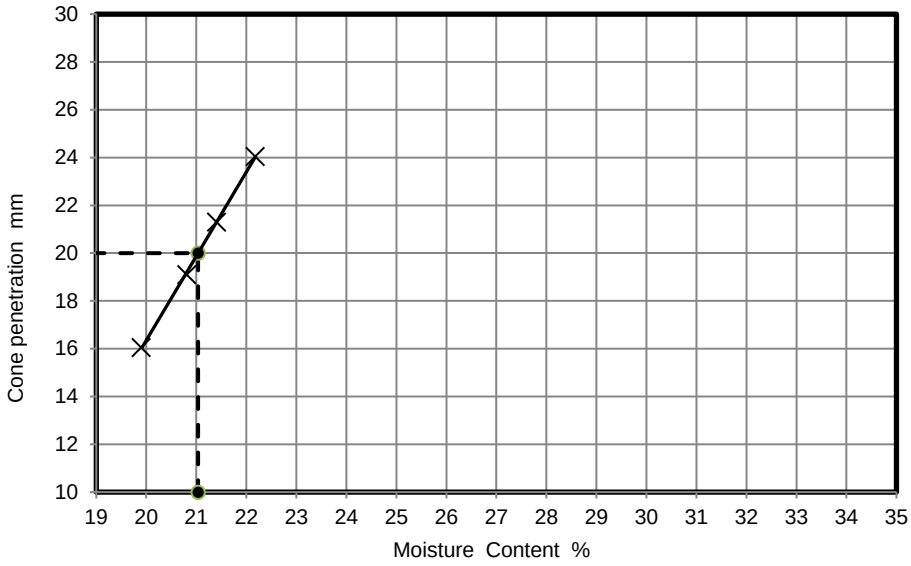
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	24/11/2022

Job No. 32282

Borehole/Pit No. TP-99206

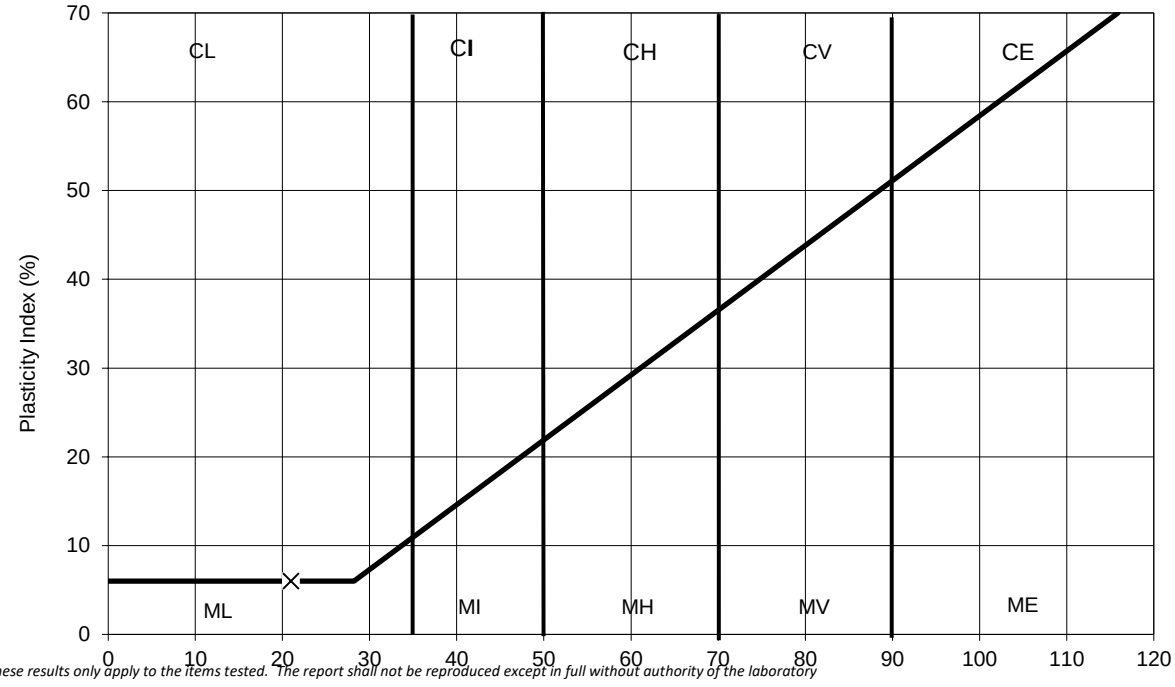


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**71**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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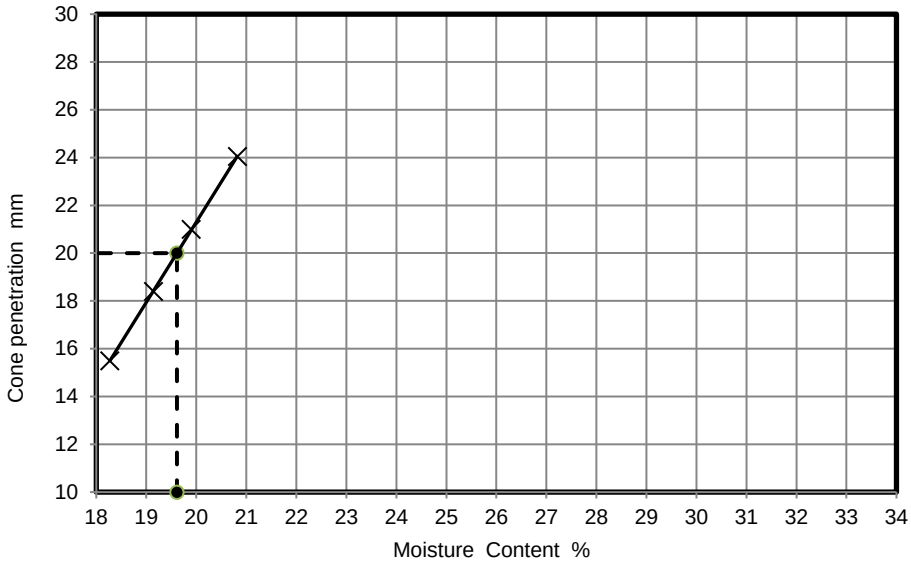
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99206
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy slighty gravelly very silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	22/11/2022

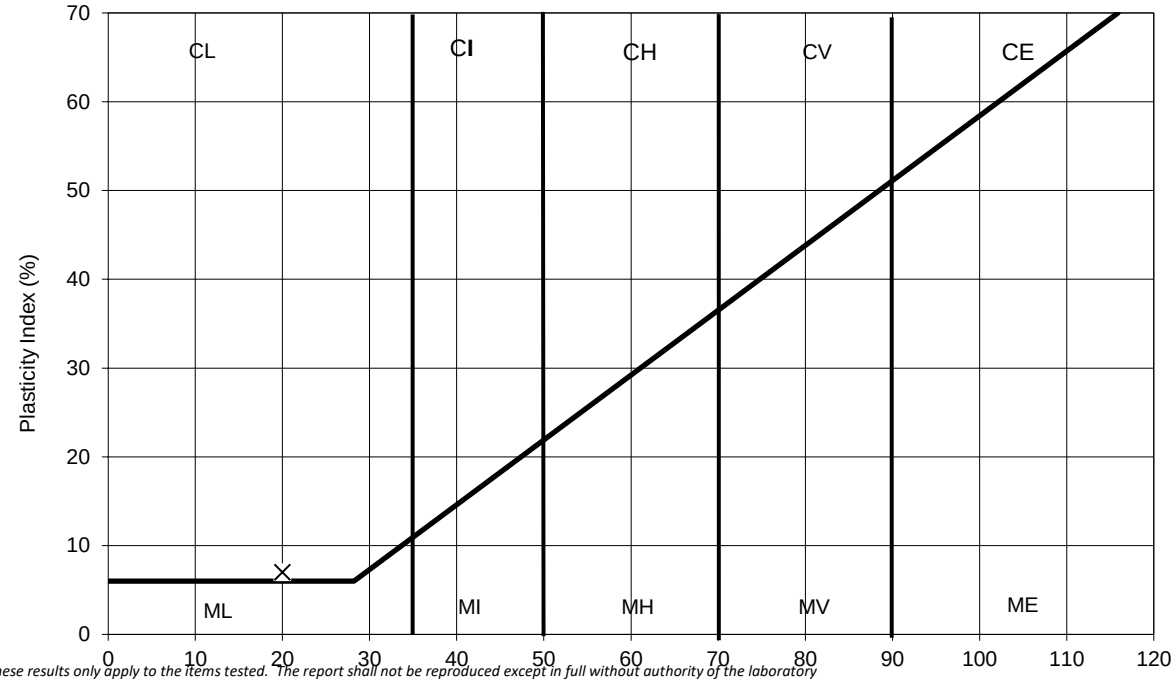


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**66**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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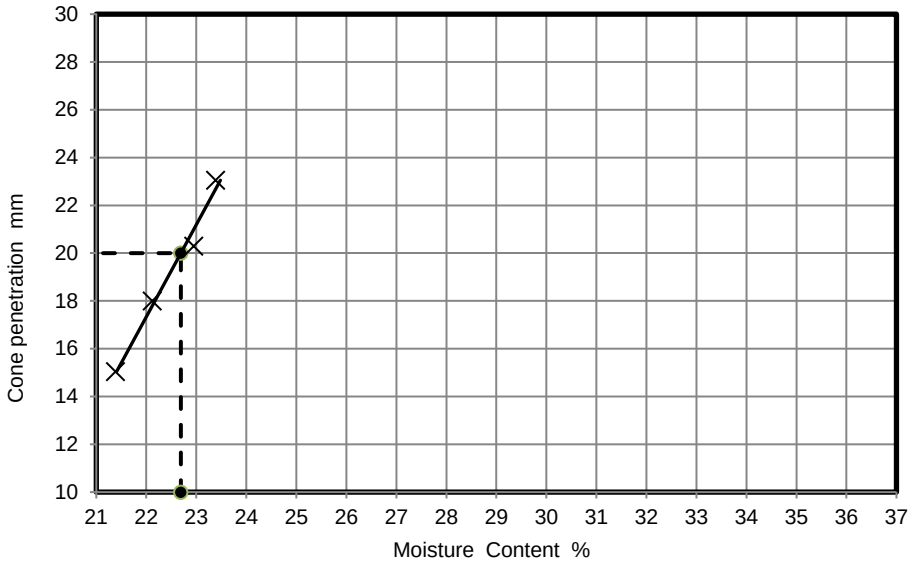
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

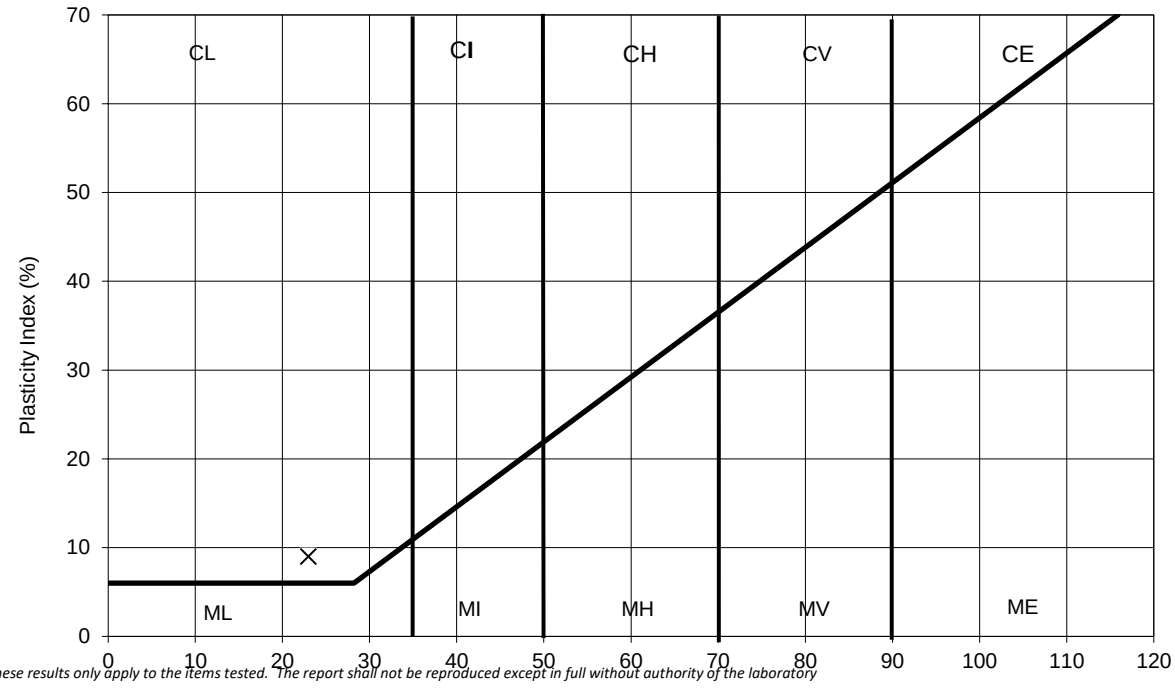
	Job No.	32282
	Borehole/Pit No.	TP-99304



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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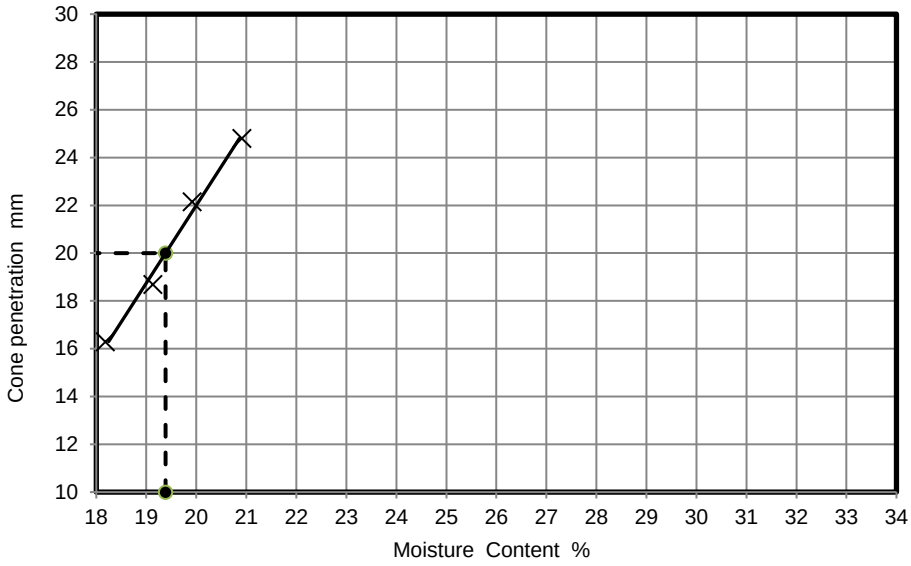
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99304
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022

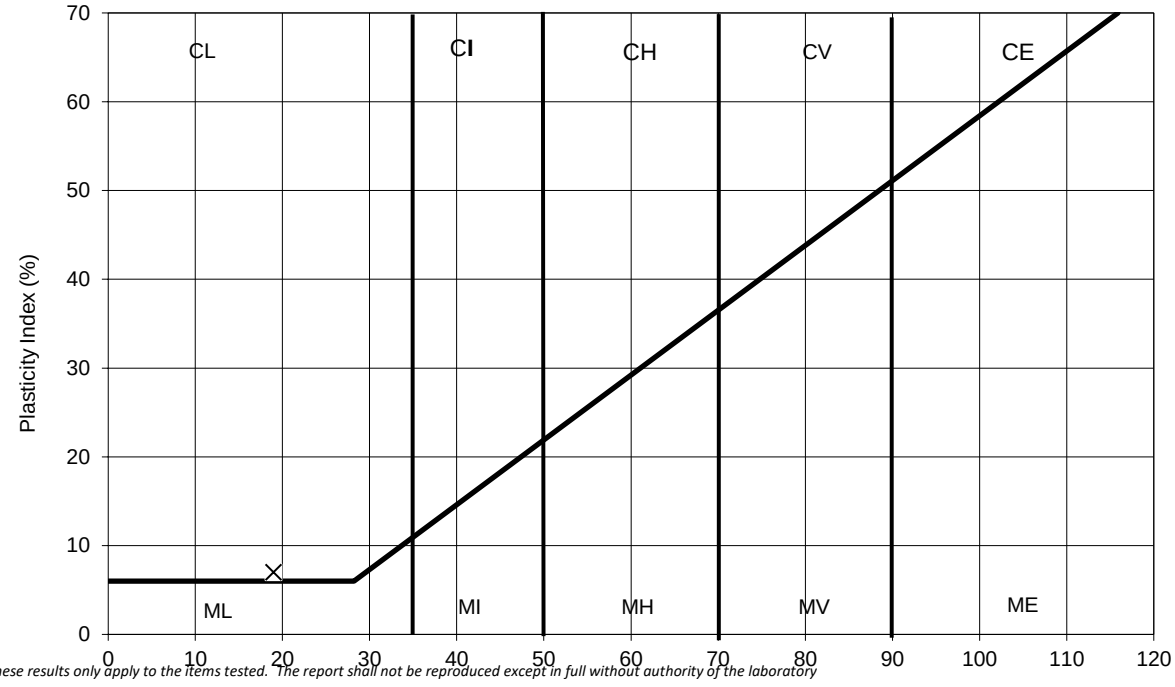


NATURAL MOISTURE CONTENT	**7.9**	**%**
% PASSING 425µm SIEVE	**32**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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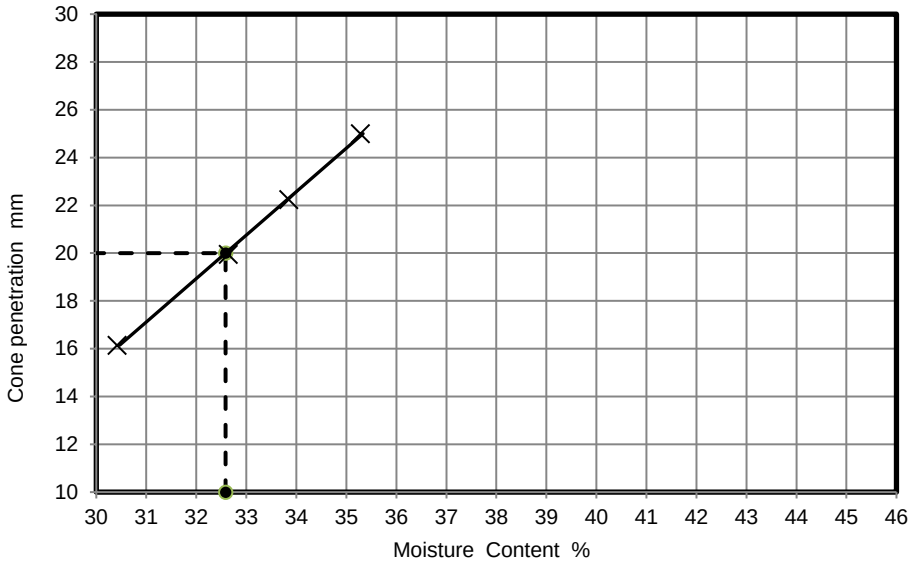
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

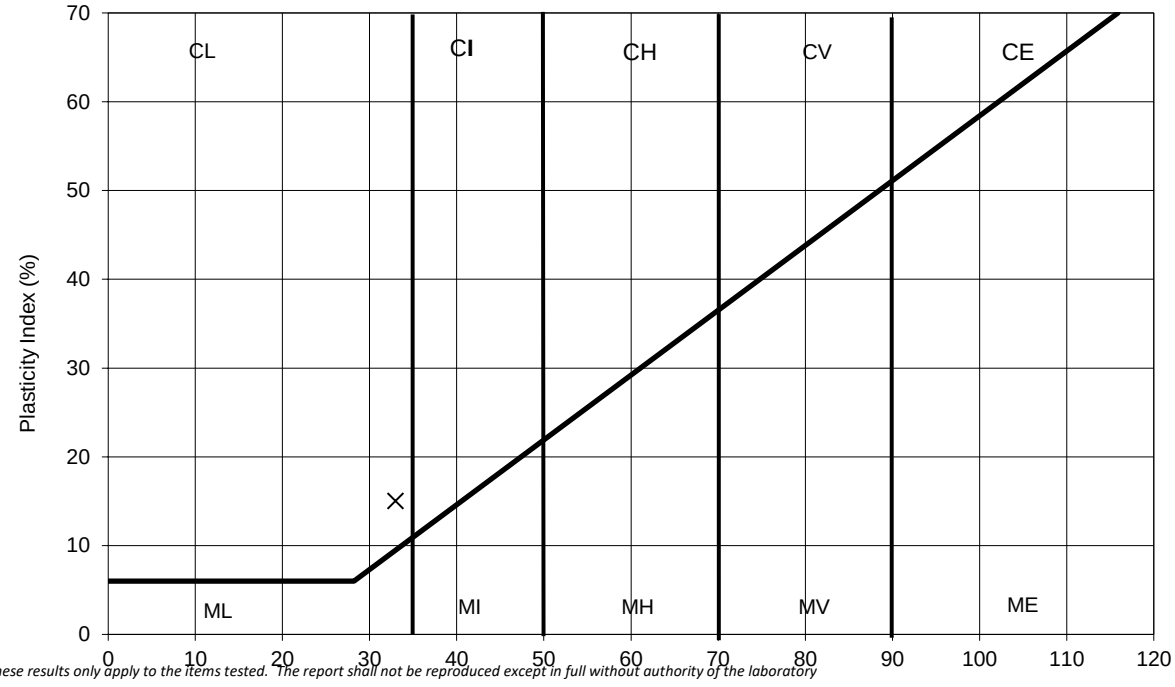
				Job No.	32282
				Borehole/Pit No.	TP-99400
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022



NATURAL MOISTURE CONTENT	**18**	**%**
% PASSING 425µm SIEVE	**94**	**%**
LIQUID LIMIT	**33**	**%**
PLASTIC LIMIT	**18**	**%**
PLASTICITY INDEX	**15**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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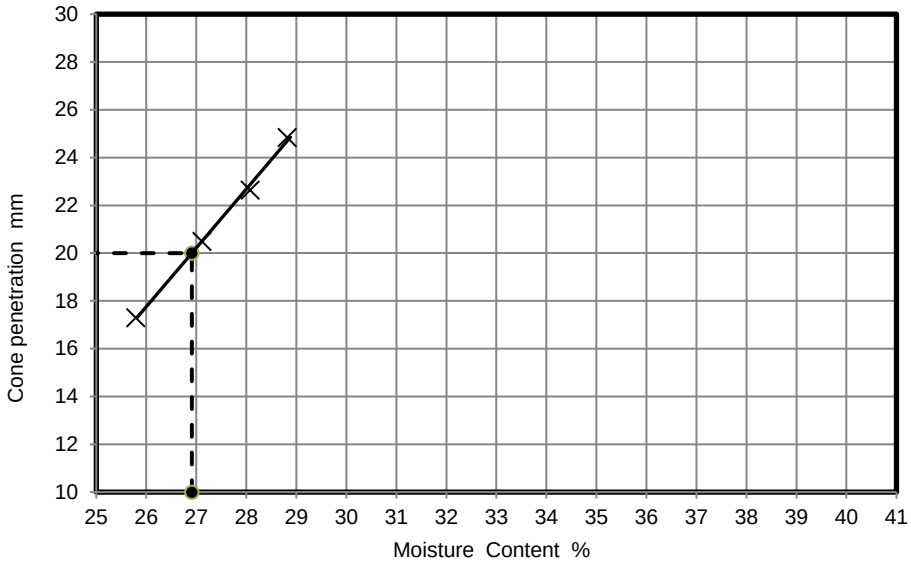
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

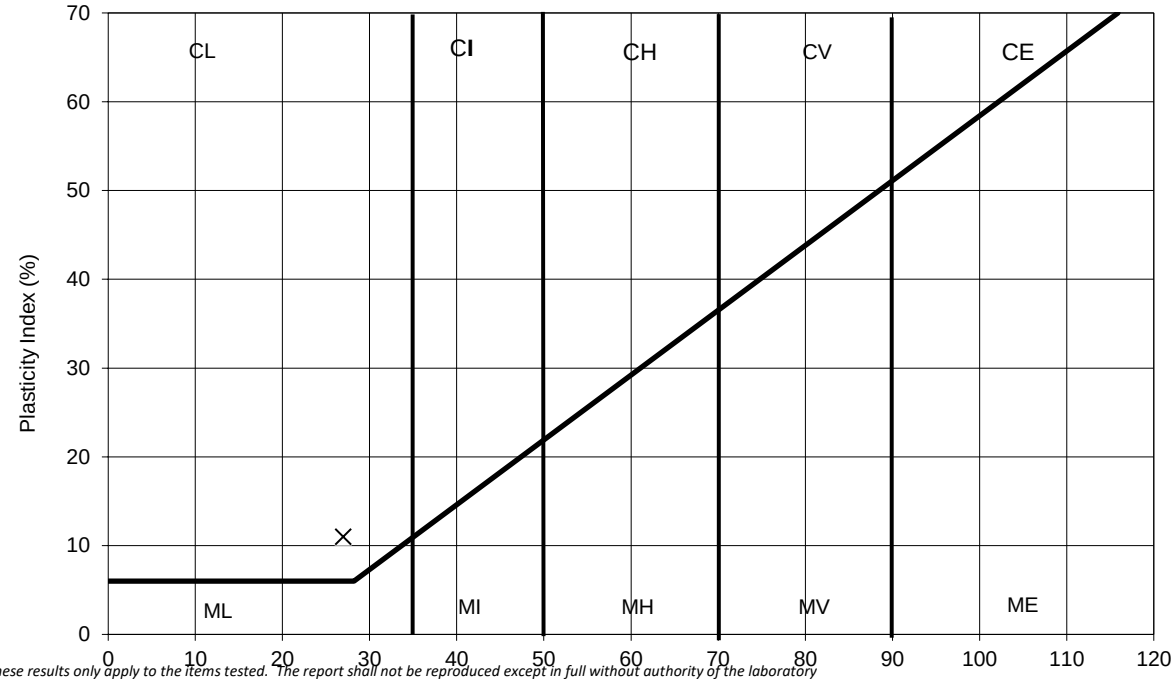
				Job No.	32282
				Borehole/Pit No.	TP-99400
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown fine sandy very silty CLAY			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**100**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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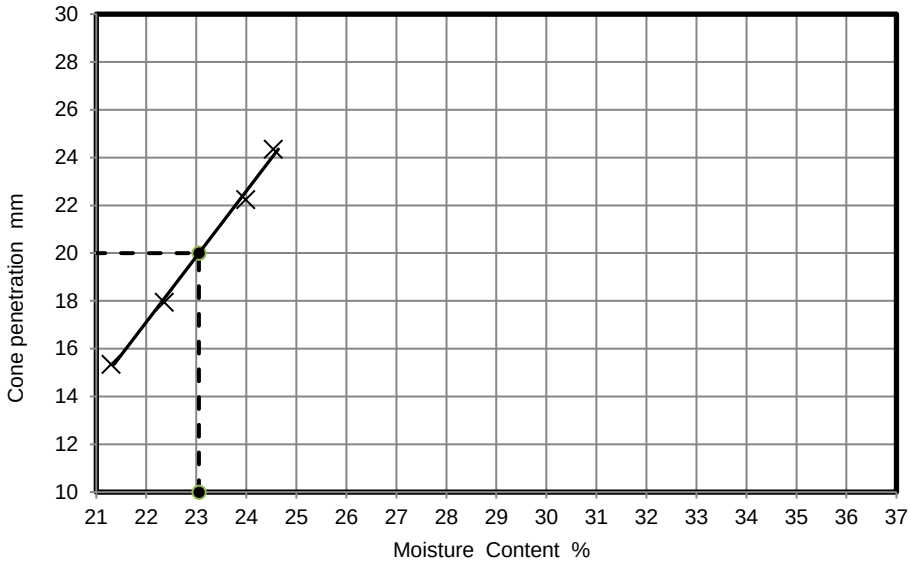
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brownish grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

Job No. 32282

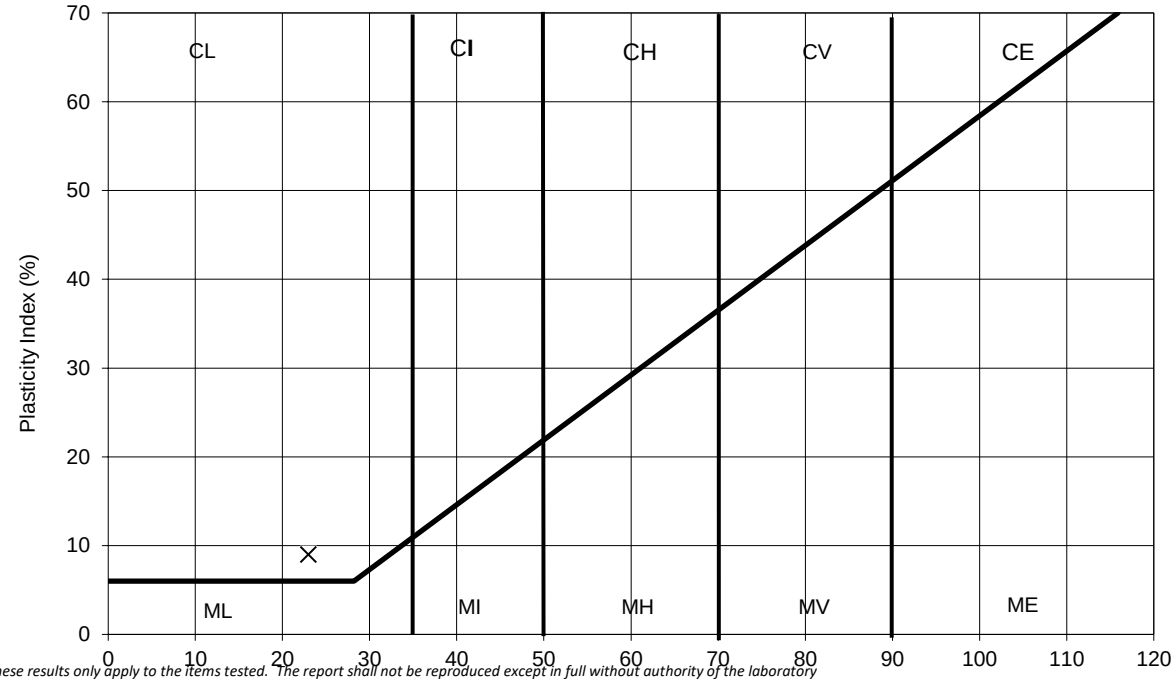
Borehole/Pit No. TP-99505



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**83**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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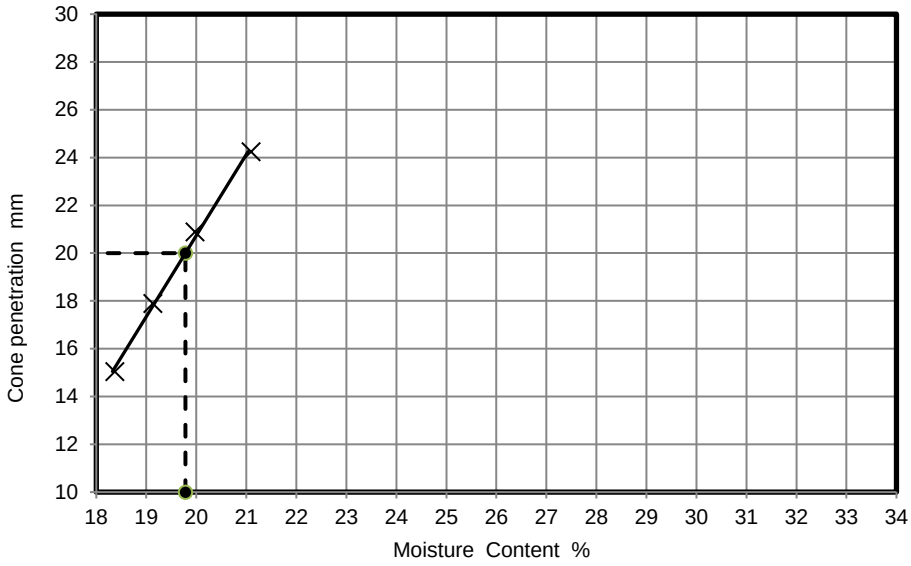
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99505
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown slightly sandy gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

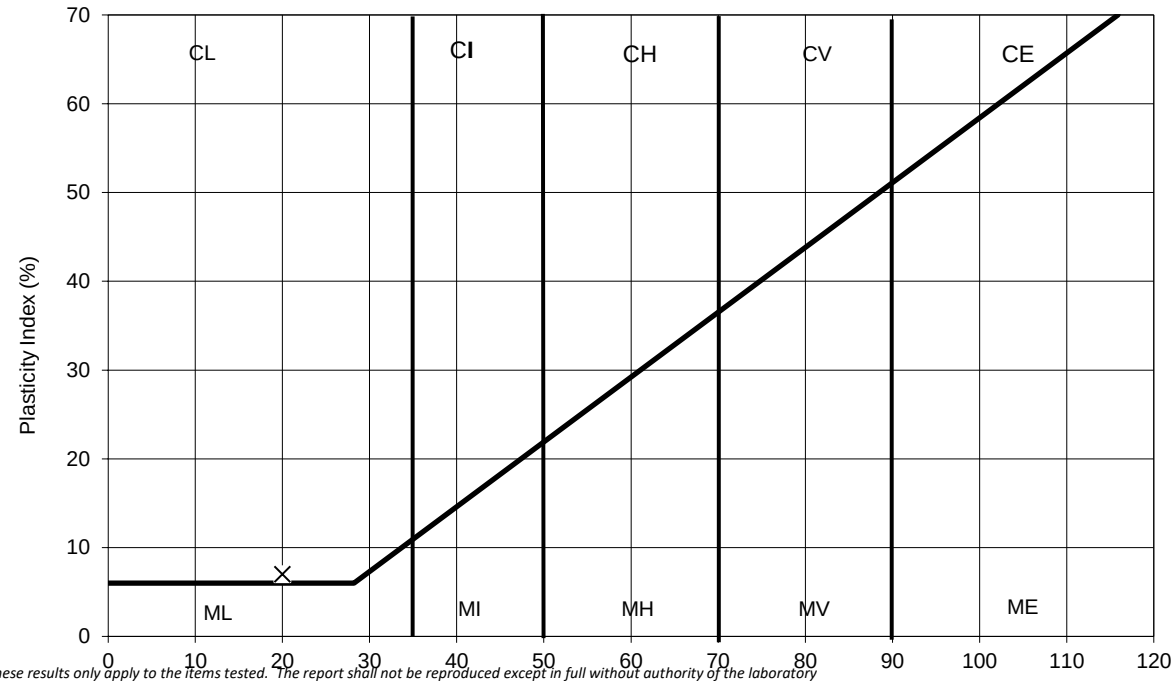


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Date: 15/12/2022

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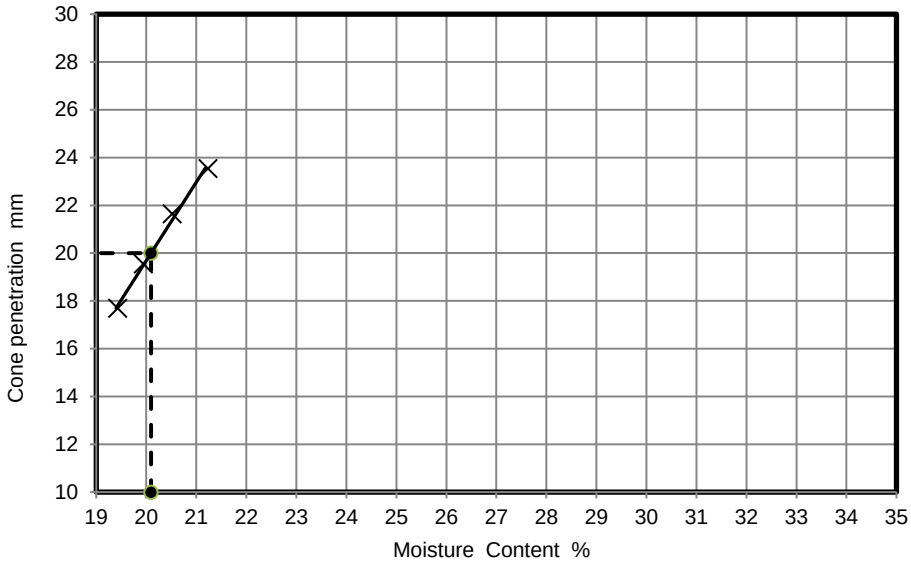
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

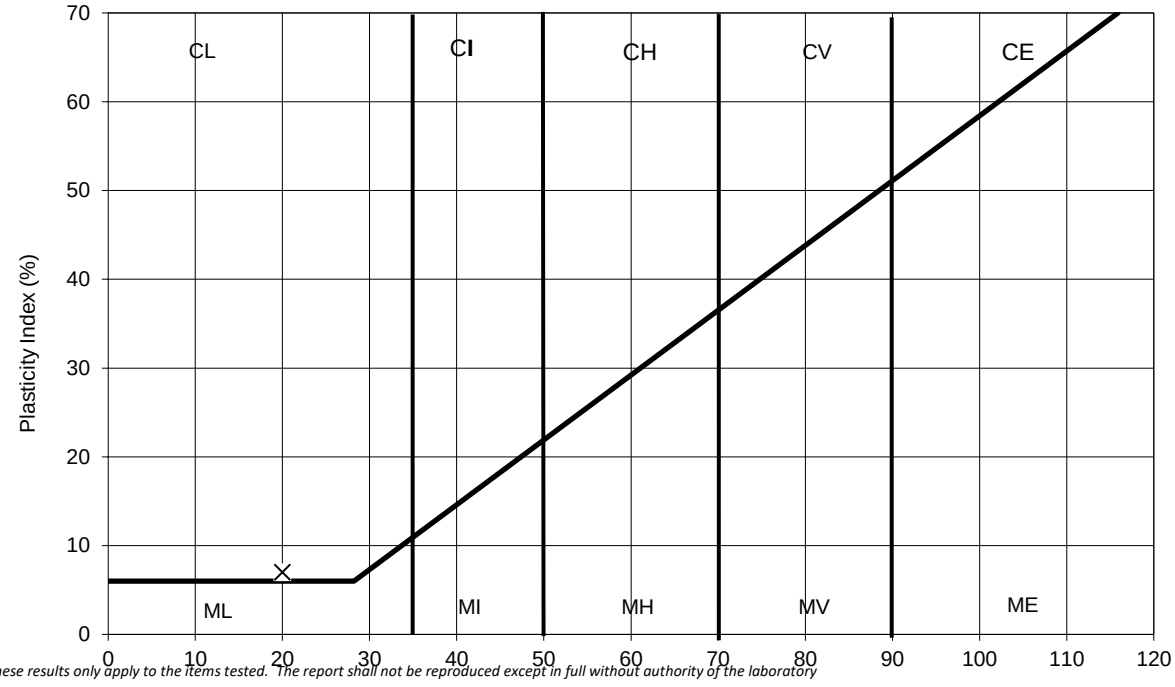
				Job No.	32282
				Borehole/Pit No.	TP-99599
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	20/10/2022



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

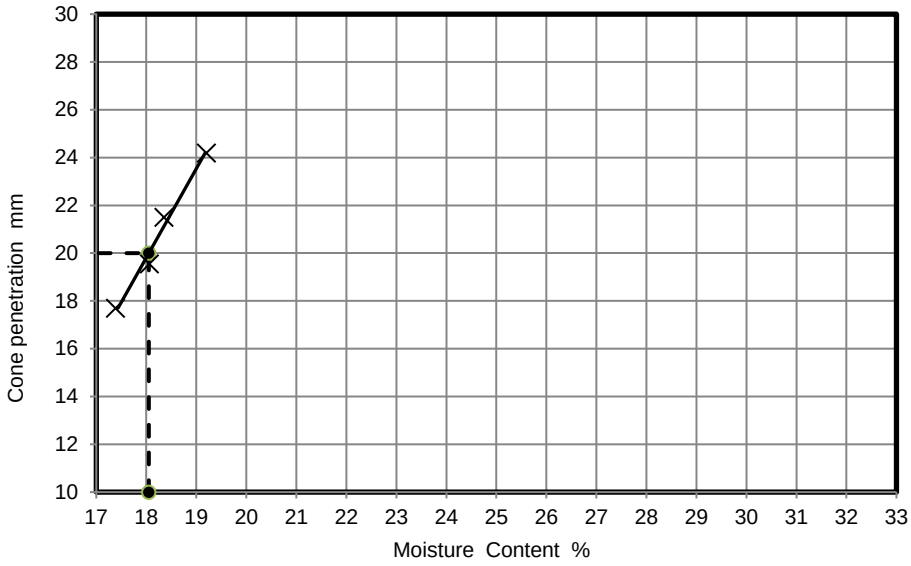
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-99599
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

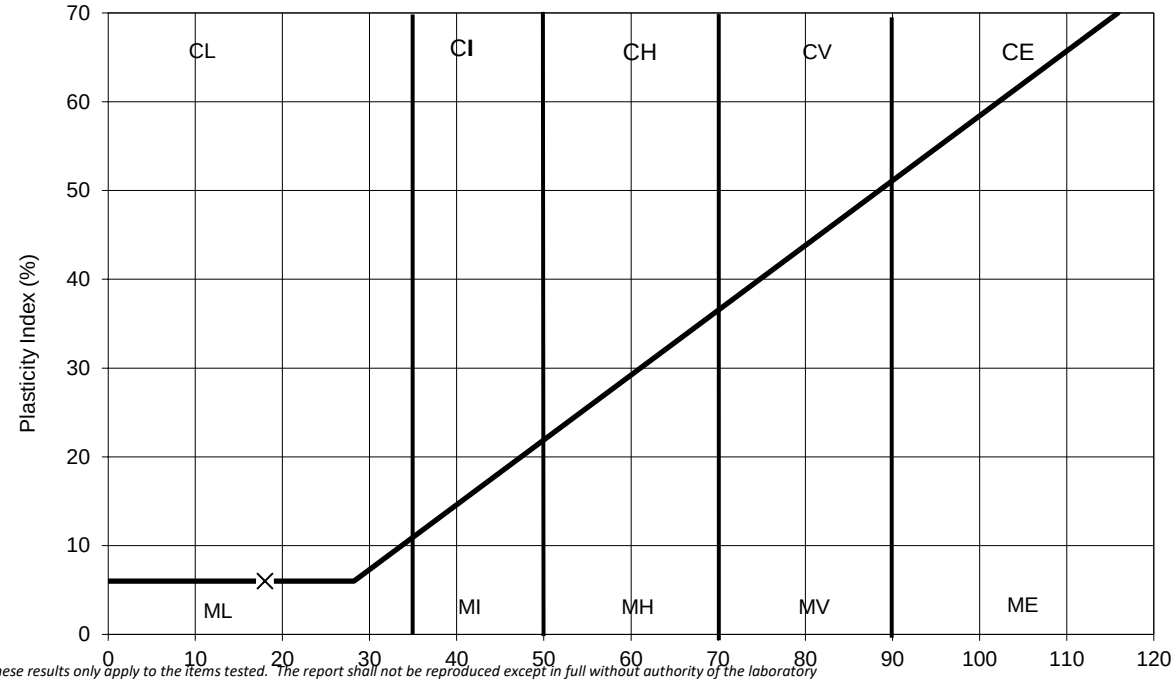


NATURAL MOISTURE CONTENT	**6.7**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 15/12/2022

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UKAS TESTING

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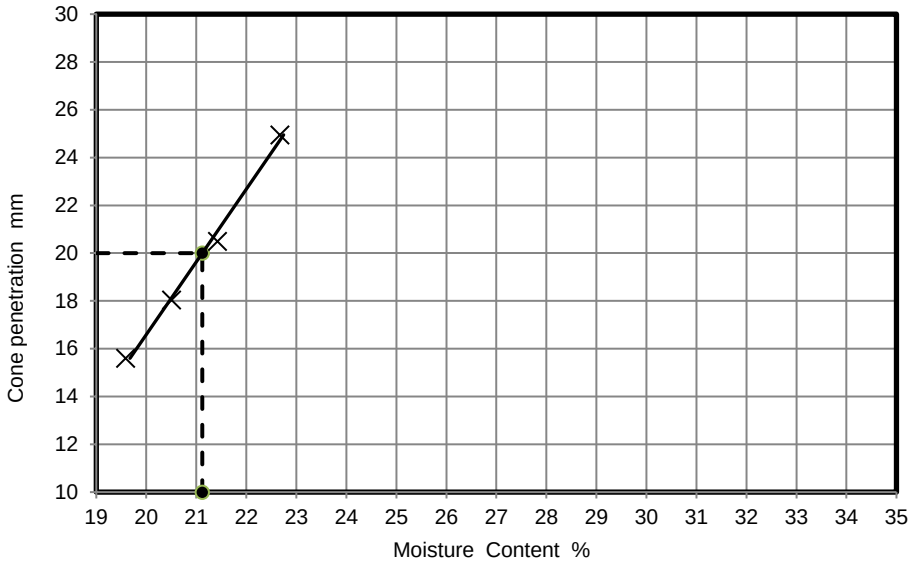
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly very silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/10/2022

Job No. 32282

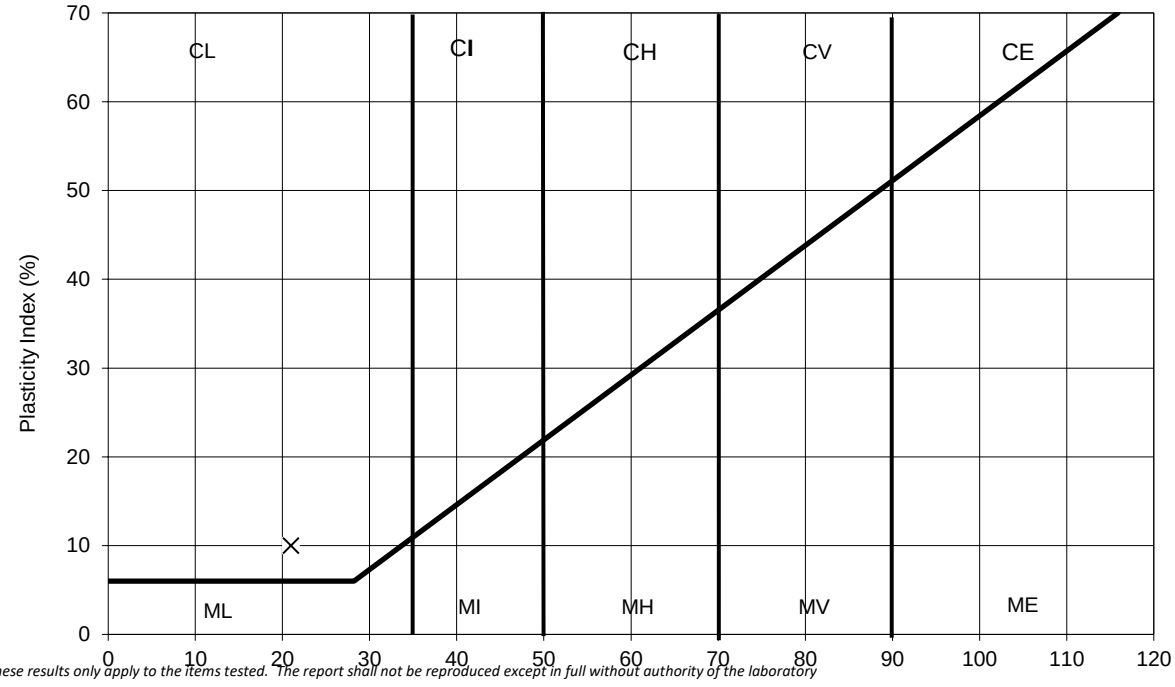
Borehole/Pit No. TP-99701



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**93**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

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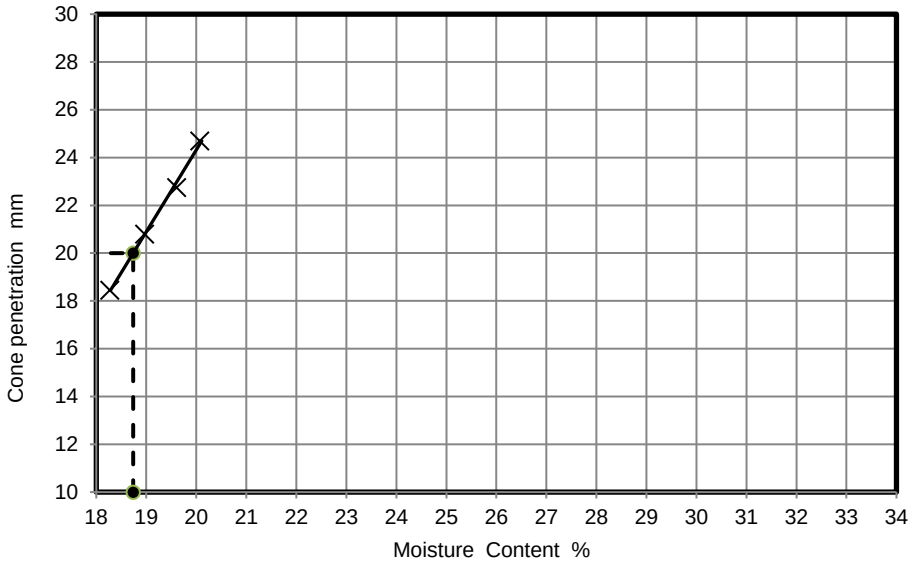
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

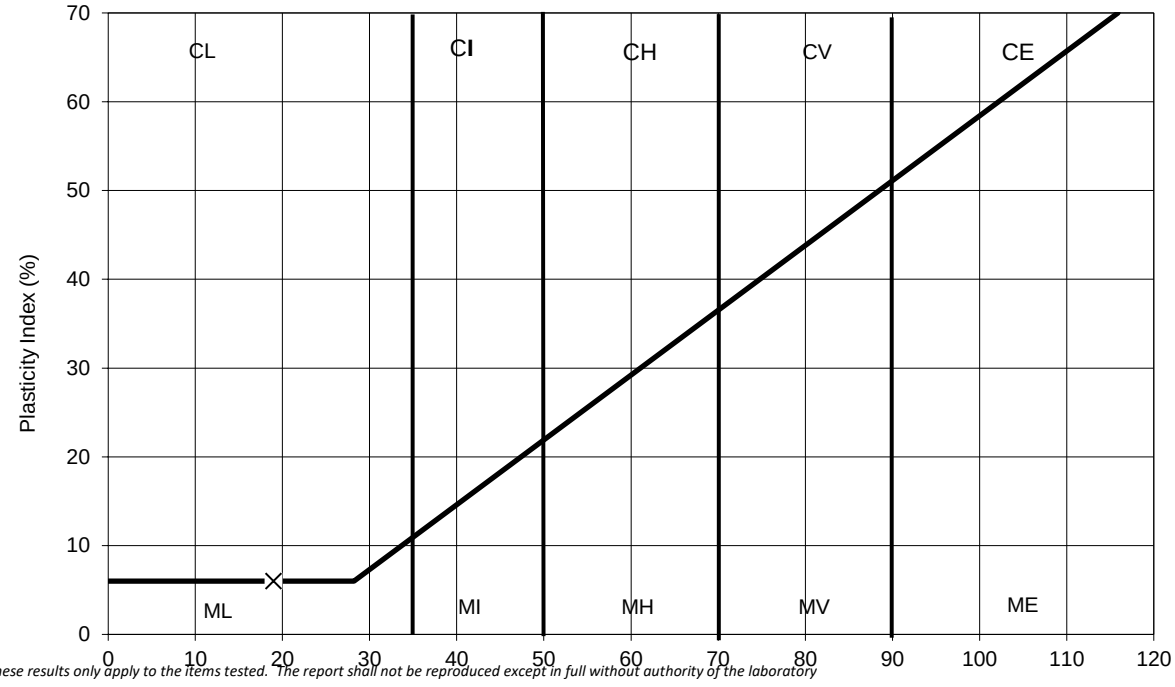
				Job No.	32282
				Borehole/Pit No.	TP-99701
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown fine sandy clayey SILT with rare fine sub-angular gravel			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	21/10/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

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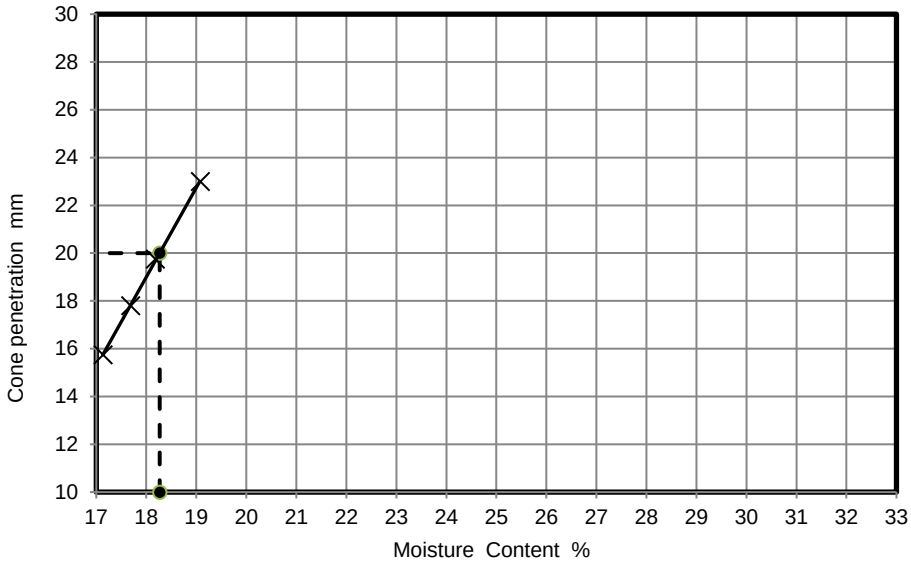
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

Job No. 32282

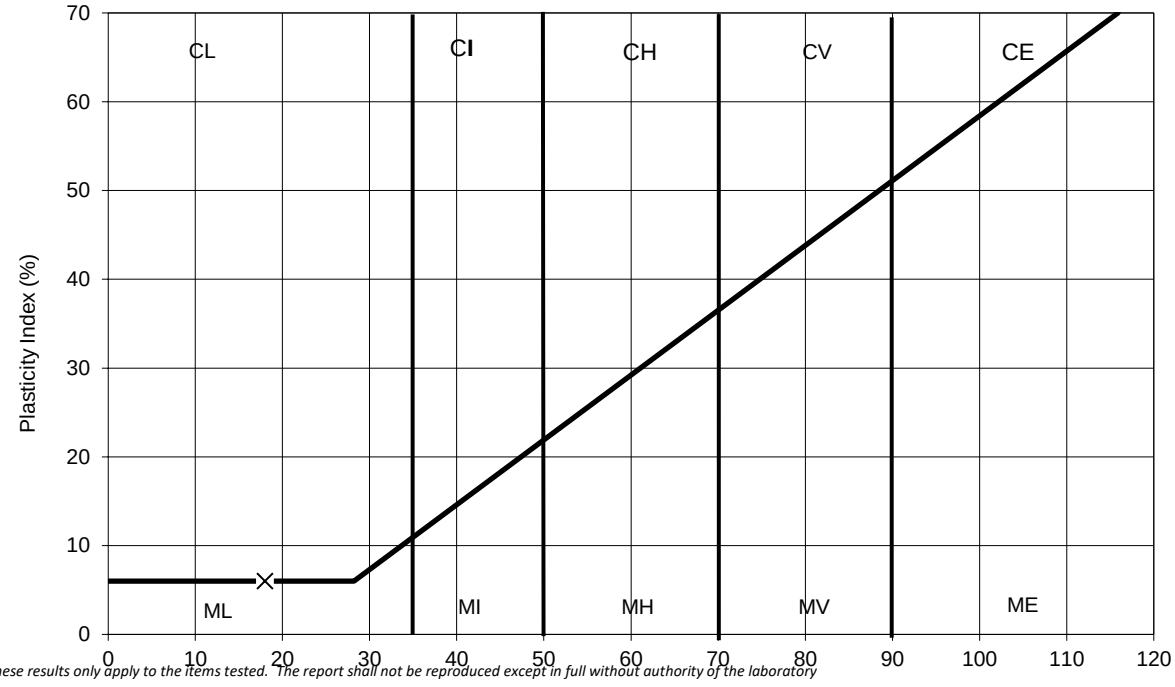
Borehole/Pit No. TP-91905



NATURAL MOISTURE CONTENT	**9.3**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

Date: 28/10/2022

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UKAS TESTING

2519

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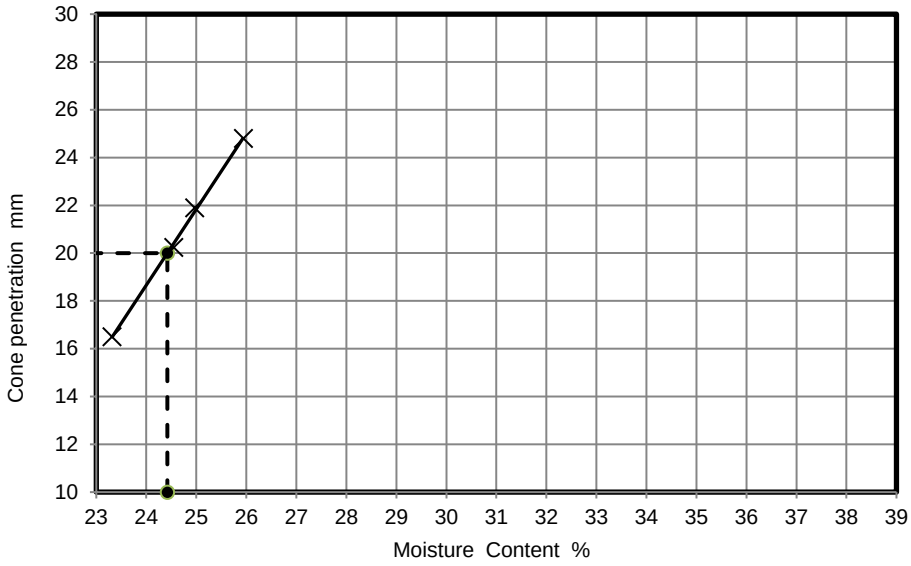
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

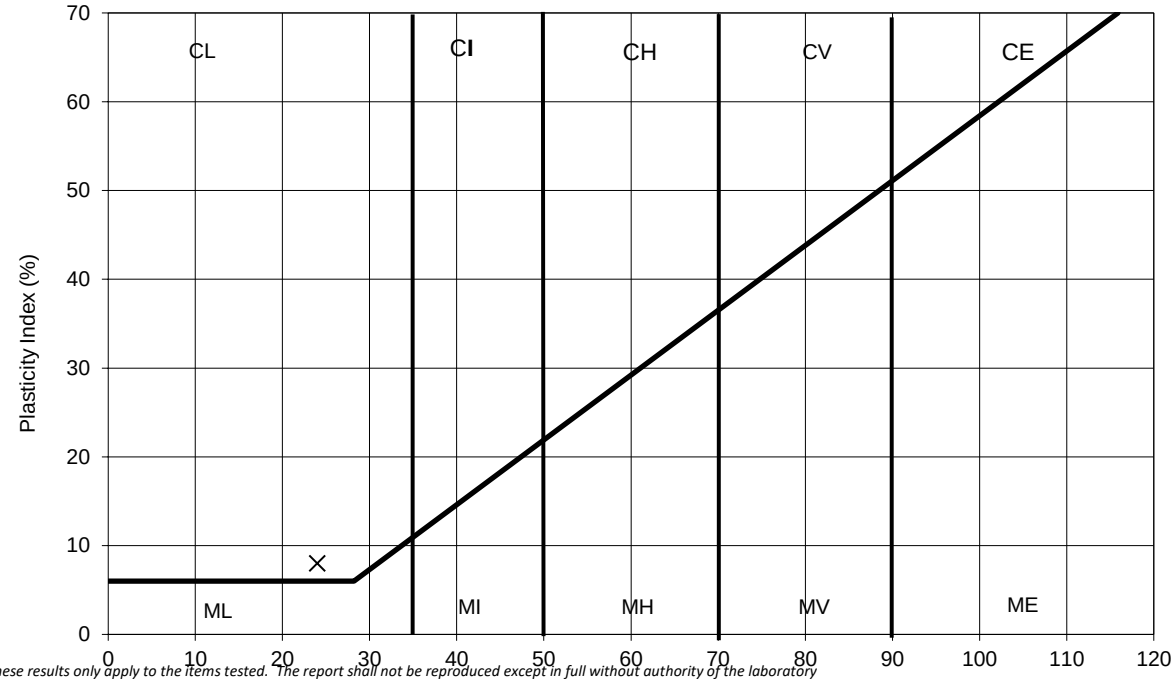
				Job No.	32282
				Borehole/Pit No.	TP-92029
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark brown slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**79**	**%**
LIQUID LIMIT	**24**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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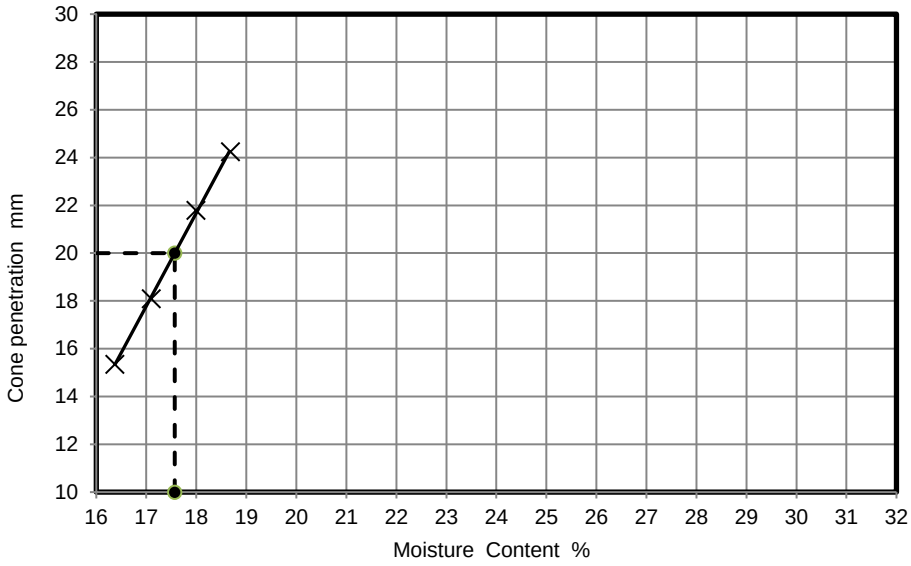
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

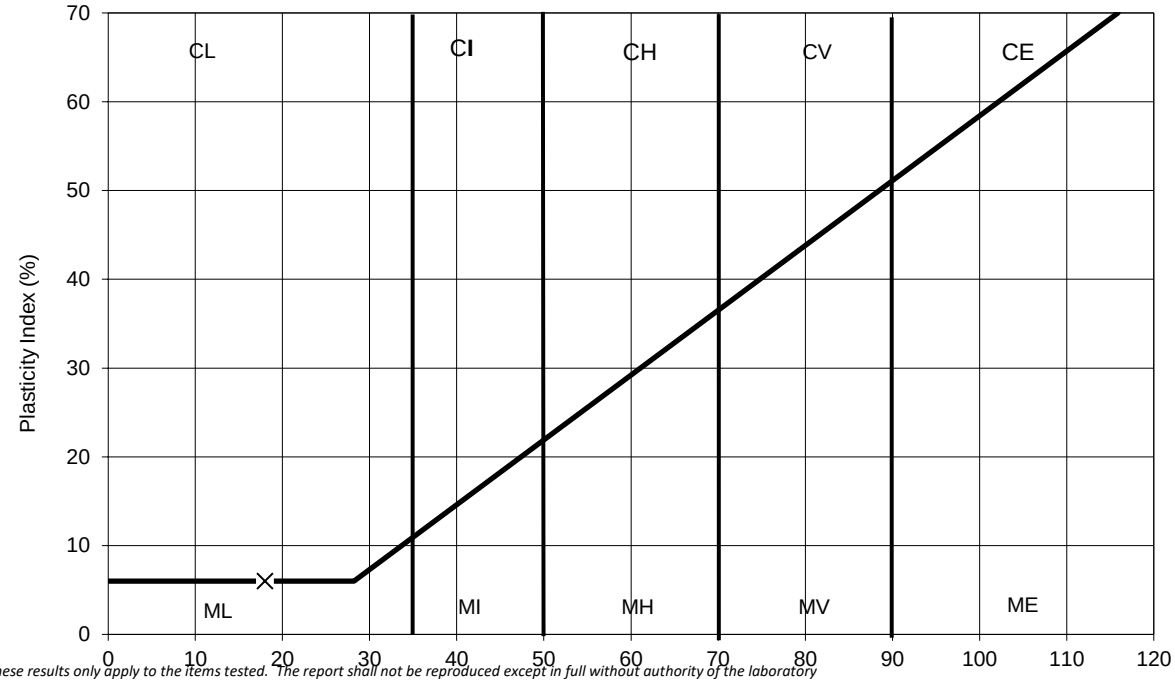
				Job No.	32282
				Borehole/Pit No.	TP-92029
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**62**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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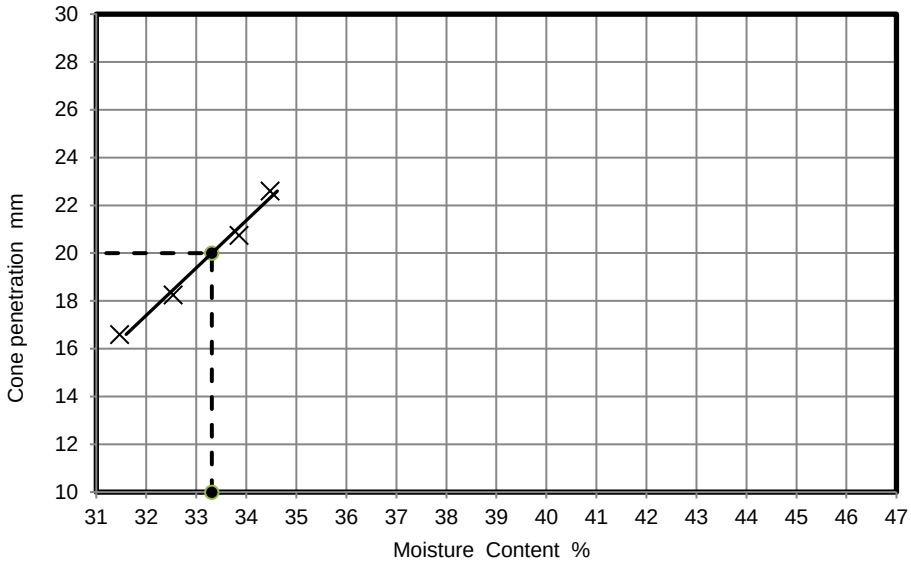
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

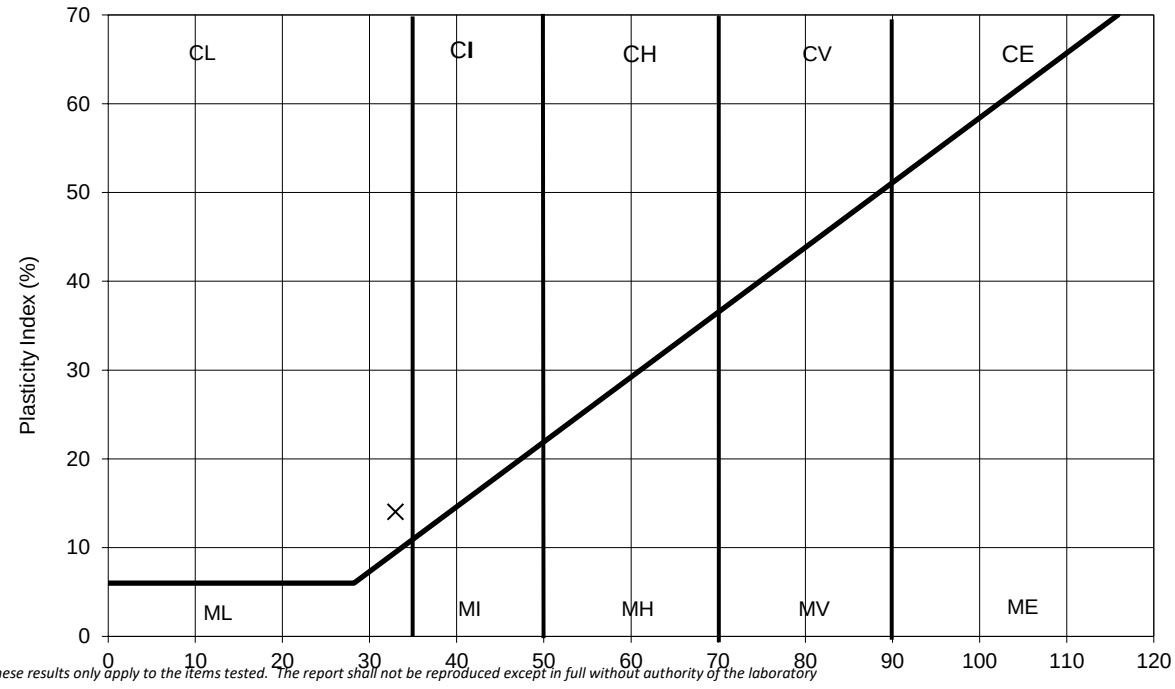
				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022



NATURAL MOISTURE CONTENT	**21**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**33**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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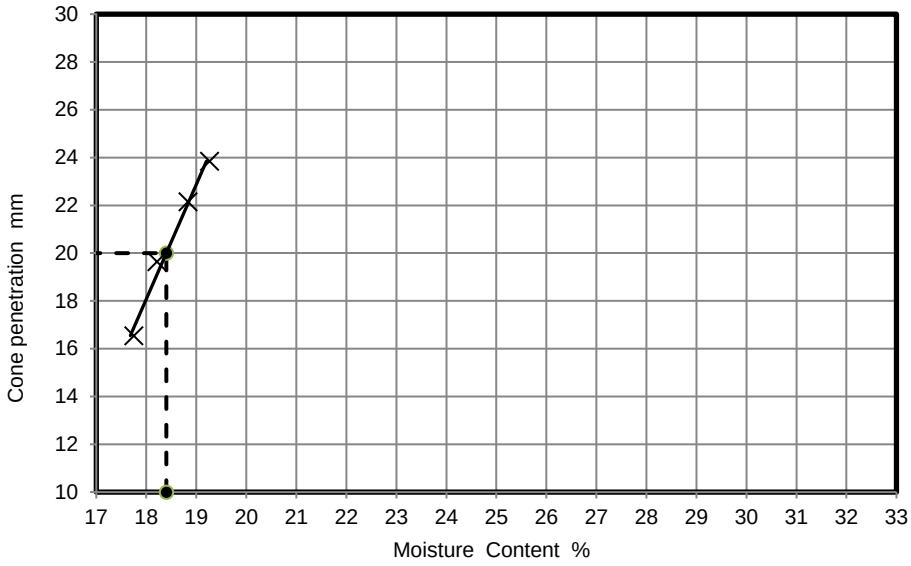
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Light brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

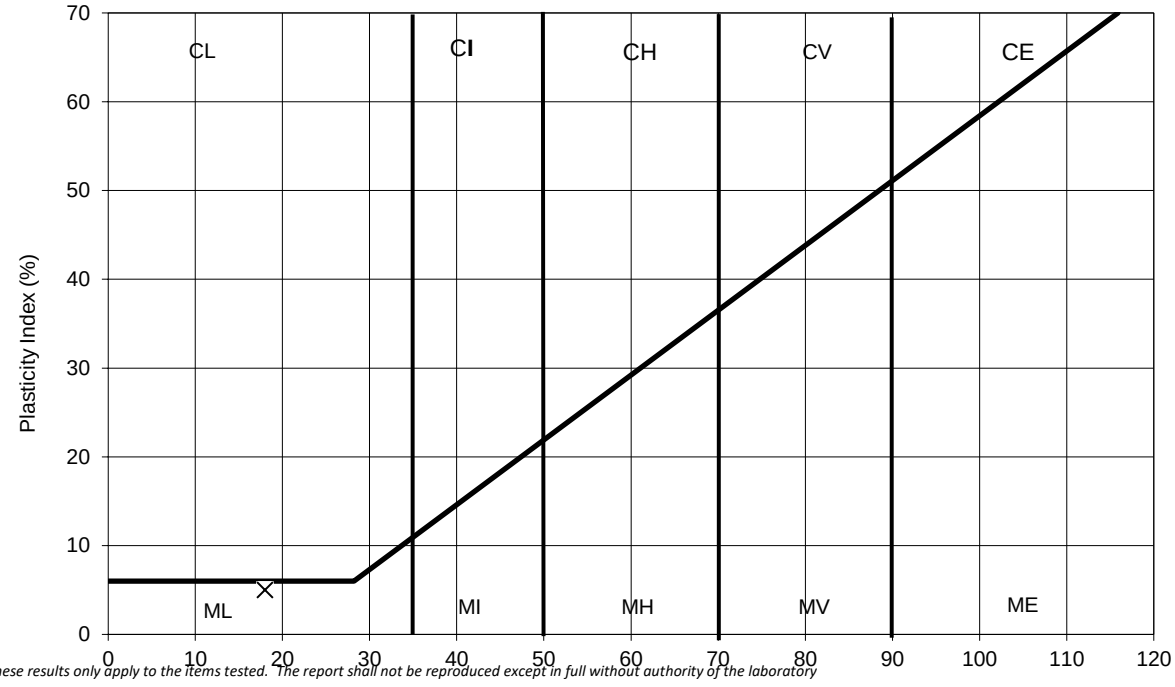


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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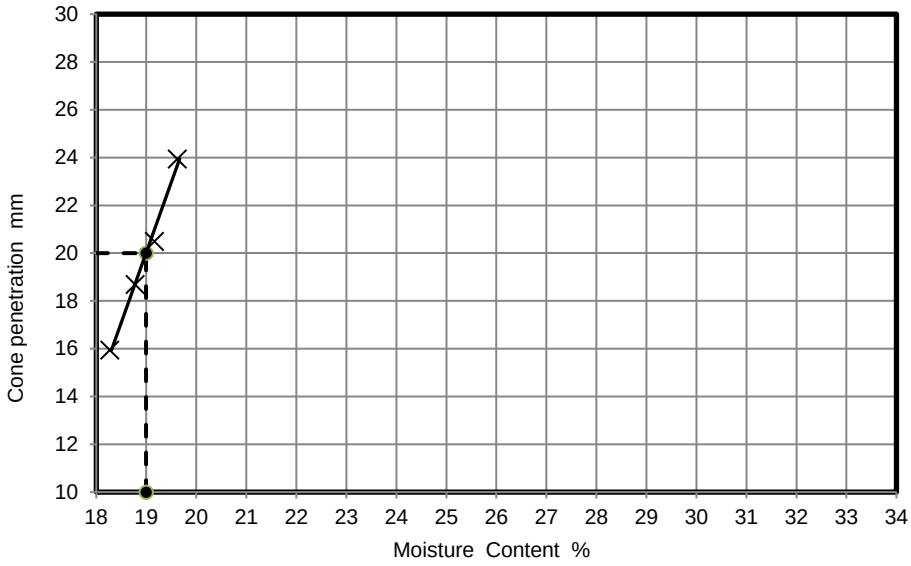
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/09/2022

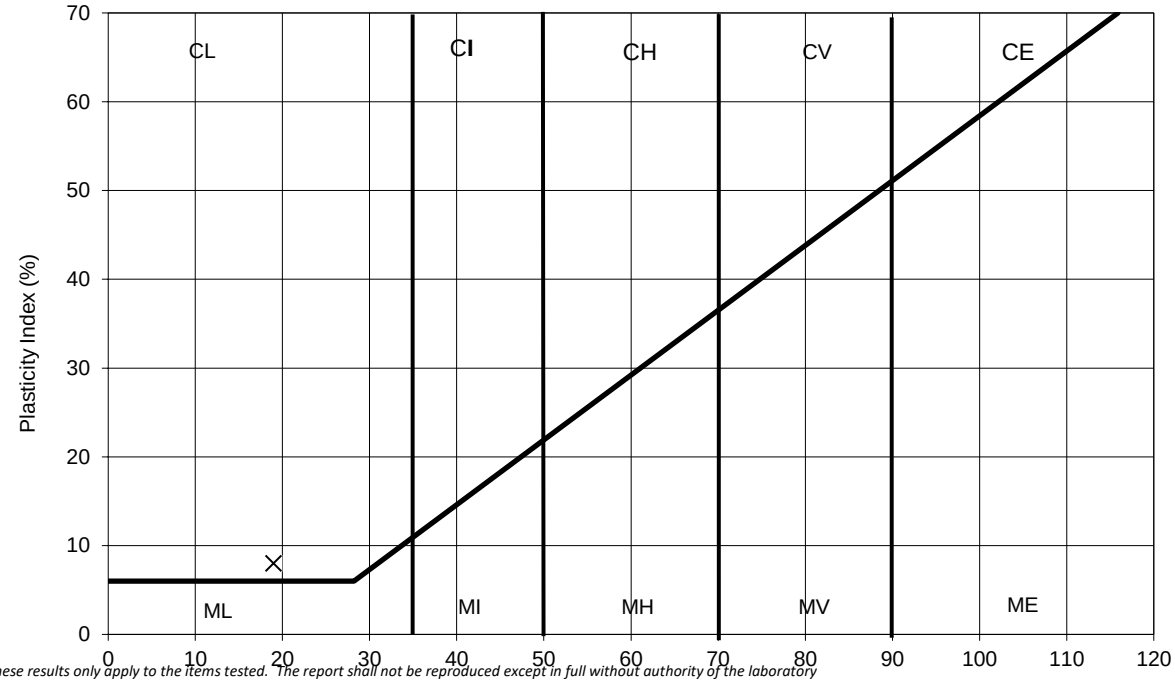


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**54**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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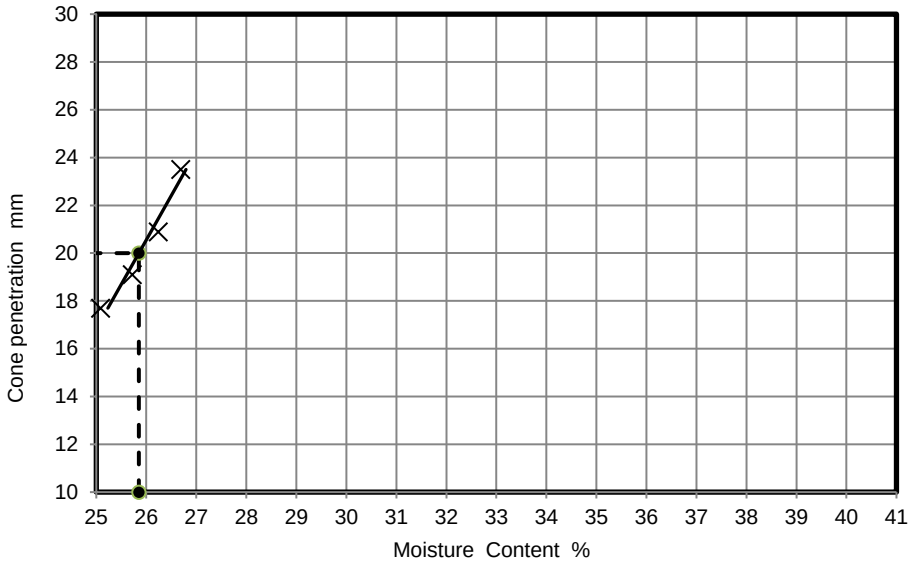
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown gravelly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

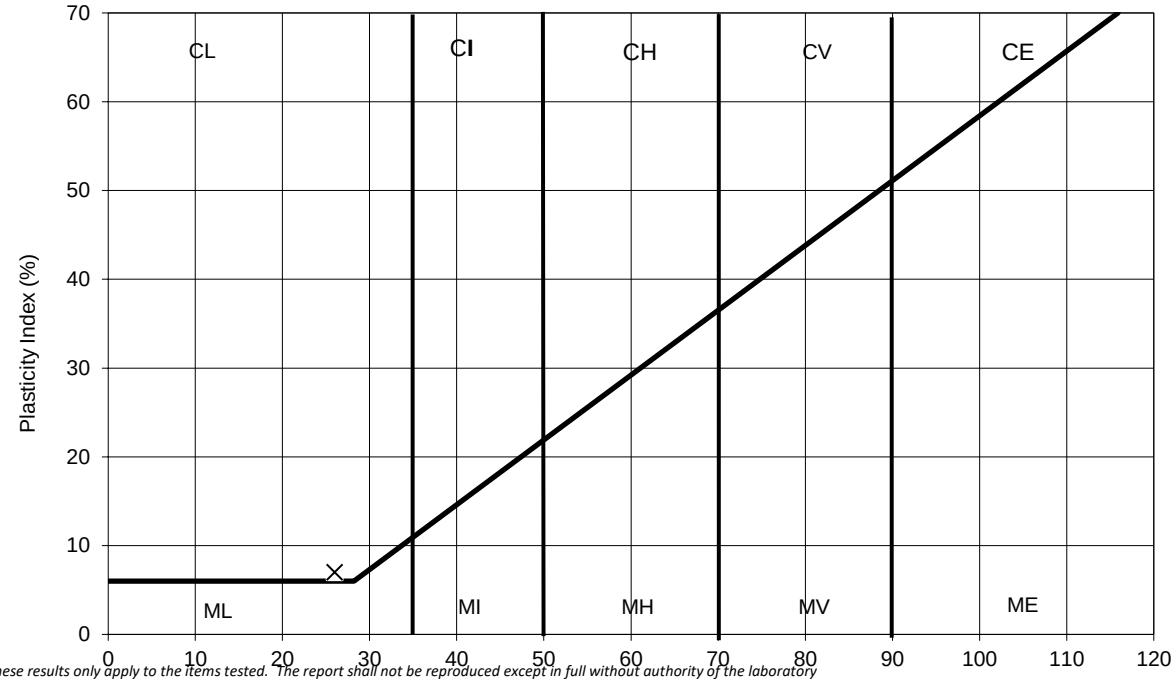


NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**73**	**%**
LIQUID LIMIT	**26**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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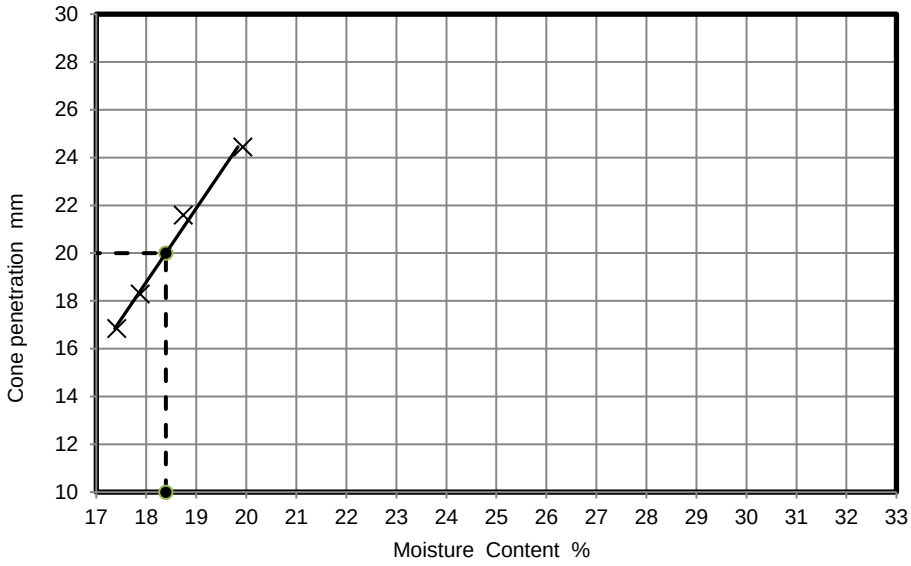
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

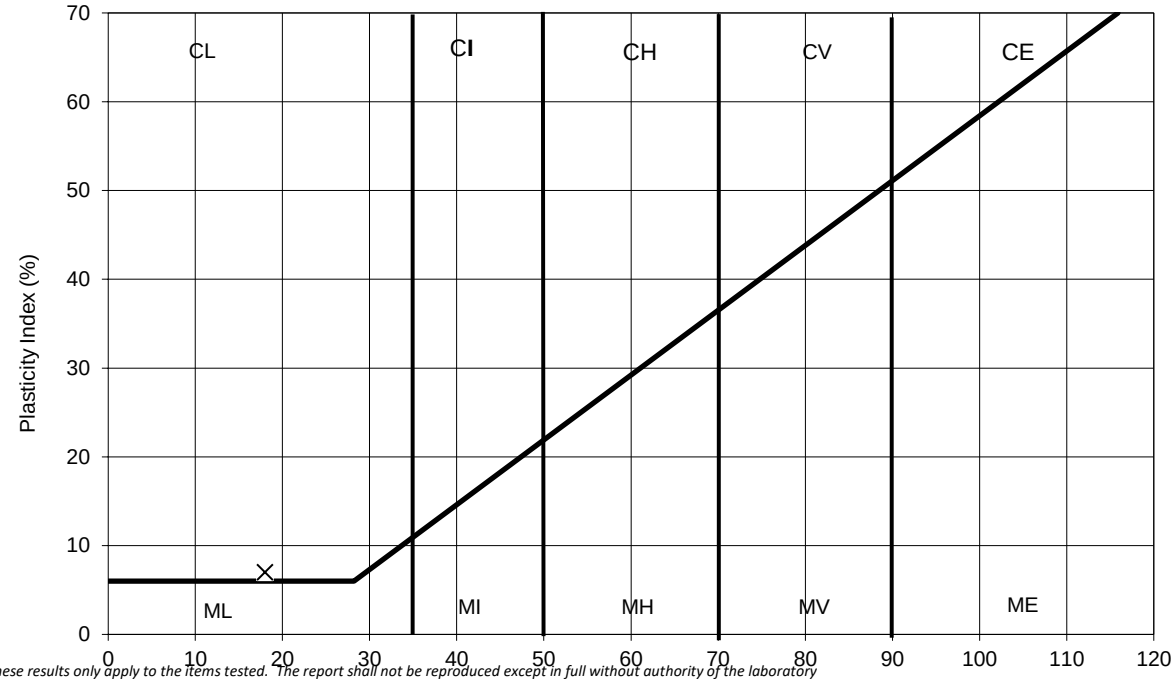


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**69**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

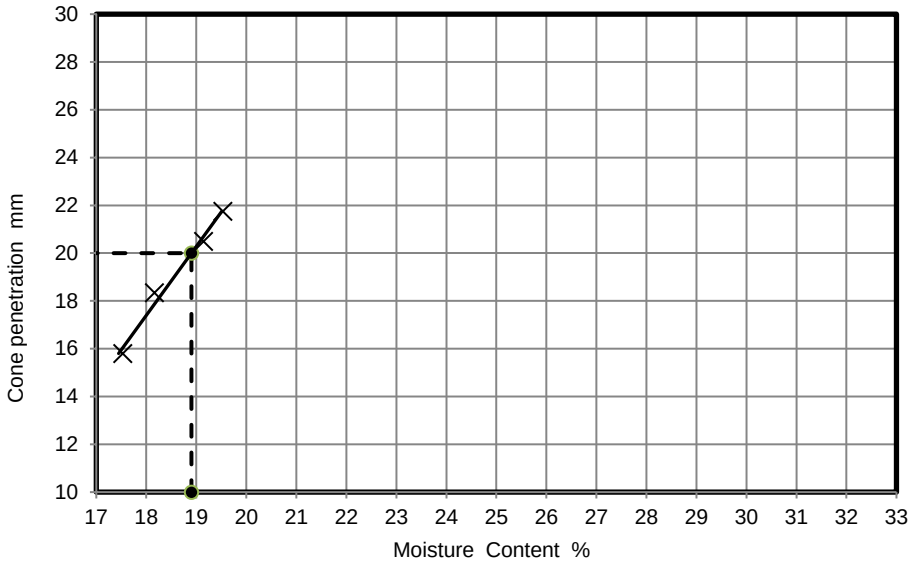
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Job No.	32282				
Borehole/Pit No.	TP-93505				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

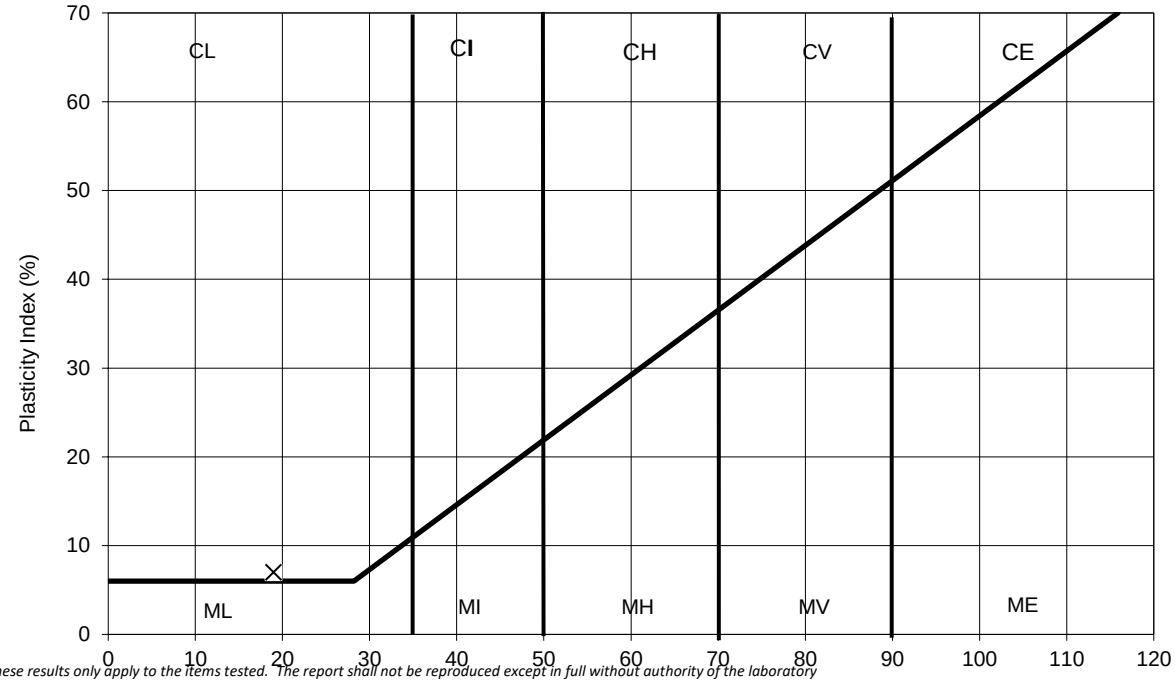


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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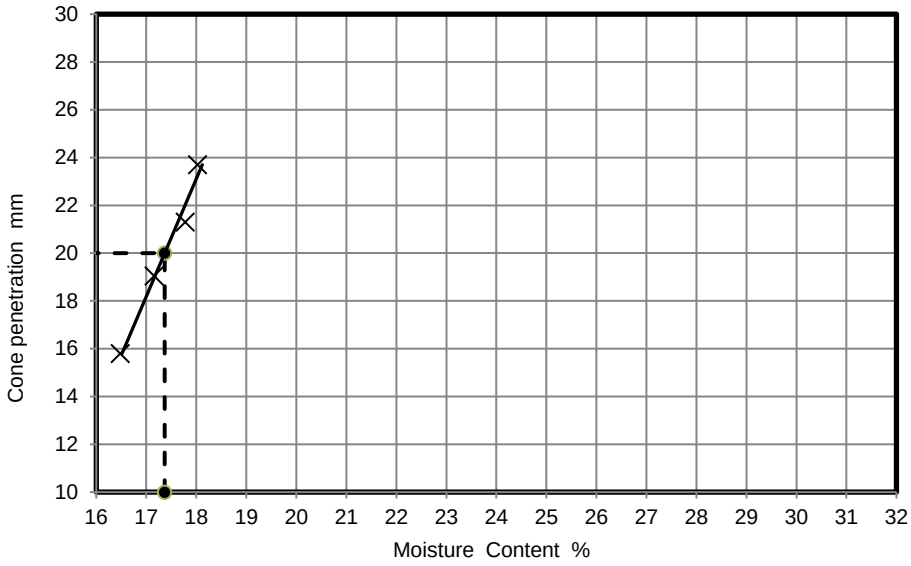
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93505
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Grey sandy fmc sub-angular to sub-rounded gravel in a silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

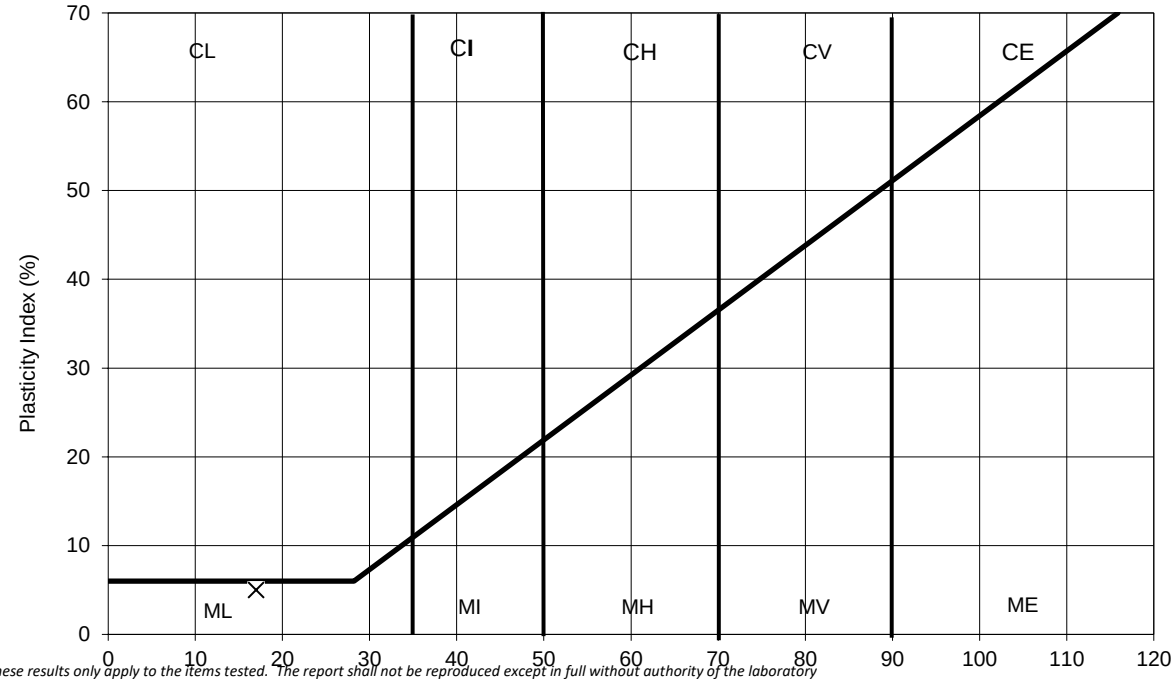


NATURAL MOISTURE CONTENT	**7.3**	**%**
% PASSING 425µm SIEVE	**42**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**5**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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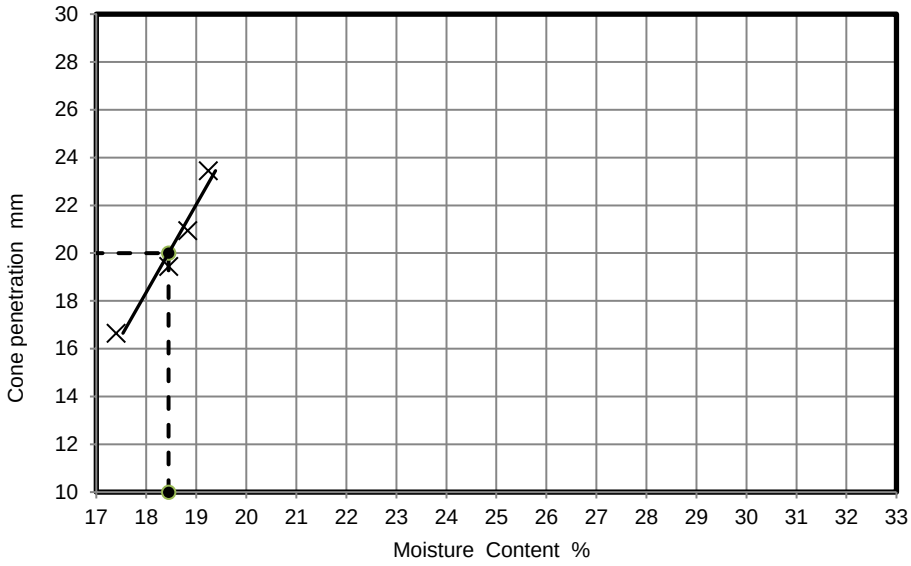
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

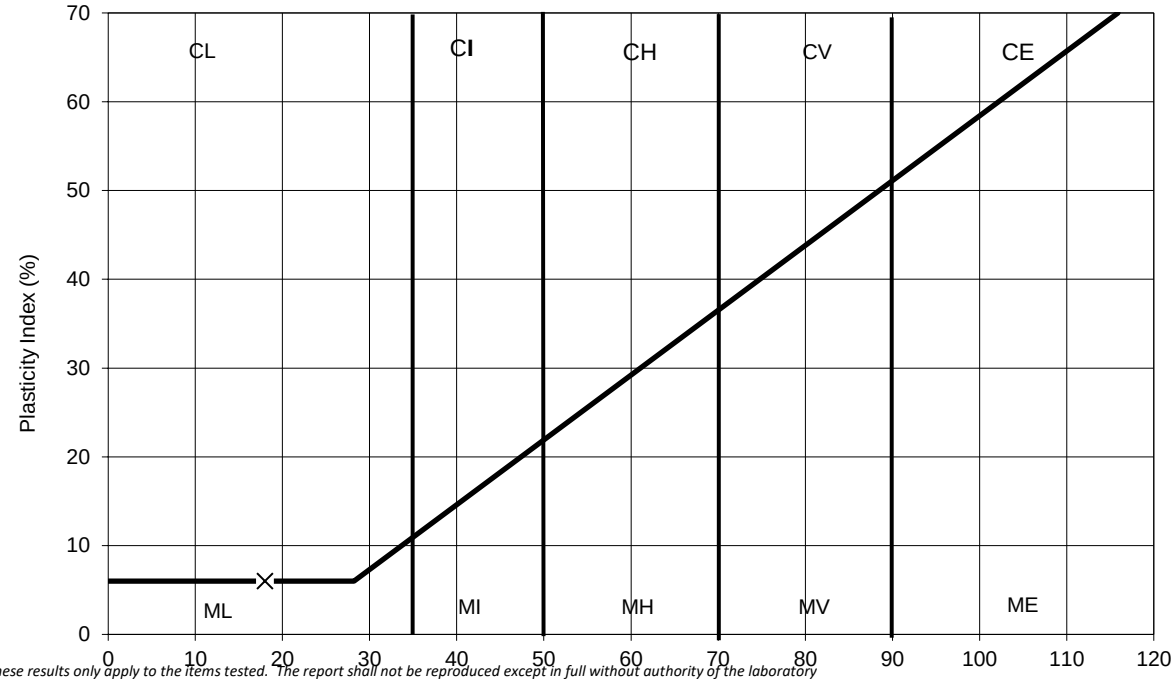
				Job No.	32282
				Borehole/Pit No.	TP-93602
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022



NATURAL MOISTURE CONTENT	**9.0**	**%**
% PASSING 425µm SIEVE	**58**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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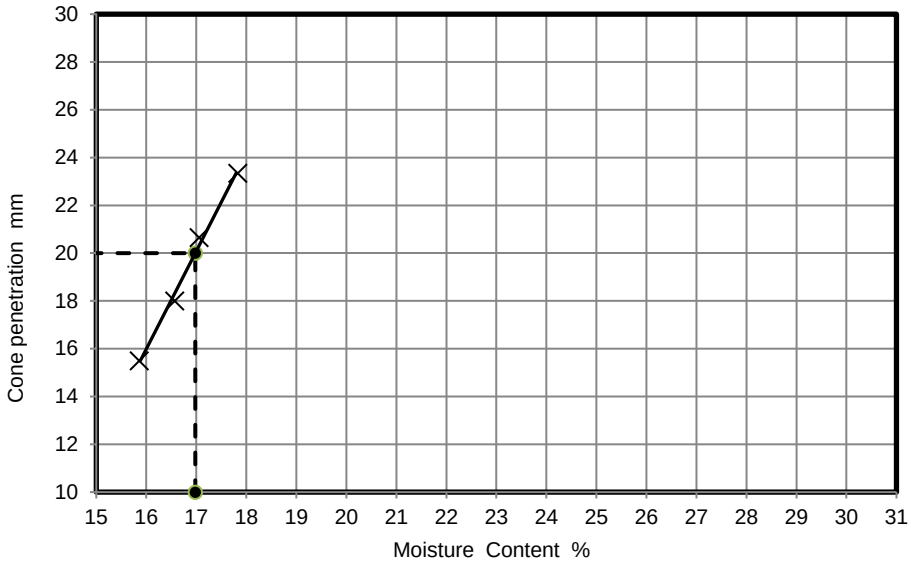
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93703
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

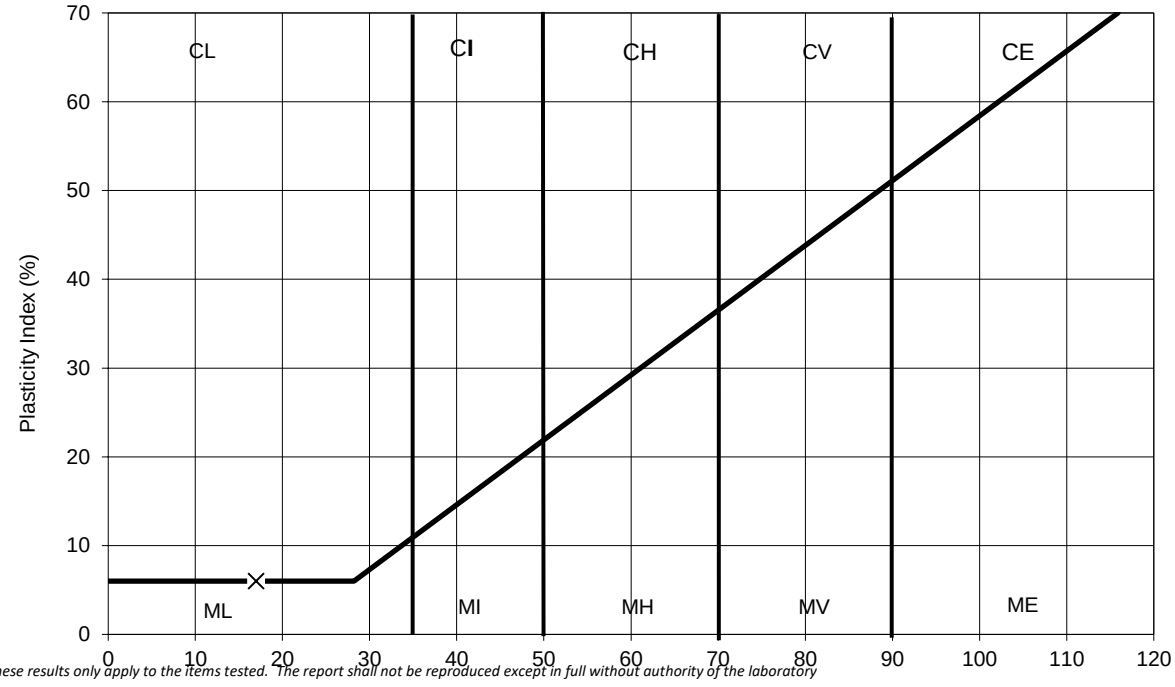


NATURAL MOISTURE CONTENT	**9.8**	**%**
% PASSING 425µm SIEVE	**48**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

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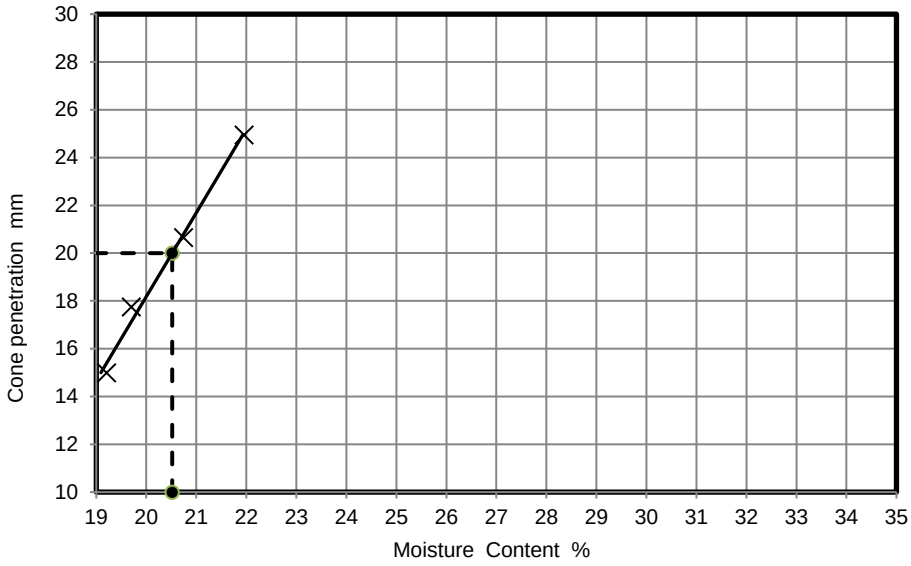
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93803
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

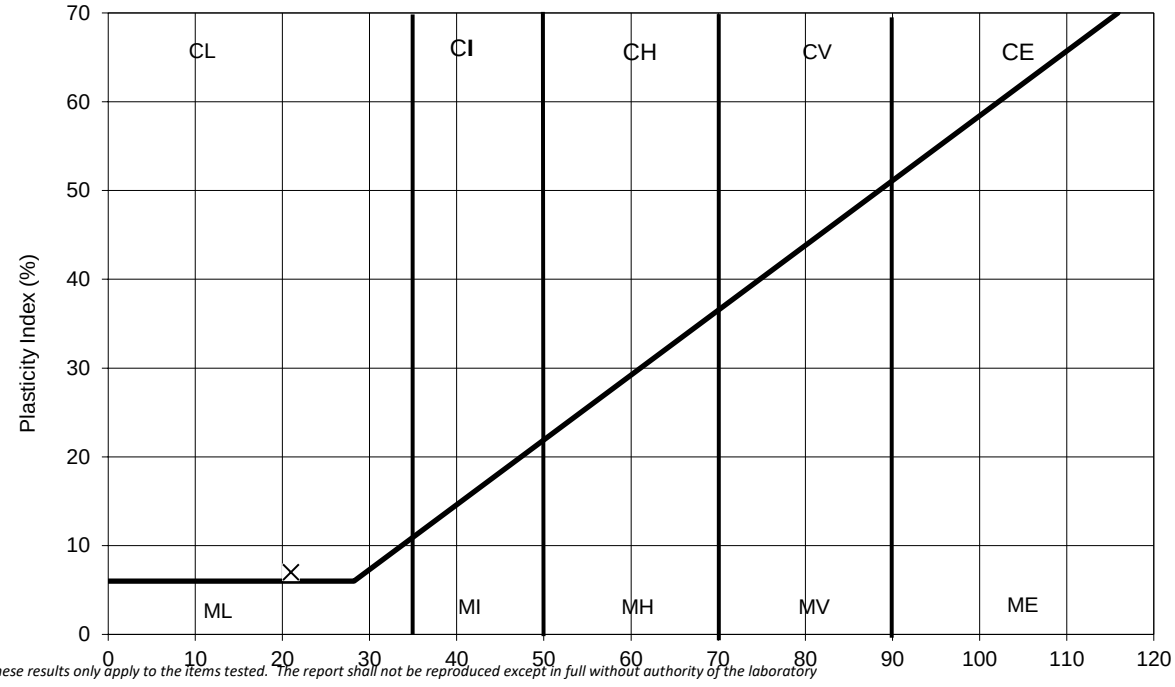


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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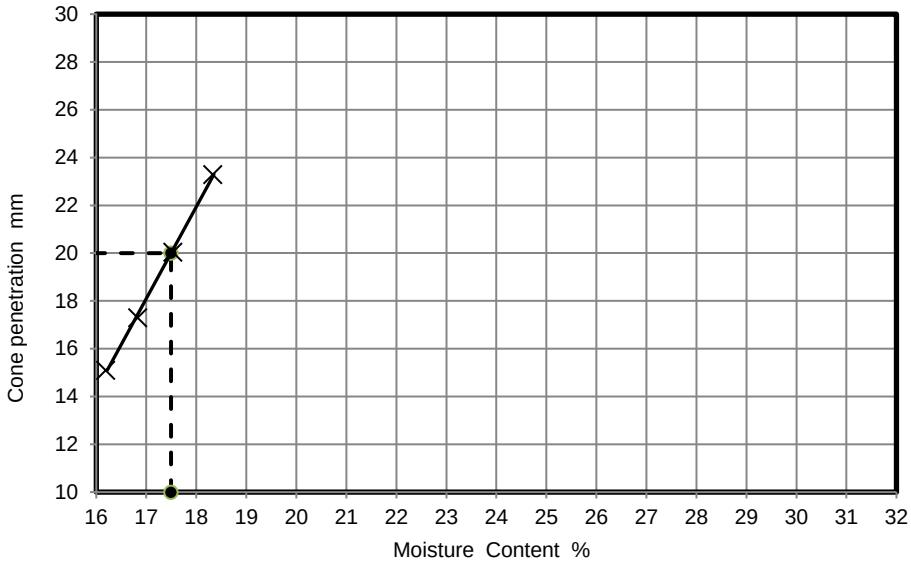
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-93902
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022

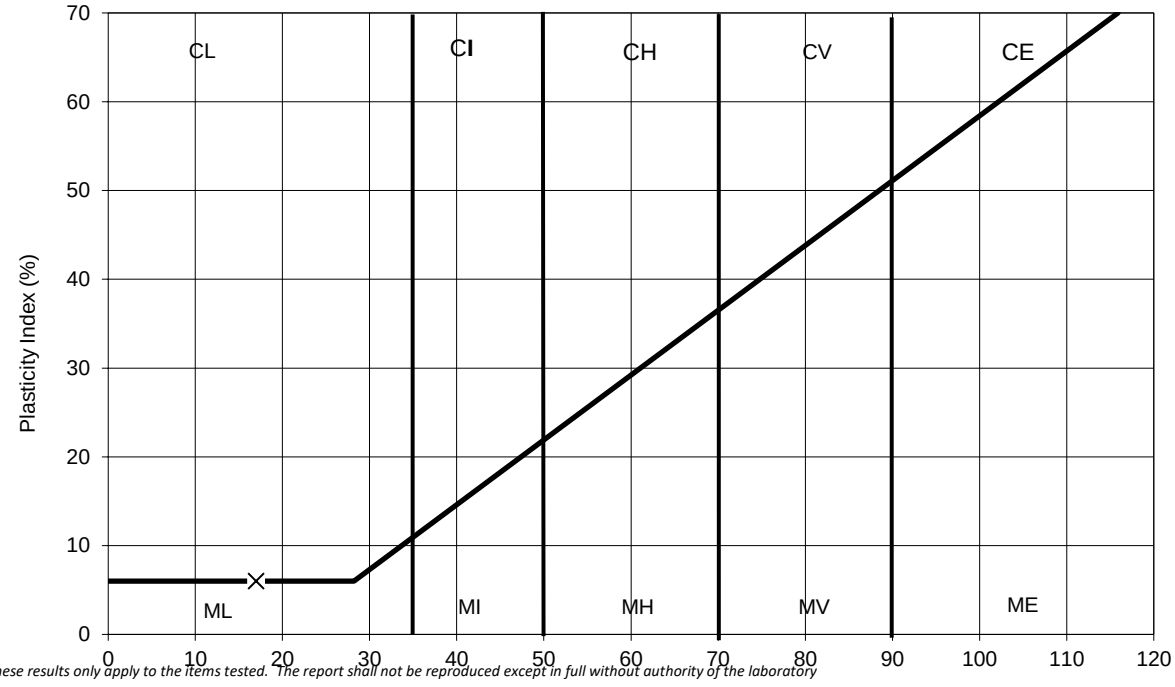


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**59**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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UKAS TESTING

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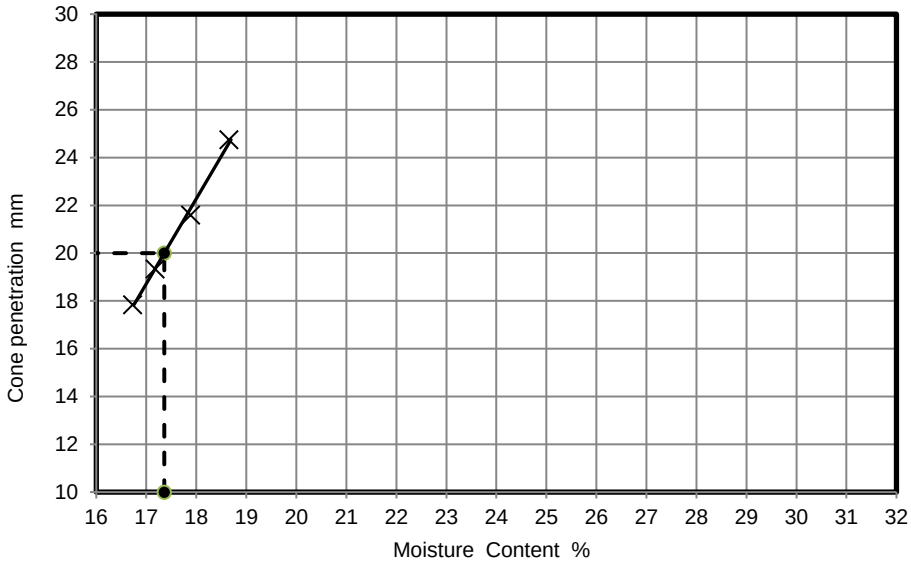
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

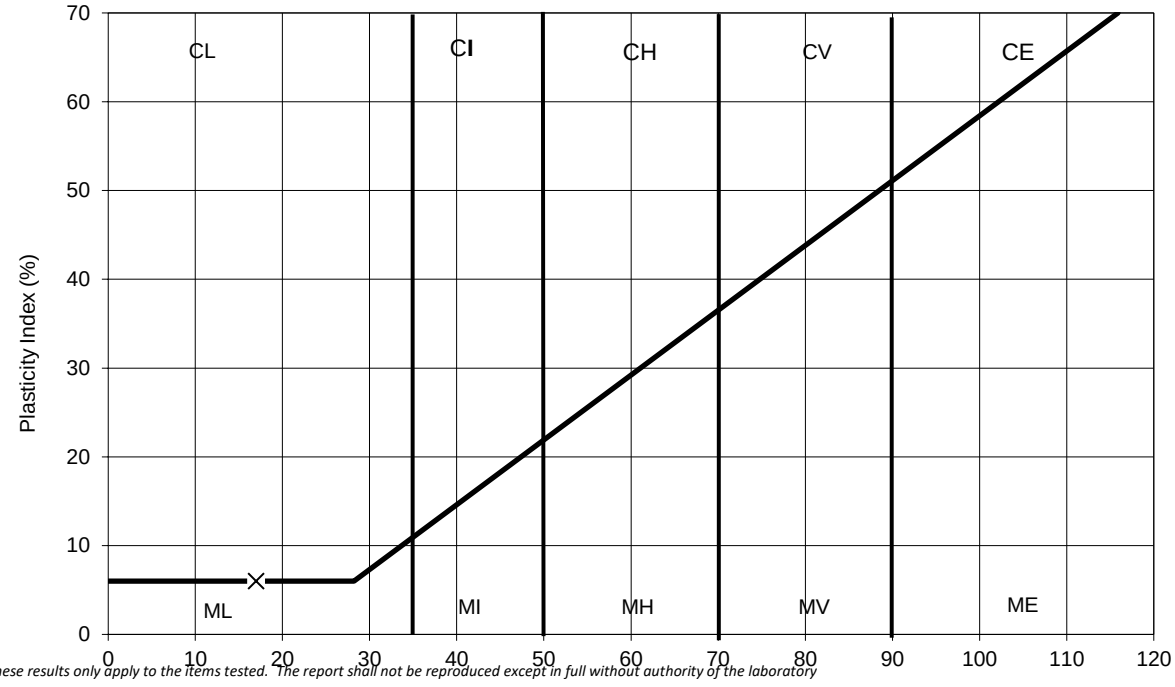
				Job No.	32282
				Borehole/Pit No.	TP-94198
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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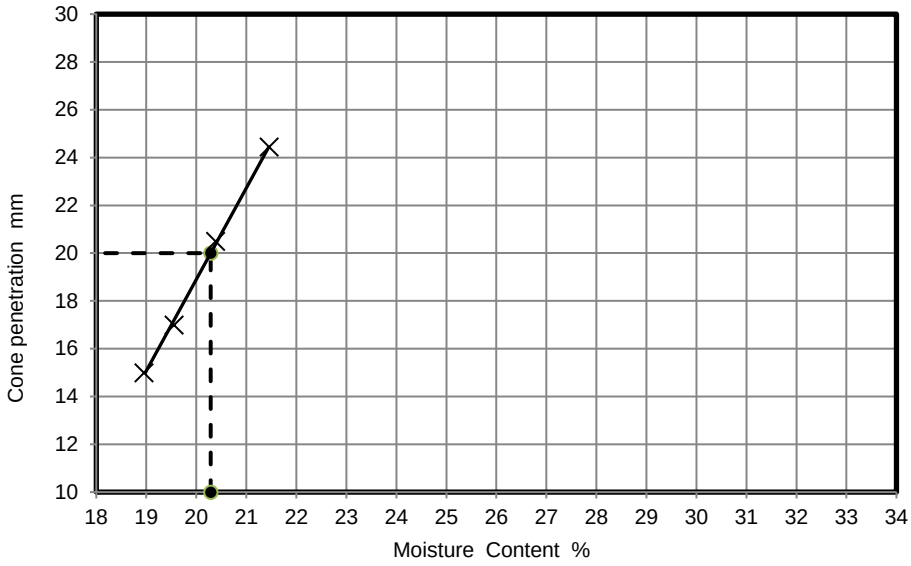
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

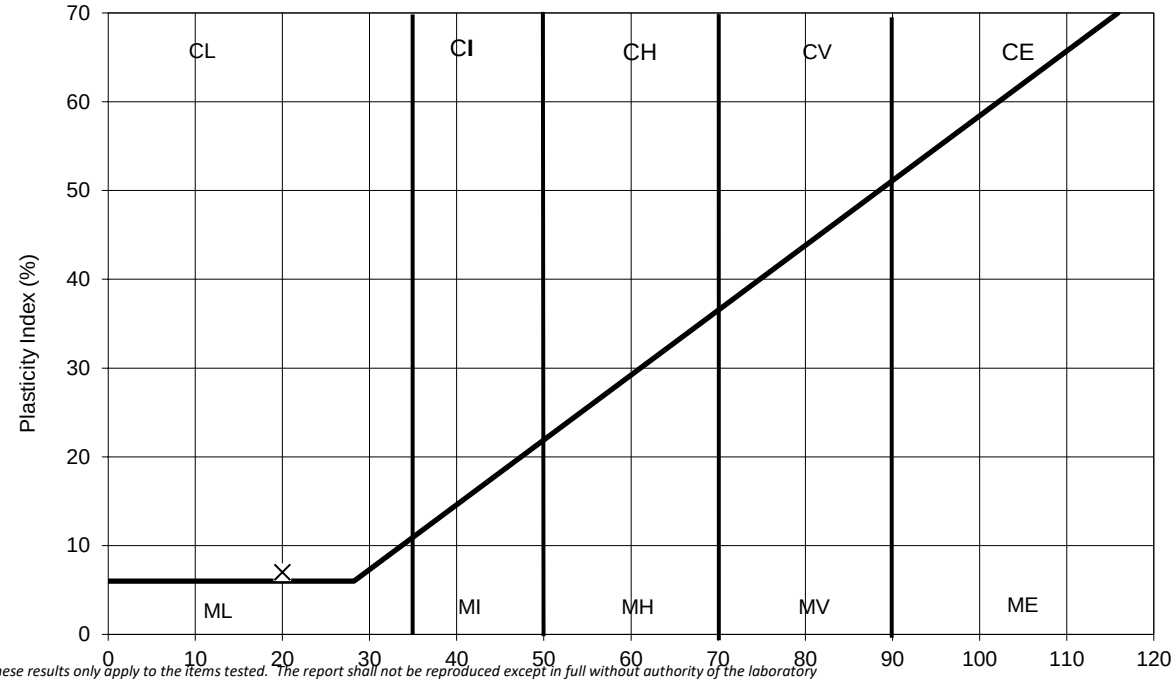
Job No.	32282				
Borehole/Pit No.	TP-94401				
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fm and angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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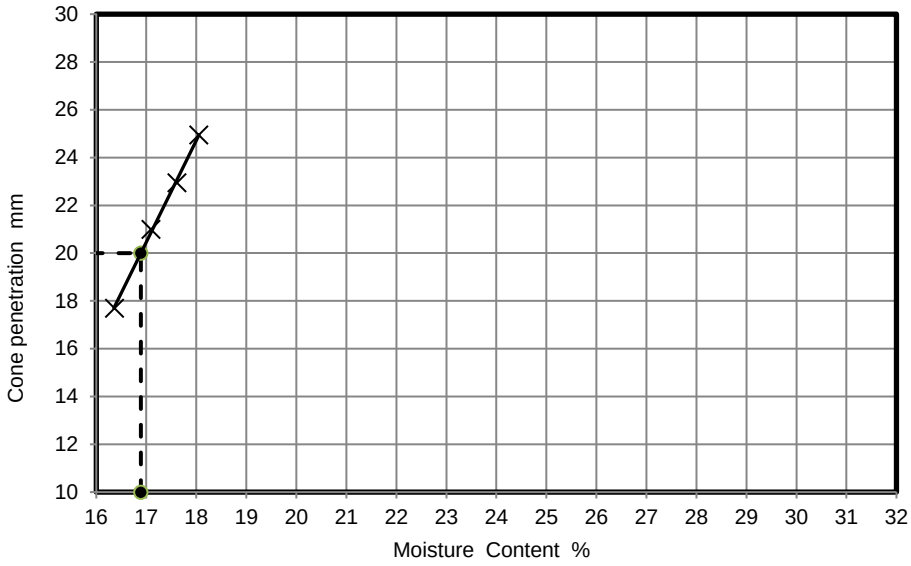
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

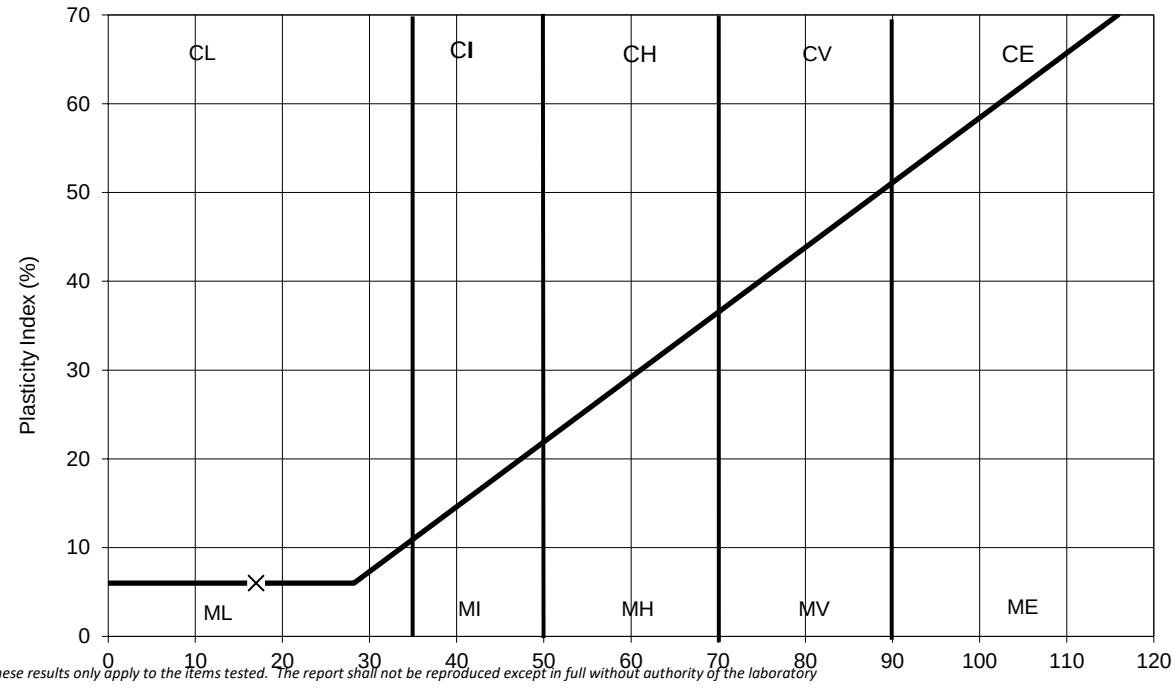
				Job No.	32282
				Borehole/Pit No.	TP-94401
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**64**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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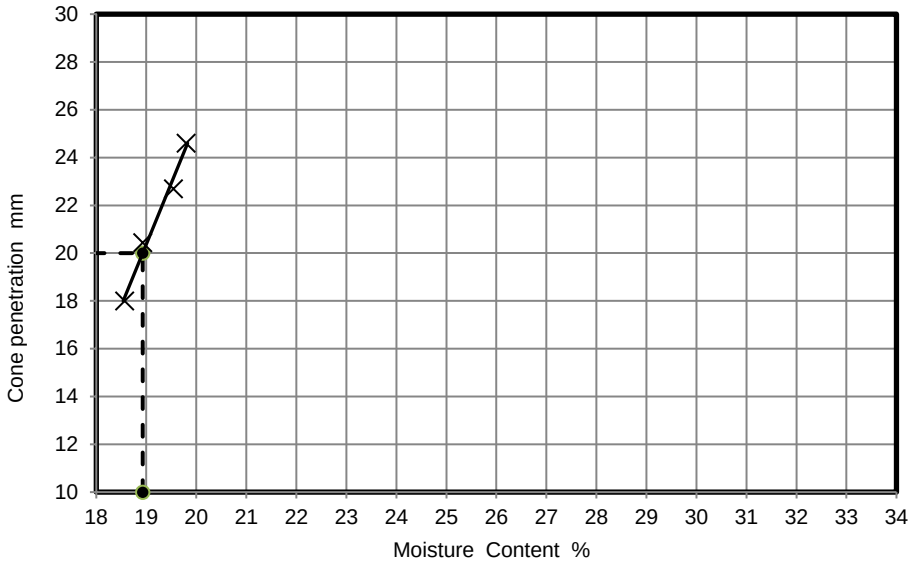
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

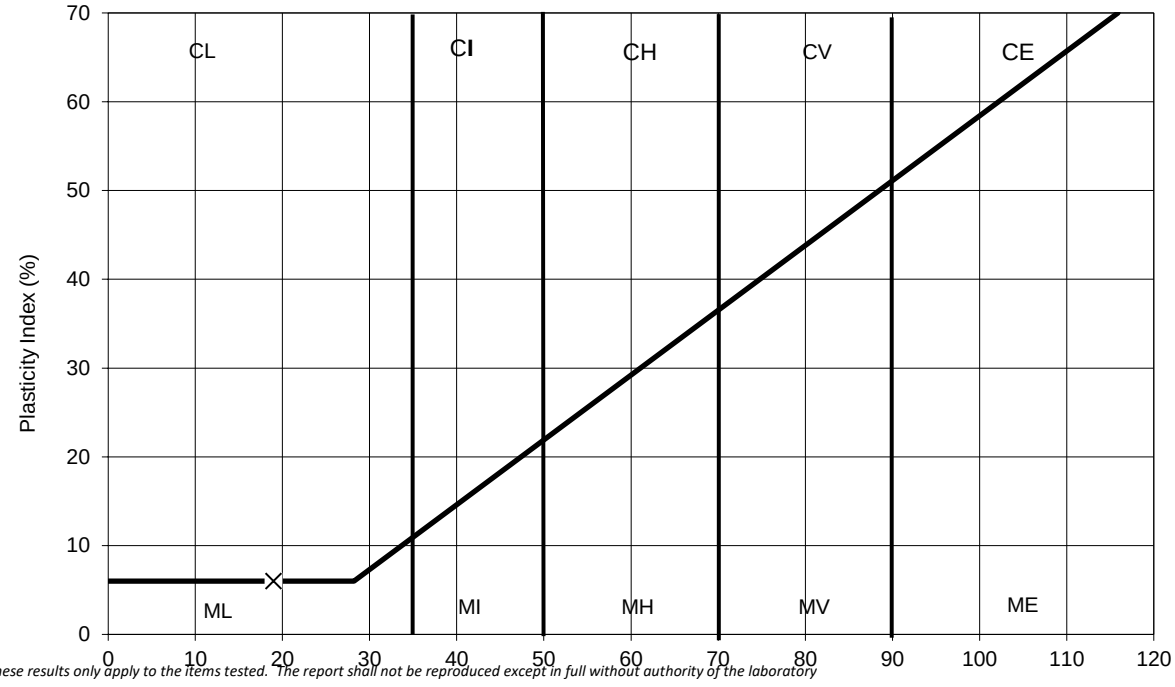
				Job No.	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	27/09/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

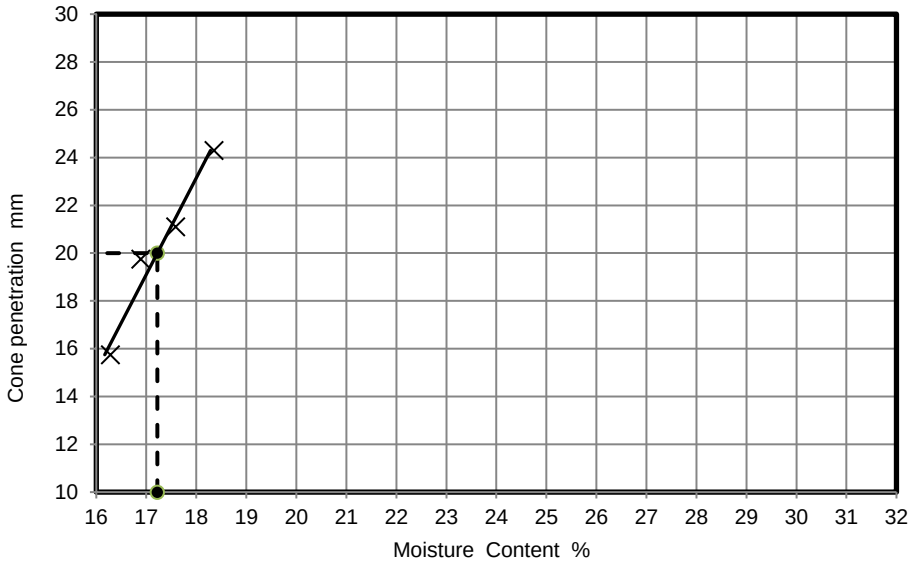
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Greenish grey and brown gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022

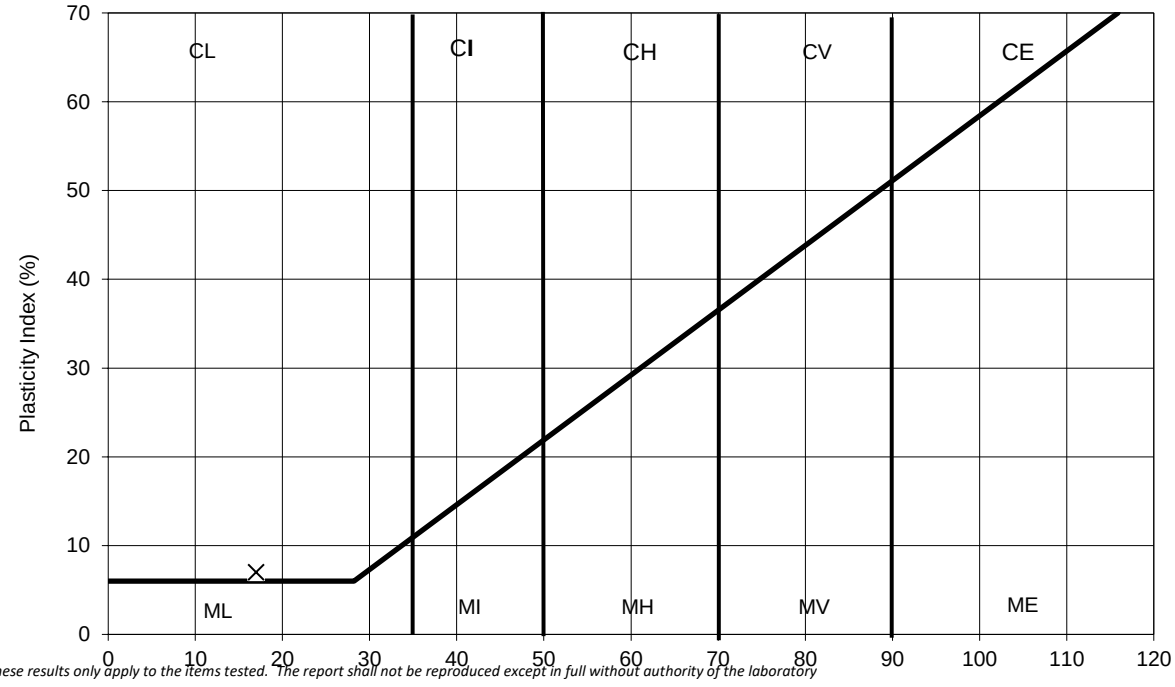


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**65**	**%**
LIQUID LIMIT	**17**	**%**
PLASTIC LIMIT	**10**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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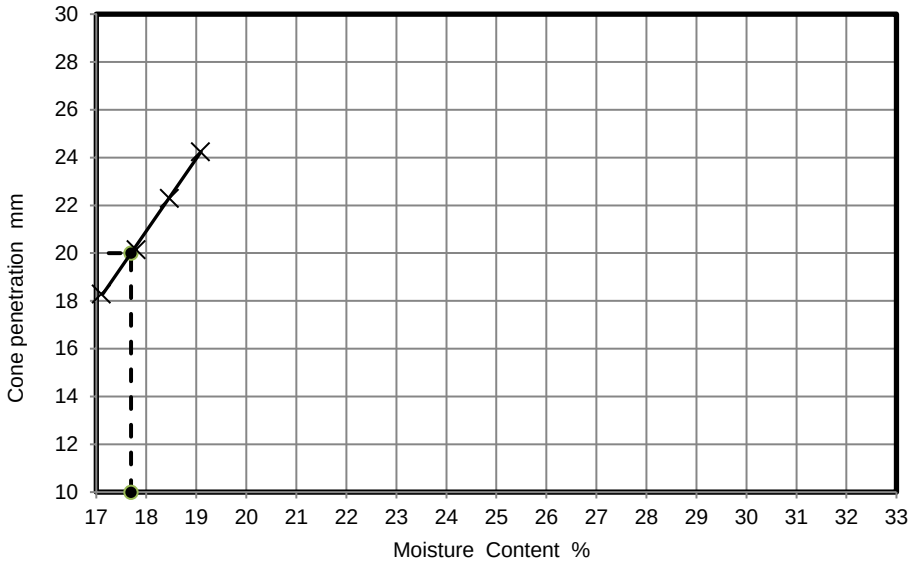
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	26/09/2022
				Job No.	32282
				Borehole/Pit No.	TP-94608

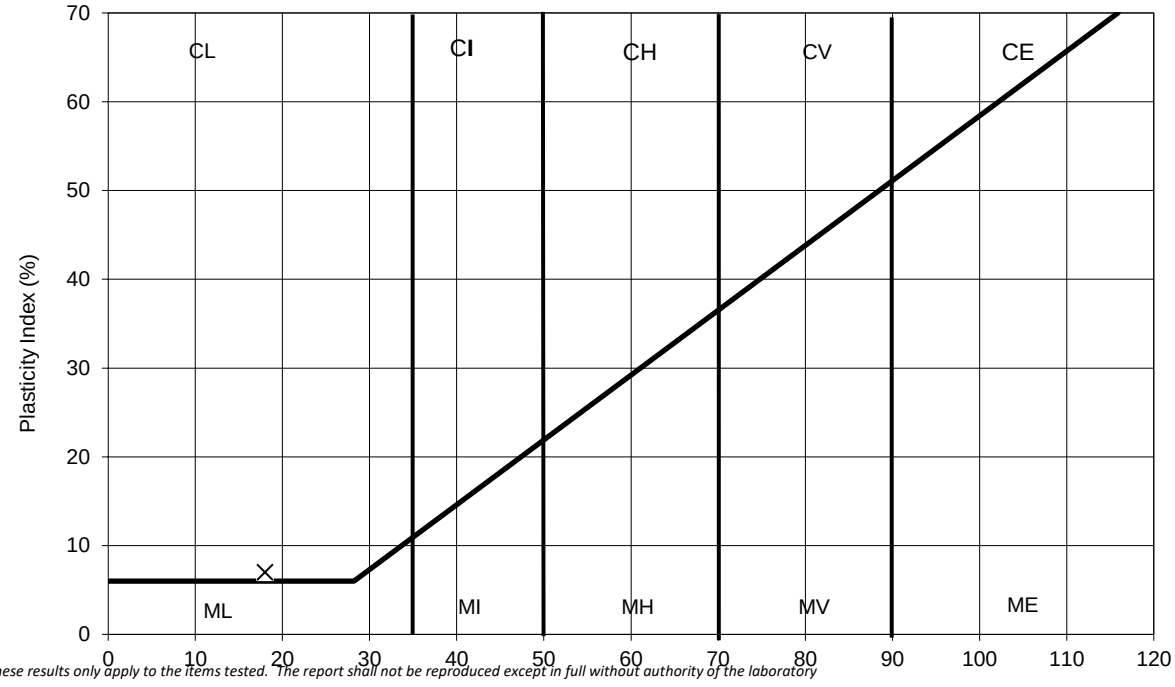


NATURAL MOISTURE CONTENT	**9.7**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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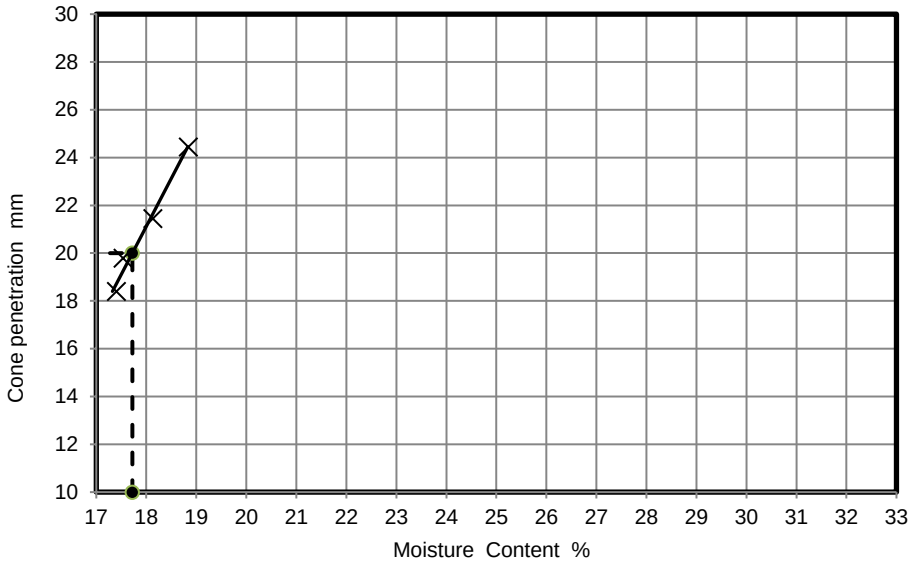
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-94704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

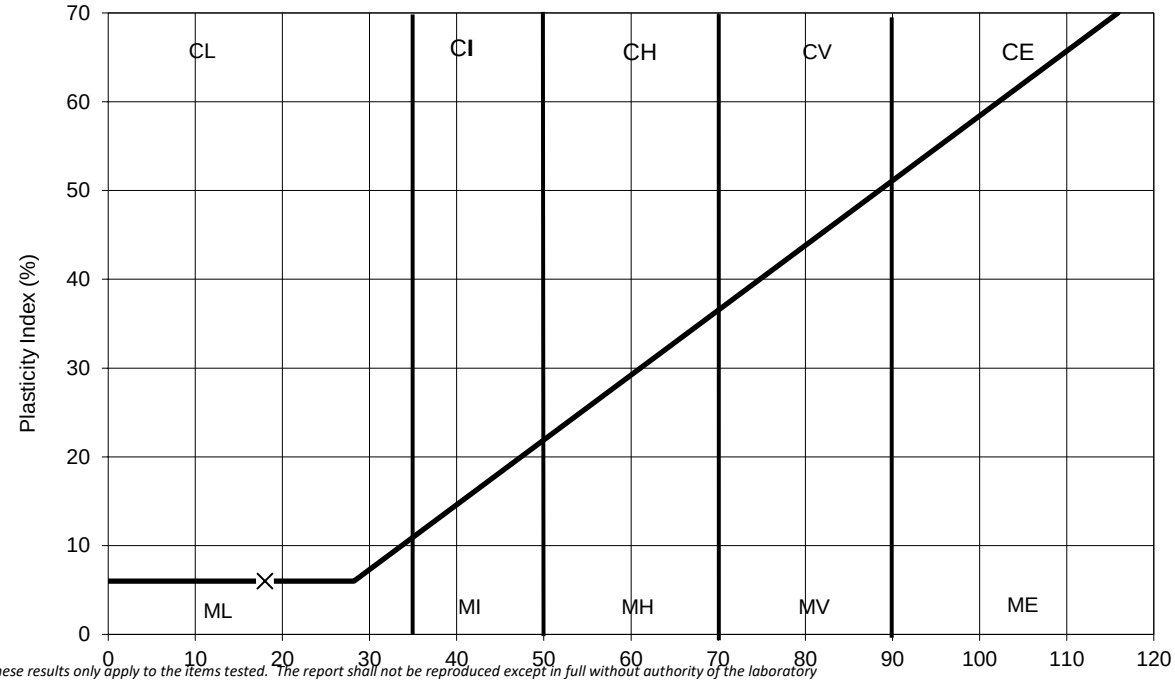


NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**53**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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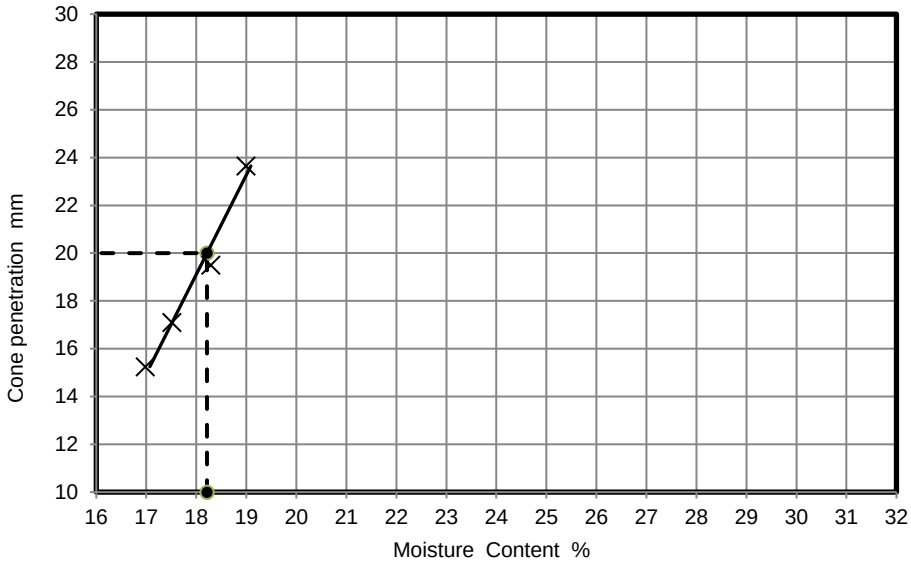
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey brown gravelly silty sandy CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

Job No. 32282

Borehole/Pit No. TP-94809

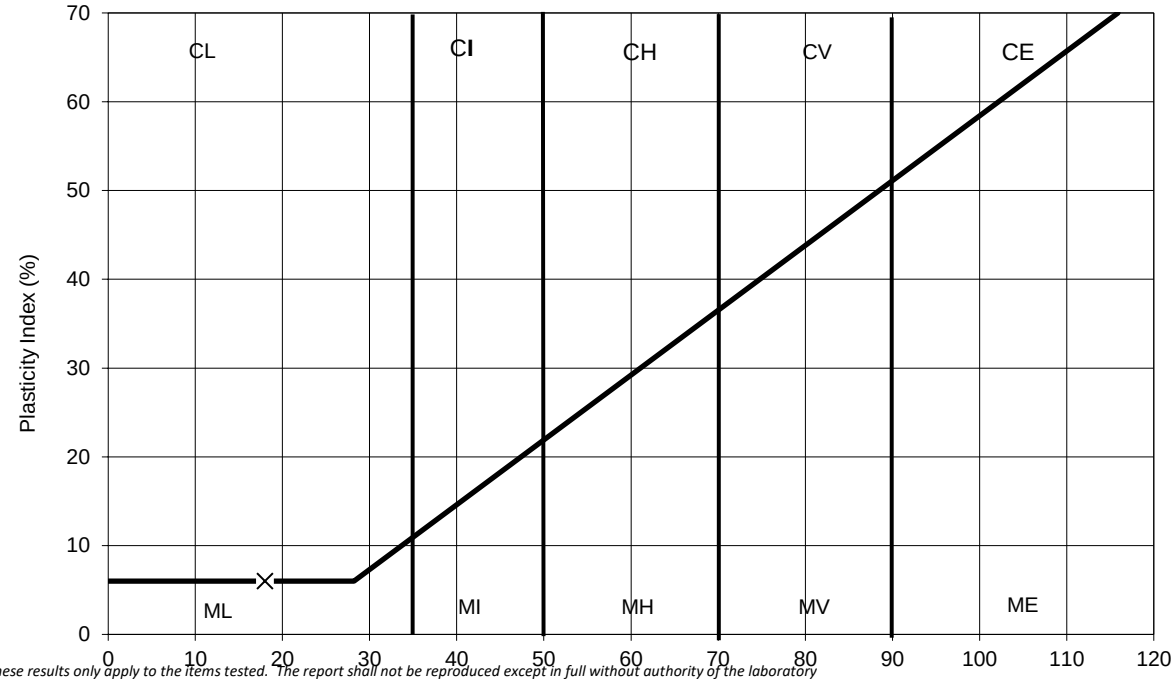


NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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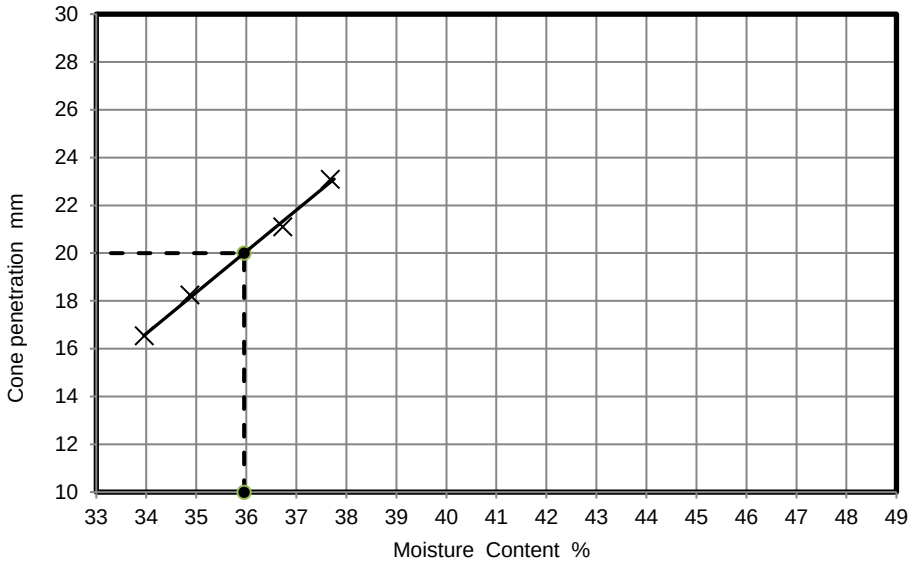
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brown and light grey sandy silty CLAY with rare fm sub-angular gravel			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

Job No. 32282

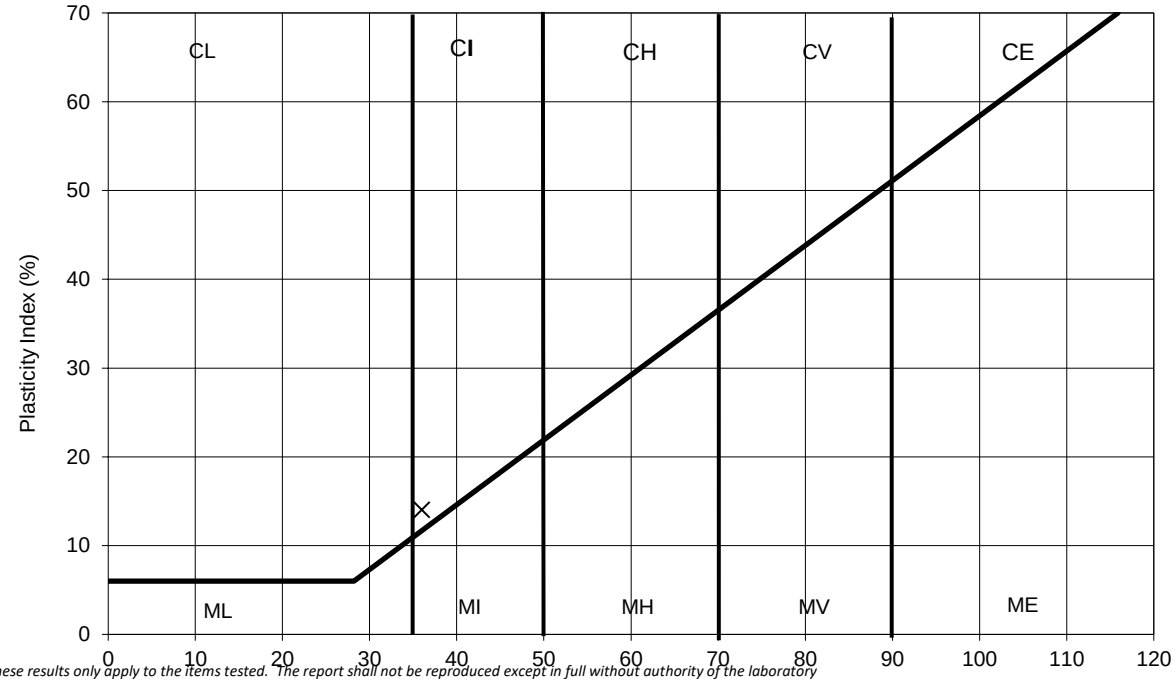
Borehole/Pit No. TP-94905



NATURAL MOISTURE CONTENT	**23**	**%**
% PASSING 425µm SIEVE	**98**	**%**
LIQUID LIMIT	**36**	**%**
PLASTIC LIMIT	**22**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P

Date: 28/10/2022

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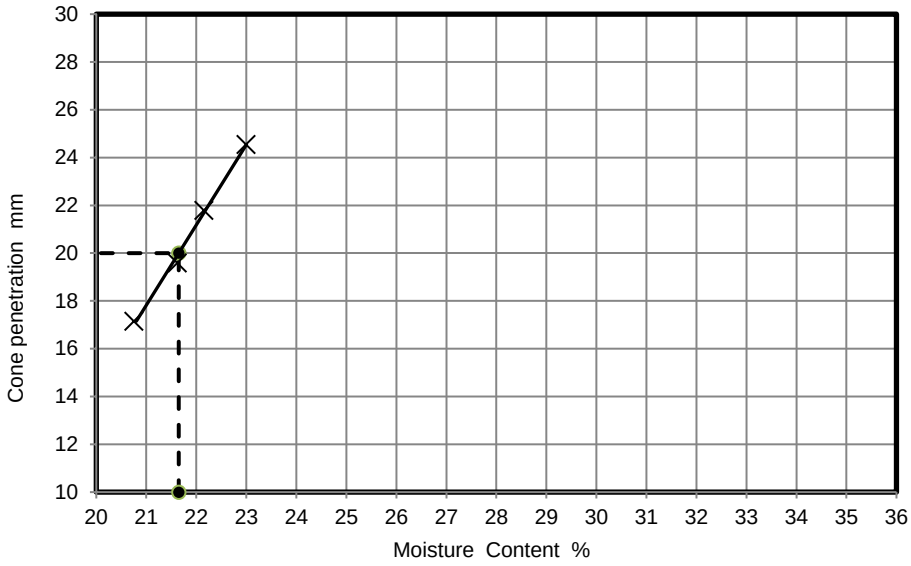
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey brown silty sandy clayey GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	23/09/2022

Job No. 32282

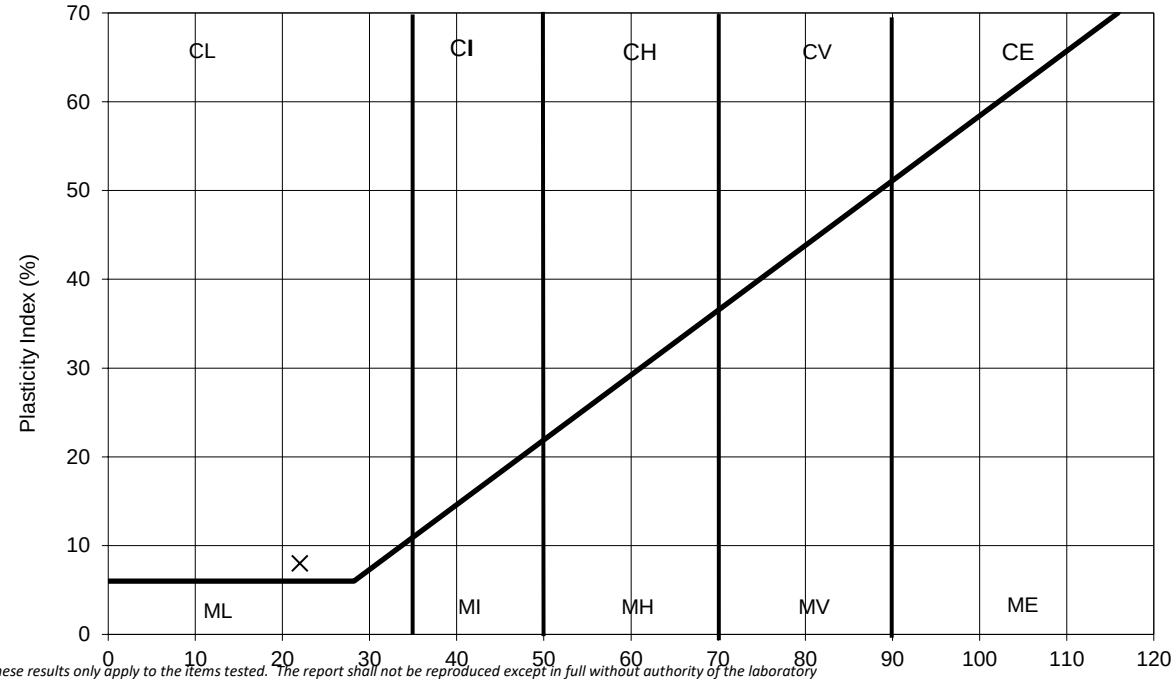
Borehole/Pit No. TP-95003



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**47**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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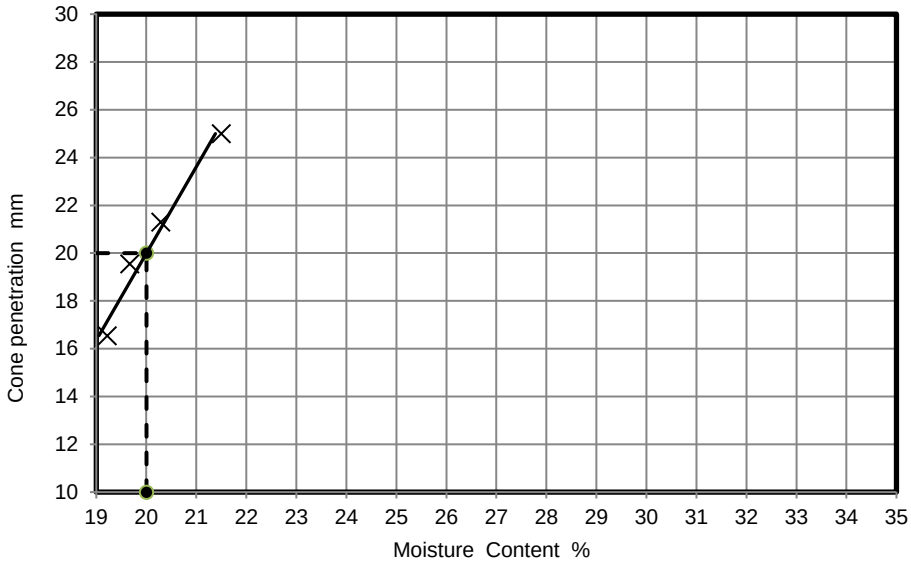
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

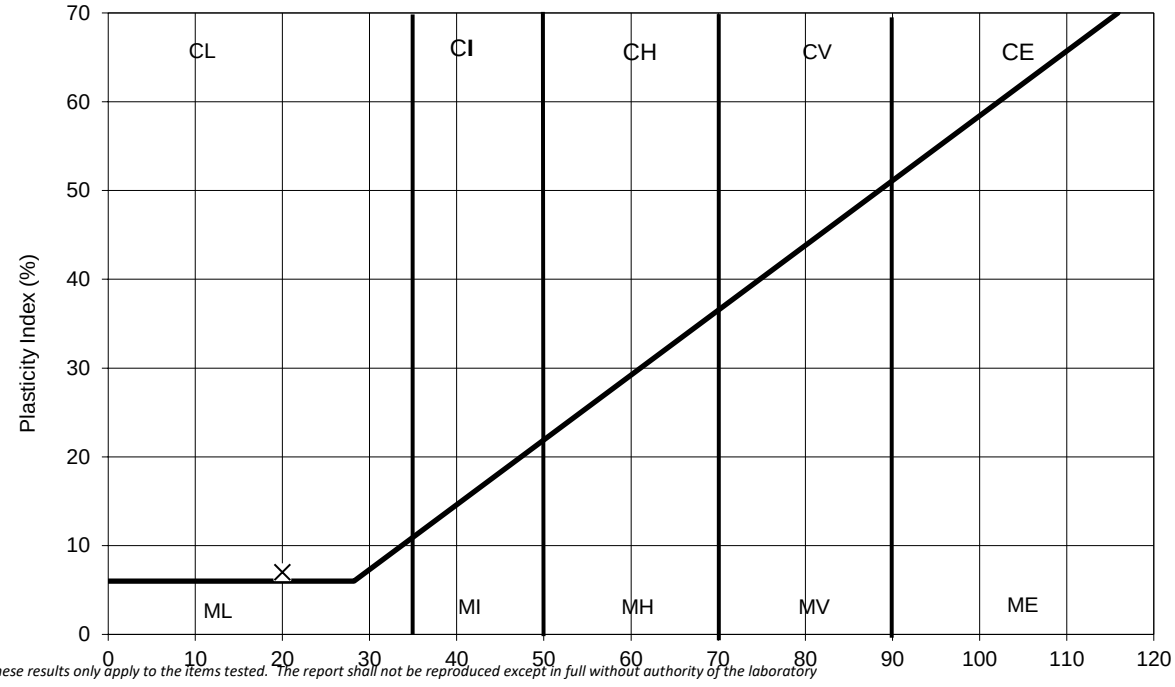
				Job No.	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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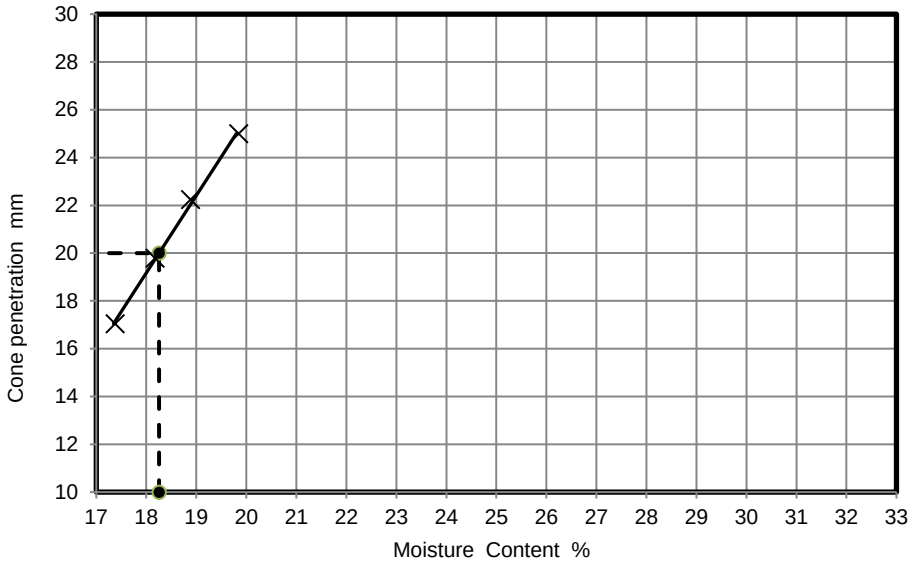
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

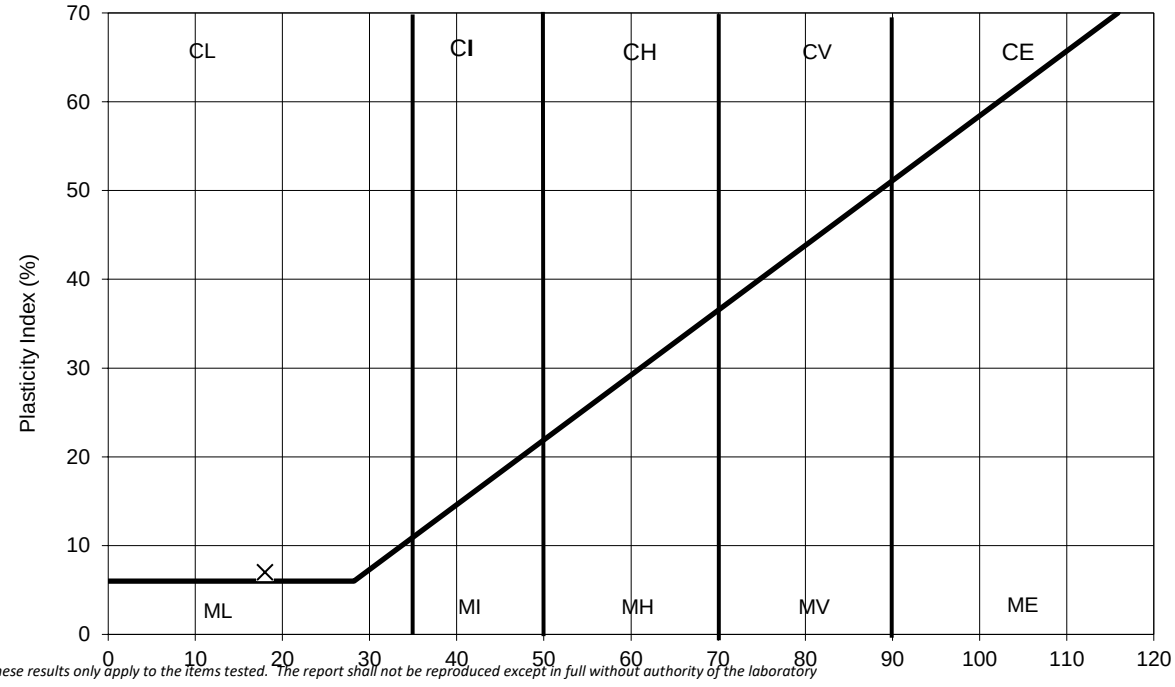
				Job No.	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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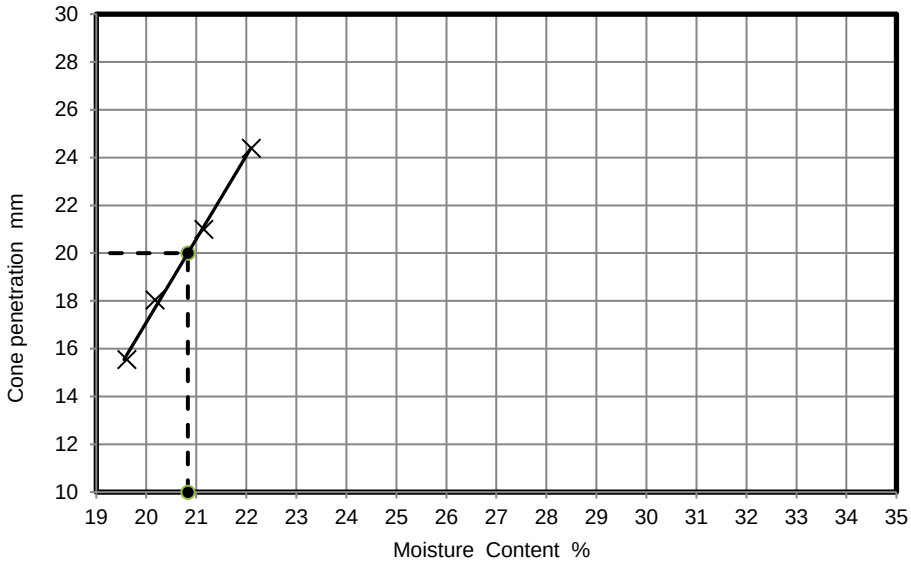
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Dark greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022

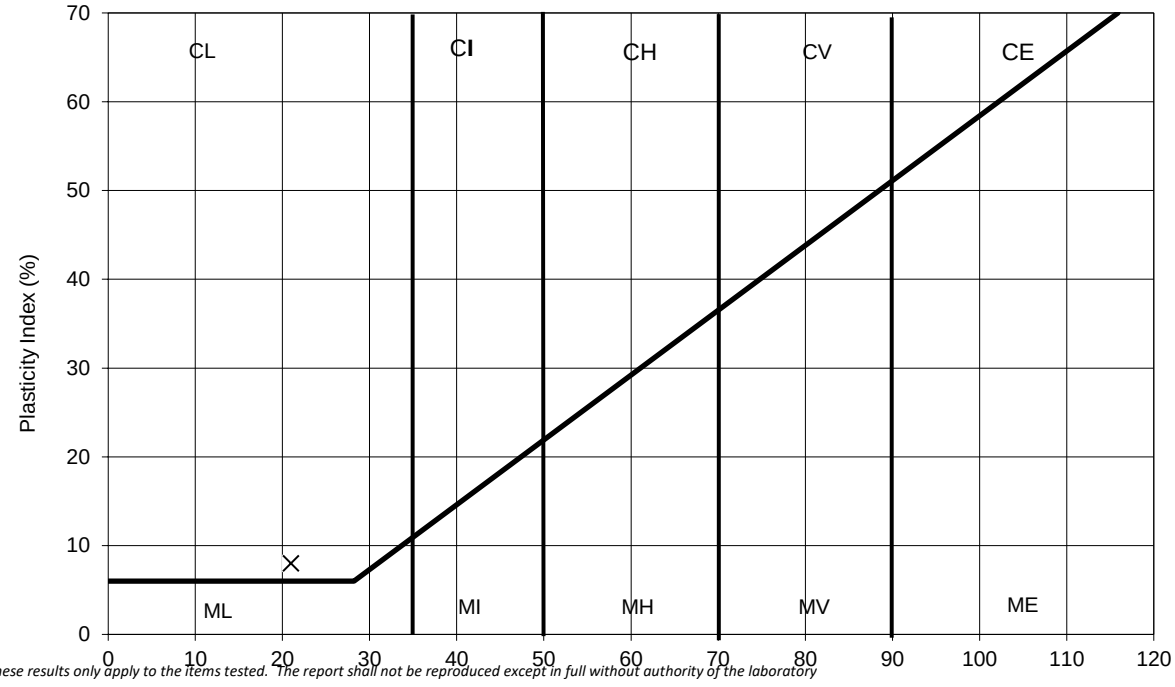


NATURAL MOISTURE CONTENT	**9.4**	**%**
% PASSING 425µm SIEVE	**51**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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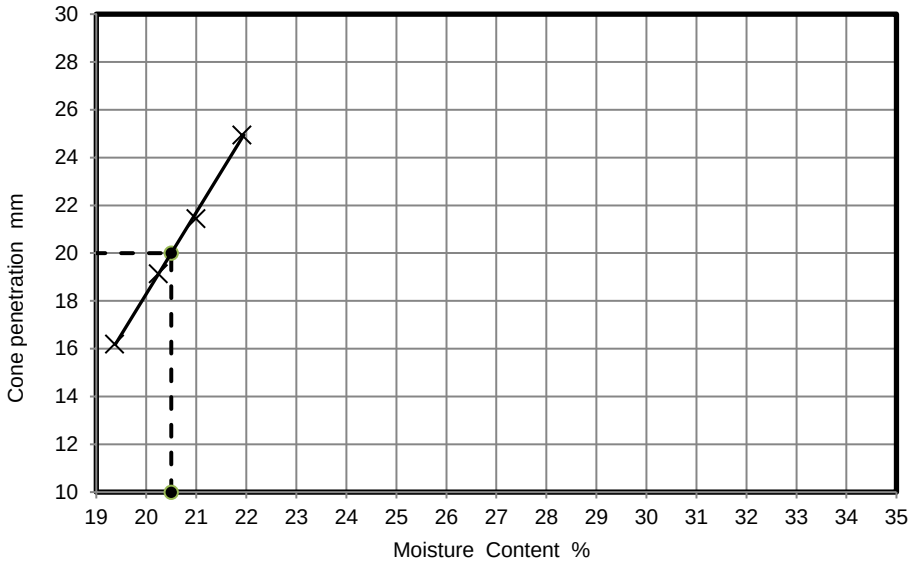
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

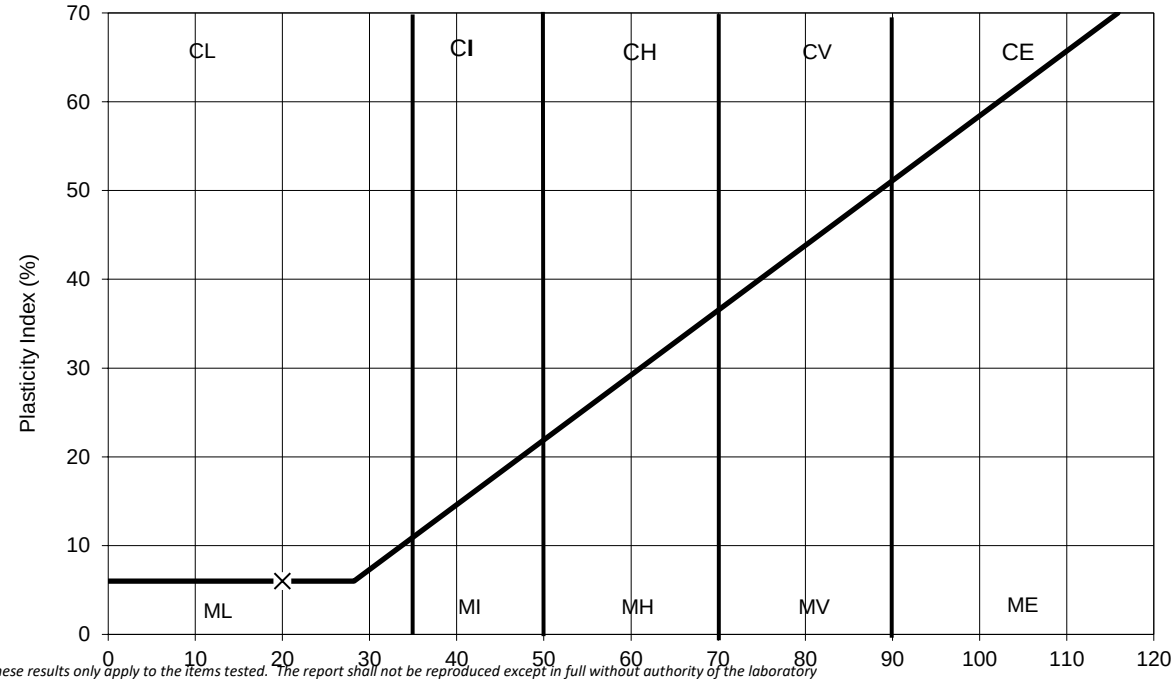
				Job No.	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

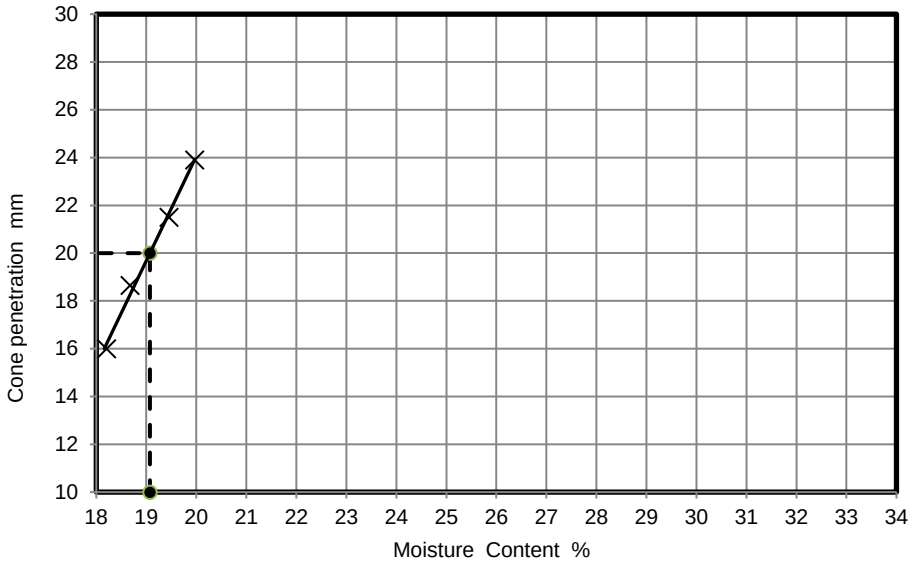
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022

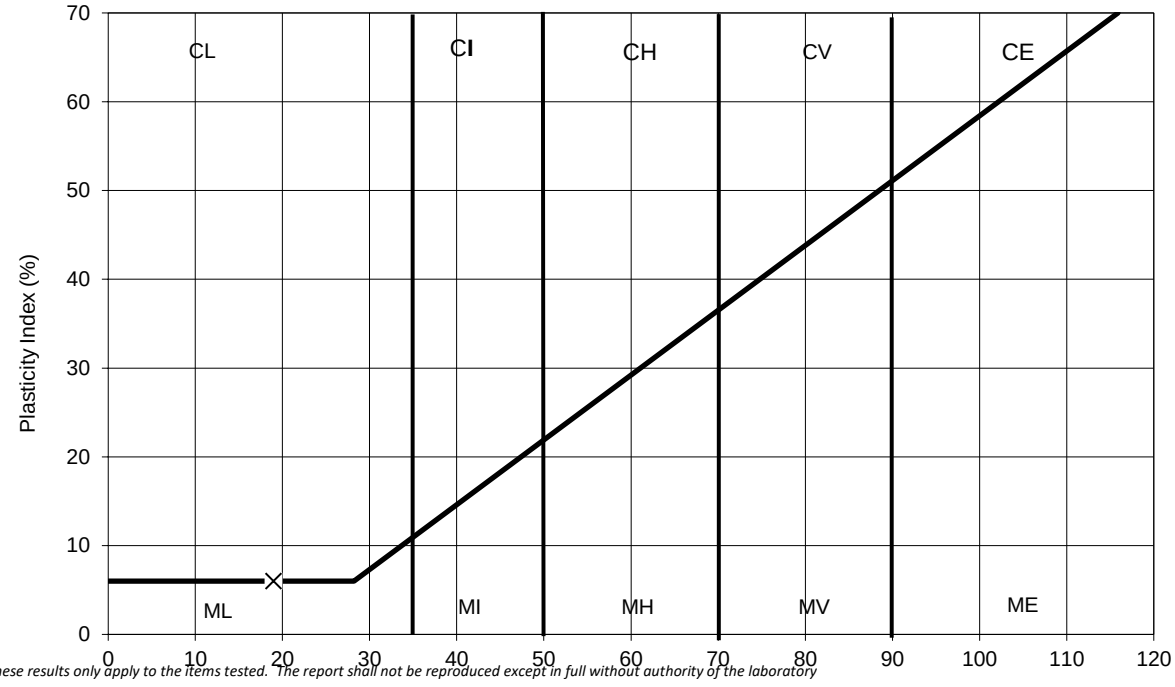


NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**41**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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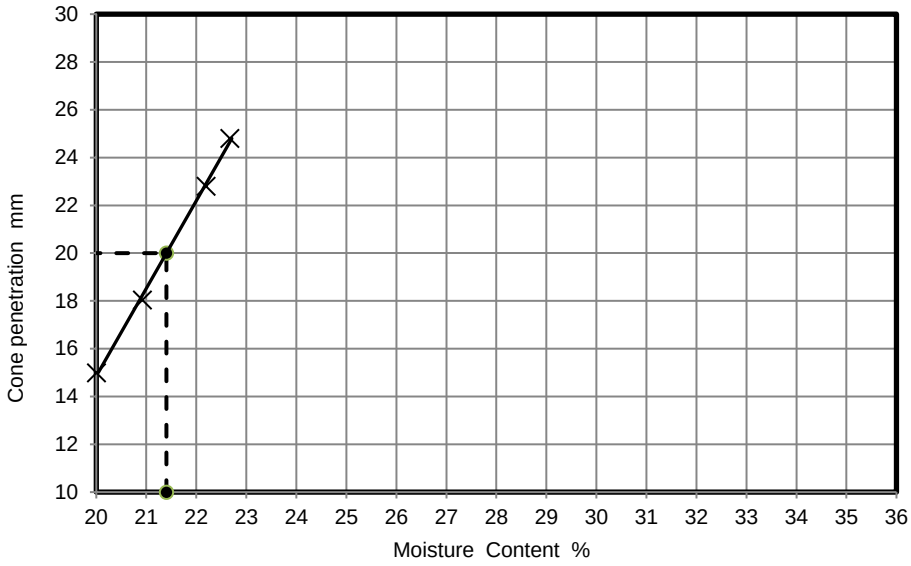
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-95905
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc angular to sub-angular and tabular gravel in a sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022

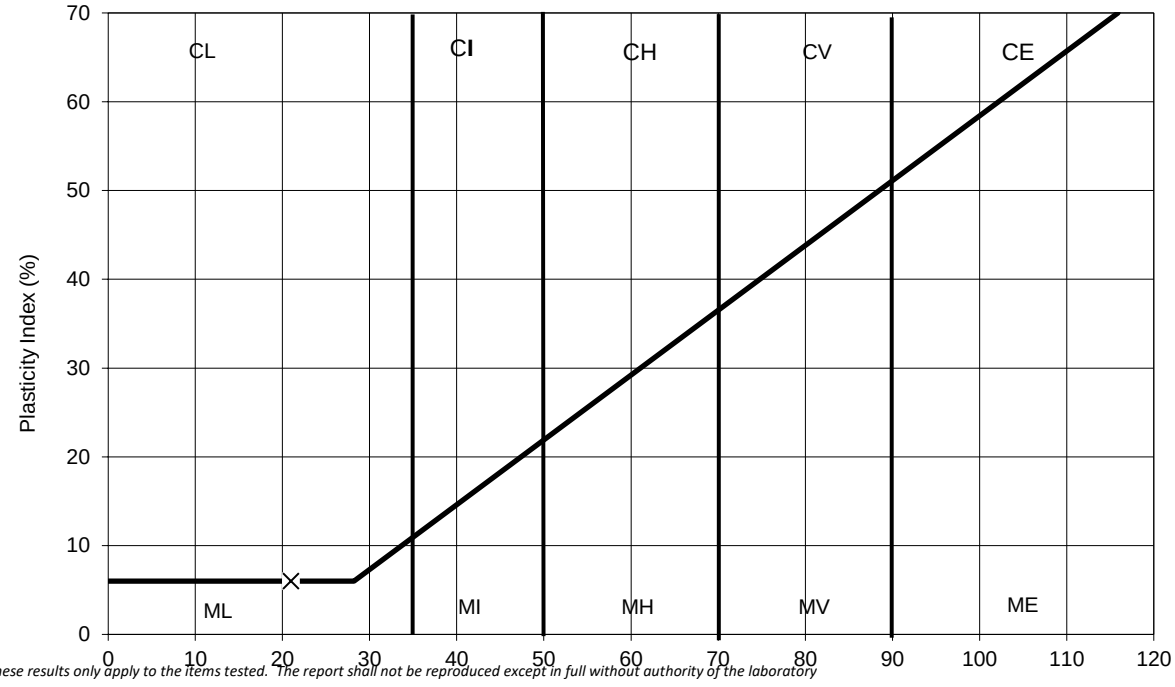


NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**50**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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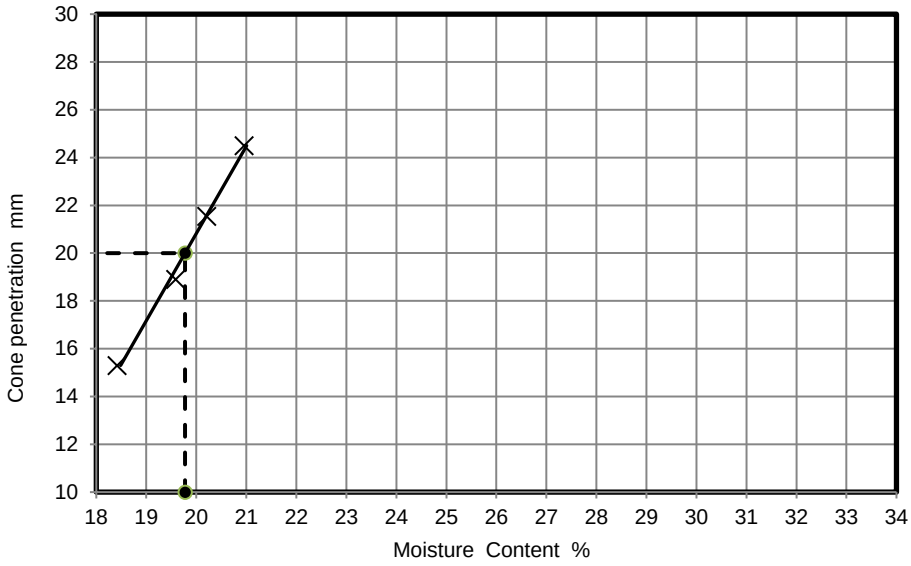
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

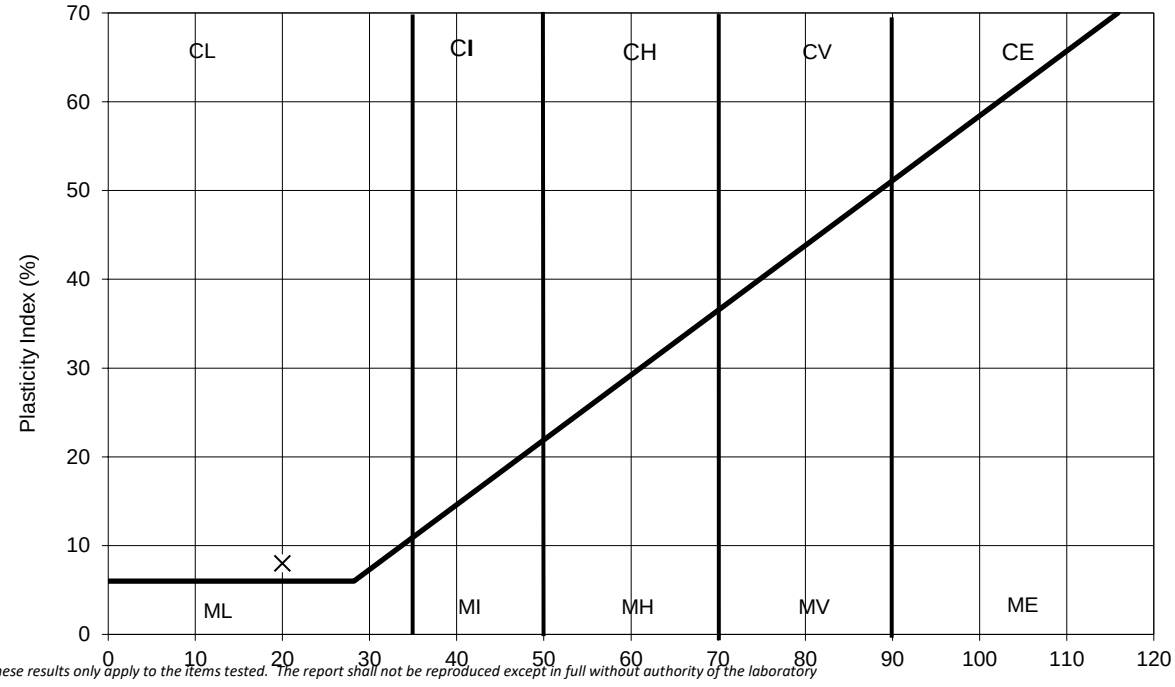
				Job No.	32282
				Borehole/Pit No.	TP-95999
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**8.8**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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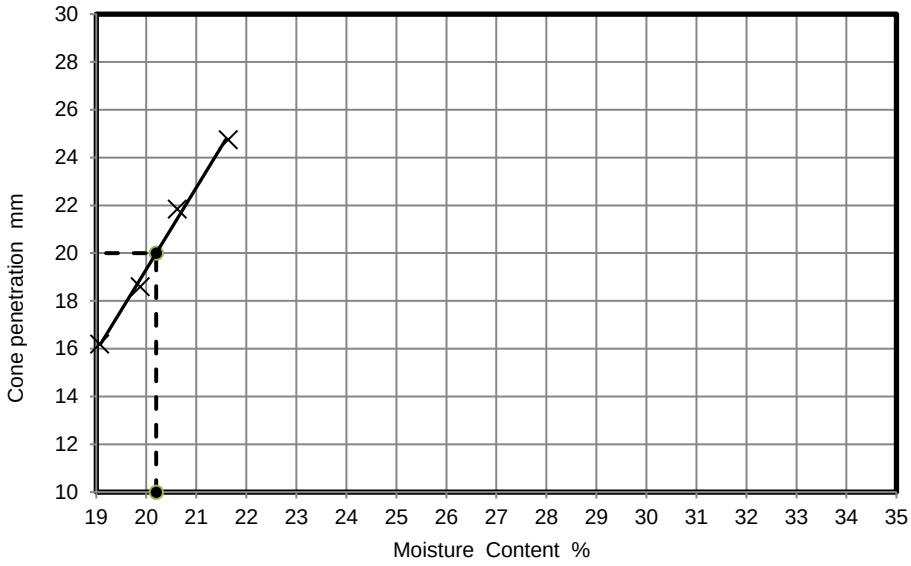
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

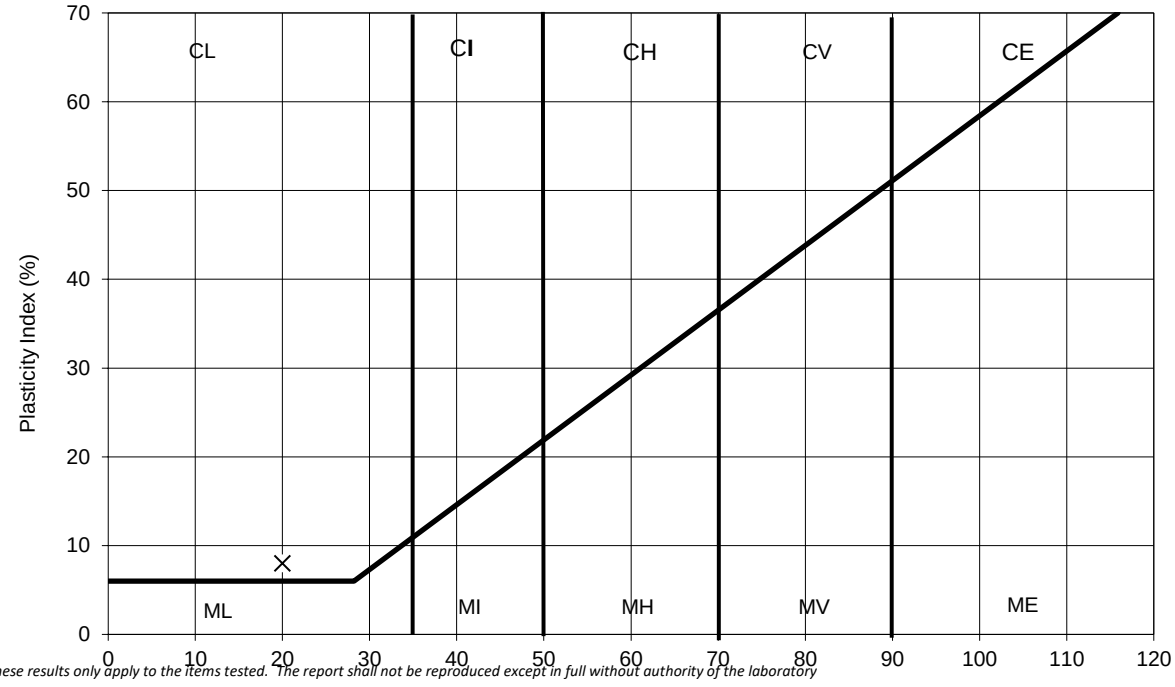
				Job No.	32282
				Borehole/Pit No.	TP-96105
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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UKAS TESTING

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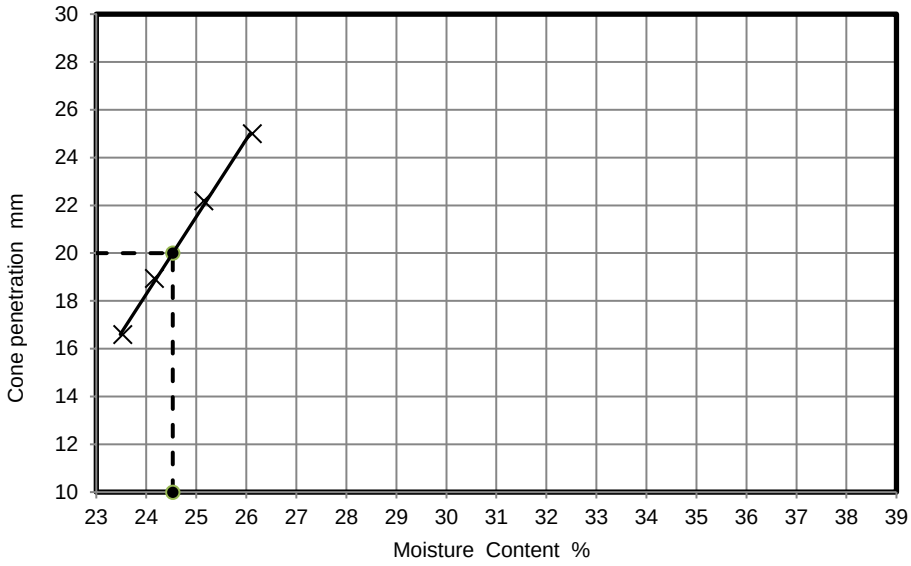
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

				Job No.	32282
				Borehole/Pit No.	TP-96204
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown fmc angular to sub-angular and tabular gravel in a slightly sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022

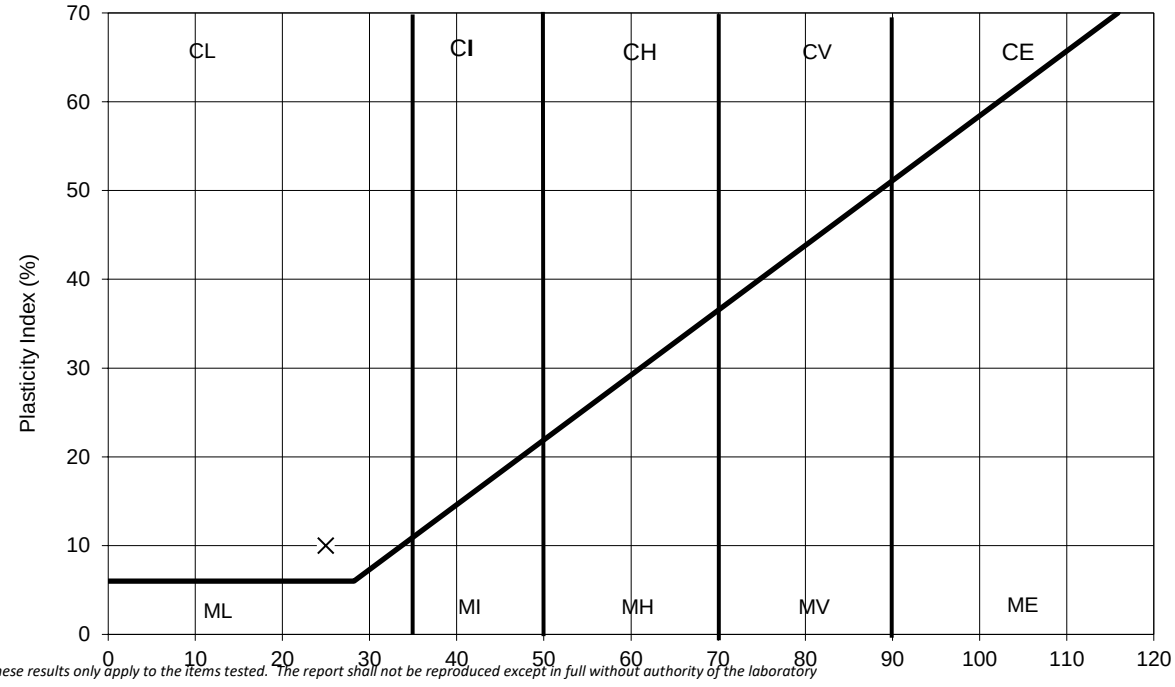


NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**49**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**10**	**%**

Remarks

Sample washed to obtain test fraction

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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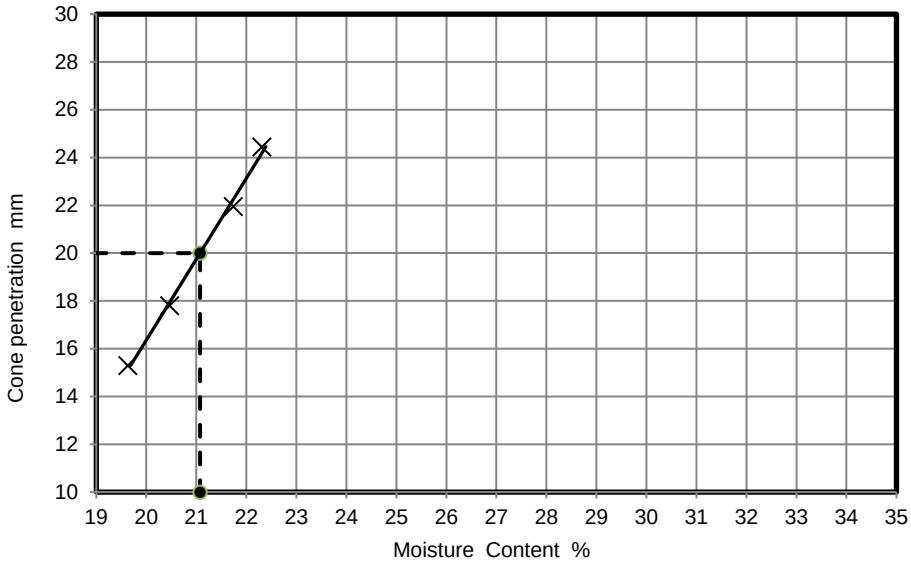
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

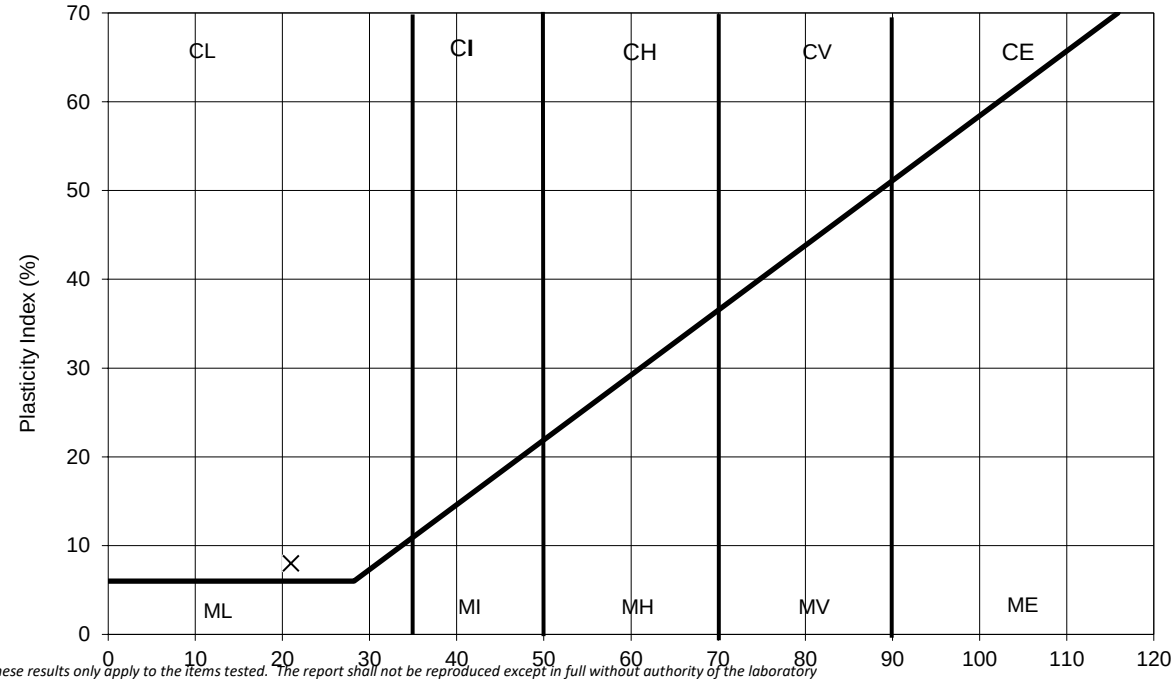
Job No.	32282				
Borehole/Pit No.	TP-96304				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**8.9**	**%**
% PASSING 425µm SIEVE	**67**	**%**
LIQUID LIMIT	**21**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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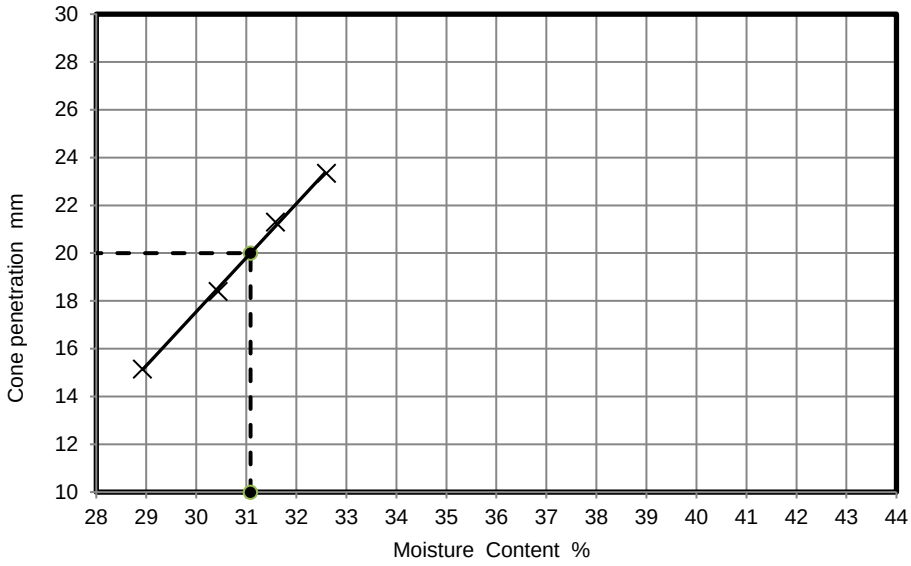
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

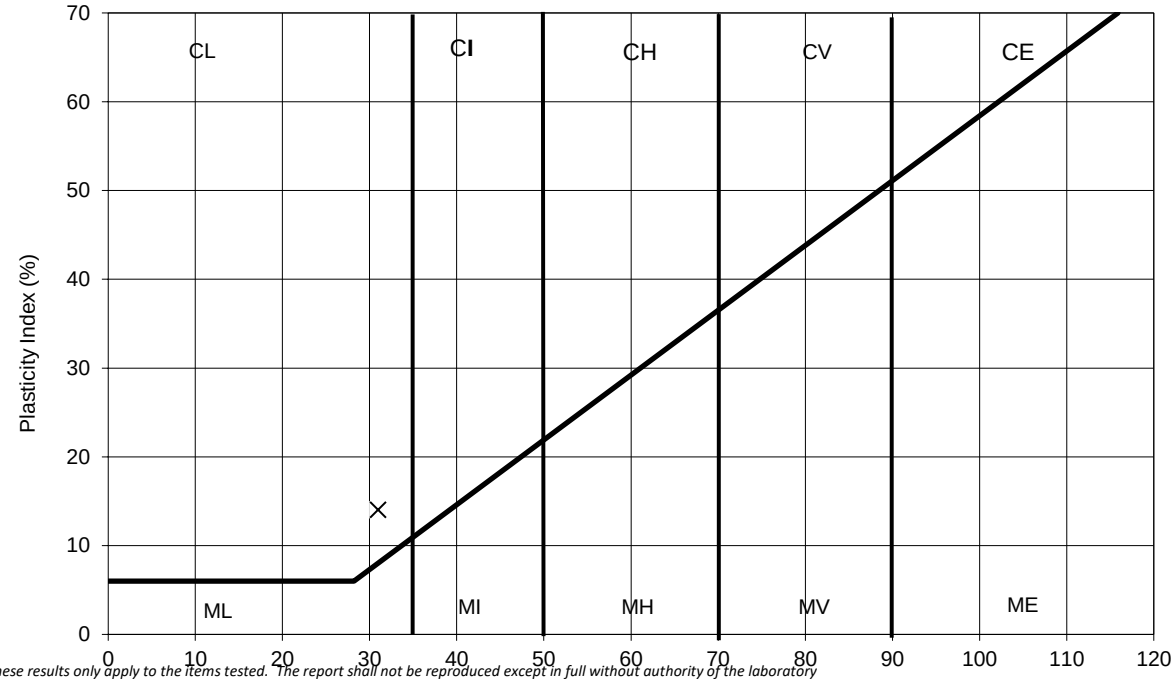
				Job No.	32282
				Borehole/Pit No.	TP-96387
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**93**	**%**
LIQUID LIMIT	**31**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**14**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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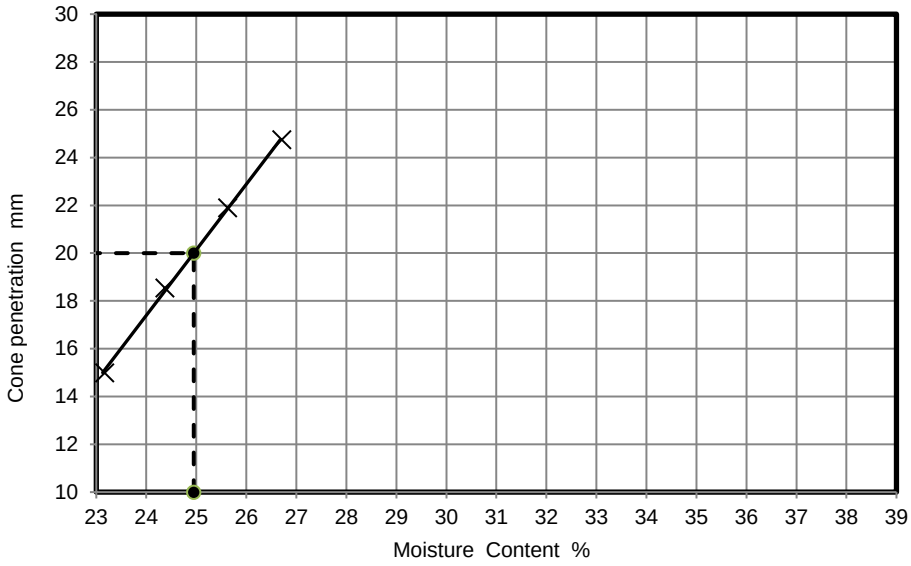
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

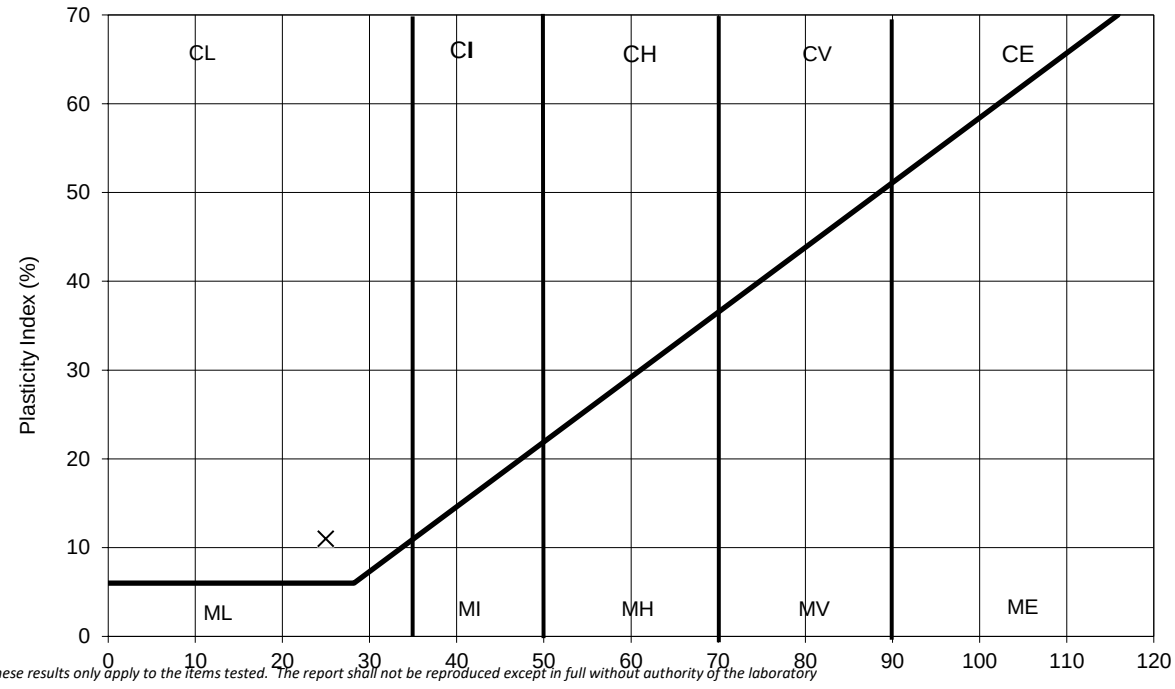
				Job No.	32282
				Borehole/Pit No.	TP-96608
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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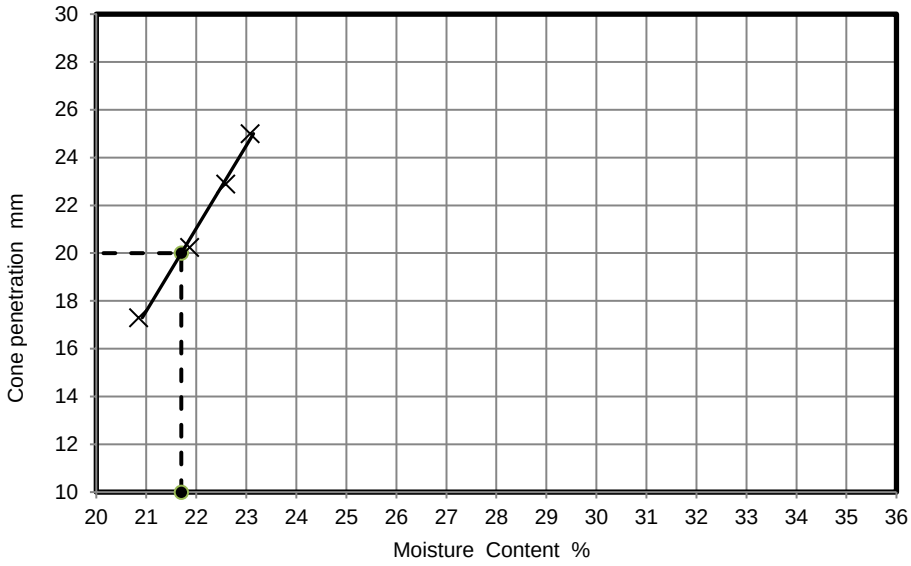
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

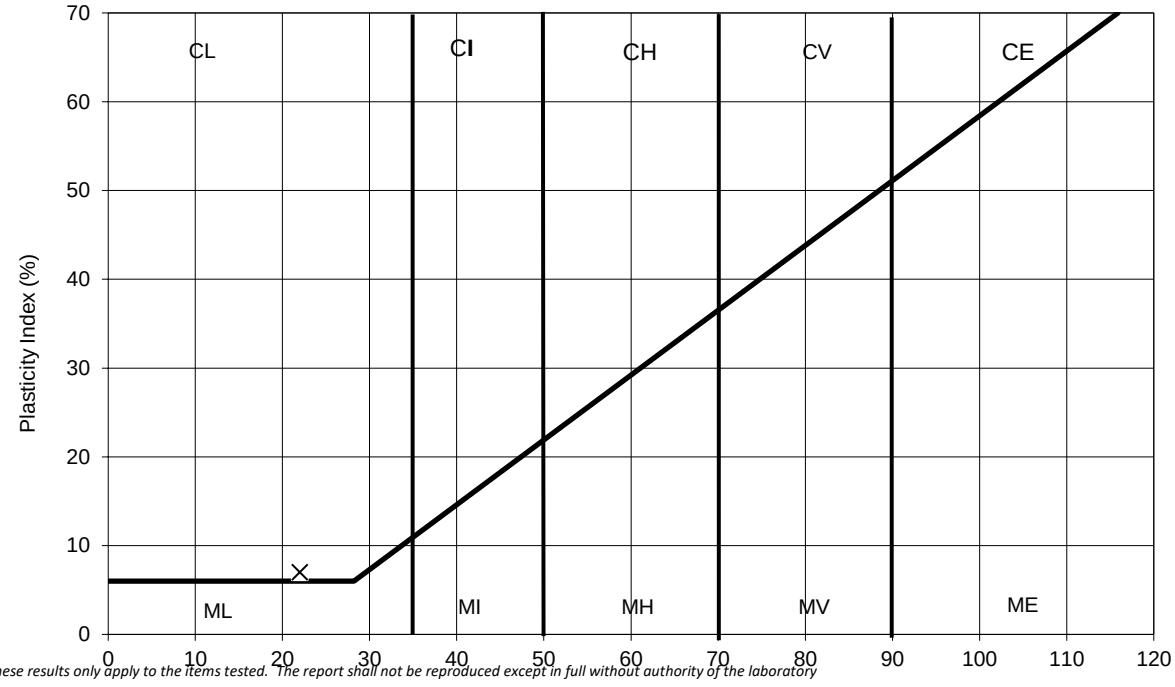
				Job No.	32282
				Borehole/Pit No.	TP-96705
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	04/10/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**81**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**15**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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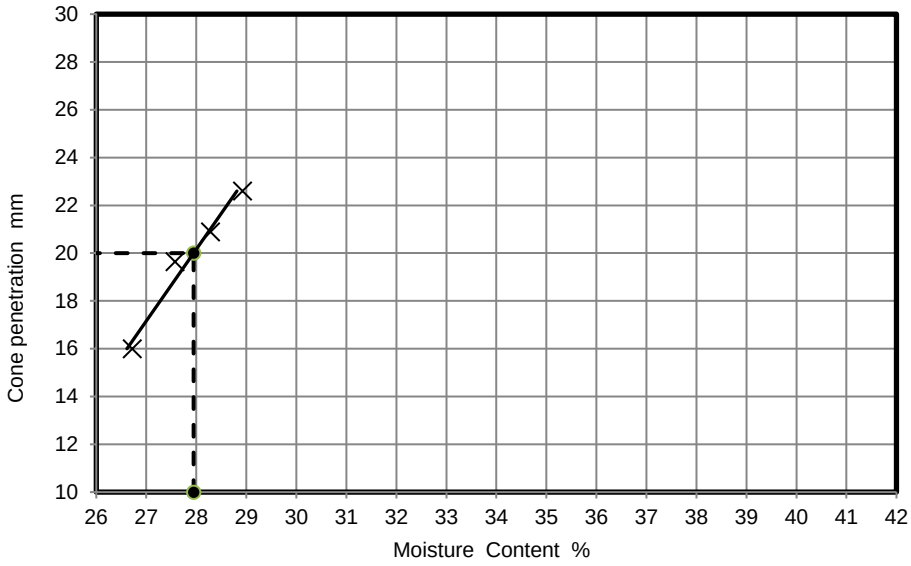
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

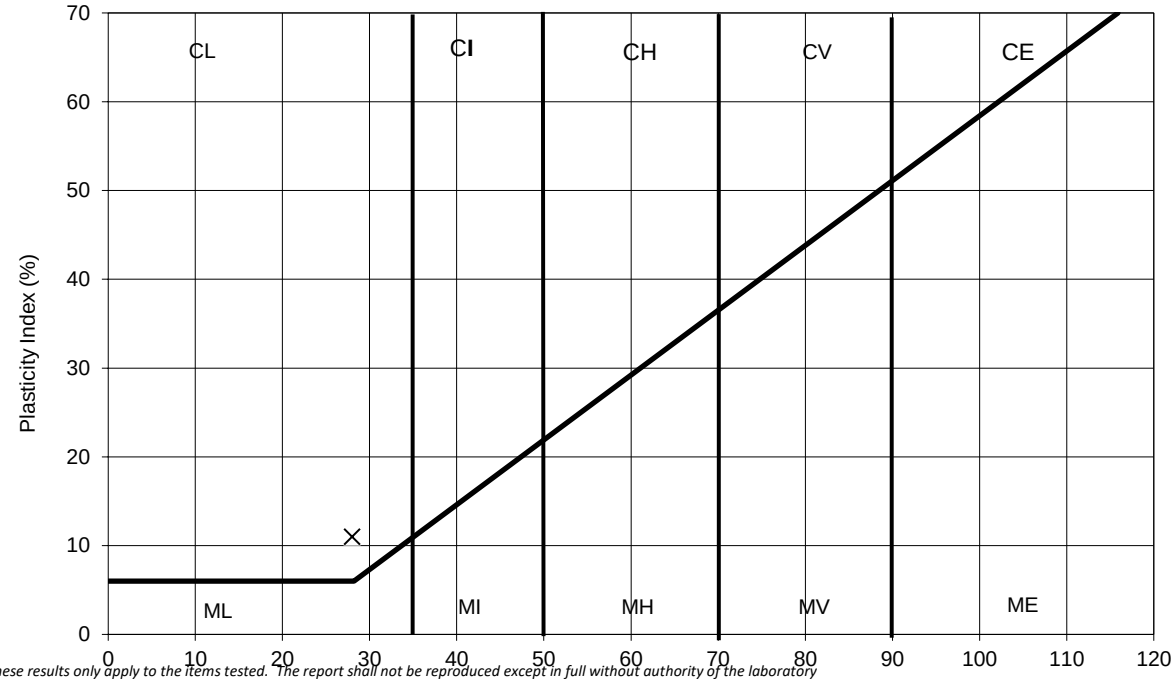
Job No.	32282				
Borehole/Pit No.	TP-96831				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown and grey mottled slightly gravelly slightly sandy silty CLAY (gravel is fm)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**20**	**%**
% PASSING 425µm SIEVE	**95**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

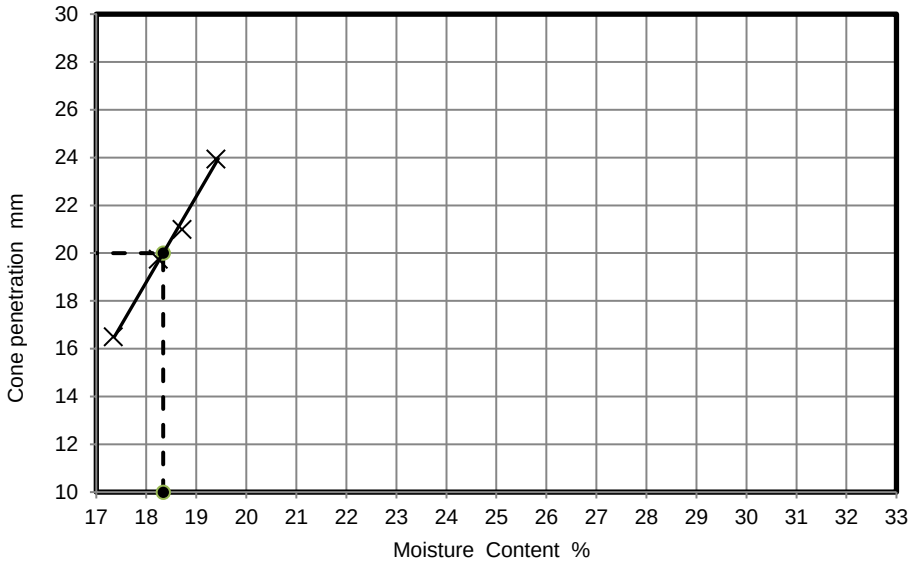
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

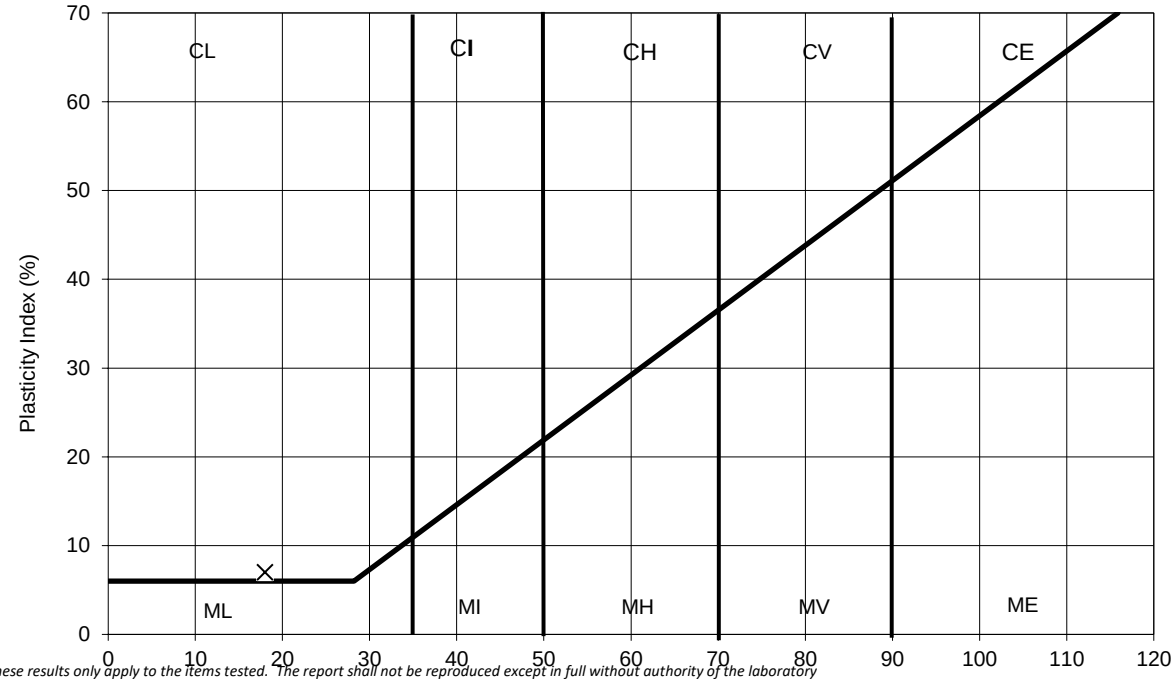
				Job No.	32282
				Borehole/Pit No.	TP-96831
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular and tabular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	05/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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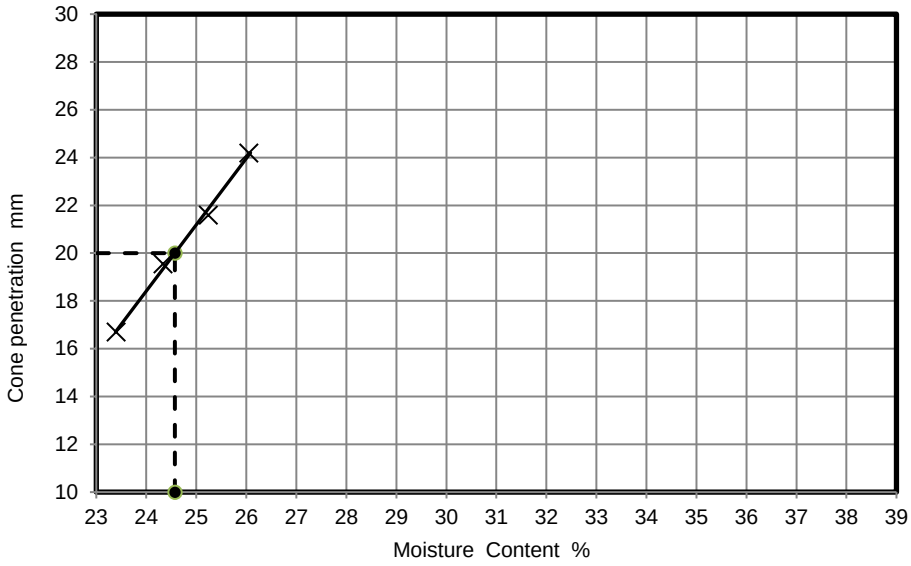
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

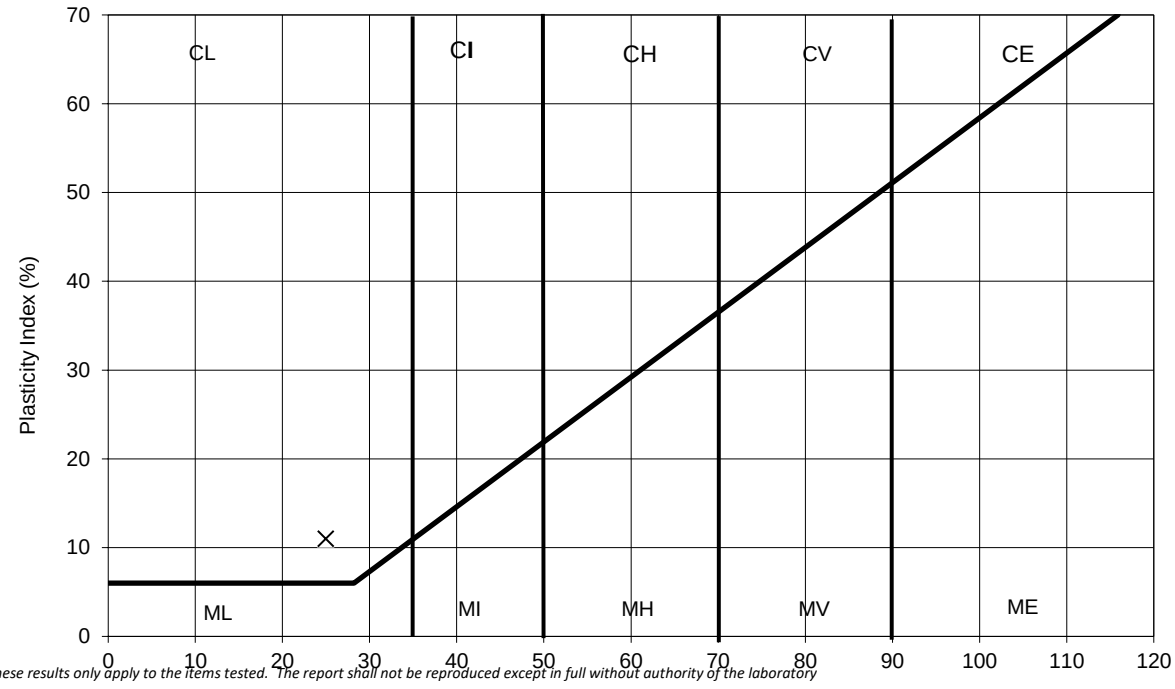
				Job No.	32282
				Borehole/Pit No.	TP-96905
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**12**	**%**
% PASSING 425µm SIEVE	**63**	**%**
LIQUID LIMIT	**25**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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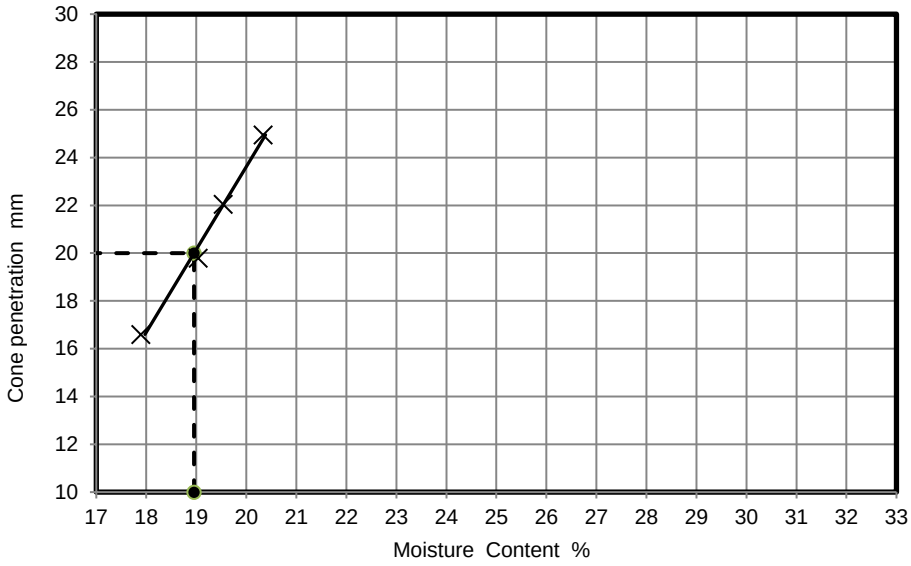
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

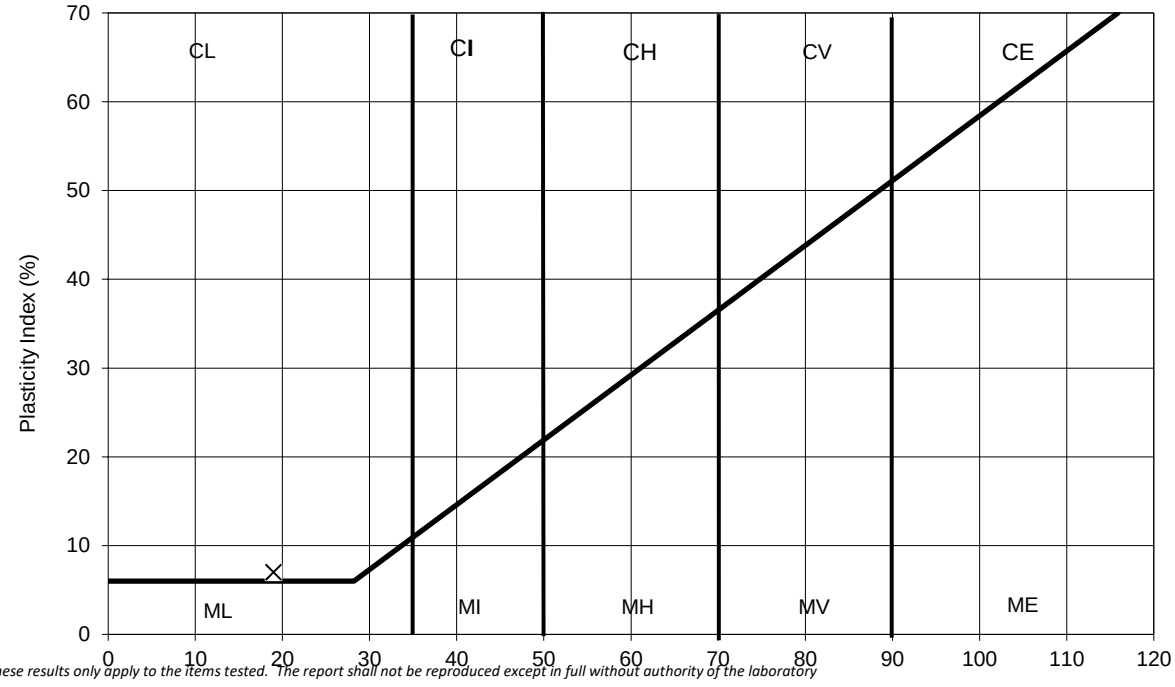
				Job No.	32282
				Borehole/Pit No.	TP-96905
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	03/10/2022



NATURAL MOISTURE CONTENT	**9.9**	**%**
% PASSING 425µm SIEVE	**45**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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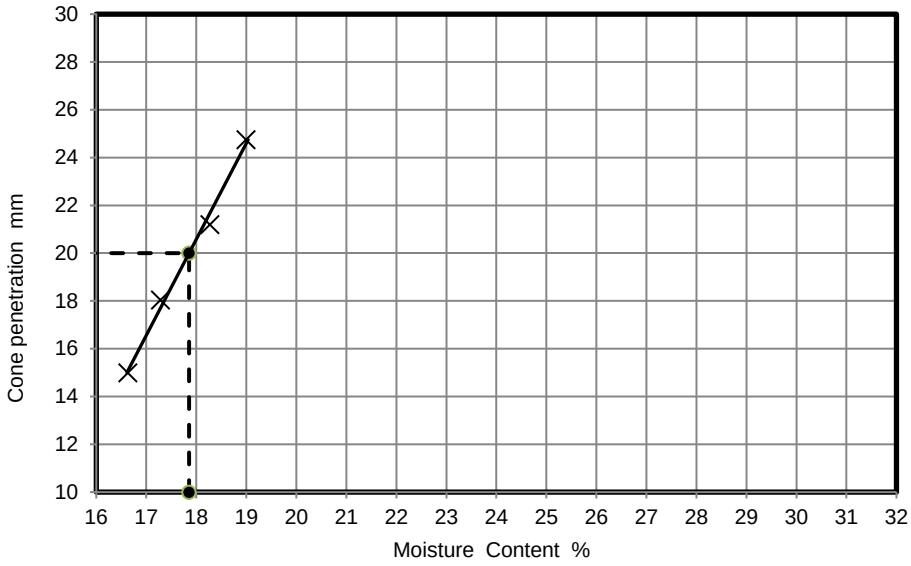
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

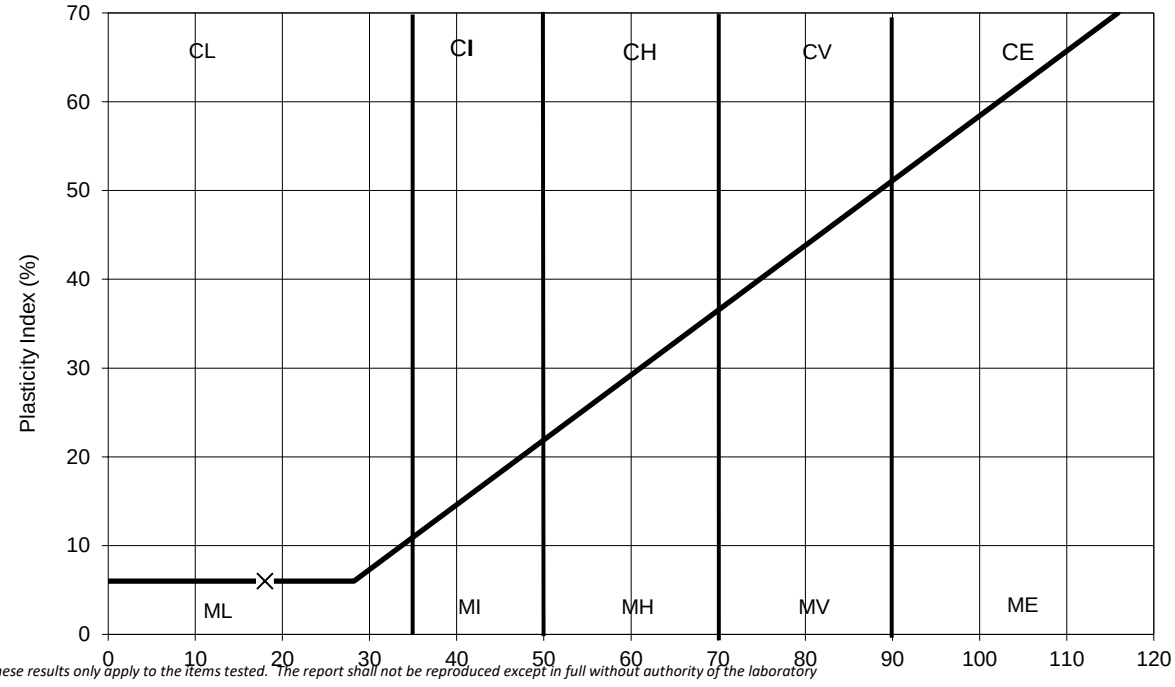
				Job No.	32282
				Borehole/Pit No.	TP-97009
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown fmc sub-angular to sub-rounded gravel in a sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	28/09/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**55**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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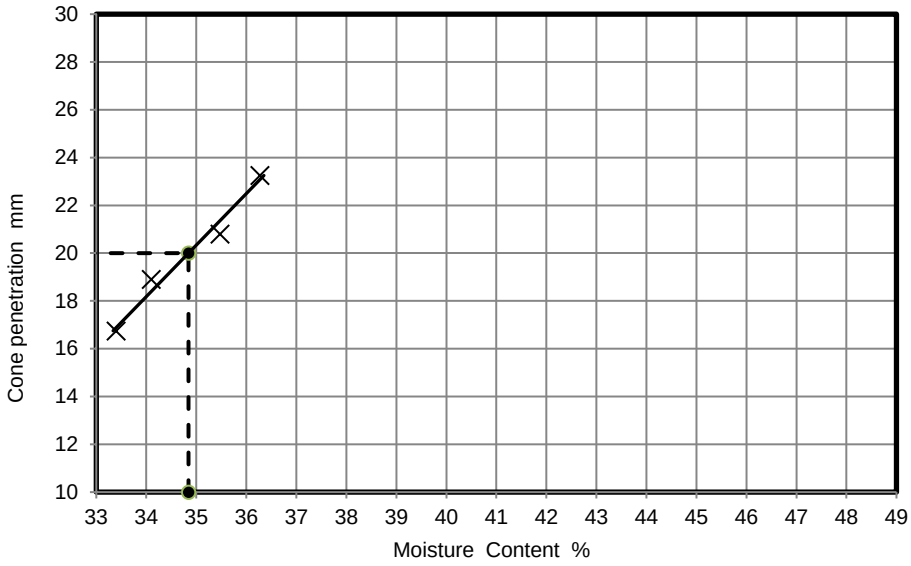
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

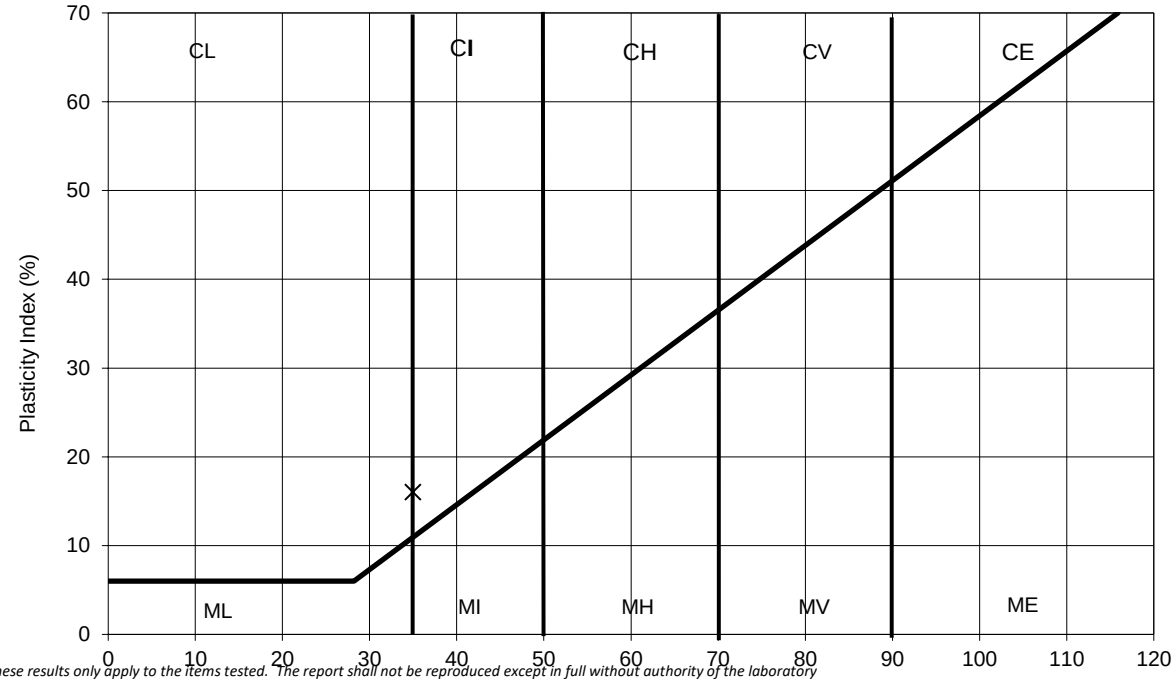
				Job No.	32282
				Borehole/Pit No.	TP-97108
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**16**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**35**	**%**
PLASTIC LIMIT	**19**	**%**
PLASTICITY INDEX	**16**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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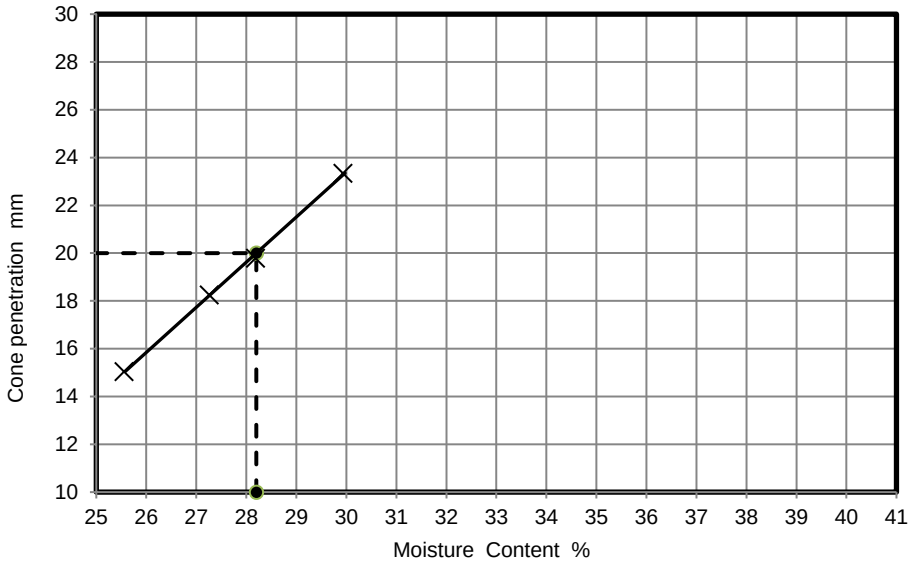
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

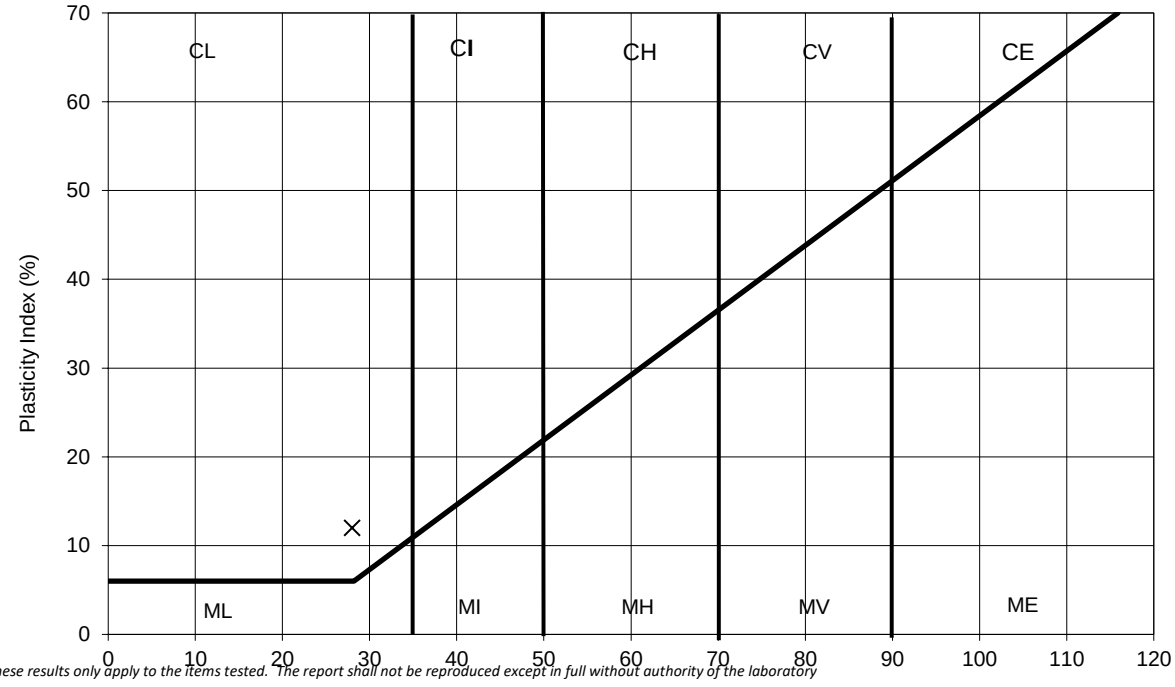
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022
				Job No.	32282
				Borehole/Pit No.	TP-97309



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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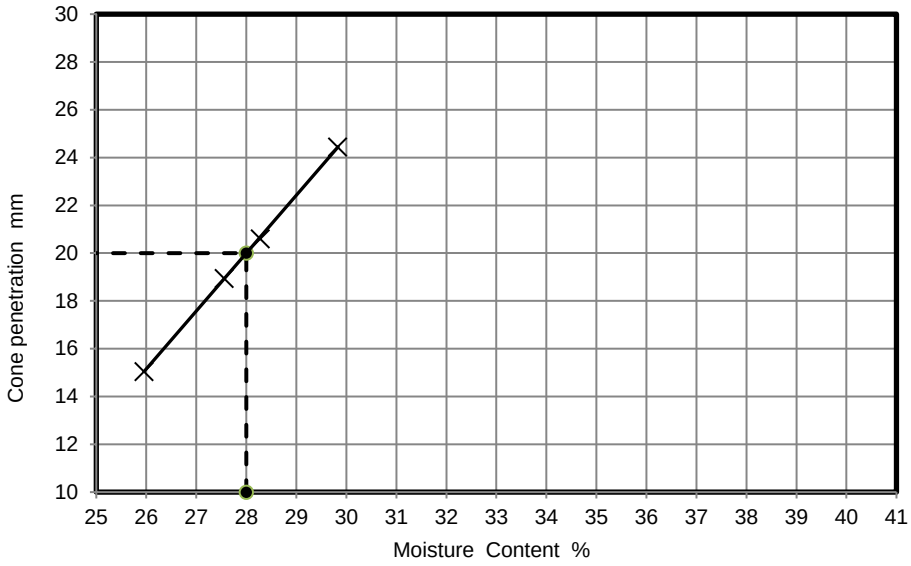
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

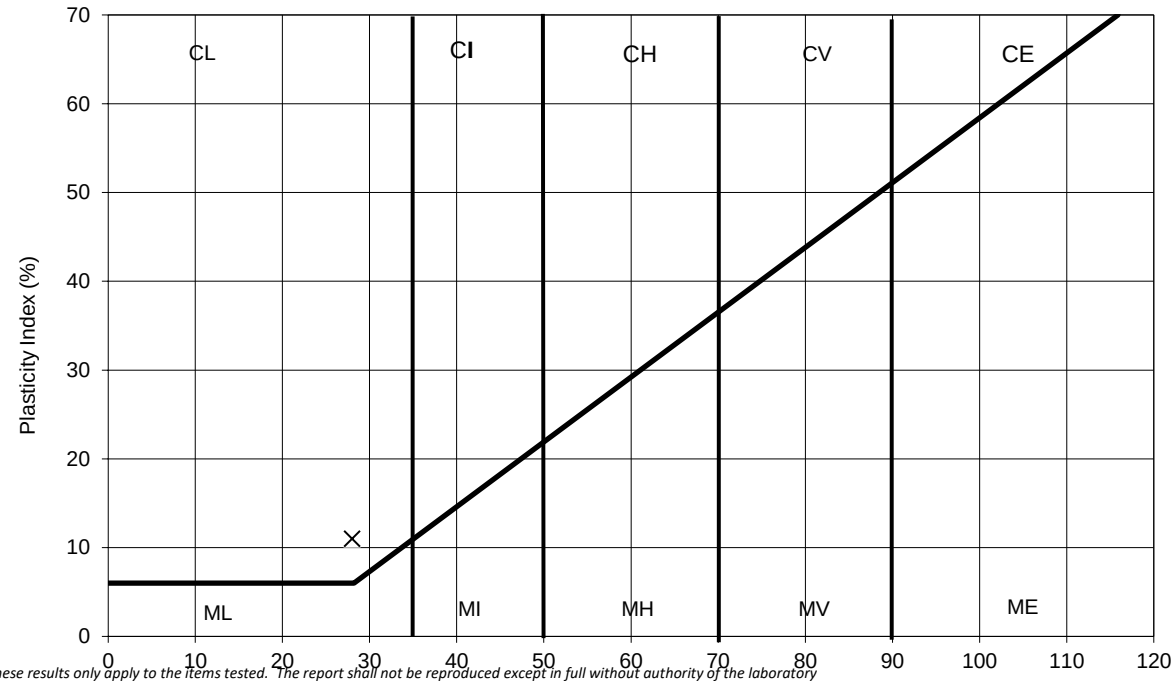
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Brown and grey mottled silty CLAY with sandy patches and rare fine gravel			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**17**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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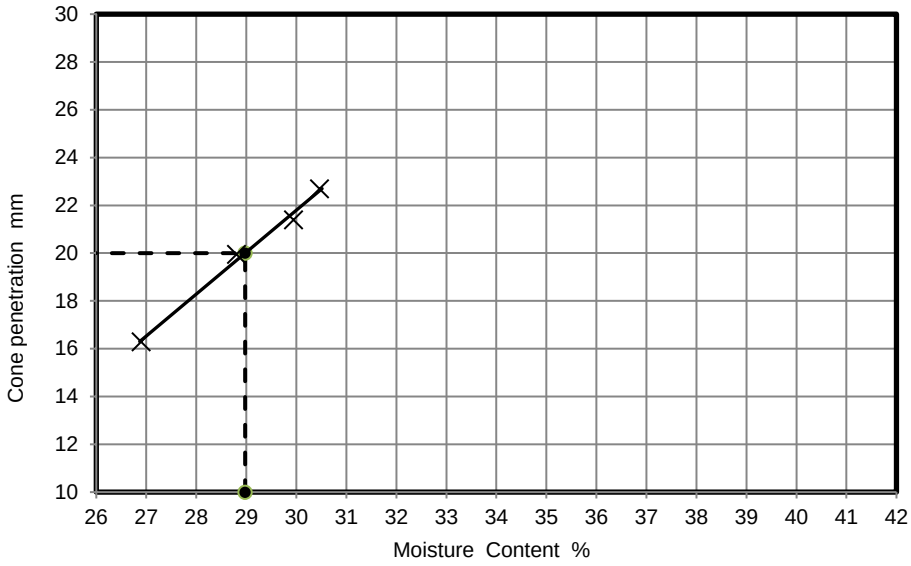
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

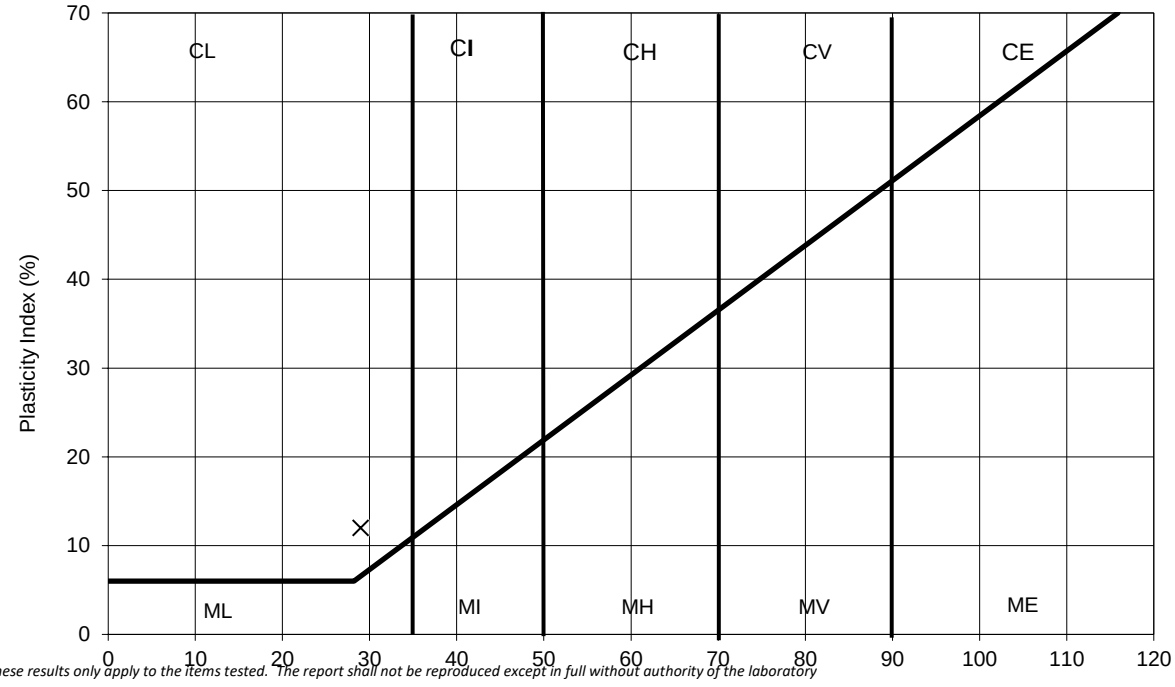
				Job No.	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Dark grey silty CLAY with rare fine gravel			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**19**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**29**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**12**	**%**

Remarks

PLASTICITY INDEX



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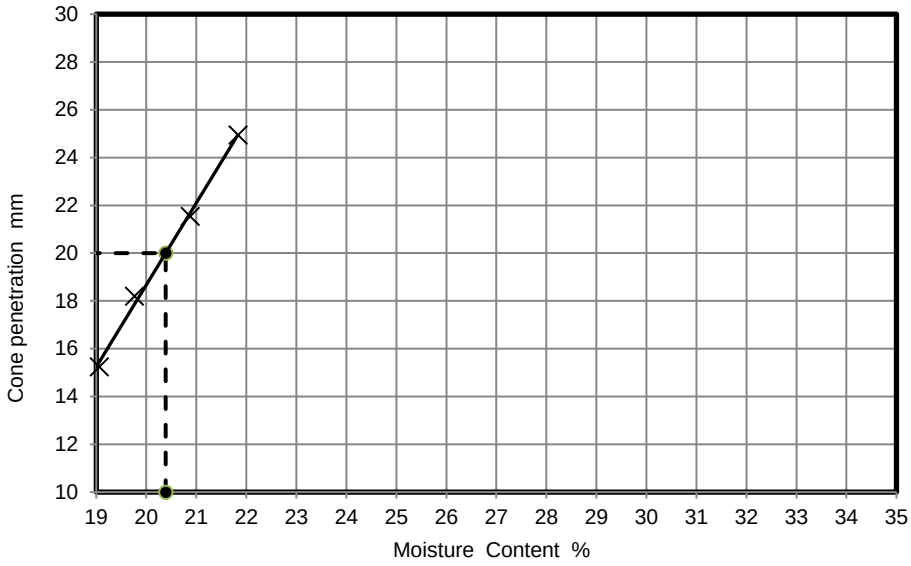
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

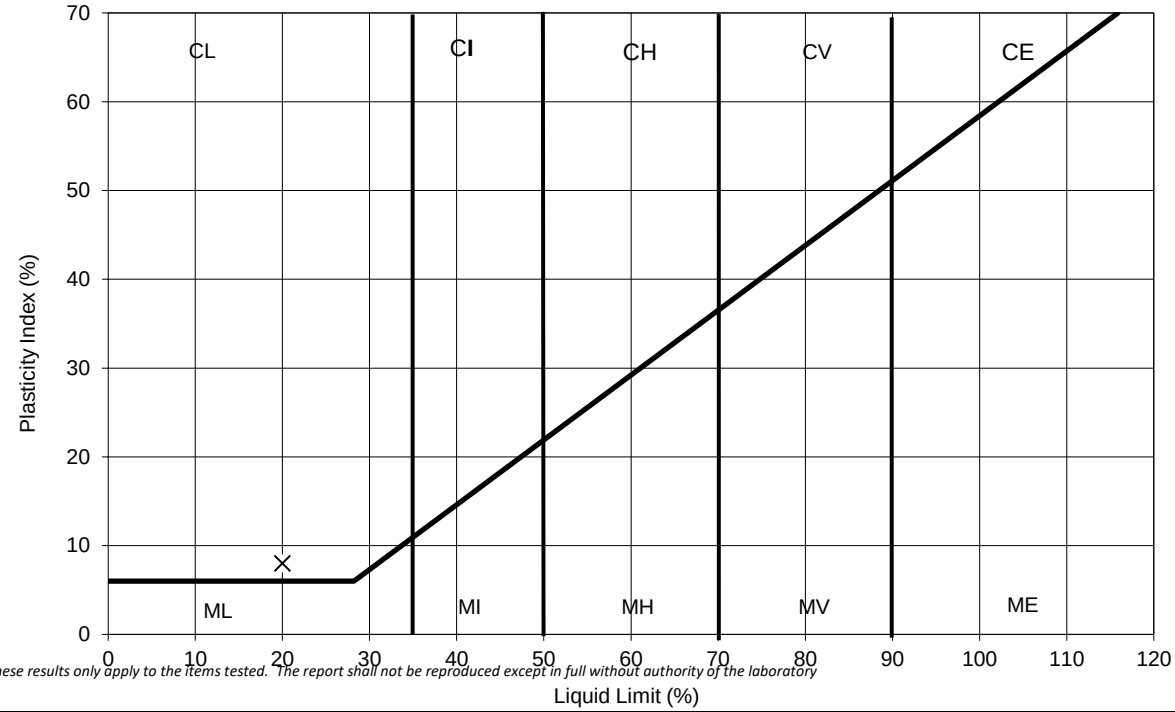
				Job No.	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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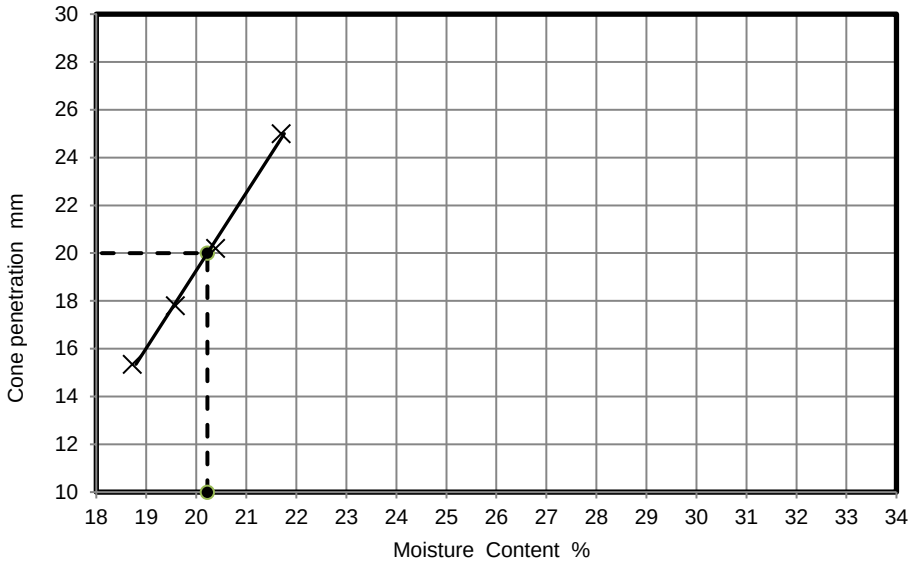
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

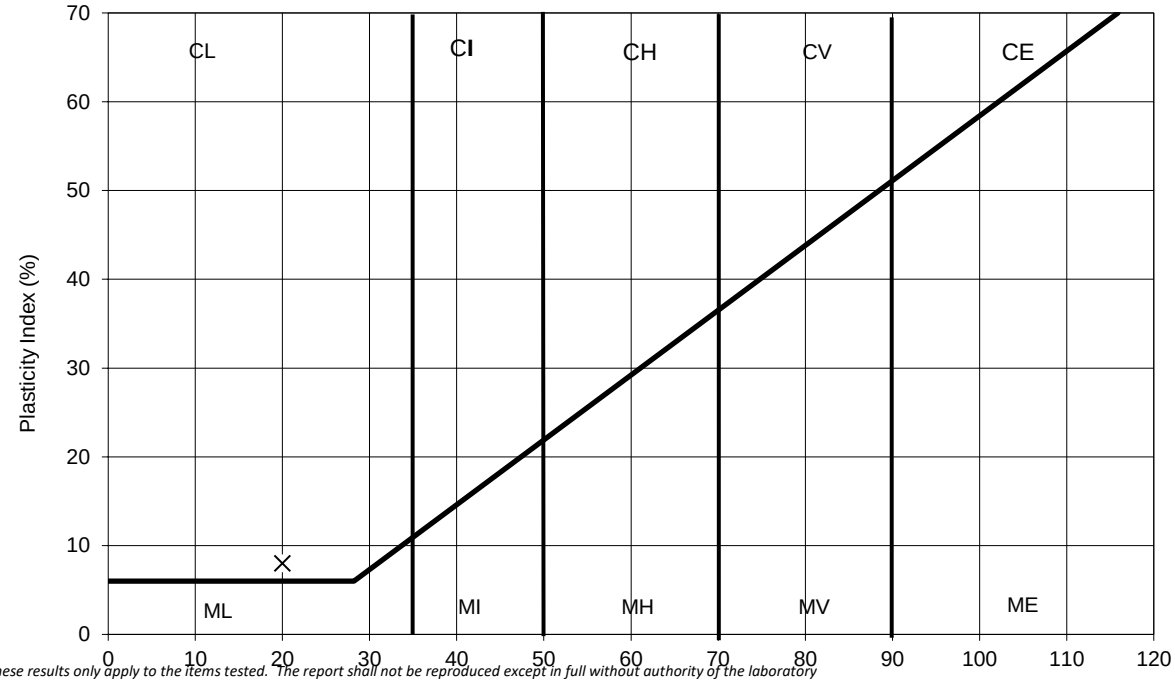
				Job No.	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**9.6**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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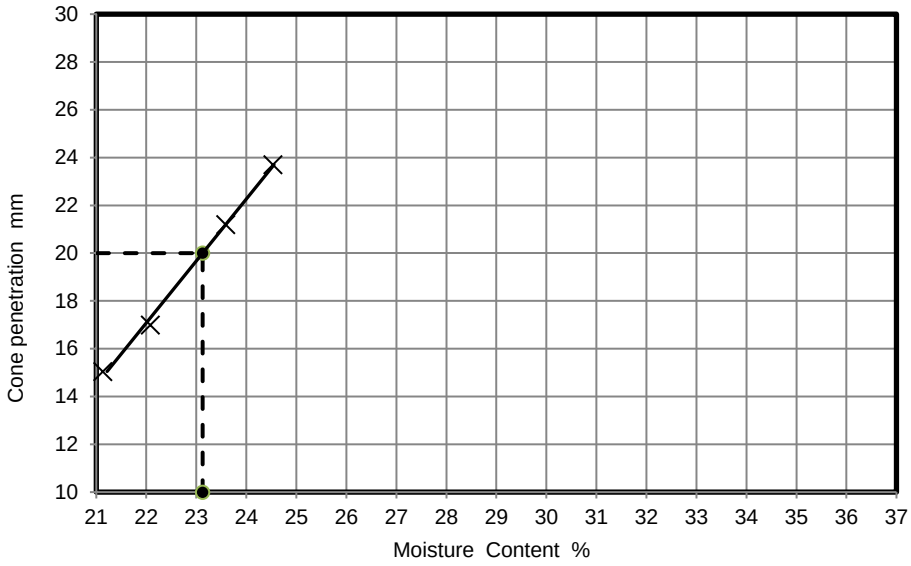
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

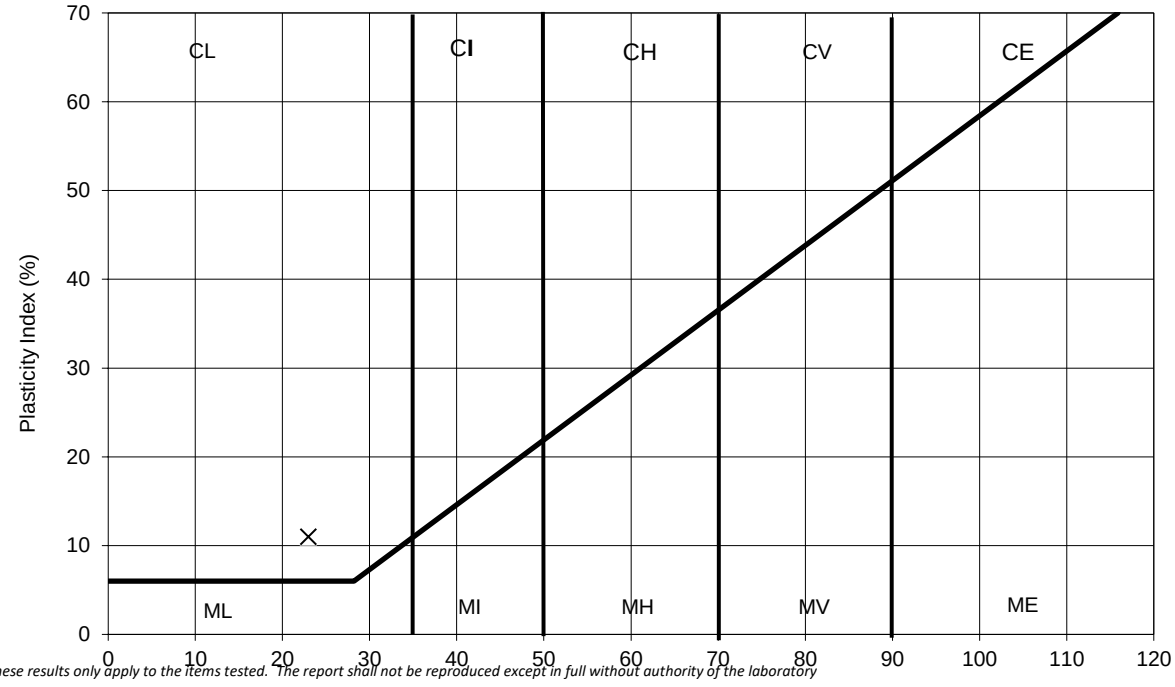
				Job No.	32282
				Borehole/Pit No.	TP-97505
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

UKAS TESTING

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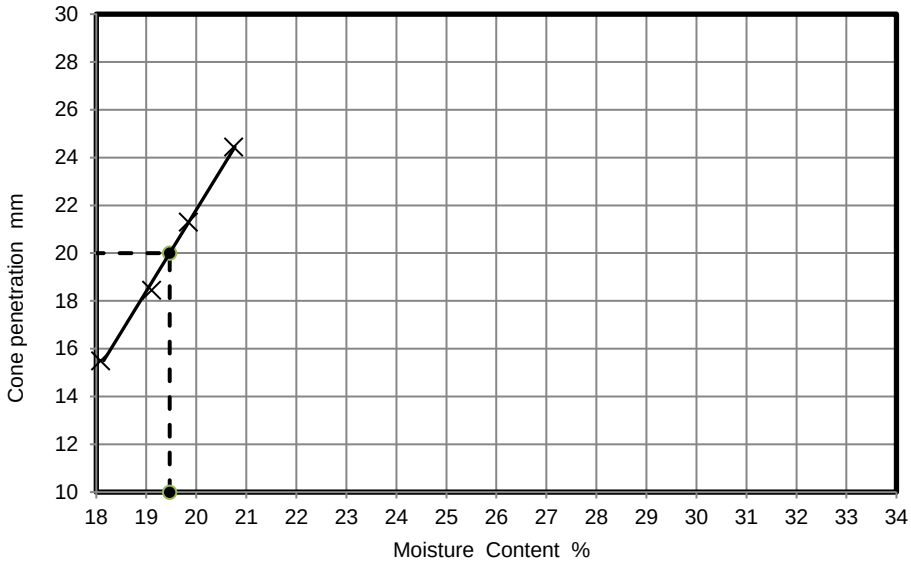
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Greyish brown fmc angular to sub-angular gravel in a slightly sandy silty CLAY matrix			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	30/09/2022

Job No. 32282

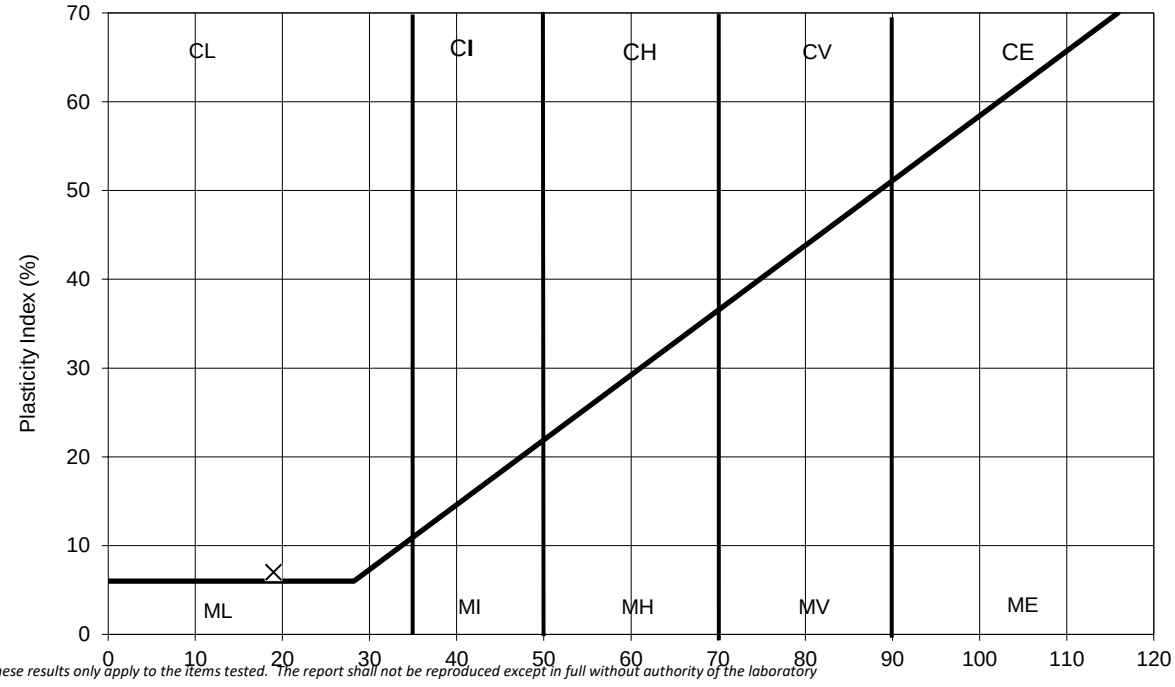
Borehole/Pit No. TP-97505



NATURAL MOISTURE CONTENT	**9.2**	**%**
% PASSING 425µm SIEVE	**40**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P

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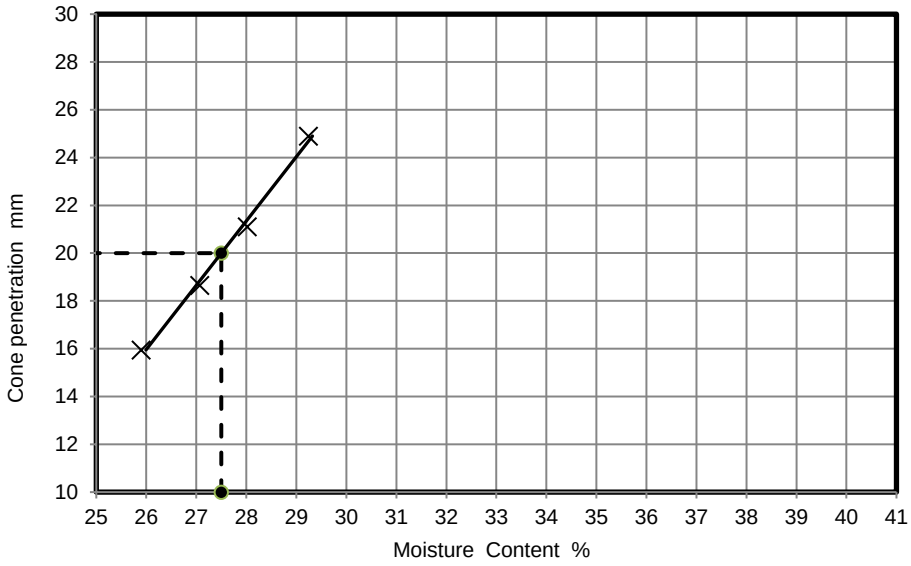
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

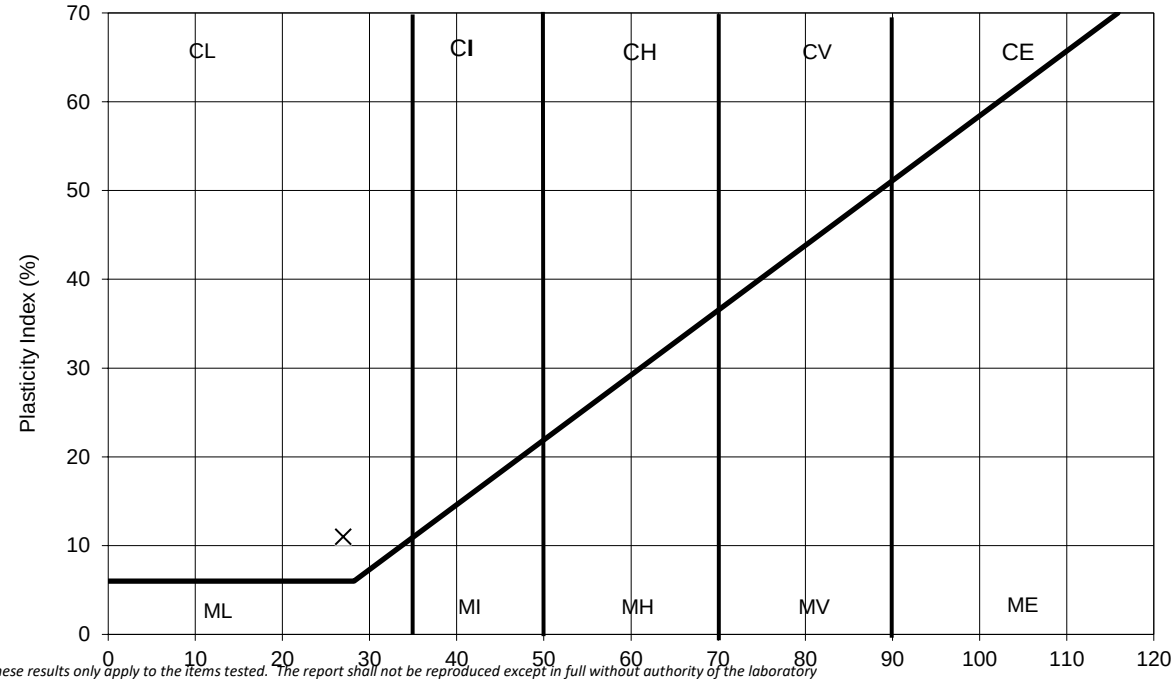
				Job No.	32282
				Borehole/Pit No.	TP-97602
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**15**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**27**	**%**
PLASTIC LIMIT	**16**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
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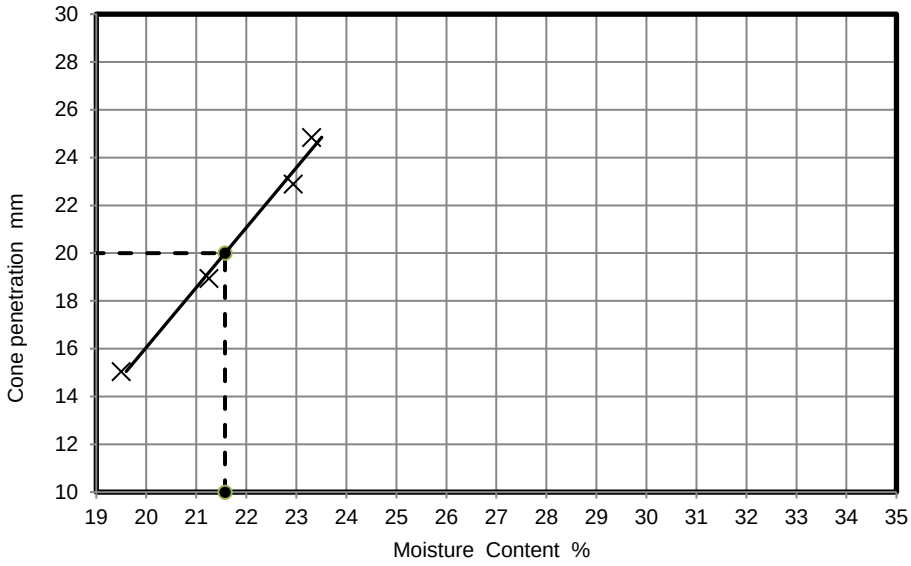
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

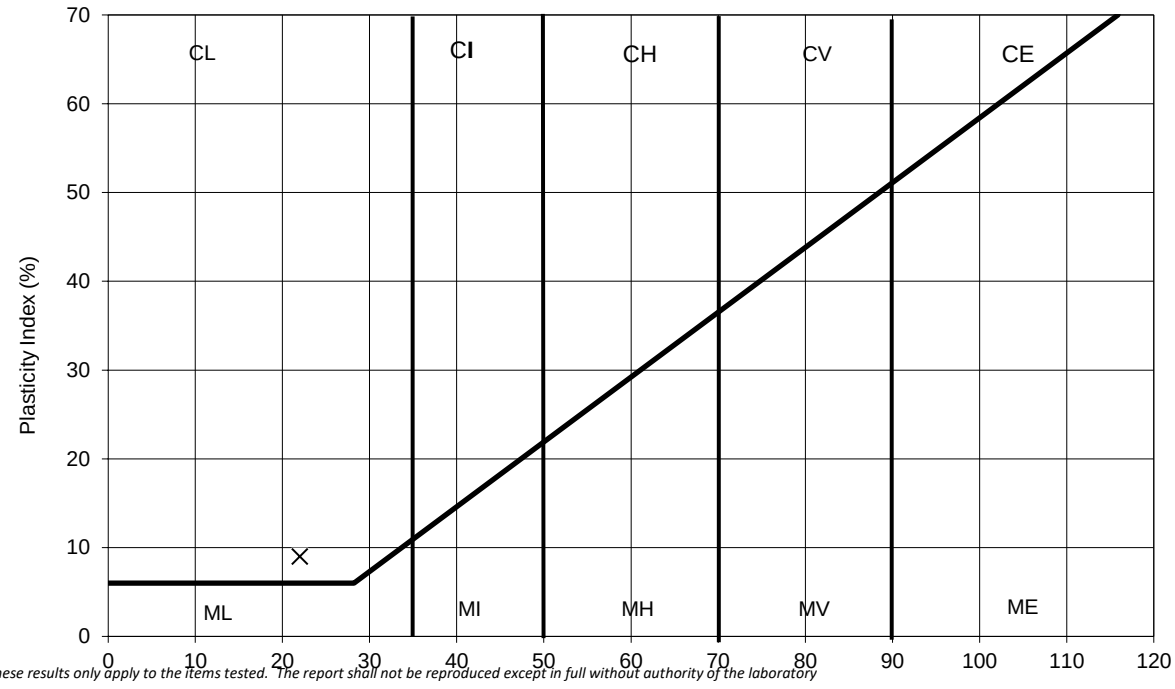
				Job No.	32282
				Borehole/Pit No.	TP-97602
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Brown and grey mottled slightly gravelly sandy silty CLAY (gravel is fm)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**97**	**%**
LIQUID LIMIT	**22**	**%**
PLASTIC LIMIT	**13**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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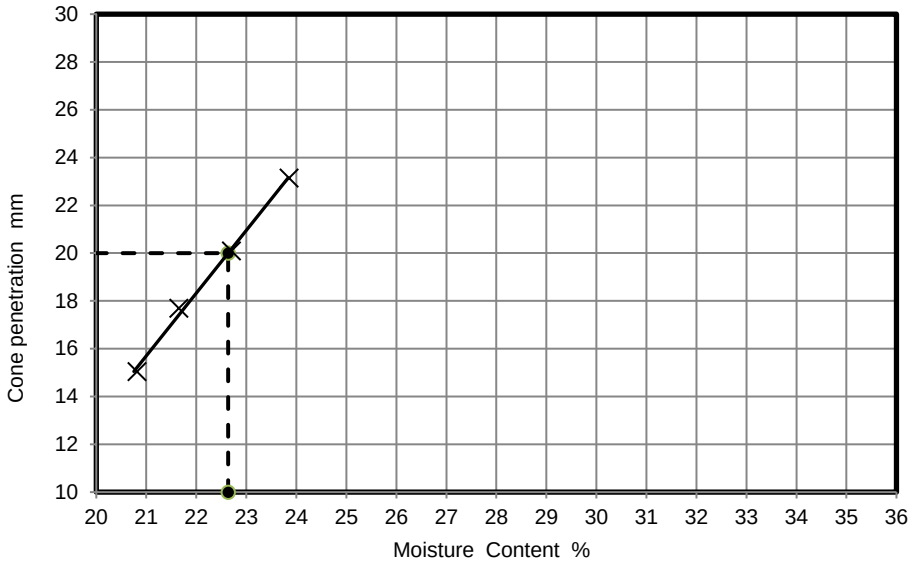
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

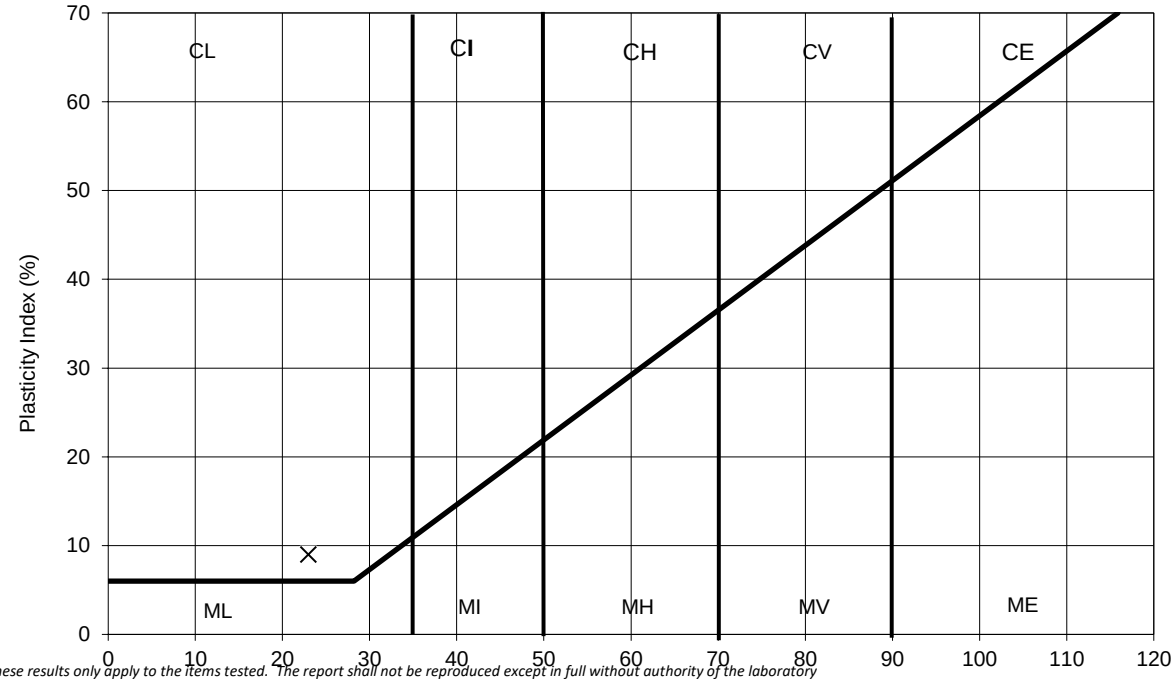
				Job No.	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**90**	**%**
LIQUID LIMIT	**23**	**%**
PLASTIC LIMIT	**14**	**%**
PLASTICITY INDEX	**9**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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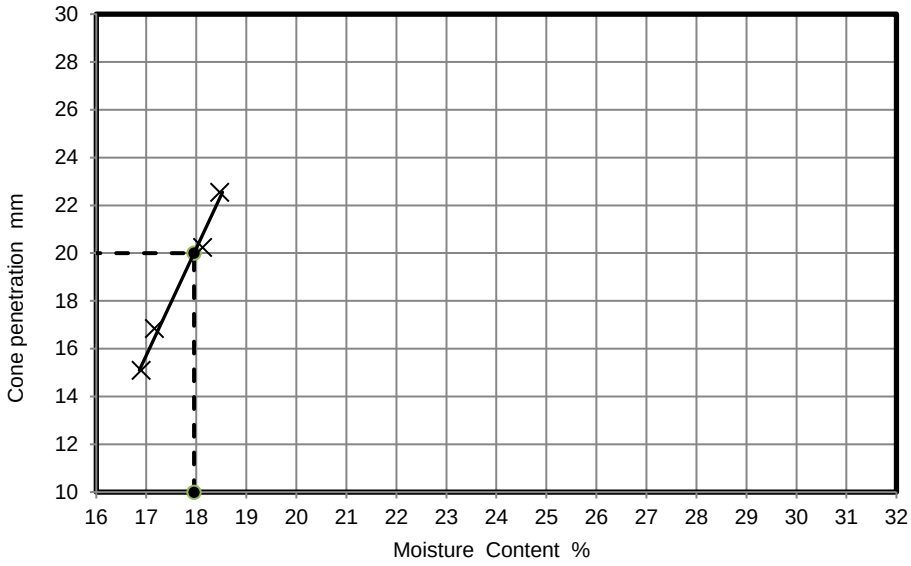
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

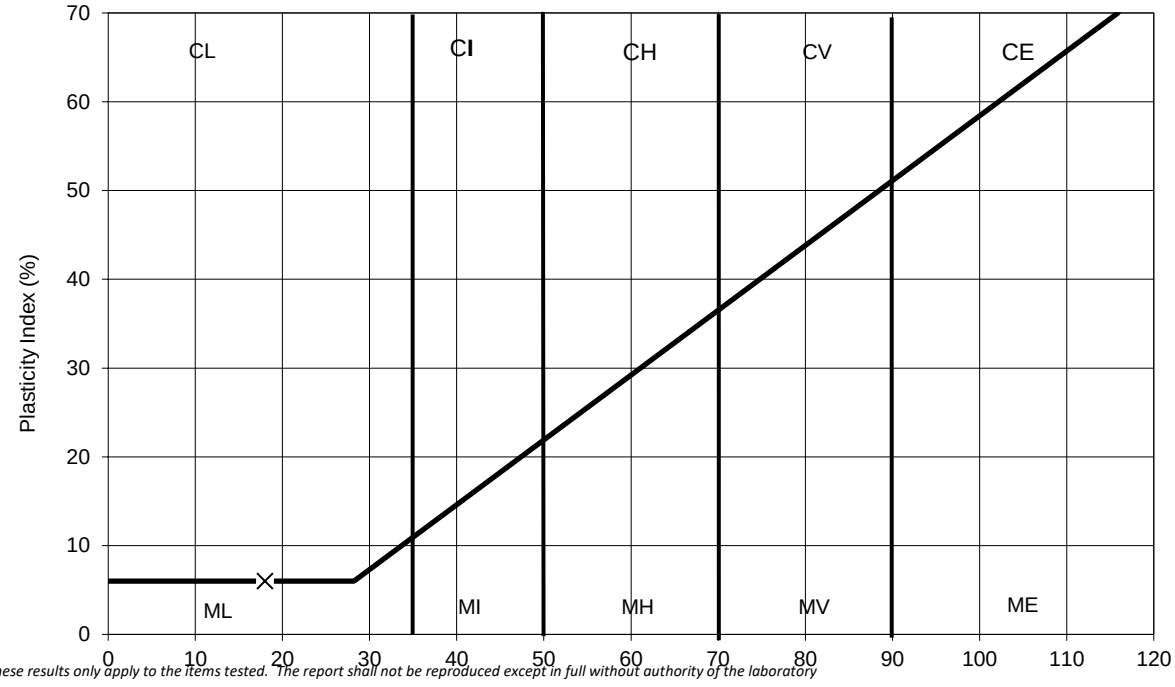
				Job No.	32282
				Borehole/Pit No.	TP-97777
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**13**	**%**
% PASSING 425µm SIEVE	**80**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**6**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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Initials: J.P
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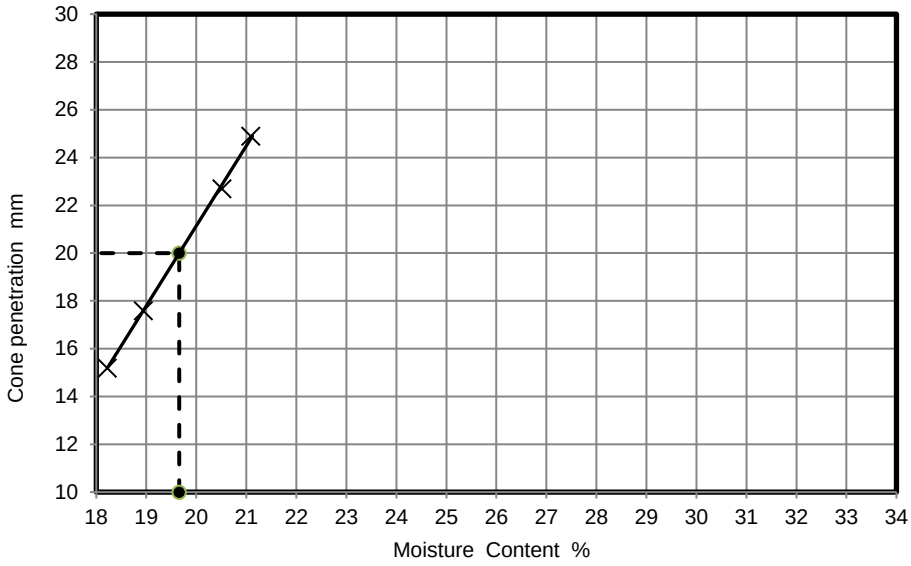
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

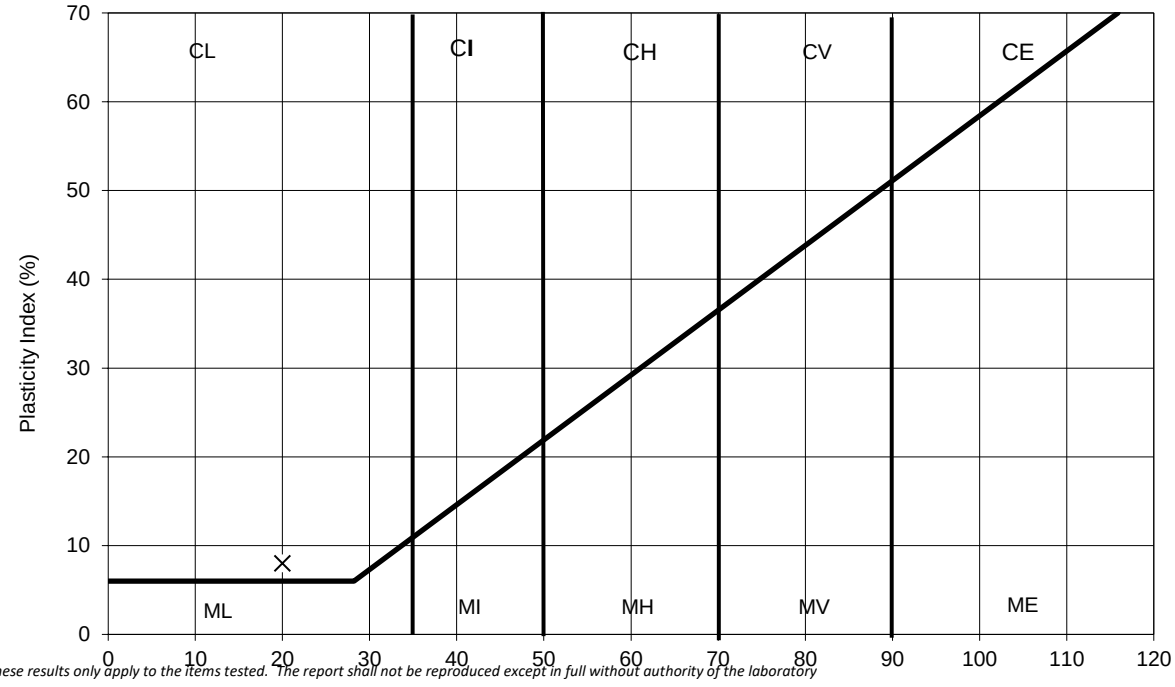
				Job No.	32282
				Borehole/Pit No.	TP-97998
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Dark greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**82**	**%**
LIQUID LIMIT	**20**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**8**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

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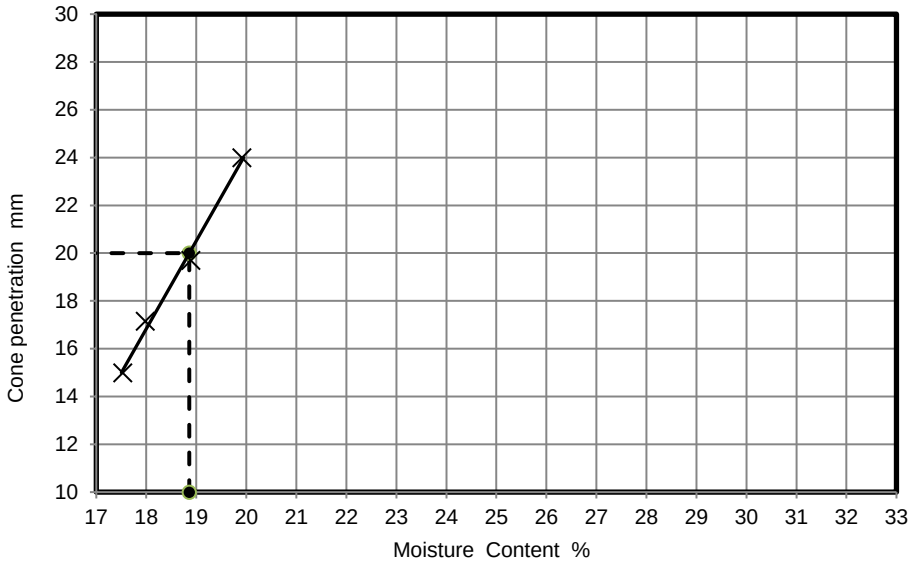
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

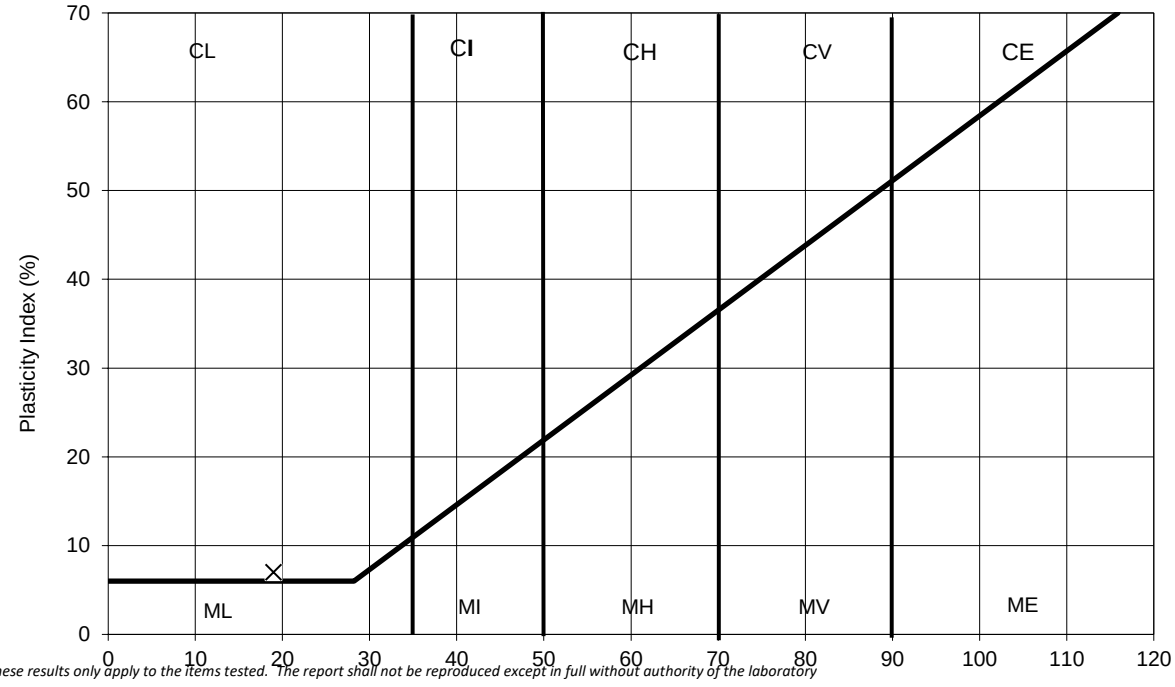
				Job No.	32282
				Borehole/Pit No.	TP-98105
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**7.0**	**%**
% PASSING 425µm SIEVE	**60**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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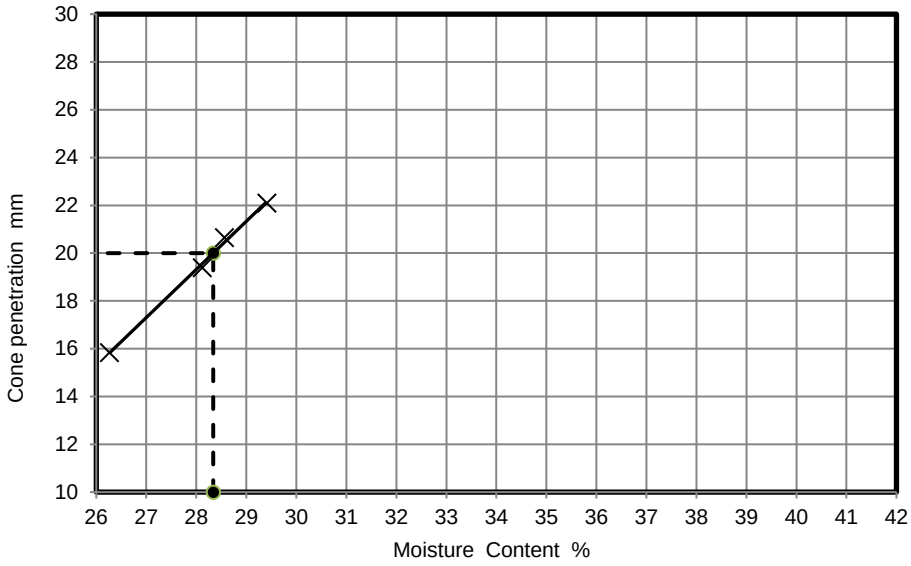
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

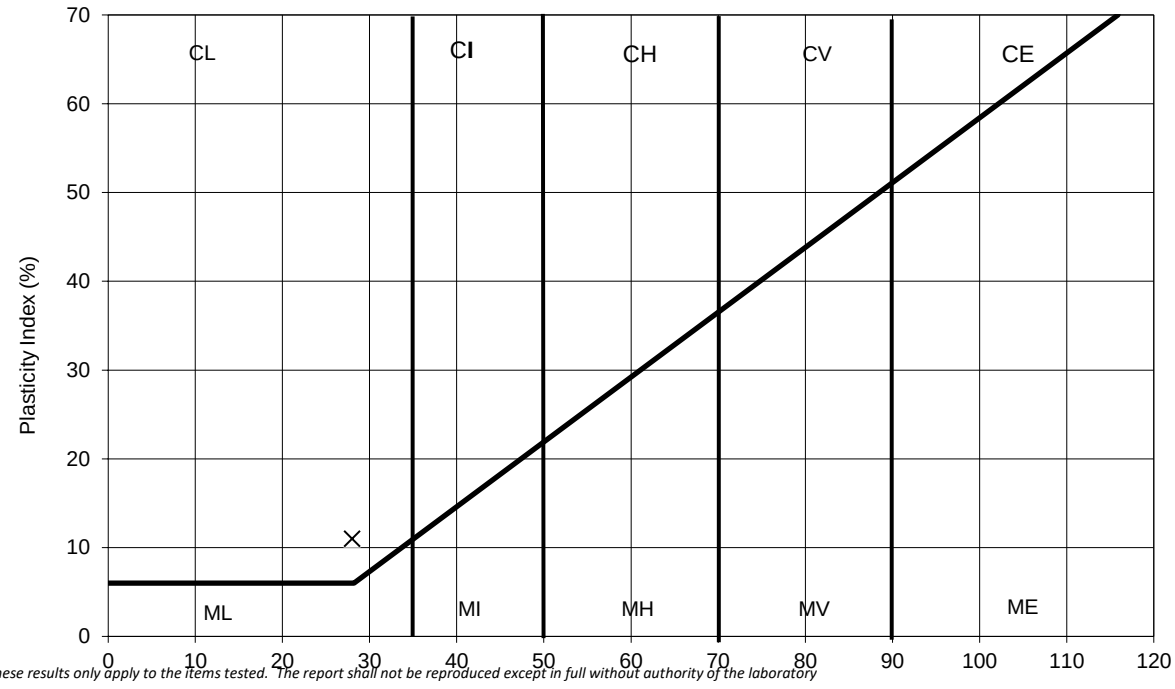
				Job No.	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Grey and brown mottled silty CLAY with sandy patches and rare fine gravel			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	29/09/2022



NATURAL MOISTURE CONTENT	**14**	**%**
% PASSING 425µm SIEVE	**99**	**%**
LIQUID LIMIT	**28**	**%**
PLASTIC LIMIT	**17**	**%**
PLASTICITY INDEX	**11**	**%**

Remarks

PLASTICITY INDEX



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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
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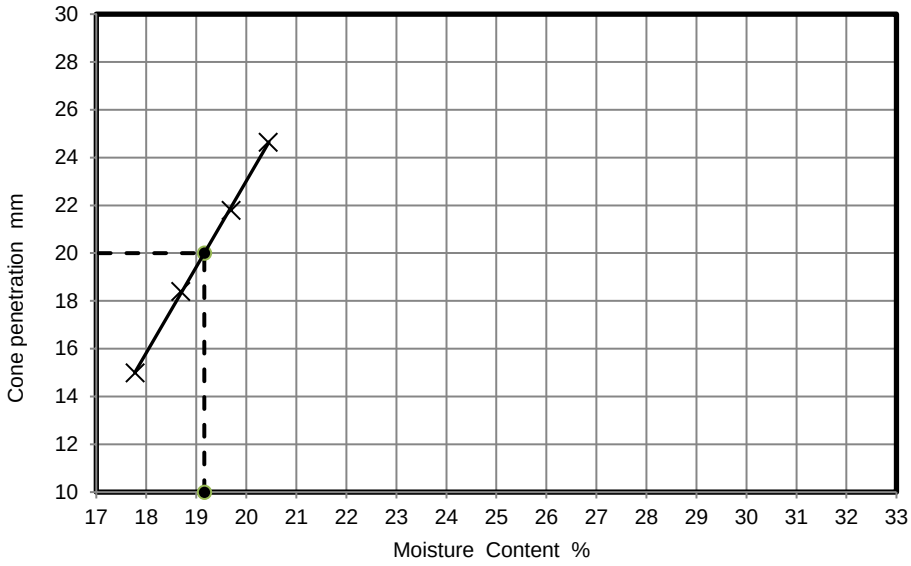
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

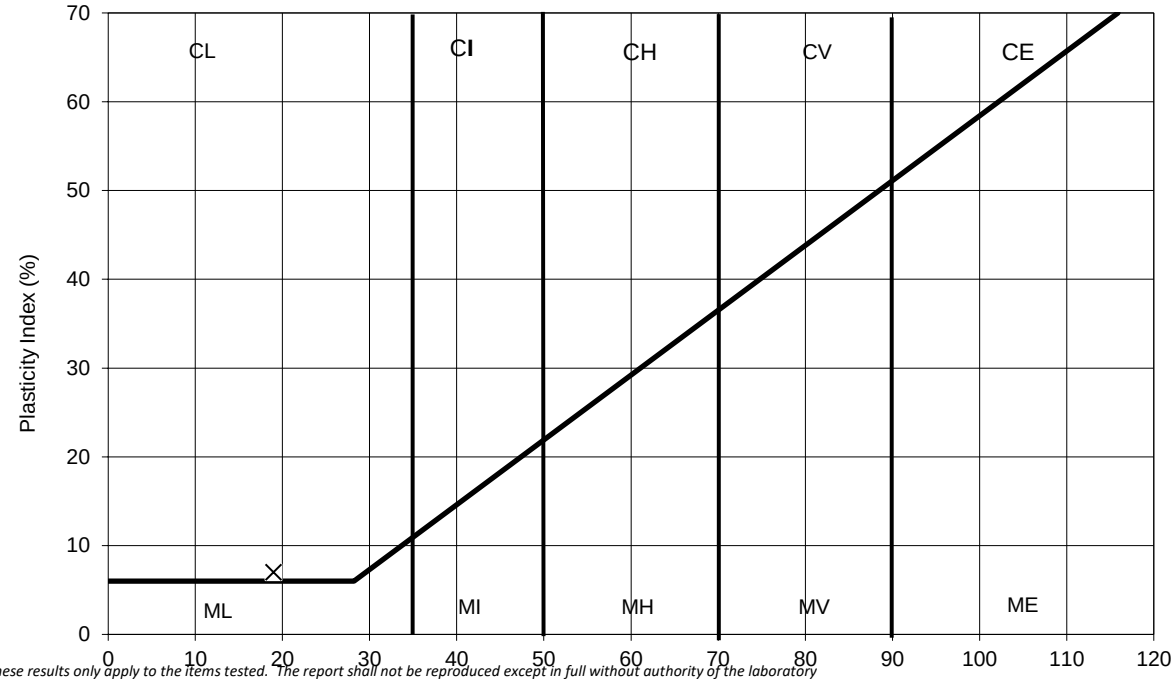
				Job No.	32282
				Borehole/Pit No.	TP-98105
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**11**	**%**
% PASSING 425µm SIEVE	**70**	**%**
LIQUID LIMIT	**19**	**%**
PLASTIC LIMIT	**12**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

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BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

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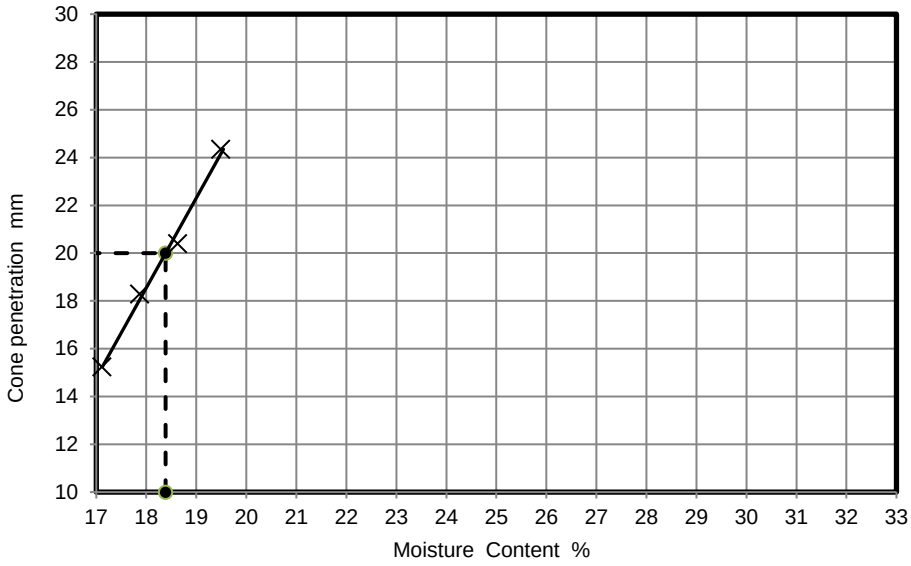
LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

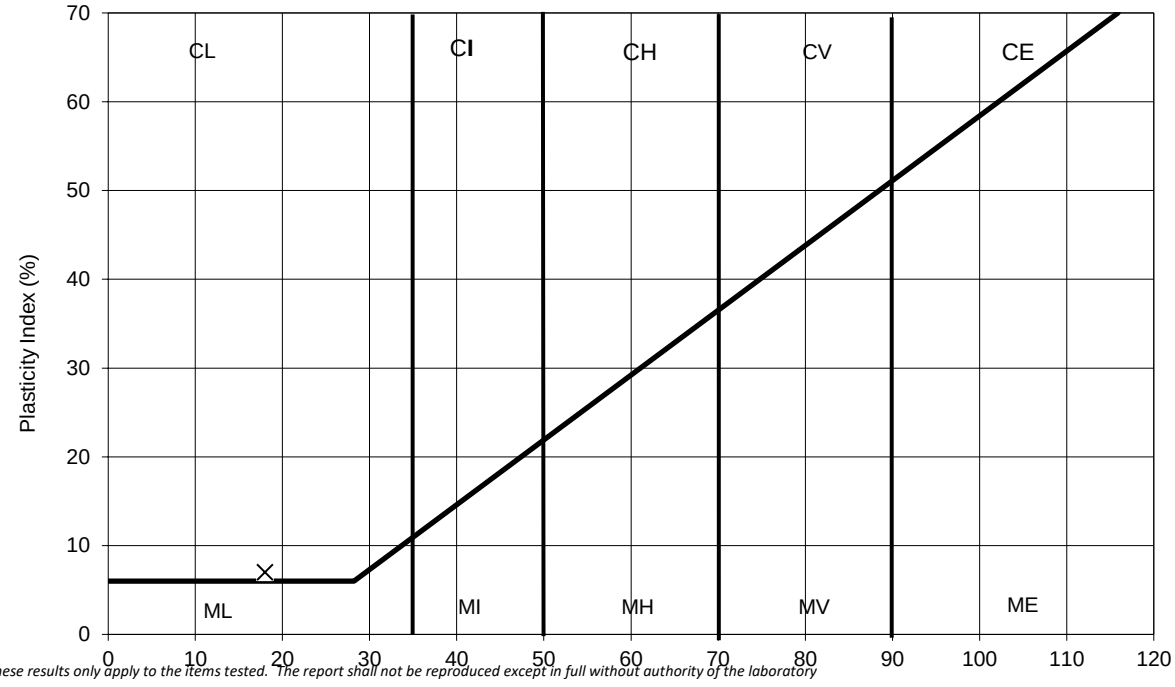
				Job No.	32282
				Borehole/Pit No.	TP-98105
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	- m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
				Project Started	17/08/2022
				Date Tested	12/10/2022



NATURAL MOISTURE CONTENT	**10**	**%**
% PASSING 425µm SIEVE	**75**	**%**
LIQUID LIMIT	**18**	**%**
PLASTIC LIMIT	**11**	**%**
PLASTICITY INDEX	**7**	**%**

Remarks

PLASTICITY INDEX



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TEST METHOD

BS1377: Part 2 :Clause 4.3 : 1990 Determination of the liquid limit by the cone penetrometer method
BS1377: Part 2 :Clause 5.0 : 1990: Determination of the plastic limit and plasticity index
BS1377: Part 2 :Clause 3.2 : 1990:Determination of the moisture content by the oven drying

Checked and Approved

Initials: J.P
Date: 28/10/2022

Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

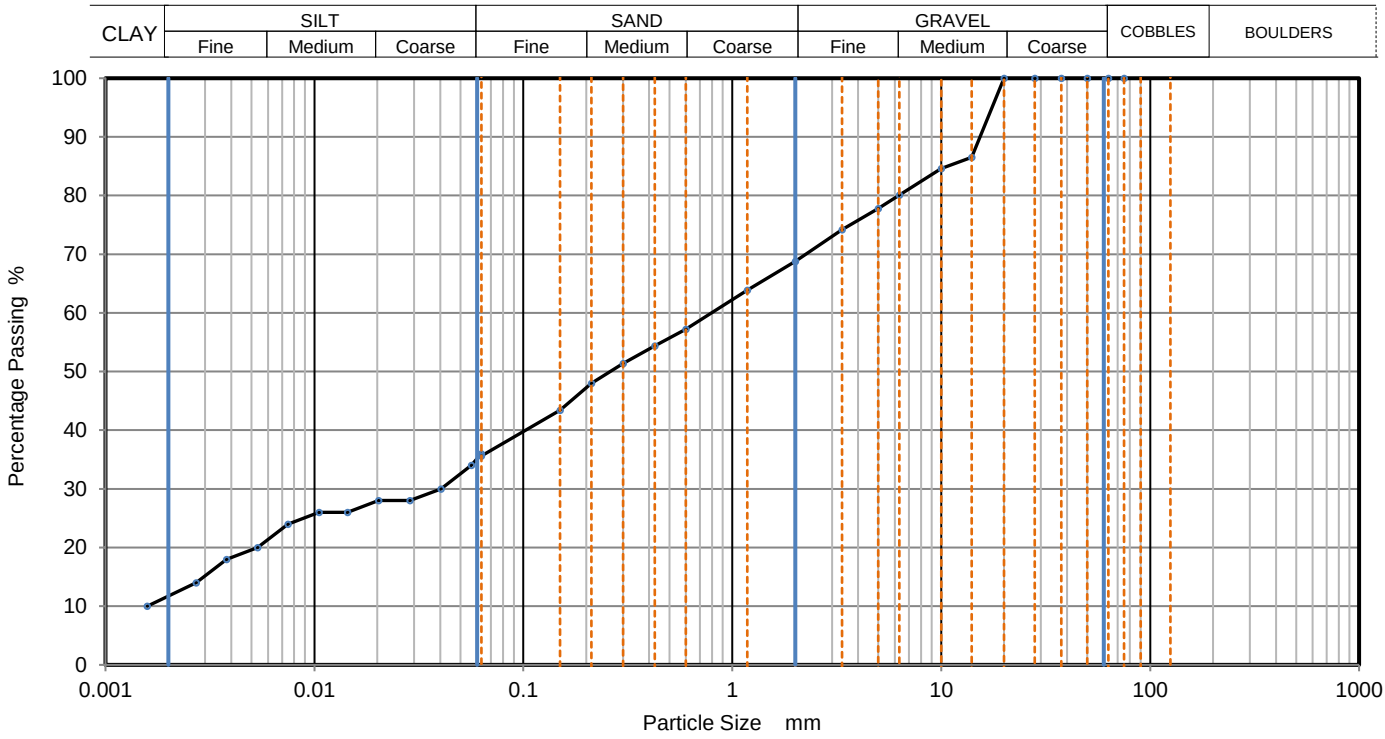
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-36879
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown slightly gravelly slightly sandy SILT. Gravel is medium.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111013



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0563	34
75	100	0.0403	30
63	100	0.0286	28
50	100	0.0203	28
37.5	100	0.0144	26
28	100	0.0105	26
20	100	0.0075	24
14	87	0.0053	20
10	85	0.0038	18
6.3	80	0.0027	14
5	78	0.0016	10
3.35	74		
2	69		
1.18	64		
0.6	57	Particle density (assumed)	
0.425	54	2.65	Mg/m3
0.3	51		
0.212	48		
0.15	43		
0.063	36		

Dry Mass of sample, g	424

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	33
Silt	24
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.795
D30	mm	0.0414
D10	mm	0.00161
Uniformity Coefficient		490
Curvature Coefficient		1.3

Remarks

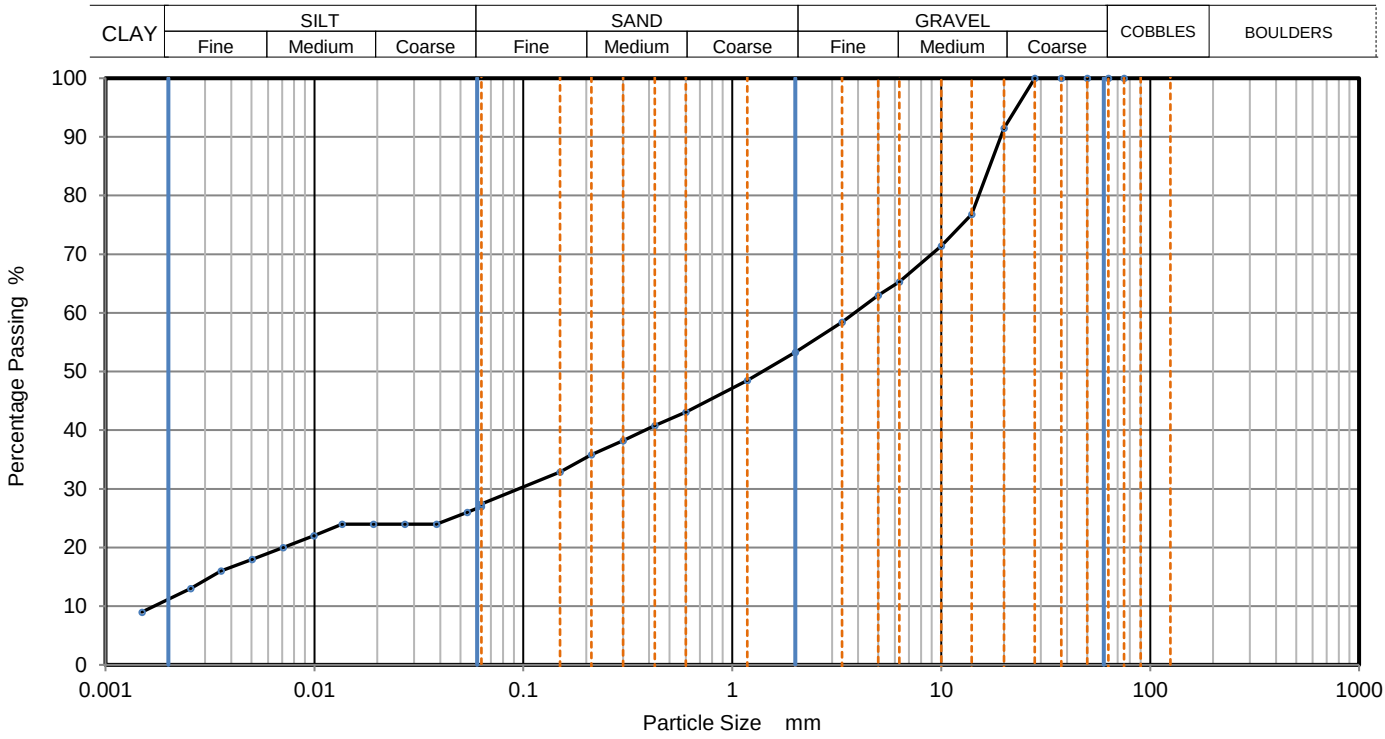
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	15/02/2022 15:18	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-36879
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Orangish-brown very sandy very silty medium GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0539	26
75	100	0.0383	24
63	100	0.0271	24
50	100	0.0192	24
37.5	100	0.0136	24
28	100	0.0100	22
20	92	0.0071	20
14	77	0.0050	18
10	71	0.0036	16
6.3	65	0.0026	13
5	63	0.0015	9
3.35	58		
2	53		
1.18	49		
0.6	43	Particle density (assumed)	
0.425	41	2.65 Mg/m3	
0.3	38		
0.212	36		
0.15	33		
0.063	27		

Dry Mass of sample, g	543

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	26
Silt	16
Clay	11

Grading Analysis		
D100	mm	
D60	mm	3.86
D30	mm	0.0946
D10	mm	0.0017
Uniformity Coefficient		2300
Curvature Coefficient		1.4

Remarks

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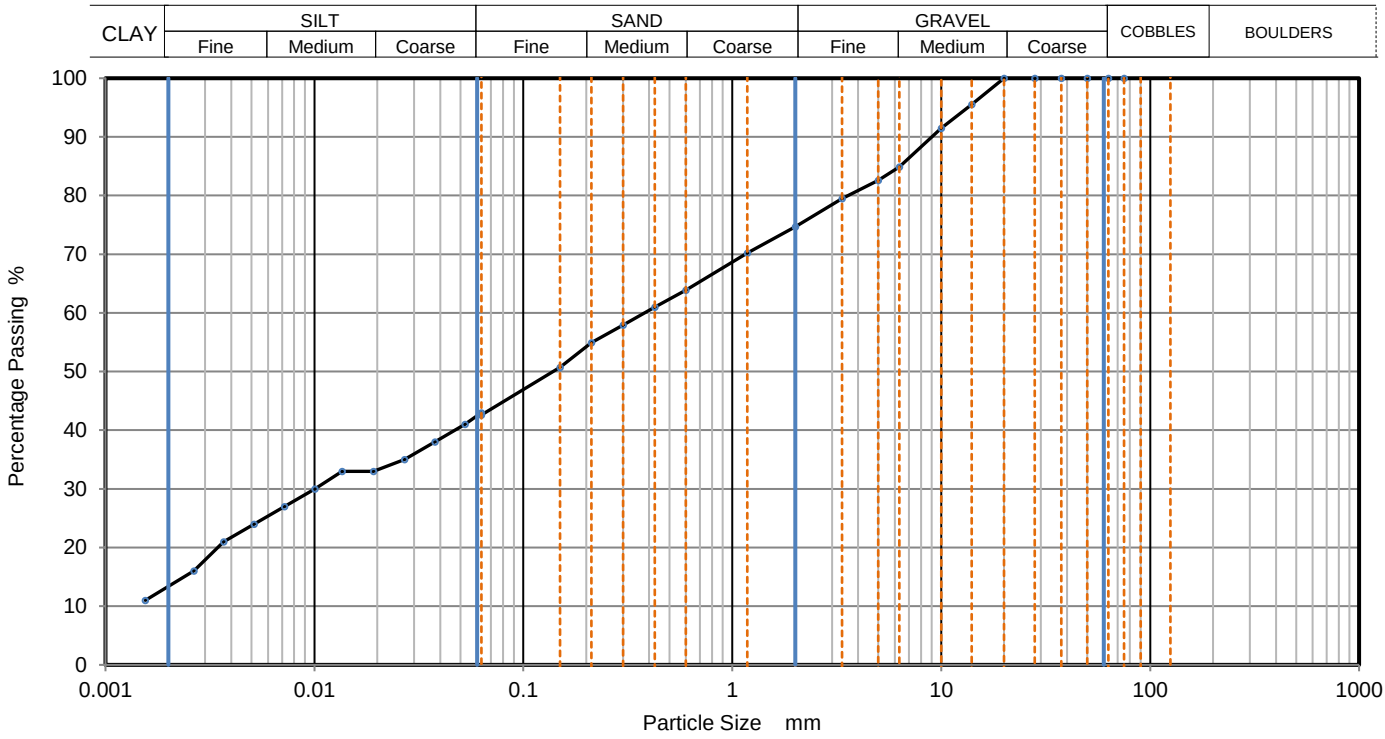
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-36956
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light greyish-brown slightly gravrelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110117



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0525	41
75	100	0.0377	38
63	100	0.0270	35
50	100	0.0192	33
37.5	100	0.0136	33
28	100	0.0100	30
20	100	0.0072	27
14	96	0.0051	24
10	92	0.0037	21
6.3	85	0.0026	16
5	83	0.0016	11
3.35	80		
2	75		
1.18	70		
0.6	64	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	58		
0.212	55		
0.15	51		
0.063	43		

Dry Mass of sample, g	354

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	32
Silt	29
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.379
D30	mm	0.0101
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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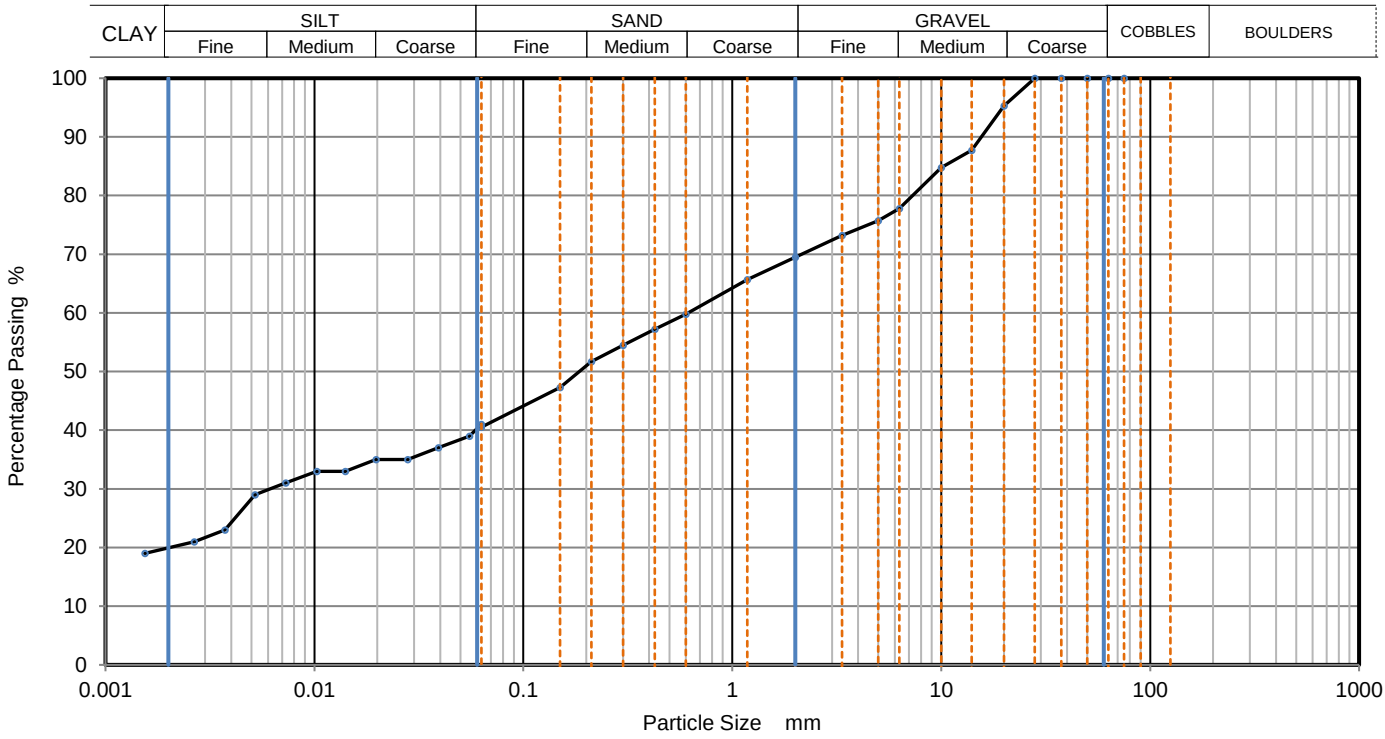
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-37230
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Grey slightly sandy slightly gravelly SILT. Gravel is medium.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202110193



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0552	39
75	100	0.0392	37
63	100	0.0279	35
50	100	0.0197	35
37.5	100	0.0140	33
28	100	0.0103	33
20	95	0.0073	31
14	88	0.0052	29
10	85	0.0037	23
6.3	78	0.0027	21
5	76	0.0015	19
3.35	73		
2	70		
1.18	66		
0.6	60	Particle density	(assumed)
0.425	57	2.65	Mg/m3
0.3	55		
0.212	52		
0.15	47		
0.063	41		

Dry Mass of sample, g	553

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	29
Silt	20
Clay	20

Grading Analysis		
D100	mm	
D60	mm	0.611
D30	mm	0.00627
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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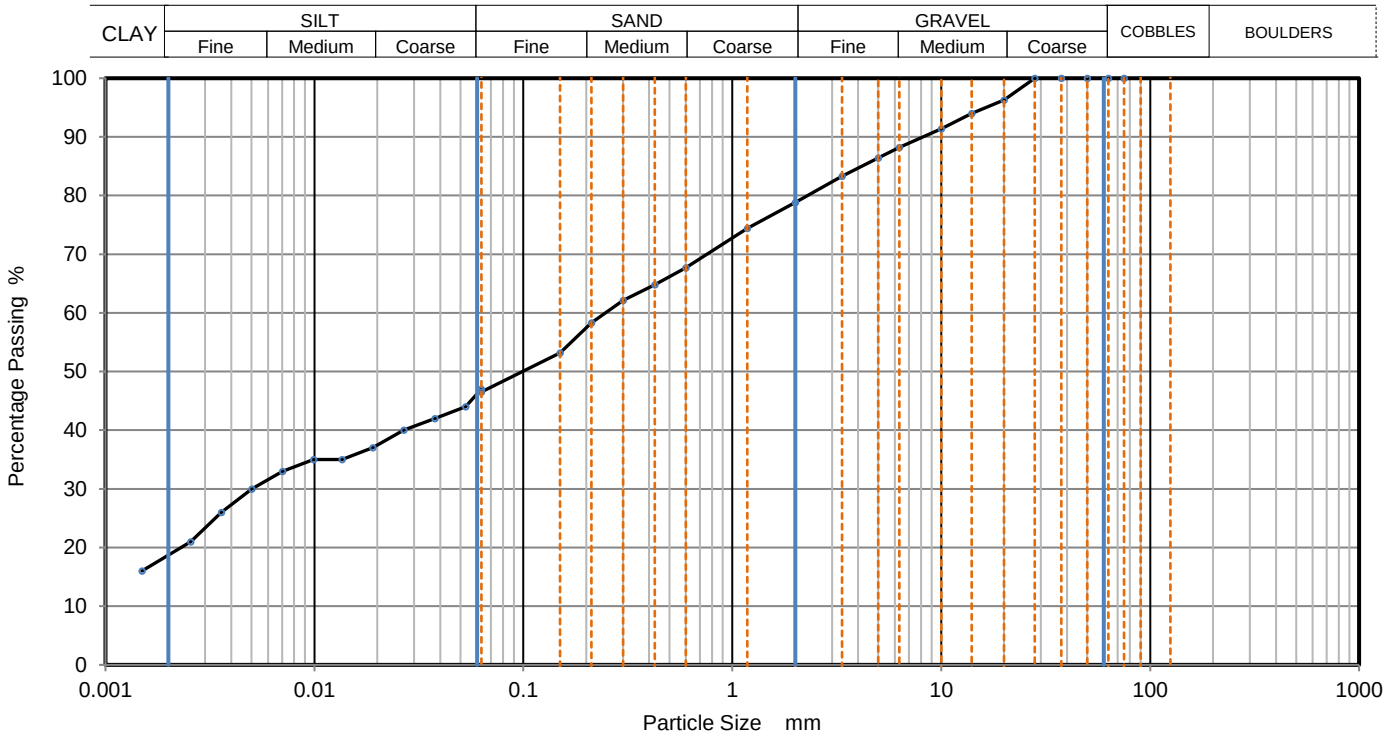
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-37778
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark grey slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202110199



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0529	44
75	100	0.0377	42
63	100	0.0268	40
50	100	0.0191	37
37.5	100	0.0136	35
28	100	0.0099	35
20	96	0.0070	33
14	94	0.0050	30
10	91	0.0036	26
6.3	88	0.0026	21
5	86	0.0015	16
3.35	83		
2	79		
1.18	74		
0.6	68	Particle density (assumed)	
0.425	65	2.65	Mg/m3
0.3	62		
0.212	58		
0.15	53		
0.063	47		

Dry Mass of sample, g: 537

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	32
Silt	28
Clay	19

Grading Analysis		
D100	mm	
D60	mm	0.248
D30	mm	0.00493
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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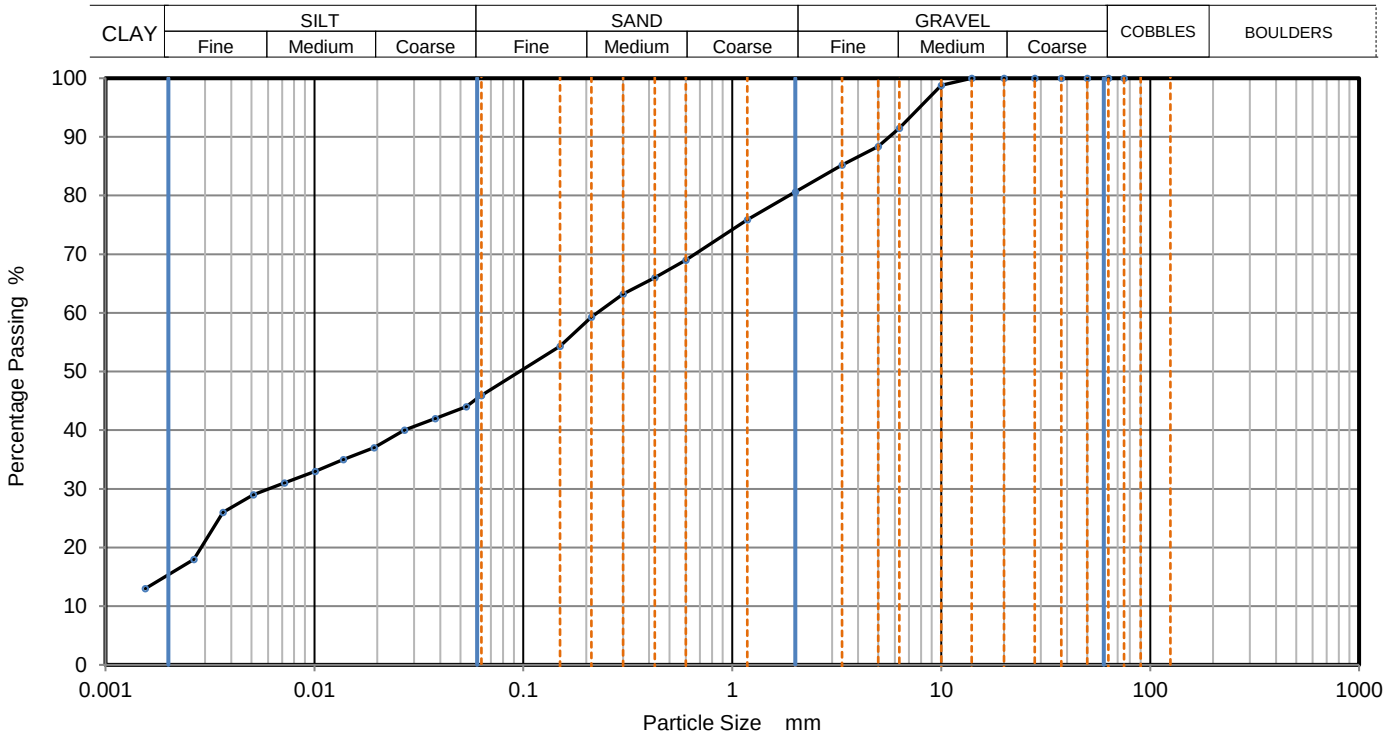
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-37778
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Dark brown slightly gravelly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101915



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0532	44
75	100	0.0379	42
63	100	0.0270	40
50	100	0.0193	37
37.5	100	0.0137	35
28	100	0.0101	33
20	100	0.0072	31
14	100	0.0051	29
10	99	0.0037	26
6.3	92	0.0026	18
5	88	0.0016	13
3.35	85		
2	81		
1.18	76		
0.6	69	Particle density (assumed)	
0.425	66	2.65	Mg/m3
0.3	63		
0.212	59		
0.15	54		
0.063	46		

Dry Mass of sample, g	451

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	35
Silt	30
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.226
D30	mm	0.00574
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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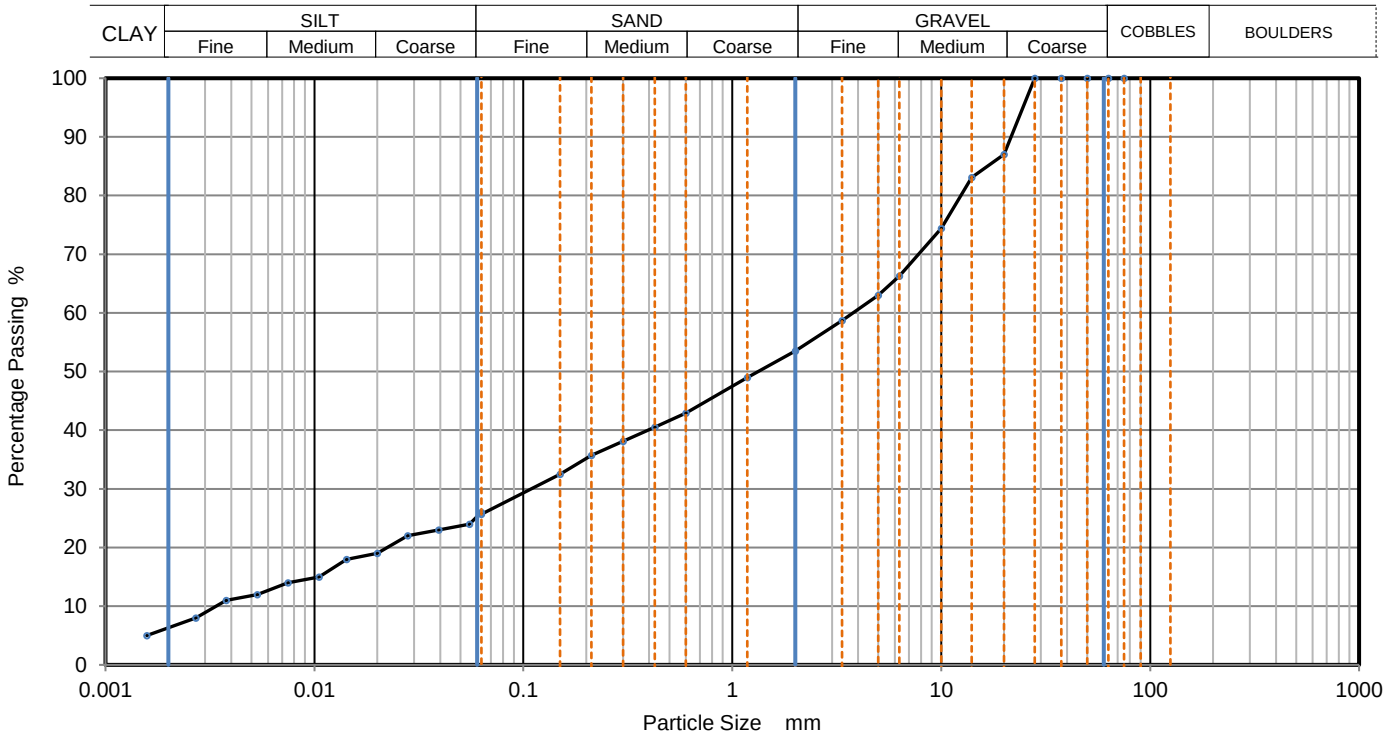
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-38106
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown very silty very sandy medium GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110123



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0553	24
75	100	0.0393	23
63	100	0.0280	22
50	100	0.0200	19
37.5	100	0.0142	18
28	100	0.0105	15
20	87	0.0075	14
14	83	0.0053	12
10	74	0.0038	11
6.3	66	0.0027	8
5	63	0.0016	5
3.35	59		
2	54		
1.18	49		
0.6	43	Particle density (assumed)	
0.425	41	2.65 Mg/m3	
0.3	38		
0.212	36		
0.15	33		
0.063	26		

Dry Mass of sample, g	424

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	28
Silt	19
Clay	7

Grading Analysis		
D100	mm	
D60	mm	3.79
D30	mm	0.109
D10	mm	0.00341
Uniformity Coefficient		1100
Curvature Coefficient		0.92

Remarks

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Operator	Checked	Approved	Sheet printed	
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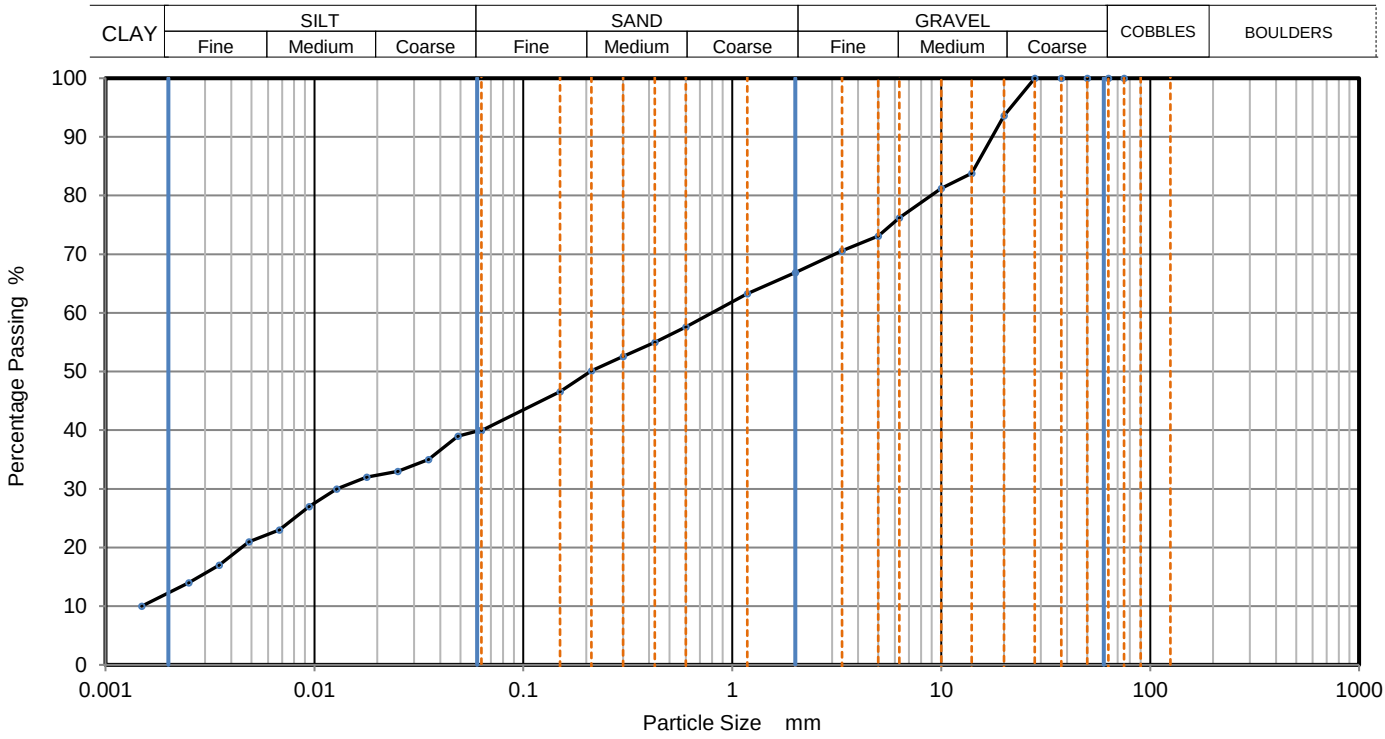
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-38523
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Grey slightly sandy slightly gravelly SILT. Gravel is medium.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110129



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0487	39
75	100	0.0351	35
63	100	0.0250	33
50	100	0.0178	32
37.5	100	0.0128	30
28	100	0.0094	27
20	94	0.0068	23
14	84	0.0049	21
10	81	0.0035	17
6.3	76	0.0025	14
5	73	0.0015	10
3.35	71		
2	67		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	55	2.65	Mg/m3
0.3	53		
0.212	50		
0.15	47		
0.063	40		

Dry Mass of sample, g	452

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	27
Silt	28
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.796
D30	mm	0.0134
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/02/2022 12:02	**1** QC From No:R2

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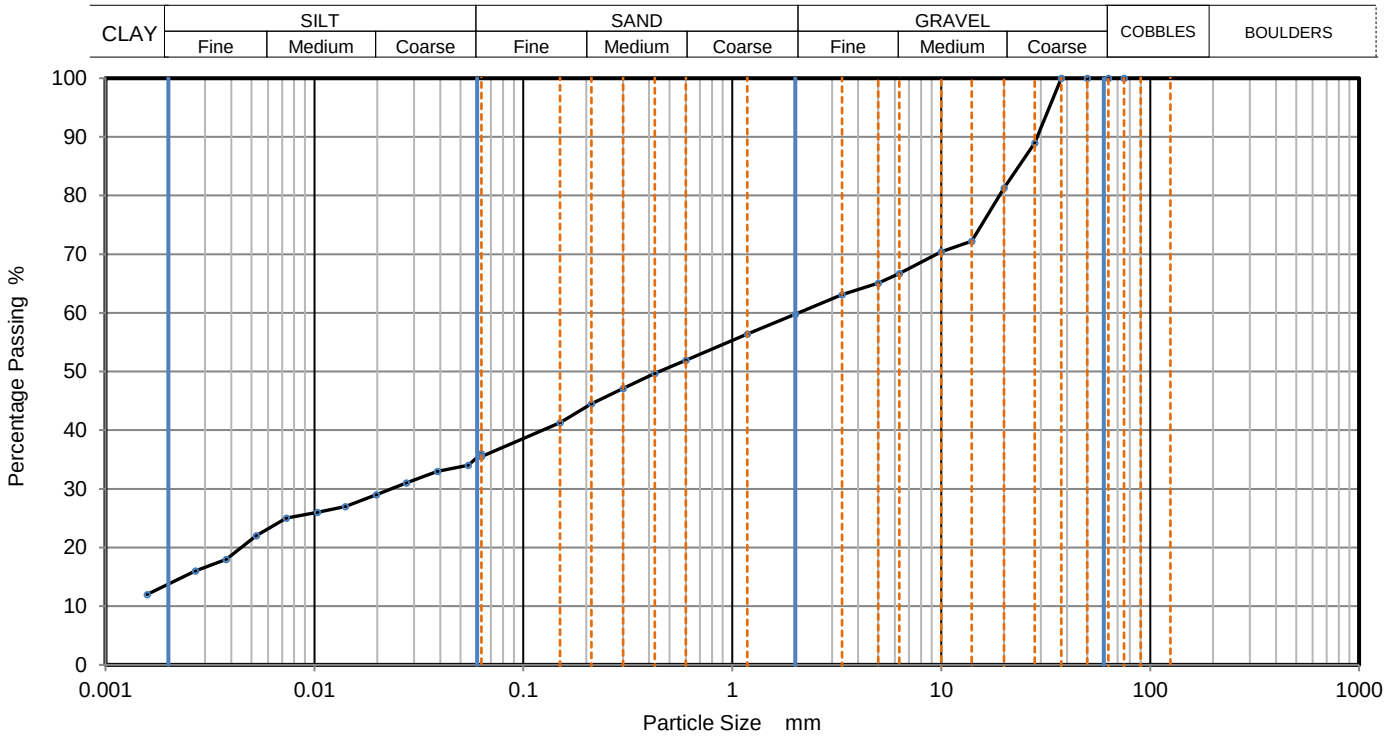
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-38523
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Grey slightly sandy gravelly SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110135



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0545	34
75	100	0.0388	33
63	100	0.0276	31
50	100	0.0198	29
37.5	100	0.0141	27
28	89	0.0103	26
20	81	0.0074	25
14	72	0.0053	22
10	70	0.0038	18
6.3	67	0.0027	16
5	65	0.0016	12
3.35	63		
2	60		
1.18	56		
0.6	52	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	47		
0.212	45		
0.15	41		
0.063	36		

Dry Mass of sample, g	715

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	24
Silt	22
Clay	14

Grading Analysis		
D100	mm	
D60	mm	2.07
D30	mm	0.0232
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	15/02/2022 15:18	**1** QC From No:R2

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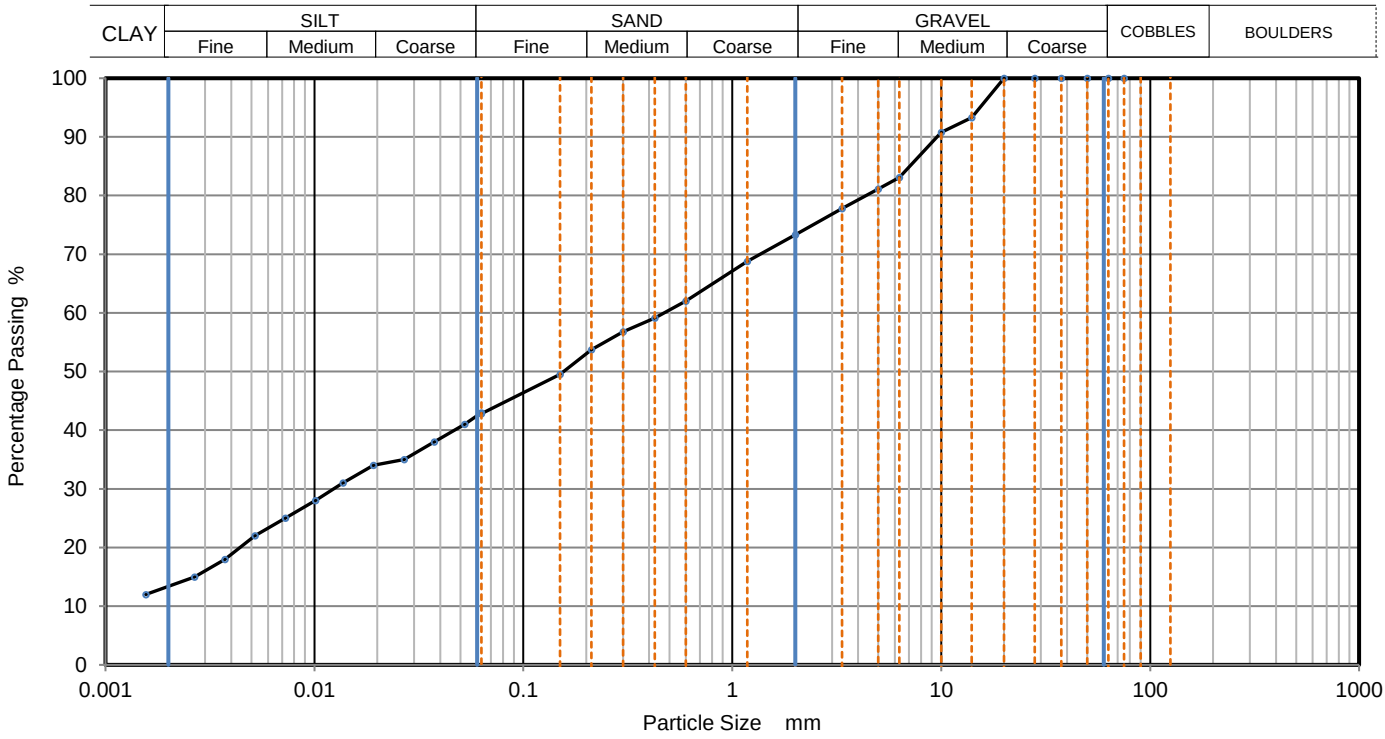
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-38786A
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light grey slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110146



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0523	41
75	100	0.0375	38
63	100	0.0269	35
50	100	0.0191	34
37.5	100	0.0137	31
28	100	0.0101	28
20	100	0.0073	25
14	93	0.0052	22
10	91	0.0037	18
6.3	83	0.0027	15
5	81	0.0016	12
3.35	78		
2	73		
1.18	69		
0.6	62	Particle density (assumed)	
0.425	59	2.65 Mg/m3	
0.3	57		
0.212	54		
0.15	50		
0.063	43		

Dry Mass of sample, g	652

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	31
Silt	30
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.474
D30	mm	0.0124
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	15/02/2022 15:18	**1** QC From No:R2

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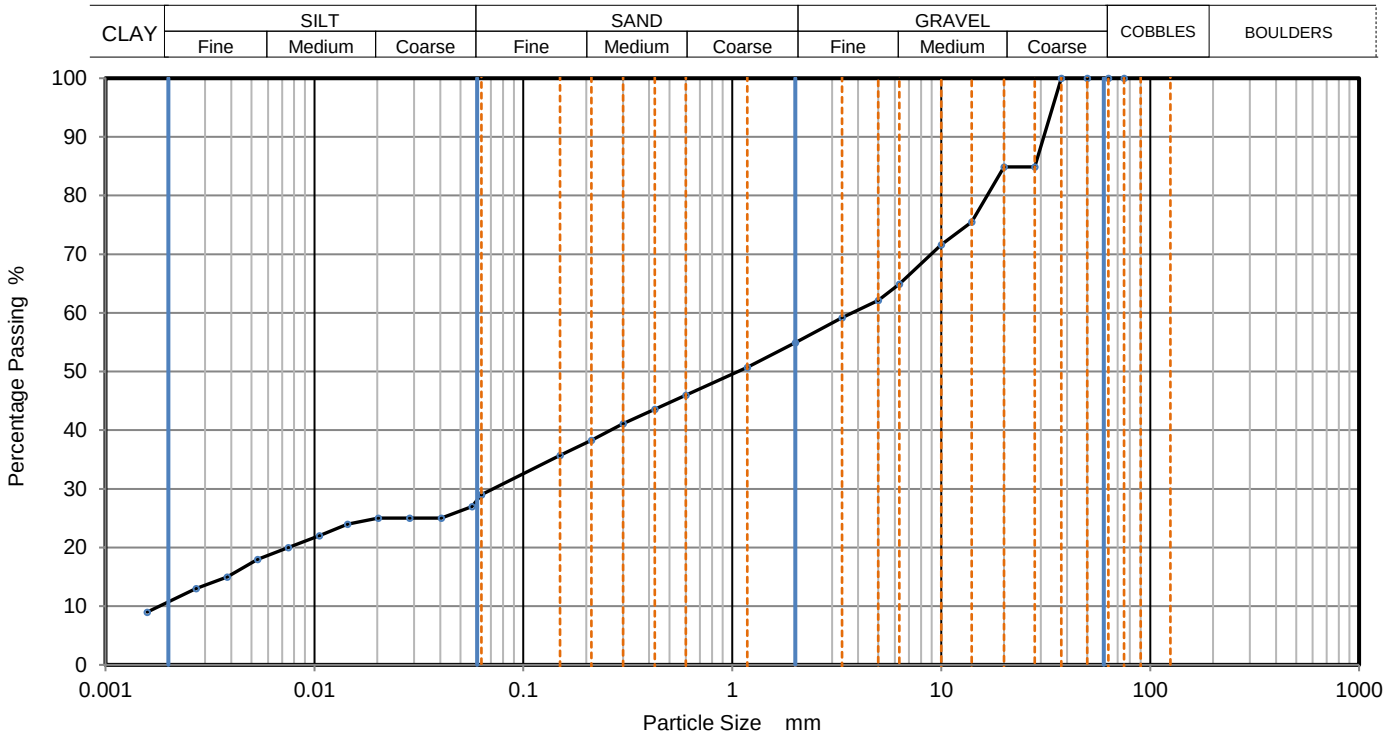
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-38786A
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Grey very sandy very silty medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110149



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0569	27
75	100	0.0404	25
63	100	0.0286	25
50	100	0.0202	25
37.5	100	0.0144	24
28	85	0.0106	22
20	85	0.0075	20
14	76	0.0053	18
10	72	0.0038	15
6.3	65	0.0027	13
5	62	0.0016	9
3.35	59		
2	55		
1.18	51		
0.6	46	Particle density (assumed)	
0.425	44	2.65	Mg/m3
0.3	41		
0.212	38		
0.15	36		
0.063	29		

Dry Mass of sample, g	592

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	26
Silt	19
Clay	11

Grading Analysis		
D100	mm	
D60	mm	3.73
D30	mm	0.0715
D10	mm	0.00182
Uniformity Coefficient		2100
Curvature Coefficient		0.75

Remarks

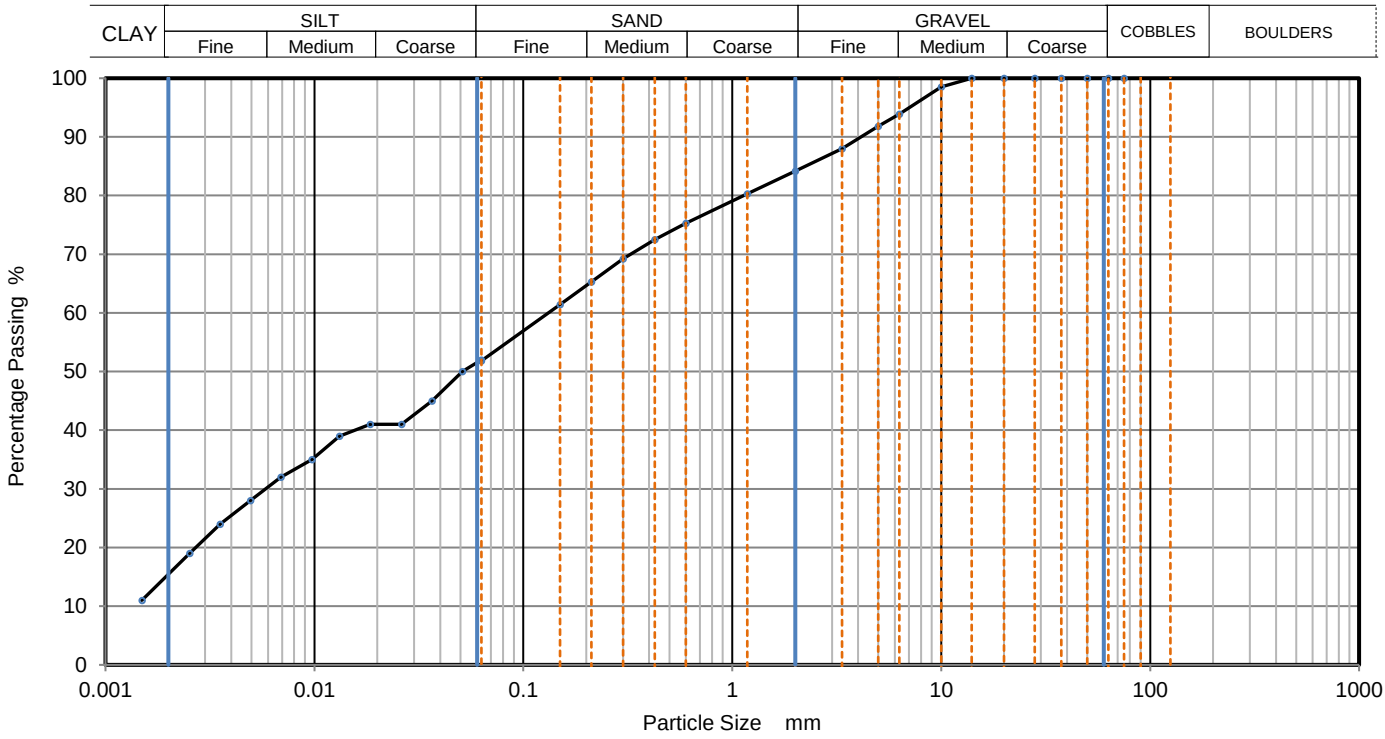
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	15/02/2022 15:18	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-39229
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101921



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	52
		0.0510	50
75	100	0.0365	45
63	100	0.0262	41
50	100	0.0185	41
37.5	100	0.0132	39
28	100	0.0097	35
20	100	0.0069	32
14	100	0.0049	28
10	99	0.0035	24
6.3	94	0.0025	19
5	92	0.0015	11
3.35	88		
2	84		
1.18	80		
0.6	75	Particle density	(assumed)
0.425	73	2.65	Mg/m3
0.3	69		
0.212	65		
0.15	61		
0.063	52		

Dry Mass of sample, g	362

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	33
Silt	36
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.132
D30	mm	0.00575
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2022 16:54	**1** QC From No:R2

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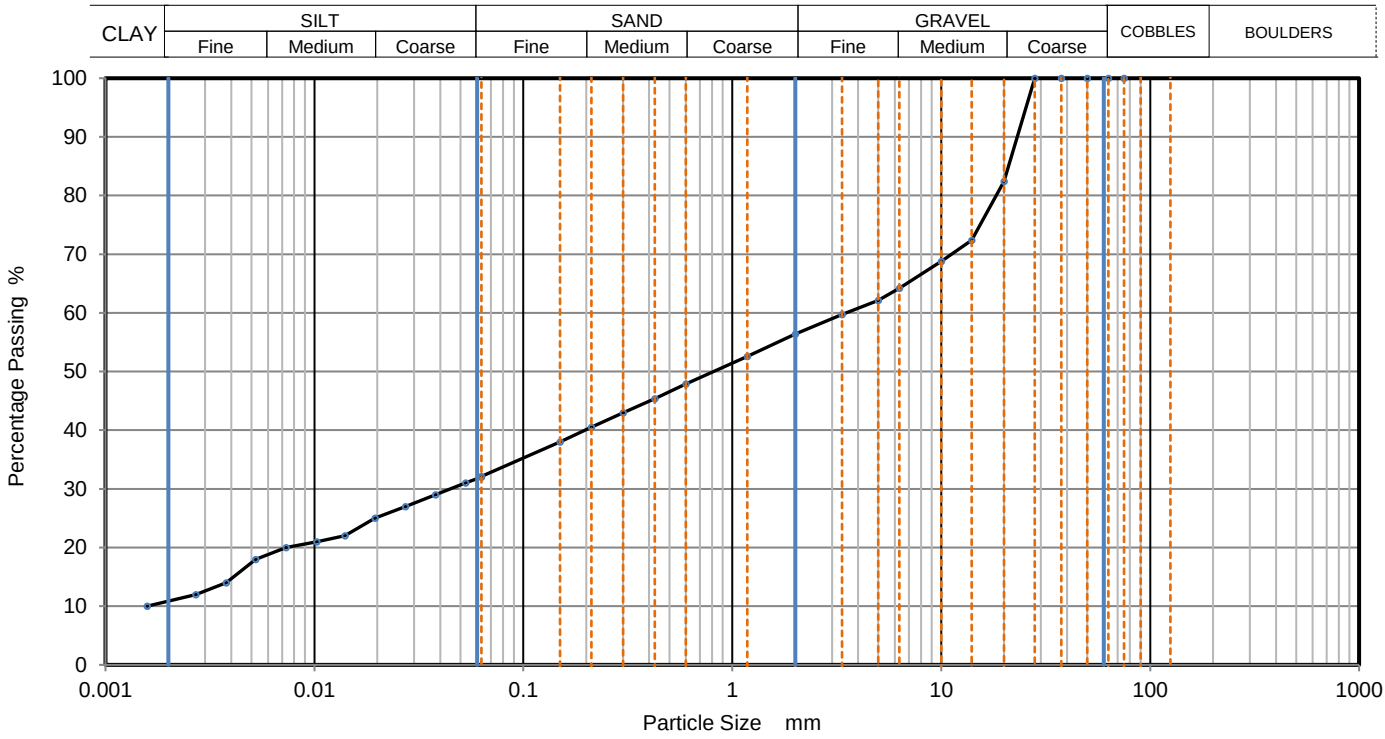
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-39518
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown very sandy very silty medium and coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101926



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0530	31
75	100	0.0380	29
63	100	0.0272	27
50	100	0.0195	25
37.5	100	0.0140	22
28	100	0.0103	21
20	82	0.0073	20
14	72	0.0052	18
10	69	0.0038	14
6.3	64	0.0027	12
5	62	0.0016	10
3.35	60		
2	56		
1.18	53		
0.6	48	Particle density (assumed)	
0.425	45	2.65 Mg/m3	
0.3	43		
0.212	41		
0.15	38		
0.063	32		

Dry Mass of sample, g: 516

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	24
Silt	22
Clay	11

Grading Analysis		
D100	mm	
D60	mm	3.53
D30	mm	0.0452
D10	mm	0.00173
Uniformity Coefficient		2000
Curvature Coefficient		0.33

Remarks

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		Dympna Darcy B.Sc.	03/03/2022 16:54	**1** QC From No:R2

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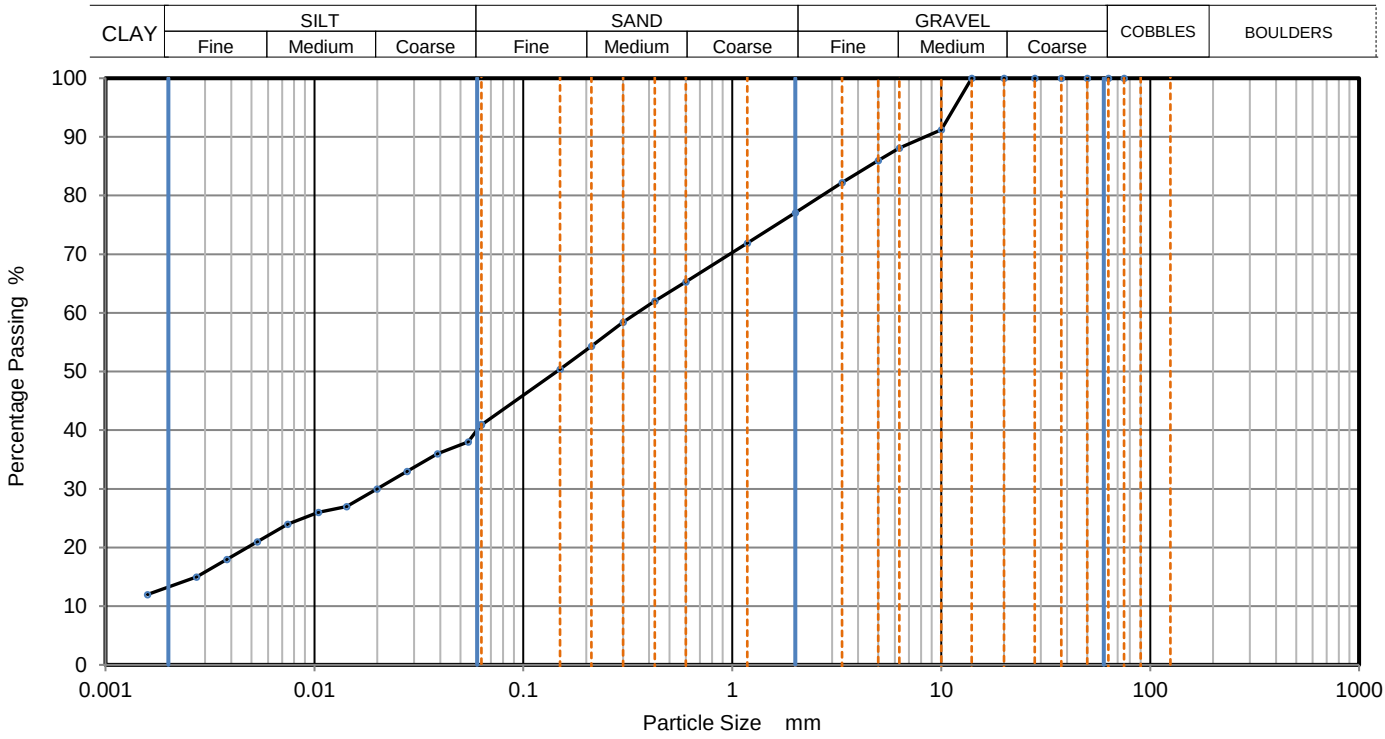
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-40004
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110155



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0545	38
75	100	0.0388	36
63	100	0.0278	33
50	100	0.0199	30
37.5	100	0.0142	27
28	100	0.0105	26
20	100	0.0074	24
14	100	0.0053	21
10	91	0.0038	18
6.3	88	0.0027	15
5	86	0.0016	12
3.35	82		
2	77		
1.18	72		
0.6	65	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	58		
0.212	54		
0.15	50		
0.063	41		

Dry Mass of sample, g	405

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	36
Silt	28
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.351
D30	mm	0.0193
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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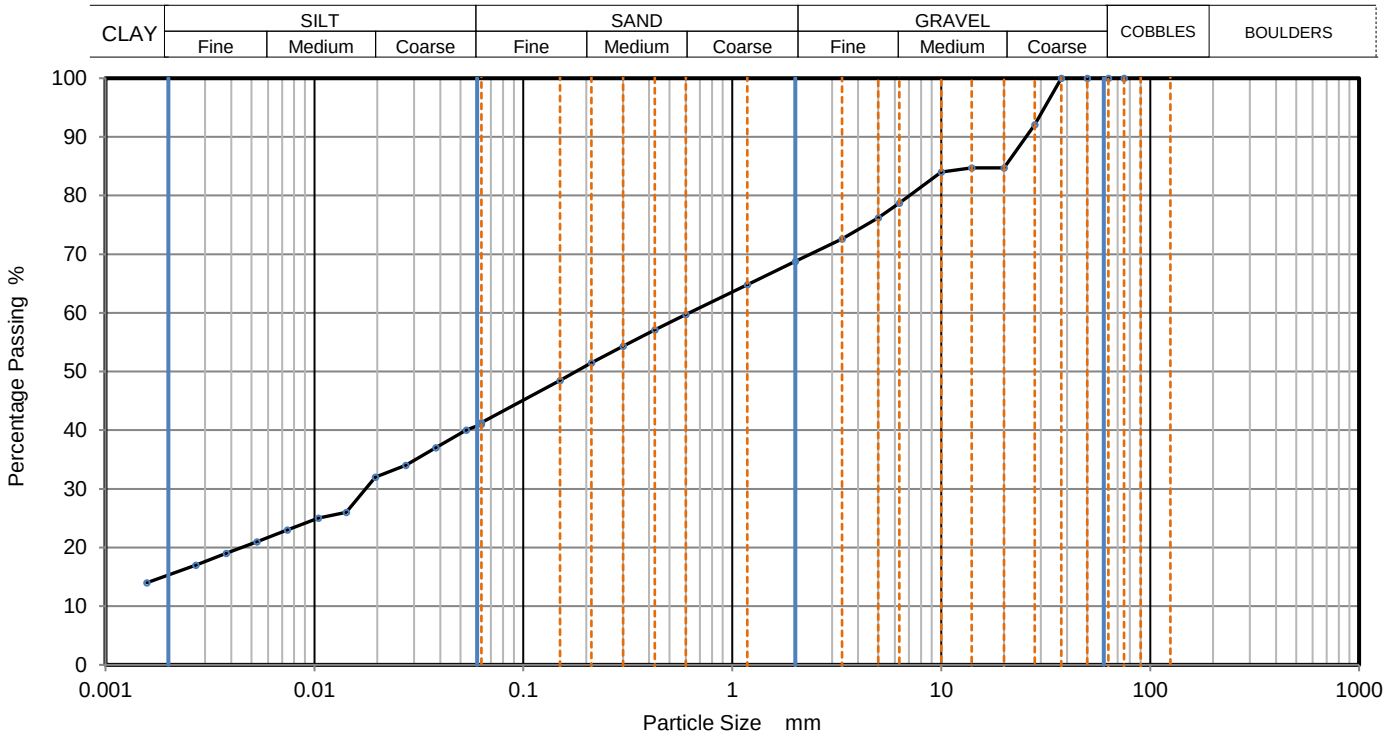
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-40405
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110161



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0532	40
75	100	0.0381	37
63	100	0.0273	34
50	100	0.0196	32
37.5	100	0.0142	26
28	92	0.0104	25
20	85	0.0074	23
14	85	0.0053	21
10	84	0.0038	19
6.3	79	0.0027	17
5	76	0.0016	14
3.35	73		
2	69		
1.18	65		
0.6	60	Particle density	(assumed)
0.425	57	2.65	Mg/m3
0.3	54		
0.212	52		
0.15	49		
0.063	41		

Dry Mass of sample, g	496

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	28
Silt	26
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.626
D30	mm	0.0178
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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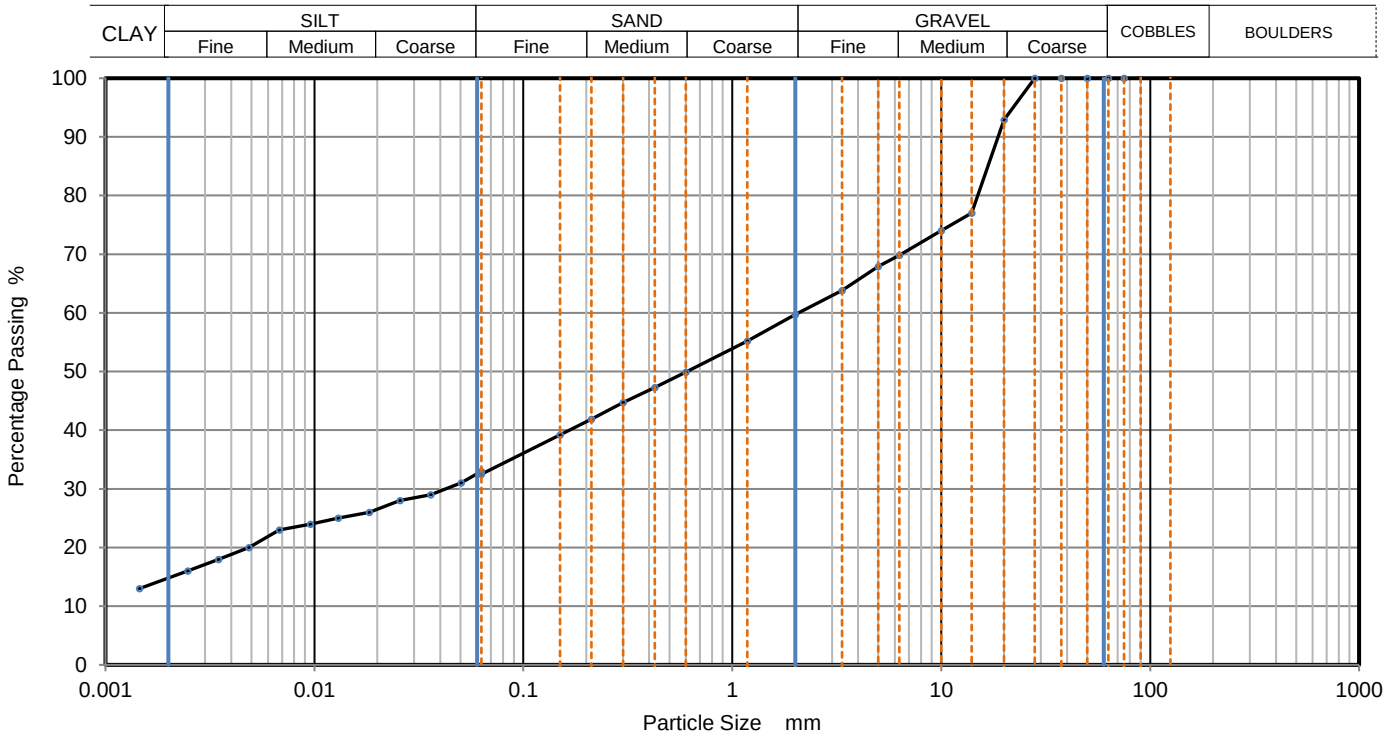
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-40405
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Light brown very sandy very silty medium GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110167



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0504	31
75	100	0.0361	29
63	100	0.0257	28
50	100	0.0183	26
37.5	100	0.0130	25
28	100	0.0096	24
20	93	0.0068	23
14	77	0.0049	20
10	74	0.0035	18
6.3	70	0.0025	16
5	68	0.0015	13
3.35	64		
2	60		
1.18	55		
0.6	50	Particle density (assumed)	
0.425	47	2.65	Mg/m3
0.3	45		
0.212	42		
0.15	39		
0.063	33		

Dry Mass of sample, g	415

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	27
Silt	18
Clay	15

Grading Analysis		
D100	mm	
D60	mm	2.09
D30	mm	0.0426
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	15/02/2022 15:18	**1** QC From No:R2

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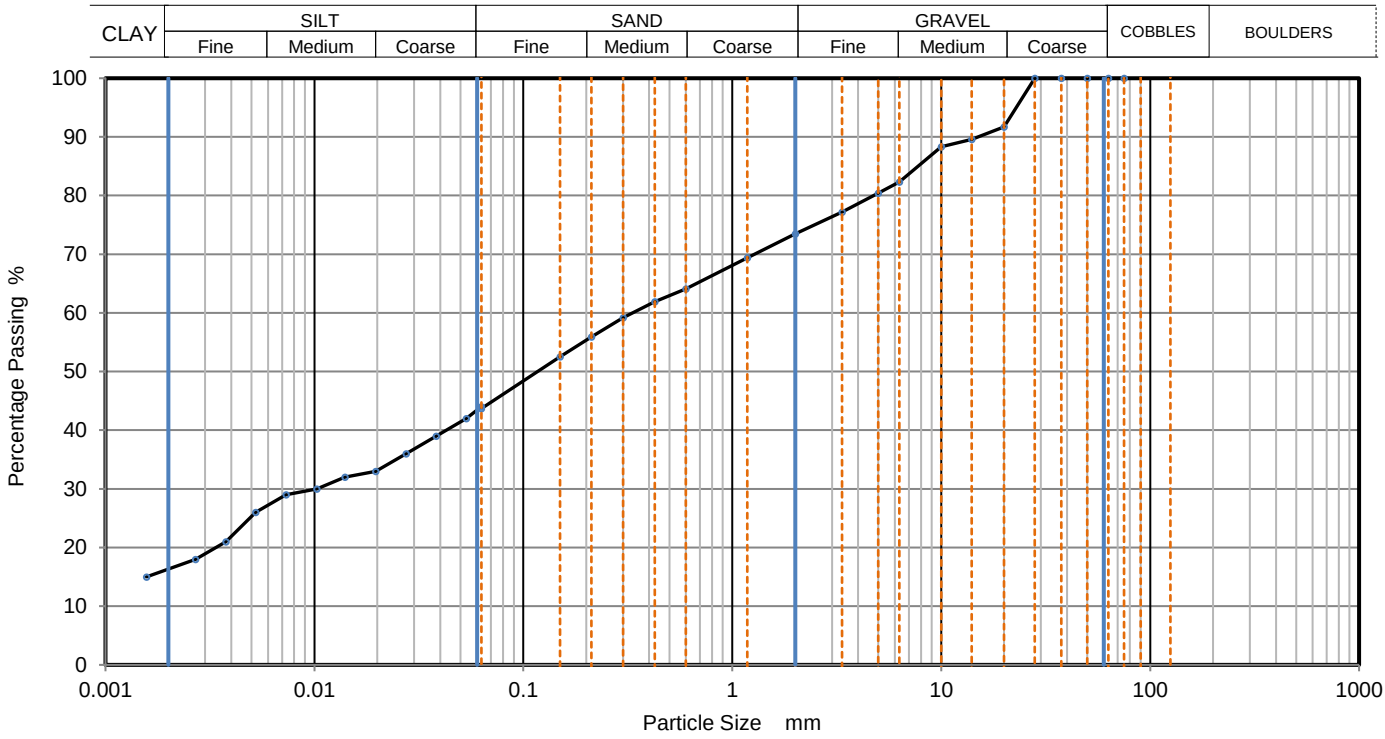
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-40830
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021110173



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0534	42
75	100	0.0383	39
63	100	0.0274	36
50	100	0.0196	33
37.5	100	0.0140	32
28	100	0.0103	30
20	92	0.0073	29
14	90	0.0052	26
10	88	0.0038	21
6.3	82	0.0027	18
5	80	0.0016	15
3.35	77		
2	74		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	59		
0.212	56		
0.15	53		
0.063	44		

Dry Mass of sample, g	433

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	30
Silt	27
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.333
D30	mm	0.00996
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	15/02/2022 15:18	**1** QC From No:R2

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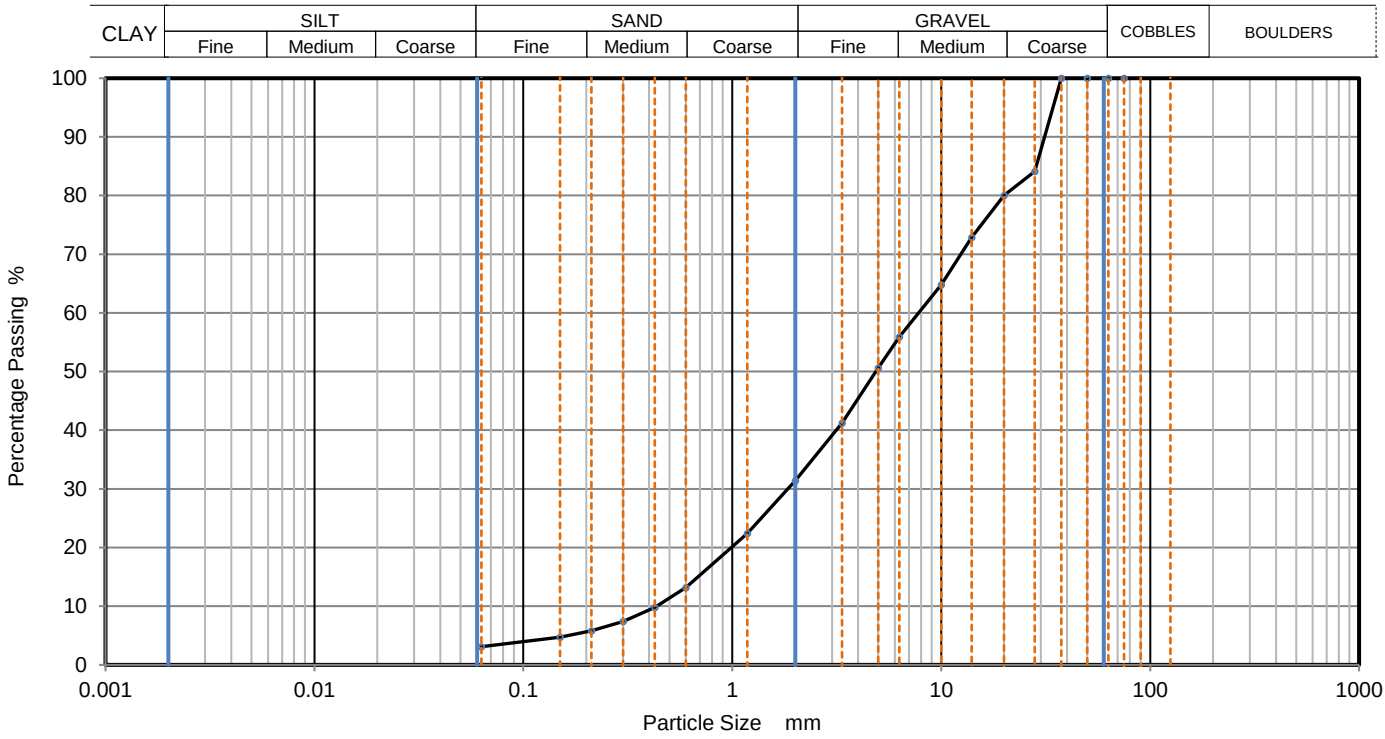
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-40830
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Grey slightly silty very sandy GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110179



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	84		
20	80		
14	73		
10	65		
6.3	56		
5	51		
3.35	41		
2	31		
1.18	22		
0.6	13		
0.425	10		
0.3	7		
0.212	6		
0.15	5		
0.063	3		

Dry Mass of sample, g	869

Sample Proportions	% dry mass
Very coarse	0
Gravel	69
Sand	28
Fines <0.063mm	3

Grading Analysis		
D100	mm	
D60	mm	7.8
D30	mm	1.84
D10	mm	0.433
Uniformity Coefficient		18
Curvature Coefficient		1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	15/02/2022 15:18	**1**
				QC From No:R2

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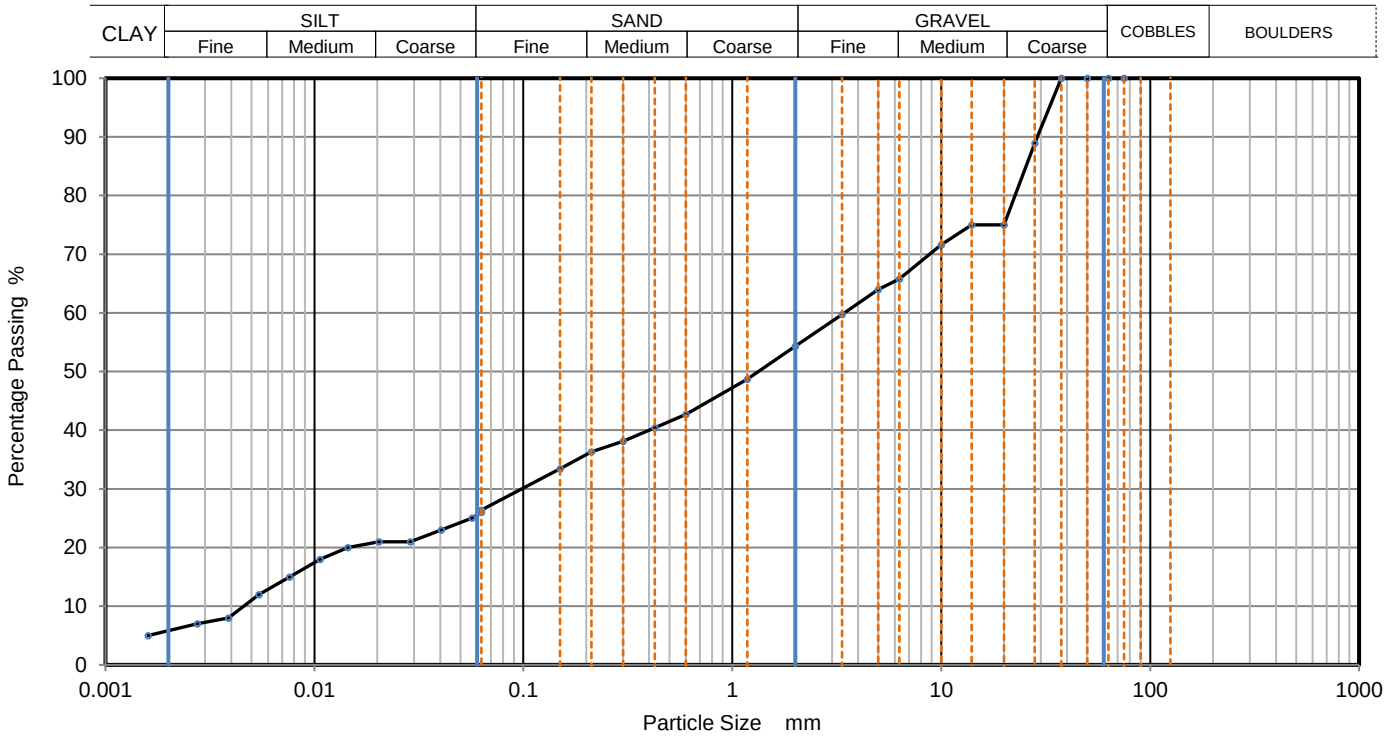
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-41053
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Brown very silty very sandy coarse GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111086



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0569	25
75	100	0.0404	23
63	100	0.0288	21
50	100	0.0203	21
37.5	100	0.0145	20
28	89	0.0106	18
20	75	0.0076	15
14	75	0.0054	12
10	72	0.0039	8
6.3	66	0.0028	7
5	64	0.0016	5
3.35	60		
2	54		
1.18	49		
0.6	43	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	38		
0.212	36		
0.15	33		
0.063	26		

Dry Mass of sample, g	532

Sample Proportions	% dry mass
Very coarse	0
Gravel	46
Sand	28
Silt	21
Clay	6

Grading Analysis		
D100	mm	
D60	mm	3.43
D30	mm	0.0981
D10	mm	0.00464
Uniformity Coefficient		740
Curvature Coefficient		0.6

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2022 17:05	1
				QC From No:R2

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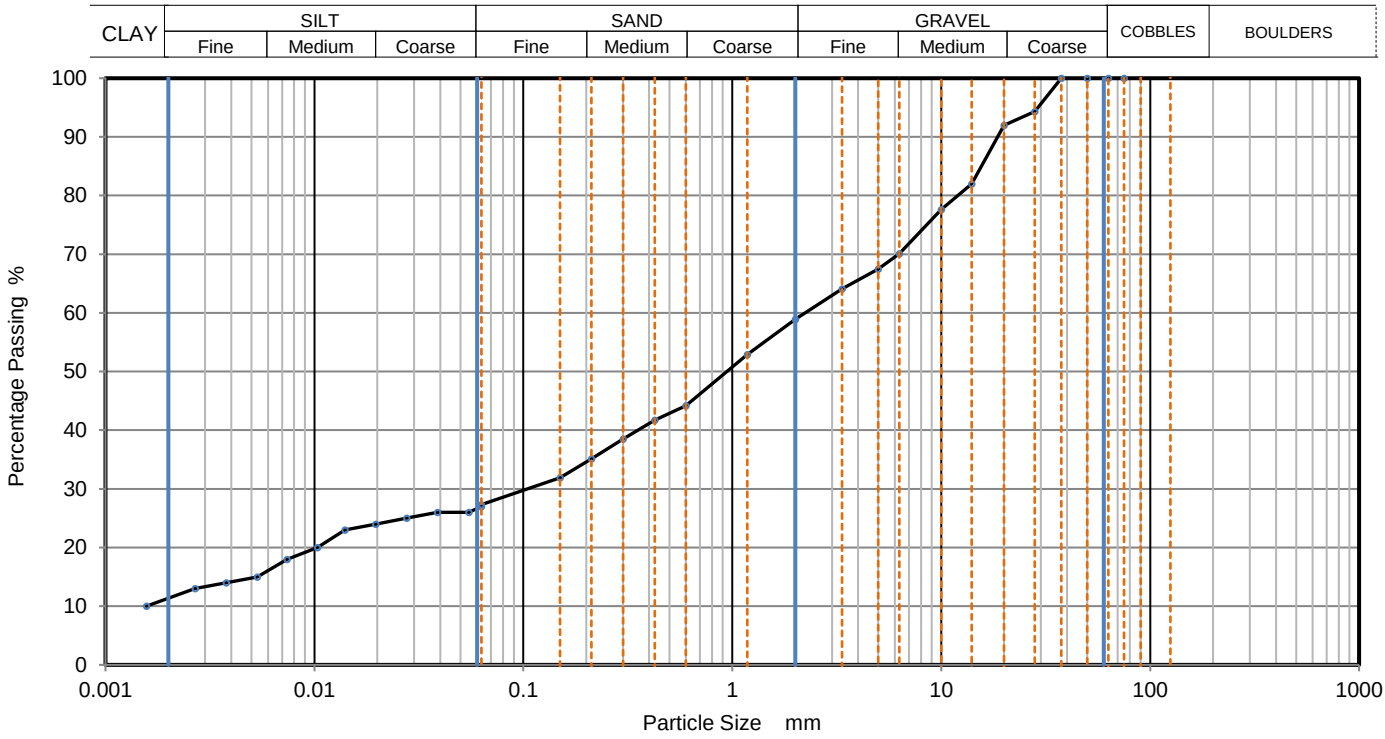
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-42602
Site Name	WSP Eastern & Midlands Region	Sample No.	4
Soil Description	Dark grey very silty very sandy medium GRAVEL.	Depth, m	1.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021111150



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0549	26
75	100	0.0388	26
63	100	0.0276	25
50	100	0.0196	24
37.5	100	0.0140	23
28	94	0.0103	20
20	92	0.0074	18
14	82	0.0053	15
10	78	0.0038	14
6.3	70	0.0027	13
5	68	0.0016	10
3.35	64		
2	59		
1.18	53		
0.6	44	Particle density (assumed)	
0.425	42	2.65 Mg/m3	
0.3	39		
0.212	35		
0.15	32		
0.063	27		

Dry Mass of sample, g	702

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	32
Silt	16
Clay	11

Grading Analysis		
D100	mm	
D60	mm	2.23
D30	mm	0.105
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

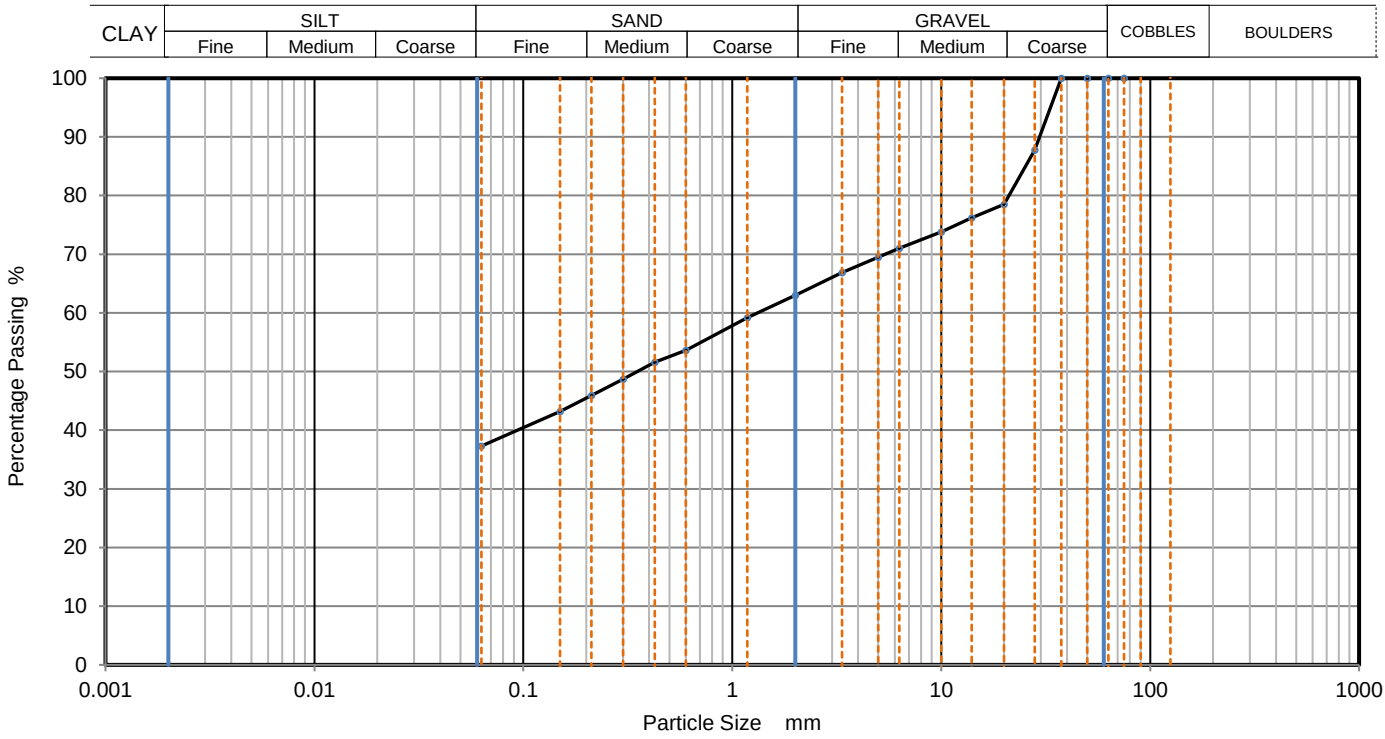
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	27/09/2022 17:17	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-43407
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021111162



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	88		
20	79		
14	76		
10	74		
6.3	71		
5	70		
3.35	67		
2	63		
1.18	59		
0.6	54		
0.425	52		
0.3	49		
0.212	46		
0.15	43		
0.063	37		

Dry Mass of sample, g	514

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	26
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	1.32
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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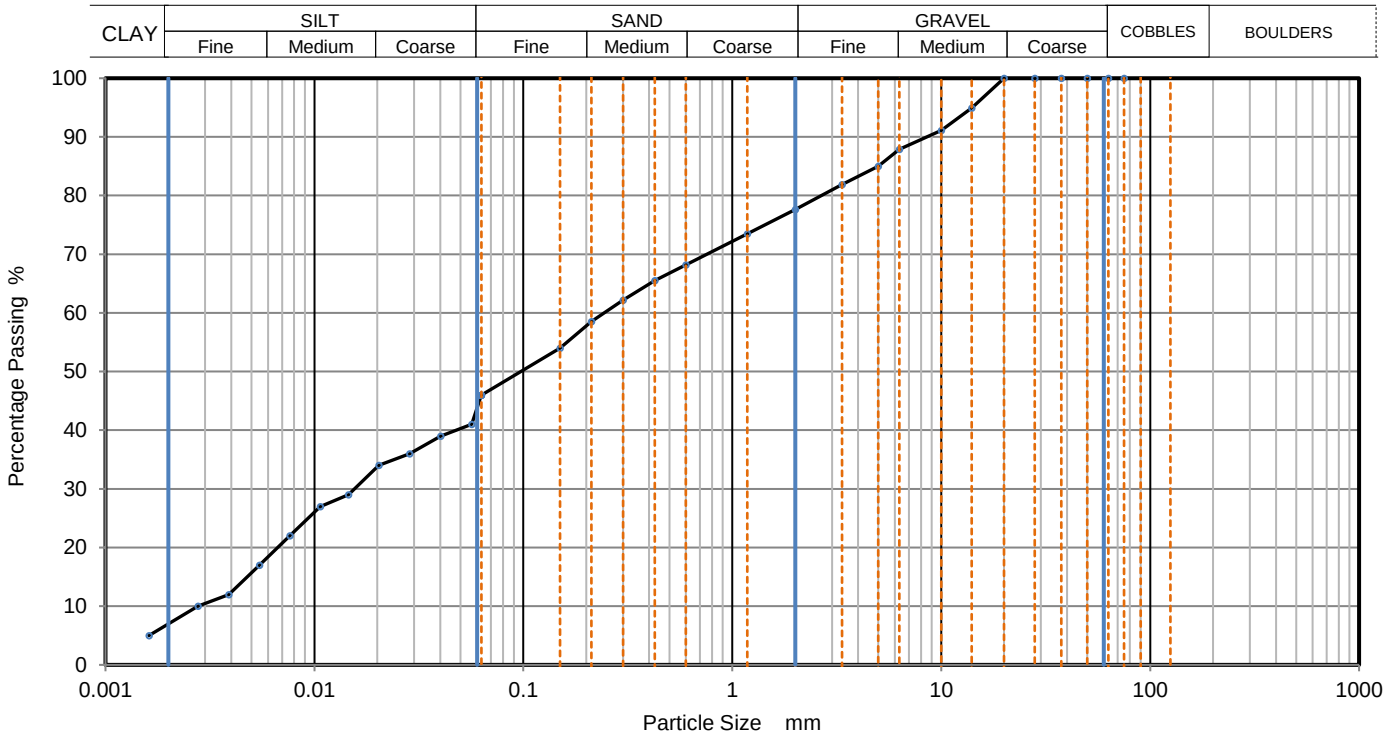
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-43407
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111168



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0565	41
75	100	0.0402	39
63	100	0.0286	36
50	100	0.0203	34
37.5	100	0.0145	29
28	100	0.0107	27
20	100	0.0076	22
14	95	0.0055	17
10	91	0.0039	12
6.3	88	0.0028	10
5	85	0.0016	5
3.35	82		
2	78		
1.18	74		
0.6	68	Particle density (assumed)	
0.425	66	2.65 Mg/m3	
0.3	62		
0.212	59		
0.15	54		
0.063	46		

Dry Mass of sample, g	553

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	32
Silt	39
Clay	7

Grading Analysis		
D100	mm	
D60	mm	0.245
D30	mm	0.0155
D10	mm	0.00289
Uniformity Coefficient		85
Curvature Coefficient		0.34

Remarks

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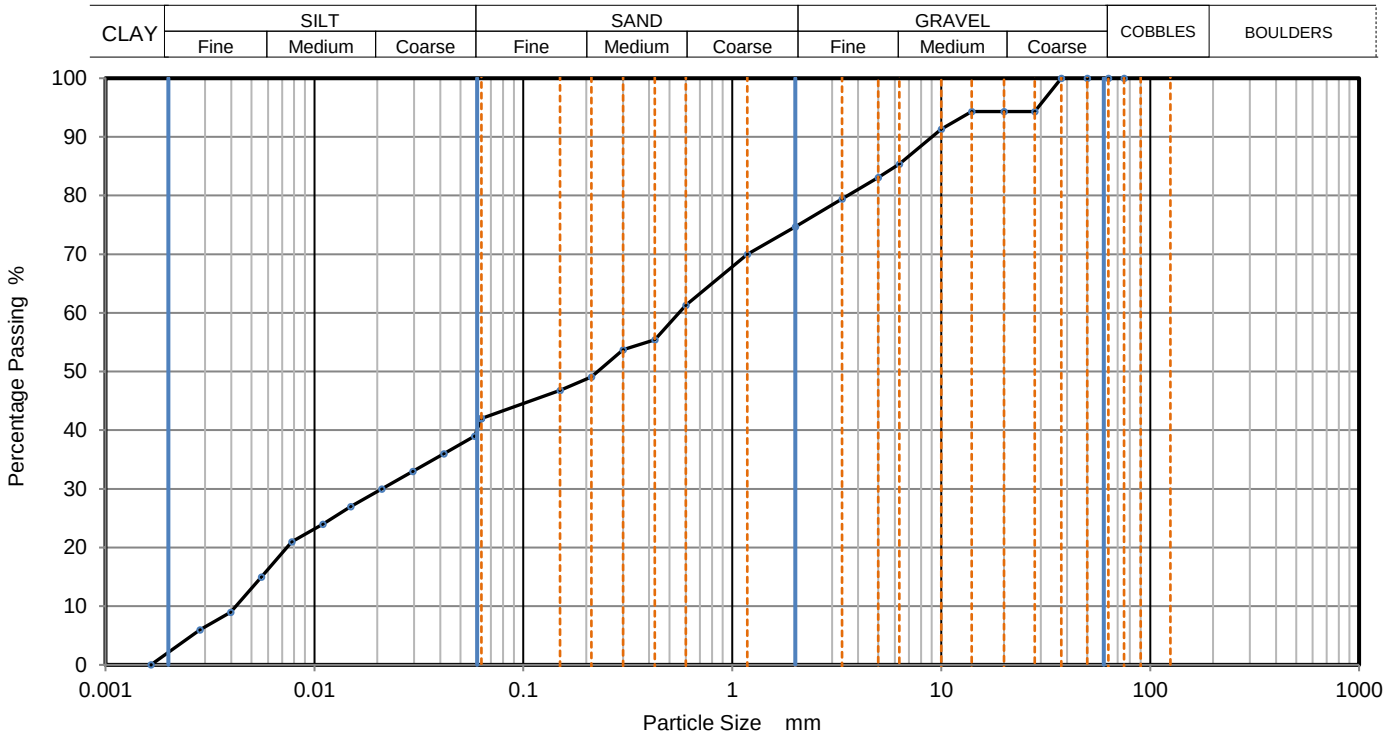
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-43817
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111174



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0585	39
75	100	0.0416	36
63	100	0.0296	33
50	100	0.0210	30
37.5	100	0.0149	27
28	94	0.0110	24
20	94	0.0078	21
14	94	0.0056	15
10	91	0.0040	9
6.3	85	0.0028	6
5	83	0.0016	0
3.35	79		
2	75		
1.18	70		
0.6	61	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	54		
0.212	49		
0.15	47		
0.063	42		

Dry Mass of sample, g: 604

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	33
Silt	40
Clay	2

Grading Analysis		
D100	mm	
D60	mm	0.556
D30	mm	
D10	mm	0.00421
Uniformity Coefficient		130
Curvature Coefficient		

Remarks

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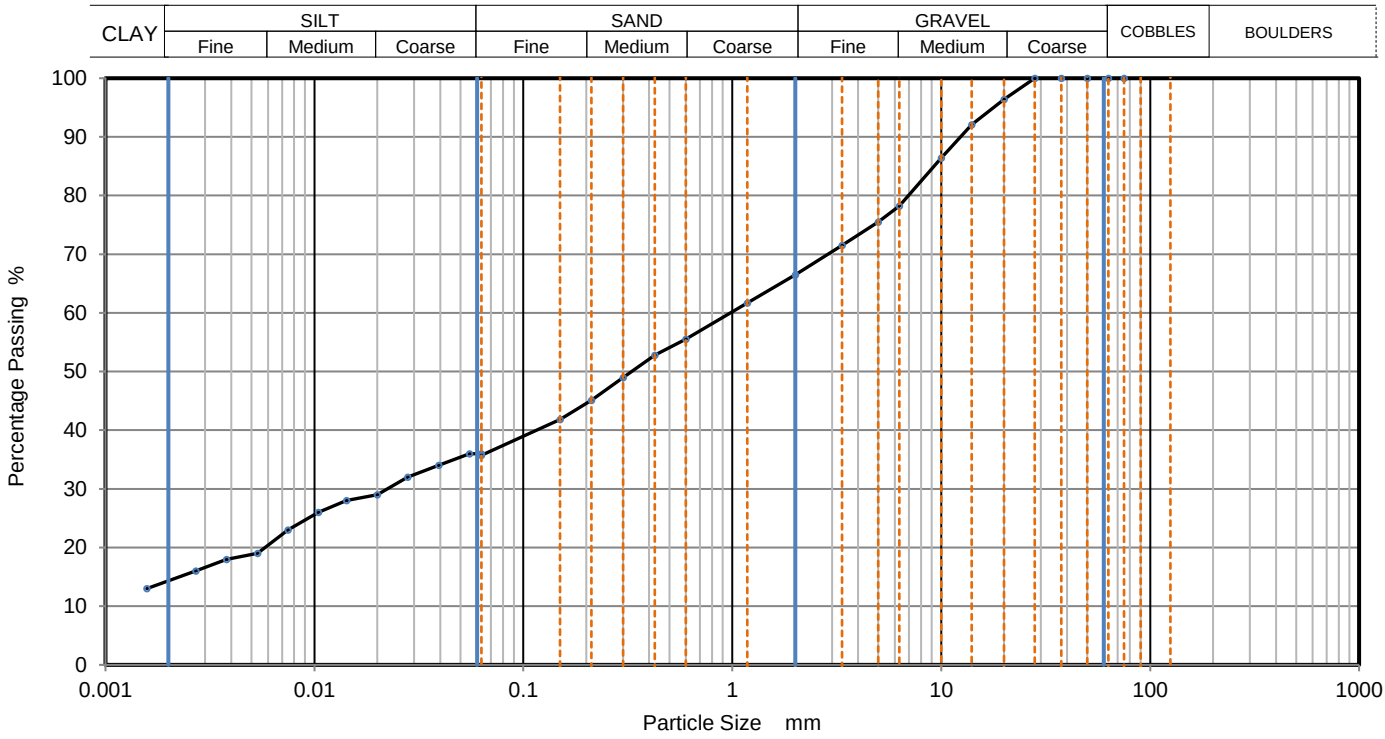
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44177
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark brown slightly sandy gravelly SILT. Gravel is medium.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111180



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0552	36
75	100	0.0393	34
63	100	0.0280	32
50	100	0.0200	29
37.5	100	0.0142	28
28	100	0.0105	26
20	96	0.0075	23
14	92	0.0053	19
10	86	0.0038	18
6.3	78	0.0027	16
5	76	0.0016	13
3.35	72		
2	67		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	49		
0.212	45		
0.15	42		
0.063	36		

Dry Mass of sample, g	664

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	31
Silt	21
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.985
D30	mm	0.0217
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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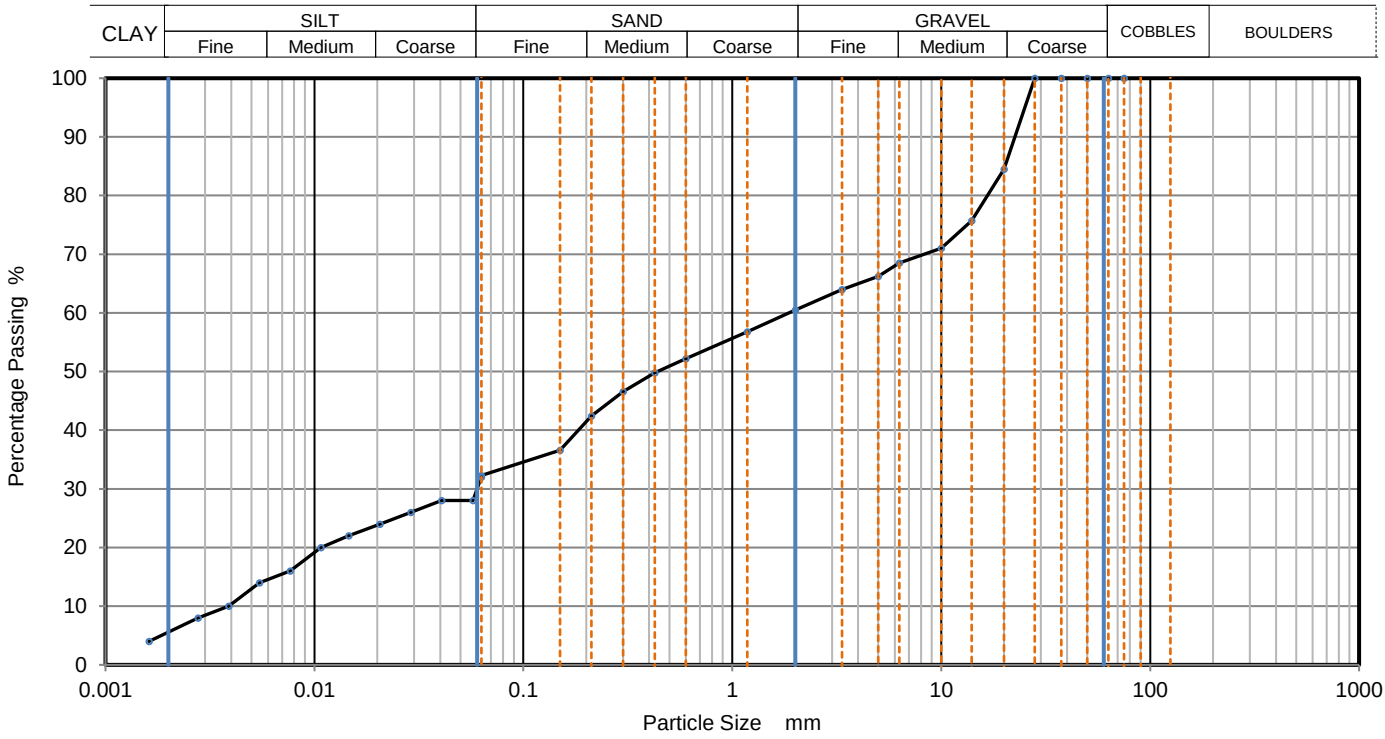
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown very sandy very silty medium and coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111186



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0575	28
75	100	0.0407	28
63	100	0.0289	26
50	100	0.0206	24
37.5	100	0.0146	22
28	100	0.0107	20
20	85	0.0077	16
14	76	0.0055	14
10	71	0.0039	10
6.3	69	0.0028	8
5	66	0.0016	4
3.35	64		
2	61		
1.18	57		
0.6	52	Particle density (assumed)	
0.425	50	2.65	Mg/m3
0.3	47		
0.212	42		
0.15	37		
0.063	32		

Dry Mass of sample, g	558

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Silt	27
Clay	6

Grading Analysis		
D100	mm	
D60	mm	1.87
D30	mm	0.0598
D10	mm	0.00383
Uniformity Coefficient		490
Curvature Coefficient		0.5

Remarks

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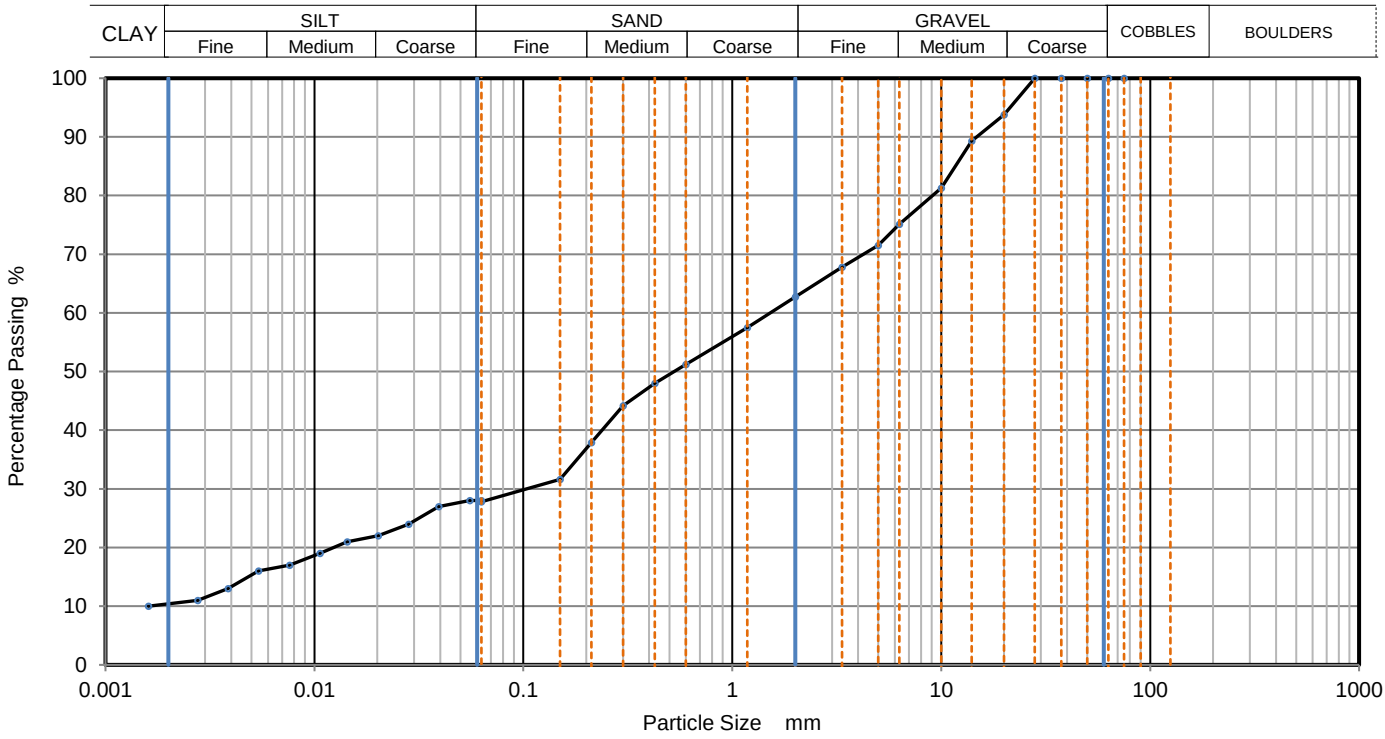
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Brown very silty SAND and GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111189



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0553	28
75	100	0.0394	27
63	100	0.0282	24
50	100	0.0202	22
37.5	100	0.0144	21
28	100	0.0106	19
20	94	0.0076	17
14	89	0.0054	16
10	81	0.0039	13
6.3	75	0.0028	11
5	72	0.0016	10
3.35	68		
2	63		
1.18	58		
0.6	51	Particle density (assumed)	
0.425	48	2.65 Mg/m3	
0.3	44		
0.212	38		
0.15	32		
0.063	28		

Dry Mass of sample, g	720

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	35
Silt	17
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.52
D_{30}	mm	0.104
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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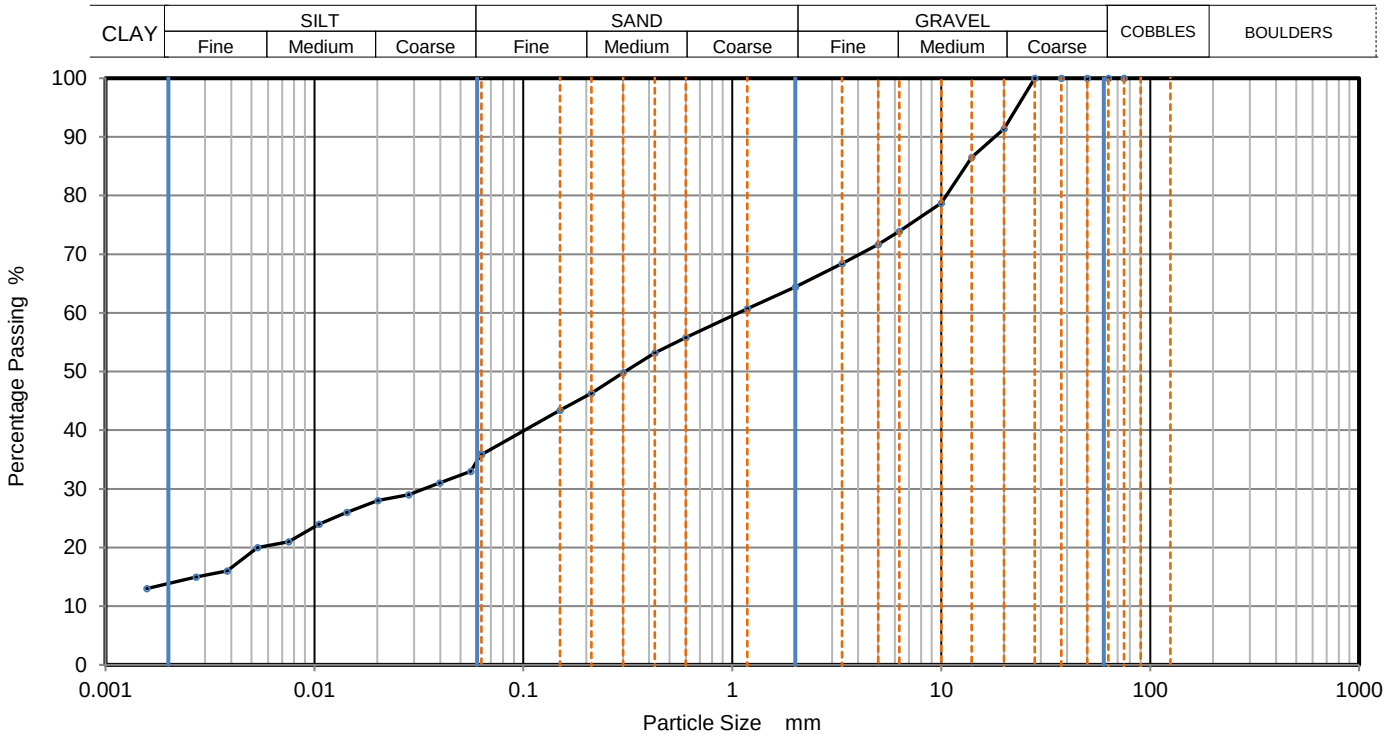
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534A
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark brown slightly sandy gravelly SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111196



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0559	33
75	100	0.0398	31
63	100	0.0283	29
50	100	0.0201	28
37.5	100	0.0143	26
28	100	0.0105	24
20	91	0.0075	21
14	87	0.0053	20
10	79	0.0038	16
6.3	74	0.0027	15
5	72	0.0016	13
3.35	68		
2	64		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	46		
0.15	43		
0.063	36		

Dry Mass of sample, g	641

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	29
Silt	22
Clay	14

Grading Analysis		
D100	mm	
D60	mm	1.07
D30	mm	0.0328
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	27/09/2022 17:17	**1** QC From No:R2

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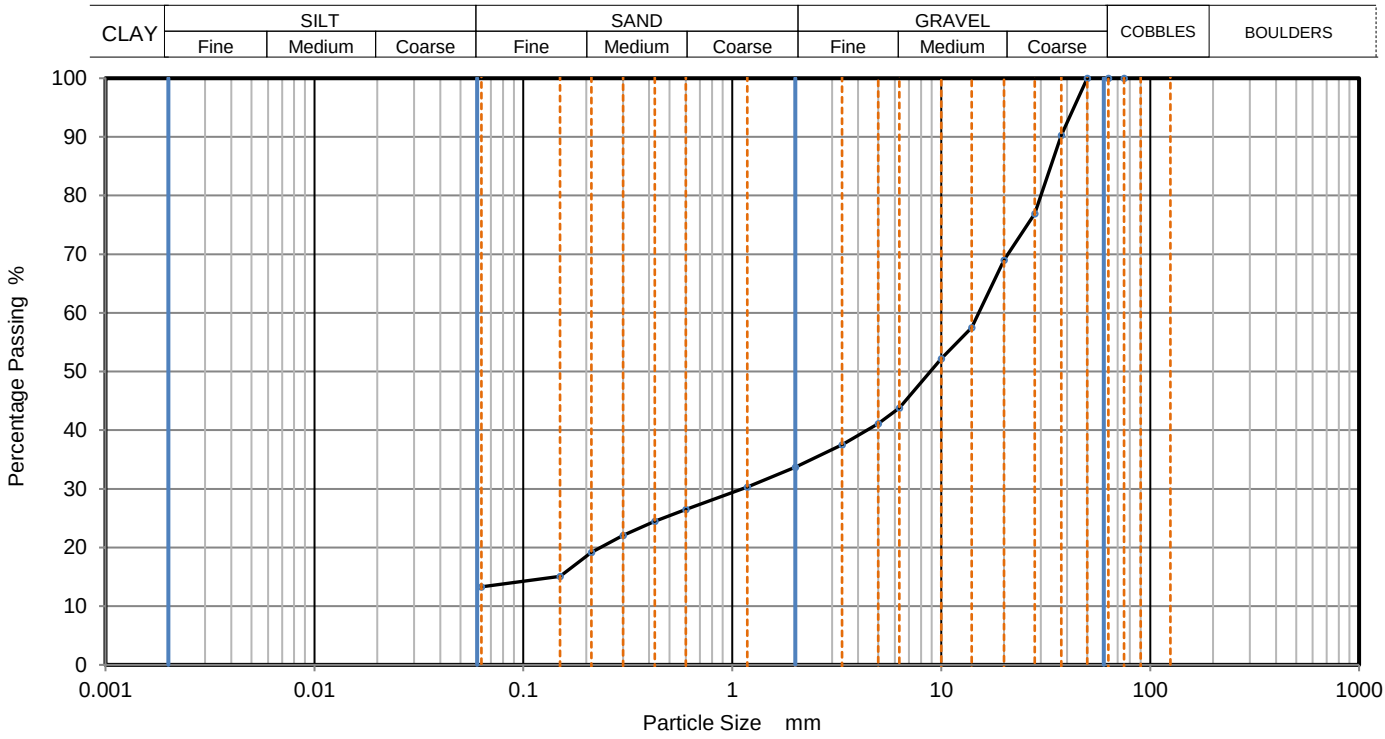
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534A
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Dark brownish-grey silty very sandy medium and coarse GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021111199



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	90		
28	77		
20	69		
14	58		
10	52		
6.3	44		
5	41		
3.35	38		
2	34		
1.18	30		
0.6	27		
0.425	25		
0.3	22		
0.212	19		
0.15	15		
0.063	13		

Dry Mass of sample, g	1109

Sample Proportions	% dry mass
Very coarse	0
Gravel	66
Sand	20
Fines <0.063mm	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	15.1
D_{30}	mm	1.11
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	28/03/2023 15:06	**1**
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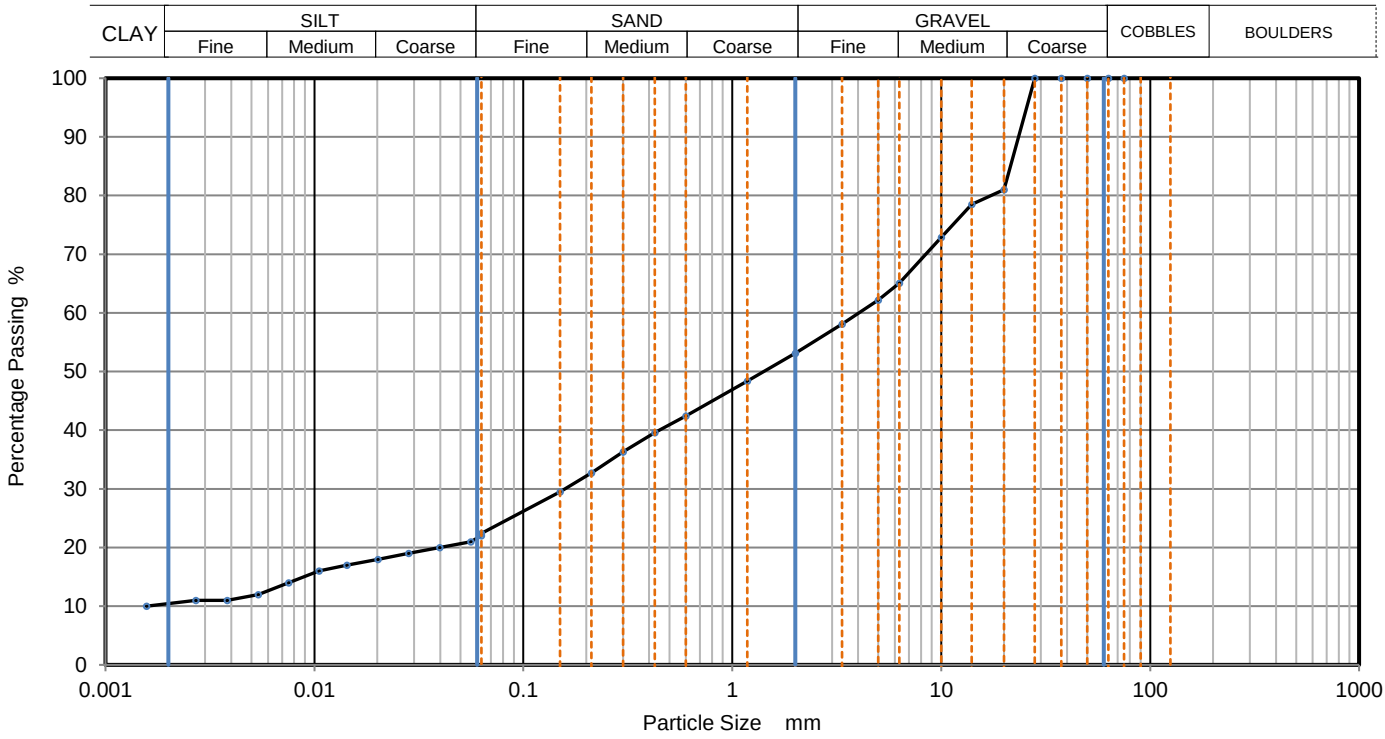
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-44534A
Site Name	WSP Eastern & Midlands Region	Sample No.	10
Soil Description	Grey very silty very sandy GRAVEL.	Depth, m	3.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211111102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0559	21
75	100	0.0398	20
63	100	0.0283	19
50	100	0.0201	18
37.5	100	0.0143	17
28	100	0.0105	16
20	81	0.0075	14
14	79	0.0054	12
10	73	0.0038	11
6.3	65	0.0027	11
5	62	0.0016	10
3.35	58		
2	53		
1.18	48		
0.6	42	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	36		
0.212	33		
0.15	30		
0.063	22		

Dry Mass of sample, g	573

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	31
Silt	12
Clay	10

Grading Analysis		
D100	mm	
D60	mm	4.03
D30	mm	0.158
D10	mm	0.00192
Uniformity Coefficient		2100
Curvature Coefficient		3.2

Remarks

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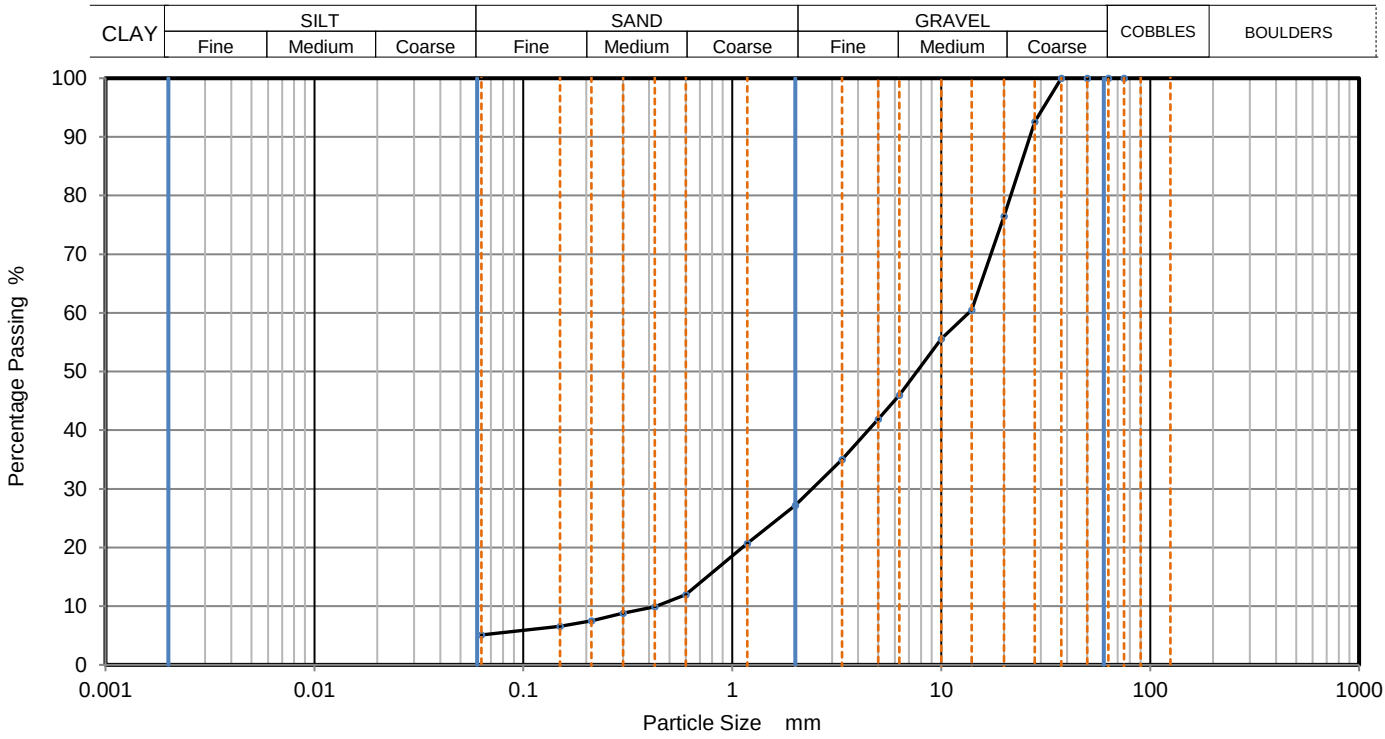
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534A
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Light grey silty very sandy medium and coarse GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211111105



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	77		
14	61		
10	56		
6.3	46		
5	42		
3.35	35		
2	27		
1.18	21		
0.6	12		
0.425	10		
0.3	9		
0.212	8		
0.15	7		
0.063	5		

Dry Mass of sample, g	1040

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	22
Fines <0.063mm	5

Grading Analysis		
D100	mm	
D60	mm	13.5
D30	mm	2.41
D10	mm	0.429
Uniformity Coefficient		32
Curvature Coefficient		1

Remarks

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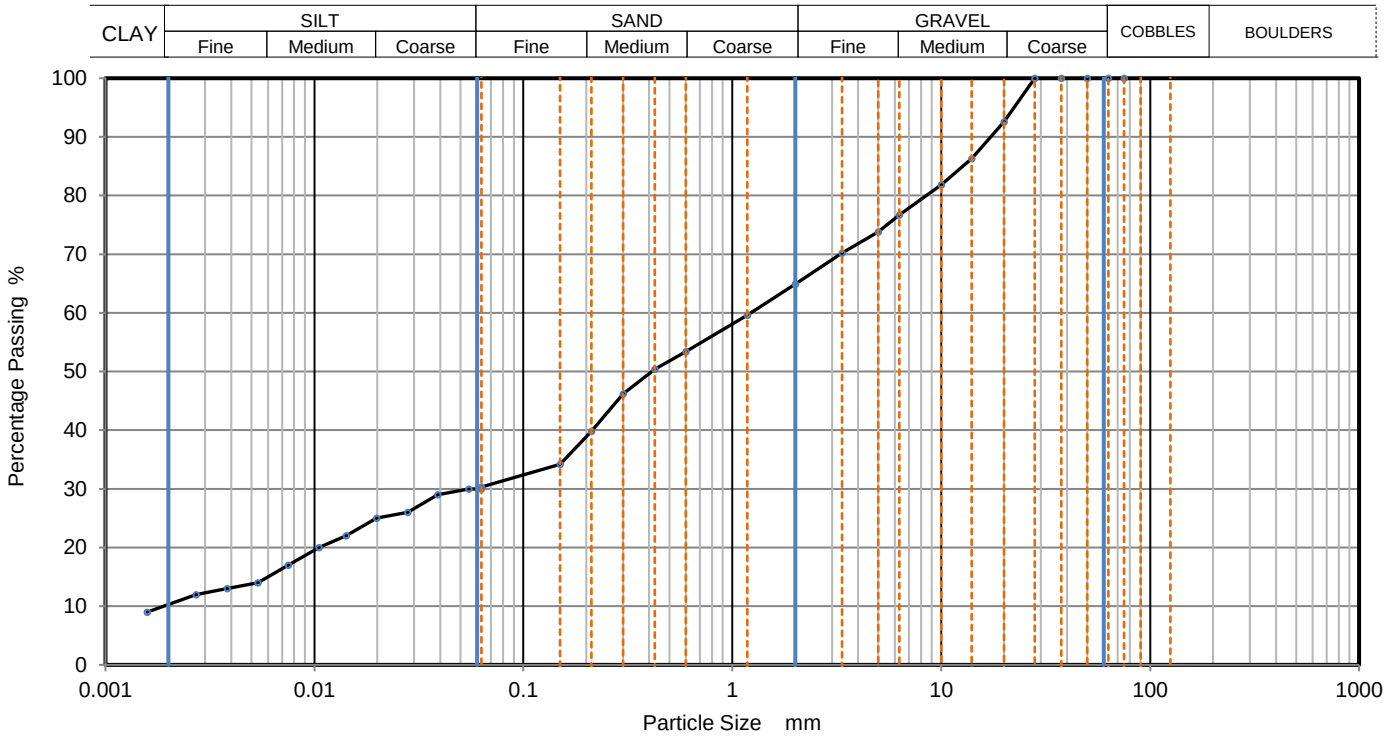
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-44676
Site Name	WSP Eastern & Midlands Region	Sample No.	10
Soil Description	Light brown very silty SAND and GRAVEL.	Depth, m	3.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021111959



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0548	30
75	100	0.0390	29
63	100	0.0279	26
50	100	0.0199	25
37.5	100	0.0142	22
28	100	0.0105	20
20	93	0.0075	17
14	86	0.0054	14
10	82	0.0038	13
6.3	77	0.0027	12
5	74	0.0016	9
3.35	70		
2	65		
1.18	60		
0.6	53	Particle density (assumed)	
0.425	50	2.65	Mg/m3
0.3	46		
0.212	40		
0.15	34		
0.063	30		

Dry Mass of sample, g	746

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	35
Silt	20
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.22
D_{30}	mm	0.0507
D_{10}	mm	0.00186
Uniformity Coefficient		660
Curvature Coefficient		1.1

Remarks

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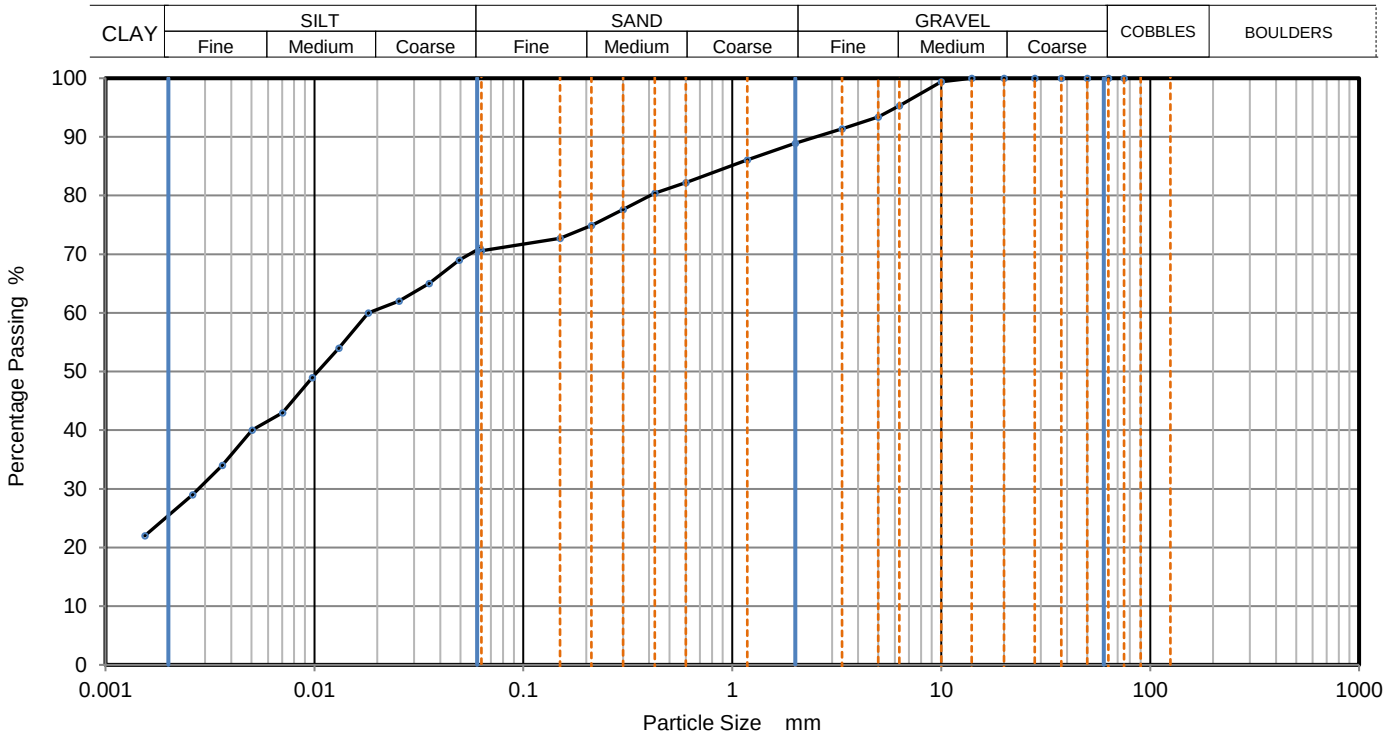
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-44676
Site Name	WSP Eastern & Midlands Region	Sample No.	19
Soil Description	Blackish-grey slightly gravelly slightly sandy SILT.	Depth, m	6.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021111968



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0621	71
		0.0494	69
75	100	0.0354	65
63	100	0.0254	62
50	100	0.0181	60
37.5	100	0.0131	54
28	100	0.0098	49
20	100	0.0070	43
14	100	0.0050	40
10	99	0.0036	34
6.3	95	0.0026	29
5	93	0.0015	22
3.35	91		
2	89		
1.18	86		
0.6	82	Particle density (assumed)	
0.425	80	2.65 Mg/m3	
0.3	78		
0.212	75		
0.15	73		
0.063	71		

Dry Mass of sample, g	472

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	18
Silt	45
Clay	25

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.019
D_{30}	mm	0.00278
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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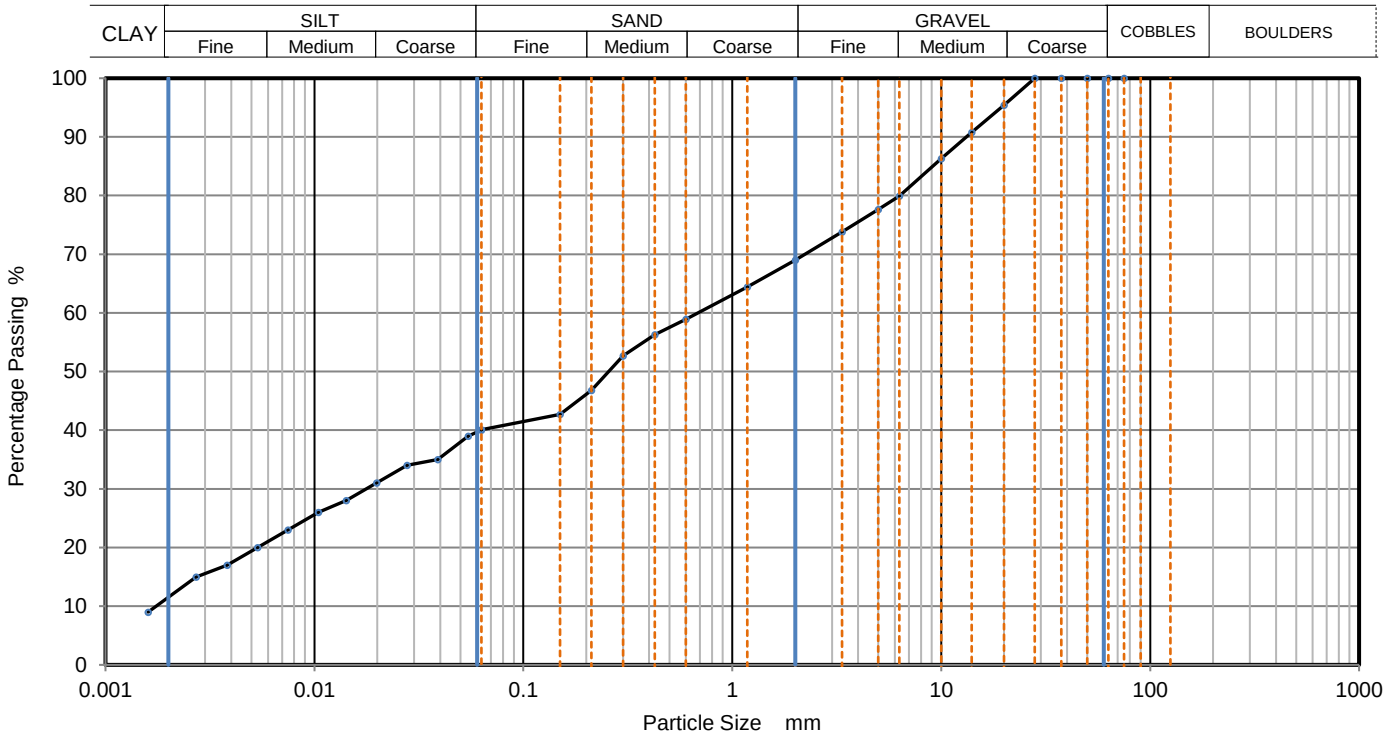
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-45501
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111977



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0544	39
75	100	0.0390	35
63	100	0.0277	34
50	100	0.0198	31
37.5	100	0.0142	28
28	100	0.0104	26
20	95	0.0075	23
14	91	0.0053	20
10	86	0.0038	17
6.3	80	0.0027	15
5	78	0.0016	9
3.35	74		
2	69		
1.18	64		
0.6	59	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	53		
0.212	47		
0.15	43		
0.063	40		

Dry Mass of sample, g	789

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	29
Silt	28
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.688
D_{30}	mm	0.0181
D_{10}	mm	0.00171
Uniformity Coefficient		400
Curvature Coefficient		0.28

Remarks

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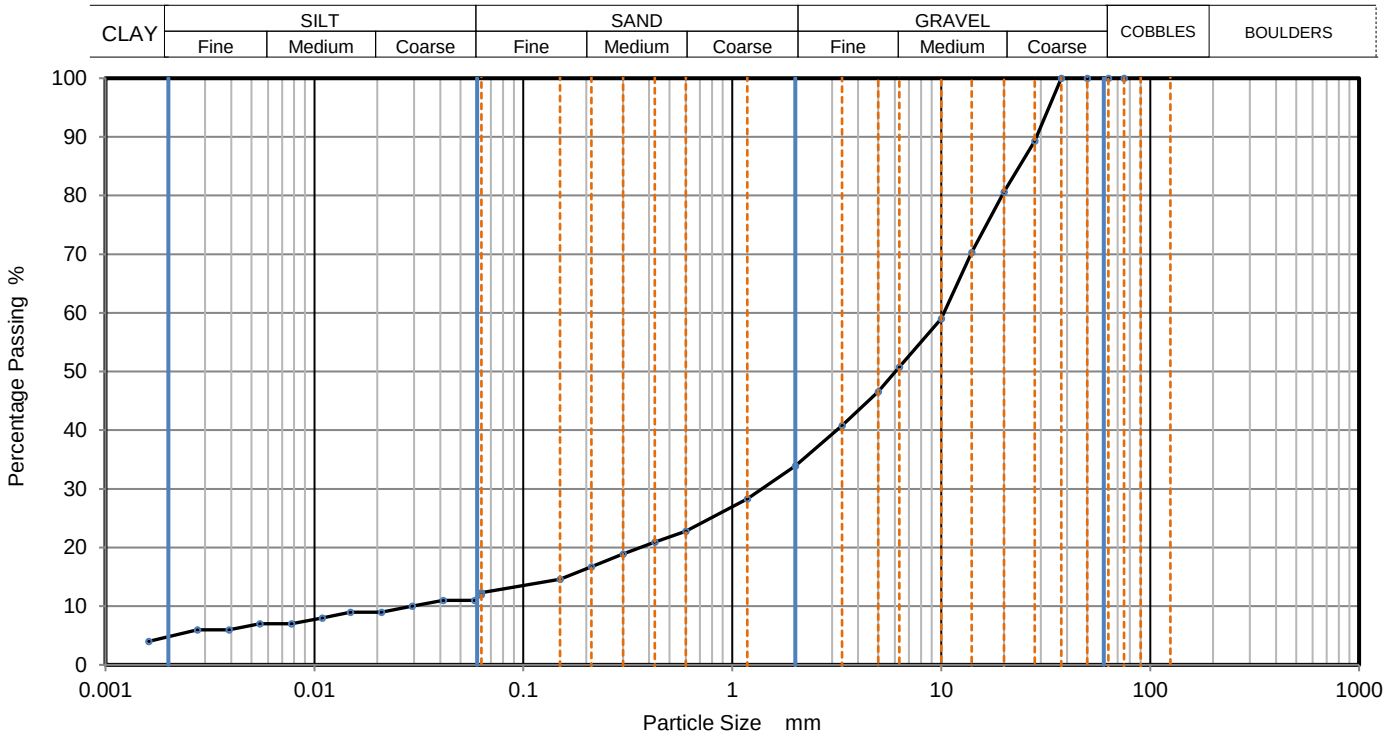
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-45501
Site Name	WSP Eastern & Midlands Region			Sample No.	22
Soil Description	Light brown silty very sandy GRAVEL.			Depth, m	7.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111992



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	12
		0.0585	11
75	100	0.0414	11
63	100	0.0294	10
50	100	0.0209	9
37.5	100	0.0149	9
28	89	0.0109	8
20	81	0.0078	7
14	70	0.0055	7
10	59	0.0039	6
6.3	51	0.0028	6
5	47	0.0016	4
3.35	41		
2	34		
1.18	28		
0.6	23	Particle density (assumed)	
0.425	21	2.65	Mg/m3
0.3	19		
0.212	17		
0.15	15		
0.063	12		

Dry Mass of sample, g	863

Sample Proportions	% dry mass
Very coarse	0
Gravel	66
Sand	22
Silt	8
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	10.3
D_{30}	mm	1.38
D_{10}	mm	0.0254
Uniformity Coefficient		410
Curvature Coefficient		7.3

Remarks

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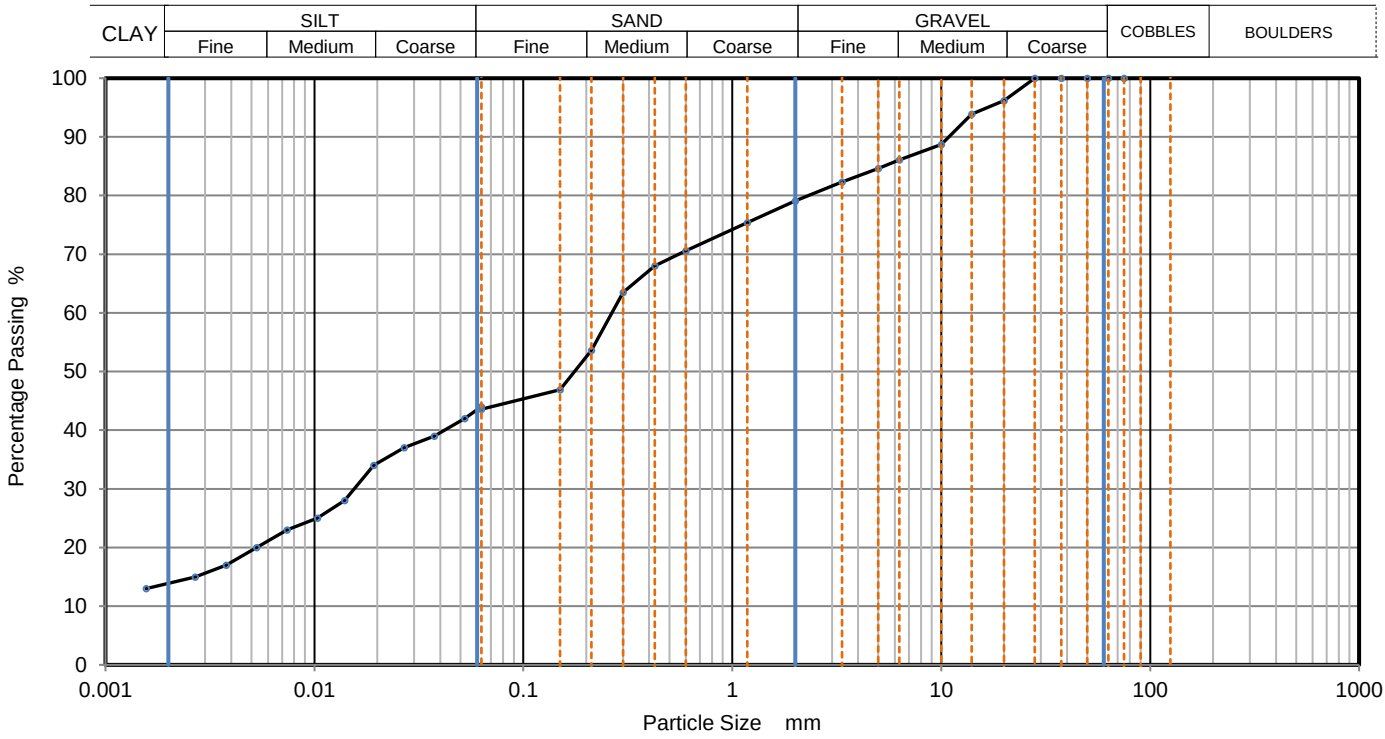
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46131
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greenish-brown slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112553



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0523	42
75	100	0.0375	39
63	100	0.0269	37
50	100	0.0193	34
37.5	100	0.0140	28
28	100	0.0103	25
20	96	0.0074	23
14	94	0.0053	20
10	89	0.0038	17
6.3	86	0.0027	15
5	85	0.0016	13
3.35	82		
2	79		
1.18	75		
0.6	71	Particle density (assumed)	
0.425	68	2.65	Mg/m3
0.3	64		
0.212	54		
0.15	47		
0.063	44		

Dry Mass of sample, g	611

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	36
Silt	30
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.266
D_{30}	mm	0.0155
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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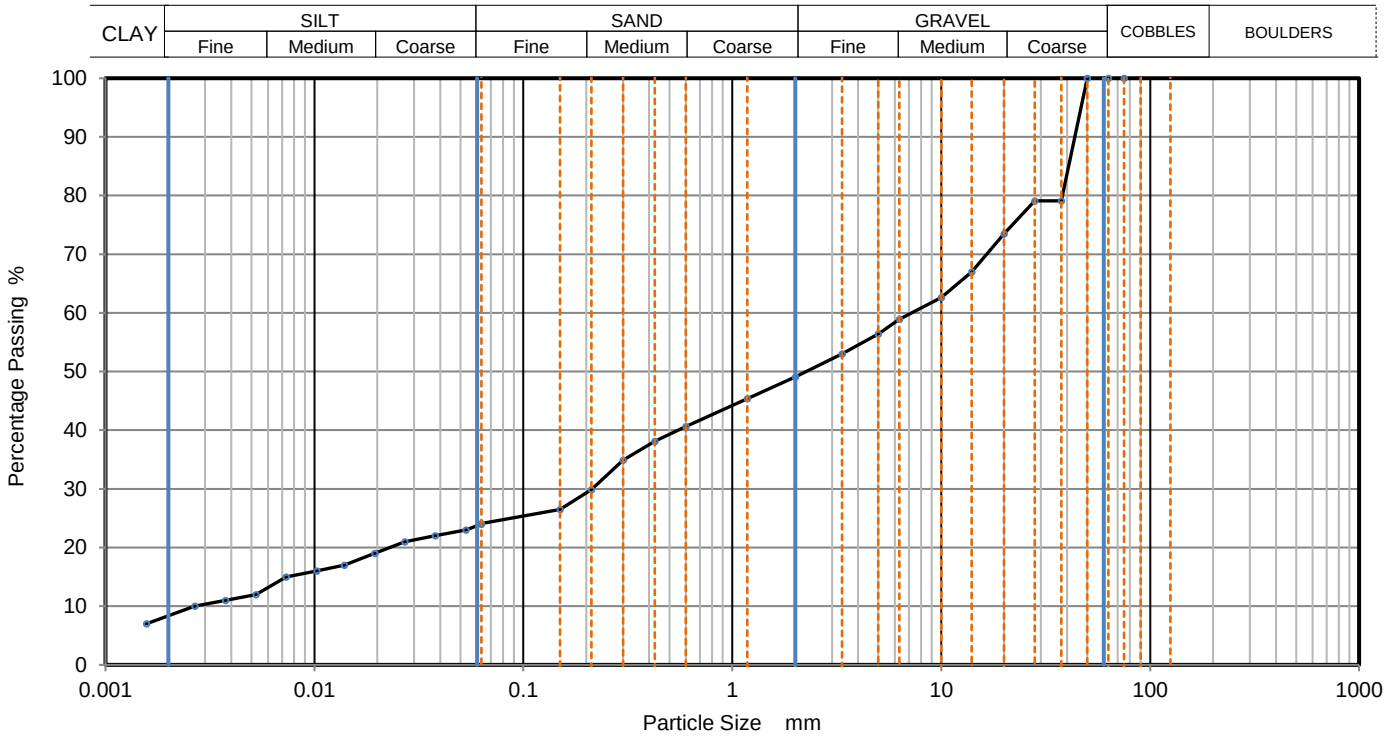
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46402
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown very silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112565



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0531	23
75	100	0.0378	22
63	100	0.0271	21
50	100	0.0194	19
37.5	79	0.0139	17
28	79	0.0103	16
20	74	0.0073	15
14	67	0.0053	12
10	63	0.0038	11
6.3	59	0.0027	10
5	56	0.0016	7
3.35	53		
2	49		
1.18	45		
0.6	41	Particle density (assumed)	
0.425	38	2.65 Mg/m3	
0.3	35		
0.212	30		
0.15	27		
0.063	24		

Dry Mass of sample, g	927

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	25
Silt	16
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.23
D_{30}	mm	0.214
D_{10}	mm	0.0027
Uniformity Coefficient		2700
Curvature Coefficient		2.3

Remarks

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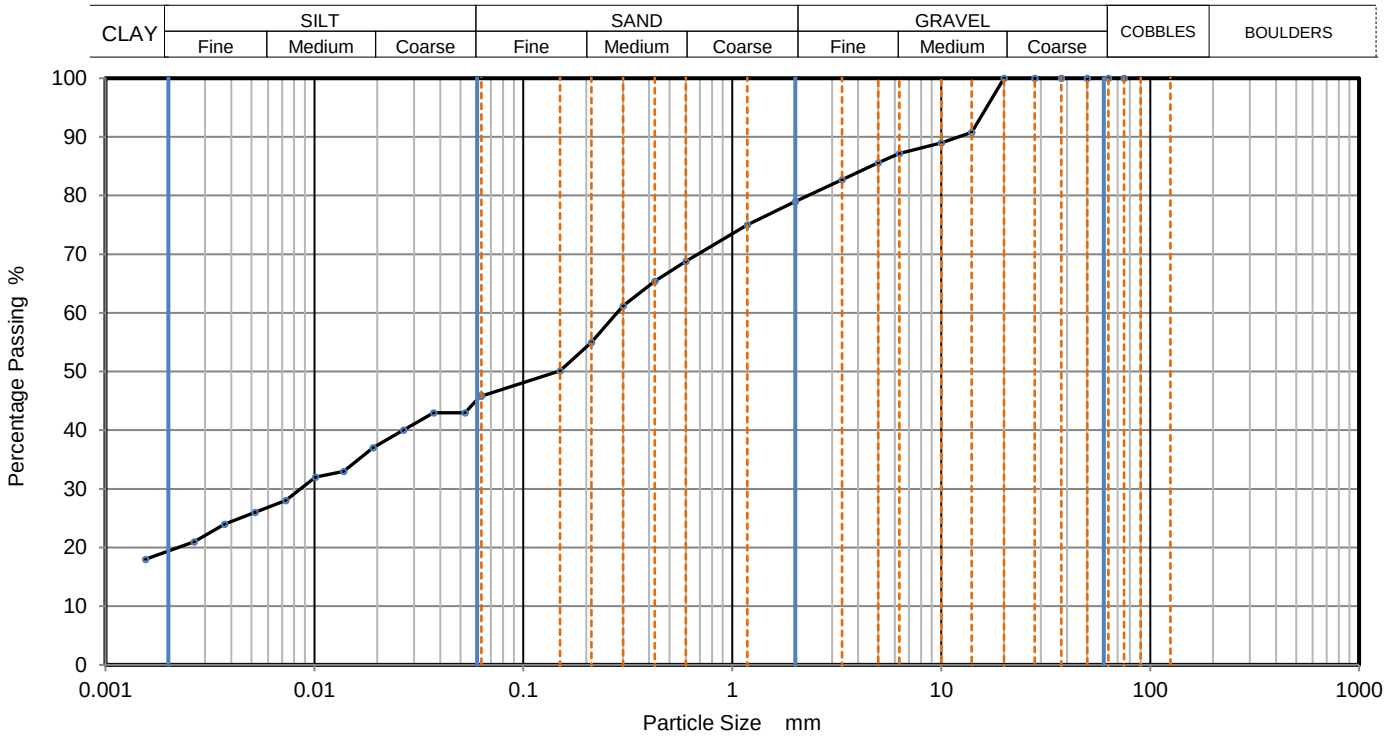
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46715
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112574



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0526	43
75	100	0.0372	43
63	100	0.0267	40
50	100	0.0191	37
37.5	100	0.0138	33
28	100	0.0101	32
20	100	0.0073	28
14	91	0.0052	26
10	89	0.0037	24
6.3	87	0.0027	21
5	86	0.0016	18
3.35	83		
2	79		
1.18	75		
0.6	69	Particle density (assumed)	
0.425	65	2.65	Mg/m3
0.3	61		
0.212	55		
0.15	50		
0.063	46		

Dry Mass of sample, g	583

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	33
Silt	26
Clay	19

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.281
D_{30}	mm	0.00871
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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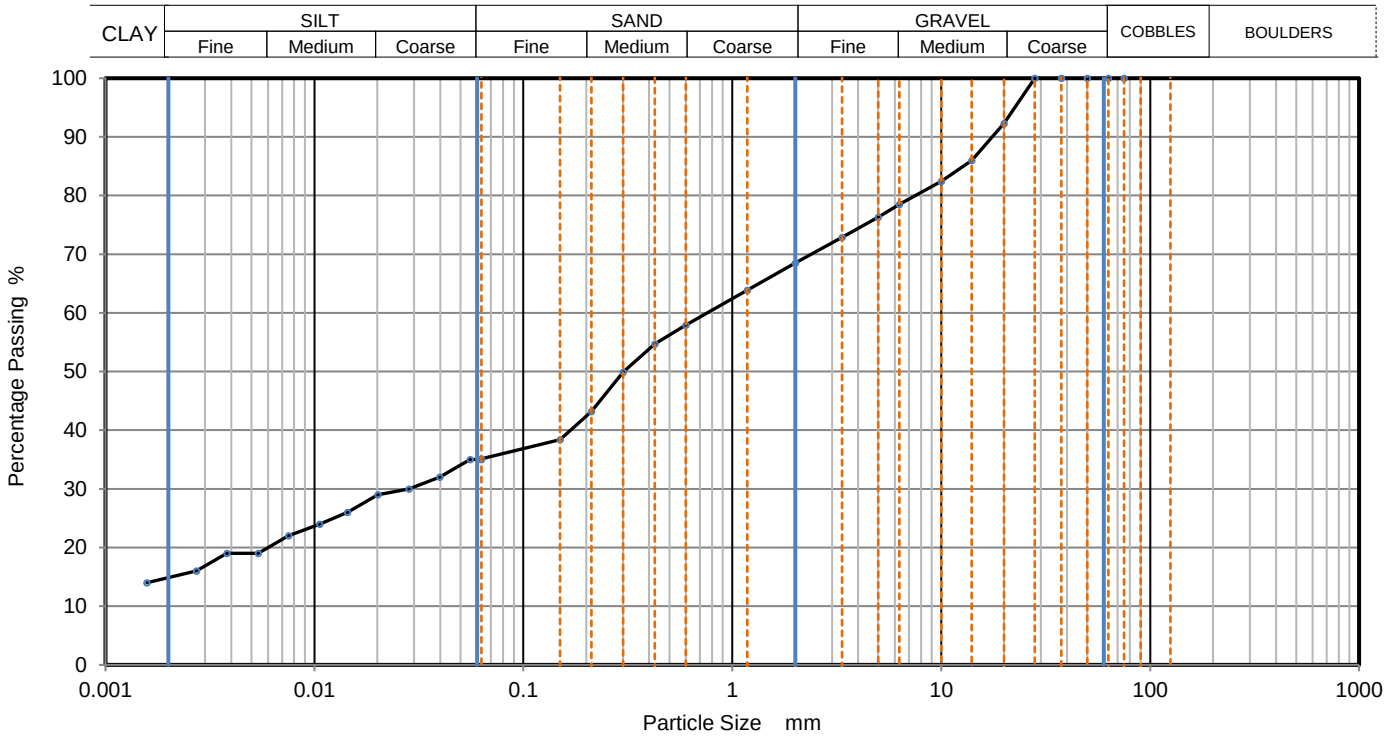
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46715A
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112583



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0556	35
75	100	0.0398	32
63	100	0.0283	30
50	100	0.0201	29
37.5	100	0.0144	26
28	100	0.0106	24
20	92	0.0075	22
14	86	0.0054	19
10	82	0.0038	19
6.3	79	0.0027	16
5	76	0.0016	14
3.35	73		
2	69		
1.18	64		
0.6	58	Particle density (assumed)	
0.425	55	2.65	Mg/m3
0.3	50		
0.212	43		
0.15	38		
0.063	35		

Dry Mass of sample, g: 874

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	33
Silt	20
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.763
D_{30}	mm	0.0265
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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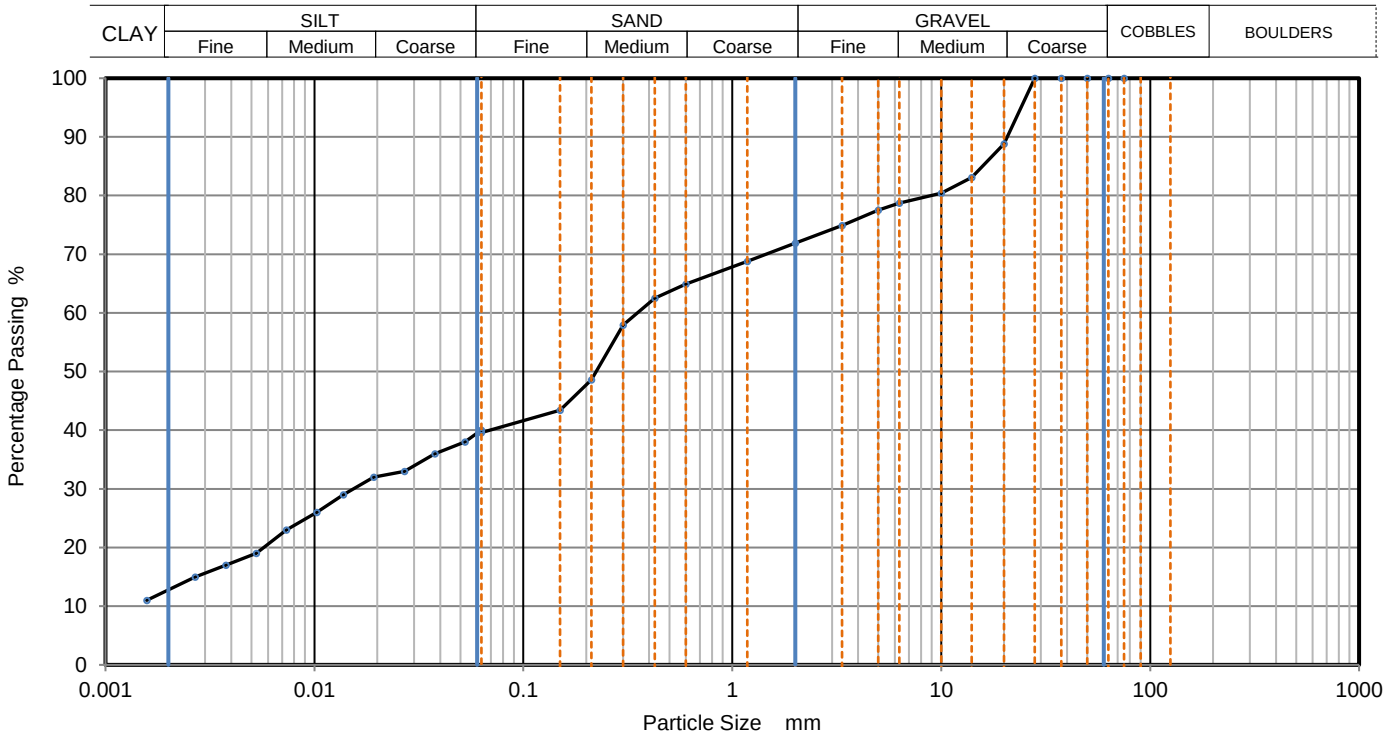
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47262
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Orange-brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021120680



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0526	38
75	100	0.0377	36
63	100	0.0270	33
50	100	0.0192	32
37.5	100	0.0138	29
28	100	0.0102	26
20	89	0.0073	23
14	83	0.0053	19
10	80	0.0038	17
6.3	79	0.0027	15
5	78	0.0016	11
3.35	75		
2	72		
1.18	69		
0.6	65	Particle density (assumed)	
0.425	63	2.65 Mg/m3	
0.3	58		
0.212	49		
0.15	43		
0.063	40		

Dry Mass of sample, g	770

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	32
Silt	26
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.352
D_{30}	mm	0.0149
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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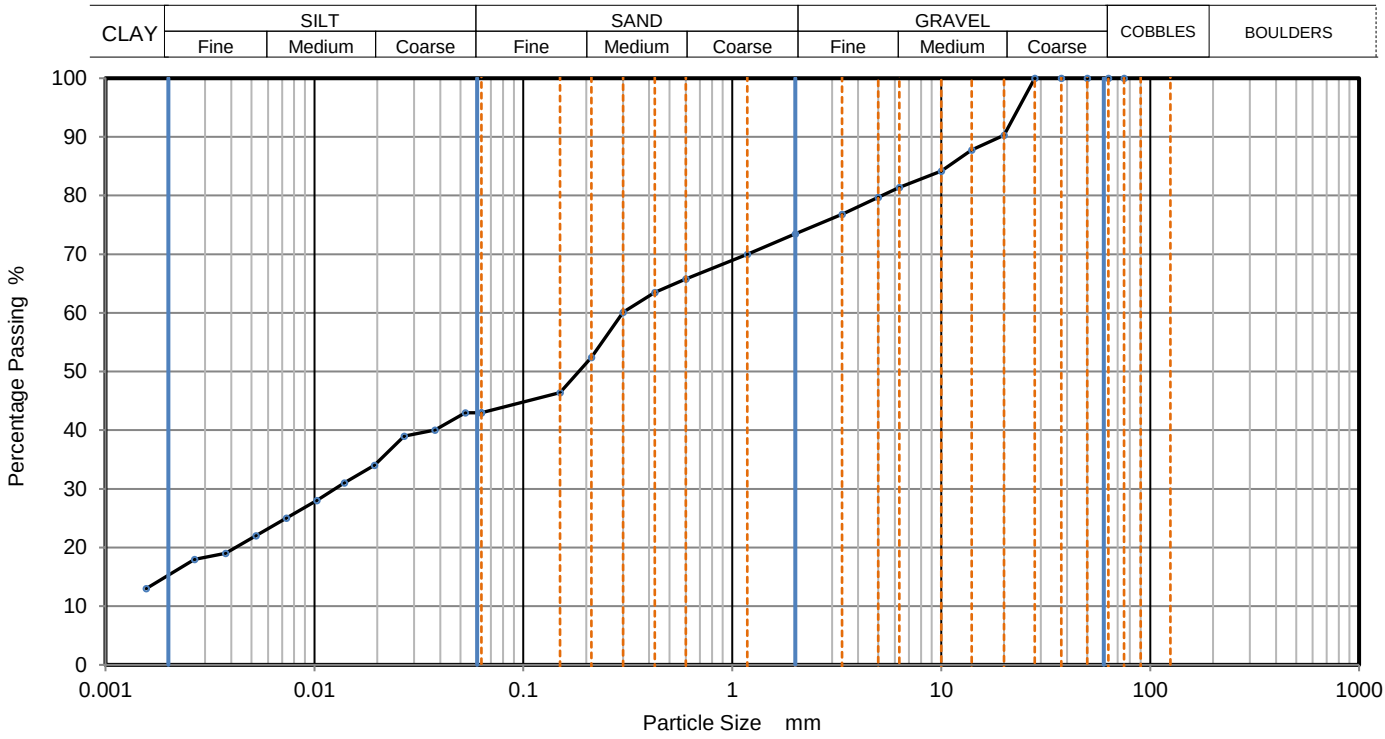
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47262
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021120689



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0527	43
75	100	0.0378	40
63	100	0.0269	39
50	100	0.0194	34
37.5	100	0.0139	31
28	100	0.0103	28
20	90	0.0073	25
14	88	0.0053	22
10	84	0.0038	19
6.3	81	0.0027	18
5	80	0.0016	13
3.35	77		
2	74		
1.18	70		
0.6	66	Particle density (assumed)	
0.425	64	2.65	Mg/m3
0.3	60		
0.212	52		
0.15	46		
0.063	43		

Dry Mass of sample, g	942

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	30
Silt	28
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.299
D_{30}	mm	0.0124
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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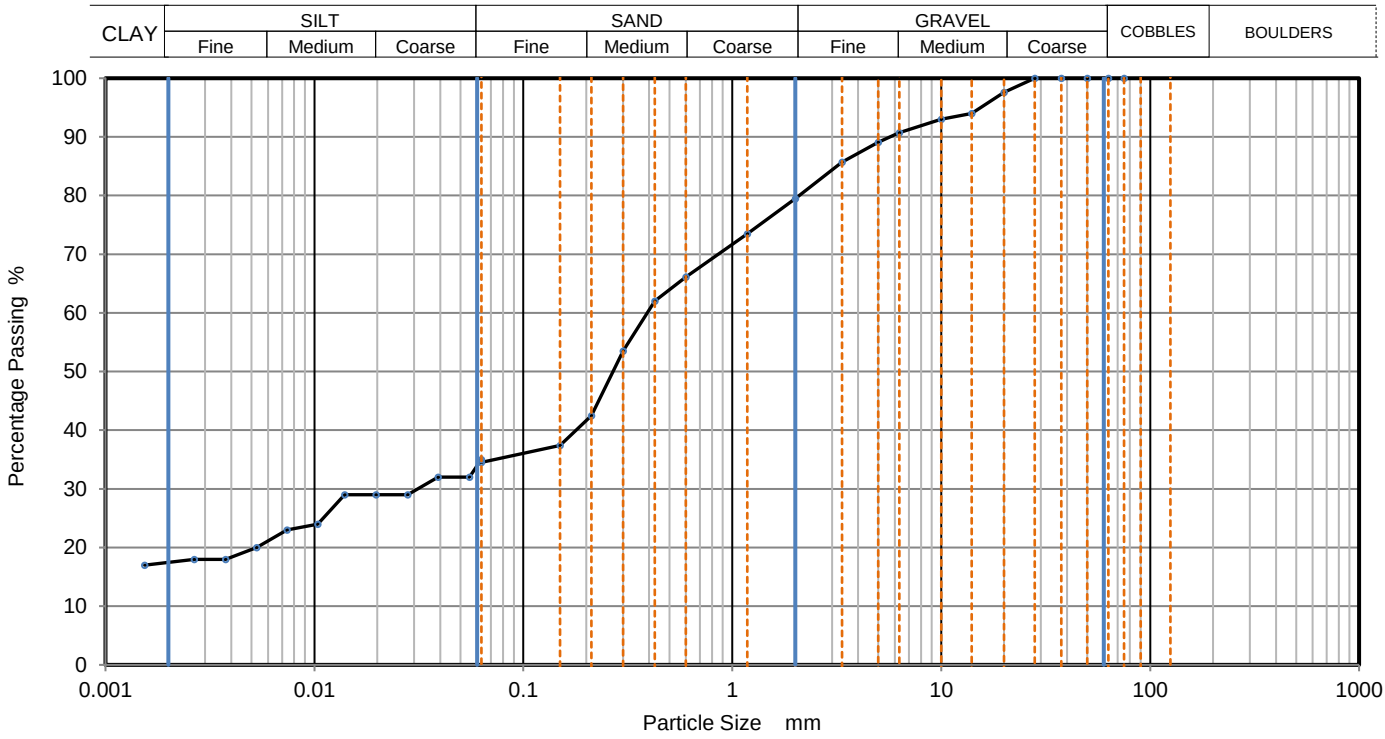
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47431
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211125101



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0552	32
75	100	0.0390	32
63	100	0.0279	29
50	100	0.0197	29
37.5	100	0.0140	29
28	100	0.0104	24
20	98	0.0074	23
14	94	0.0053	20
10	93	0.0038	18
6.3	91	0.0027	18
5	89	0.0015	17
3.35	86		
2	80		
1.18	74		
0.6	66	Particle density	(assumed)
0.425	62	2.65	Mg/m3
0.3	54		
0.212	43		
0.15	37		
0.063	35		

Dry Mass of sample, g	885

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	45
Silt	17
Clay	17

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.392
D_{30}	mm	0.033
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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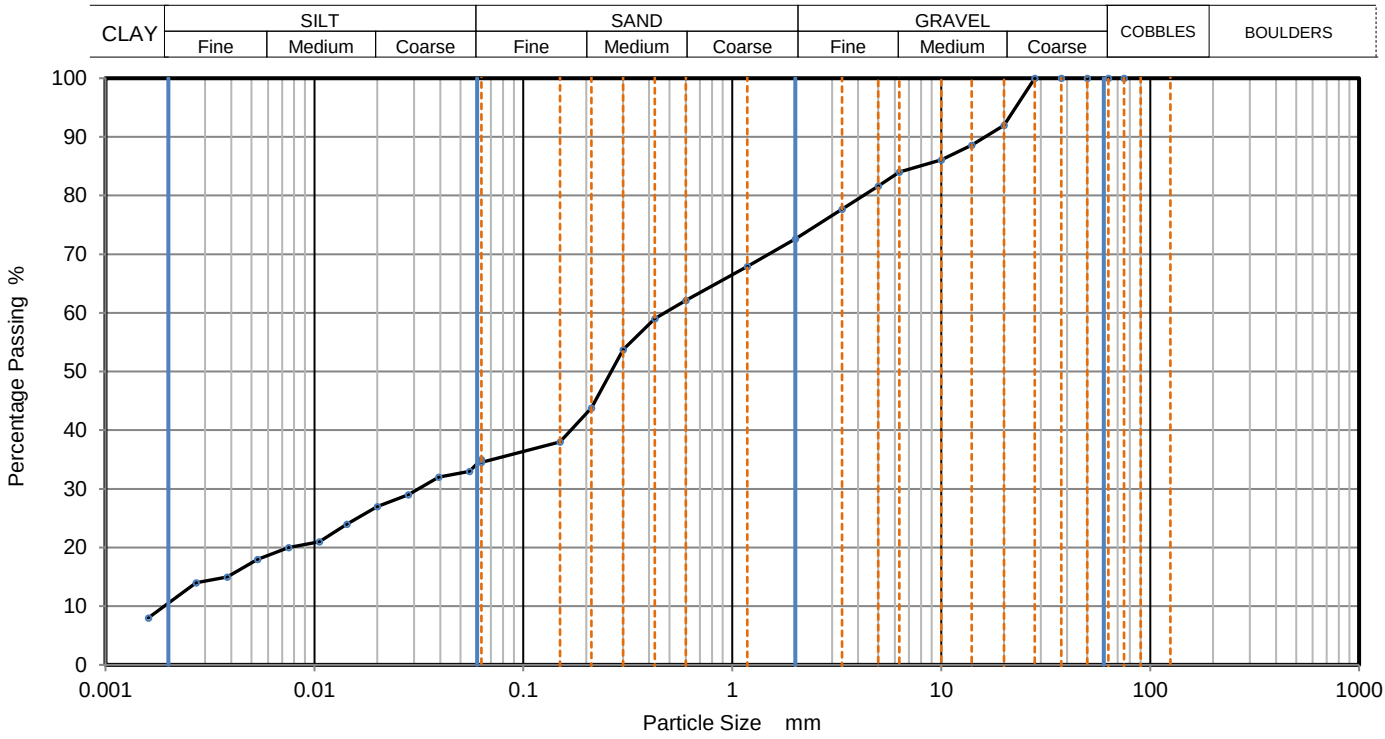
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47650
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211125108



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0552	33
75	100	0.0393	32
63	100	0.0281	29
50	100	0.0200	27
37.5	100	0.0143	24
28	100	0.0106	21
20	92	0.0075	20
14	89	0.0053	18
10	86	0.0038	15
6.3	84	0.0027	14
5	82	0.0016	8
3.35	78		
2	73		
1.18	68		
0.6	62	Particle density (assumed)	
0.425	59	2.65 Mg/m3	
0.3	54		
0.212	44		
0.15	38		
0.063	35		

Dry Mass of sample, g	793

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	38
Silt	25
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.473
D_{30}	mm	0.0332
D_{10}	mm	0.002
Uniformity Coefficient		240
Curvature Coefficient		1.2

Remarks

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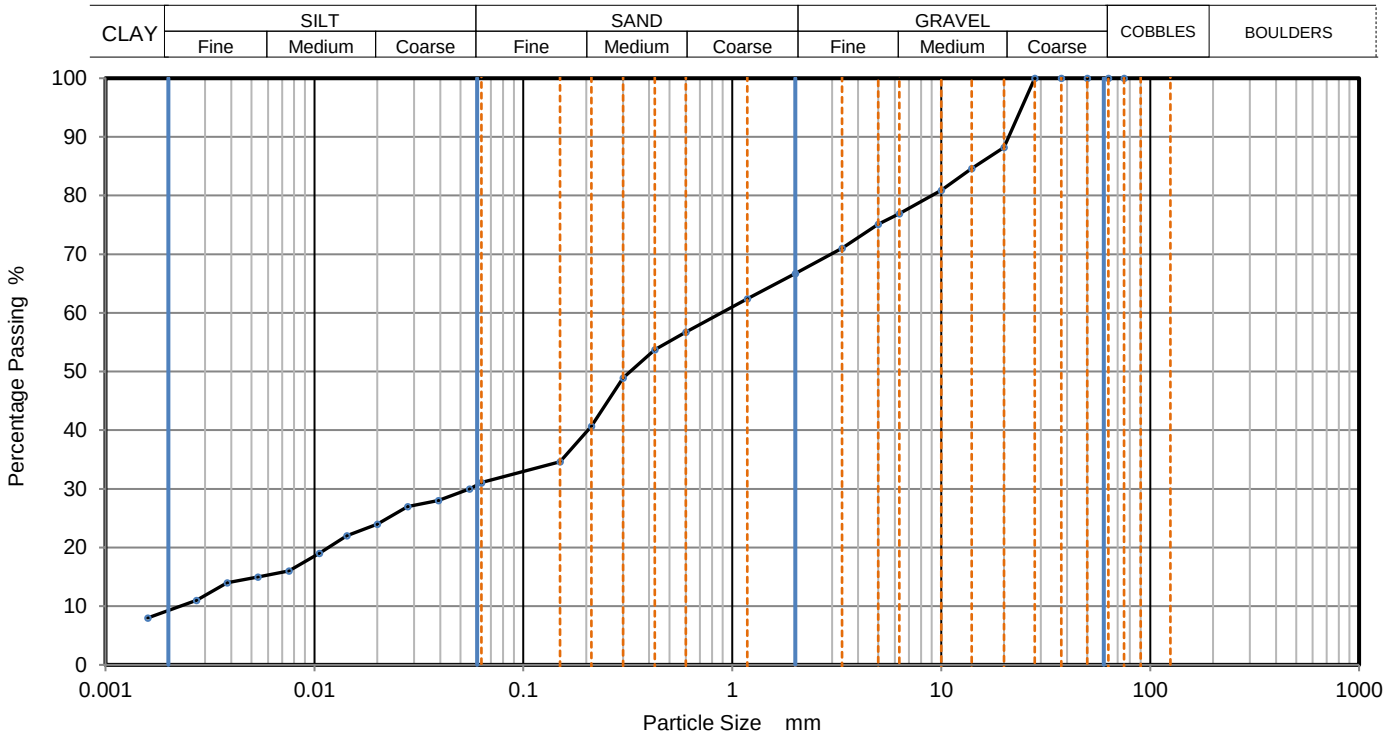
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-48139
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211125123



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0552	30
75	100	0.0392	28
63	100	0.0279	27
50	100	0.0200	24
37.5	100	0.0143	22
28	100	0.0106	19
20	88	0.0076	16
14	85	0.0054	15
10	81	0.0038	14
6.3	77	0.0027	11
5	75	0.0016	8
3.35	71		
2	67		
1.18	62		
0.6	57	Particle density (assumed)	
0.425	54	2.65 Mg/m3	
0.3	49		
0.212	41		
0.15	35		
0.063	31		

Dry Mass of sample, g	647

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	36
Silt	22
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.889
D_{30}	mm	0.0565
D_{10}	mm	0.00232
Uniformity Coefficient		380
Curvature Coefficient		1.5

Remarks

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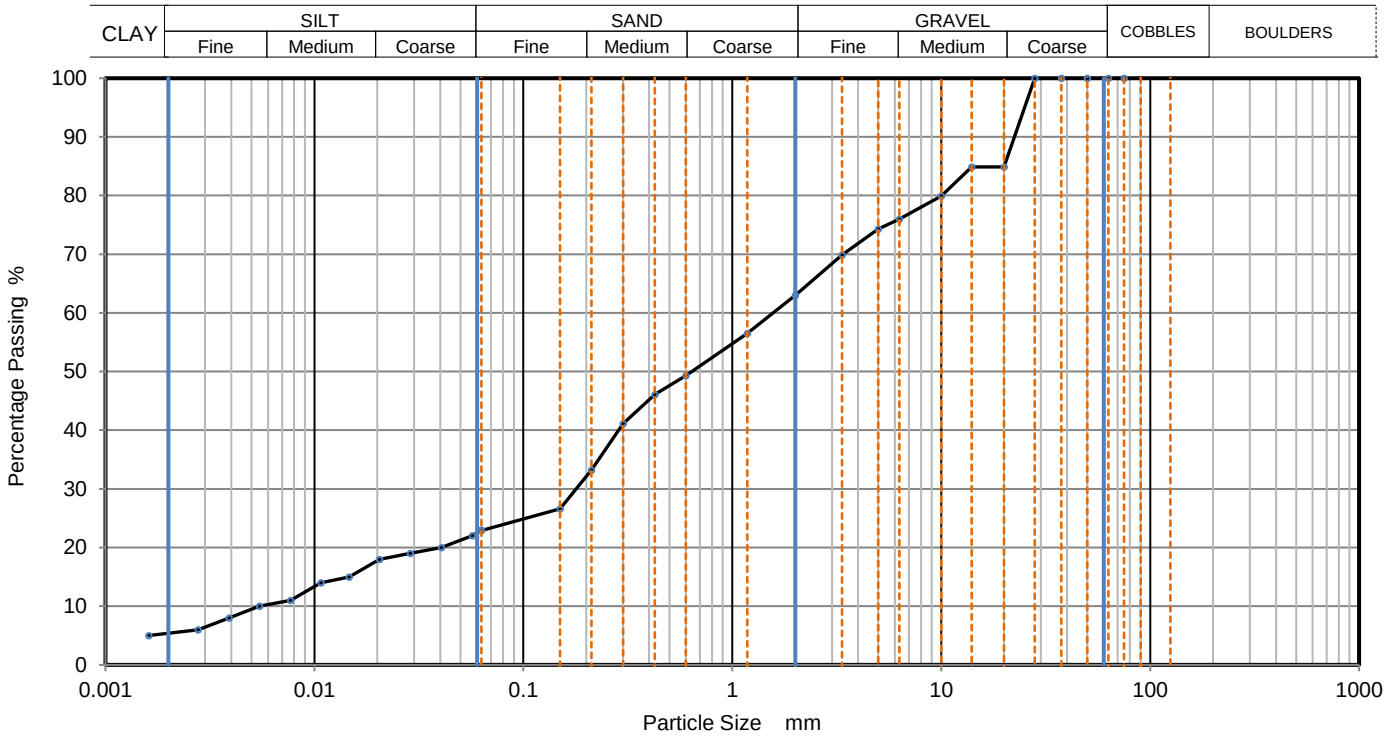
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-48795
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206101



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	23
		0.0569	22
75	100	0.0405	20
63	100	0.0288	19
50	100	0.0205	18
37.5	100	0.0146	15
28	100	0.0108	14
20	85	0.0077	11
14	85	0.0055	10
10	80	0.0039	8
6.3	76	0.0028	6
5	74	0.0016	5
3.35	70		
2	63		
1.18	57		
0.6	49	Particle density (assumed)	
0.425	46	2.65 Mg/m3	
0.3	41		
0.212	33		
0.15	27		
0.063	23		

Dry Mass of sample, g	816

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	40
Silt	17
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.57
D_{30}	mm	0.179
D_{10}	mm	0.00534
Uniformity Coefficient		290
Curvature Coefficient		3.8

Remarks

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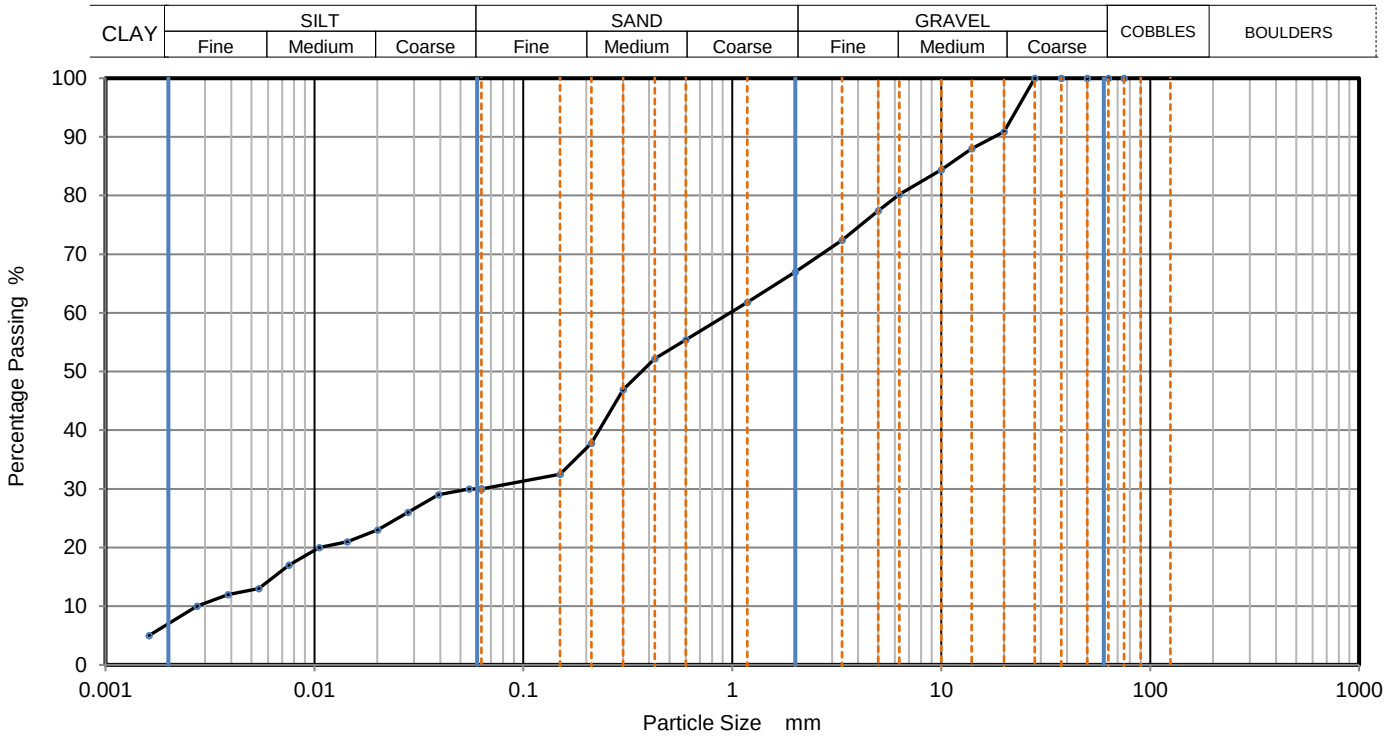
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-49214
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey very silty GRAVEL and SAND.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0551	30
75	100	0.0392	29
63	100	0.0281	26
50	100	0.0201	23
37.5	100	0.0144	21
28	100	0.0106	20
20	91	0.0075	17
14	88	0.0054	13
10	84	0.0039	12
6.3	80	0.0027	10
5	77	0.0016	5
3.35	72		
2	67		
1.18	62		
0.6	55	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	47		
0.212	38		
0.15	33		
0.063	30		

Dry Mass of sample, g	791

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	37
Silt	23
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.974
D_{30}	mm	0.0551
D_{10}	mm	0.00262
Uniformity Coefficient		370
Curvature Coefficient		1.2

Remarks

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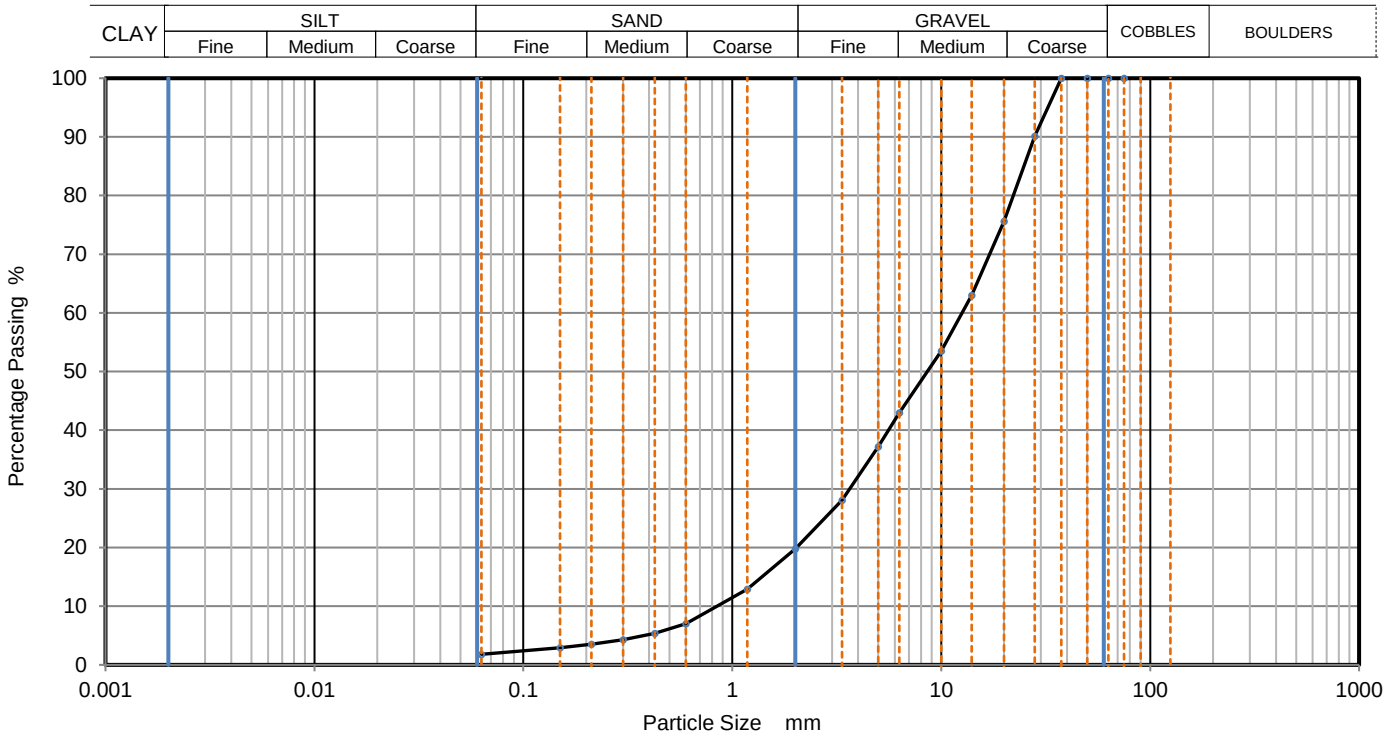
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-49513
Site Name	WSP Eastern & Midlands Region			Sample No.	16
Soil Description	Bluish-grey slightly silty sandy medium GRAVEL.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211206127



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	76		
14	63		
10	54		
6.3	43		
5	37		
3.35	28		
2	20		
1.18	13		
0.6	7		
0.425	5		
0.3	4		
0.212	4		
0.15	3		
0.063	2		

Dry Mass of sample, g	949

Sample Proportions	% dry mass
Very coarse	0
Gravel	80
Sand	18
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	12.6
D_{30}	mm	3.64
D_{10}	mm	0.847
Uniformity Coefficient		15
Curvature Coefficient		1.2

Remarks

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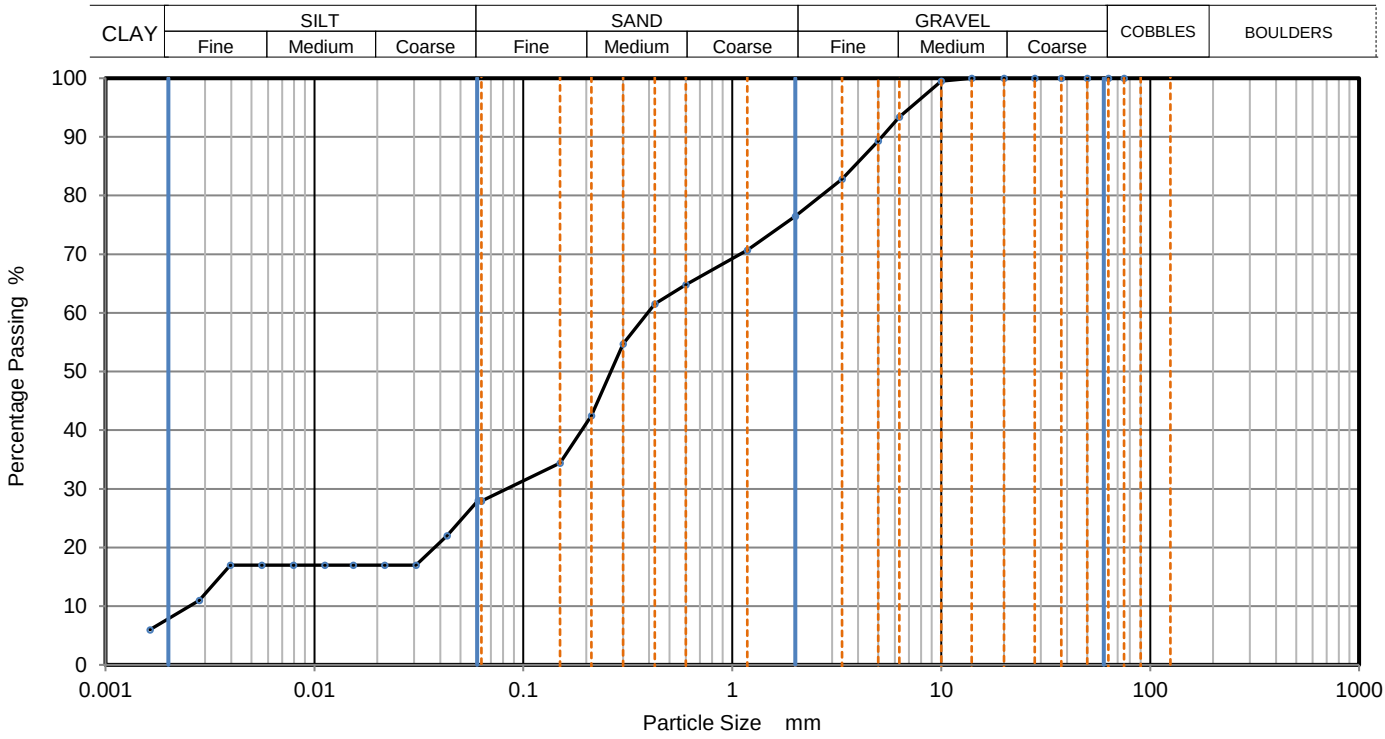
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-49654
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Greyish-black very gravelly very silty medium SAND fragments of PEAT..			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206135



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0607	28
75	100	0.0432	22
63	100	0.0307	17
50	100	0.0217	17
37.5	100	0.0153	17
28	100	0.0112	17
20	100	0.0079	17
14	100	0.0056	17
10	100	0.0040	17
6.3	93	0.0028	11
5	89	0.0016	6
3.35	83		
2	77		
1.18	71		
0.6	65	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	55		
0.212	43		
0.15	34		
0.063	28		

Dry Mass of sample, g: 185

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	49
Silt	20
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.394
D_{30}	mm	0.0833
D_{10}	mm	0.00251
Uniformity Coefficient		160
Curvature Coefficient		7

Remarks

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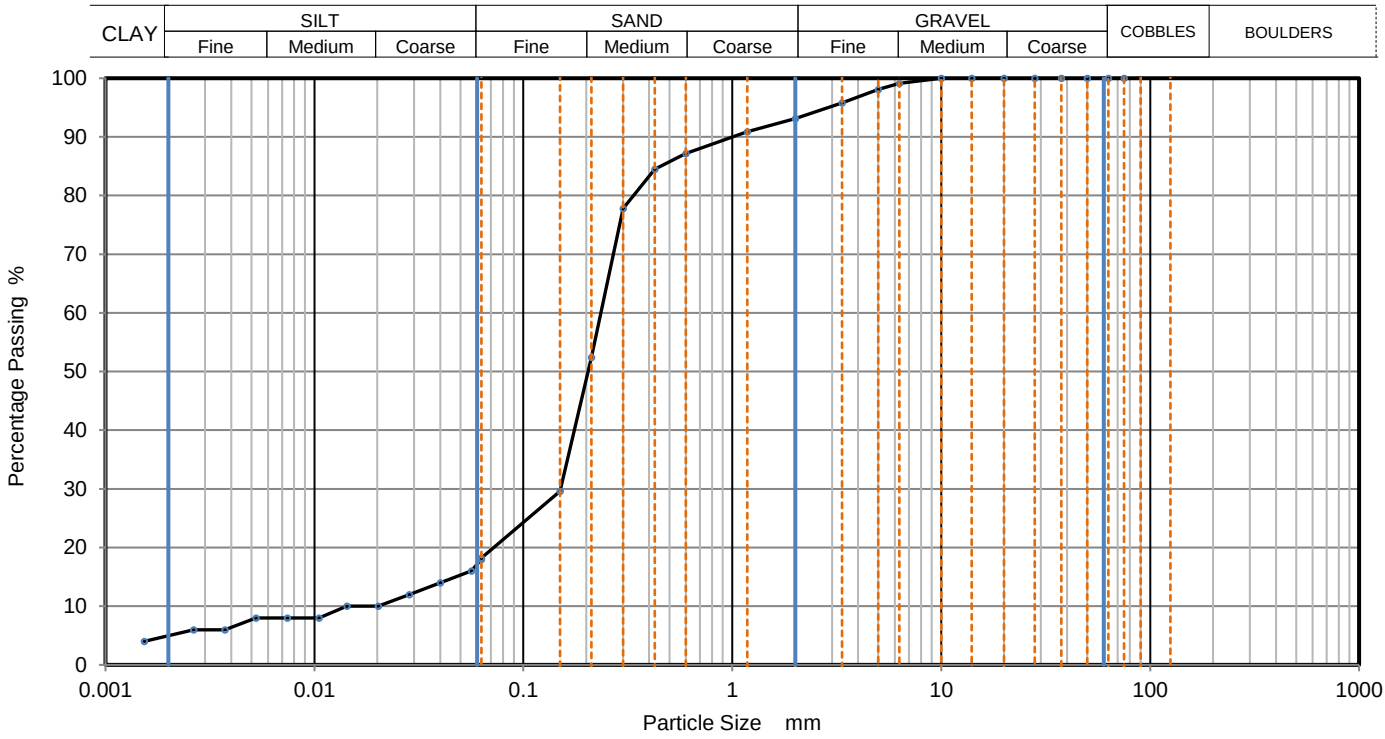
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-49654
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Blackish-grey gravelly clayey fine and medium SAND.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206141



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0563	16
75	100	0.0401	14
63	100	0.0285	12
50	100	0.0202	10
37.5	100	0.0143	10
28	100	0.0105	8
20	100	0.0074	8
14	100	0.0053	8
10	100	0.0037	6
6.3	99	0.0026	6
5	98	0.0015	4
3.35	96		
2	93		
1.18	91		
0.6	87	Particle density (assumed)	
0.425	85	2.65 Mg/m3	
0.3	78		
0.212	52		
0.15	30		
0.063	18		

Dry Mass of sample, g	727

Sample Proportions	% dry mass
Very coarse	0
Gravel	7
Sand	75
Silt	13
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.235
D_{30}	mm	0.151
D_{10}	mm	0.0141
Uniformity Coefficient		17
Curvature Coefficient		6.9

Remarks

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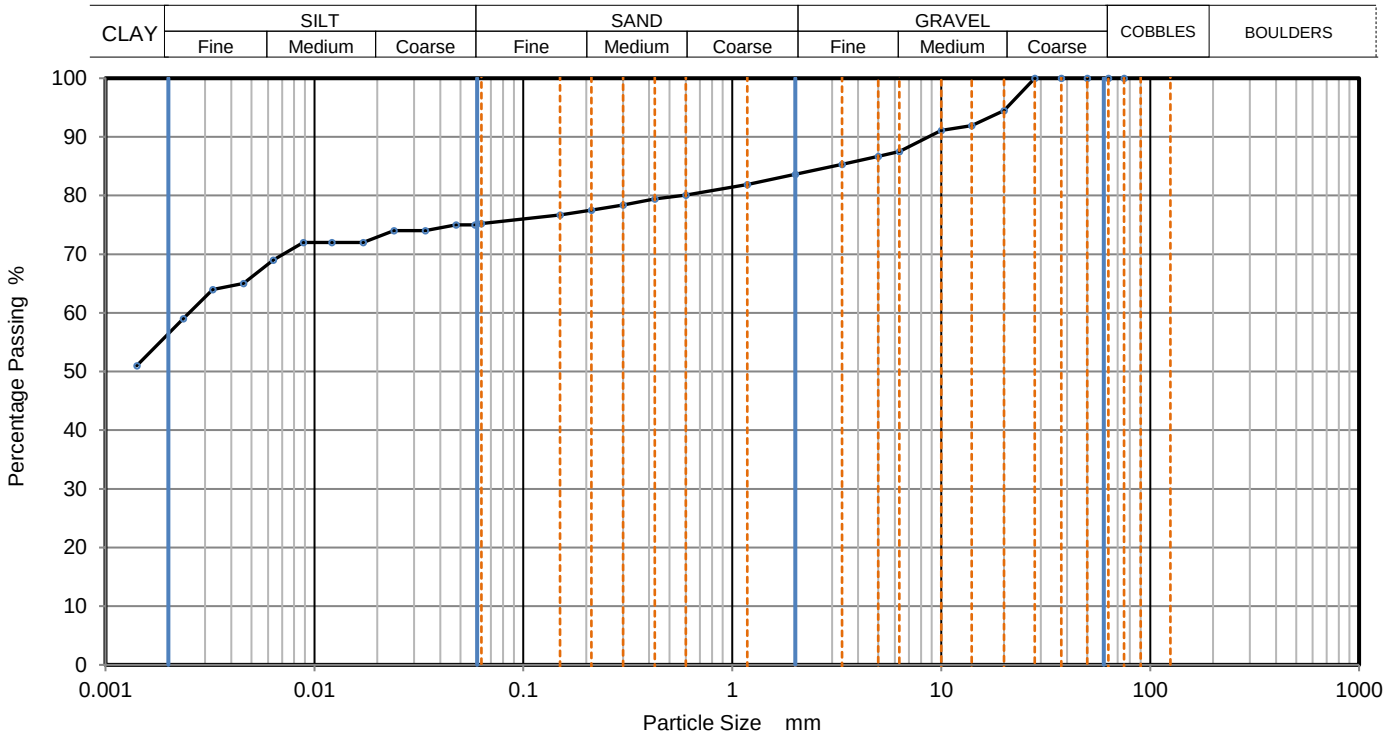
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-49654
Site Name	WSP Eastern & Midlands Region			Sample No.	19
Soil Description	Greyish-brown slightly sandy slightly gravelly CLAY.			Depth, m	6.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0586	75
		0.0476	75
75	100	0.0339	74
63	100	0.0240	74
50	100	0.0171	72
37.5	100	0.0121	72
28	100	0.0088	72
20	95	0.0064	69
14	92	0.0046	65
10	91	0.0033	64
6.3	88	0.0024	59
5	87	0.0014	51
3.35	85		
2	84		
1.18	82		
0.6	80	Particle density (assumed)	
0.425	79	2.65	Mg/m3
0.3	78		
0.212	78		
0.15	77		
0.063	75		

Dry Mass of sample, g	631

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	8
Silt	19
Clay	56

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.00254
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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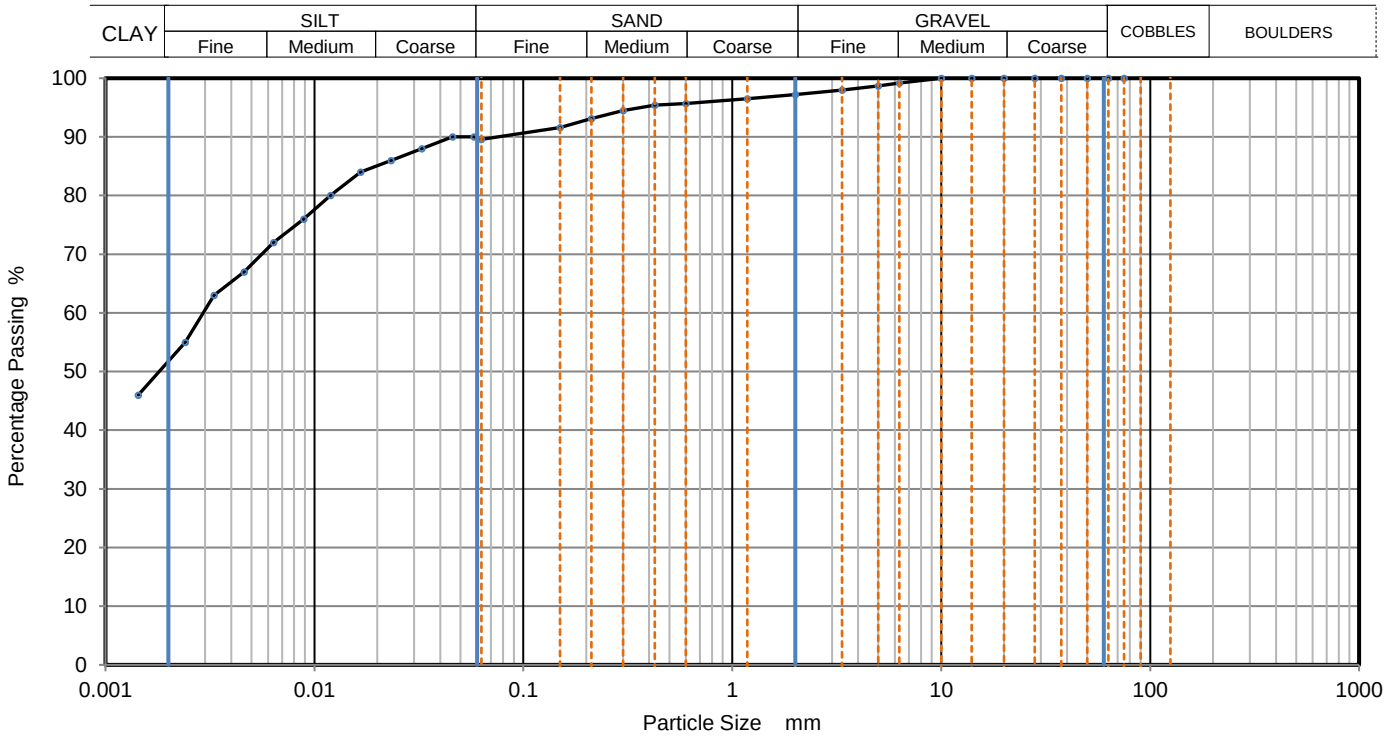
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-49880
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Soil Description	Brownish-grey slightly gravelly slightly sandy siltyCLAY.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021121790



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0580	90
		0.0458	90
75	100	0.0327	88
63	100	0.0233	86
50	100	0.0166	84
37.5	100	0.0119	80
28	100	0.0089	76
20	100	0.0064	72
14	100	0.0046	67
10	100	0.0033	63
6.3	99	0.0024	55
5	99	0.0014	46
3.35	98		
2	97		
1.18	97		
0.6	96	Particle density (assumed)	
0.425	95	2.65 Mg/m3	
0.3	95		
0.212	93		
0.15	92		
0.063	90		

Dry Mass of sample, g	686

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	8
Silt	38
Clay	52

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.00293
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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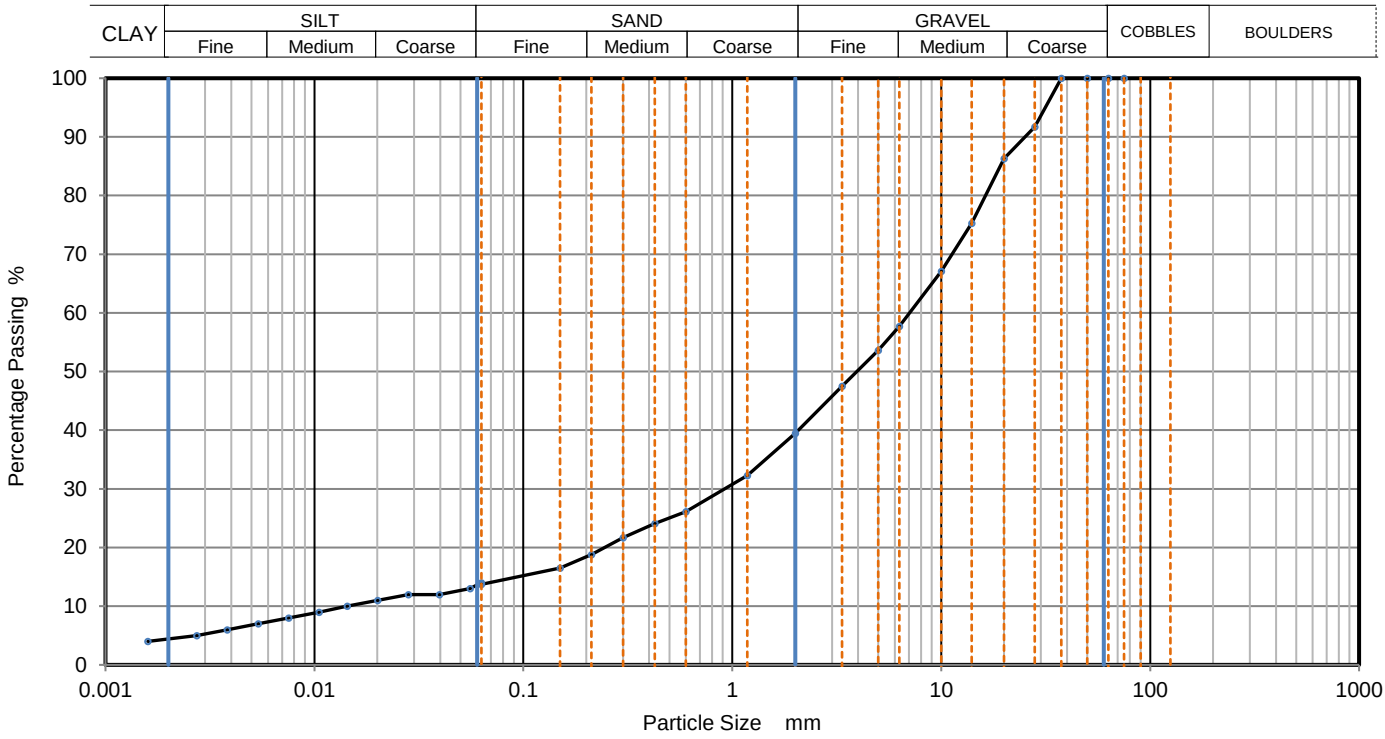
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-49880
Site Name	WSP Eastern & Midlands Region			Sample No.	14
Soil Description	Grey silty very sandy medium GRAVEL.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021121793



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	14
		0.0556	13
75	100	0.0396	12
63	100	0.0282	12
50	100	0.0200	11
37.5	100	0.0143	10
28	92	0.0105	9
20	86	0.0075	8
14	75	0.0054	7
10	67	0.0038	6
6.3	58	0.0027	5
5	54	0.0016	4
3.35	48		
2	40		
1.18	32		
0.6	26	Particle density (assumed)	
0.425	24	2.65 Mg/m3	
0.3	22		
0.212	19		
0.15	17		
0.063	14		

Dry Mass of sample, g	965

Sample Proportions	% dry mass
Very coarse	0
Gravel	61
Sand	26
Silt	10
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.07
D_{30}	mm	0.917
D_{10}	mm	0.0145
Uniformity Coefficient		490
Curvature Coefficient		8.2

Remarks

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Operator	Checked	Approved	Sheet printed	
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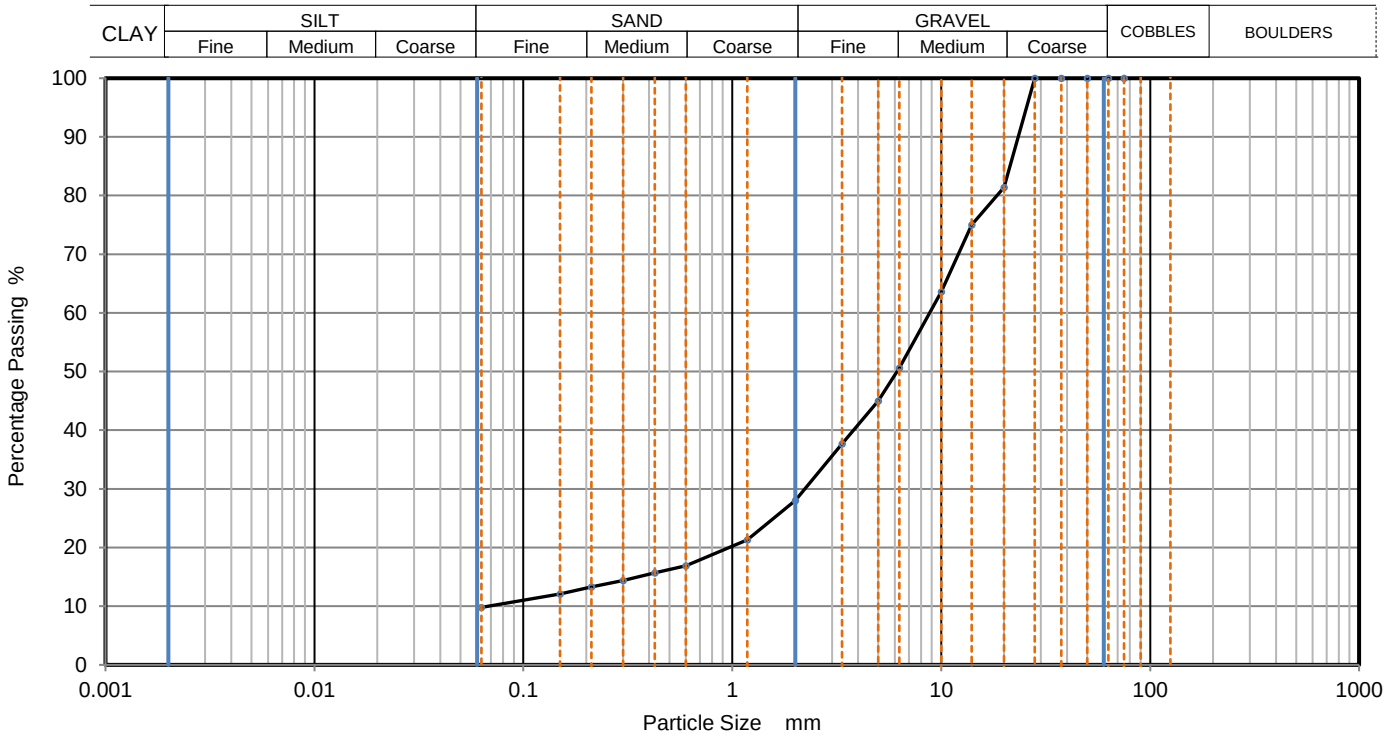
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-50108
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Light grey silty sandy medium GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211217105



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	81		
14	75		
10	64		
6.3	51		
5	45		
3.35	38		
2	28		
1.18	21		
0.6	17		
0.425	16		
0.3	14		
0.212	13		
0.15	12		
0.063	10		

Dry Mass of sample, g	1079

Sample Proportions	% dry mass
Very coarse	0
Gravel	72
Sand	18
Fines <0.063mm	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	8.8
D_{30}	mm	2.22
D_{10}	mm	0.0691
Uniformity Coefficient		130
Curvature Coefficient		8.1

Remarks

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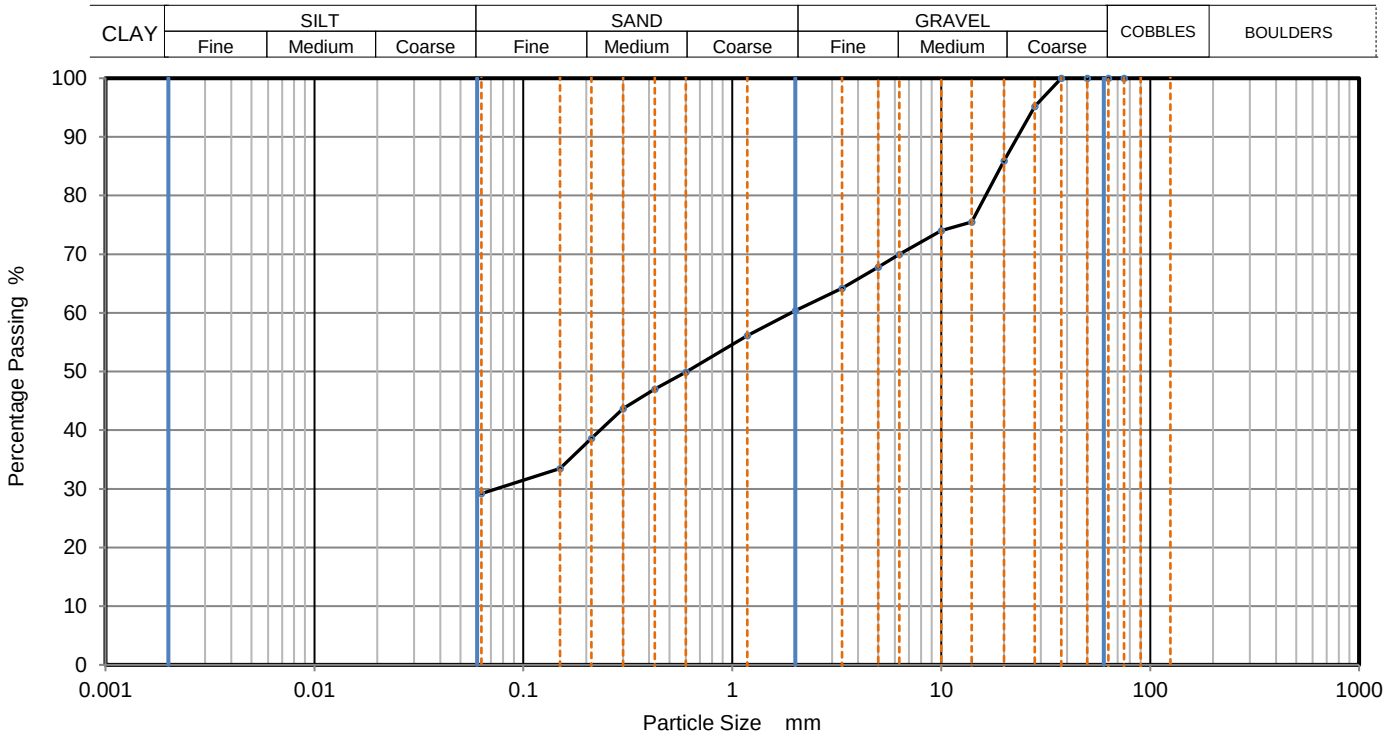
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-50608A
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Greyish-brown very silty very sandy GRAVEL.	Depth, m	0.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL120211217110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	86		
14	76		
10	74		
6.3	70		
5	68		
3.35	64		
2	60		
1.18	56		
0.6	50		
0.425	47		
0.3	44		
0.212	39		
0.15	34		
0.063	29		

Dry Mass of sample, g	830

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	31
Fines <0.063mm	29

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.9
D_{30}	mm	0.0742
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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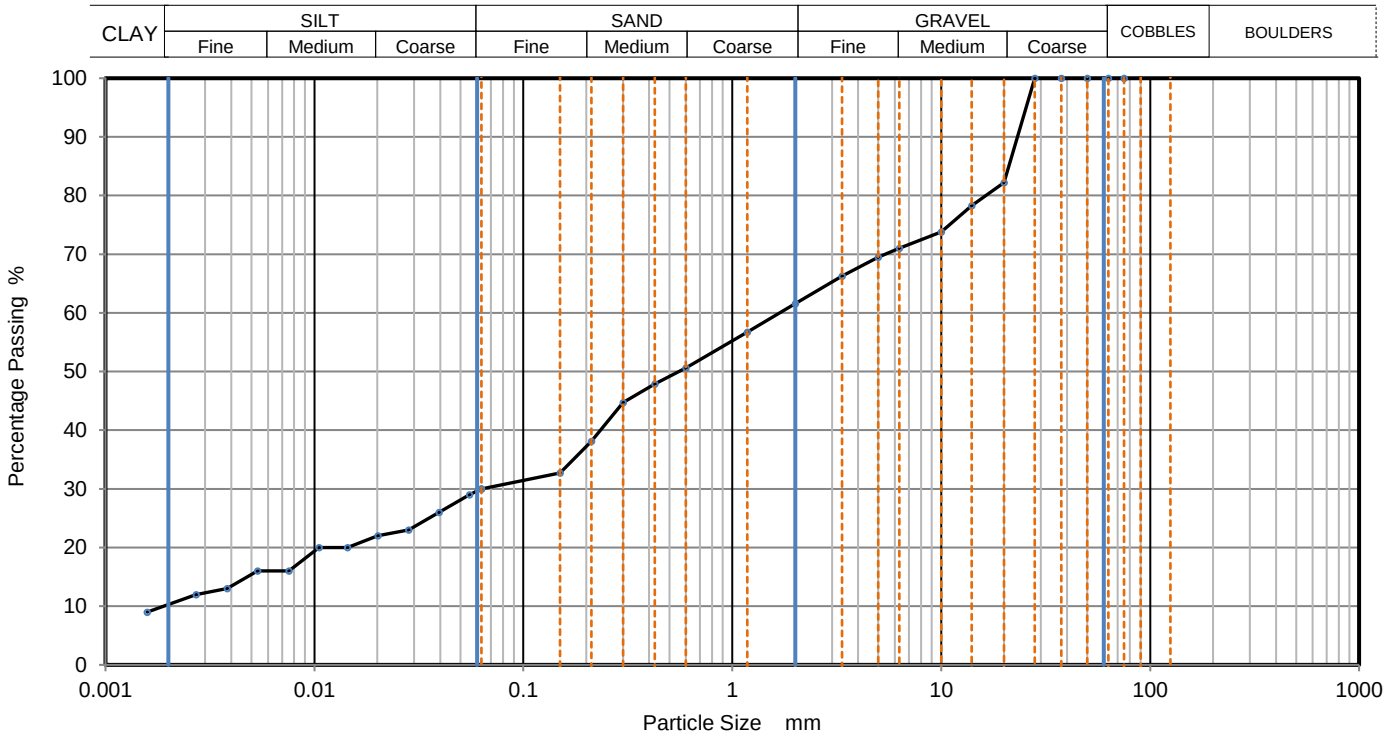
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-50885
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Creamy-grey very silty very sandy coarse GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206157



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0552	29
75	100	0.0395	26
63	100	0.0283	23
50	100	0.0201	22
37.5	100	0.0144	20
28	100	0.0105	20
20	82	0.0076	16
14	78	0.0053	16
10	74	0.0038	13
6.3	71	0.0027	12
5	70	0.0016	9
3.35	66		
2	62		
1.18	57		
0.6	51	Particle density (assumed)	
0.425	48	2.65	Mg/m3
0.3	45		
0.212	38		
0.15	33		
0.063	30		

Dry Mass of sample, g	1009

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	32
Silt	20
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.69
D_{30}	mm	
D_{10}	mm	0.0019
Uniformity Coefficient		890
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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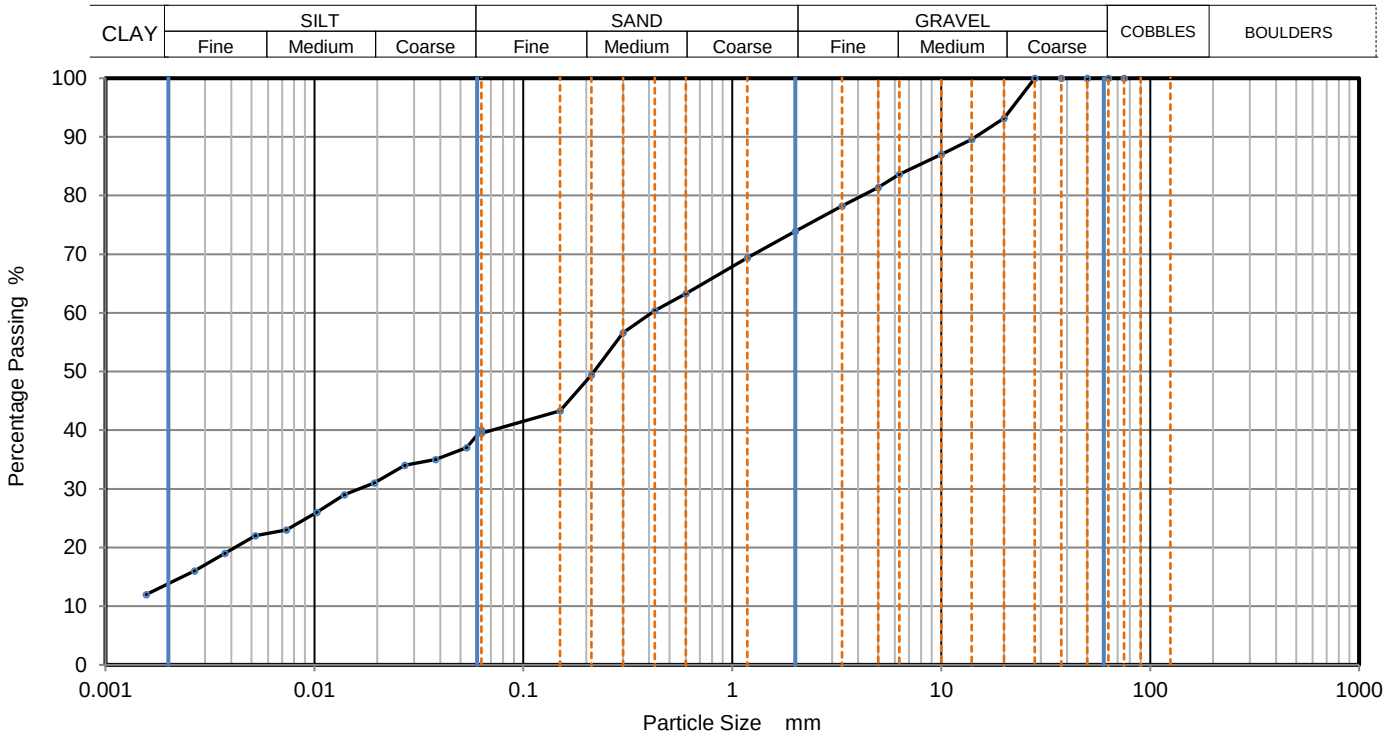
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-50920
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Creamy-brown slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206163



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0534	37
75	100	0.0380	35
63	100	0.0271	34
50	100	0.0194	31
37.5	100	0.0139	29
28	100	0.0103	26
20	93	0.0073	23
14	90	0.0052	22
10	87	0.0037	19
6.3	84	0.0027	16
5	81	0.0016	12
3.35	78		
2	74		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	57		
0.212	49		
0.15	43		
0.063	40		

Dry Mass of sample, g	950

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	34
Silt	25
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.41
D_{30}	mm	0.0165
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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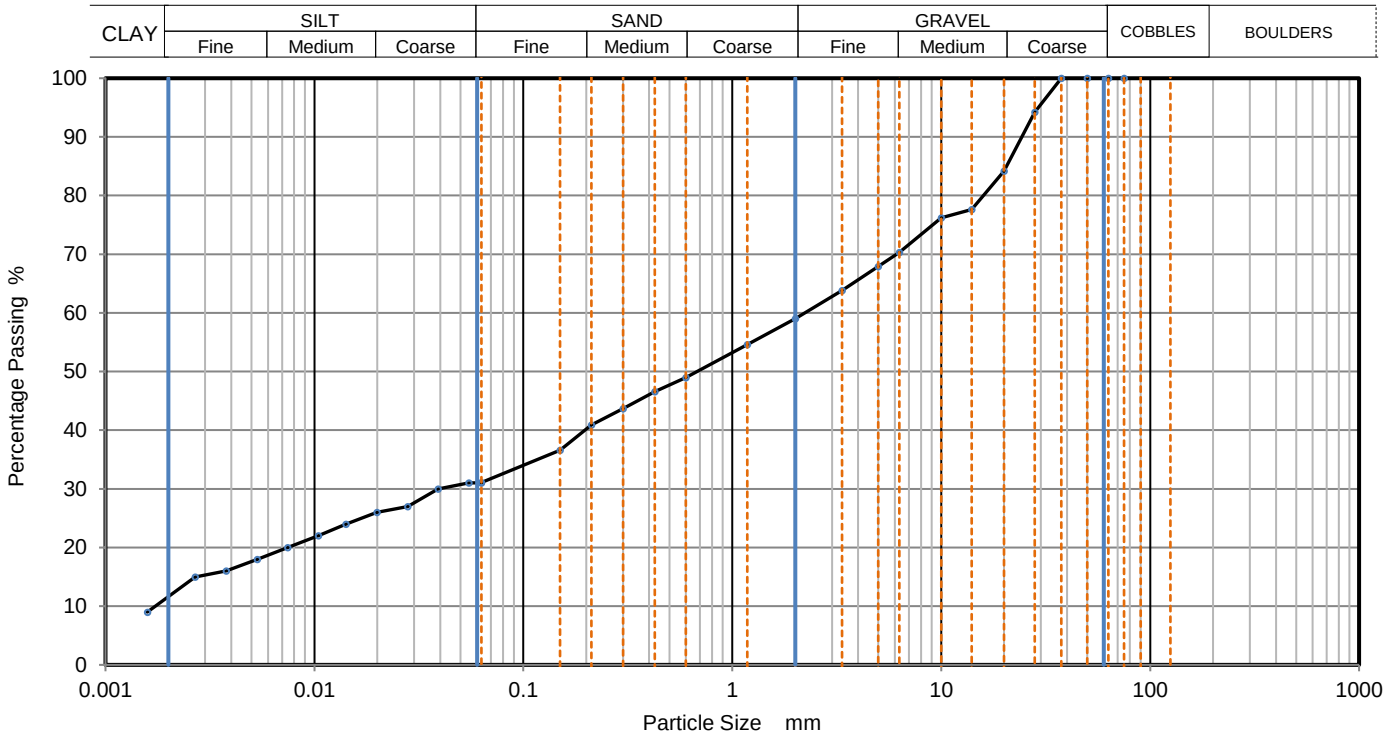
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-51386
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Cream very sandy very silty GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206181



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0549	31
75	100	0.0391	30
63	100	0.0280	27
50	100	0.0199	26
37.5	100	0.0141	24
28	94	0.0105	22
20	84	0.0074	20
14	78	0.0053	18
10	76	0.0038	16
6.3	70	0.0027	15
5	68	0.0016	9
3.35	64		
2	59		
1.18	55		
0.6	49	Particle density (assumed)	
0.425	47	2.65 Mg/m3	
0.3	44		
0.212	41		
0.15	37		
0.063	31		

Dry Mass of sample, g	973

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	28
Silt	19
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.23
D_{30}	mm	0.0416
D_{10}	mm	0.00167
Uniformity Coefficient		1300
Curvature Coefficient		0.47

Remarks

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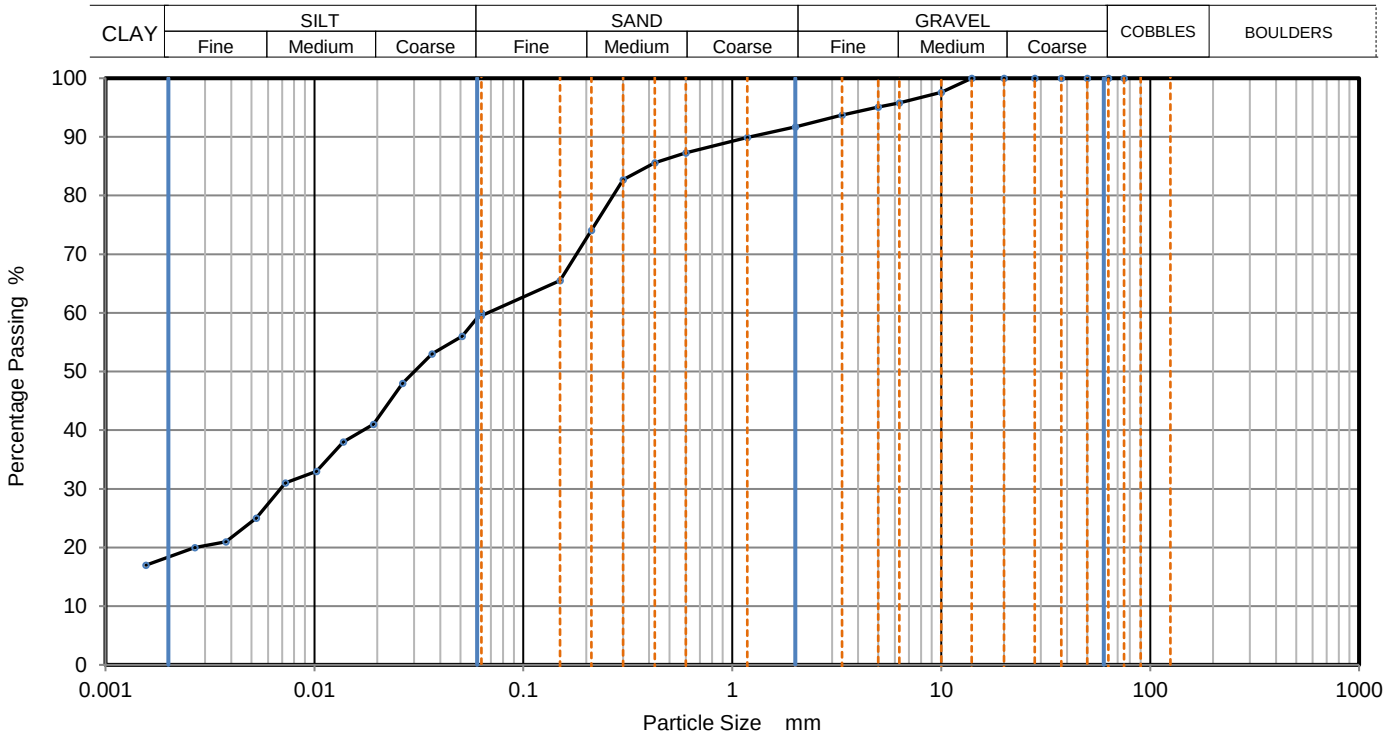
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-51540
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Blackish-brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206188



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	60
		0.0510	56
75	100	0.0366	53
63	100	0.0264	48
50	100	0.0192	41
37.5	100	0.0137	38
28	100	0.0102	33
20	100	0.0073	31
14	100	0.0053	25
10	98	0.0038	21
6.3	96	0.0027	20
5	95	0.0016	17
3.35	94		
2	92		
1.18	90		
0.6	87	Particle density (assumed)	
0.425	86	2.65	Mg/m3
0.3	83		
0.212	74		
0.15	66		
0.063	60		

Dry Mass of sample, g	734

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	32
Silt	42
Clay	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.0677
D_{30}	mm	0.00679
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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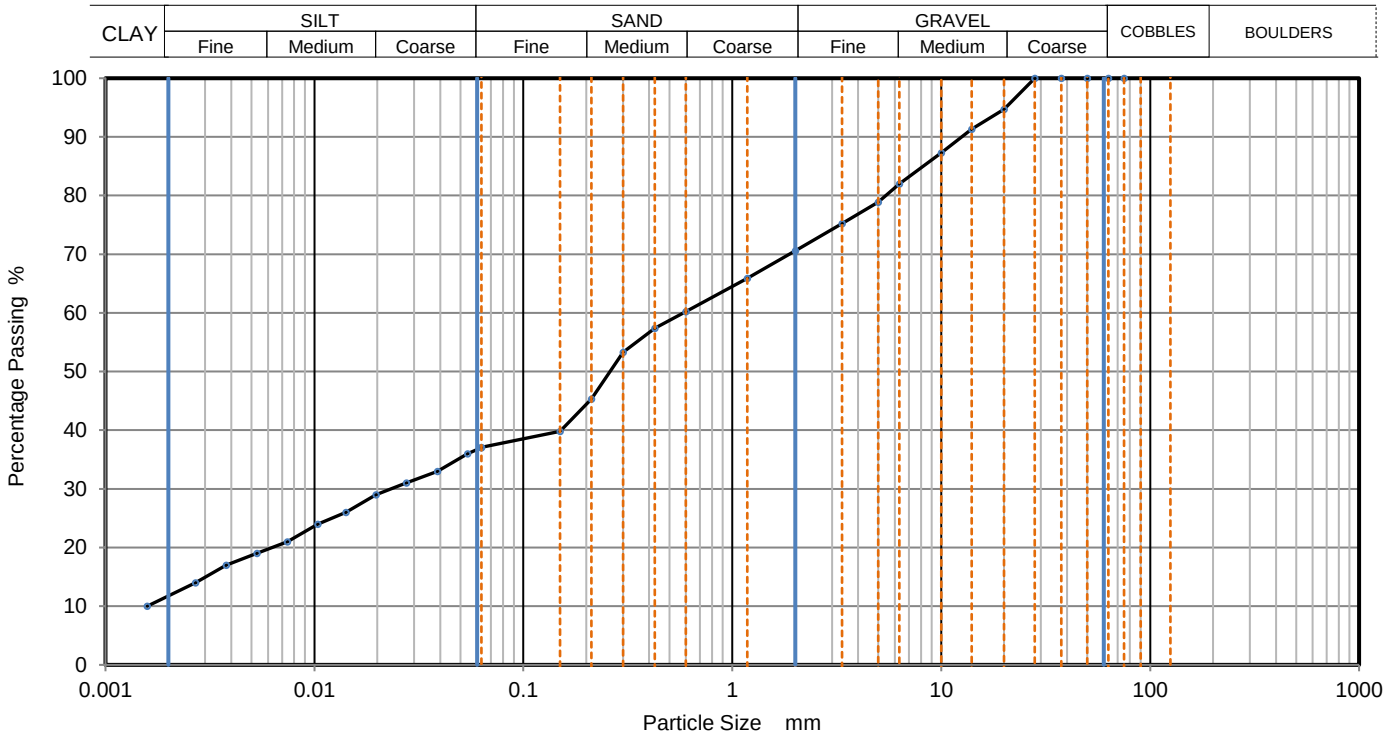
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-51540
Site Name	WSP Eastern & Midlands Region			Sample No.	19
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth, m	6.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206203



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0541	36
75	100	0.0388	33
63	100	0.0276	31
50	100	0.0197	29
37.5	100	0.0141	26
28	100	0.0104	24
20	95	0.0074	21
14	91	0.0053	19
10	87	0.0038	17
6.3	82	0.0027	14
5	79	0.0016	10
3.35	75		
2	71		
1.18	66		
0.6	60	Particle density (assumed)	
0.425	57	2.65 Mg/m3	
0.3	53		
0.212	45		
0.15	40		
0.063	37		

Dry Mass of sample, g	1027

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	34
Silt	25
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.585
D_{30}	mm	0.0234
D_{10}	mm	0.00159
Uniformity Coefficient		370
Curvature Coefficient		0.59

Remarks

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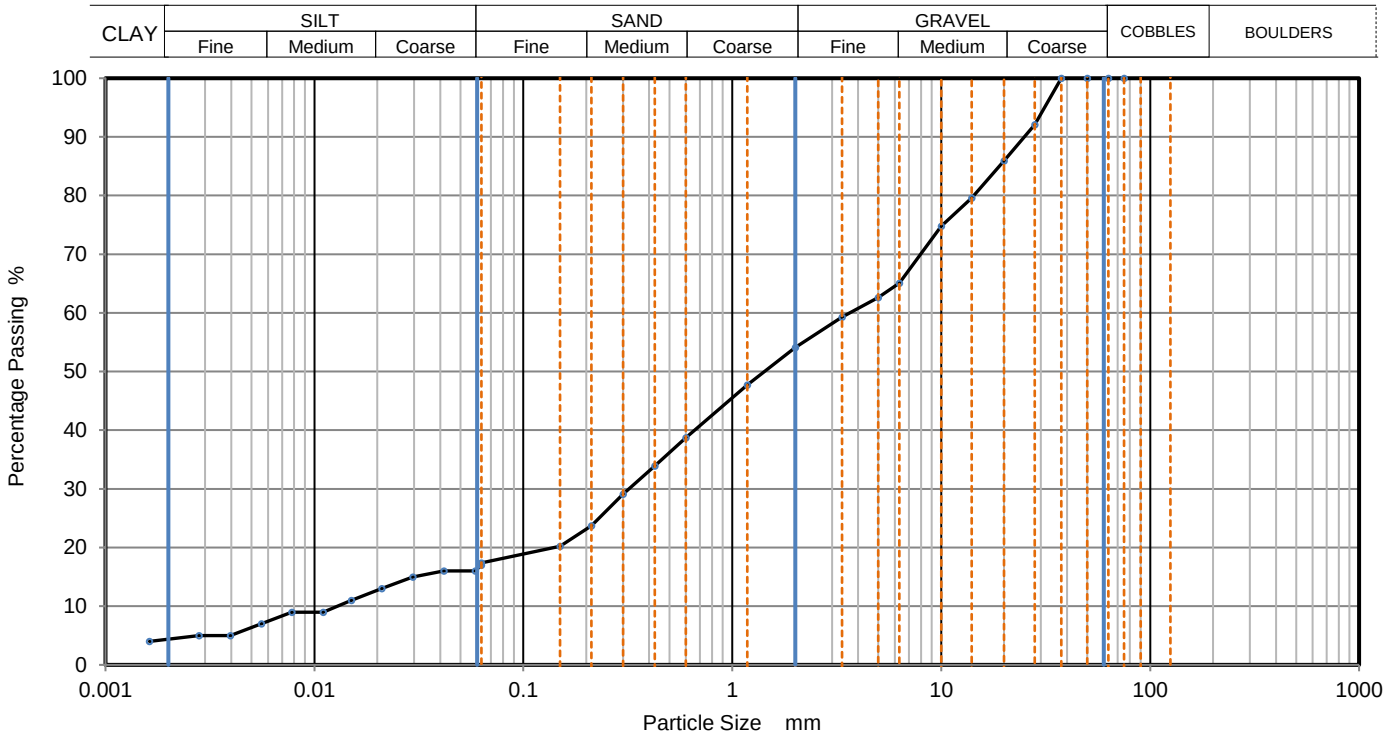
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52008
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Greyish-black silty very sandy medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206213



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	17
		0.0588	16
75	100	0.0416	16
63	100	0.0296	15
50	100	0.0210	13
37.5	100	0.0150	11
28	92	0.0110	9
20	86	0.0078	9
14	80	0.0056	7
10	75	0.0040	5
6.3	65	0.0028	5
5	63	0.0016	4
3.35	59		
2	54		
1.18	48		
0.6	39	Particle density (assumed)	
0.425	34	2.65	Mg/m3
0.3	29		
0.212	24		
0.15	20		
0.063	17		

Dry Mass of sample, g	865

Sample Proportions	% dry mass
Very coarse	0
Gravel	46
Sand	37
Silt	13
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.64
D_{30}	mm	0.32
D_{10}	mm	0.0128
Uniformity Coefficient		290
Curvature Coefficient		2.2

Remarks

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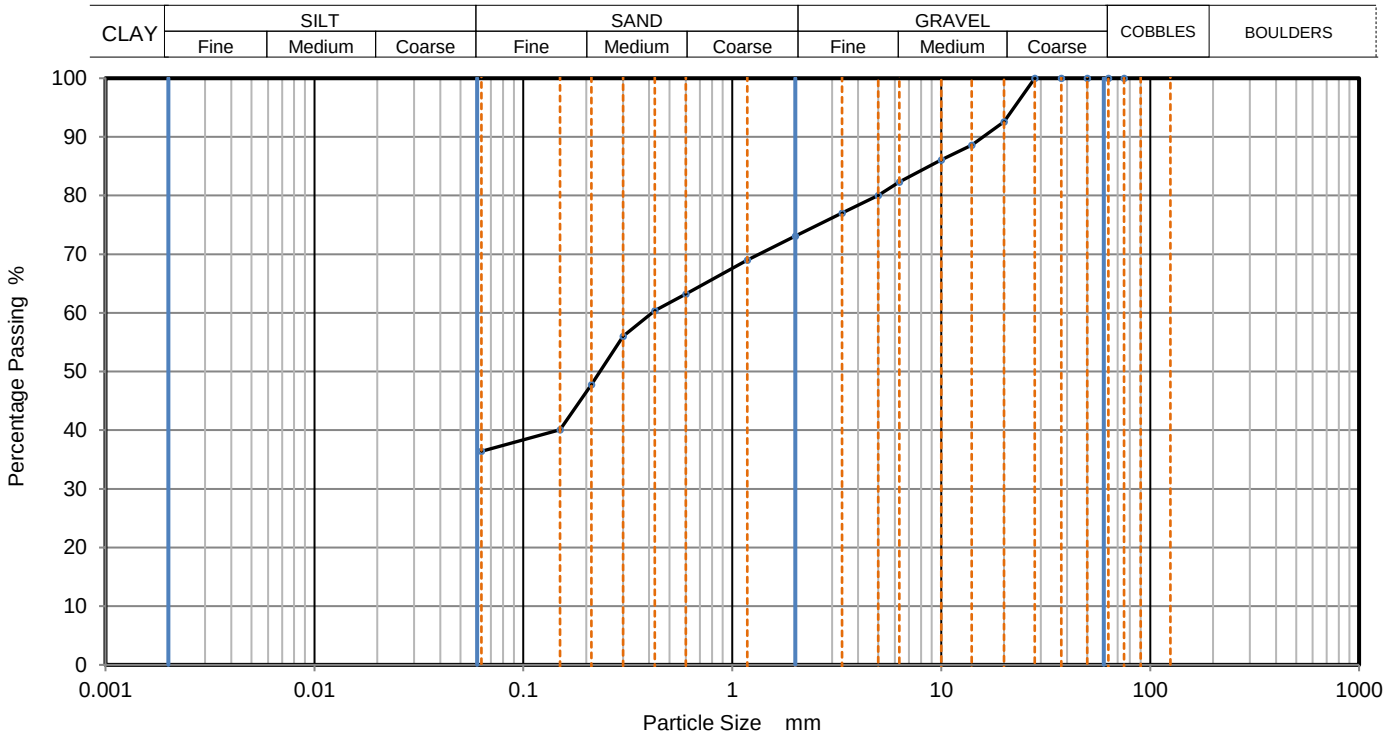
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52406
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201253



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	89		
10	86		
6.3	82		
5	80		
3.35	77		
2	73		
1.18	69		
0.6	63		
0.425	60		
0.3	56		
0.212	48		
0.15	40		
0.063	36		

Dry Mass of sample, g	897

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	37
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.412
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/01/2023 16:43	**1**
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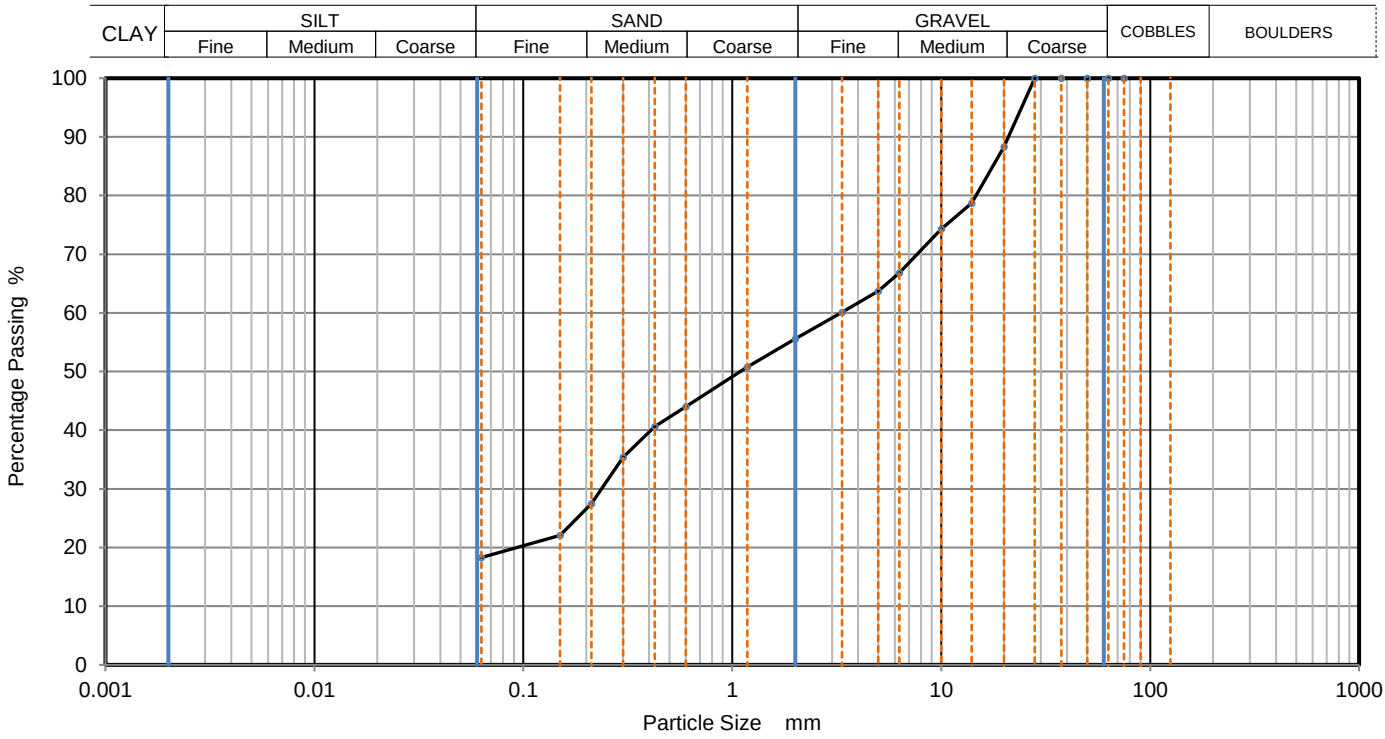
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52680
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Greyish-brown silty very sandy medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012519



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	88		
14	79		
10	74		
6.3	67		
5	64		
3.35	60		
2	56		
1.18	51		
0.6	44		
0.425	41		
0.3	35		
0.212	28		
0.15	22		
0.063	18		

Dry Mass of sample, g	813

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	37
Fines <0.063mm	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.32
D_{30}	mm	0.236
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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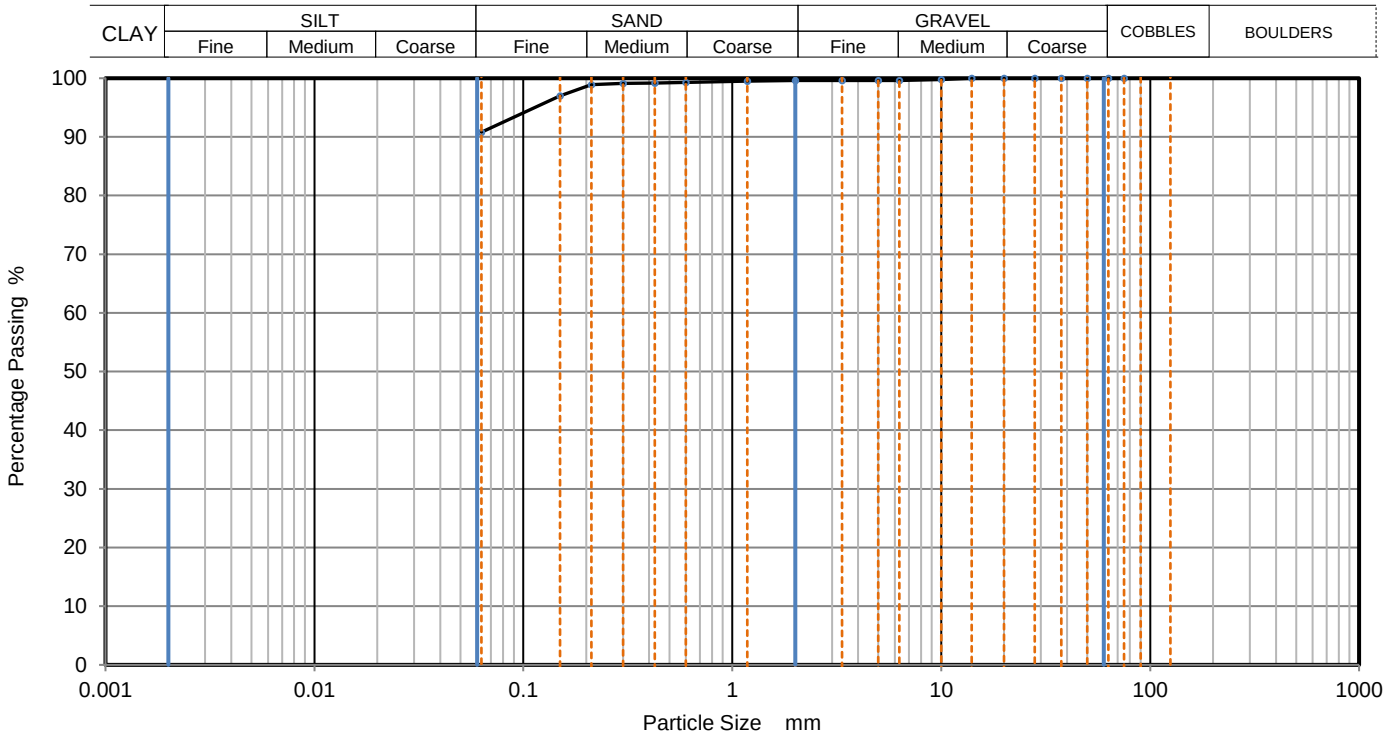
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52680
Site Name	WSP Eastern & Midlands Region			Sample No.	16
Soil Description	Greyish-green slightly sandy SILT.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012528



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	97		
0.063	91		

Dry Mass of sample, g	805

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	9
Fines <0.063mm	91

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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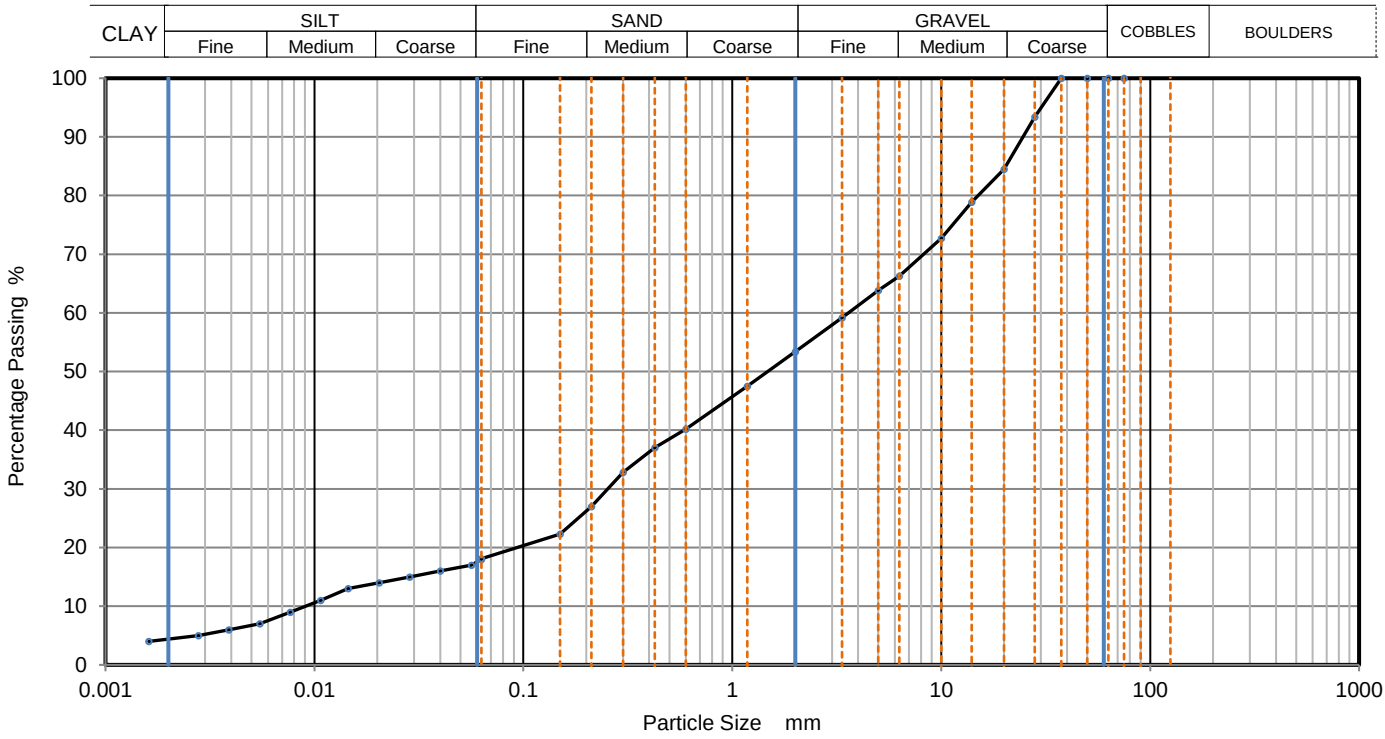
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-53367
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greyish-brown silty very sandy GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022010465



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0563	17
75	100	0.0401	16
63	100	0.0285	15
50	100	0.0204	14
37.5	100	0.0145	13
28	93	0.0107	11
20	85	0.0077	9
14	79	0.0055	7
10	73	0.0039	6
6.3	66	0.0028	5
5	64	0.0016	4
3.35	59		
2	53		
1.18	48		
0.6	40	Particle density (assumed)	
0.425	37	2.65	Mg/m3
0.3	33		
0.212	27		
0.15	22		
0.063	18		

Dry Mass of sample, g	898

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	35
Silt	14
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.61
D_{30}	mm	0.254
D_{10}	mm	0.00913
Uniformity Coefficient		400
Curvature Coefficient		2

Remarks

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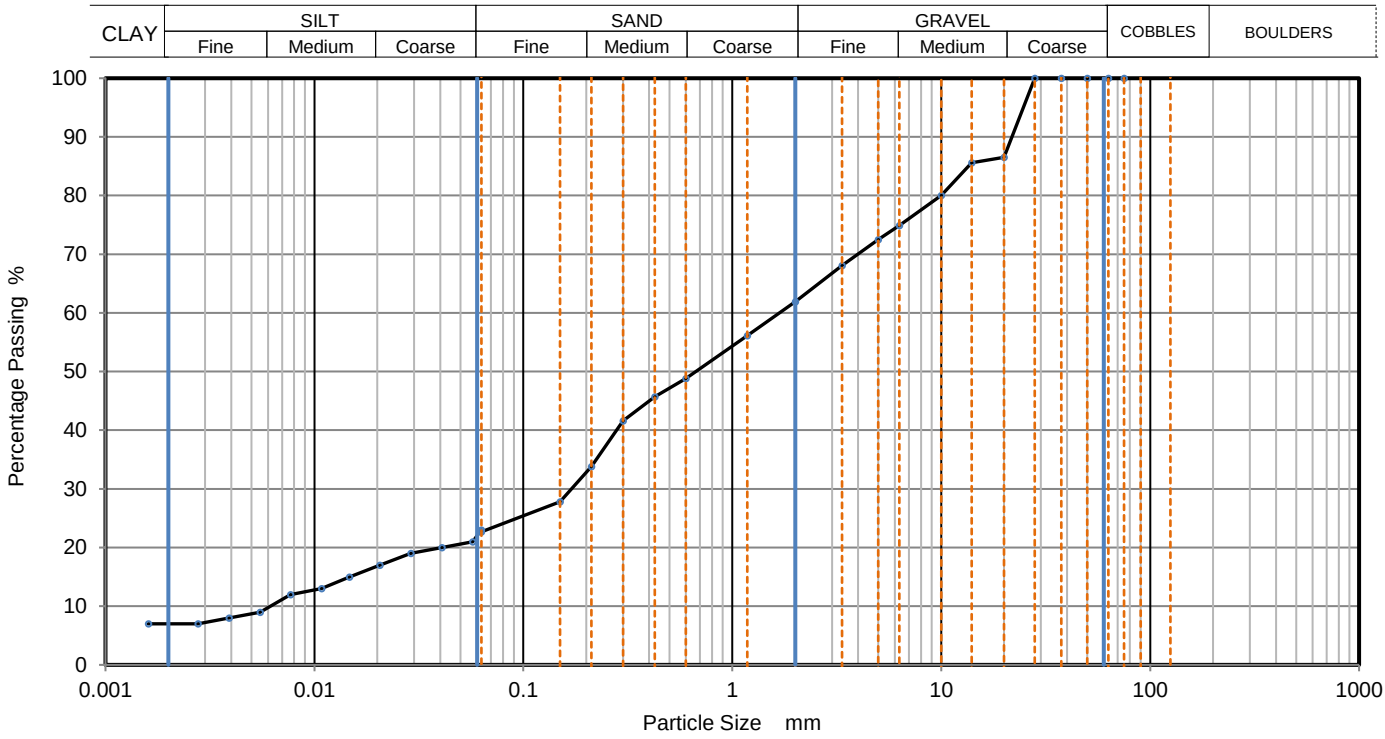
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-53713
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Greyish-brown very silty SAND and GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211217119



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	23
		0.0573	21
75	100	0.0407	20
63	100	0.0290	19
50	100	0.0206	17
37.5	100	0.0147	15
28	100	0.0108	13
20	87	0.0077	12
14	86	0.0055	9
10	80	0.0039	8
6.3	75	0.0028	7
5	73	0.0016	7
3.35	68		
2	62		
1.18	56		
0.6	49	Particle density (assumed)	
0.425	46	2.65 Mg/m3	
0.3	42		
0.212	34		
0.15	28		
0.063	23		

Dry Mass of sample, g	849

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	39
Silt	16
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.68
D_{30}	mm	0.17
D_{10}	mm	0.00596
Uniformity Coefficient		280
Curvature Coefficient		2.9

Remarks

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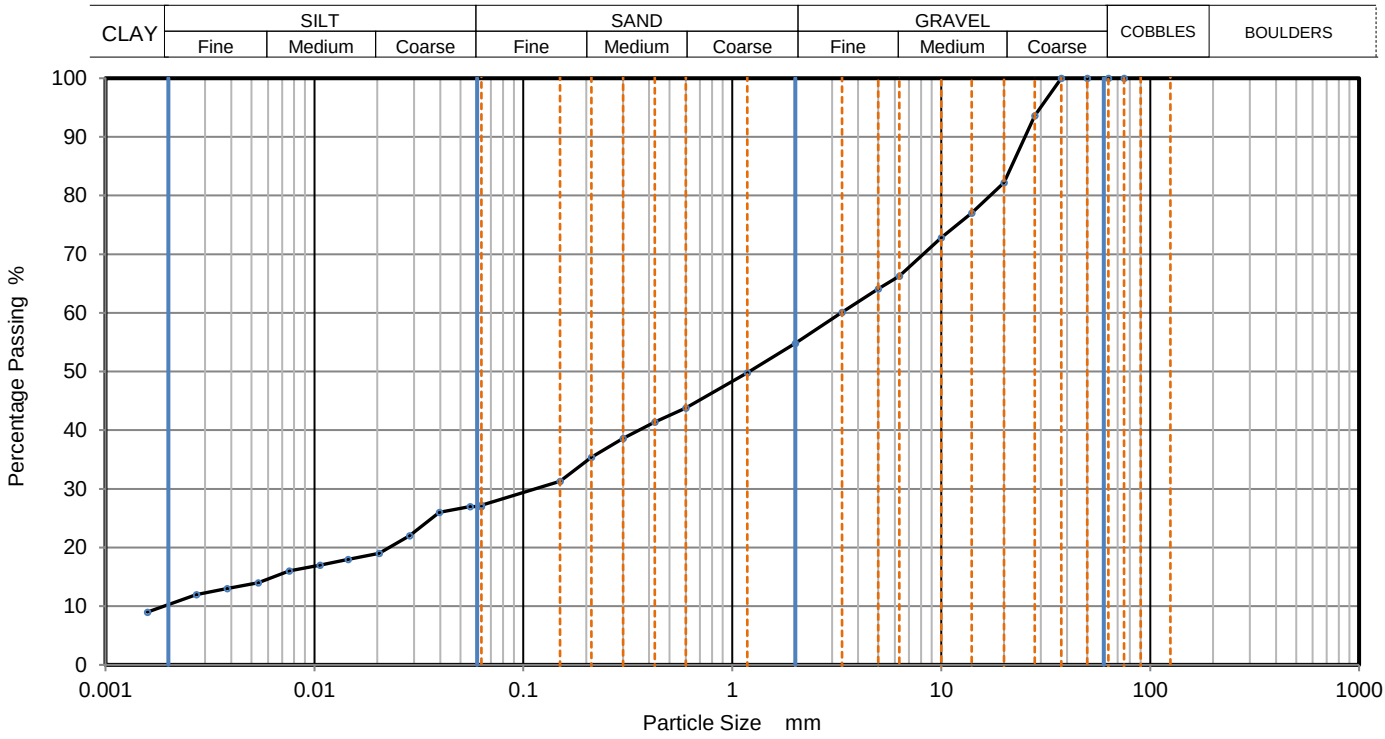
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-54059
Site Name	WSP Eastern & Midlands Region	Sample No.	4
Soil Description	Greyish-brown very silty very sandy GRAVEL.	Depth, m	1.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12022010473



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0556	27
75	100	0.0396	26
63	100	0.0285	22
50	100	0.0204	19
37.5	100	0.0145	18
28	94	0.0106	17
20	82	0.0076	16
14	77	0.0054	14
10	73	0.0038	13
6.3	66	0.0027	12
5	64	0.0016	9
3.35	60		
2	55		
1.18	50		
0.6	44	Particle density (assumed)	
0.425	41	2.65 Mg/m3	
0.3	39		
0.212	35		
0.15	31		
0.063	27		

Dry Mass of sample, g	835

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	28
Silt	17
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.33
D_{30}	mm	0.114
D_{10}	mm	0.00193
Uniformity Coefficient		1700
Curvature Coefficient		2

Remarks

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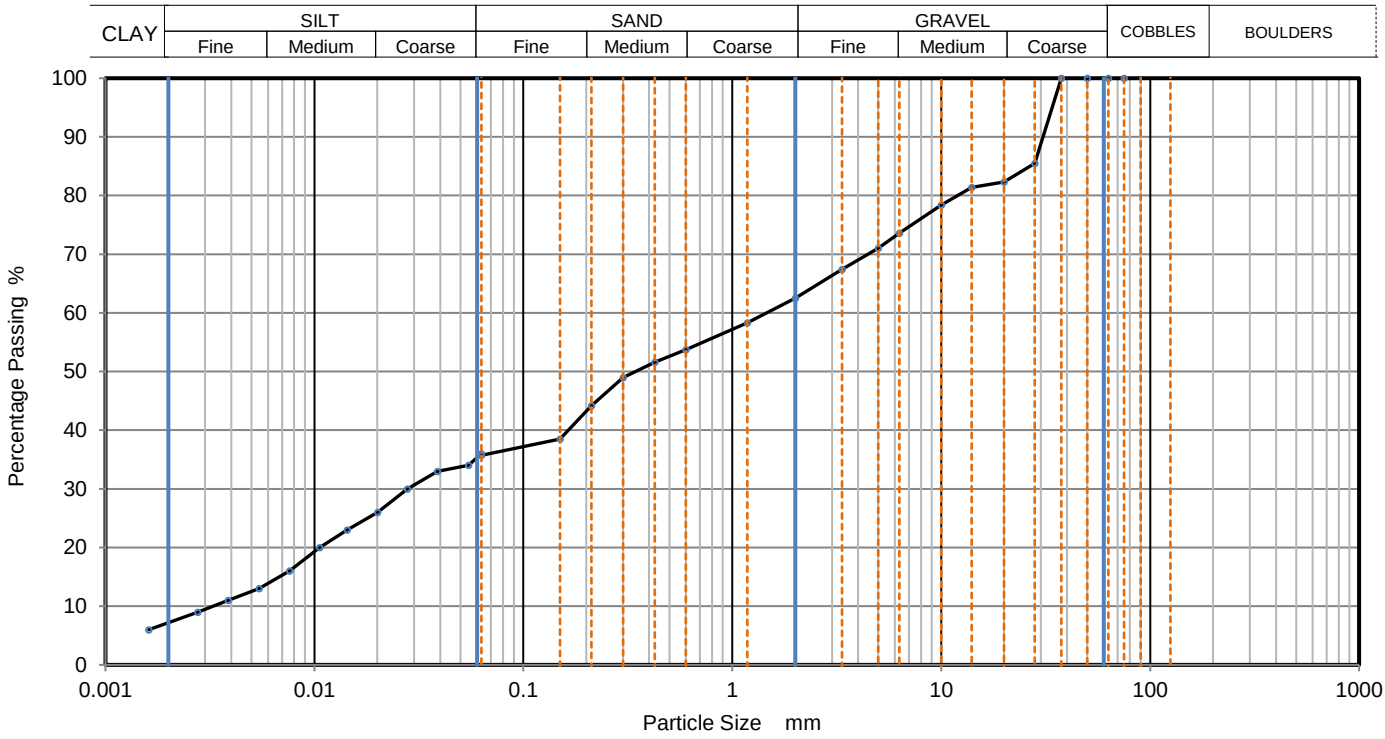
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-54278
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Blackish-grey slightly sandy gravelly SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022010479



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0546	34
75	100	0.0389	33
63	100	0.0278	30
50	100	0.0200	26
37.5	100	0.0143	23
28	86	0.0106	20
20	82	0.0076	16
14	81	0.0054	13
10	78	0.0039	11
6.3	74	0.0028	9
5	71	0.0016	6
3.35	67		
2	63		
1.18	58		
0.6	54	Particle density (assumed)	
0.425	52	2.65	Mg/m3
0.3	49		
0.212	44		
0.15	39		
0.063	36		

Dry Mass of sample, g	771

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	27
Silt	29
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.46
D_{30}	mm	0.0279
D_{10}	mm	0.00327
Uniformity Coefficient		450
Curvature Coefficient		0.16

Remarks

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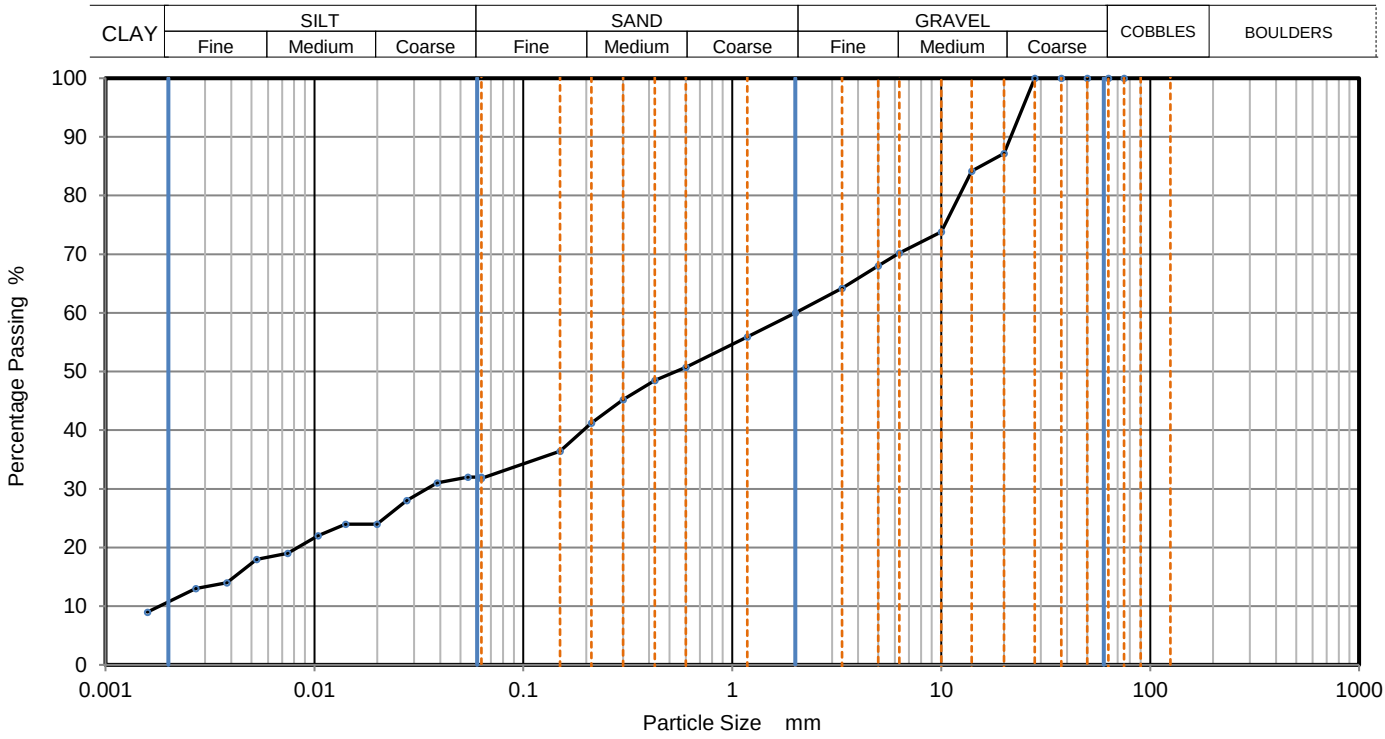
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-55410
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greyish-brown very sandy very silty GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022010491



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0543	32
75	100	0.0386	31
63	100	0.0276	28
50	100	0.0199	24
37.5	100	0.0141	24
28	100	0.0104	22
20	87	0.0074	19
14	84	0.0053	18
10	74	0.0038	14
6.3	70	0.0027	13
5	68	0.0016	9
3.35	64		
2	60		
1.18	56		
0.6	51	Particle density (assumed)	
0.425	49	2.65	Mg/m3
0.3	45		
0.212	41		
0.15	36		
0.063	32		

Dry Mass of sample, g	756

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Silt	21
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.99
D_{30}	mm	0.036
D_{10}	mm	0.00185
Uniformity Coefficient		1100
Curvature Coefficient		0.35

Remarks

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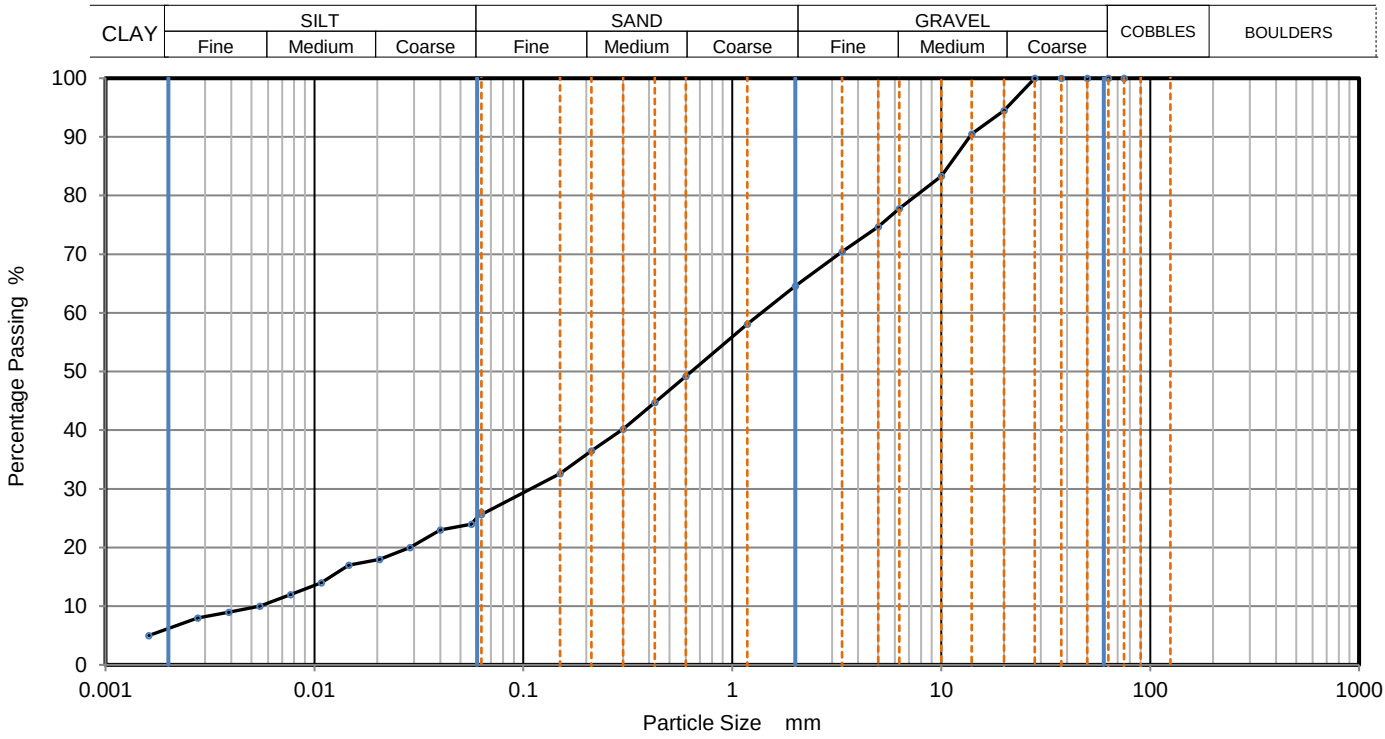
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-55944
Site Name	WSP Eastern & Midlands Region	Sample No.	4
Soil Description	Dark grey very silty SAND and GRAVEL.	Depth, m	1.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12022010497



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0563	24
75	100	0.0401	23
63	100	0.0287	20
50	100	0.0205	18
37.5	100	0.0146	17
28	100	0.0108	14
20	95	0.0077	12
14	91	0.0055	10
10	83	0.0039	9
6.3	78	0.0028	8
5	75	0.0016	5
3.35	70		
2	65		
1.18	58		
0.6	49	Particle density (assumed)	
0.425	45	2.65 Mg/m3	
0.3	40		
0.212	37		
0.15	33		
0.063	26		

Dry Mass of sample, g	772

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	39
Silt	20
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.38
D_{30}	mm	0.109
D_{10}	mm	0.00513
Uniformity Coefficient		270
Curvature Coefficient		1.7

Remarks

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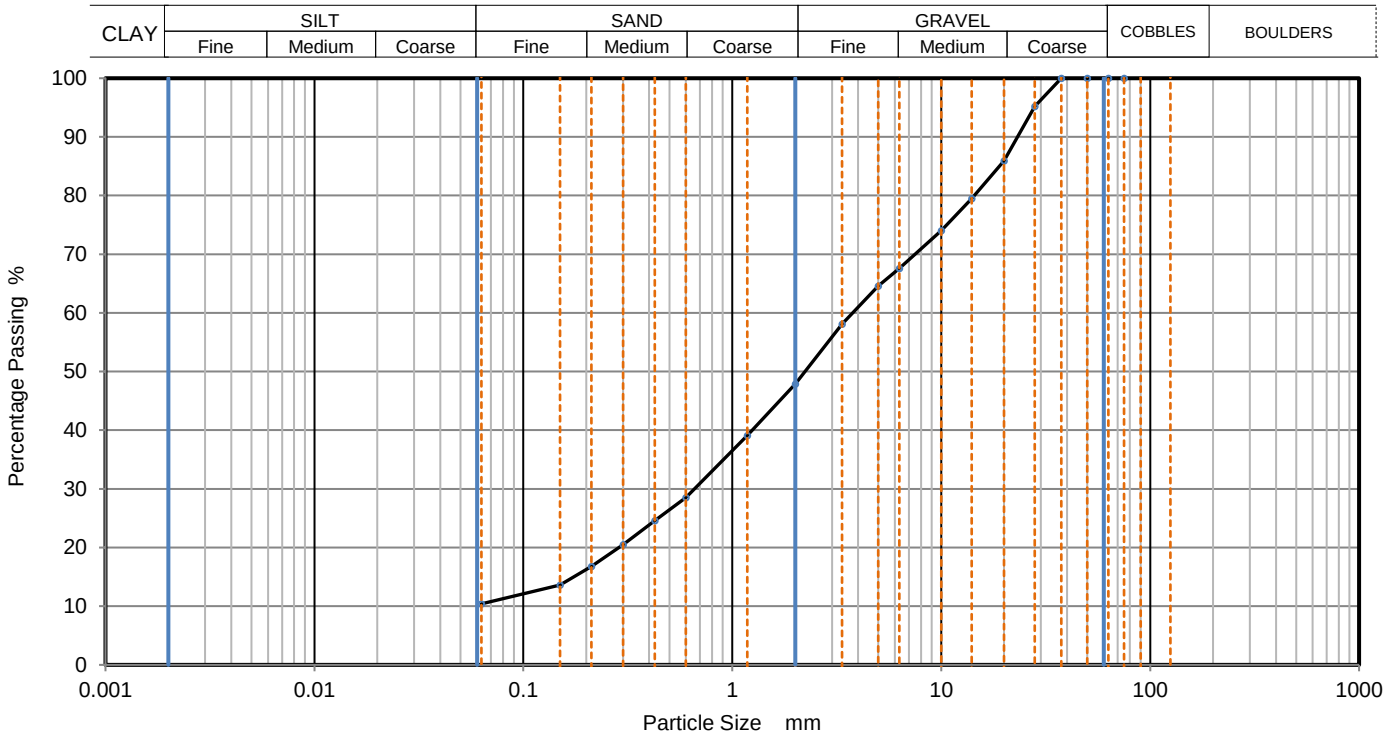
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-55944
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Dark grey silty very sandy GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220104106



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	86		
14	80		
10	74		
6.3	68		
5	65		
3.35	58		
2	48		
1.18	39		
0.6	29		
0.425	25		
0.3	21		
0.212	17		
0.15	14		
0.063	10		

Dry Mass of sample, g	948

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	38
Fines <0.063mm	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.76
D_{30}	mm	0.662
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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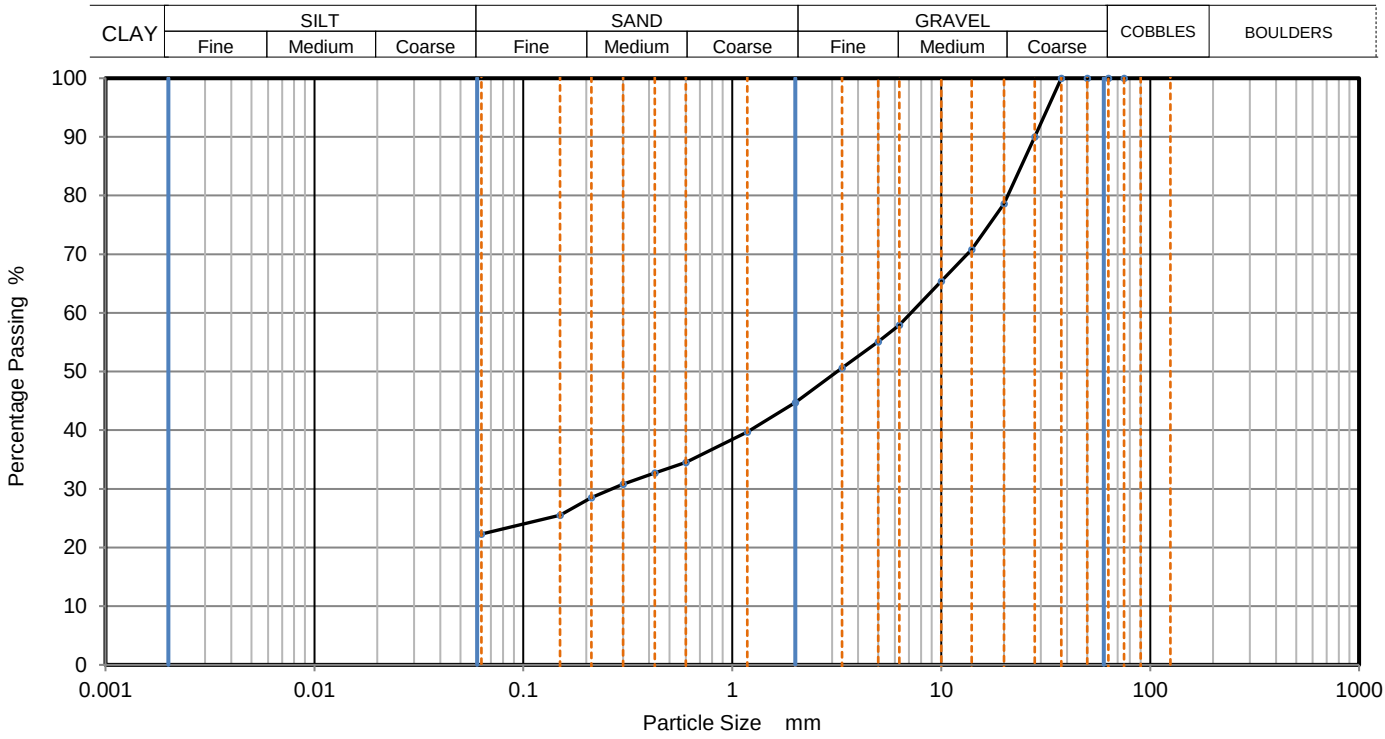
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56060
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown-black very sandy very silty medium GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220111223



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	79		
14	71		
10	65		
6.3	58		
5	55		
3.35	51		
2	45		
1.18	40		
0.6	35		
0.425	33		
0.3	31		
0.212	29		
0.15	26		
0.063	22		

Dry Mass of sample, g	1004

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	22
Fines <0.063mm	22

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.17
D_{30}	mm	0.265
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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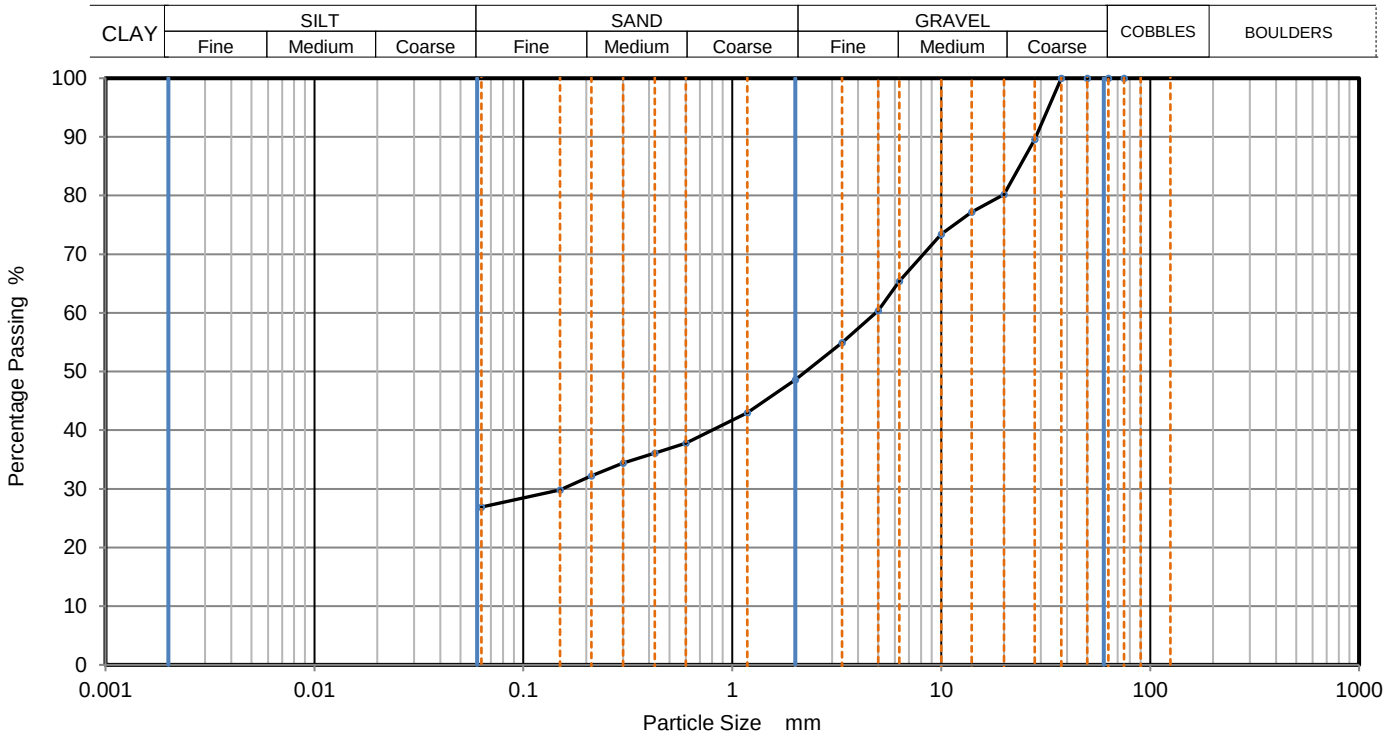
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56060
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown-black very sandy very silty GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	D
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220111224



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	80		
14	77		
10	73		
6.3	65		
5	60		
3.35	55		
2	49		
1.18	43		
0.6	38		
0.425	36		
0.3	34		
0.212	32		
0.15	30		
0.063	27		

Dry Mass of sample, g	897

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	22
Fines <0.063mm	27

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.87
D_{30}	mm	0.155
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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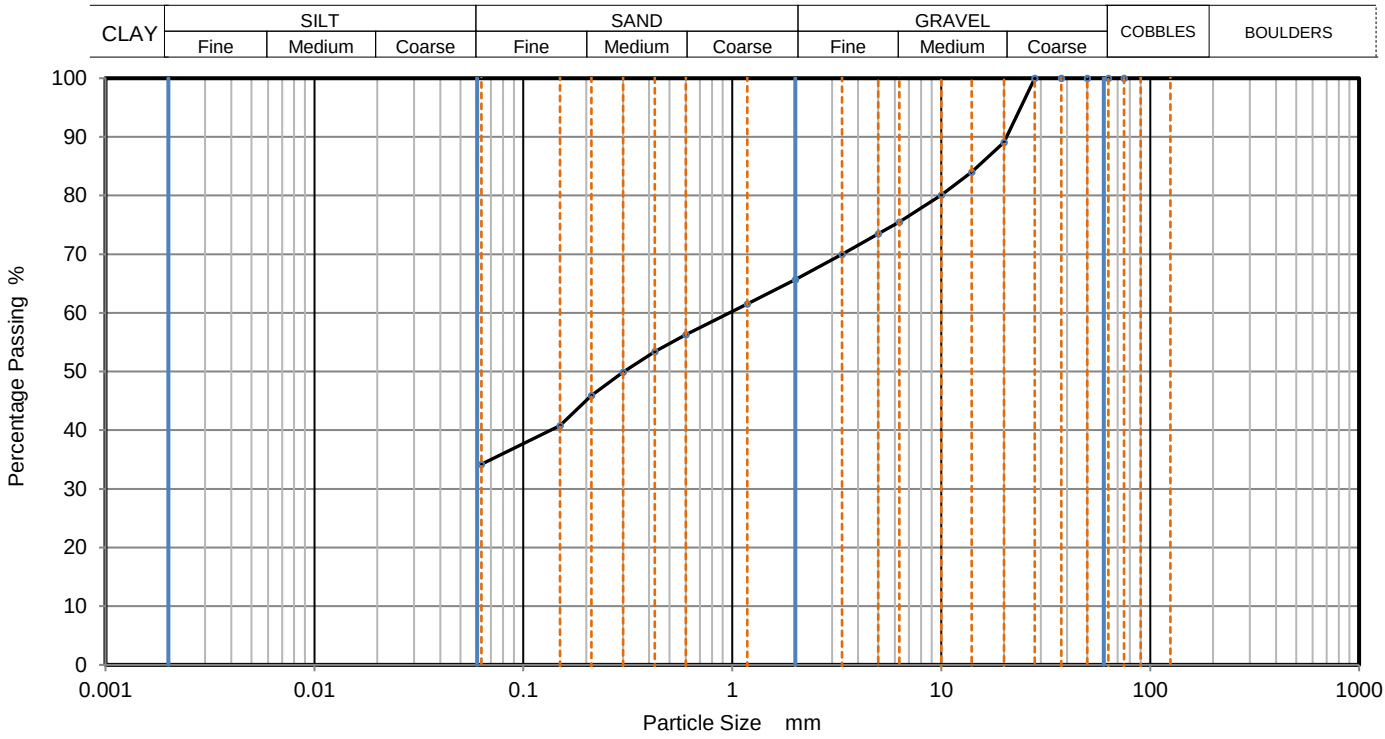
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56060
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Dark grey slightly sandy gravelly SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220111229



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	84		
10	80		
6.3	76		
5	74		
3.35	70		
2	66		
1.18	62		
0.6	56		
0.425	53		
0.3	50		
0.212	46		
0.15	41		
0.063	34		

Dry Mass of sample, g	858

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	32
Fines <0.063mm	34

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.973
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/01/2023 16:56	**1**
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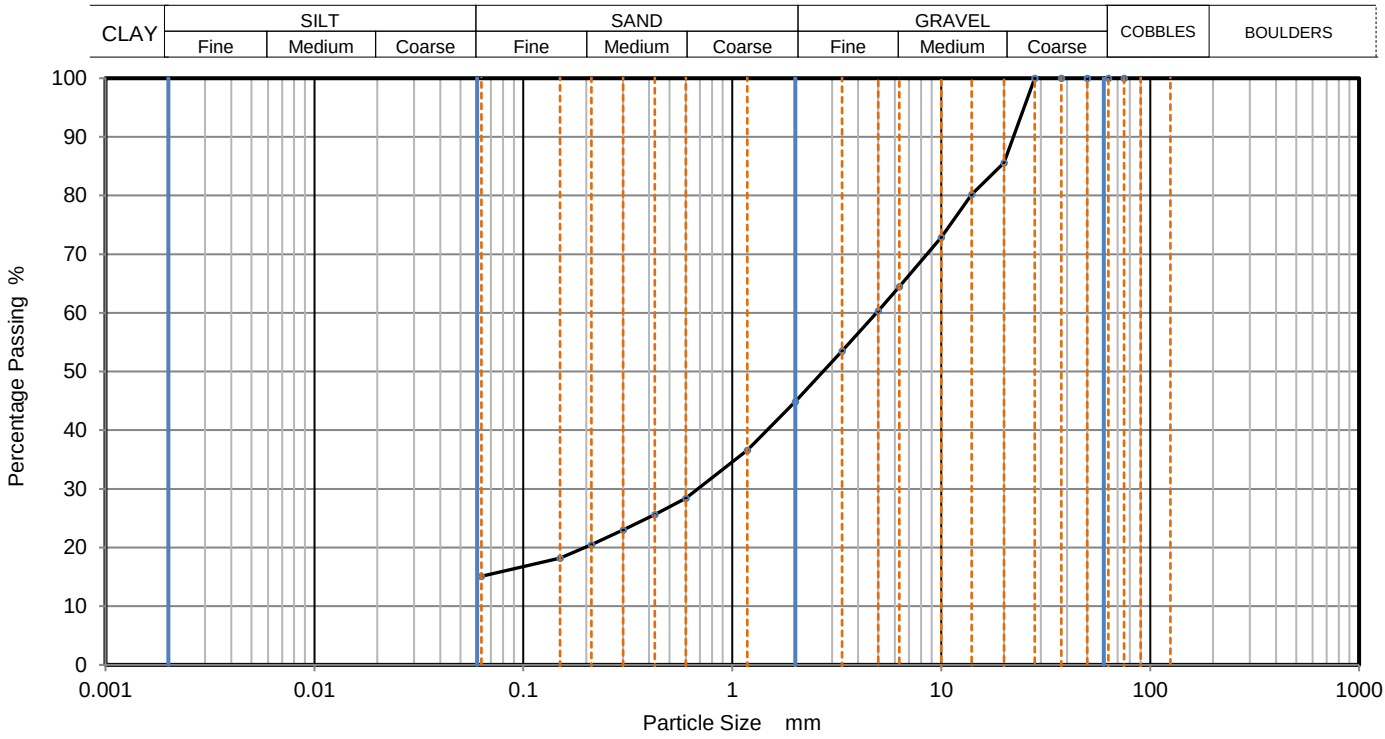
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56109
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greyish-black silty very sandy fine and medium GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220111237



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	86		
14	80		
10	73		
6.3	65		
5	60		
3.35	54		
2	45		
1.18	37		
0.6	28		
0.425	26		
0.3	23		
0.212	21		
0.15	18		
0.063	15		

Dry Mass of sample, g	672

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	30
Fines <0.063mm	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.91
D_{30}	mm	0.686
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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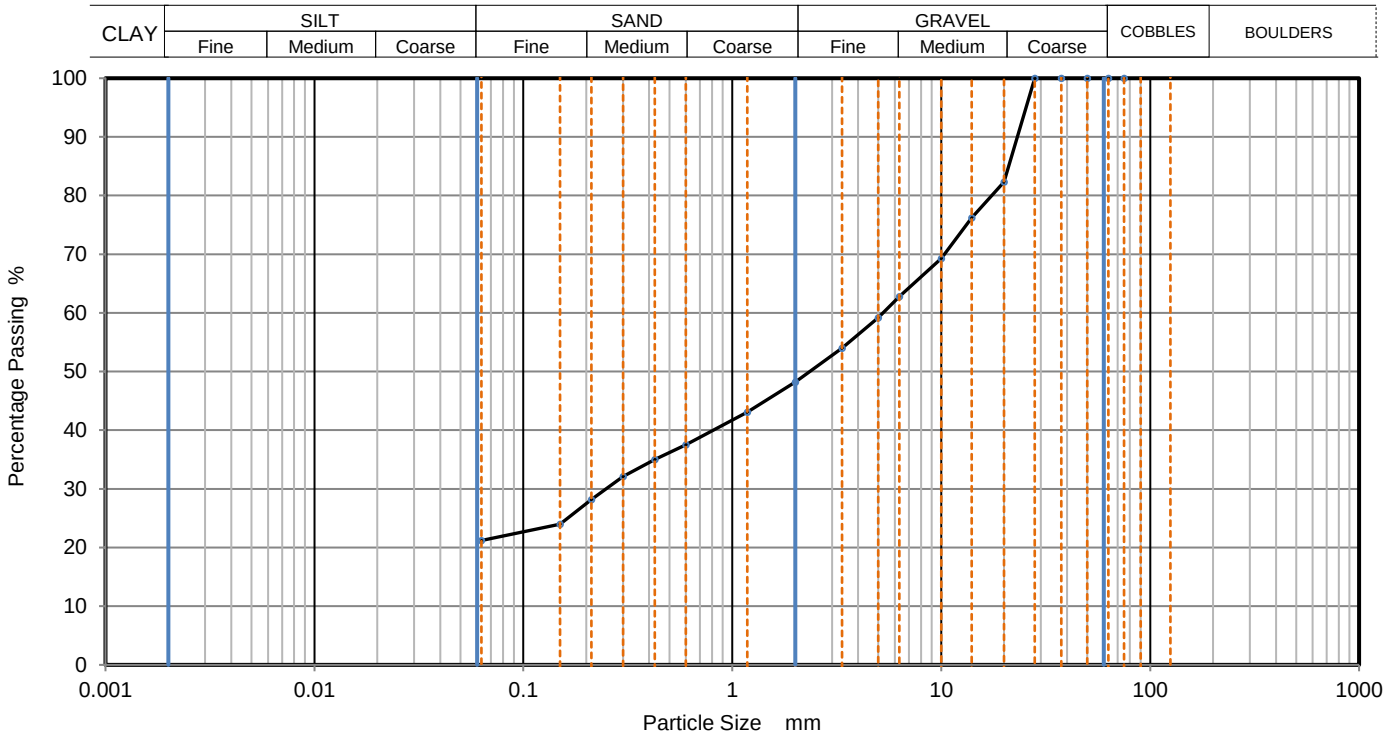
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56109
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Bluish-grey very silty very sandy medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220111240



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	82		
14	76		
10	69		
6.3	63		
5	59		
3.35	54		
2	48		
1.18	43		
0.6	38		
0.425	35		
0.3	32		
0.212	28		
0.15	24		
0.063	21		

Dry Mass of sample, g	1020

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	27
Fines <0.063mm	21

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.27
D_{30}	mm	0.249
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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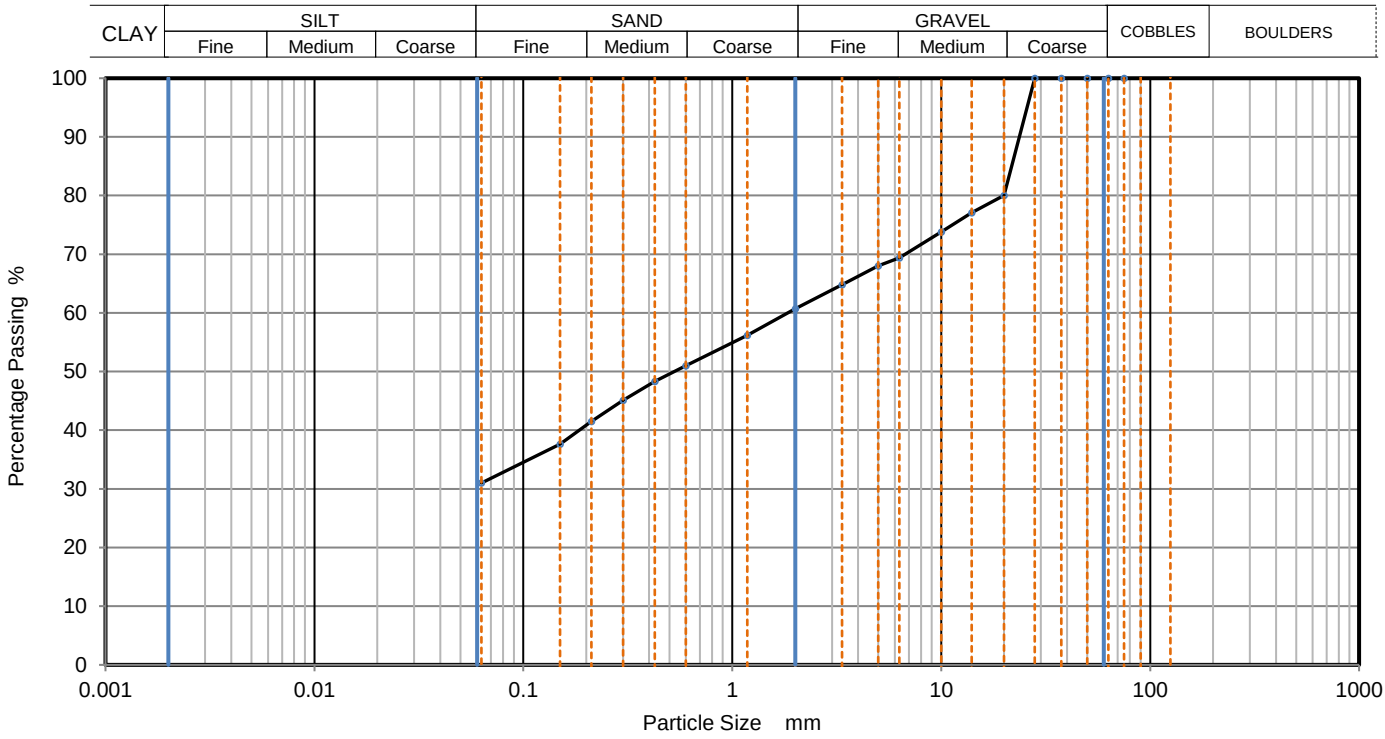
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56109
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Dark grey very sandy very silty coarse GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220111246



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	80		
14	77		
10	74		
6.3	69		
5	68		
3.35	65		
2	61		
1.18	56		
0.6	51		
0.425	48		
0.3	45		
0.212	42		
0.15	38		
0.063	31		

Dry Mass of sample, g	1028

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	30
Fines <0.063mm	31

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.83
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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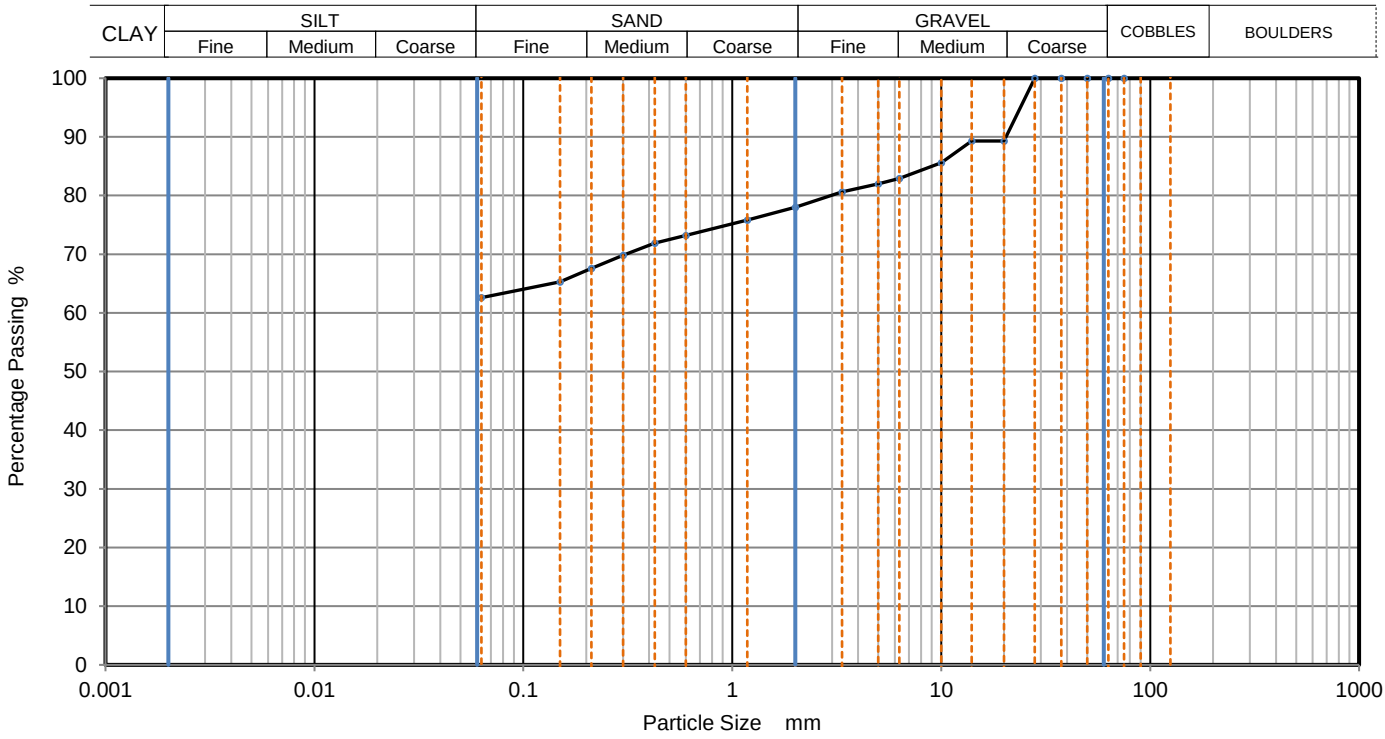
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56272
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark brownish-black slightly sandy slightly gravelly organic SILT and PEAT.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201210



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	89		
10	86		
6.3	83		
5	82		
3.35	81		
2	78		
1.18	76		
0.6	73		
0.425	72		
0.3	70		
0.212	68		
0.15	65		
0.063	63		

Dry Mass of sample, g	174

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	15
Fines <0.063mm	63

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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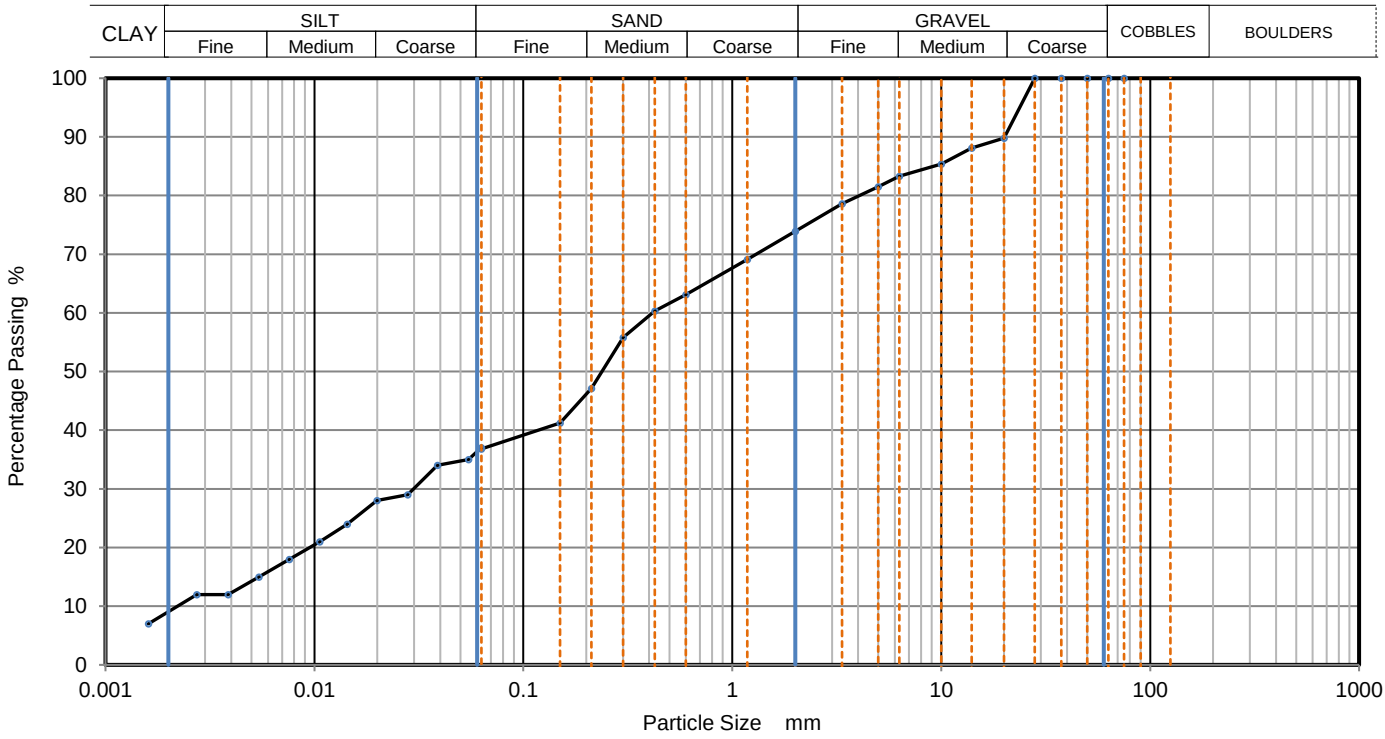
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56272
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Brown and dark grey slightly gravelly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202201219



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0546	35
75	100	0.0389	34
63	100	0.0280	29
50	100	0.0199	28
37.5	100	0.0143	24
28	100	0.0106	21
20	90	0.0076	18
14	88	0.0054	15
10	85	0.0039	12
6.3	83	0.0027	12
5	82	0.0016	7
3.35	79		
2	74		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	56		
0.212	47		
0.15	41		
0.063	37		

Dry Mass of sample, g	968

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	37
Silt	28
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.414
D_{30}	mm	0.0292
D_{10}	mm	0.00221
Uniformity Coefficient		190
Curvature Coefficient		0.93

Remarks

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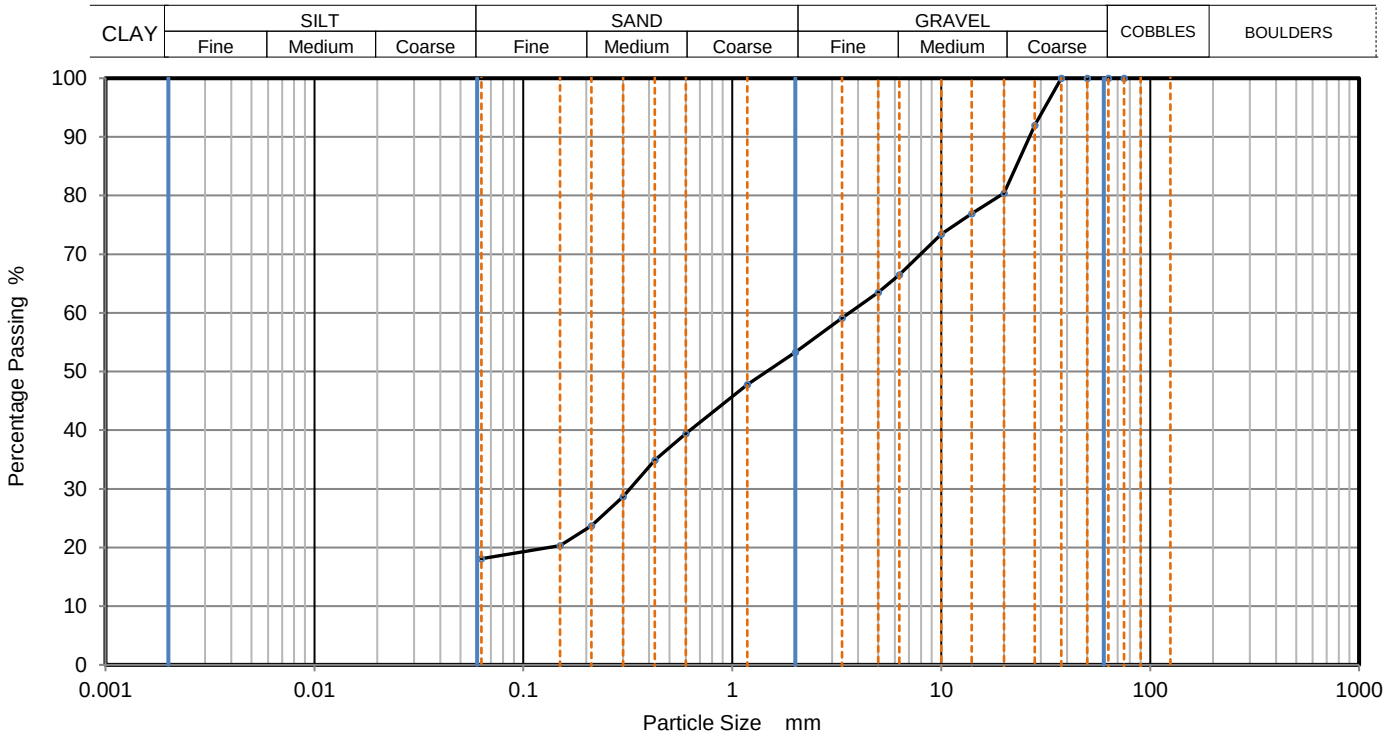
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56645
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012114



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	80		
14	77		
10	73		
6.3	67		
5	64		
3.35	59		
2	53		
1.18	48		
0.6	39		
0.425	35		
0.3	29		
0.212	24		
0.15	20		
0.063	18		

Dry Mass of sample, g	858

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	35
Fines <0.063mm	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.64
D_{30}	mm	0.322
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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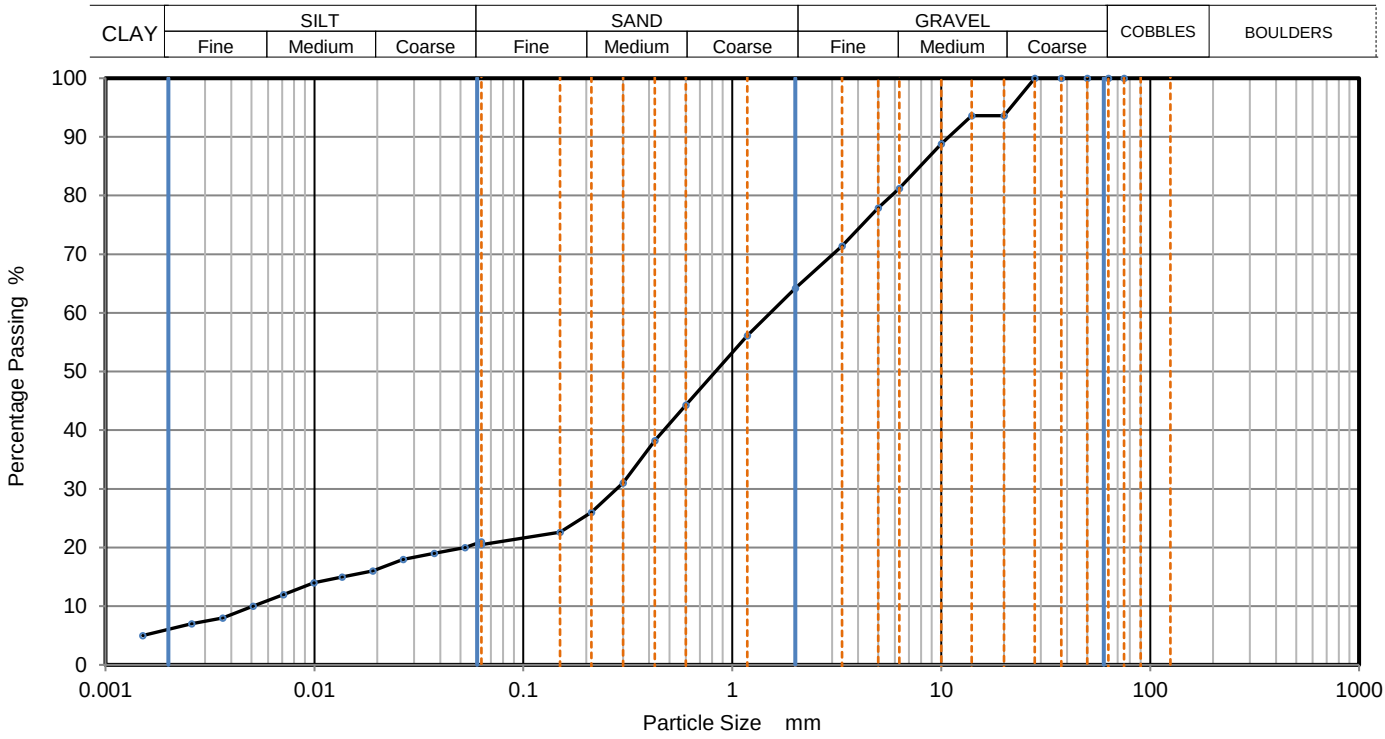
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-56857
Site Name	WSP Eastern & Midlands Region	Sample No.	4
Soil Description	Dark bluish-grey very silty very gravelly medium and coarse SAND.	Depth, m	1.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12022012120



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0526	20
75	100	0.0374	19
63	100	0.0266	18
50	100	0.0191	16
37.5	100	0.0136	15
28	100	0.0100	14
20	94	0.0071	12
14	94	0.0051	10
10	89	0.0036	8
6.3	81	0.0026	7
5	78	0.0015	5
3.35	71		
2	64		
1.18	56		
0.6	44	Particle density (assumed)	
0.425	38	2.65 Mg/m3	
0.3	31		
0.212	26		
0.15	23		
0.063	21		

Dry Mass of sample, g	730

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	44
Silt	15
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.52
D_{30}	mm	0.28
D_{10}	mm	0.0053
Uniformity Coefficient		290
Curvature Coefficient		9.7

Remarks

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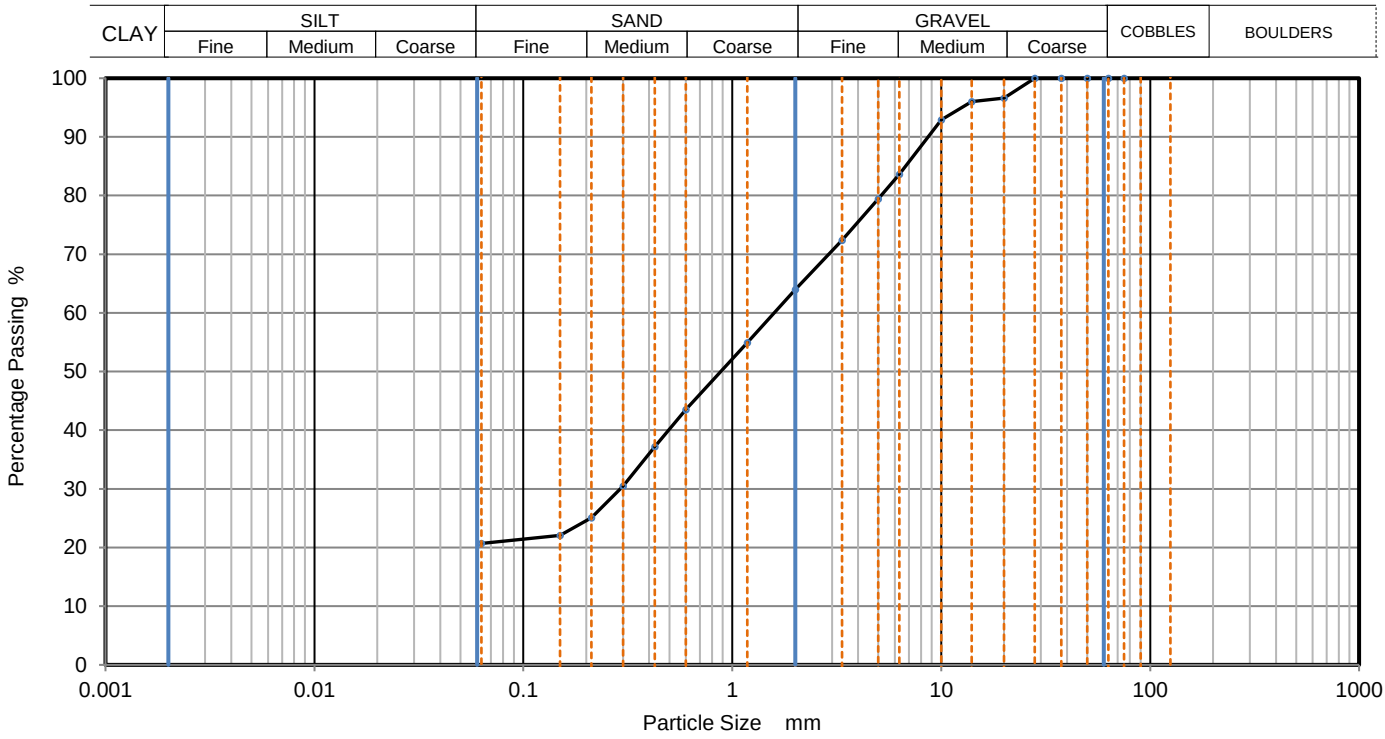
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56857
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Dark grey very silty very gravelly medium and coarse SAND.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012123



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	96		
10	93		
6.3	84		
5	79		
3.35	72		
2	64		
1.18	55		
0.6	44		
0.425	37		
0.3	31		
0.212	25		
0.15	22		
0.063	21		

Dry Mass of sample, g	965

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	43
Fines <0.063mm	21

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.59
D_{30}	mm	0.29
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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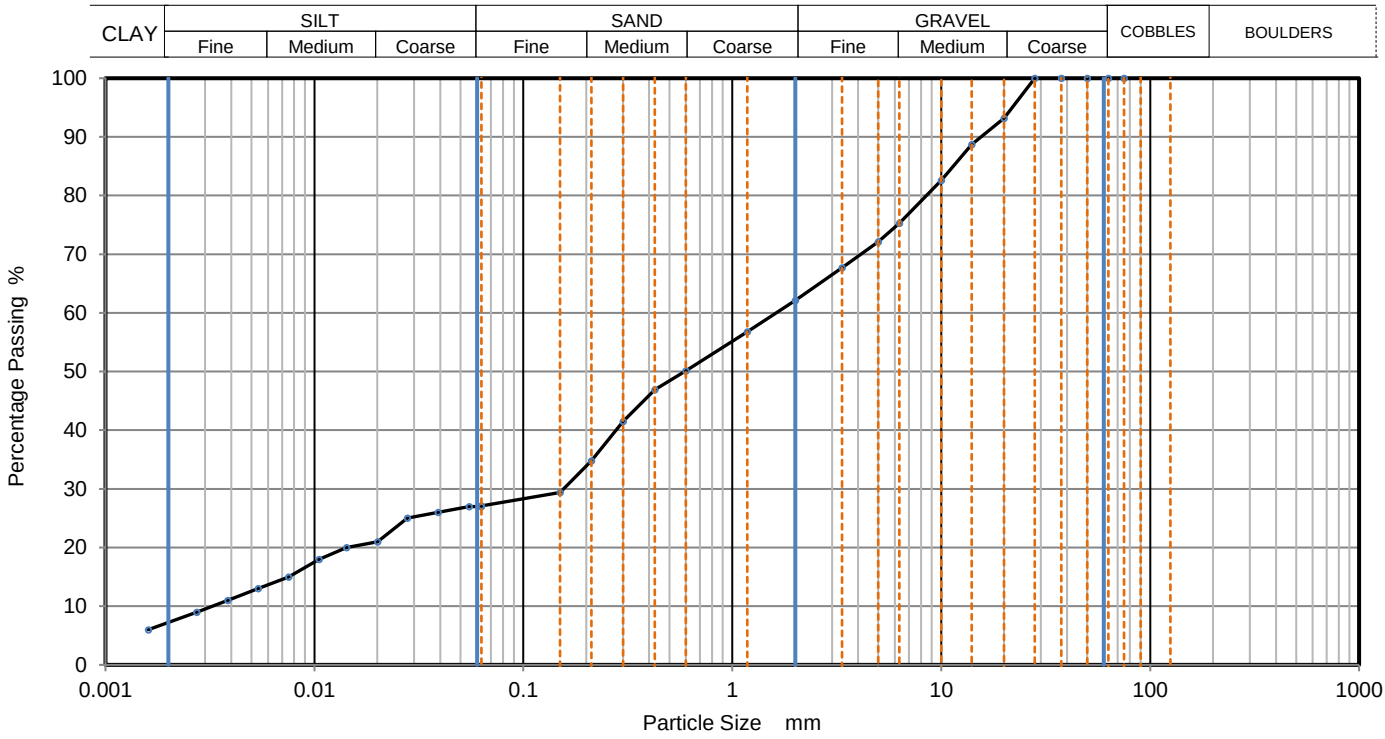
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-57037
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey very silty SAND and GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220120198



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0549	27
75	100	0.0391	26
63	100	0.0278	25
50	100	0.0200	21
37.5	100	0.0142	20
28	100	0.0105	18
20	93	0.0075	15
14	89	0.0054	13
10	83	0.0038	11
6.3	75	0.0027	9
5	72	0.0016	6
3.35	68		
2	62		
1.18	57		
0.6	50	Particle density (assumed)	
0.425	47	2.65 Mg/m3	
0.3	42		
0.212	35		
0.15	29		
0.063	27		

Dry Mass of sample, g	946

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	35
Silt	20
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.63
D_{30}	mm	0.155
D_{10}	mm	0.00323
Uniformity Coefficient		500
Curvature Coefficient		4.6

Remarks

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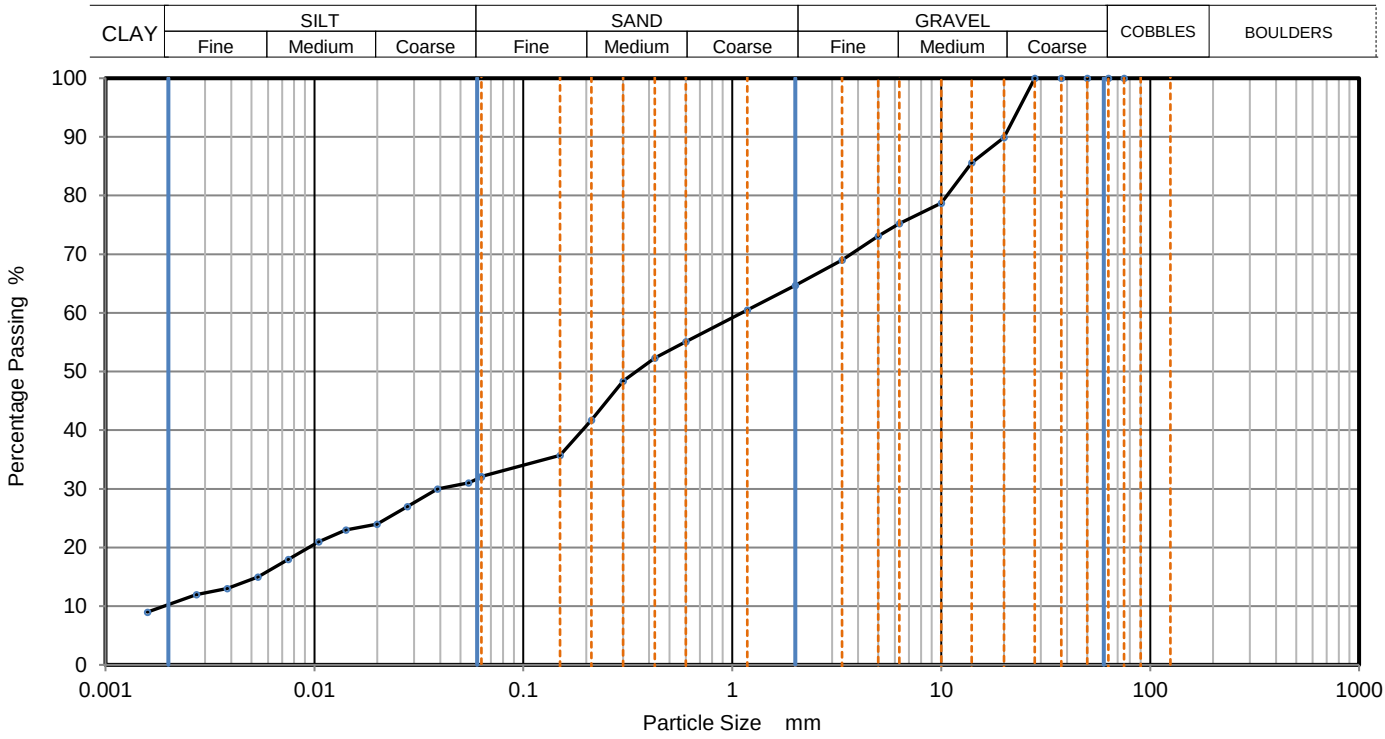
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-57428
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greyish-brown very silty SAND and GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220120207



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0546	31
75	100	0.0389	30
63	100	0.0278	27
50	100	0.0199	24
37.5	100	0.0142	23
28	100	0.0105	21
20	90	0.0075	18
14	86	0.0054	15
10	79	0.0038	13
6.3	75	0.0027	12
5	73	0.0016	9
3.35	69		
2	65		
1.18	61		
0.6	55	Particle density (assumed)	
0.425	52	2.65	Mg/m3
0.3	48		
0.212	42		
0.15	36		
0.063	32		

Dry Mass of sample, g	841

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	33
Silt	22
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.11
D_{30}	mm	0.044
D_{10}	mm	0.00196
Uniformity Coefficient		570
Curvature Coefficient		0.89

Remarks

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Operator	Checked	Approved	Sheet printed	
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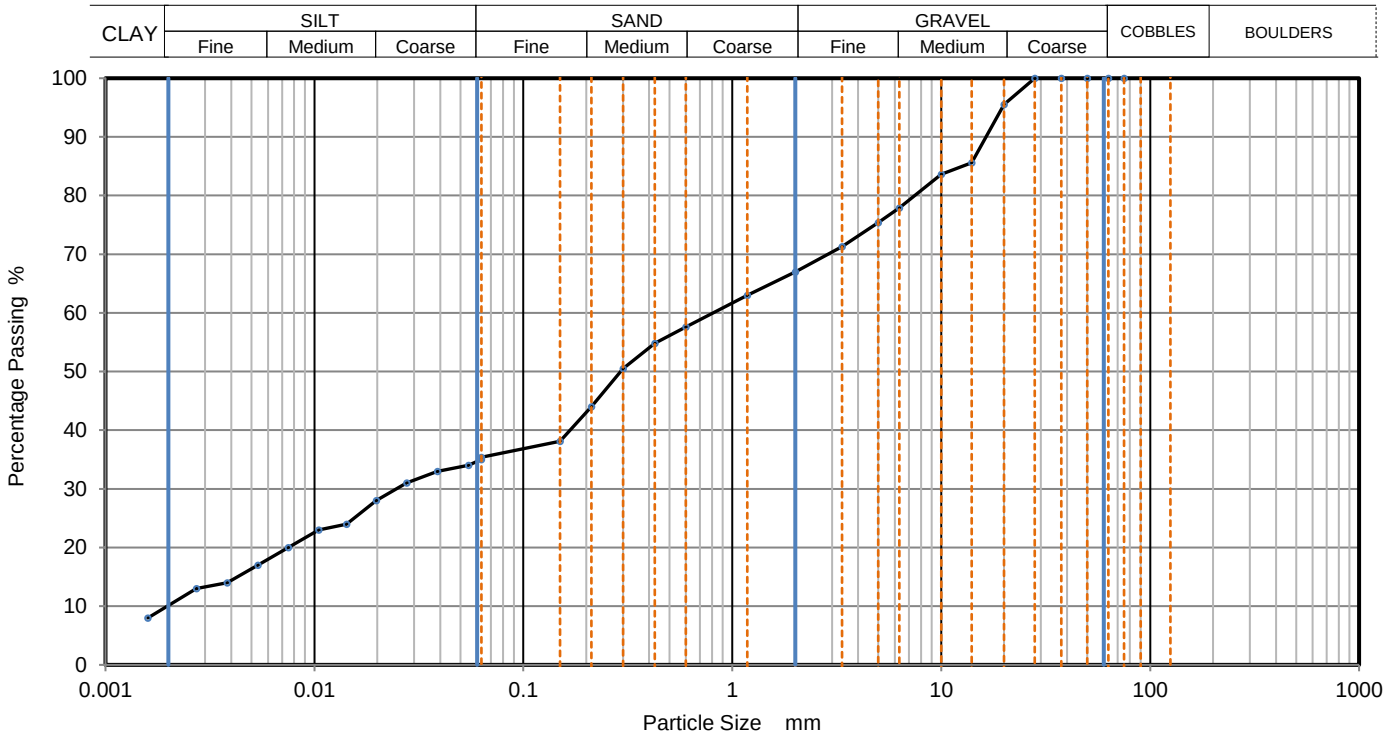
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-57428
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220120210



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0546	34
75	100	0.0389	33
63	100	0.0276	31
50	100	0.0198	28
37.5	100	0.0142	24
28	100	0.0105	23
20	96	0.0075	20
14	86	0.0054	17
10	84	0.0038	14
6.3	78	0.0027	13
5	75	0.0016	8
3.35	71		
2	67		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	51		
0.212	44		
0.15	38		
0.063	35		

Dry Mass of sample, g	830

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	32
Silt	25
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.814
D_{30}	mm	0.0241
D_{10}	mm	0.00193
Uniformity Coefficient		420
Curvature Coefficient		0.37

Remarks

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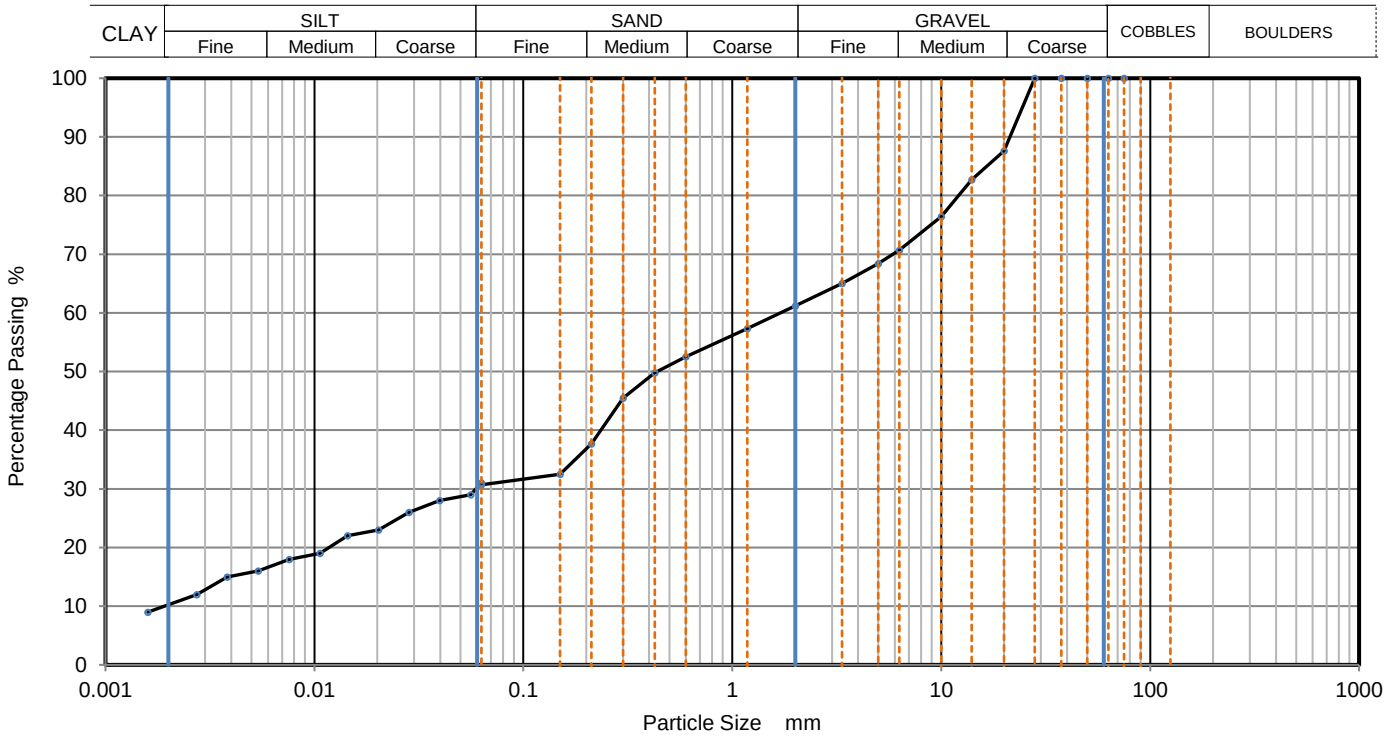
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-57599
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey very silty very sandy GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220120216



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0560	29
75	100	0.0398	28
63	100	0.0283	26
50	100	0.0203	23
37.5	100	0.0144	22
28	100	0.0106	19
20	88	0.0076	18
14	83	0.0054	16
10	76	0.0038	15
6.3	71	0.0027	12
5	68	0.0016	9
3.35	65		
2	61		
1.18	57		
0.6	53	Particle density (assumed)	
0.425	50	2.65	Mg/m3
0.3	46		
0.212	38		
0.15	33		
0.063	31		

Dry Mass of sample, g	936

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	31
Silt	21
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.71
D_{30}	mm	0.0596
D_{10}	mm	0.002
Uniformity Coefficient		850
Curvature Coefficient		1

Remarks

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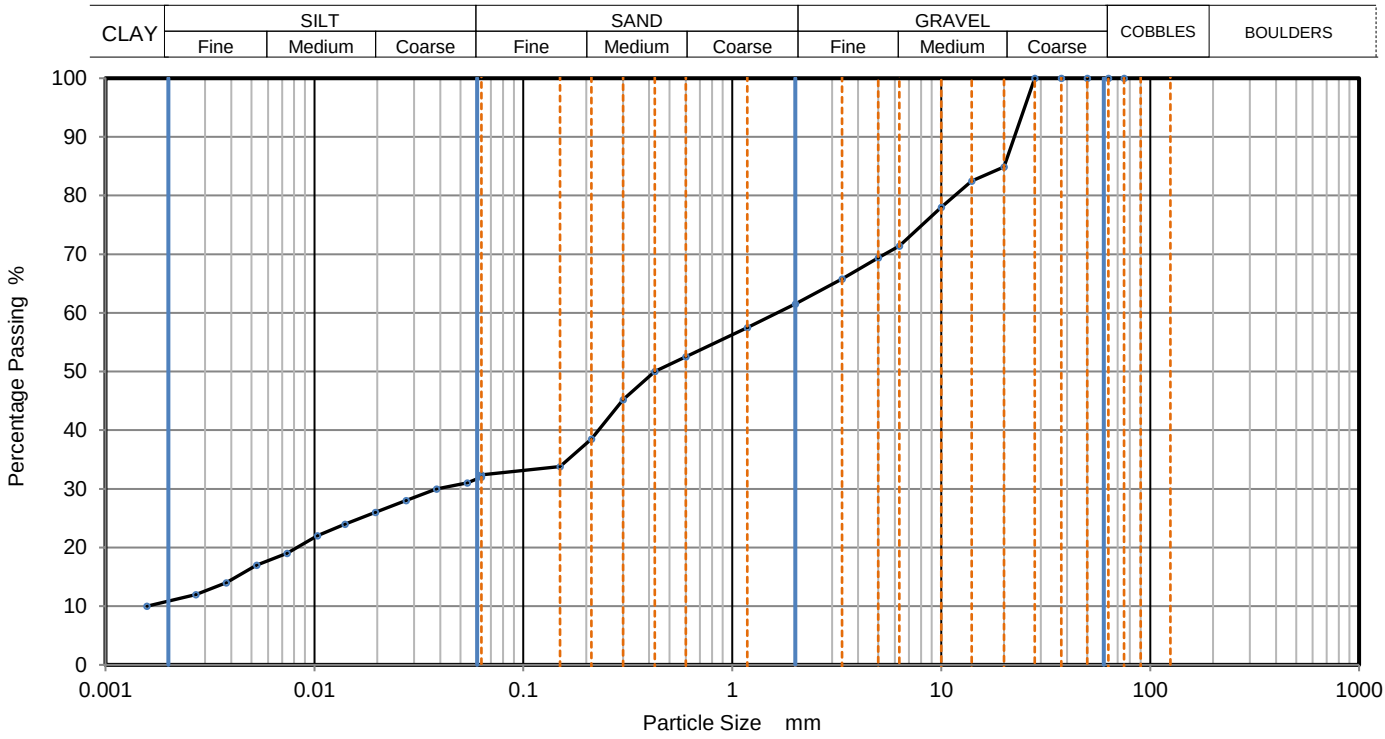
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-57599
Site Name	WSP Eastern & Midlands Region	Sample No.	10
Soil Description	Light brown very sandy very silty GRAVEL.	Depth, m	3.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120220120222



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0539	31
75	100	0.0384	30
63	100	0.0275	28
50	100	0.0195	26
37.5	100	0.0140	24
28	100	0.0103	22
20	85	0.0074	19
14	83	0.0053	17
10	78	0.0038	14
6.3	71	0.0027	12
5	69	0.0016	10
3.35	66		
2	62		
1.18	58		
0.6	53	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	45		
0.212	39		
0.15	34		
0.063	32		

Dry Mass of sample, g	830

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	29
Silt	22
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.64
D_{30}	mm	
D_{10}	mm	0.00173
Uniformity Coefficient		950
Curvature Coefficient		

Remarks

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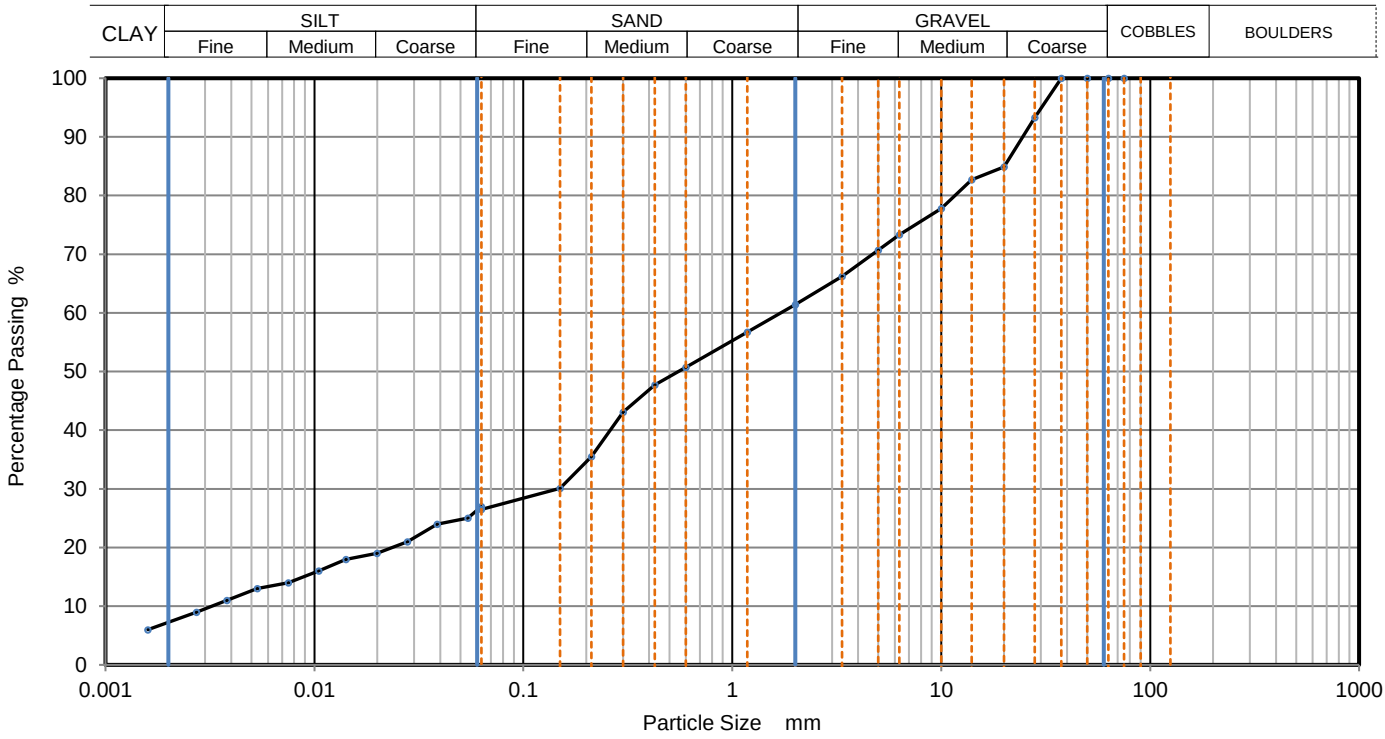
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	BH-58807
Site Name	WSP Eastern & Midlands Region	Sample No.	4
Soil Description	Greyish-brown very silty SAND and GRAVEL.	Depth, m	1.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120220120228



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0543	25
75	100	0.0386	24
63	100	0.0278	21
50	100	0.0199	19
37.5	100	0.0142	18
28	93	0.0105	16
20	85	0.0075	14
14	83	0.0053	13
10	78	0.0038	11
6.3	73	0.0027	9
5	71	0.0016	6
3.35	66		
2	61		
1.18	57		
0.6	51	Particle density (assumed)	
0.425	48	2.65 Mg/m3	
0.3	43		
0.212	36		
0.15	30		
0.063	27		

Dry Mass of sample, g	820

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	35
Silt	19
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.72
D_{30}	mm	0.148
D_{10}	mm	0.00312
Uniformity Coefficient		550
Curvature Coefficient		4.1

Remarks

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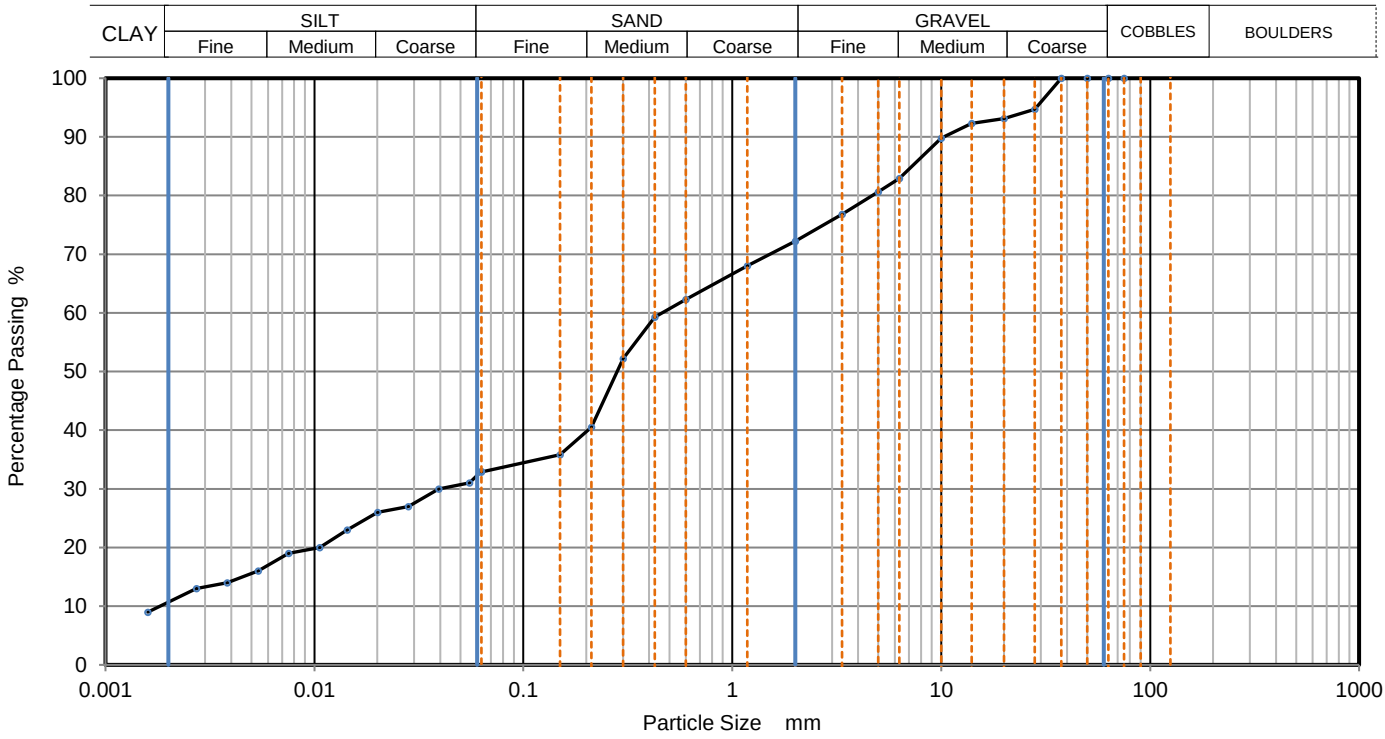
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-59474
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greyish-brown very gravelly very silty medium SAND.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220120240



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0553	31
75	100	0.0393	30
63	100	0.0282	27
50	100	0.0200	26
37.5	100	0.0143	23
28	95	0.0106	20
20	93	0.0075	19
14	92	0.0054	16
10	90	0.0038	14
6.3	83	0.0027	13
5	81	0.0016	9
3.35	77		
2	72		
1.18	68		
0.6	62	Particle density (assumed)	
0.425	59	2.65	Mg/m3
0.3	52		
0.212	41		
0.15	36		
0.063	33		

Dry Mass of sample, g	882

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	39
Silt	23
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.459
D_{30}	mm	0.0392
D_{10}	mm	0.0019
Uniformity Coefficient		240
Curvature Coefficient		1.8

Remarks

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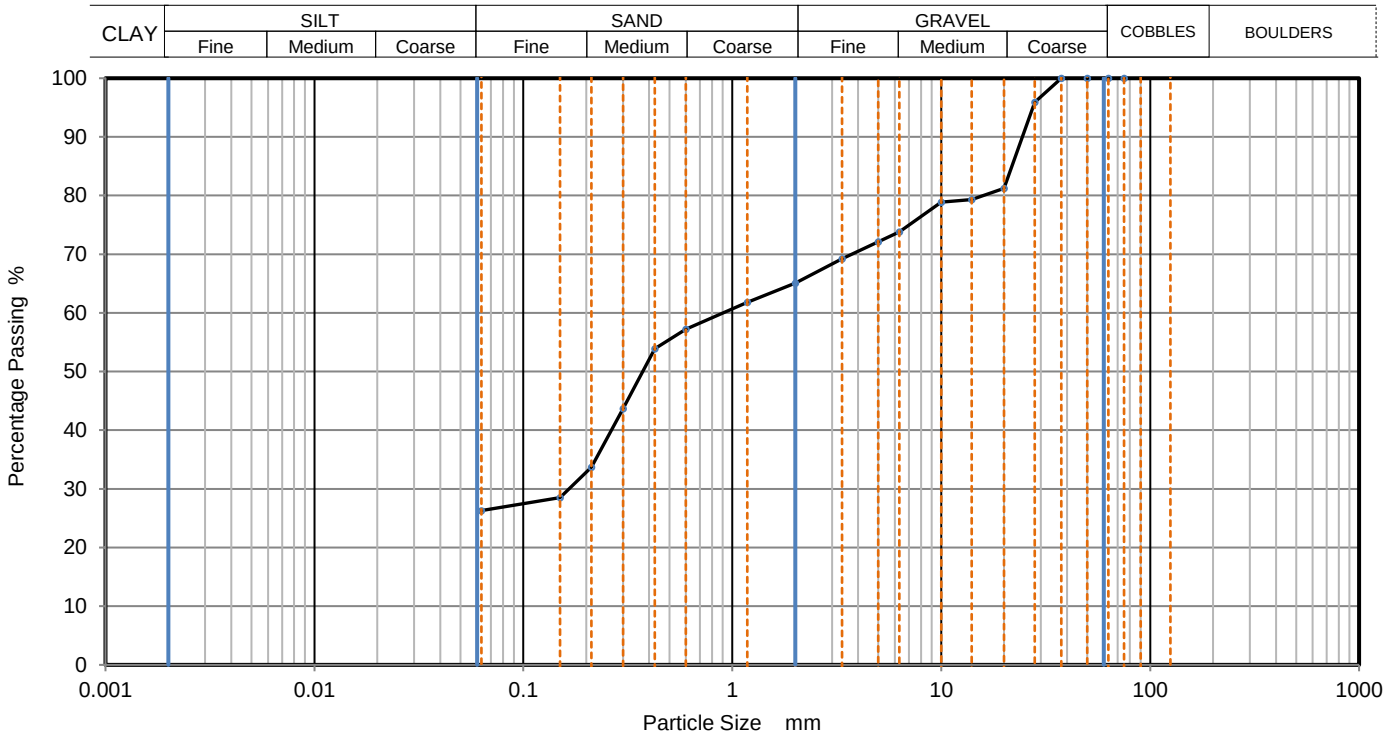
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-59932
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark grey very silty medium SAND and coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022020173



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	81		
14	79		
10	79		
6.3	74		
5	72		
3.35	69		
2	65		
1.18	62		
0.6	57		
0.425	54		
0.3	44		
0.212	34		
0.15	29		
0.063	26		

Dry Mass of sample, g	875

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	39
Fines <0.063mm	26

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.907
D_{30}	mm	0.166
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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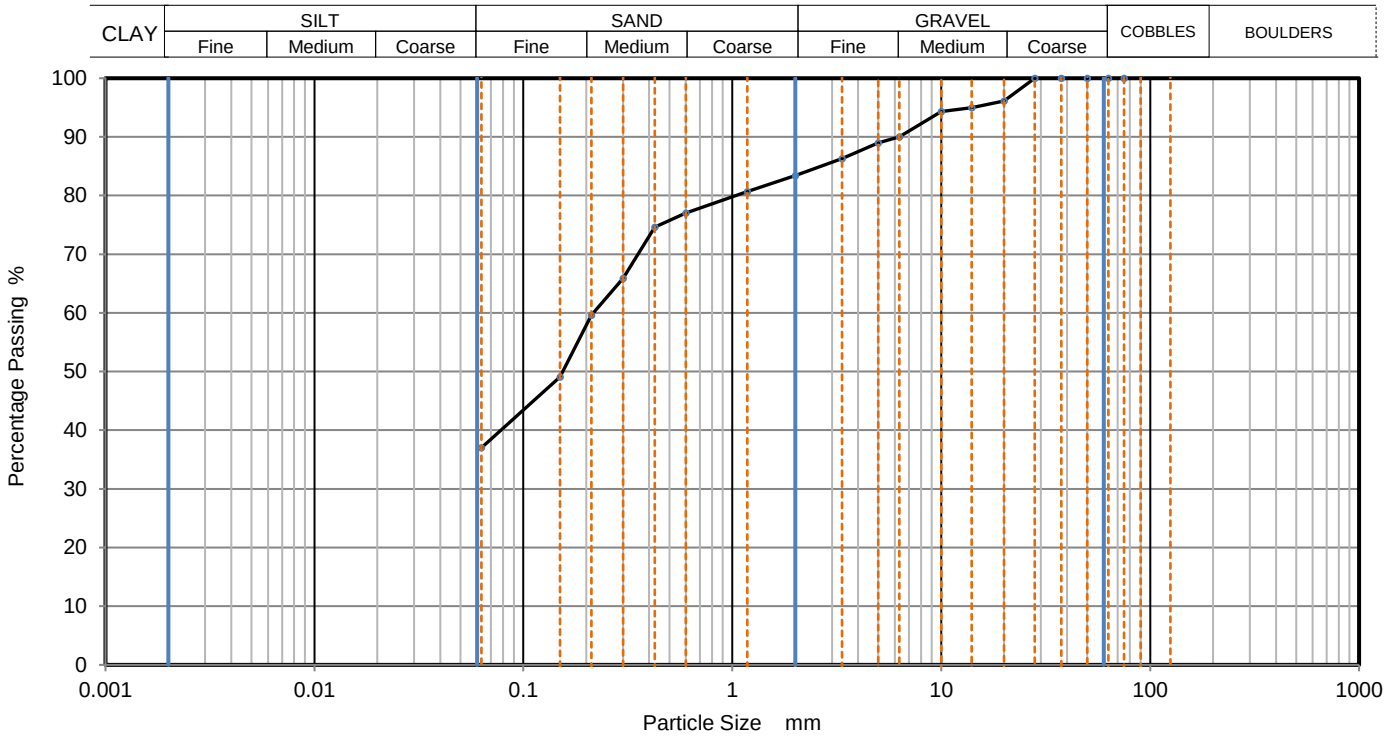
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-60345
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022020182



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	95		
10	94		
6.3	90		
5	89		
3.35	86		
2	83		
1.18	81		
0.6	77		
0.425	75		
0.3	66		
0.212	60		
0.15	49		
0.063	37		

Dry Mass of sample, g	826

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	46
Fines <0.063mm	37

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.217
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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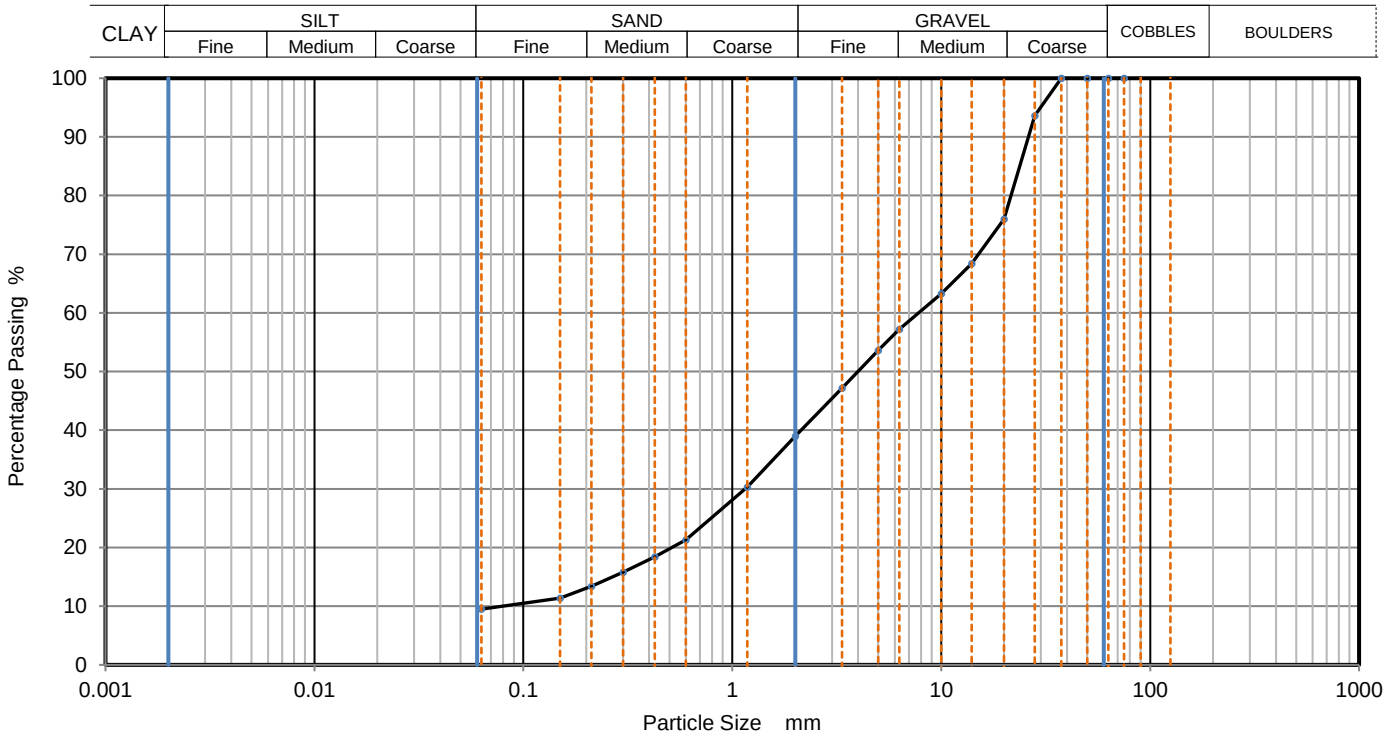
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-60345
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Bluish-grey silty very sandy GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022020188



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	76		
14	68		
10	63		
6.3	57		
5	54		
3.35	47		
2	39		
1.18	30		
0.6	21		
0.425	18		
0.3	16		
0.212	13		
0.15	11		
0.063	10		

Dry Mass of sample, g	1086

Sample Proportions	% dry mass
Very coarse	0
Gravel	61
Sand	30
Fines <0.063mm	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.8
D_{30}	mm	1.16
D_{10}	mm	0.079
Uniformity Coefficient		99
Curvature Coefficient		2.2

Remarks

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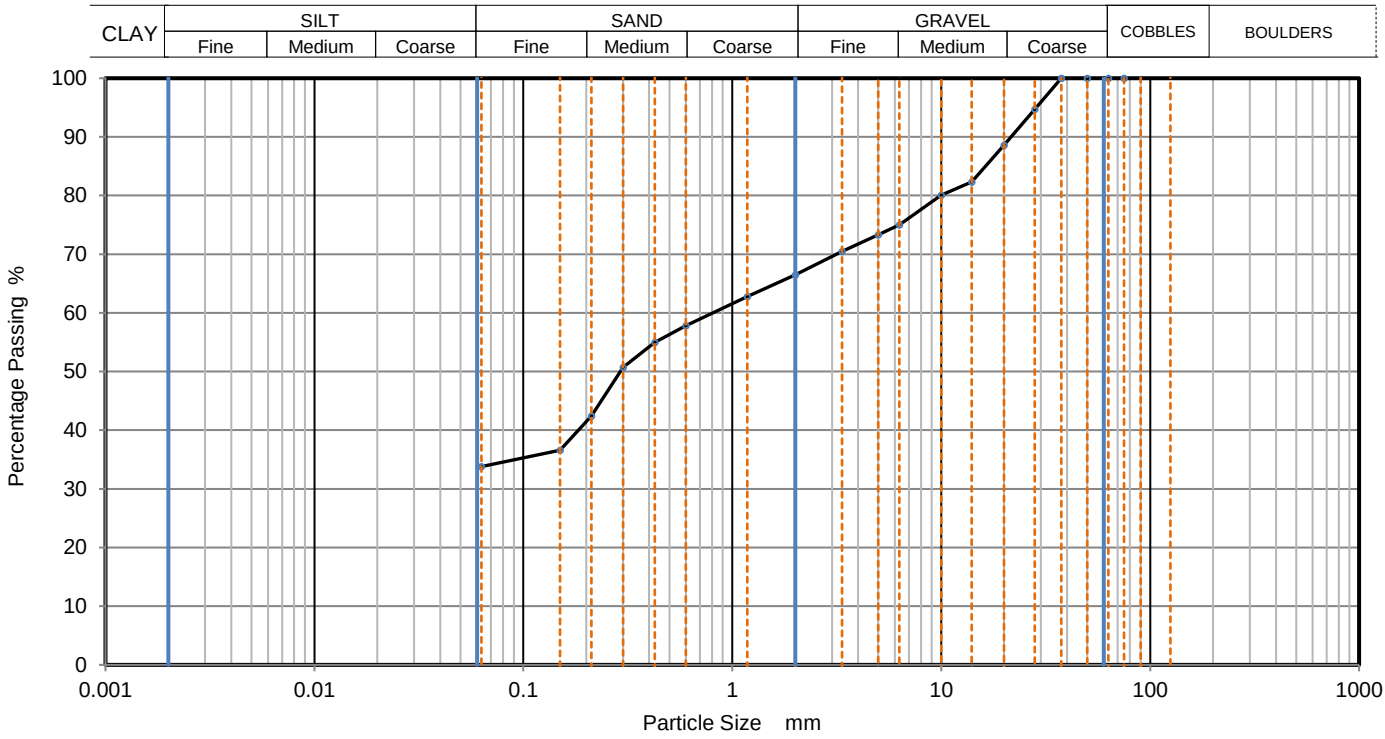
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-60641
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark bluish-grey very silty SAND and GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022020193



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	89		
14	82		
10	80		
6.3	75		
5	73		
3.35	71		
2	67		
1.18	63		
0.6	58		
0.425	55		
0.3	51		
0.212	42		
0.15	37		
0.063	34		

Dry Mass of sample, g	835

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	33
Fines <0.063mm	34

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.813
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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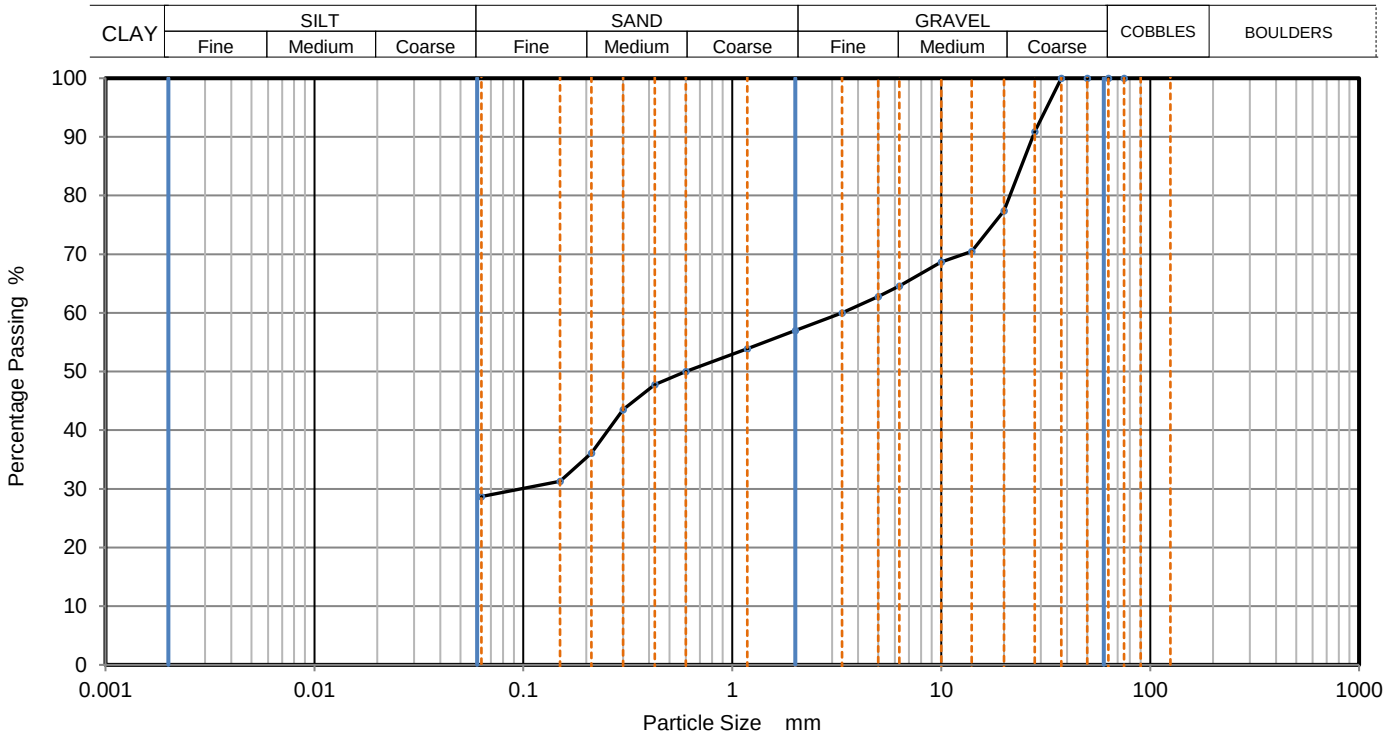
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-60805
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey very sandy very silty coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	77		
14	71		
10	69		
6.3	65		
5	63		
3.35	60		
2	57		
1.18	54		
0.6	50		
0.425	48		
0.3	44		
0.212	36		
0.15	31		
0.063	29		

Dry Mass of sample, g	885

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	28
Fines <0.063mm	29

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.33
D_{30}	mm	0.0982
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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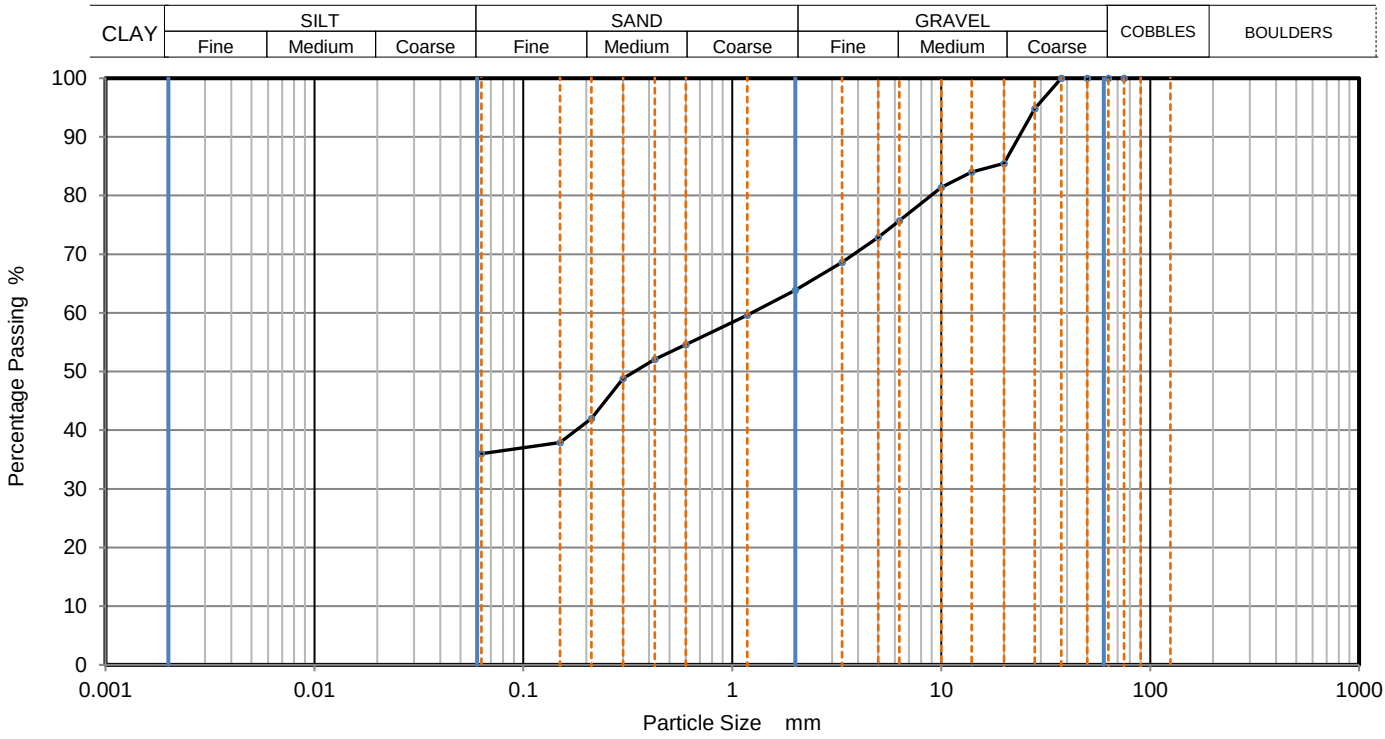
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-60805
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Dark grey slightly sandy gravelly SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201108



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	86		
14	84		
10	81		
6.3	76		
5	73		
3.35	69		
2	64		
1.18	60		
0.6	55		
0.425	52		
0.3	49		
0.212	42		
0.15	38		
0.063	36		

Dry Mass of sample, g	1096

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	28
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.25
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/01/2023 17:04	**1**
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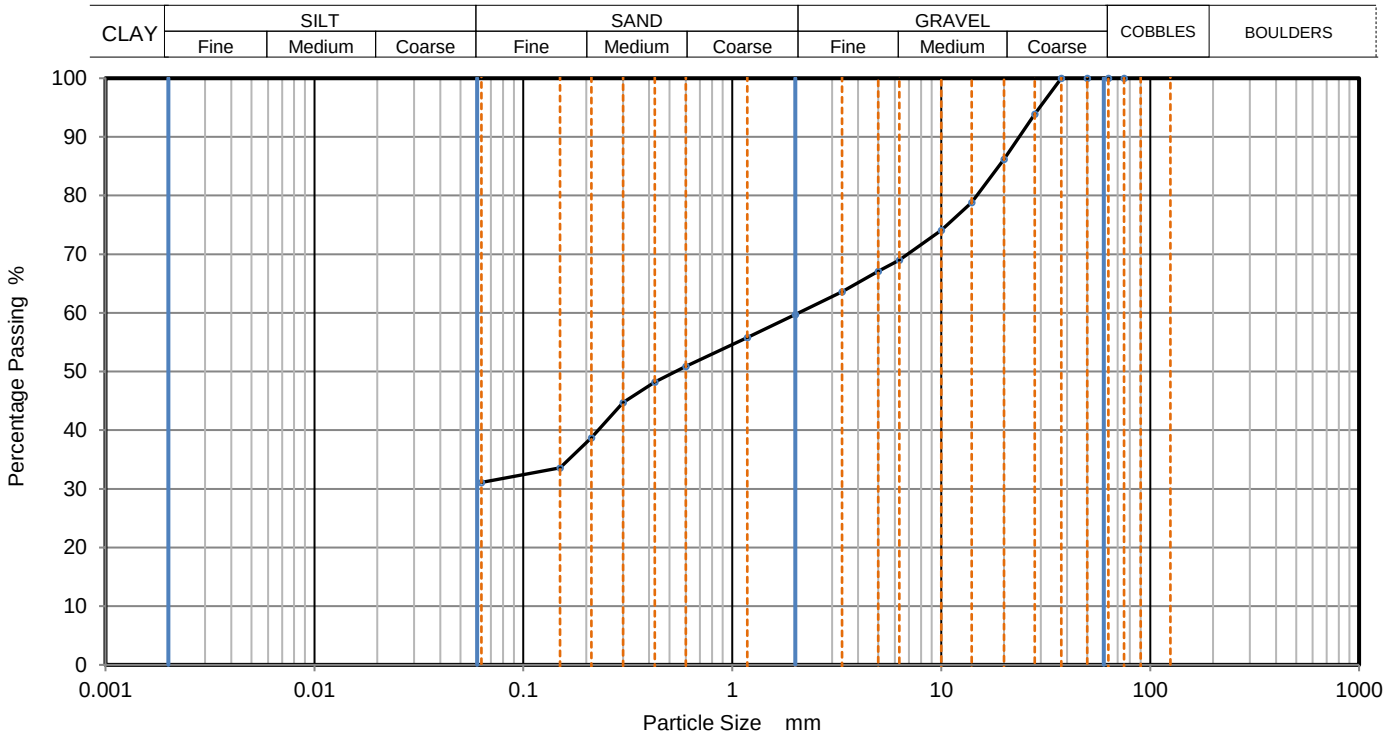
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61136
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greyish-brown very sandy very silty GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201113



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	86		
14	79		
10	74		
6.3	69		
5	67		
3.35	64		
2	60		
1.18	56		
0.6	51		
0.425	48		
0.3	45		
0.212	39		
0.15	34		
0.063	31		

Dry Mass of sample, g	924

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	29
Fines <0.063mm	31

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.08
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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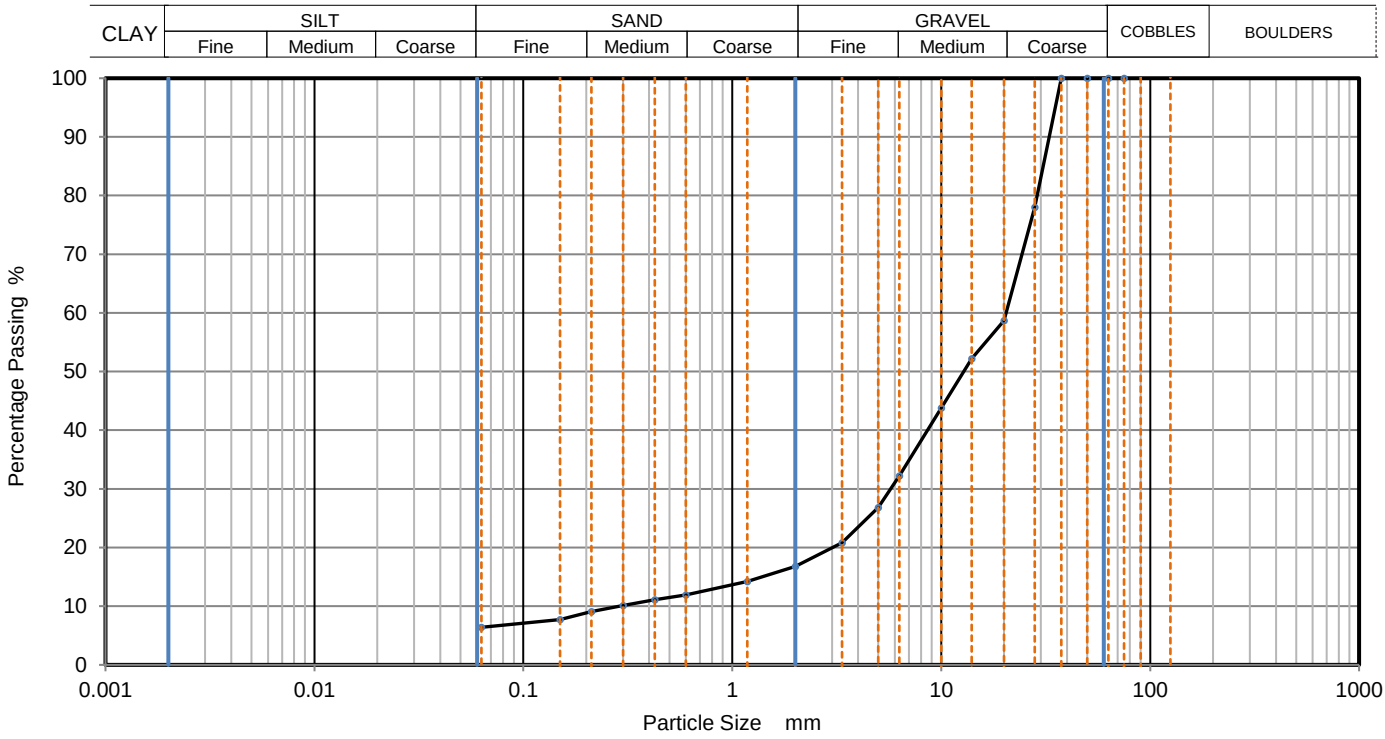
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61136
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Light brown silty sandy coarse GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201119



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	78		
20	59		
14	52		
10	44		
6.3	32		
5	27		
3.35	21		
2	17		
1.18	14		
0.6	12		
0.425	11		
0.3	10		
0.212	9		
0.15	8		
0.063	6		

Dry Mass of sample, g	1077

Sample Proportions	% dry mass
Very coarse	0
Gravel	83
Sand	10
Fines <0.063mm	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	20.5
D_{30}	mm	5.73
D_{10}	mm	0.287
Uniformity Coefficient		71
Curvature Coefficient		5.6

Remarks

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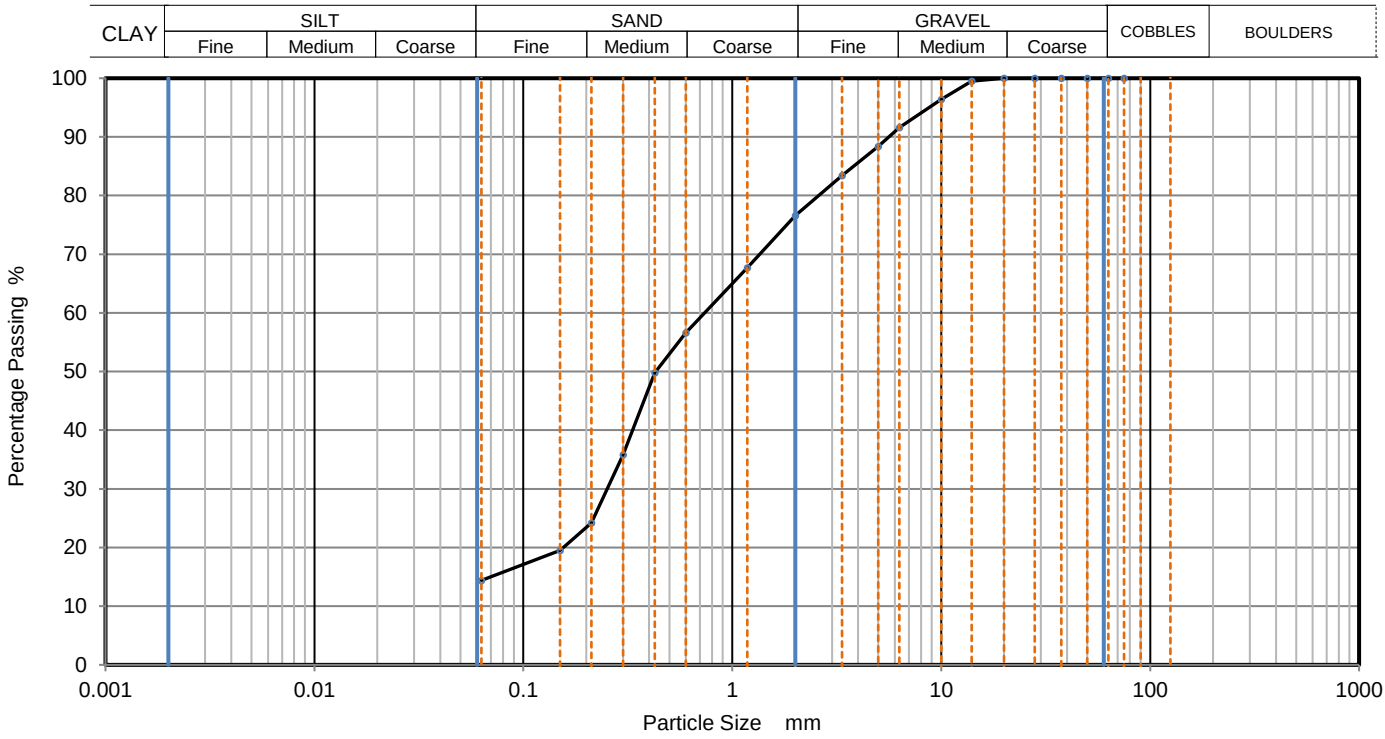
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61605
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Dark bluish-grey silty very gravelly medium SAND.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201128



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	96		
6.3	92		
5	88		
3.35	83		
2	77		
1.18	68		
0.6	57		
0.425	50		
0.3	36		
0.212	24		
0.15	20		
0.063	14		

Dry Mass of sample, g	808

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	62
Fines <0.063mm	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.738
D_{30}	mm	0.252
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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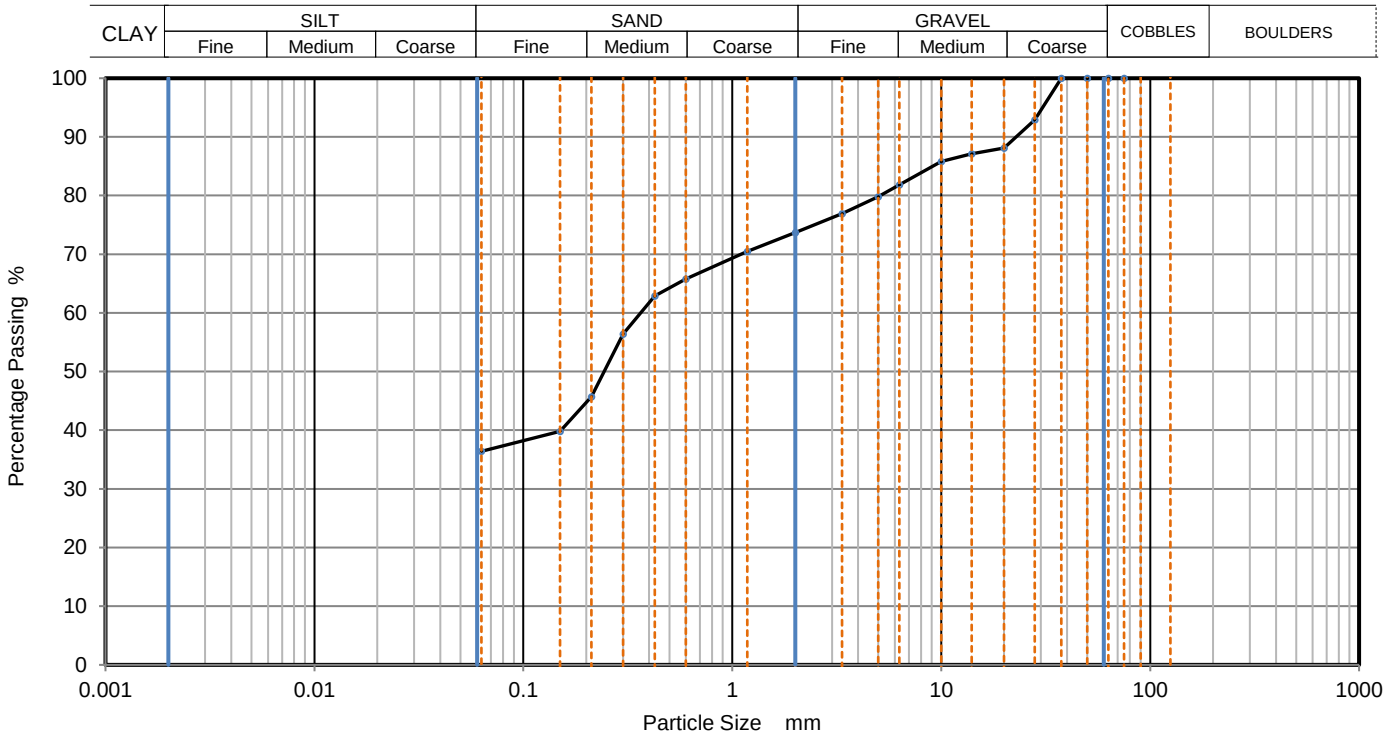
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61805
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201137



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	88		
14	87		
10	86		
6.3	82		
5	80		
3.35	77		
2	74		
1.18	71		
0.6	66		
0.425	63		
0.3	56		
0.212	46		
0.15	40		
0.063	36		

Dry Mass of sample, g	835

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	37
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.363
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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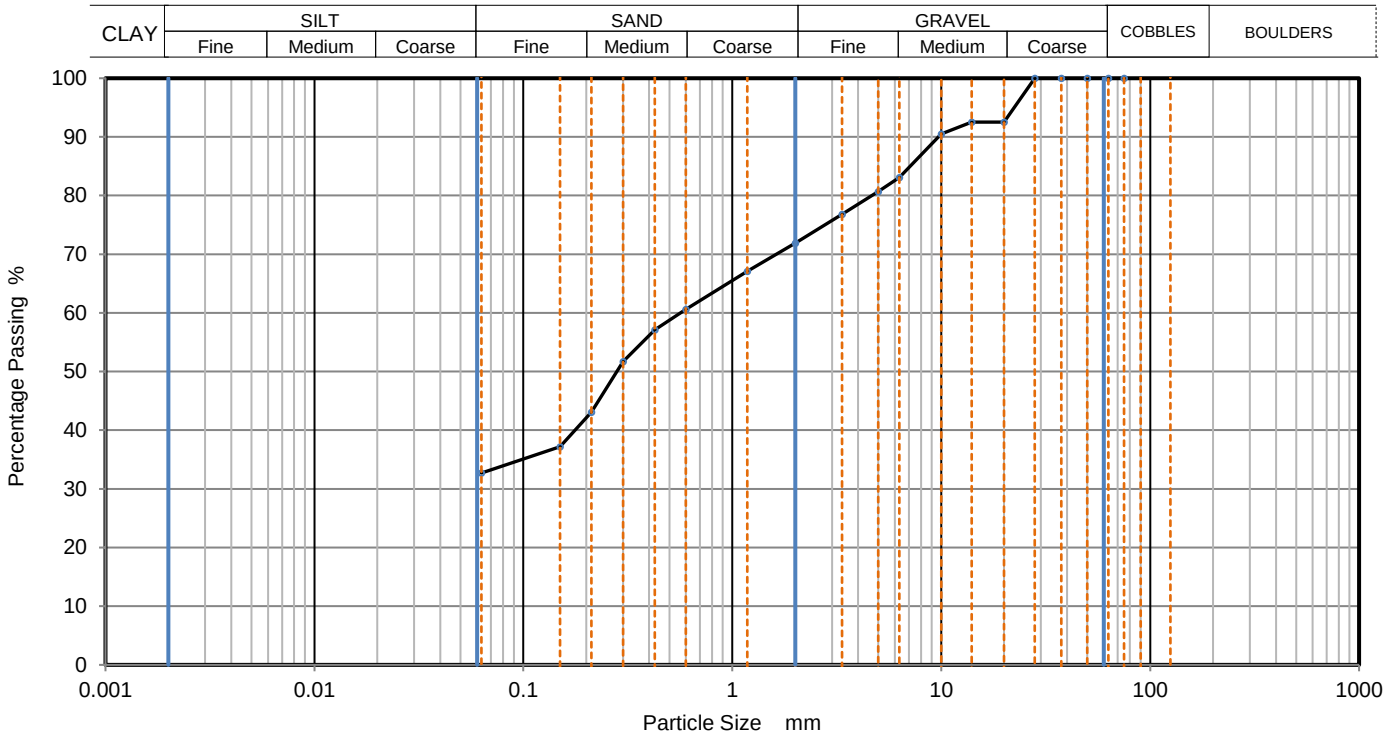
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61805
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Golden-brown very gravelly very silty SAND.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201143



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	93		
10	91		
6.3	83		
5	81		
3.35	77		
2	72		
1.18	67		
0.6	61		
0.425	57		
0.3	52		
0.212	43		
0.15	37		
0.063	33		

Dry Mass of sample, g	1019

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	39
Fines <0.063mm	33

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.564
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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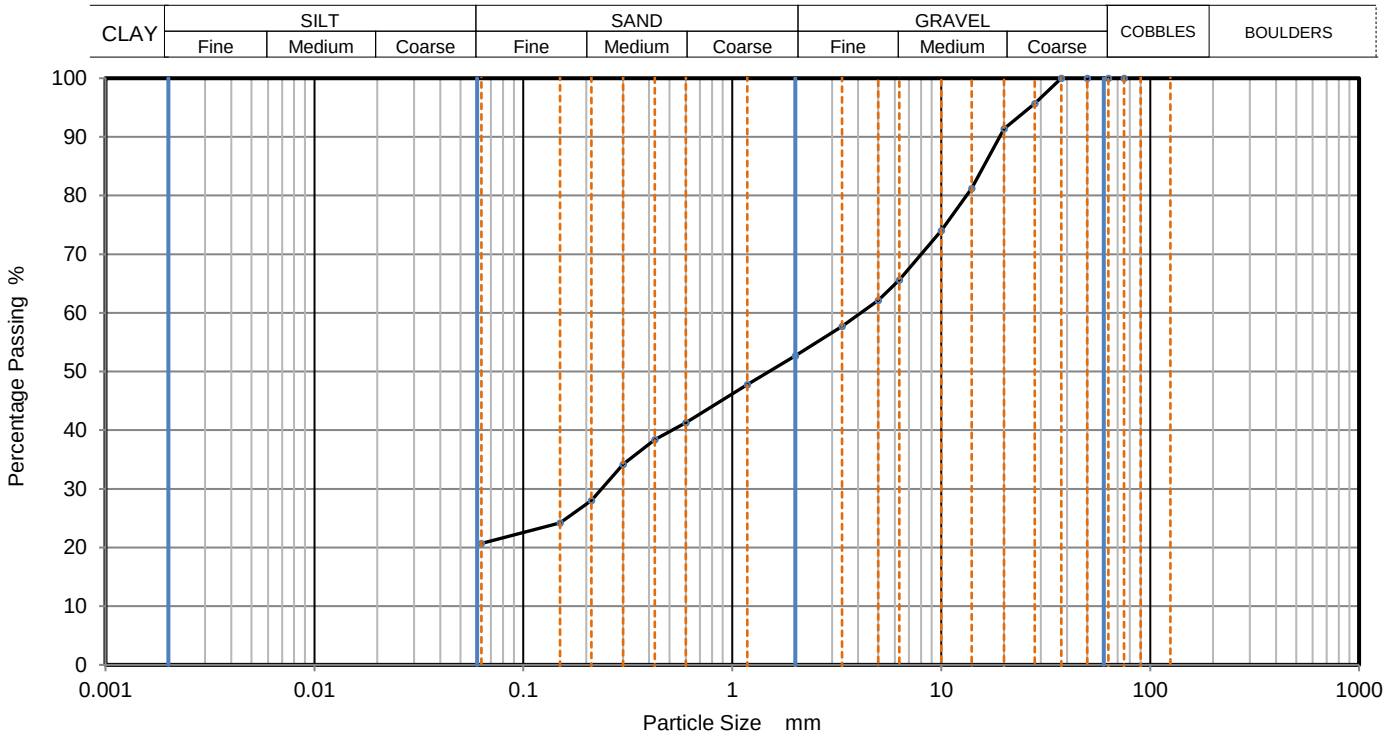
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61869
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Greyish-brown very silty very sandy medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201152



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	91		
14	81		
10	74		
6.3	66		
5	62		
3.35	58		
2	53		
1.18	48		
0.6	41		
0.425	38		
0.3	34		
0.212	28		
0.15	24		
0.063	21		

Dry Mass of sample, g	971

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	32
Fines <0.063mm	21

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.13
D_{30}	mm	0.237
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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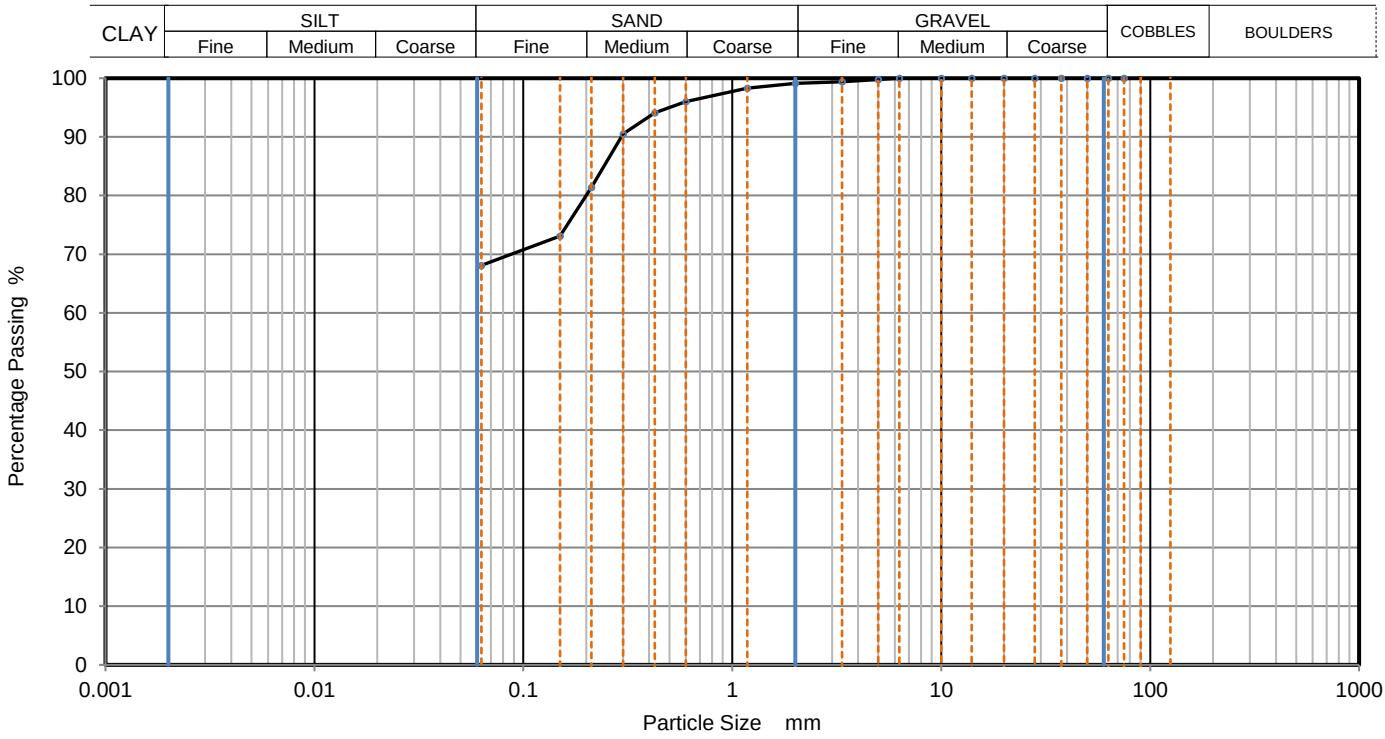
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62325
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Yellow-brown slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201158



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	96		
0.425	94		
0.3	91		
0.212	81		
0.15	73		
0.063	68		

Dry Mass of sample, g	609

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	31
Fines <0.063mm	68

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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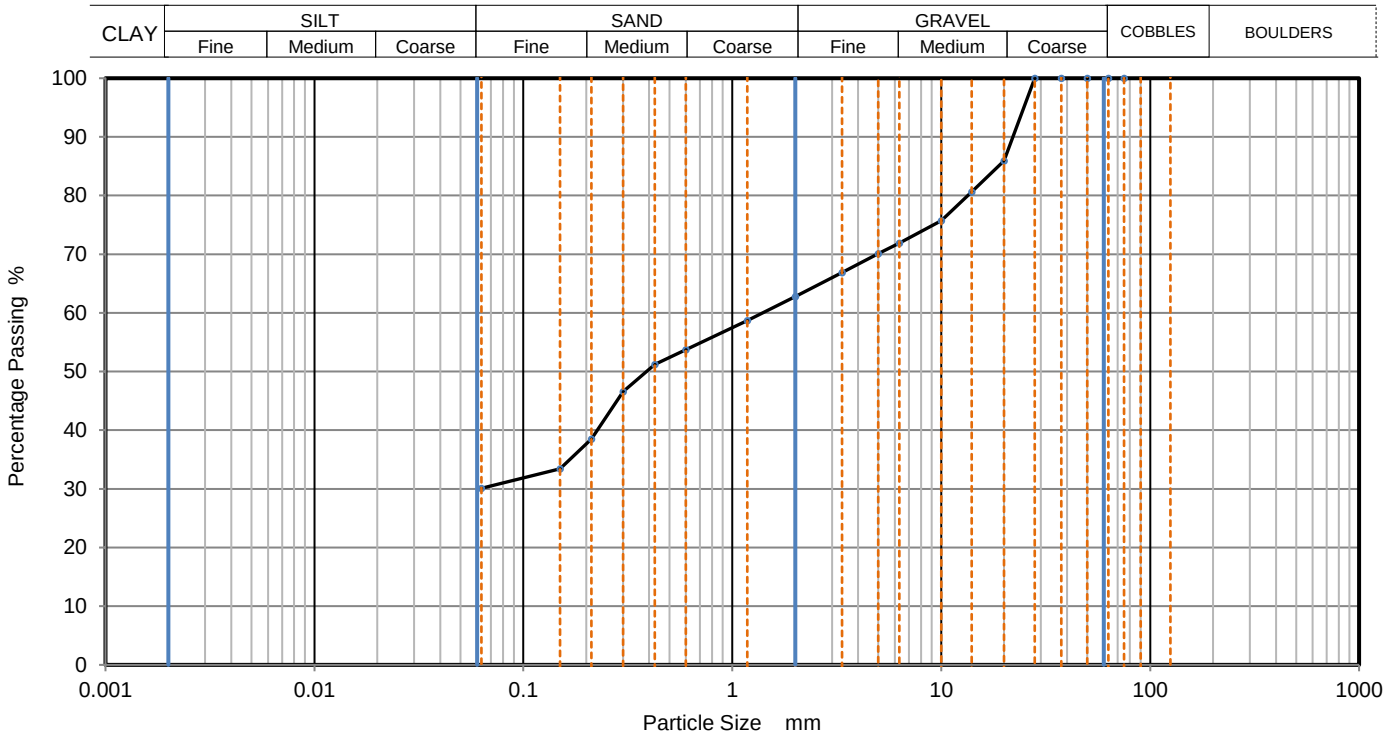
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62325
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Cream-grey very silty SAND and GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201167



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	86		
14	81		
10	76		
6.3	72		
5	70		
3.35	67		
2	63		
1.18	59		
0.6	54		
0.425	51		
0.3	47		
0.212	39		
0.15	33		
0.063	30		

Dry Mass of sample, g	961

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	33
Fines <0.063mm	30

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.39
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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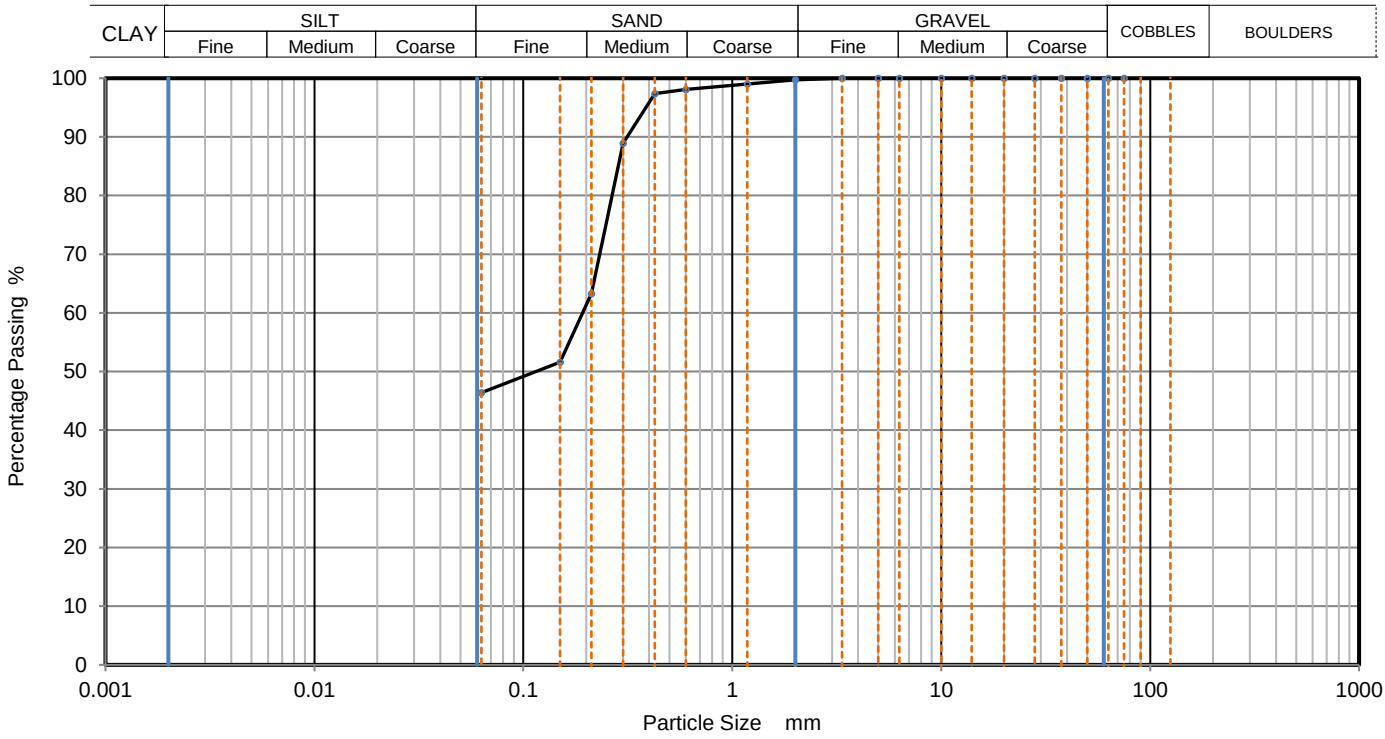
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62456
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Orange-brown sandy SILT. Sand is medium.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201173



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	89		
0.212	63		
0.15	52		
0.063	46		

Dry Mass of sample, g	436

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	53
Fines <0.063mm	46

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.192
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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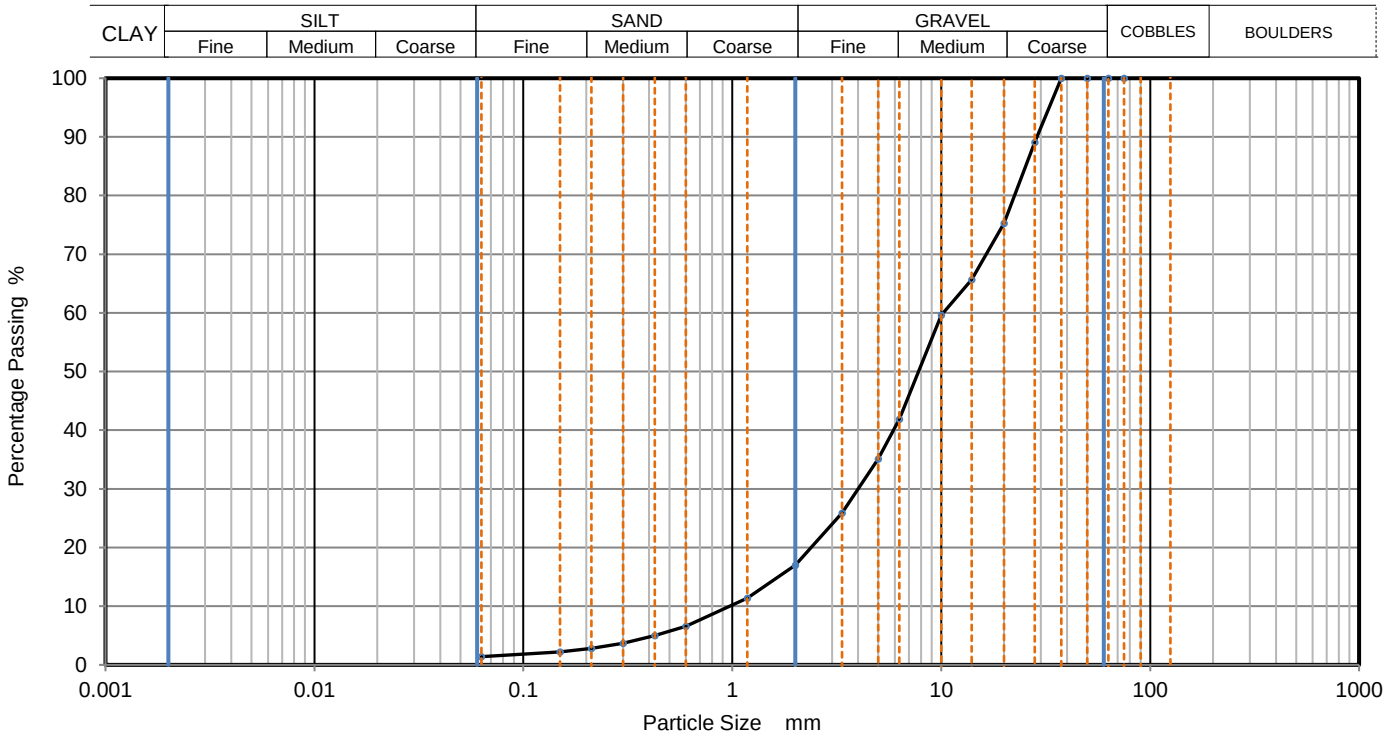
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62456
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Dark bluish-grey sandy GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201182



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	89		
20	75		
14	66		
10	60		
6.3	42		
5	35		
3.35	26		
2	17		
1.18	11		
0.6	7		
0.425	5		
0.3	4		
0.212	3		
0.15	2		
0.063	1		

Dry Mass of sample, g	800

Sample Proportions	% dry mass
Very coarse	0
Gravel	83
Sand	16
Fines <0.063mm	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	10.2
D_{30}	mm	4.01
D_{10}	mm	0.97
Uniformity Coefficient		11
Curvature Coefficient		1.6

Remarks

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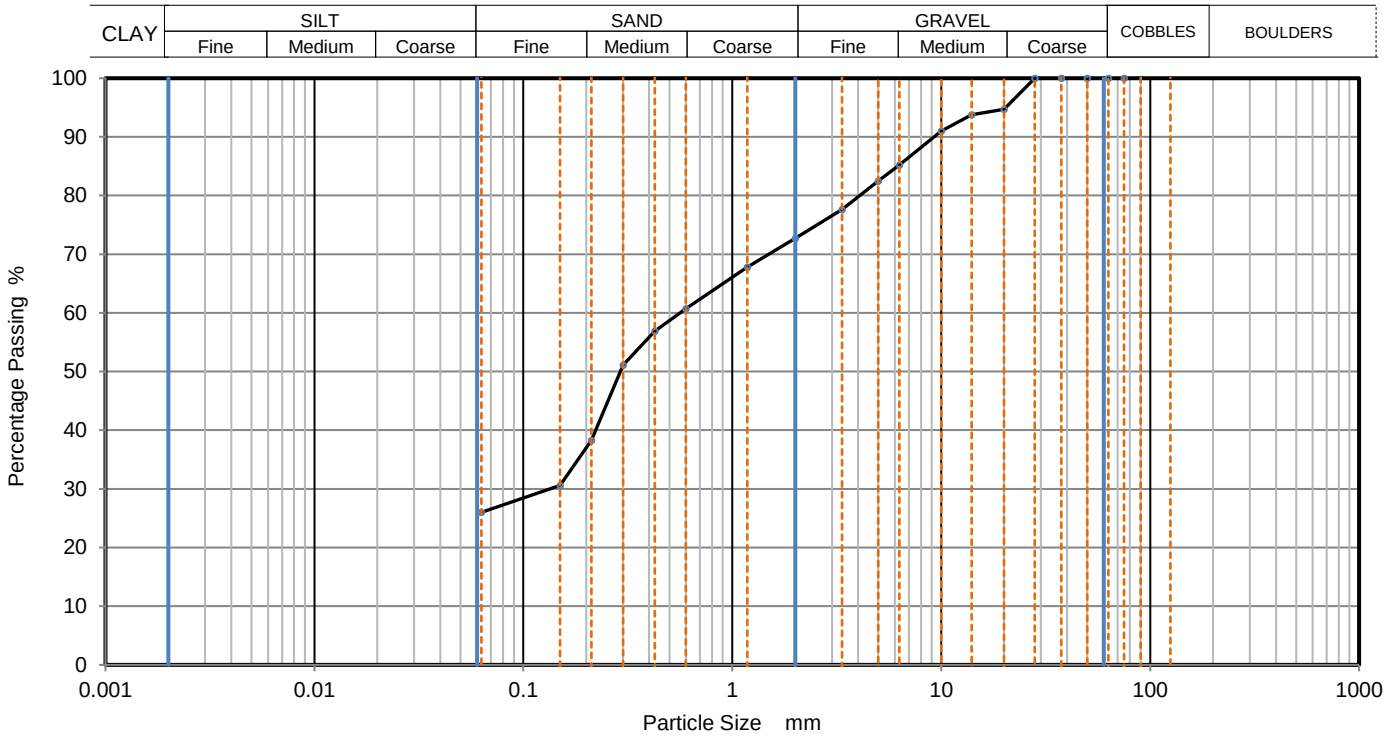
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62606
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown very silty very gravelly medium SAND.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201189



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	94		
10	91		
6.3	85		
5	83		
3.35	78		
2	73		
1.18	68		
0.6	61		
0.425	57		
0.3	51		
0.212	38		
0.15	31		
0.063	26		

Dry Mass of sample, g	510

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	47
Fines <0.063mm	26

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.564
D_{30}	mm	0.135
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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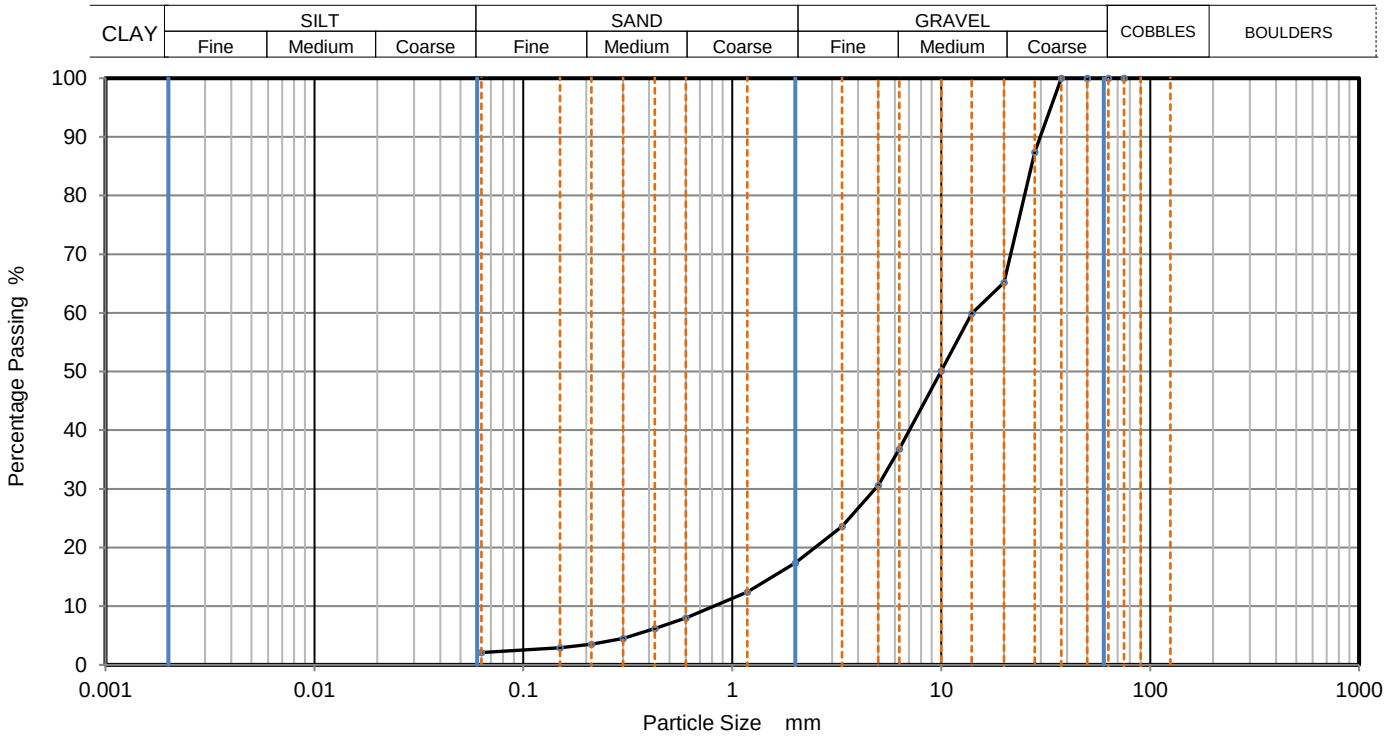
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62606
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Dark bluish-grey slightly silty sandy medium and coarse GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201198



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	87		
20	65		
14	60		
10	50		
6.3	37		
5	31		
3.35	24		
2	17		
1.18	12		
0.6	8		
0.425	6		
0.3	5		
0.212	4		
0.15	3		
0.063	2		

Dry Mass of sample, g	827

Sample Proportions	% dry mass
Very coarse	0
Gravel	83
Sand	15
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	14.1
D_{30}	mm	4.84
D_{10}	mm	0.811
Uniformity Coefficient		17
Curvature Coefficient		2.1

Remarks

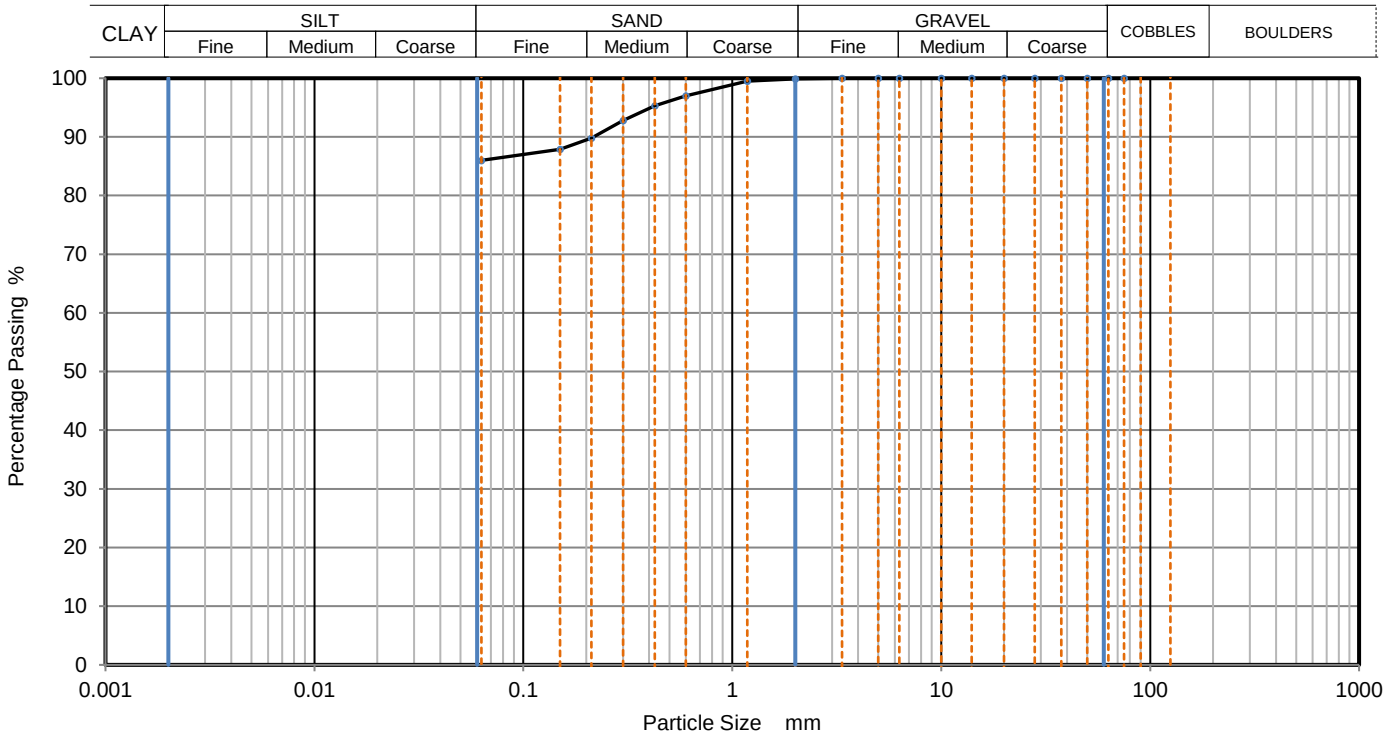
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/01/2023 17:05	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62741
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201205



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	97		
0.425	95		
0.3	93		
0.212	90		
0.15	88		
0.063	86		

Dry Mass of sample, g	567

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	14
Fines <0.063mm	86

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

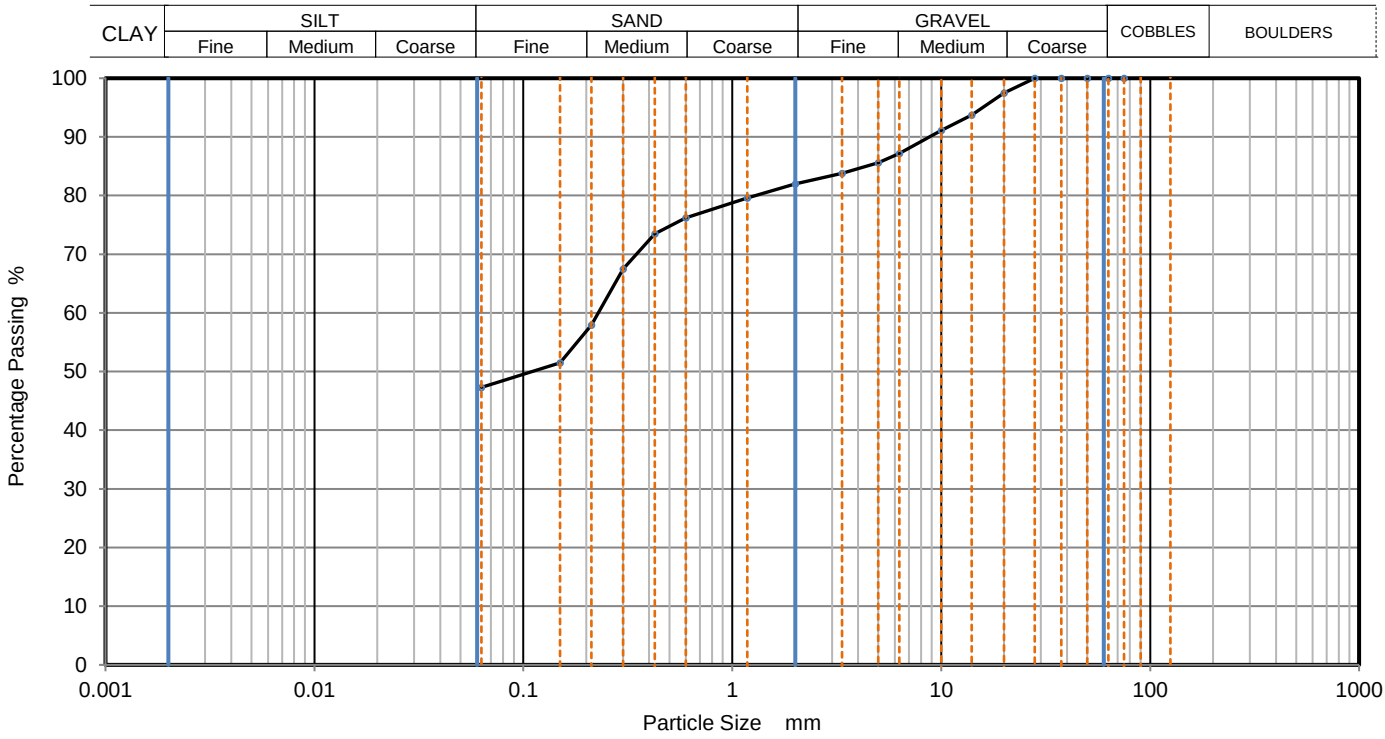
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/01/2023 17:05	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62741
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201208



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	91		
6.3	87		
5	86		
3.35	84		
2	82		
1.18	80		
0.6	76		
0.425	74		
0.3	68		
0.212	58		
0.15	52		
0.063	47		

Dry Mass of sample, g	555

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	35
Fines <0.063mm	47

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.228
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	03/01/2023 17:05	**1**
				QC From No:R2

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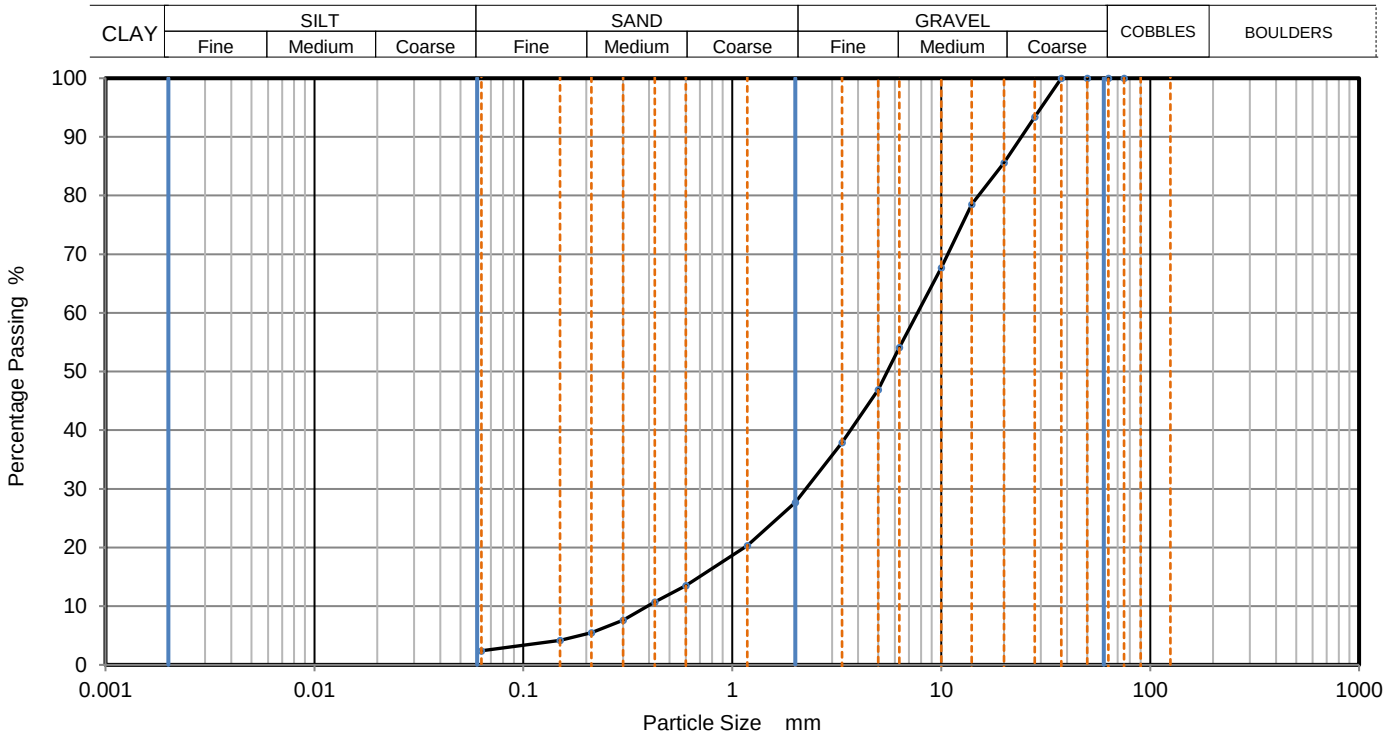
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-62741
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Dark bluish-grey slightly silty very sandy medium GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201214



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	86		
14	79		
10	68		
6.3	54		
5	47		
3.35	38		
2	28		
1.18	20		
0.6	14		
0.425	11		
0.3	8		
0.212	6		
0.15	4		
0.063	2		

Dry Mass of sample, g	772

Sample Proportions	% dry mass
Very coarse	0
Gravel	72
Sand	25
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.7
D_{30}	mm	2.25
D_{10}	mm	0.391
Uniformity Coefficient		20
Curvature Coefficient		1.7

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/01/2023 17:05	**1** QC From No:R2

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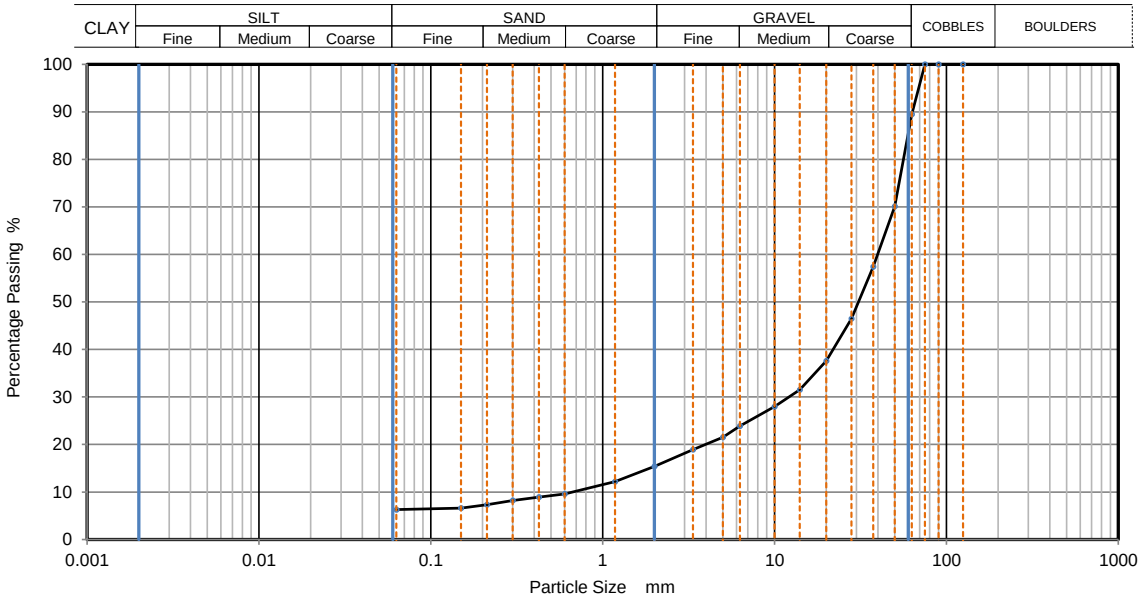
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-62806
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Dark grey slightly clayey slightly silty sandy GRAVEL with occasional cobbles (gravel is fmc and angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	90		
50	70		
37.5	57		
28	47		
20	38		
14	32		
10	28		
6.3	24		
5	22		
3.35	19		
2	15		
1.18	12		
0.6	10	Particle density	(assumed)
0.425	9	2.70	Mg/m3
0.3	8		
0.212	7		
0.15	7		
0.063	6		

Sample Proportions	% dry mass
Very coarse	10.5
Gravel	74.1
Sand	9.2
Fines <0.063mm	6.3

Grading Analysis		
D100	mm	
D60	mm	39.8
D30	mm	12.1
D10	mm	0.668
Uniformity Coefficient		60
Curvature Coefficient		5.5

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

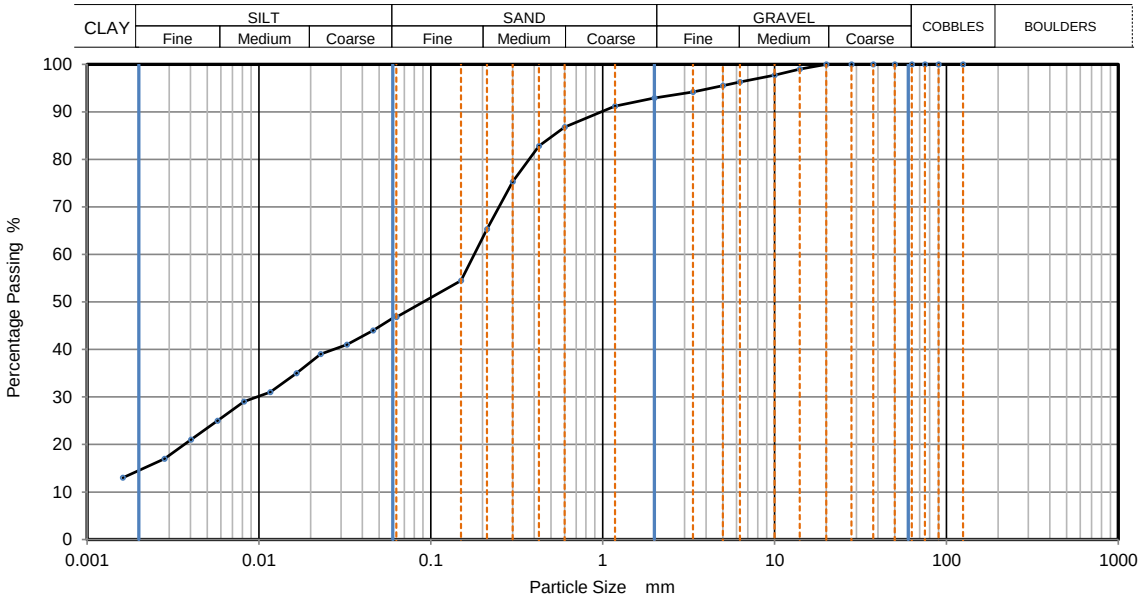
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-63008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown and grey slightly gravelly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	47
90	100	0.0462	44
75	100	0.0324	41
63	100	0.0228	39
50	100	0.0166	35
37.5	100	0.0116	31
28	100	0.0082	29
20	100	0.0057	25
14	99	0.0040	21
10	98	0.0028	17
6.3	96	0.0016	13
5	96		
3.35	94		
2	93		
1.18	91		
0.6	87	Particle density (assumed)	
0.425	83	2.70 Mg/m3	
0.3	75		
0.212	65		
0.15	55		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	7.1
Sand	46.1
Silt	32.3
Clay	14.5

Grading Analysis		
D100	mm	
D60	mm	0.179
D30	mm	0.00984
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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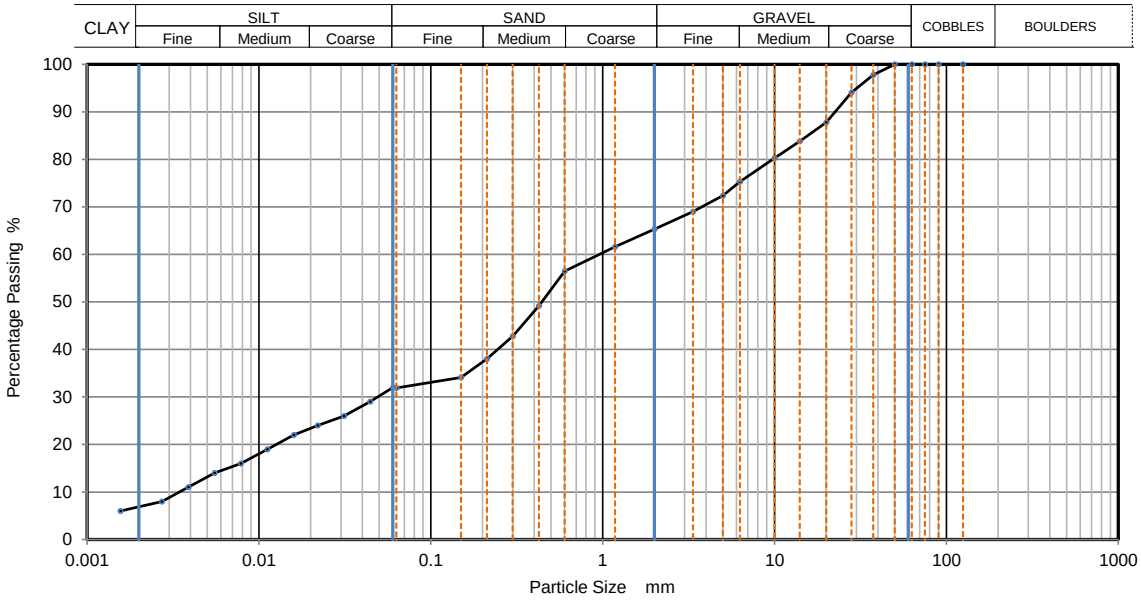
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-63008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Brownish grey clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0602	32
90	100	0.0444	29
75	100	0.0312	26
63	100	0.0219	24
50	100	0.0160	22
37.5	98	0.0112	19
28	94	0.0079	16
20	88	0.0055	14
14	84	0.0039	11
10	80	0.0027	8
6.3	75	0.0016	6
5	72		
3.35	69		
2	65		
1.18	62		
0.6	57	Particle density	(assumed)
0.425	49	2.70	Mg/m3
0.3	43		
0.212	38		
0.15	34		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.7
Sand	33.4
Silt	24.9
Clay	7.0

Grading Analysis		
D100	mm	
D60	mm	0.952
D30	mm	0.0504
D10	mm	0.00336
Uniformity Coefficient		280
Curvature Coefficient		0.79

Remarks

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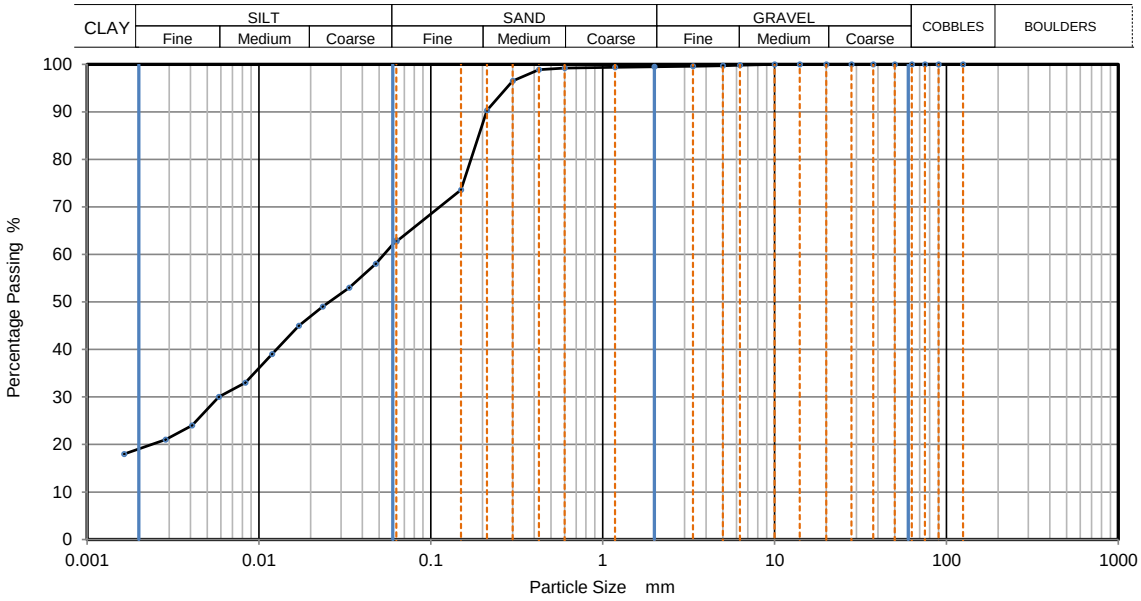
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown sandy silty CLAY with rare fine sub-angular gravel			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	63
90	100	0.0478	58
75	100	0.0335	53
63	100	0.0235	49
50	100	0.0170	45
37.5	100	0.0119	39
28	100	0.0083	33
20	100	0.0058	30
14	100	0.0041	24
10	100	0.0029	21
6.3	100	0.0016	18
5	100		
3.35	100		
2	100		
1.18	99		
0.6	99	Particle density (assumed)	
0.425	99	2.70 Mg/m3	
0.3	97		
0.212	90		
0.15	74		
0.063	63		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.5
Sand	36.8
Silt	43.8
Clay	18.9

Grading Analysis		
D100	mm	
D60	mm	0.0543
D30	mm	0.00606
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 14/12/2022

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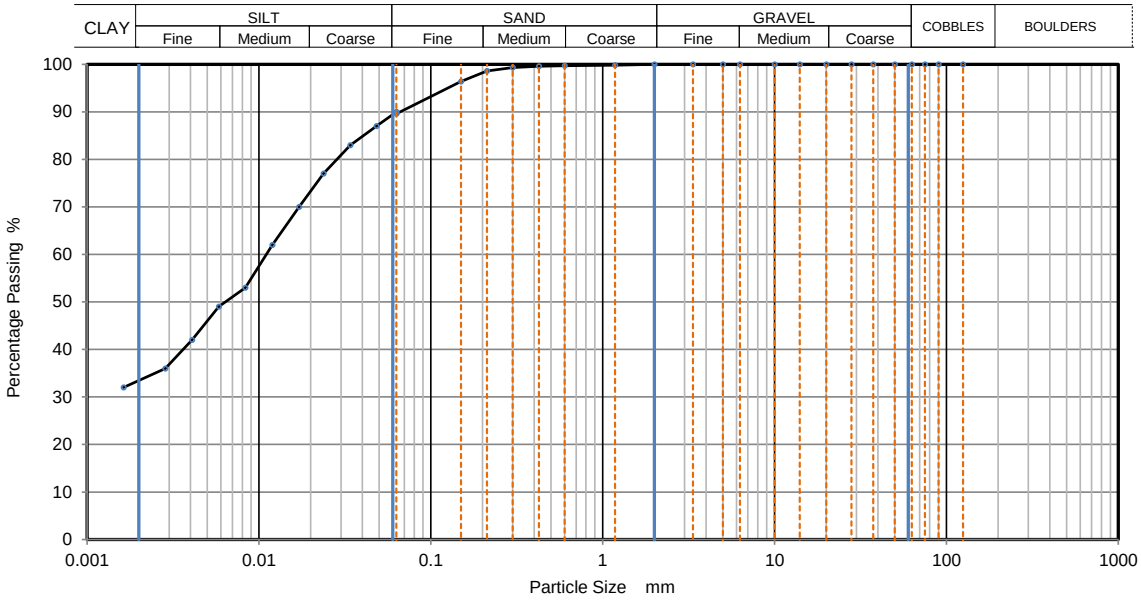
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly sandy silty CLAY			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	90
90	100	0.0483	87
75	100	0.0339	83
63	100	0.0237	77
50	100	0.0171	70
37.5	100	0.0119	62
28	100	0.0083	53
20	100	0.0058	49
14	100	0.0041	42
10	100	0.0028	36
6.3	100	0.0016	32
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density (assumed)	
0.425	100	2.70 Mg/m3	
0.3	99		
0.212	99		
0.15	96		
0.063	90		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.0
Sand	10.4
Silt	56.3
Clay	33.3

Grading Analysis		
D100	mm	
D60	mm	0.0111
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

UKAS TESTING

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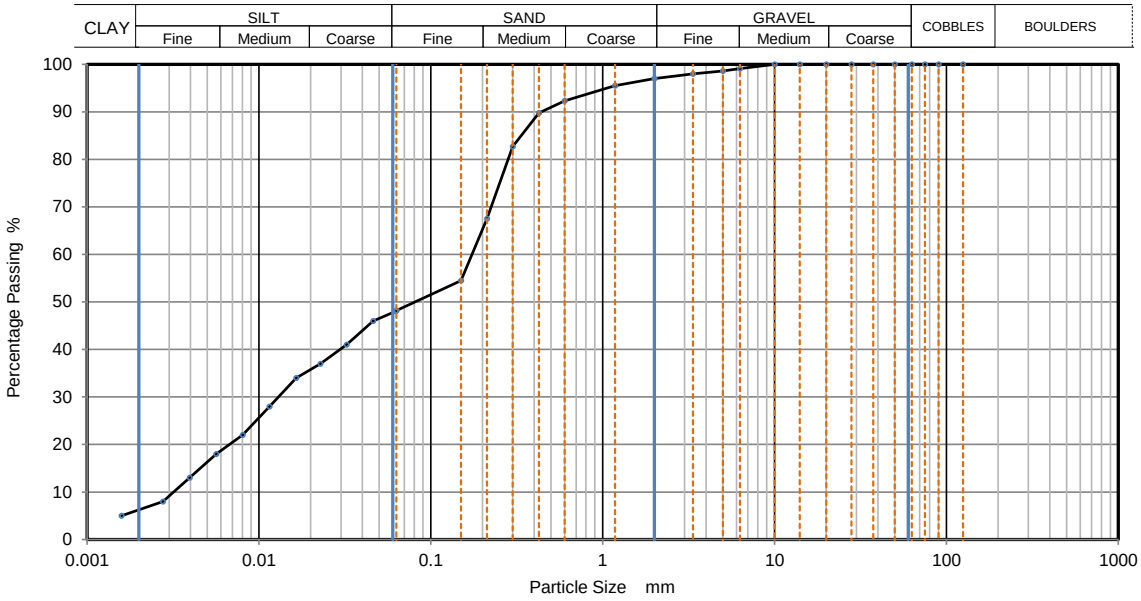
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	9.00 m
Soil Description	Dark grey organic sandy silty CLAY with rare fm angular gravel			Depth Base	10.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	48
90	100	0.0462	46
75	100	0.0324	41
63	100	0.0227	37
50	100	0.0165	34
37.5	100	0.0115	28
28	100	0.0080	22
20	100	0.0056	18
14	100	0.0040	13
10	100	0.0028	8
6.3	99	0.0016	5
5	99		
3.35	98		
2	97		
1.18	96		
0.6	92	Particle density (assumed)	
0.425	90	2.70 Mg/m3	
0.3	83		
0.212	68		
0.15	55		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	3.0
Sand	48.8
Silt	41.9
Clay	6.3

Grading Analysis		
D100	mm	
D60	mm	0.174
D30	mm	0.0131
D10	mm	0.00318
Uniformity Coefficient		55
Curvature Coefficient		0.31

Remarks

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Tel: 01923 711288

Checked and Approved

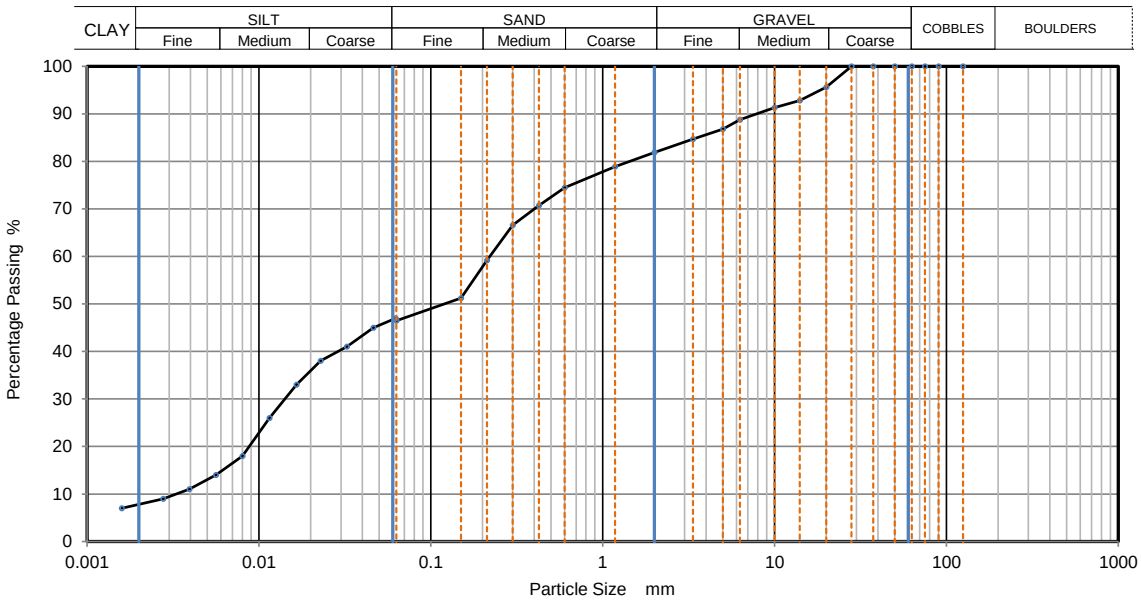
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-65612
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.00 m
Soil Description	Brown slightly gravelly sandy very silty CLAY with occasional rootlets (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0625	47
90	100	0.0464	45
75	100	0.0325	41
63	100	0.0228	38
50	100	0.0165	33
37.5	100	0.0115	26
28	100	0.0080	18
20	96	0.0056	14
14	93	0.0039	11
10	91	0.0028	9
6.3	89	0.0016	7
5	87		
3.35	85		
2	82		
1.18	79		
0.6	75	Particle density (assumed)	
0.425	71	2.70	Mg/m3
0.3	67		
0.212	59		
0.15	51		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	18.1
Sand	35.4
Silt	39.1
Clay	7.4

Grading Analysis		
D100	mm	
D60	mm	0.22
D30	mm	0.0142
D10	mm	0.00335
Uniformity Coefficient		66
Curvature Coefficient		0.27

Remarks

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Tel: 01923 711288

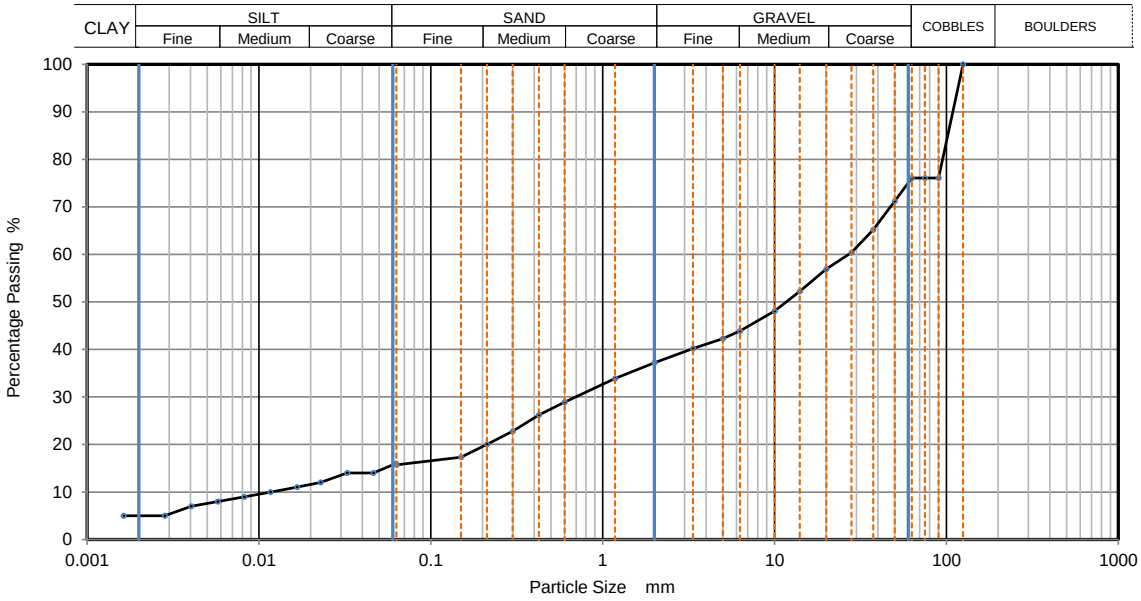
Checked and Approved

Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-65612
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey clayey silty very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	06/12/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0627	16
90	76	0.0463	14
75	76	0.0326	14
63	76	0.0229	12
50	71	0.0166	11
37.5	65	0.0117	10
28	60	0.0082	9
20	57	0.0058	8
14	52	0.0040	7
10	48	0.0028	5
6.3	44	0.0016	5
5	42		
3.35	40		
2	37		
1.18	34		
0.6	29	Particle density (assumed)	
0.425	26	2.70 Mg/m3	
0.3	23		
0.212	20		
0.15	17		
0.063	16		

Sample Proportions	% dry mass
Very coarse	23.9
Gravel	38.9
Sand	21.6
Silt	10.6
Clay	5.0

Grading Analysis		
D100	mm	125
D60	mm	26.9
D30	mm	0.699
D10	mm	0.0114
Uniformity Coefficient		2400
Curvature Coefficient		1.6

Remarks

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Date: 14/12/2022

UKAS TESTING

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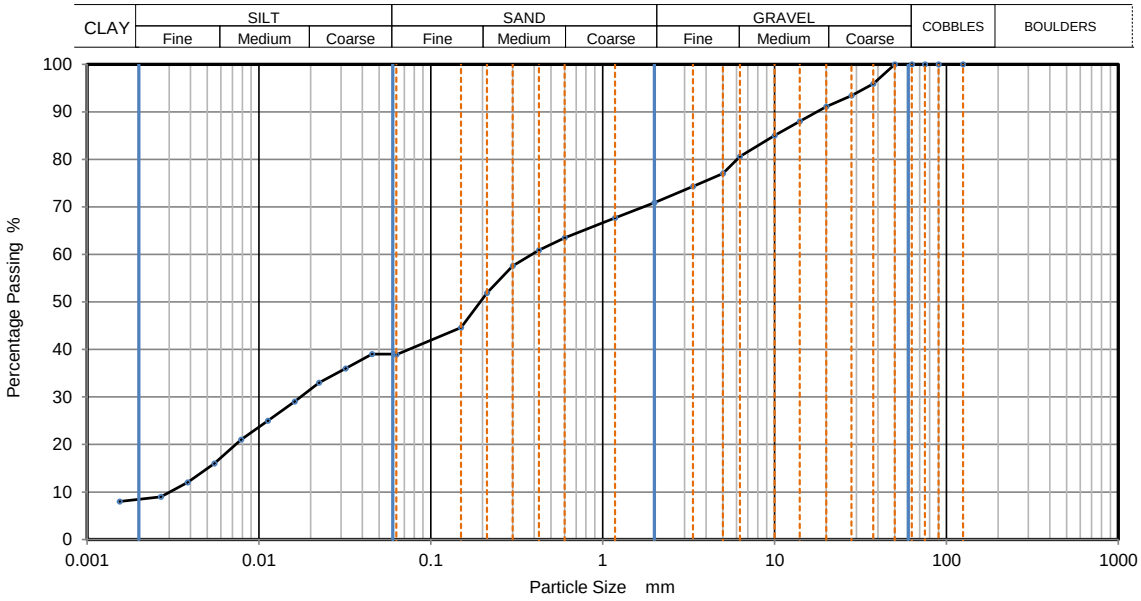
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-66007
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0612	39
90	100	0.0455	39
75	100	0.0319	36
63	100	0.0224	33
50	100	0.0162	29
37.5	96	0.0113	25
28	93	0.0079	21
20	91	0.0055	16
14	88	0.0038	12
10	85	0.0027	9
6.3	81	0.0015	8
5	77		
3.35	74		
2	71		
1.18	68		
0.6	64	Particle density (assumed)	
0.425	61	2.70	Mg/m3
0.3	58		
0.212	52		
0.15	45		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.1
Sand	32.1
Silt	30.3
Clay	8.5

Grading Analysis		
D100	mm	
D60	mm	0.387
D30	mm	0.0174
D10	mm	0.00294
Uniformity Coefficient		130
Curvature Coefficient		0.27

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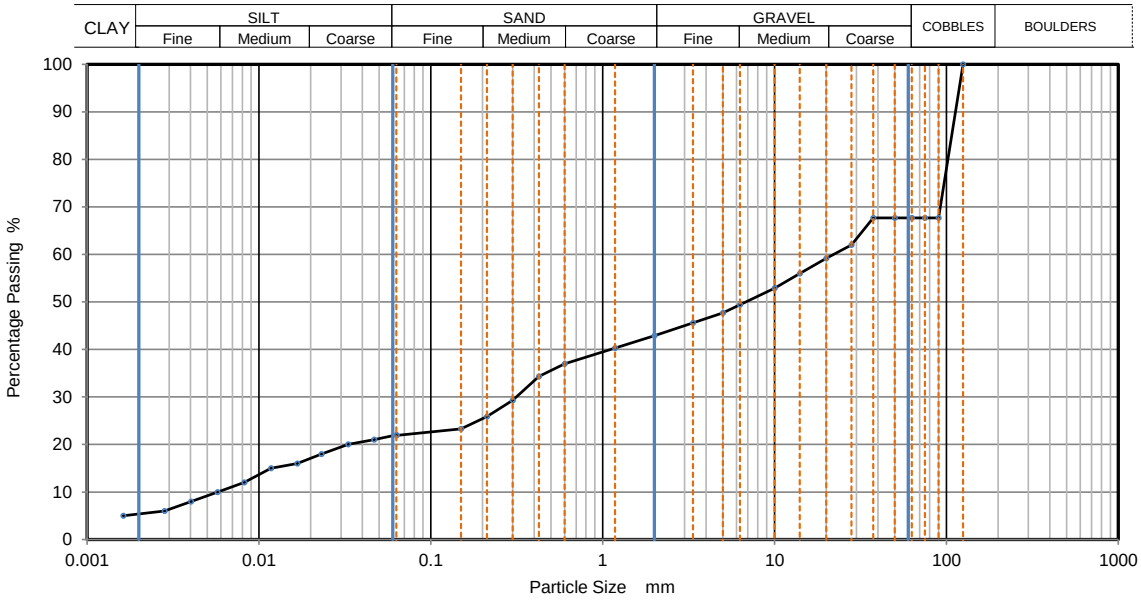
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-67338
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown clayey very silty very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	22
90	68	0.0469	21
75	68	0.0330	20
63	68	0.0231	18
50	68	0.0167	16
37.5	68	0.0118	15
28	62	0.0082	12
20	59	0.0057	10
14	56	0.0040	8
10	53	0.0028	6
6.3	49	0.0016	5
5	48		
3.35	46		
2	43		
1.18	40		
0.6	37	Particle density (assumed)	
0.425	34	2.70	Mg/m3
0.3	29		
0.212	26		
0.15	23		
0.063	22		

Sample Proportions	% dry mass
Very coarse	32.3
Gravel	24.9
Sand	21.0
Silt	16.1
Clay	5.7

Grading Analysis		
D100	mm	125
D60	mm	22
D30	mm	0.316
D10	mm	0.00596
Uniformity Coefficient		3700
Curvature Coefficient		0.76

Remarks

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Date: 14/12/2022

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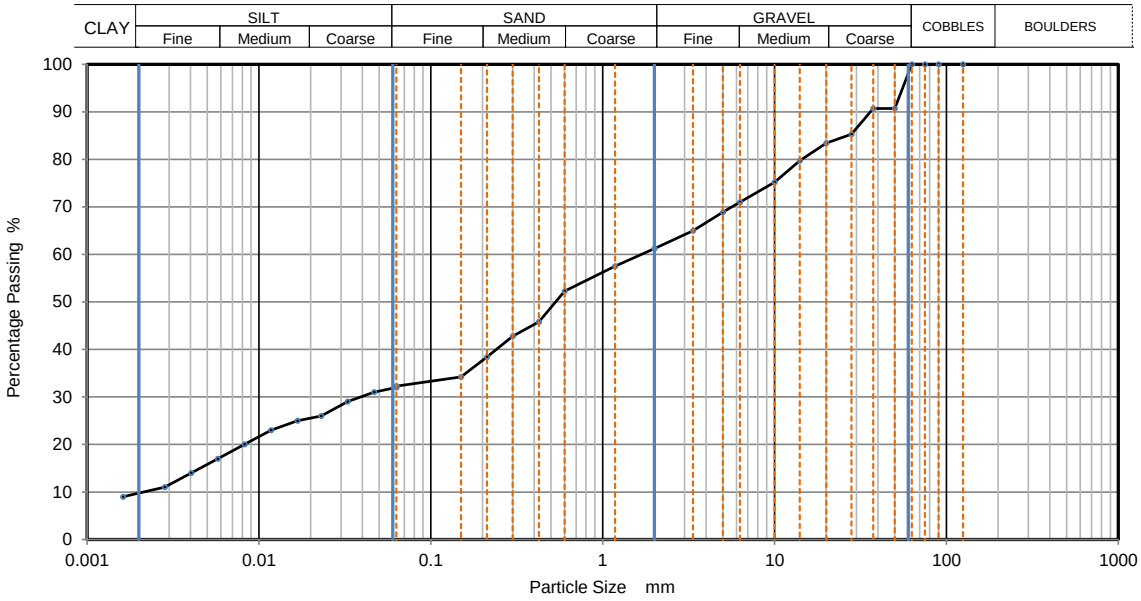
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-67338
Project No.	2021OY102	Client	Irish Drilling	Sample No.	7
				Depth Top	2.00 m
Soil Description	Greyish brown clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0467	31
75	100	0.0328	29
63	100	0.0230	26
50	91	0.0167	25
37.5	91	0.0118	23
28	85	0.0082	20
20	83	0.0058	17
14	80	0.0040	14
10	75	0.0028	11
6.3	71	0.0016	9
5	69		
3.35	65		
2	61		
1.18	58		
0.6	52	Particle density	(assumed)
0.425	46	2.70	Mg/m3
0.3	43		
0.212	38		
0.15	34		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	38.8
Sand	28.9
Silt	22.9
Clay	9.4

Grading Analysis		
D100	mm	
D60	mm	1.68
D30	mm	0.0399
D10	mm	0.00228
Uniformity Coefficient		740
Curvature Coefficient		0.41

Remarks

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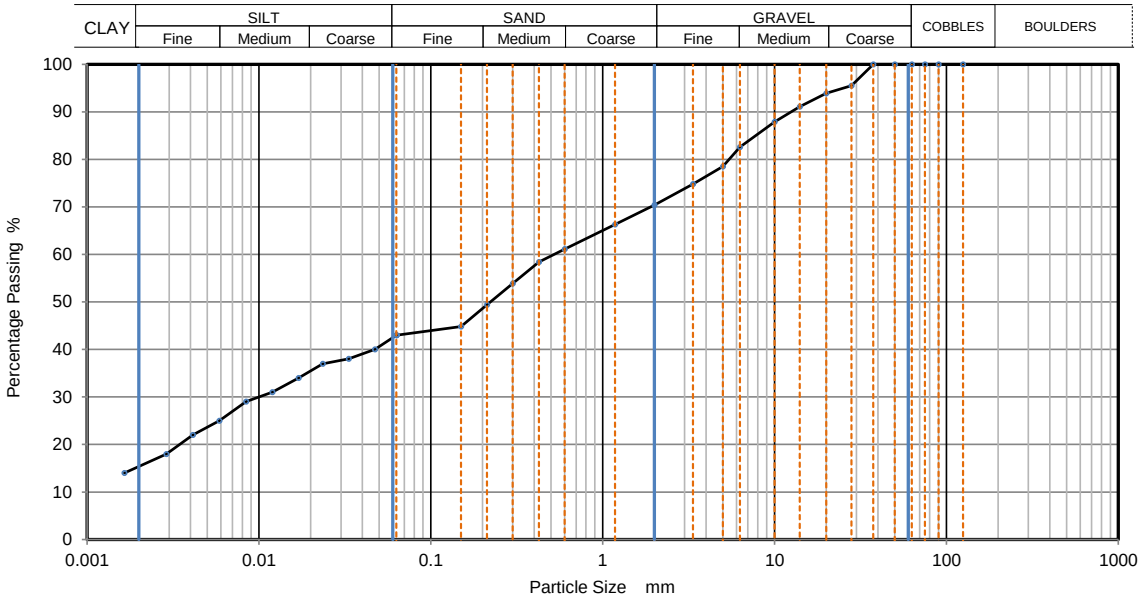
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	43
90	100	0.0473	40
75	100	0.0333	38
63	100	0.0235	37
50	100	0.0170	34
37.5	100	0.0119	31
28	96	0.0084	29
20	94	0.0059	25
14	91	0.0041	22
10	88	0.0029	18
6.3	83	0.0016	14
5	79		
3.35	75		
2	70		
1.18	66		
0.6	61	Particle density (assumed)	
0.425	58	2.70	Mg/m3
0.3	54		
0.212	49		
0.15	45		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.6
Sand	27.5
Silt	27.4
Clay	15.5

Grading Analysis		
D100	mm	
D60	mm	0.52
D30	mm	0.00993
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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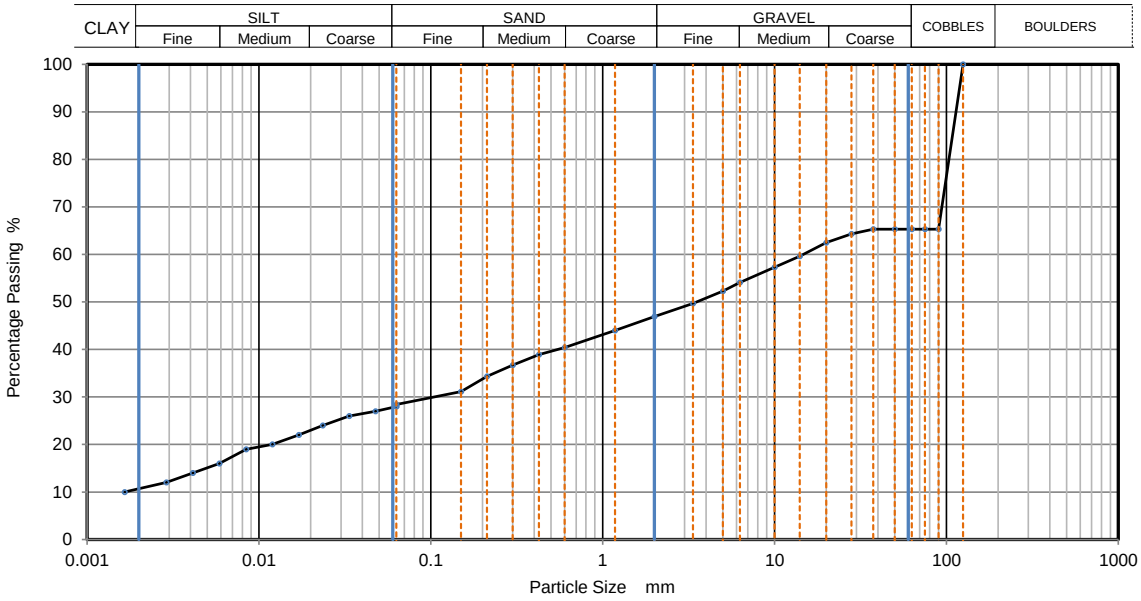
Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	4.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	28
90	65	0.0476	27
75	65	0.0335	26
63	65	0.0235	24
50	65	0.0170	22
37.5	65	0.0120	20
28	64	0.0084	19
20	63	0.0059	16
14	60	0.0041	14
10	57	0.0029	12
6.3	54	0.0017	10
5	52		
3.35	50		
2	47		
1.18	44		
0.6	40	Particle density (assumed)	
0.425	39	2.70	Mg/m3
0.3	37		
0.212	34		
0.15	31		
0.063	28		

Sample Proportions	% dry mass
Very coarse	34.7
Gravel	18.4
Sand	18.4
Silt	18.0
Clay	10.5

Grading Analysis		
D100	mm	125
D60	mm	14.7
D30	mm	0.104
D10	mm	0.0018
Uniformity Coefficient		8200
Curvature Coefficient		0.41

Remarks

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Date: 14/12/2022

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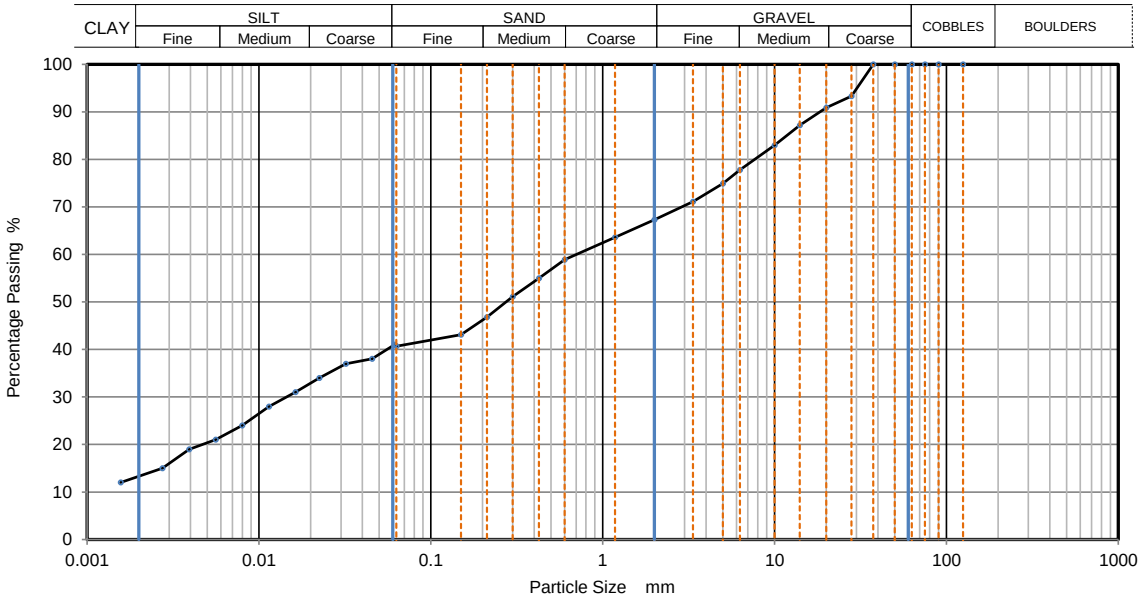
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	19
Project No.	2021OY102	Client	Irish Drilling	Depth Top	6.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	6.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0616	41
90	100	0.0455	38
75	100	0.0320	37
63	100	0.0225	34
50	100	0.0163	31
37.5	100	0.0114	28
28	93	0.0080	24
20	91	0.0056	21
14	87	0.0039	19
10	83	0.0027	15
6.3	78	0.0016	12
5	75		
3.35	71		
2	67		
1.18	64		
0.6	59	Particle density	(assumed)
0.425	55	2.70	Mg/m3
0.3	51		
0.212	47		
0.15	43		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.7
Sand	26.6
Silt	27.6
Clay	13.1

Grading Analysis		
D100	mm	
D60	mm	0.703
D30	mm	0.0142
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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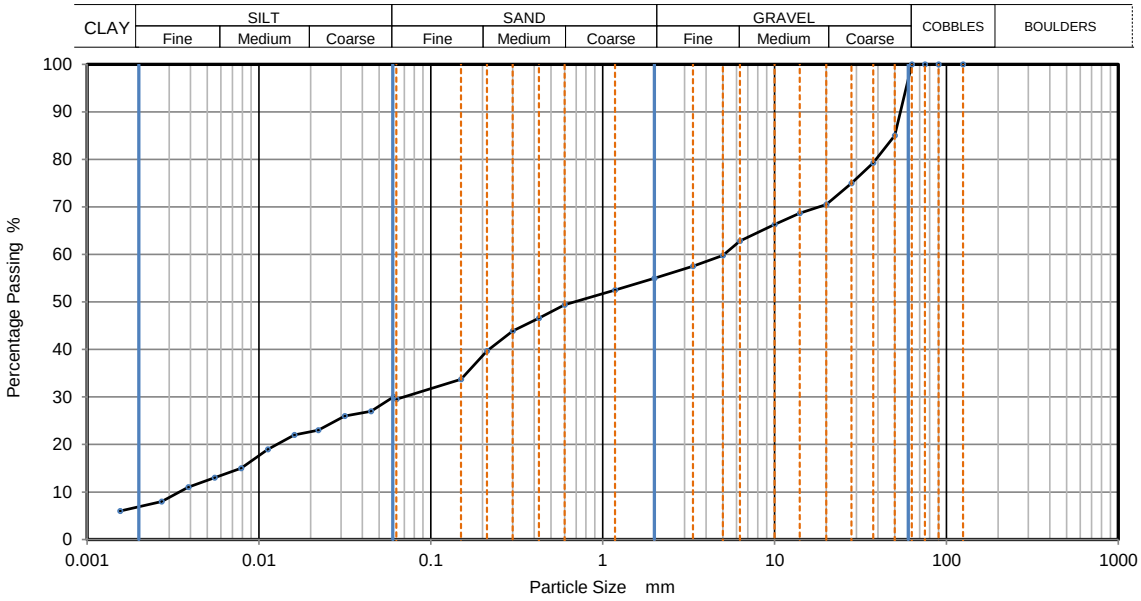
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-68009
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0608	30
90	100	0.0448	27
75	100	0.0316	26
63	100	0.0221	23
50	85	0.0161	22
37.5	79	0.0113	19
28	75	0.0079	15
20	71	0.0055	13
14	69	0.0039	11
10	66	0.0027	8
6.3	63	0.0016	6
5	60		
3.35	58		
2	55		
1.18	53		
0.6	49	Particle density (assumed)	
0.425	47	2.70	Mg/m3
0.3	44		
0.212	40		
0.15	34		
0.063	30		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	45.0
Sand	25.5
Silt	22.5
Clay	7.0

Grading Analysis		
D100	mm	
D60	mm	5.09
D30	mm	0.0698
D10	mm	0.00335
Uniformity Coefficient		1500
Curvature Coefficient		0.29

Remarks

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Date: 14/12/2022

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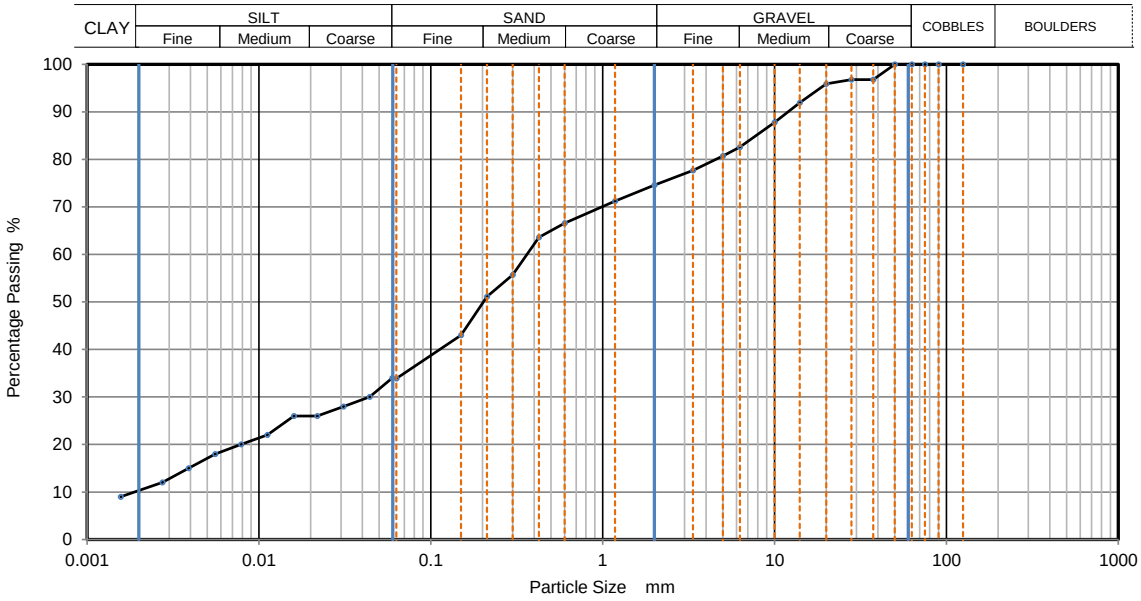
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-68009
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown clayey very silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0597	34
90	100	0.0441	30
75	100	0.0310	28
63	100	0.0219	26
50	100	0.0160	26
37.5	97	0.0112	22
28	97	0.0079	20
20	96	0.0056	18
14	92	0.0039	15
10	88	0.0027	12
6.3	83	0.0016	9
5	81		
3.35	78		
2	75		
1.18	71		
0.6	67	Particle density (assumed)	
0.425	64	2.70 Mg/m3	
0.3	56		
0.212	51		
0.15	43		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.4
Sand	40.7
Silt	23.5
Clay	10.4

Grading Analysis		
D100	mm	
D60	mm	0.363
D30	mm	0.0437
D10	mm	0.00188
Uniformity Coefficient		190
Curvature Coefficient		2.8

Remarks

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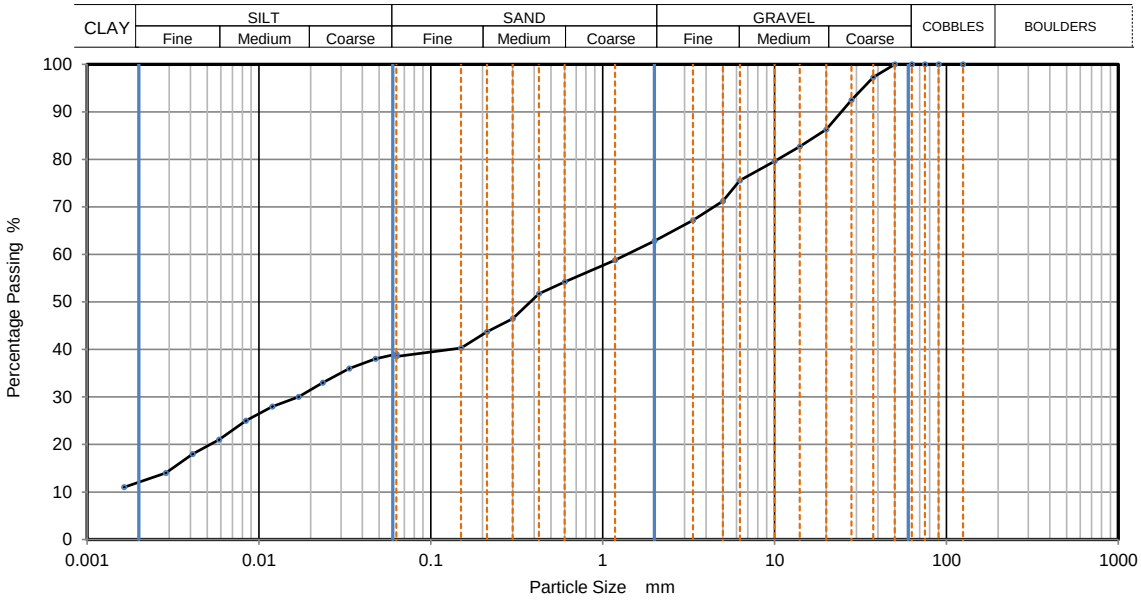
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-68306
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	39
90	100	0.0476	38
75	100	0.0335	36
63	100	0.0235	33
50	100	0.0170	30
37.5	97	0.0119	28
28	93	0.0084	25
20	86	0.0059	21
14	83	0.0041	18
10	80	0.0029	14
6.3	76	0.0016	11
5	71		
3.35	67		
2	63		
1.18	59		
0.6	54	Particle density (assumed)	
0.425	52	2.70	Mg/m3
0.3	47		
0.212	44		
0.15	40		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	37.2
Sand	24.3
Silt	26.3
Clay	12.2

Grading Analysis		
D100	mm	
D60	mm	1.37
D30	mm	0.0164
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Initials: **J.P**

Date: 14/12/2022

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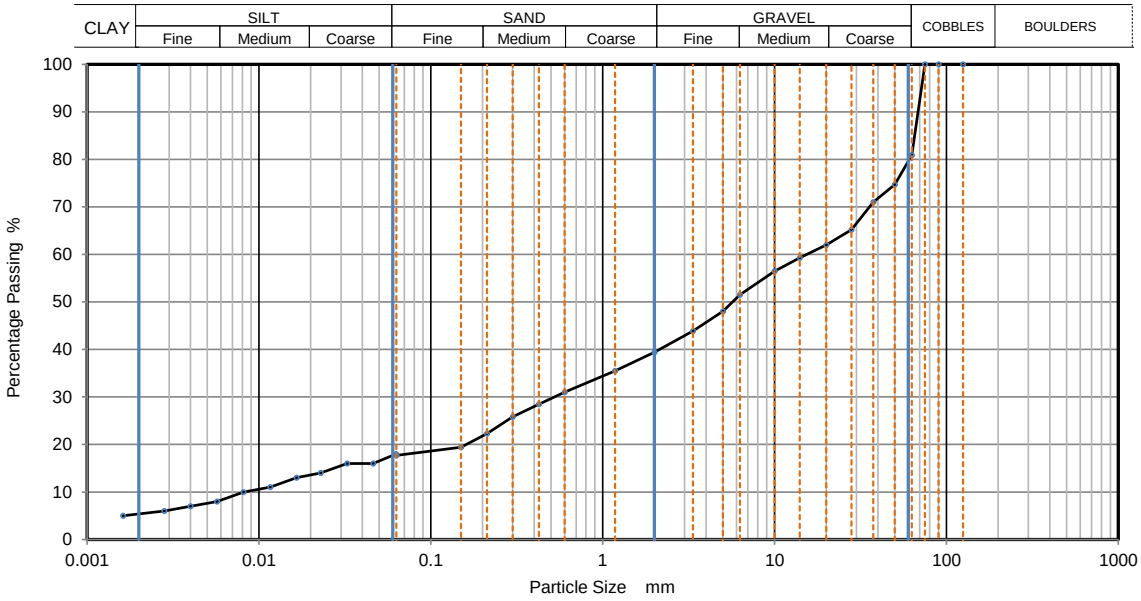
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-68804
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown clayey silty very sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0626	18
90	100	0.0462	16
75	100	0.0325	16
63	81	0.0228	14
50	75	0.0165	13
37.5	71	0.0116	11
28	65	0.0081	10
20	62	0.0057	8
14	59	0.0040	7
10	57	0.0028	6
6.3	52	0.0016	5
5	48		
3.35	44		
2	39		
1.18	36		
0.6	31	Particle density (assumed)	
0.425	29	2.70	Mg/m3
0.3	26		
0.212	22		
0.15	19		
0.063	18		

Sample Proportions	% dry mass
Very coarse	19.1
Gravel	41.5
Sand	21.7
Silt	12.4
Clay	5.3

Grading Analysis		
D100	mm	
D60	mm	15.4
D30	mm	0.524
D10	mm	0.00862
Uniformity Coefficient		1800
Curvature Coefficient		2.1

Remarks

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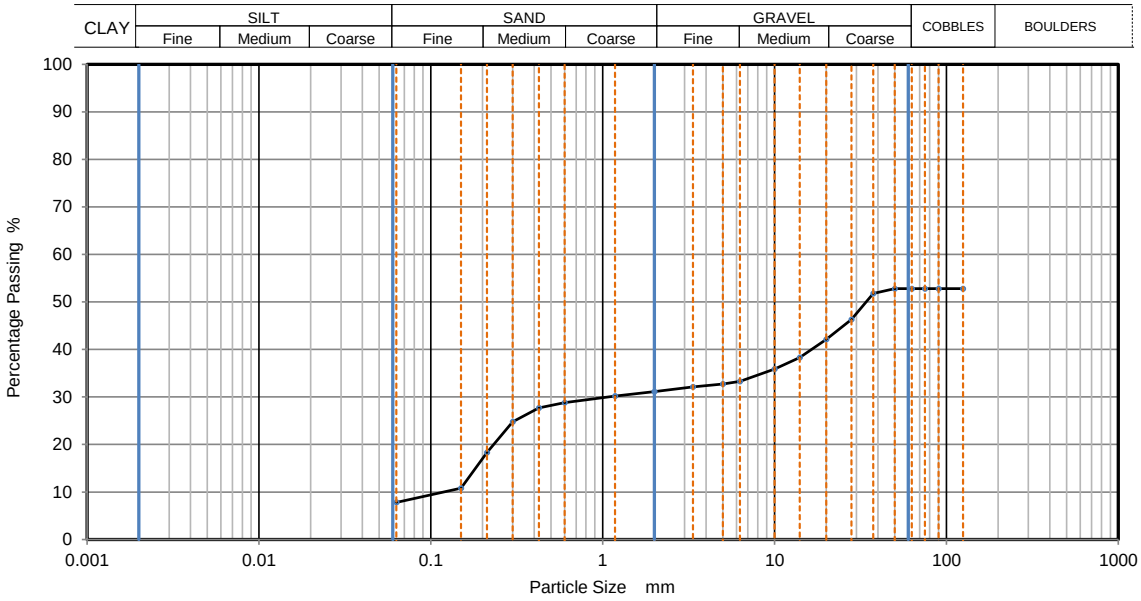
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-69405
Project No.	2021OY102	Client	Irish Drilling	Sample No.	
				Depth Top	1.00 m
Soil Description	Brownish grey clayey silty very gravelly SAND with numerous cobbles (gravel is fmc and sub-anguar to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	53		
90	53		
75	53		
63	53		
50	53		
37.5	52		
28	46		
20	42		
14	38		
10	36		
6.3	33		
5	33		
3.35	32		
2	31		
1.18	30		
0.6	29	Particle density	(assumed)
0.425	28	2.70	Mg/m3
0.3	25		
0.212	18		
0.15	11		
0.063	8		

Sample Proportions	% dry mass
Very coarse	47.2
Gravel	21.7
Sand	23.3
Fines <0.063mm	7.8

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	1.06
D10	mm	0.12
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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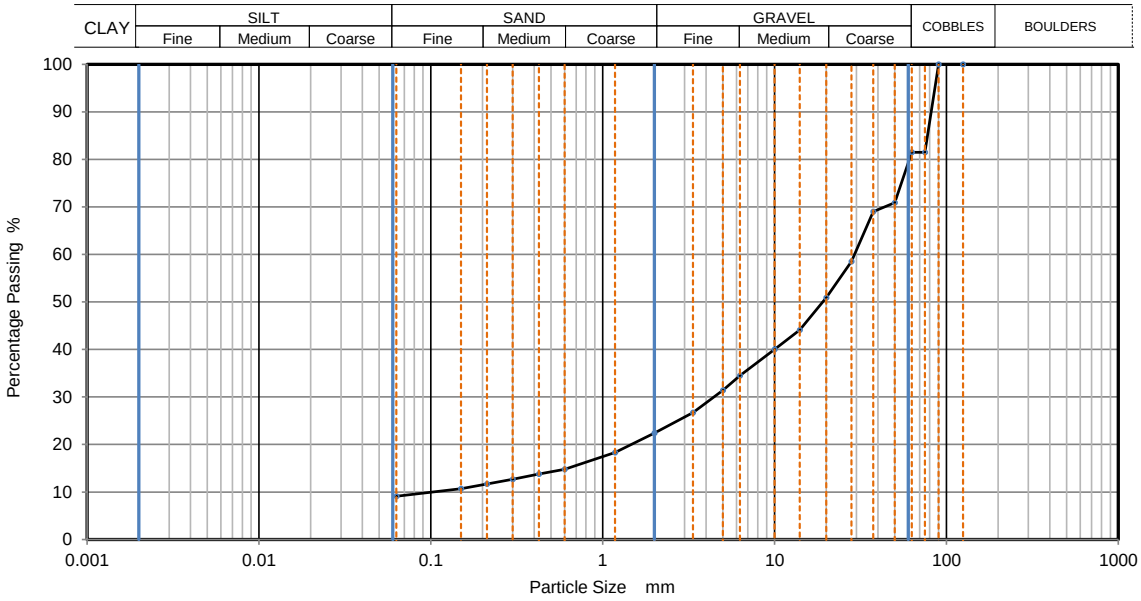
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-69405
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey slightly clayey silty sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	82		
63	82		
50	71		
37.5	69		
28	59		
20	51		
14	44		
10	40		
6.3	35		
5	31		
3.35	27		
2	22		
1.18	18		
0.6	15	Particle density	(assumed)
0.425	14	2.70	Mg/m3
0.3	13		
0.212	12		
0.15	11		
0.063	9		

Sample Proportions	% dry mass
Very coarse	18.5
Gravel	59.1
Sand	13.3
Fines <0.063mm	9.1

Grading Analysis		
D100	mm	
D60	mm	29.2
D30	mm	4.43
D10	mm	0.102
Uniformity Coefficient		290
Curvature Coefficient		6.6

Remarks

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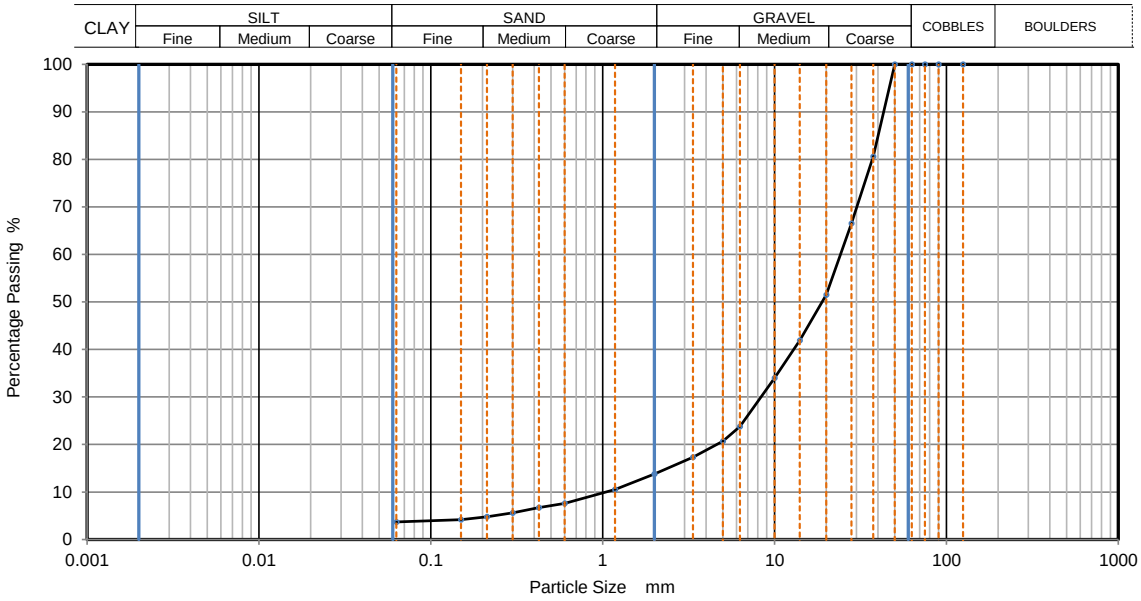
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-69561
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Dark grey slightly clayey slightly silty sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	81		
28	67		
20	52		
14	42		
10	34		
6.3	24		
5	21		
3.35	17		
2	14		
1.18	11		
0.6	8	Particle density	(assumed)
0.425	7	2.70	Mg/m3
0.3	6		
0.212	5		
0.15	4		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	86.2
Sand	10.0
Fines <0.063mm	3.7

Grading Analysis		
D100	mm	
D60	mm	24.2
D30	mm	8.34
D10	mm	1.05
Uniformity Coefficient		23
Curvature Coefficient		2.7

Remarks

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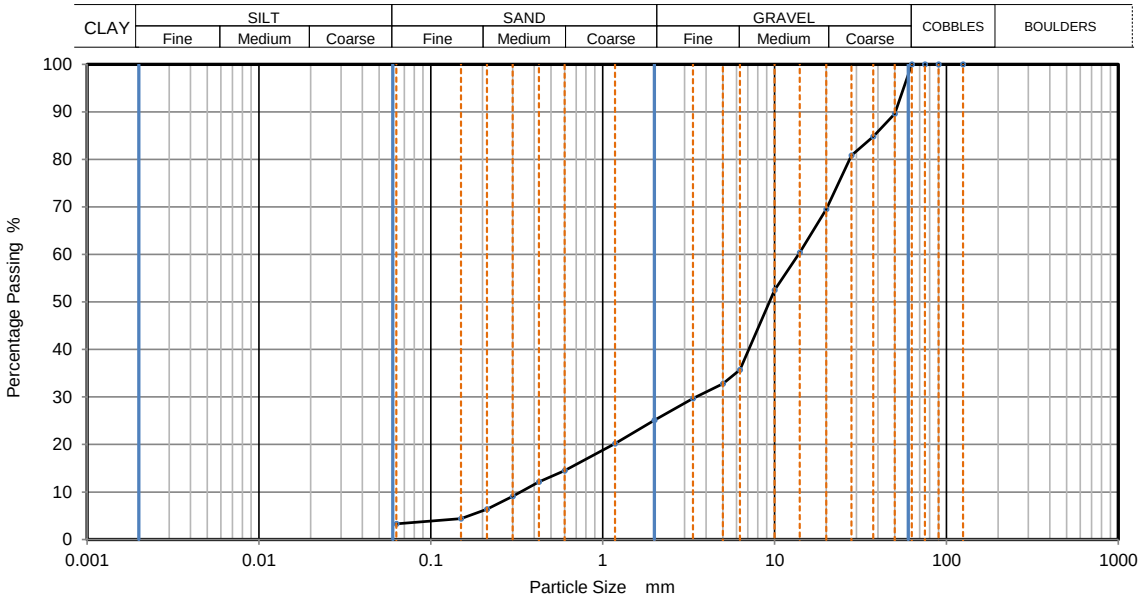
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-69703
Site Name	WSP Eastern & Midlands Region			Sample No.	16
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly clayey slightly silty very sandy GRAVEL (gravel is fmc and sub-rounded)			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	90		
37.5	85		
28	81		
20	70		
14	60		
10	53		
6.3	36		
5	33		
3.35	30		
2	25		
1.18	20		
0.6	15	Particle density (assumed)	
0.425	12	2.70	Mg/m3
0.3	9		
0.212	6		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	74.9
Sand	21.8
Fines <0.063mm	3.3

Grading Analysis		
D100	mm	
D60	mm	13.7
D30	mm	3.46
D10	mm	0.333
Uniformity Coefficient		41
Curvature Coefficient		2.6

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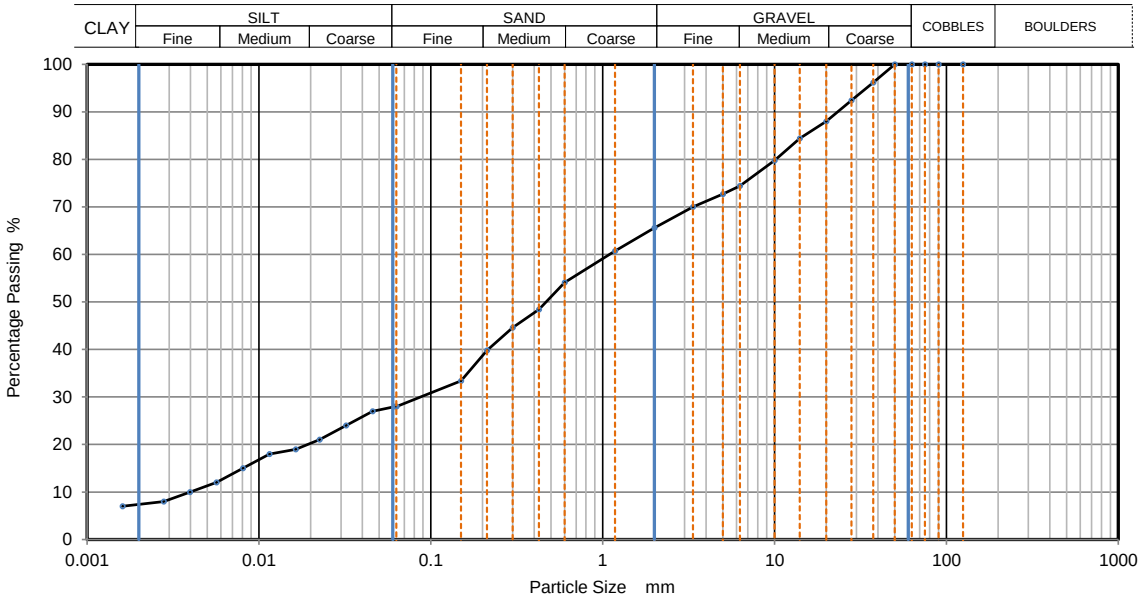
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-70205
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey and brown clayey silty very gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	05/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0619	28
90	100	0.0458	27
75	100	0.0322	24
63	100	0.0226	21
50	100	0.0163	19
37.5	96	0.0115	18
28	92	0.0081	15
20	88	0.0057	12
14	84	0.0040	10
10	80	0.0028	8
6.3	74	0.0016	7
5	73		
3.35	70		
2	66		
1.18	61		
0.6	54	Particle density (assumed)	
0.425	48	2.70	Mg/m3
0.3	45		
0.212	40		
0.15	33		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.4
Sand	37.6
Silt	20.4
Clay	7.6

Grading Analysis		
D100	mm	
D60	mm	1.1
D30	mm	0.087
D10	mm	0.00414
Uniformity Coefficient		270
Curvature Coefficient		1.7

Remarks

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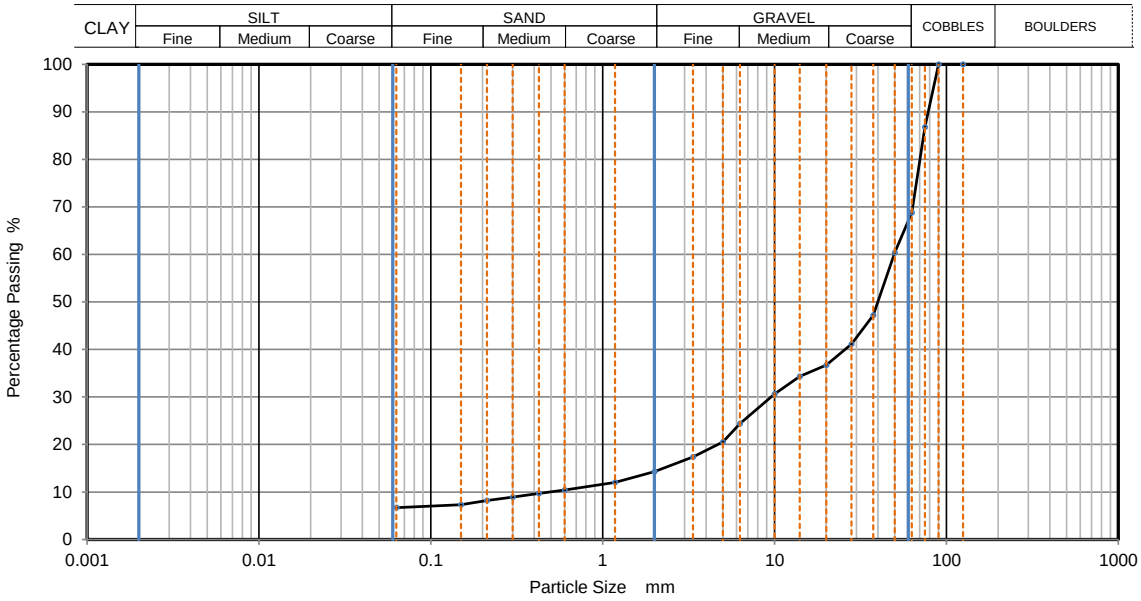
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-70701
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey slightly clayey silty sandy GRAVEL with numerous cobbles (gravel is fmc and sub-rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	87		
63	69		
50	60		
37.5	47		
28	41		
20	37		
14	34		
10	31		
6.3	24		
5	21		
3.35	17		
2	14		
1.18	12		
0.6	10	Particle density (assumed)	
0.425	10	2.70	Mg/m3
0.3	9		
0.212	8		
0.15	7		
0.063	7		

Sample Proportions	% dry mass
Very coarse	31.2
Gravel	54.5
Sand	7.6
Fines <0.063mm	6.7

Grading Analysis		
D100	mm	
D60	mm	49.6
D30	mm	9.57
D10	mm	0.499
Uniformity Coefficient		99
Curvature Coefficient		3.7

Remarks

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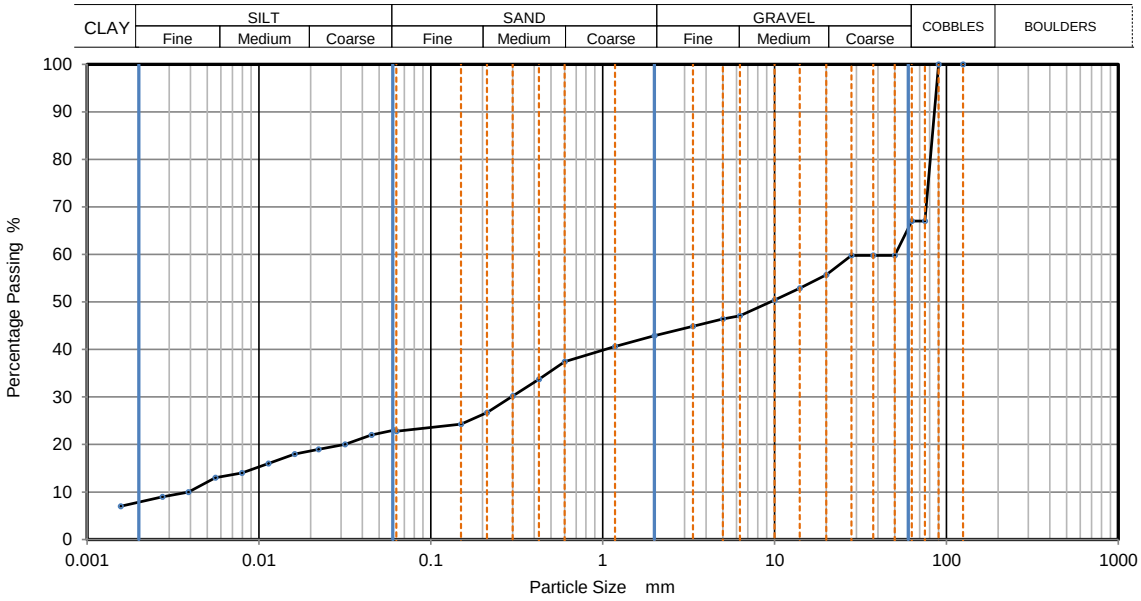
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-71124
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey clayey very silty very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0609	23
90	100	0.0451	22
75	67	0.0317	20
63	67	0.0222	19
50	60	0.0162	18
37.5	60	0.0113	16
28	60	0.0079	14
20	56	0.0056	13
14	53	0.0039	10
10	50	0.0027	9
6.3	47	0.0016	7
5	46		
3.35	45		
2	43		
1.18	41		
0.6	37	Particle density (assumed)	
0.425	34	2.70	Mg/m3
0.3	30		
0.212	27		
0.15	24		
0.063	23		

Sample Proportions	% dry mass
Very coarse	33.0
Gravel	24.1
Sand	20.1
Silt	14.7
Clay	8.1

Grading Analysis		
D100	mm	
D60	mm	50.4
D30	mm	0.295
D10	mm	0.00392
Uniformity Coefficient		13000
Curvature Coefficient		0.44

Remarks

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Initials: **J.P**

Date: 14/12/2022

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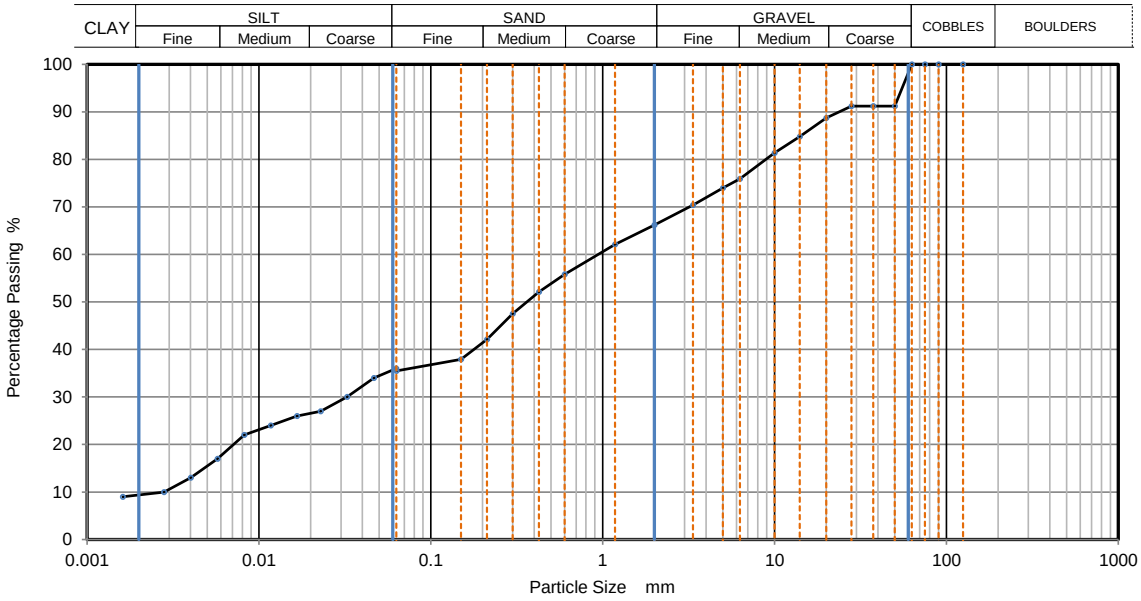
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-71124
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey slightly sandy slightly gravelly very silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	4.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0629	36
90	100	0.0466	34
75	100	0.0326	30
63	100	0.0228	27
50	91	0.0166	26
37.5	91	0.0117	24
28	91	0.0082	22
20	89	0.0057	17
14	85	0.0040	13
10	81	0.0028	10
6.3	76	0.0016	9
5	74		
3.35	70		
2	66		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	52	2.70	Mg/m3
0.3	48		
0.212	42		
0.15	38		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.8
Sand	30.7
Silt	26.0
Clay	9.5

Grading Analysis		
D100	mm	
D60	mm	0.941
D30	mm	0.0327
D10	mm	0.00281
Uniformity Coefficient		340
Curvature Coefficient		0.4

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Checked and Approved

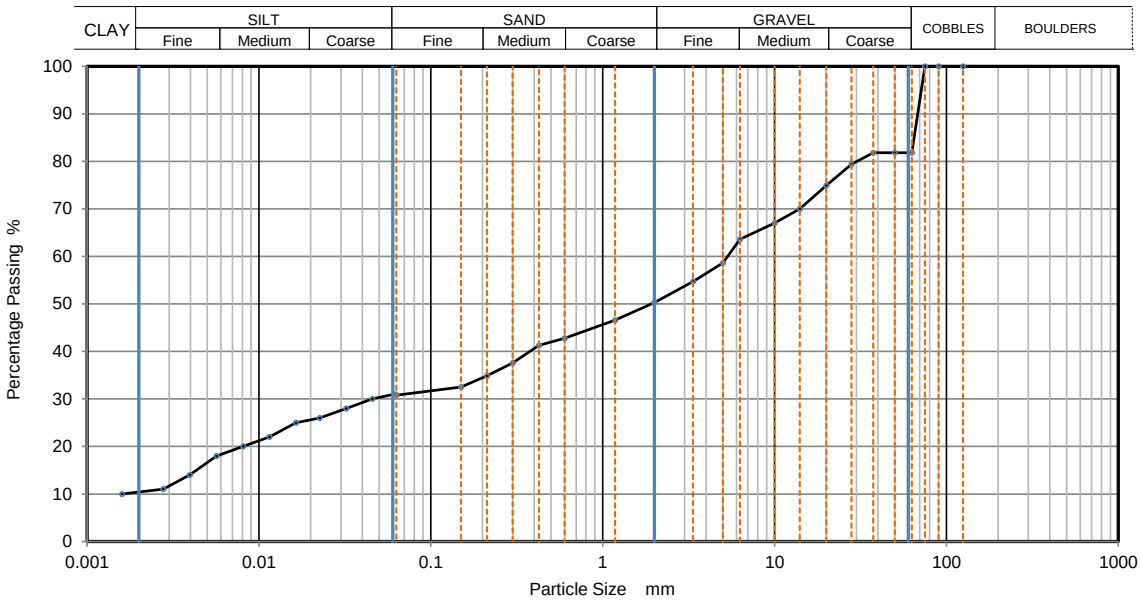
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-71397
Site Name	WSP Eastern & Midlands Region			Sample No.	9
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey clayey very sandy very silty GRAVEL with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0615	31
90	100	0.0456	30
75	100	0.0321	28
63	82	0.0225	26
50	82	0.0164	25
37.5	82	0.0115	22
28	79	0.0081	20
20	75	0.0057	18
14	70	0.0040	14
10	67	0.0028	11
6.3	64	0.0016	10
5	59		
3.35	55		
2	50		
1.18	47		
0.6	43	Particle density (assumed)	
0.425	41	2.70 Mg/m3	
0.3	38		
0.212	35		
0.15	33		
0.063	31		

Sample Proportions	% dry mass
Very coarse	18.2
Gravel	31.5
Sand	19.5
Silt	20.5
Clay	10.3

Grading Analysis		
D100	mm	
D60	mm	5.33
D30	mm	0.0504
D10	mm	0.00172
Uniformity Coefficient		3100
Curvature Coefficient		0.28

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

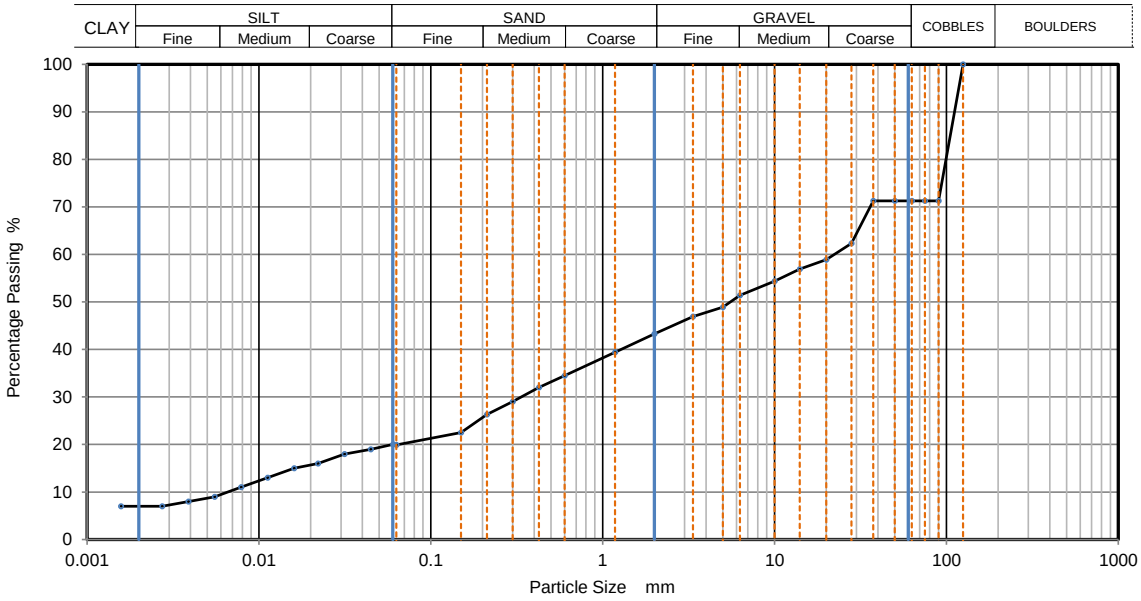
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-71397
Site Name	WSP Eastern & Midlands Region			Sample No.	18
Project No.	2021OY102	Client	Irish Drilling	Depth Top	6.50 m
Soil Description	Grey clayey silty very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	7.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0603	20
90	71	0.0446	19
75	71	0.0314	18
63	71	0.0220	16
50	71	0.0160	15
37.5	71	0.0112	13
28	62	0.0079	11
20	59	0.0055	9
14	57	0.0039	8
10	54	0.0027	7
6.3	51	0.0016	7
5	49		
3.35	47		
2	43		
1.18	39		
0.6	35	Particle density (assumed)	
0.425	32	2.70	Mg/m3
0.3	29		
0.212	26		
0.15	23		
0.063	20		

Sample Proportions	% dry mass
Very coarse	28.7
Gravel	28.0
Sand	23.4
Silt	13.2
Clay	6.7

Grading Analysis		
D100	mm	125
D60	mm	22.3
D30	mm	0.337
D10	mm	0.0062
Uniformity Coefficient		3600
Curvature Coefficient		0.82

Remarks

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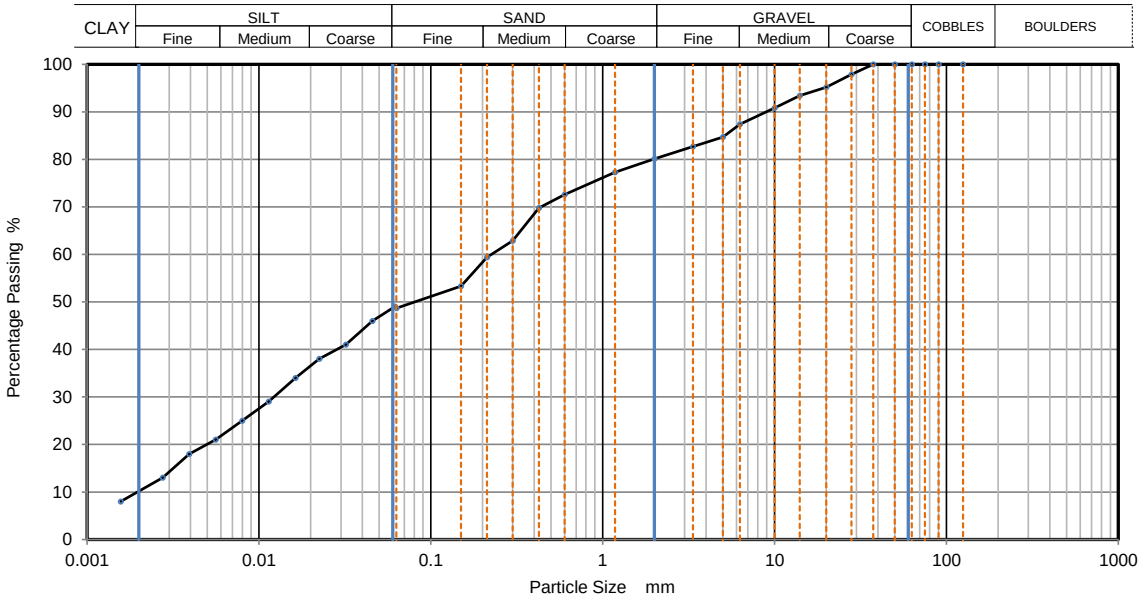
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-72207
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0618	49
90	100	0.0457	46
75	100	0.0320	41
63	100	0.0225	38
50	100	0.0163	34
37.5	100	0.0114	29
28	98	0.0080	25
20	95	0.0056	21
14	93	0.0039	18
10	91	0.0027	13
6.3	87	0.0016	8
5	85		
3.35	83		
2	80		
1.18	77		
0.6	73	Particle density (assumed)	
0.425	70	2.70	Mg/m3
0.3	63		
0.212	59		
0.15	53		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.9
Sand	31.3
Silt	38.3
Clay	10.5

Grading Analysis		
D100	mm	
D60	mm	0.226
D30	mm	0.0125
D10	mm	0.00189
Uniformity Coefficient		120
Curvature Coefficient		0.37

Remarks

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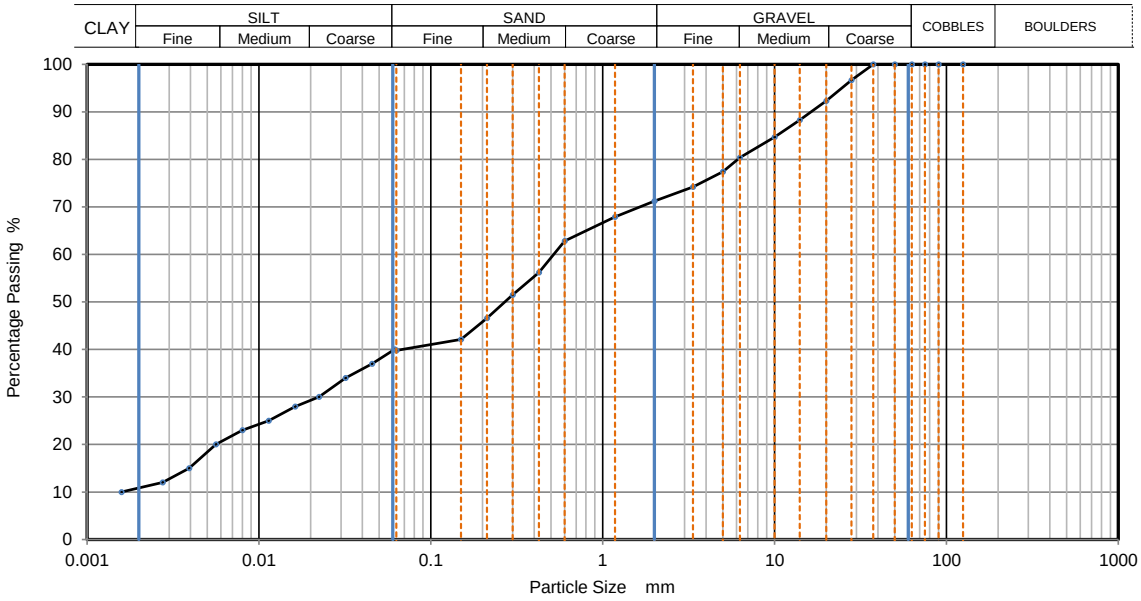
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-72683
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	12/12/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0615	40
90	100	0.0454	37
75	100	0.0319	34
63	100	0.0224	30
50	100	0.0163	28
37.5	100	0.0114	25
28	97	0.0080	23
20	92	0.0056	20
14	88	0.0039	15
10	85	0.0028	12
6.3	80	0.0016	10
5	77		
3.35	74		
2	71		
1.18	68		
0.6	63	Particle density (assumed)	
0.425	56	2.70	Mg/m3
0.3	52		
0.212	47		
0.15	42		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.8
Sand	31.4
Silt	28.9
Clay	10.9

Grading Analysis		
D100	mm	
D60	mm	0.518
D30	mm	0.0209
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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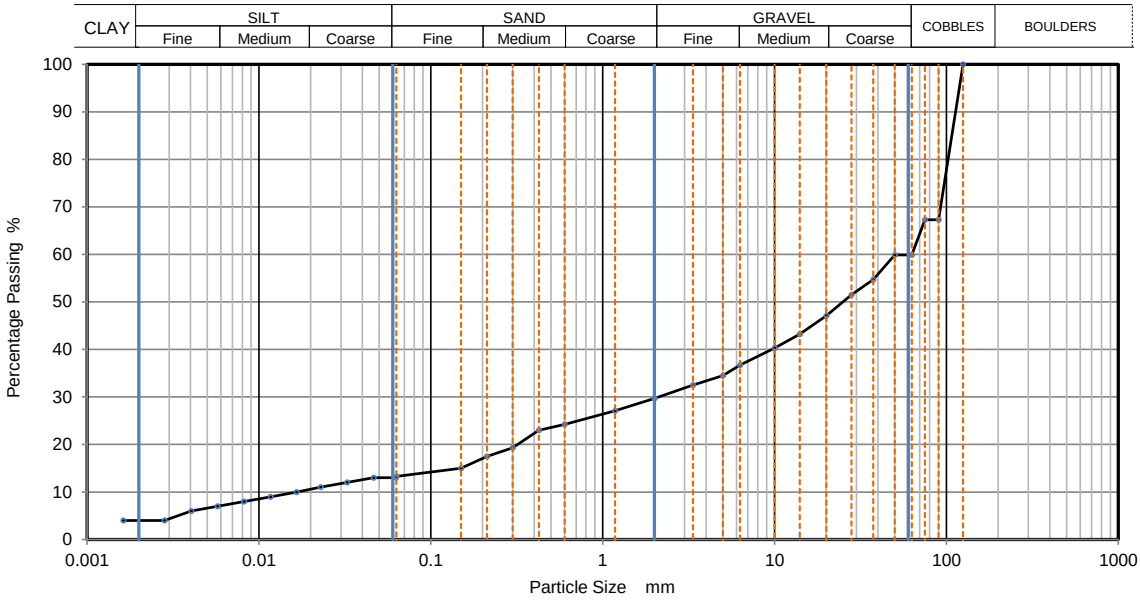
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-72683
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey clayey silty very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	4.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0626	13
90	67	0.0464	13
75	67	0.0326	12
63	60	0.0228	11
50	60	0.0166	10
37.5	55	0.0117	9
28	52	0.0082	8
20	47	0.0057	7
14	43	0.0040	6
10	40	0.0028	4
6.3	37	0.0016	4
5	35		
3.35	33		
2	30		
1.18	27		
0.6	24	Particle density (assumed)	
0.425	23	2.70	Mg/m3
0.3	19		
0.212	18		
0.15	15		
0.063	13		

Sample Proportions	% dry mass
Very coarse	40.1
Gravel	30.1
Sand	16.5
Silt	9.1
Clay	4.2

Grading Analysis		
D100	mm	125
D60	mm	63.2
D30	mm	2.1
D10	mm	0.0191
Uniformity Coefficient		3300
Curvature Coefficient		3.6

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

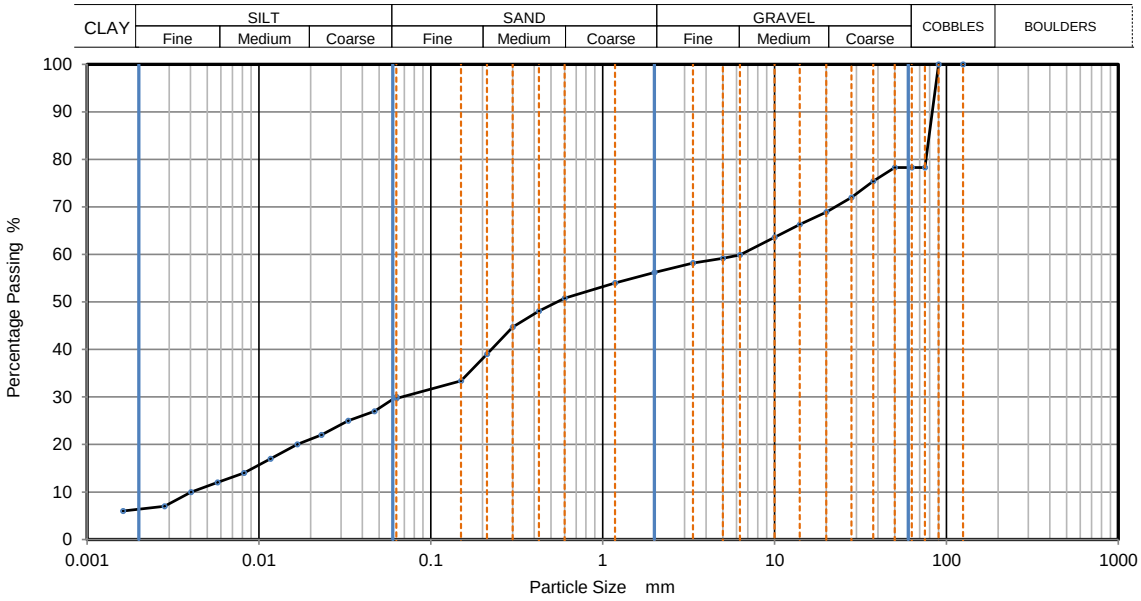
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-73135
Project No.	2021OY102	Client	Irish Drilling	Sample No.	4
				Depth Top	1.00 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	30
90	100	0.0470	27
75	78	0.0330	25
63	78	0.0231	22
50	78	0.0167	20
37.5	75	0.0117	17
28	72	0.0082	14
20	69	0.0057	12
14	66	0.0040	10
10	64	0.0028	7
6.3	60	0.0016	6
5	59		
3.35	58		
2	56		
1.18	54		
0.6	51	Particle density (assumed)	
0.425	48	2.70	Mg/m3
0.3	45		
0.212	39		
0.15	33		
0.063	30		

Sample Proportions	% dry mass
Very coarse	21.7
Gravel	22.1
Sand	26.5
Silt	23.4
Clay	6.3

Grading Analysis		
D100	mm	
D60	mm	6.38
D30	mm	0.067
D10	mm	0.004
Uniformity Coefficient		1600
Curvature Coefficient		0.18

Remarks

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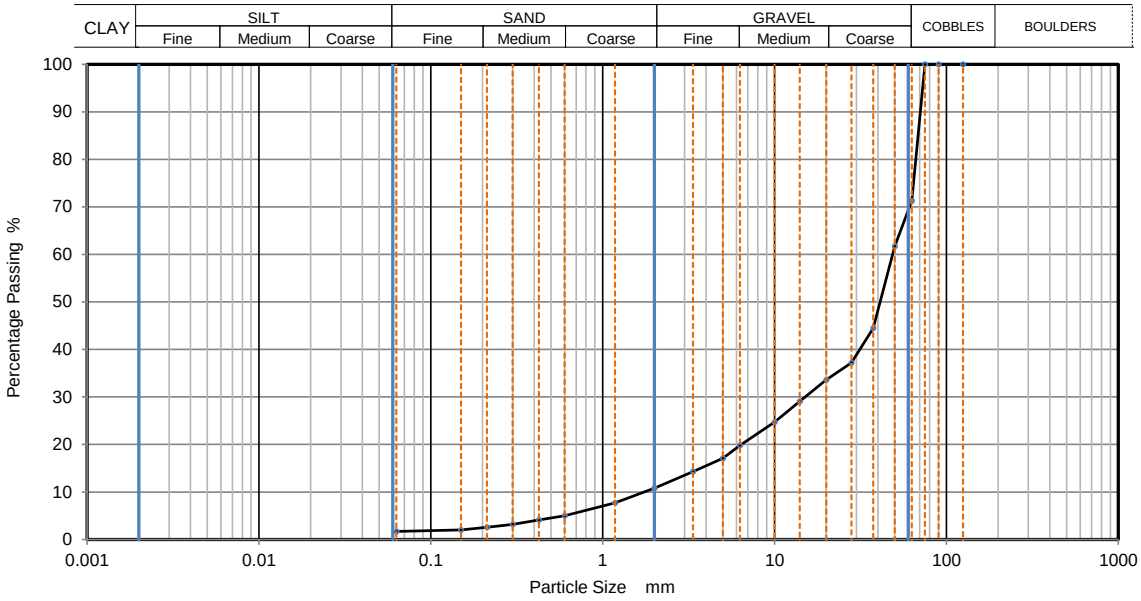
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-73135
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey slightly clayey slightly silty sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	05/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	71		
50	62		
37.5	45		
28	37		
20	34		
14	29		
10	25		
6.3	20		
5	17		
3.35	14		
2	11		
1.18	8		
0.6	5	Particle density	(assumed)
0.425	4	2.70	Mg/m3
0.3	3		
0.212	3		
0.15	2		
0.063	2		

Sample Proportions	% dry mass
Very coarse	28.7
Gravel	60.5
Sand	9.2
Fines <0.063mm	1.7

Grading Analysis		
D100	mm	
D60	mm	48.6
D30	mm	15
D10	mm	1.74
Uniformity Coefficient		28
Curvature Coefficient		2.7

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

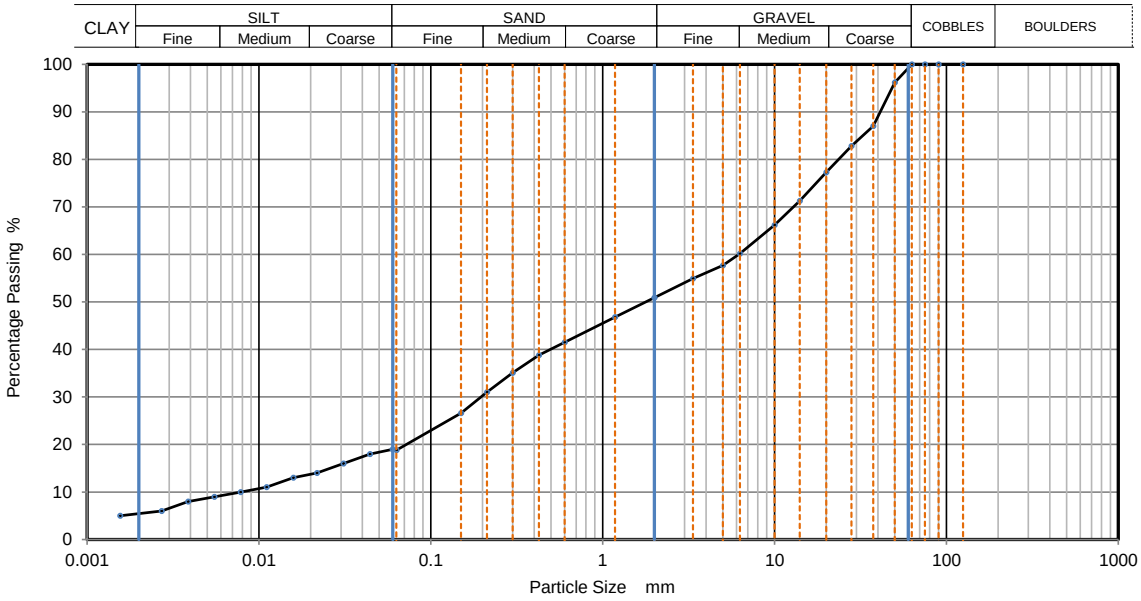
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-73966
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0598	19
90	100	0.0443	18
75	100	0.0310	16
63	100	0.0218	14
50	96	0.0158	13
37.5	87	0.0111	11
28	83	0.0078	10
20	77	0.0055	9
14	71	0.0039	8
10	66	0.0027	6
6.3	60	0.0016	5
5	58		
3.35	55		
2	51		
1.18	47		
0.6	42	Particle density (assumed)	
0.425	39	2.70 Mg/m3	
0.3	35		
0.212	31		
0.15	27		
0.063	19		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	49.1
Sand	32.1
Silt	13.5
Clay	5.3

Grading Analysis		
D100	mm	
D60	mm	6.19
D30	mm	0.196
D10	mm	0.00838
Uniformity Coefficient		740
Curvature Coefficient		0.74

Remarks

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Date: 14/12/2022

UKAS TESTING

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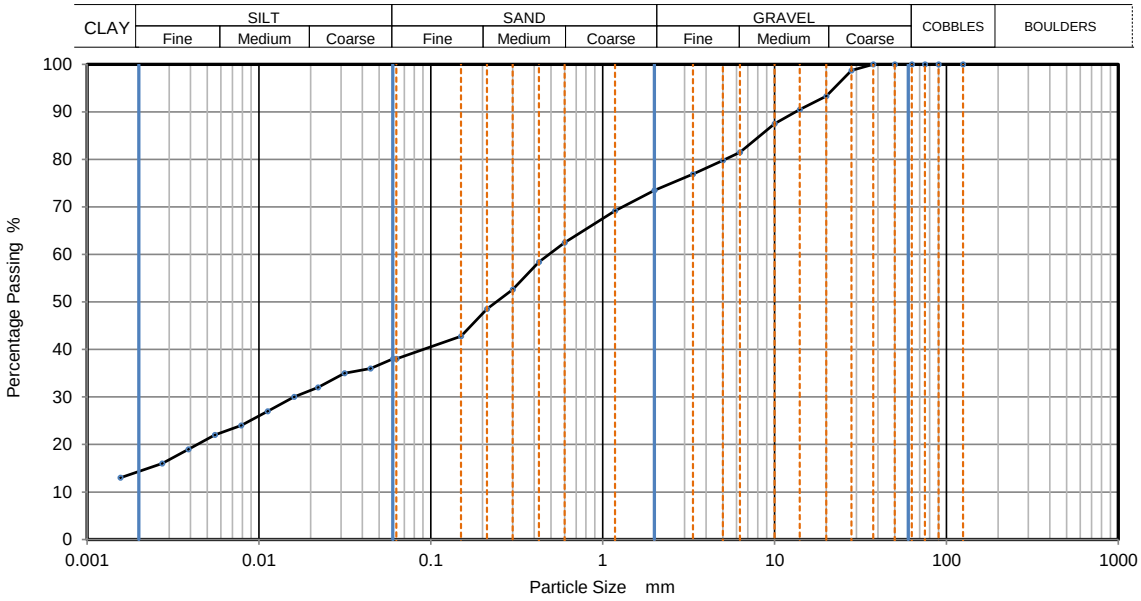
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-74100
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0602	38
90	100	0.0446	36
75	100	0.0314	35
63	100	0.0220	32
50	100	0.0160	30
37.5	100	0.0112	27
28	99	0.0079	24
20	93	0.0055	22
14	91	0.0039	19
10	88	0.0027	16
6.3	82	0.0016	13
5	80		
3.35	77		
2	74		
1.18	69		
0.6	63	Particle density	(assumed)
0.425	58	2.70	Mg/m3
0.3	53		
0.212	49		
0.15	43		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.5
Sand	35.5
Silt	23.8
Clay	14.2

Grading Analysis		
D100	mm	
D60	mm	0.486
D30	mm	0.0162
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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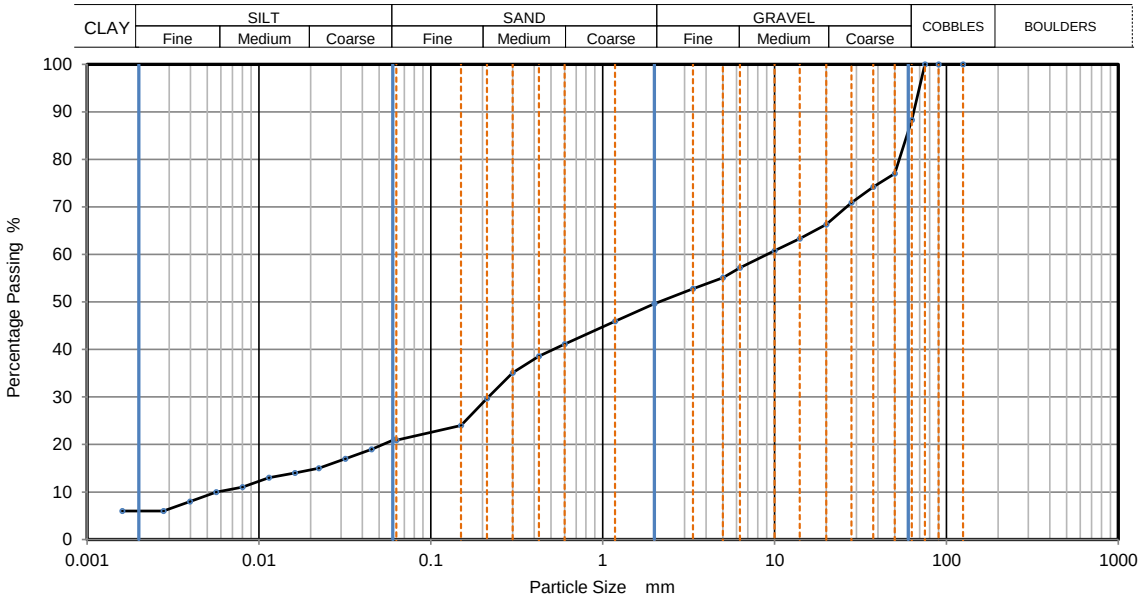
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-74205
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey clayey silty very sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0612	21
90	100	0.0451	19
75	100	0.0318	17
63	88	0.0223	15
50	77	0.0162	14
37.5	74	0.0114	13
28	71	0.0080	11
20	66	0.0056	10
14	63	0.0040	8
10	61	0.0028	6
6.3	57	0.0016	6
5	55		
3.35	53		
2	50		
1.18	46		
0.6	41	Particle density (assumed)	
0.425	39	2.70 Mg/m3	
0.3	35		
0.212	30		
0.15	24		
0.063	21		

Sample Proportions	% dry mass
Very coarse	11.7
Gravel	38.7
Sand	28.7
Silt	14.9
Clay	6.0

Grading Analysis		
D100	mm	
D60	mm	9.07
D30	mm	0.217
D10	mm	0.00649
Uniformity Coefficient		1400
Curvature Coefficient		0.8

Remarks

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K4 Soils Laboratory

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

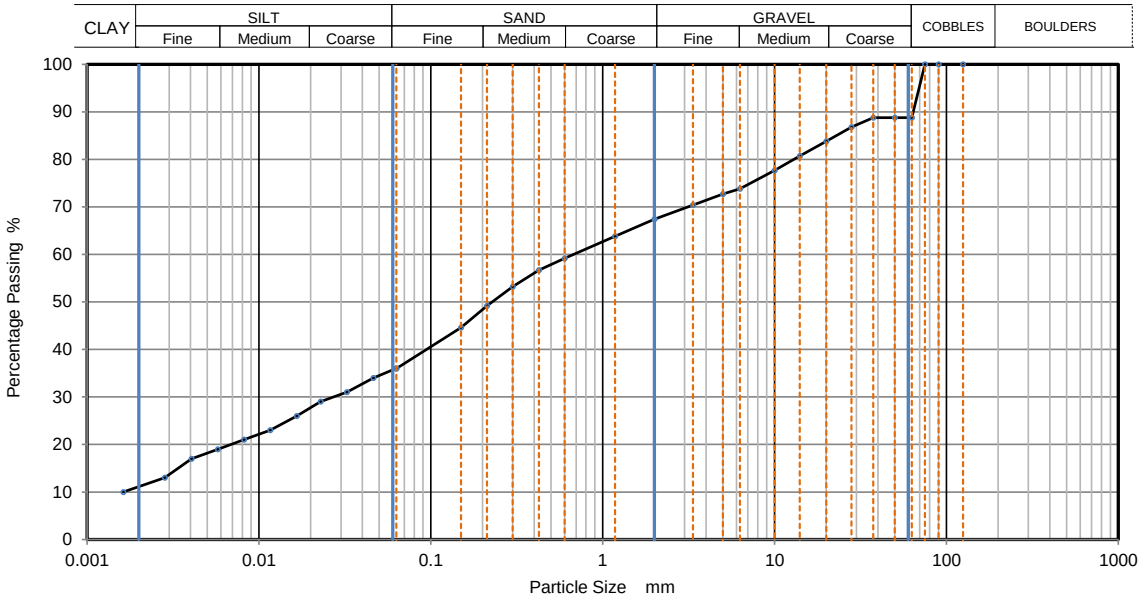
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-75808
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0625	36
90	100	0.0463	34
75	100	0.0325	31
63	89	0.0228	29
50	89	0.0166	26
37.5	89	0.0116	23
28	87	0.0082	21
20	84	0.0058	19
14	81	0.0040	17
10	78	0.0028	13
6.3	74	0.0016	10
5	73		
3.35	70		
2	67		
1.18	64		
0.6	59	Particle density	(assumed)
0.425	57	2.70	Mg/m3
0.3	53		
0.212	49		
0.15	45		
0.063	36		

Sample Proportions	% dry mass
Very coarse	11.2
Gravel	21.4
Sand	31.4
Silt	24.9
Clay	11.1

Grading Analysis		
D100	mm	
D60	mm	0.671
D30	mm	0.0279
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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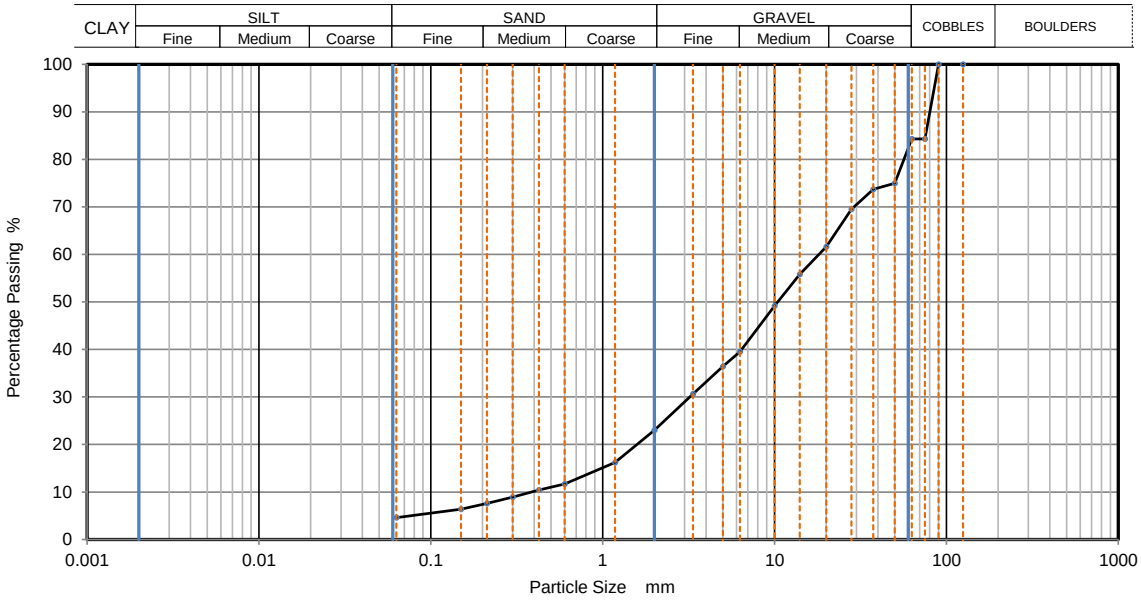
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-75808
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Brownish grey slightly clayey slightly silty very sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	84		
63	84		
50	75		
37.5	74		
28	70		
20	62		
14	56		
10	49		
6.3	40		
5	36		
3.35	31		
2	23		
1.18	16		
0.6	12	Particle density	(assumed)
0.425	10	2.70	Mg/m3
0.3	9		
0.212	8		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Very coarse	15.7
Gravel	61.3
Sand	18.4
Fines <0.063mm	4.6

Grading Analysis		
D100	mm	
D60	mm	18.1
D30	mm	3.22
D10	mm	0.39
Uniformity Coefficient		47
Curvature Coefficient		1.5

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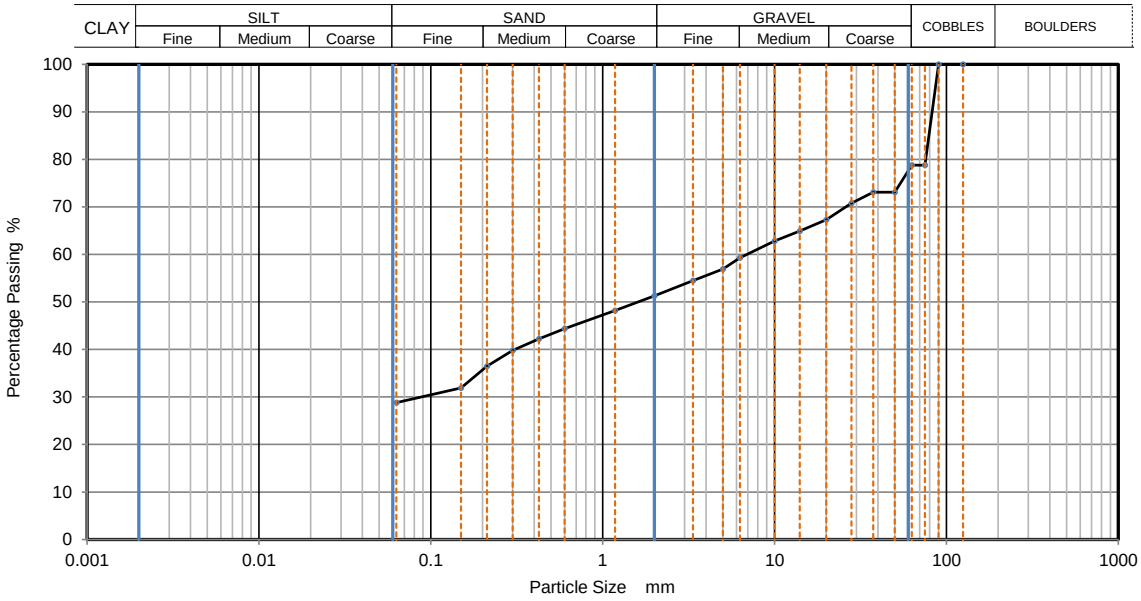
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-76085
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	79		
63	79		
50	73		
37.5	73		
28	71		
20	67		
14	65		
10	63		
6.3	59		
5	57		
3.35	55		
2	51		
1.18	48		
0.6	44		
0.425	42		
0.3	40		
0.212	37		
0.15	32		
0.063	29		

Sample Proportions	% dry mass
Very coarse	21.2
Gravel	27.5
Sand	22.6
Fines <0.063mm	28.8

Grading Analysis		
D100	mm	
D60	mm	6.93
D30	mm	0.0886
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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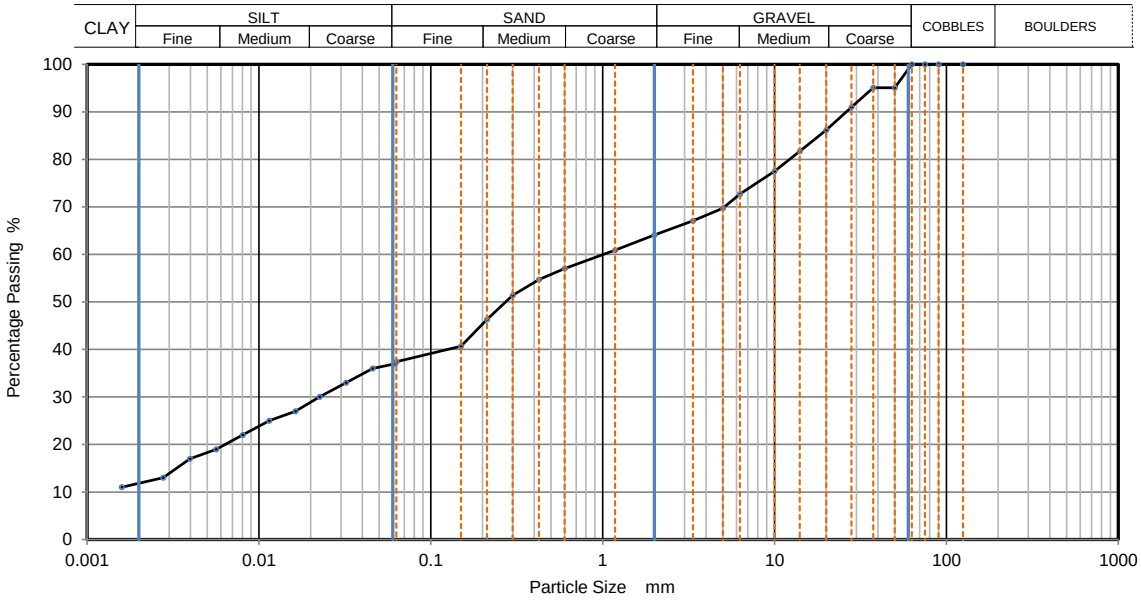
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-76545
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey and brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0618	37
90	100	0.0458	36
75	100	0.0321	33
63	100	0.0225	30
50	95	0.0163	27
37.5	95	0.0115	25
28	91	0.0080	22
20	86	0.0056	19
14	82	0.0040	17
10	78	0.0028	13
6.3	73	0.0016	11
5	70		
3.35	67		
2	64		
1.18	61		
0.6	57	Particle density	(assumed)
0.425	55	2.70	Mg/m3
0.3	51		
0.212	46		
0.15	41		
0.063	37		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.9
Sand	26.7
Silt	25.8
Clay	11.6

Grading Analysis		
D100	mm	
D60	mm	1
D30	mm	0.0218
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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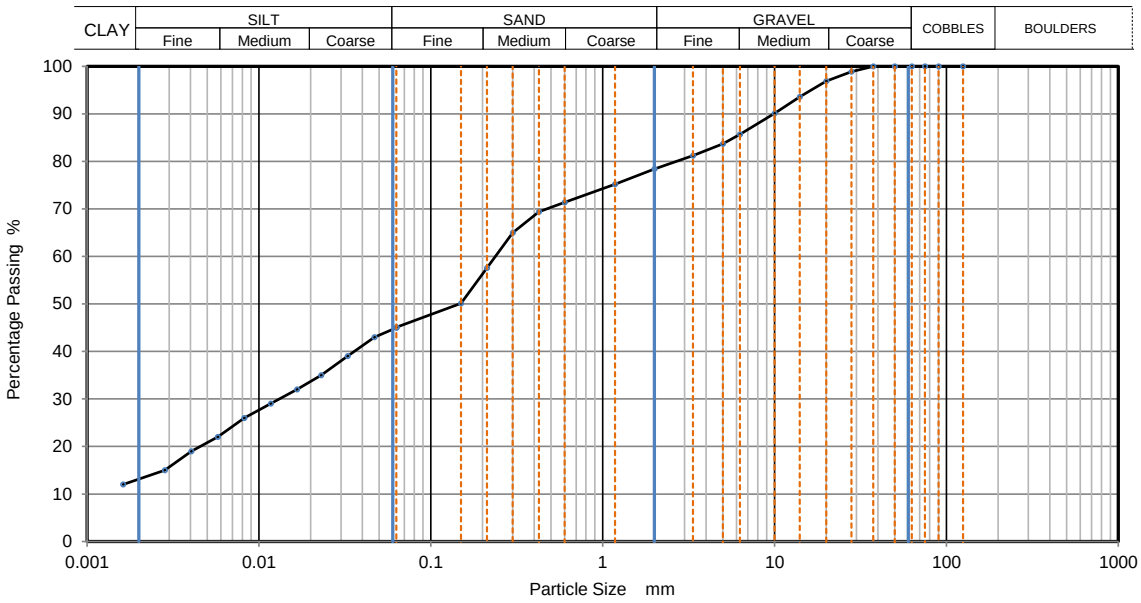
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-76545
Site Name	WSP Eastern & Midlands Region			Sample No.	16
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-rounded)			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	02/12/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0469	43
75	100	0.0328	39
63	100	0.0230	35
50	100	0.0167	32
37.5	100	0.0117	29
28	99	0.0082	26
20	97	0.0058	22
14	94	0.0040	19
10	90	0.0028	15
6.3	86	0.0016	12
5	84		
3.35	81		
2	78		
1.18	75		
0.6	71	Particle density (assumed)	
0.425	69	2.70	Mg/m3
0.3	65		
0.212	58		
0.15	50		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.6
Sand	33.3
Silt	31.8
Clay	13.3

Grading Analysis		
D100	mm	
D60	mm	0.237
D30	mm	0.0135
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Date: 14/12/2022

UKAS TESTING

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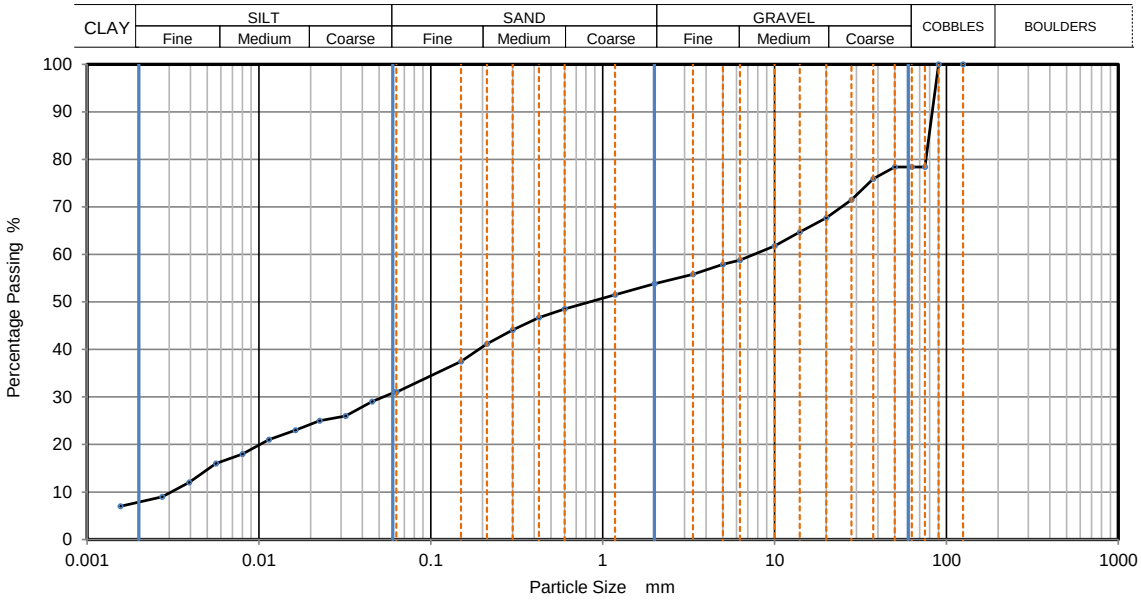
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-76718
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0617	31
90	100	0.0455	29
75	78	0.0319	26
63	78	0.0225	25
50	78	0.0163	23
37.5	76	0.0114	21
28	72	0.0080	18
20	68	0.0056	16
14	65	0.0039	12
10	62	0.0027	9
6.3	59	0.0016	7
5	58		
3.35	56		
2	54		
1.18	52		
0.6	49	Particle density (assumed)	
0.425	47	2.70	Mg/m3
0.3	44		
0.212	41		
0.15	38		
0.063	31		

Sample Proportions	% dry mass
Very coarse	21.6
Gravel	24.6
Sand	22.8
Silt	23.3
Clay	7.7

Grading Analysis		
D100	mm	
D60	mm	7.6
D30	mm	0.0541
D10	mm	0.00303
Uniformity Coefficient		2500
Curvature Coefficient		0.13

Remarks

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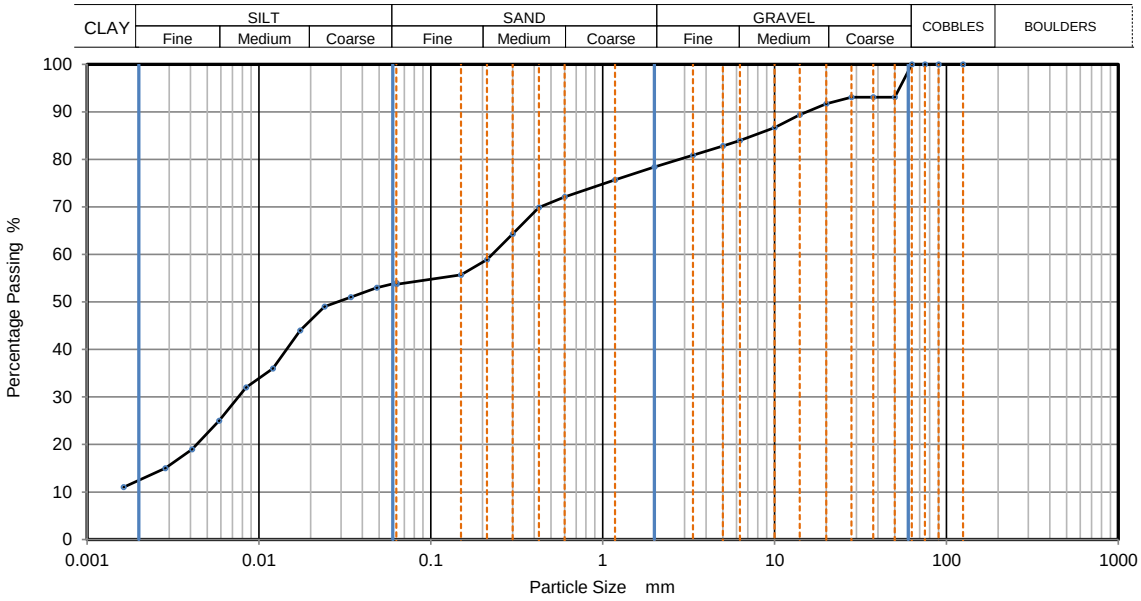
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-77176
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	54
90	100	0.0485	53
75	100	0.0342	51
63	100	0.0240	49
50	93	0.0174	44
37.5	93	0.0121	36
28	93	0.0084	32
20	92	0.0059	25
14	89	0.0041	19
10	87	0.0029	15
6.3	84	0.0016	11
5	83		
3.35	81		
2	78		
1.18	76		
0.6	72	Particle density (assumed)	
0.425	70	2.70	Mg/m3
0.3	64		
0.212	59		
0.15	56		
0.063	54		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.6
Sand	24.7
Silt	41.0
Clay	12.7

Grading Analysis		
D100	mm	
D60	mm	0.228
D30	mm	0.00763
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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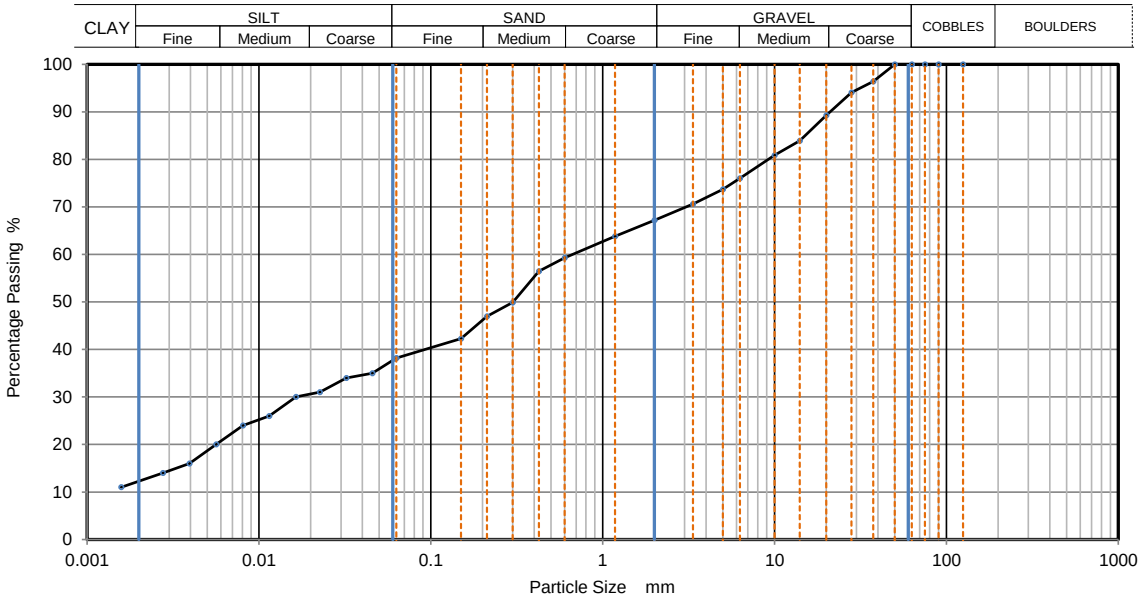
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-77404
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greenish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0620	38
90	100	0.0457	35
75	100	0.0322	34
63	100	0.0226	31
50	100	0.0164	30
37.5	96	0.0115	26
28	94	0.0081	24
20	89	0.0056	20
14	84	0.0039	16
10	81	0.0028	14
6.3	76	0.0016	11
5	74		
3.35	71		
2	67		
1.18	64		
0.6	59	Particle density	(assumed)
0.425	57	2.70	Mg/m3
0.3	50		
0.212	47		
0.15	42		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.8
Sand	29.0
Silt	26.1
Clay	12.1

Grading Analysis		
D100	mm	
D60	mm	0.665
D30	mm	0.0166
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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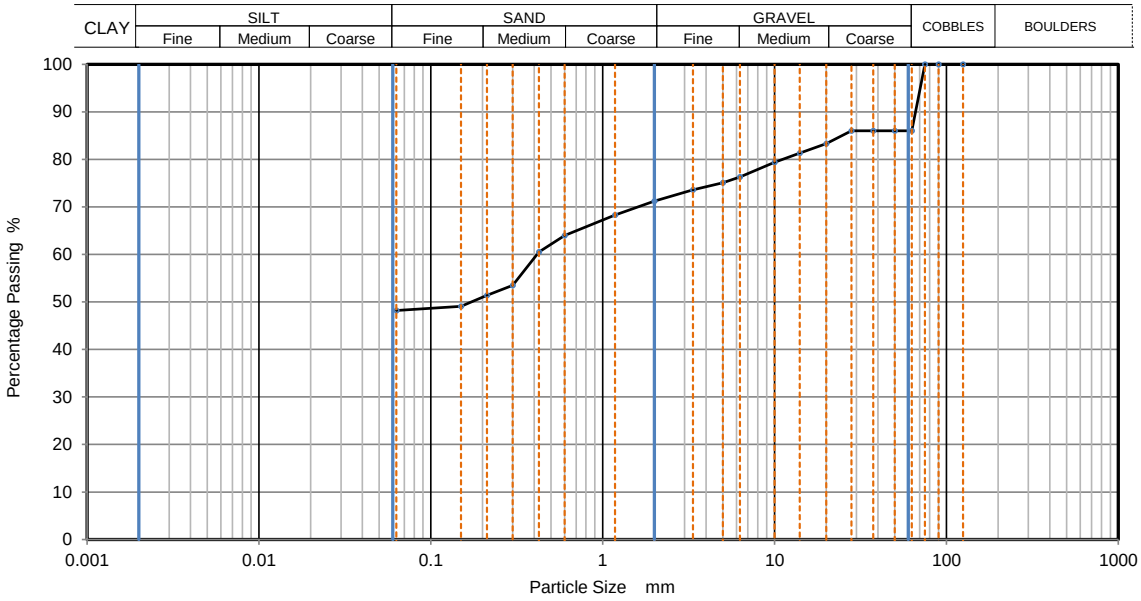
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-77477
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	86		
50	86		
37.5	86		
28	86		
20	83		
14	81		
10	79		
6.3	76		
5	75		
3.35	74		
2	71		
1.18	68		
0.6	64		
0.425	61		
0.3	54		
0.212	51		
0.15	49		
0.063	48		

Sample Proportions	% dry mass
Very coarse	14.0
Gravel	14.8
Sand	23.0
Fines <0.063mm	48.2

Grading Analysis		
D100	mm	
D60	mm	0.414
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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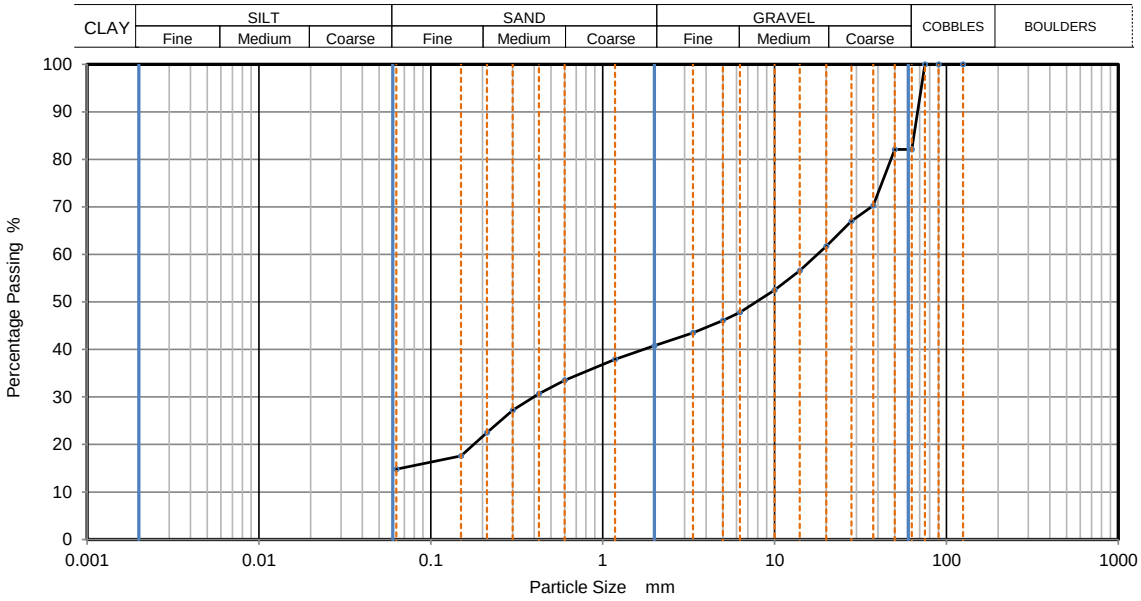
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-77477
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL with occasional cobbles (gravel is fmc and angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	82		
50	82		
37.5	70		
28	67		
20	62		
14	57		
10	53		
6.3	48		
5	46		
3.35	44		
2	41		
1.18	38		
0.6	34		
0.425	31		
0.3	27		
0.212	23		
0.15	18		
0.063	15		

Sample Proportions	% dry mass
Very coarse	17.9
Gravel	41.3
Sand	26.0
Fines <0.063mm	14.8

Grading Analysis		
D100	mm	
D60	mm	17.7
D30	mm	0.396
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

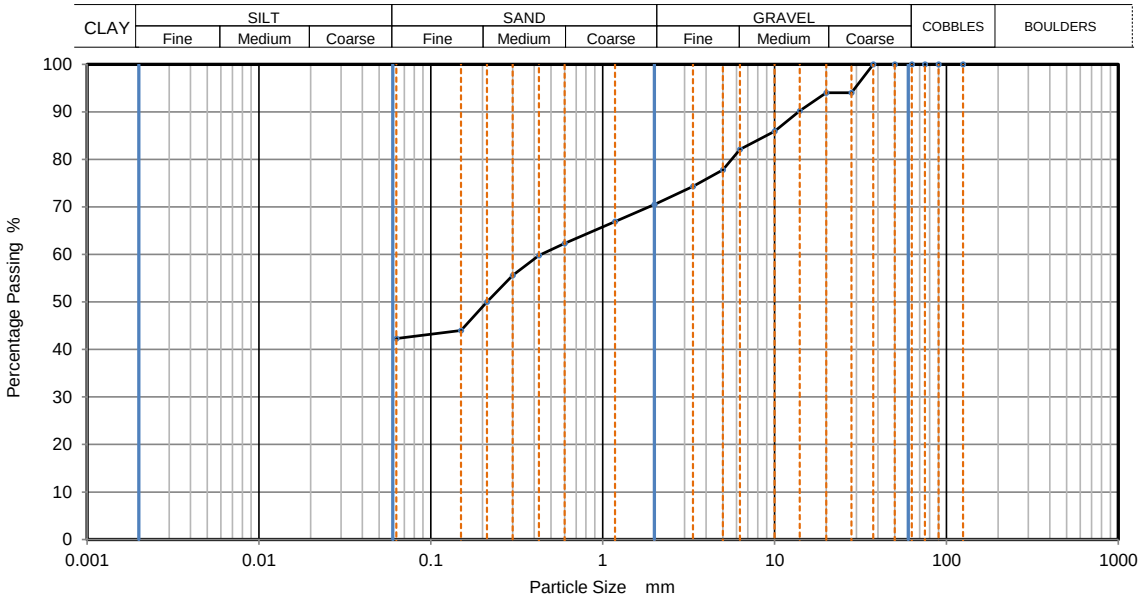
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-77631
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	94		
14	90		
10	86		
6.3	82		
5	78		
3.35	74		
2	71		
1.18	67		
0.6	62		
0.425	60		
0.3	56		
0.212	50		
0.15	44		
0.063	42		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.5
Sand	28.2
Fines <0.063mm	42.3

Grading Analysis		
D100	mm	
D60	mm	0.439
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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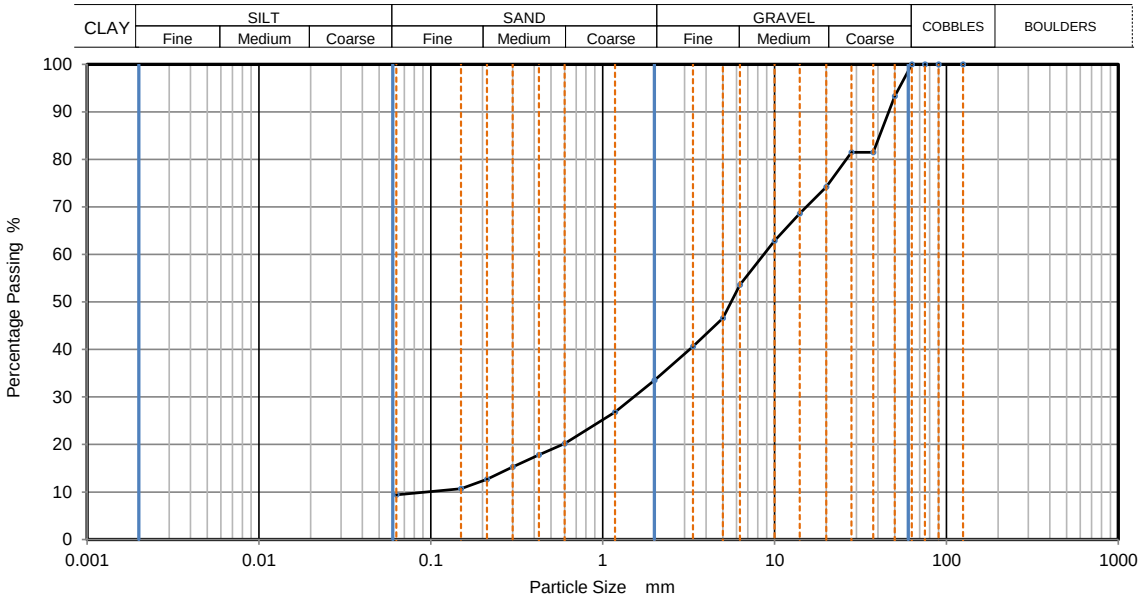
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78204
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey slightly clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	93		
37.5	82		
28	82		
20	74		
14	69		
10	63		
6.3	54		
5	47		
3.35	41		
2	34		
1.18	27		
0.6	20		
0.425	18		
0.3	15		
0.212	13		
0.15	11		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	66.5
Sand	24.1
Fines <0.063mm	9.4

Grading Analysis		
D100	mm	
D60	mm	8.67
D30	mm	1.52
D10	mm	0.0946
Uniformity Coefficient		92
Curvature Coefficient		2.8

Remarks

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UKAS TESTING

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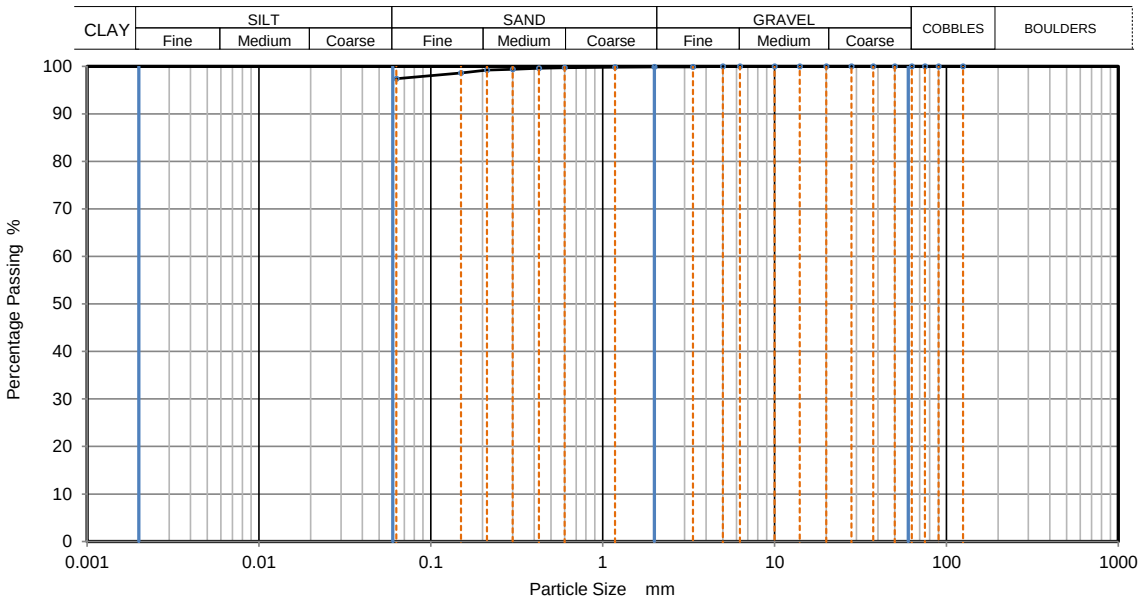
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78412
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey slightly fine sandy clayey SILT			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.1
Sand	2.5
Fines <0.063mm	97.4

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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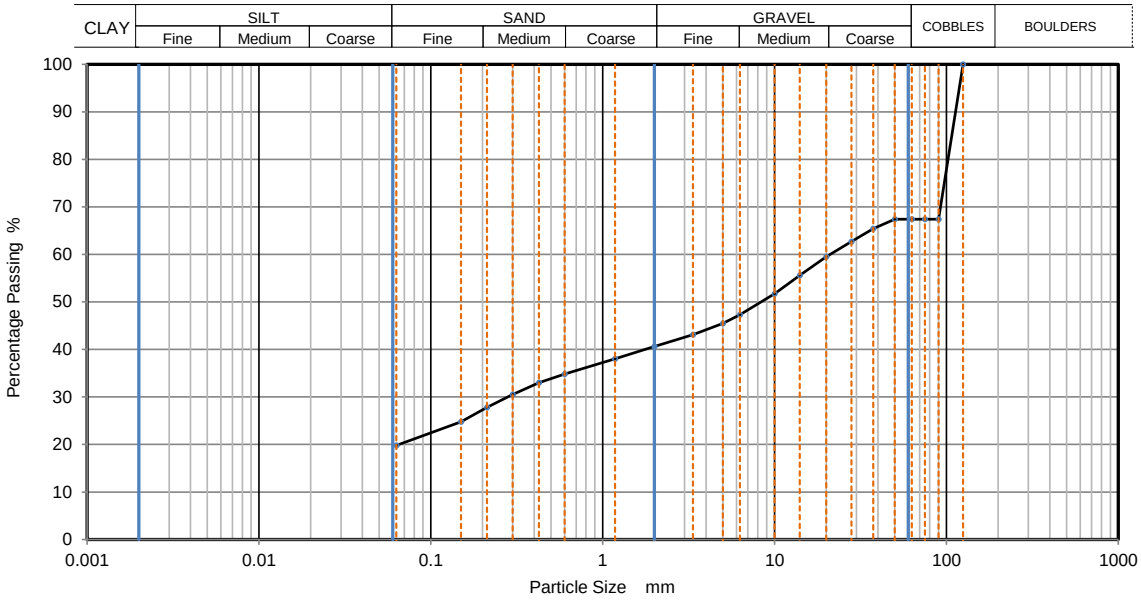
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78579
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey and greyish brown silty clayey very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	67		
75	67		
63	67		
50	67		
37.5	65		
28	63		
20	60		
14	56		
10	52		
6.3	47		
5	46		
3.35	43		
2	41		
1.18	38		
0.6	35		
0.425	33		
0.3	31		
0.212	28		
0.15	25		
0.063	20		

Sample Proportions	% dry mass
Very coarse	32.6
Gravel	26.8
Sand	20.8
Fines <0.063mm	19.8

Grading Analysis		
D100	mm	125
D60	mm	21.1
D30	mm	0.282
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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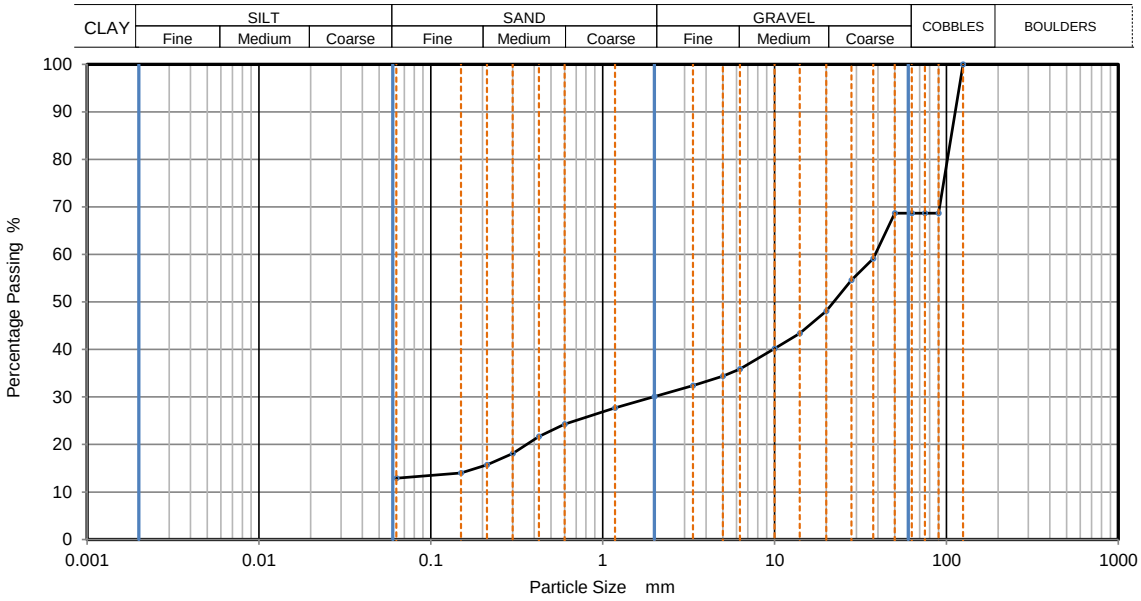
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78579
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown and dark grey silty clayey very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	69		
75	69		
63	69		
50	69		
37.5	59		
28	55		
20	48		
14	43		
10	40		
6.3	36		
5	34		
3.35	32		
2	30		
1.18	28		
0.6	24		
0.425	22		
0.3	18		
0.212	16		
0.15	14		
0.063	13		

Sample Proportions	% dry mass
Very coarse	31.3
Gravel	38.5
Sand	17.3
Fines <0.063mm	12.9

Grading Analysis		
D100	mm	125
D60	mm	38.6
D30	mm	1.94
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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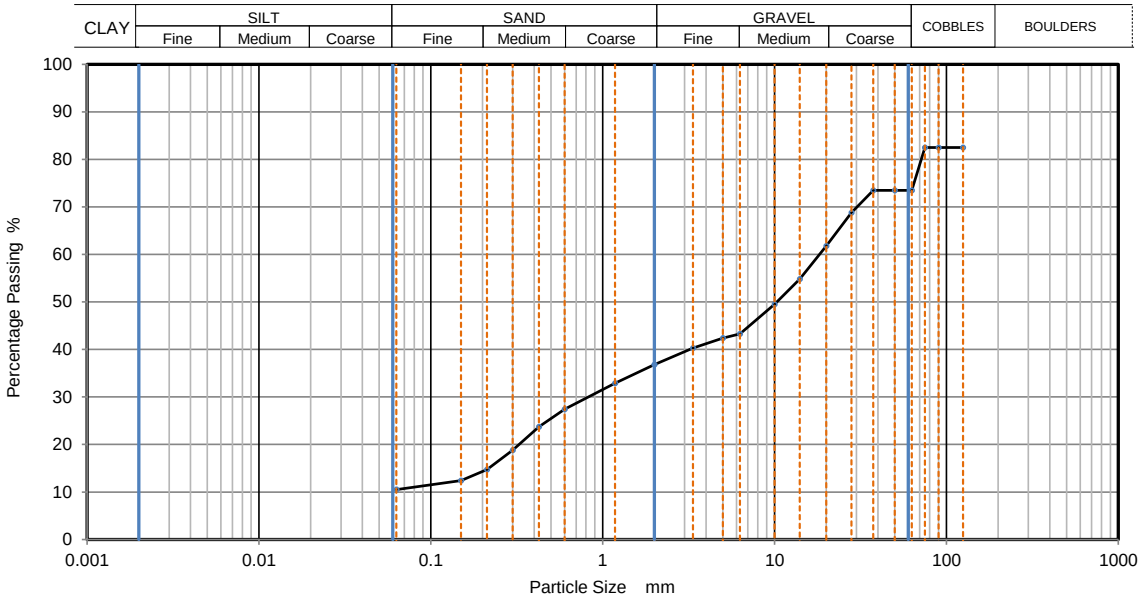
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78694
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-anguar to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	08/12/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	83		
90	83		
75	83		
63	74		
50	74		
37.5	74		
28	69		
20	62		
14	55		
10	50		
6.3	43		
5	42		
3.35	40		
2	37		
1.18	33		
0.6	27		
0.425	24		
0.3	19		
0.212	15		
0.15	12		
0.063	11		

Sample Proportions	% dry mass
Very coarse	26.5
Gravel	36.7
Sand	26.2
Fines <0.063mm	10.6

Grading Analysis		
D100	mm	
D60	mm	18.3
D30	mm	0.824
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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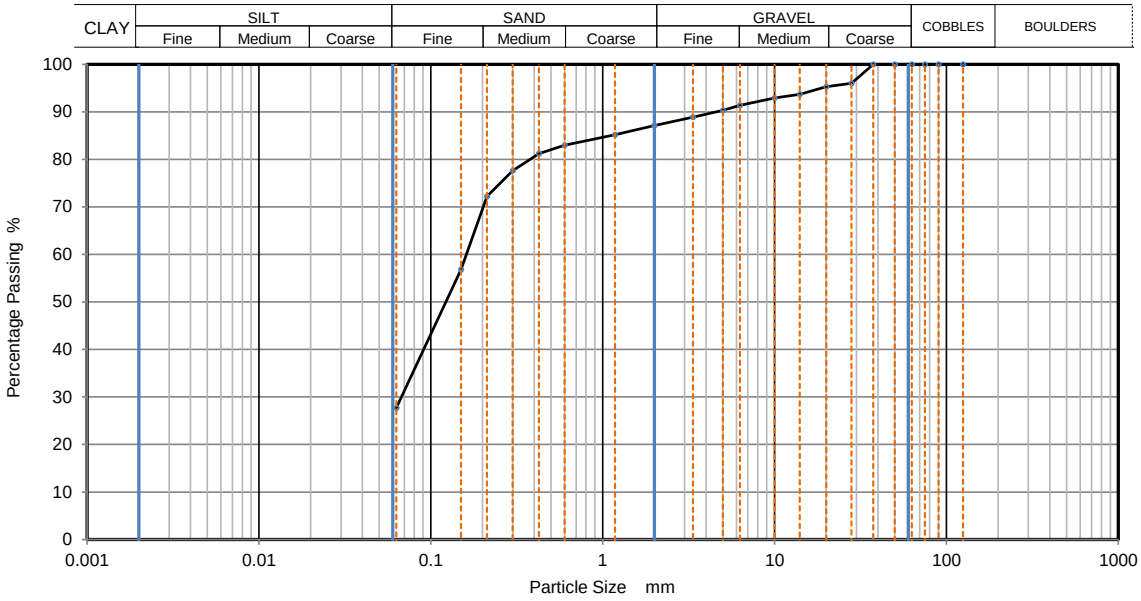
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78662 (to 78862)
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey clayey silty gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	95		
14	94		
10	93		
6.3	91		
5	90		
3.35	89		
2	87		
1.18	85		
0.6	83		
0.425	81		
0.3	78		
0.212	72		
0.15	57		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	12.9
Sand	59.3
Fines <0.063mm	27.7

Grading Analysis		
D100	mm	
D60	mm	0.161
D30	mm	0.0674
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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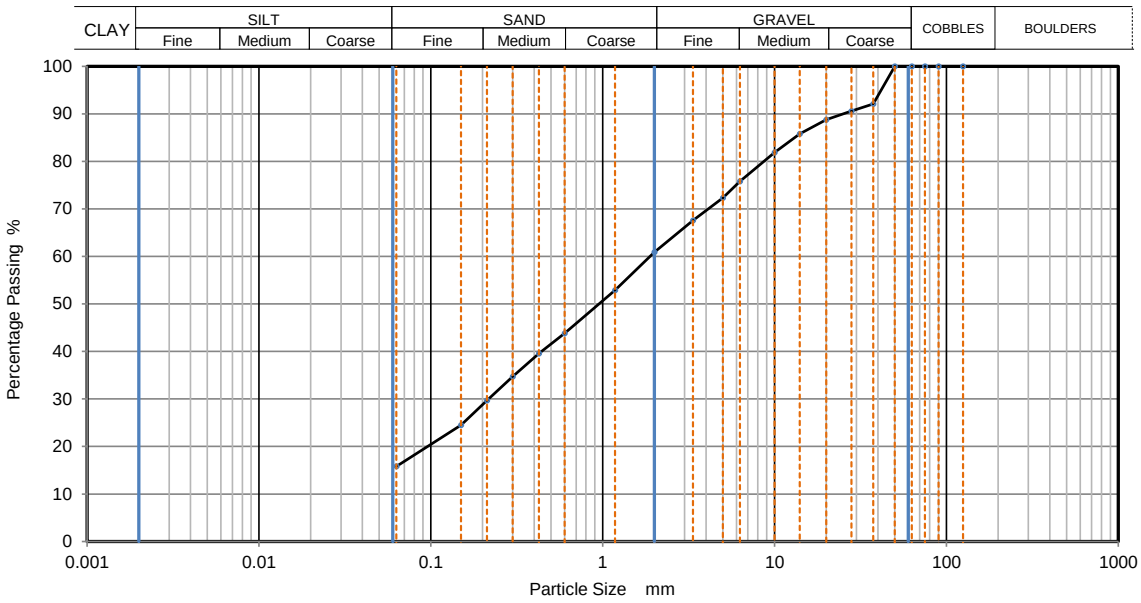
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78694
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Brownish grey silty clayey very gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	4.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	91		
20	89		
14	86		
10	82		
6.3	76		
5	72		
3.35	68		
2	61		
1.18	53		
0.6	44		
0.425	40		
0.3	35		
0.212	30		
0.15	25		
0.063	16		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.1
Sand	45.1
Fines <0.063mm	15.8

Grading Analysis		
D100	mm	
D60	mm	1.88
D30	mm	0.216
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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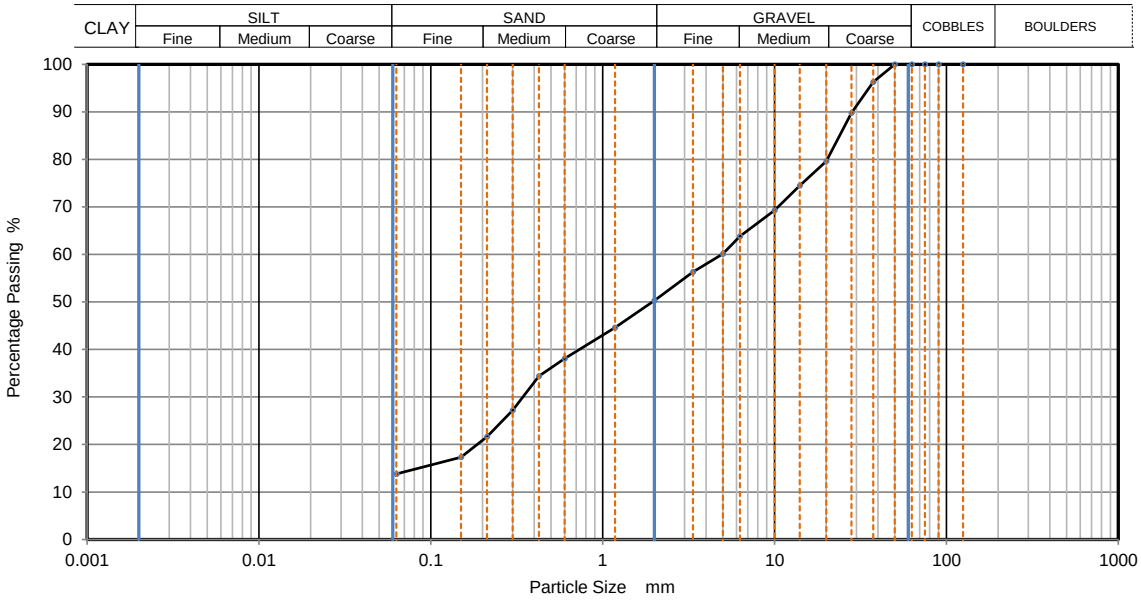
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-78790
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark brownish grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	12/12/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	90		
20	80		
14	75		
10	69		
6.3	64		
5	60		
3.35	56		
2	50		
1.18	45		
0.6	38		
0.425	34		
0.3	27		
0.212	22		
0.15	17		
0.063	14		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	49.7
Sand	36.5
Fines <0.063mm	13.8

Grading Analysis		
D100	mm	
D60	mm	4.93
D30	mm	0.344
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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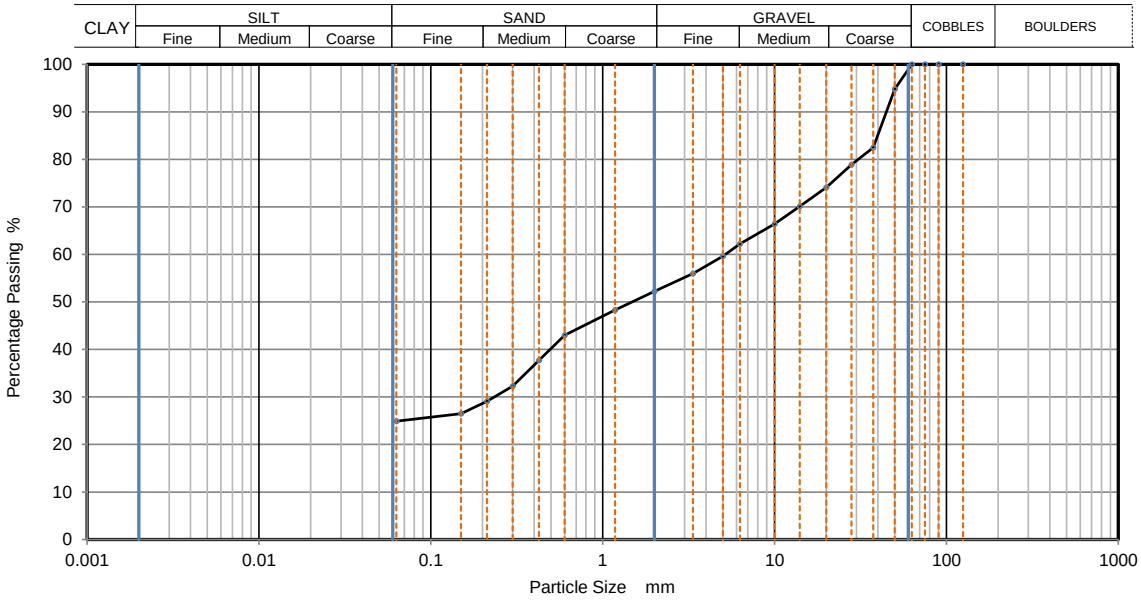
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-79026
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey and dark brownish grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	95		
37.5	83		
28	79		
20	74		
14	70		
10	66		
6.3	62		
5	60		
3.35	56		
2	52		
1.18	48		
0.6	43		
0.425	38		
0.3	32		
0.212	29		
0.15	27		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	47.8
Sand	27.3
Fines <0.063mm	24.9

Grading Analysis		
D100	mm	
D60	mm	5.2
D30	mm	0.234
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

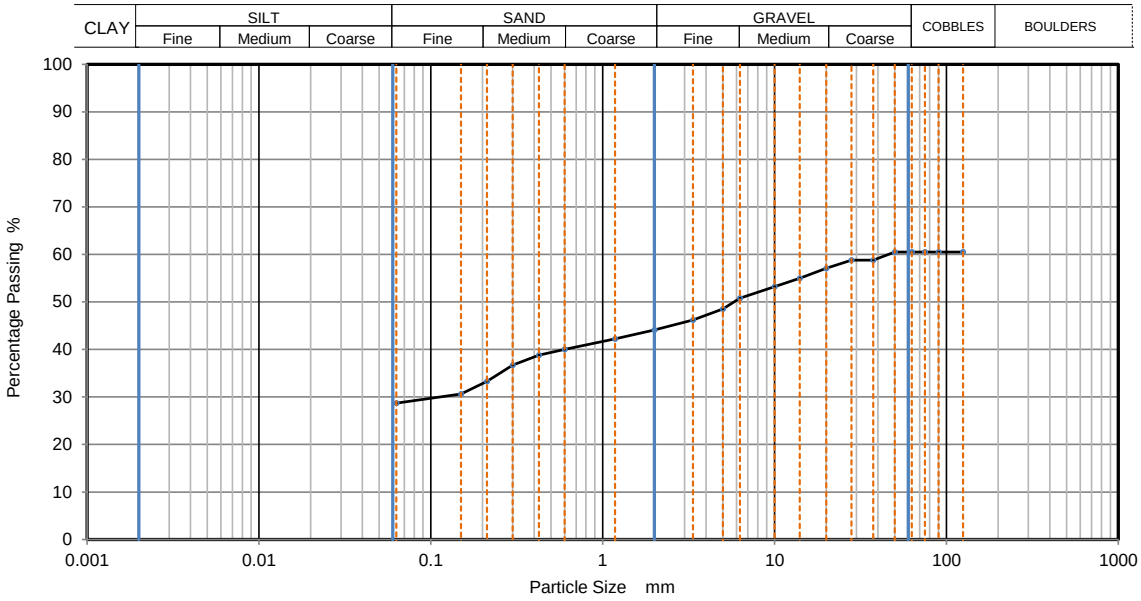
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-79209
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	61		
90	61		
75	61		
63	61		
50	61		
37.5	59		
28	59		
20	57		
14	55		
10	53		
6.3	51		
5	49		
3.35	46		
2	44		
1.18	42		
0.6	40		
0.425	39		
0.3	37		
0.212	33		
0.15	31		
0.063	29		

Sample Proportions	% dry mass
Very coarse	39.5
Gravel	16.5
Sand	15.4
Fines <0.063mm	28.7

Grading Analysis		
D100	mm	
D60	mm	45.7
D30	mm	0.114
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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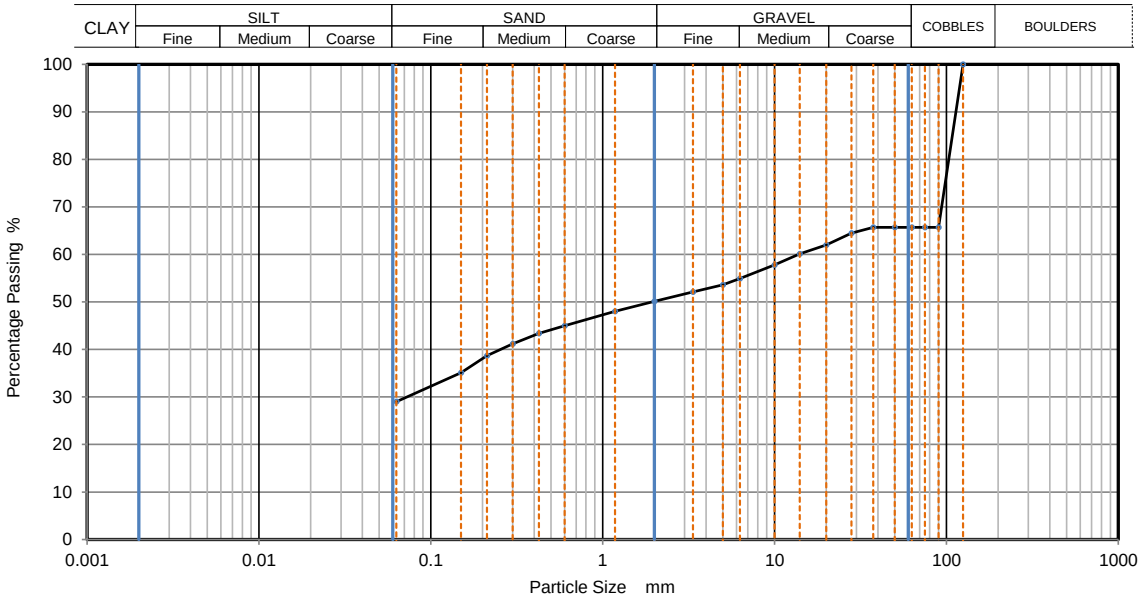
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-79273
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly mottled brown slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	66		
75	66		
63	66		
50	66		
37.5	66		
28	65		
20	62		
14	60		
10	58		
6.3	55		
5	54		
3.35	52		
2	50		
1.18	48		
0.6	45		
0.425	43		
0.3	41		
0.212	39		
0.15	35		
0.063	29		

Sample Proportions	% dry mass
Very coarse	34.3
Gravel	15.6
Sand	21.1
Fines <0.063mm	29.0

Grading Analysis		
D100	mm	125
D60	mm	13.7
D30	mm	0.0723
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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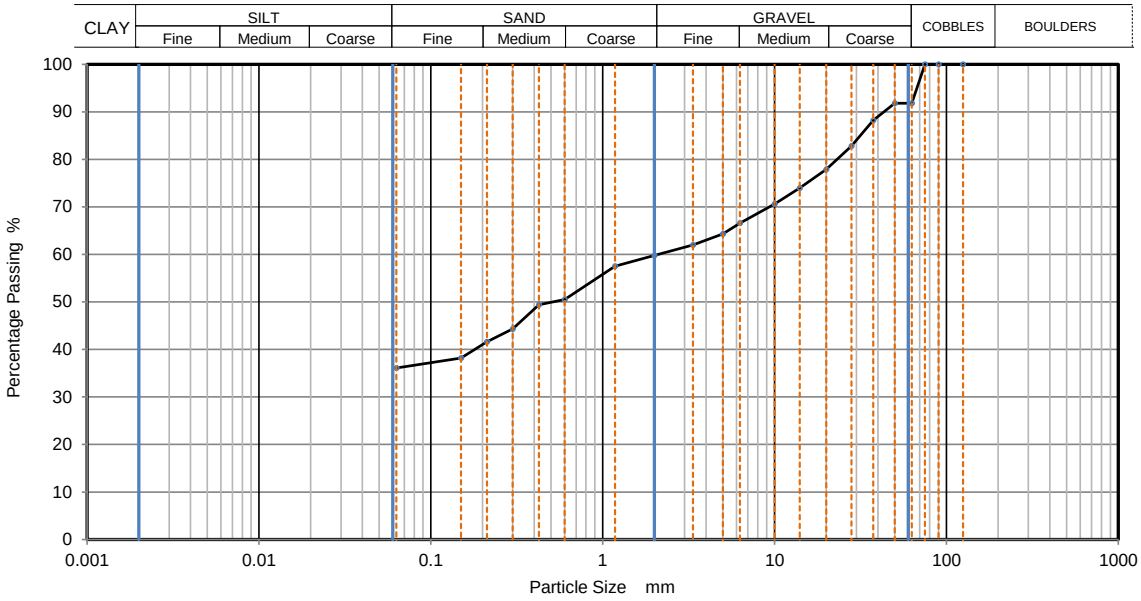
Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-79441
Project No.	2021OY102	Client	Irish Drilling	Sample No.	
				Depth Top	1.00 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY with rare cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	92		
50	92		
37.5	88		
28	83		
20	78		
14	74		
10	71		
6.3	67		
5	64		
3.35	62		
2	60		
1.18	58		
0.6	51		
0.425	49		
0.3	44		
0.212	42		
0.15	38		
0.063	36		

Sample Proportions	% dry mass
Very coarse	8.2
Gravel	32.1
Sand	23.6
Fines <0.063mm	36.2

Grading Analysis		
D100	mm	
D60	mm	2.11
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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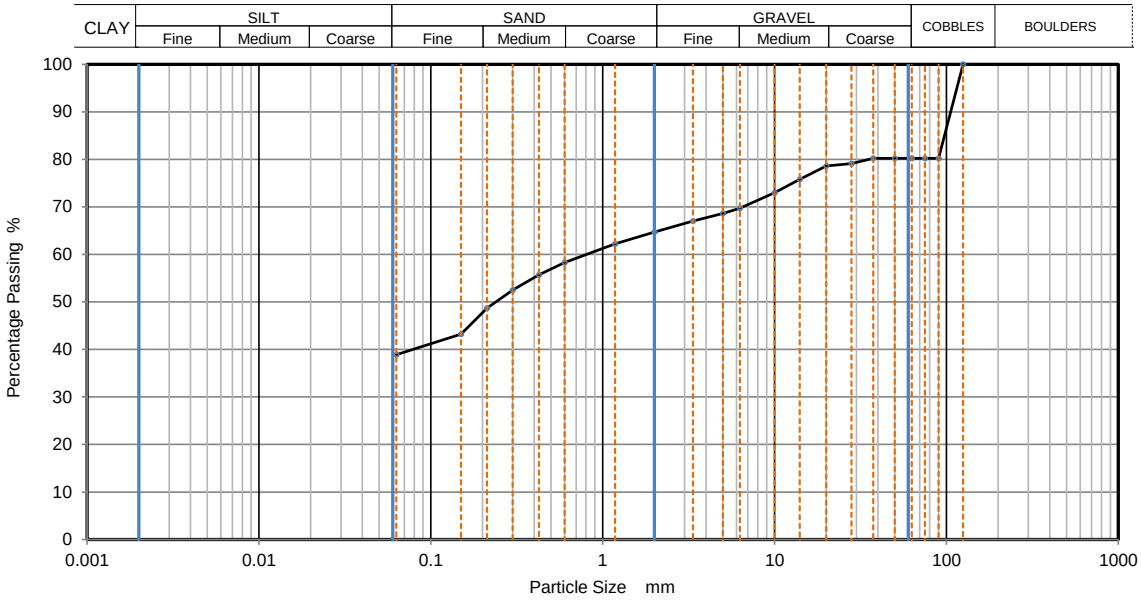
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-79595
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	80		
75	80		
63	80		
50	80		
37.5	80		
28	79		
20	79		
14	76		
10	73		
6.3	70		
5	69		
3.35	67		
2	65		
1.18	62		
0.6	58		
0.425	56		
0.3	53		
0.212	49		
0.15	43		
0.063	39		

Sample Proportions	% dry mass
Very coarse	19.8
Gravel	15.5
Sand	25.9
Fines <0.063mm	38.9

Grading Analysis		
D100	mm	125
D60	mm	0.802
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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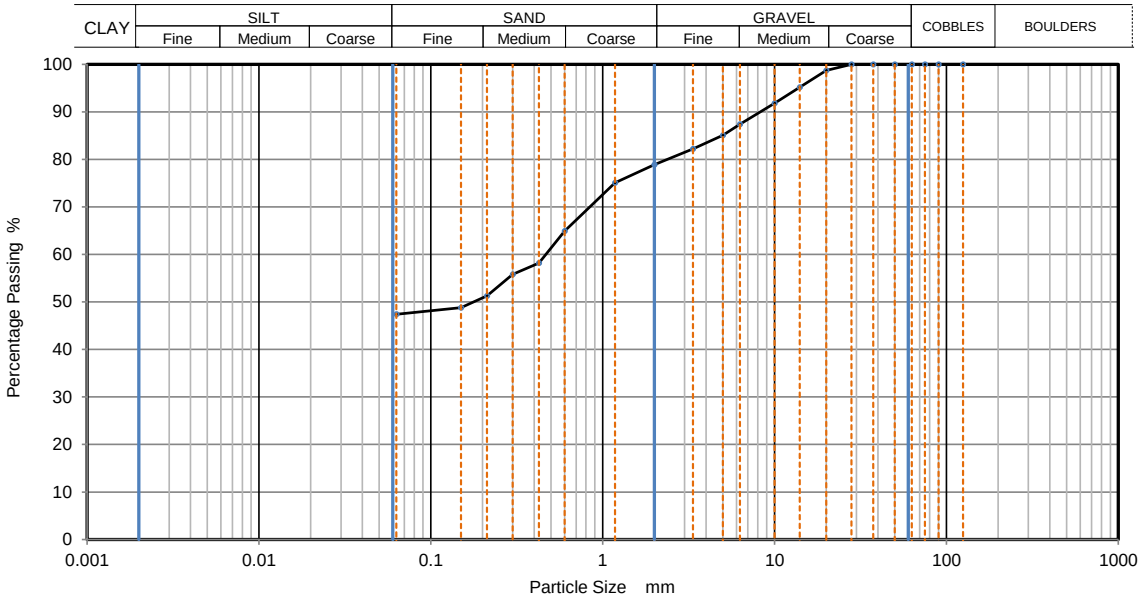
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-79595
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	95		
10	92		
6.3	87		
5	85		
3.35	82		
2	79		
1.18	75		
0.6	65		
0.425	58		
0.3	56		
0.212	51		
0.15	49		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.1
Sand	31.6
Fines <0.063mm	47.4

Grading Analysis		
D100	mm	
D60	mm	0.466
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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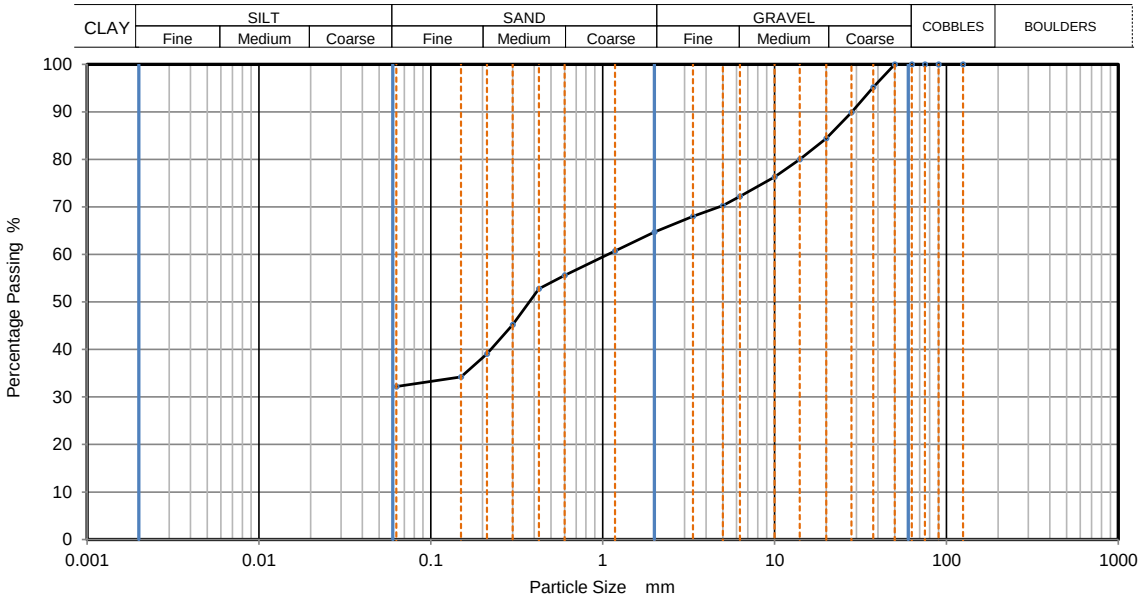
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-80024
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	90		
20	84		
14	80		
10	76		
6.3	72		
5	70		
3.35	68		
2	65		
1.18	61		
0.6	56		
0.425	53		
0.3	45		
0.212	39		
0.15	34		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.3
Sand	32.5
Fines <0.063mm	32.2

Grading Analysis		
D100	mm	
D60	mm	1.08
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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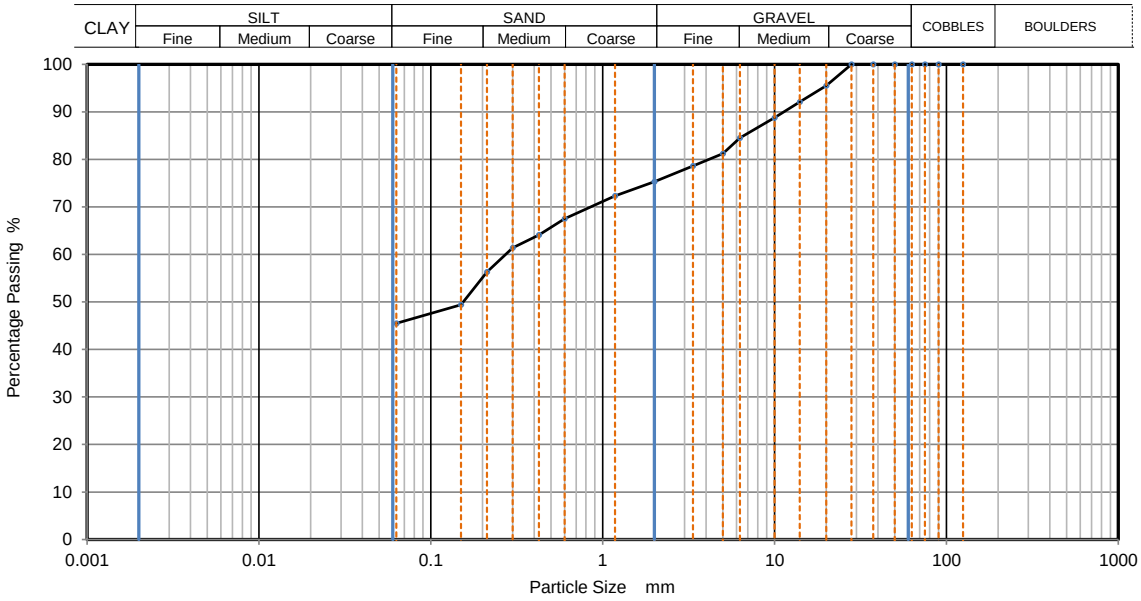
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-80024
Site Name	WSP Eastern & Midlands Region			Sample No.	16
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	92		
10	89		
6.3	85		
5	81		
3.35	79		
2	75		
1.18	72		
0.6	68		
0.425	64		
0.3	61		
0.212	56		
0.15	49		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.7
Sand	29.7
Fines <0.063mm	45.5

Grading Analysis		
D100	mm	
D60	mm	0.273
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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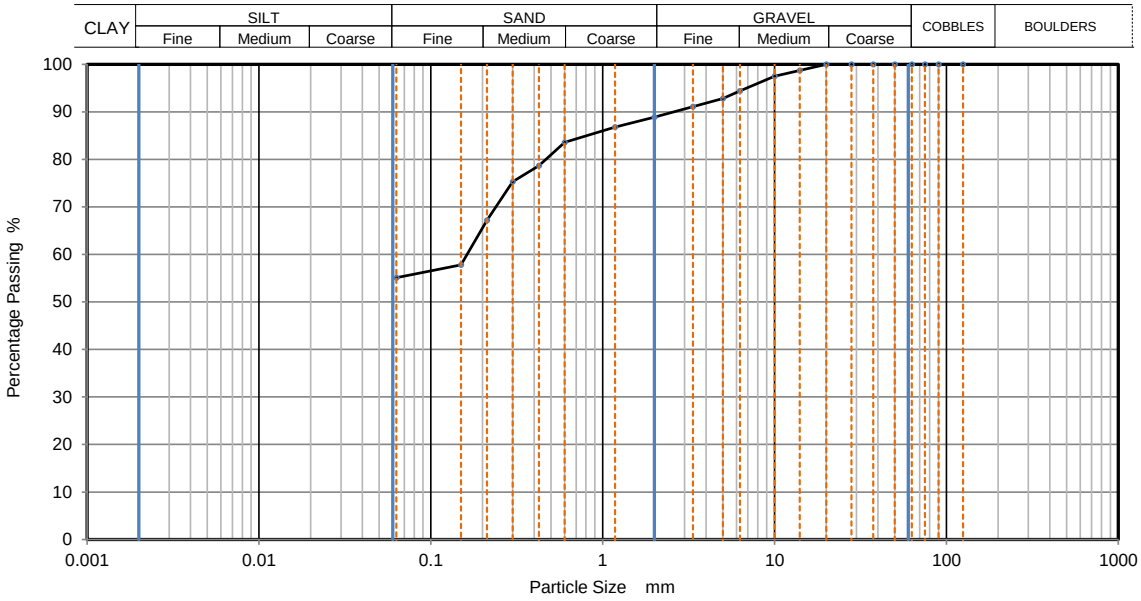
Initials: J.P

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-80338
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown, grey and orangish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	94		
5	93		
3.35	91		
2	89		
1.18	87		
0.6	84		
0.425	79		
0.3	75		
0.212	67		
0.15	58		
0.063	55		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	11.1
Sand	33.8
Fines <0.063mm	55.1

Grading Analysis		
D100	mm	
D60	mm	0.163
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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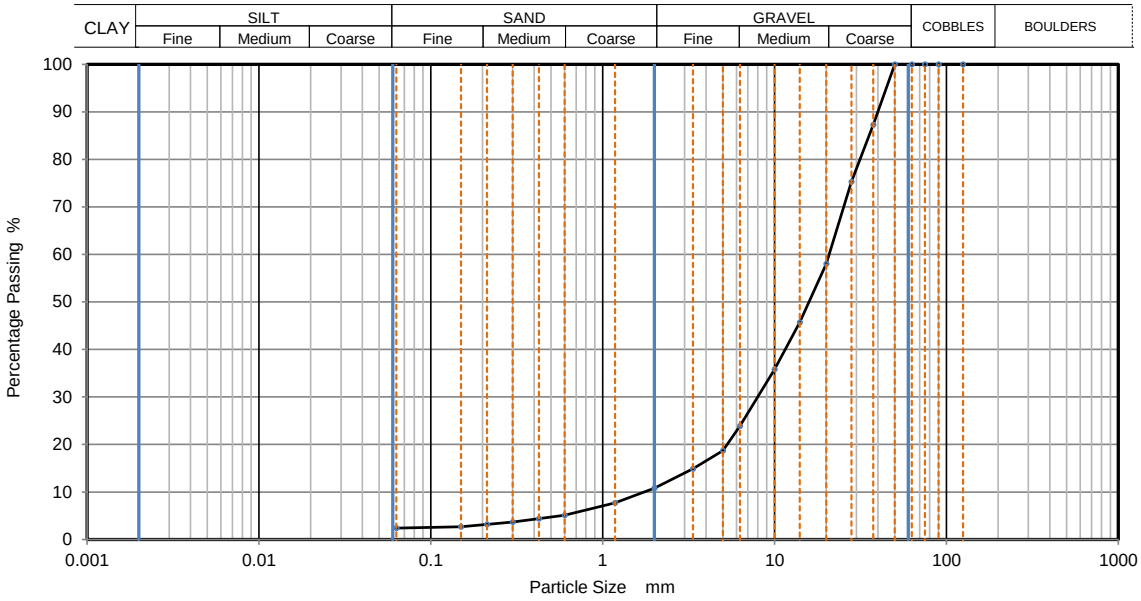
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-80338
Project No.	2021OY102	Client	Irish Drilling	Sample No.	19
				Depth Top	6.00 m
Soil Description	Grey and dark grey slightly clayey sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth Base	7.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	87		
28	75		
20	58		
14	46		
10	36		
6.3	24		
5	19		
3.35	15		
2	11		
1.18	8		
0.6	5		
0.425	4		
0.3	4		
0.212	3		
0.15	3		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	89.2
Sand	8.4
Fines <0.063mm	2.4

Grading Analysis		
D100	mm	
D60	mm	20.8
D30	mm	7.98
D10	mm	1.74
Uniformity Coefficient		12
Curvature Coefficient		1.8

Remarks

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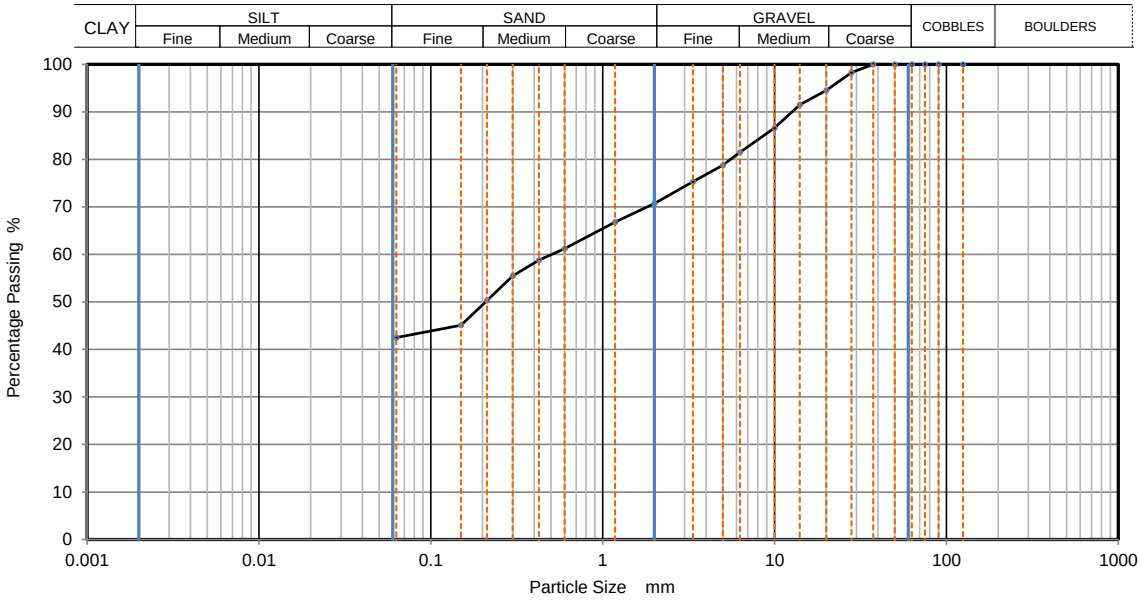
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-80439
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	95		
14	92		
10	87		
6.3	82		
5	79		
3.35	75		
2	71		
1.18	67		
0.6	61		
0.425	59		
0.3	56		
0.212	50		
0.15	45		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.3
Sand	28.2
Fines <0.063mm	42.5

Grading Analysis		
D100	mm	
D60	mm	0.505
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

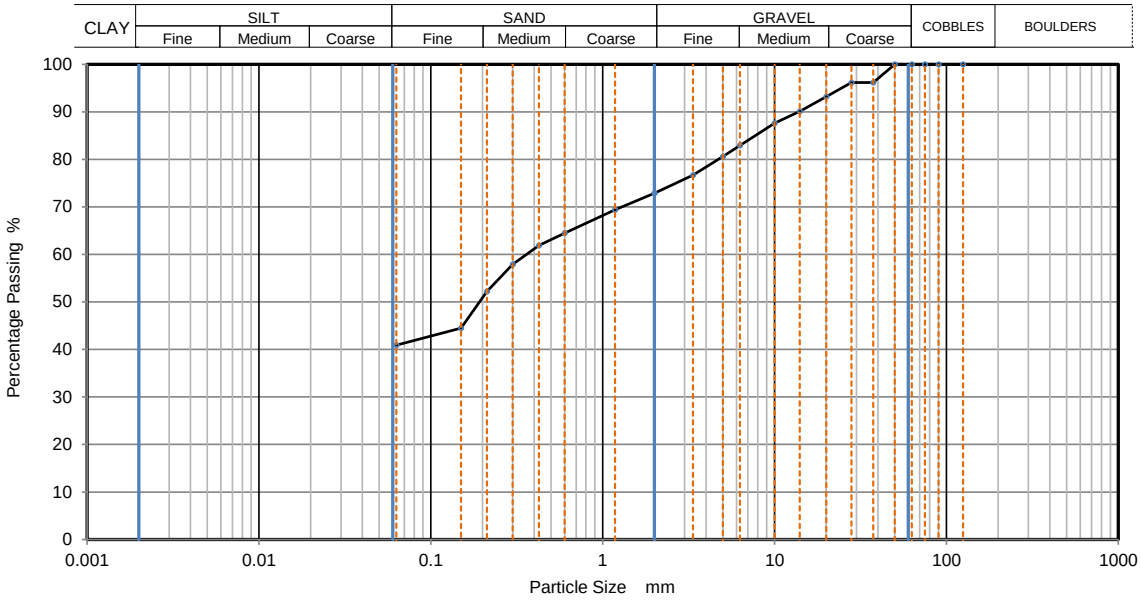
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-80960
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	96		
20	93		
14	90		
10	88		
6.3	83		
5	81		
3.35	77		
2	73		
1.18	69		
0.6	65		
0.425	62		
0.3	58		
0.212	52		
0.15	45		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	27.1
Sand	32.1
Fines <0.063mm	40.9

Grading Analysis		
D100	mm	
D60	mm	0.359
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

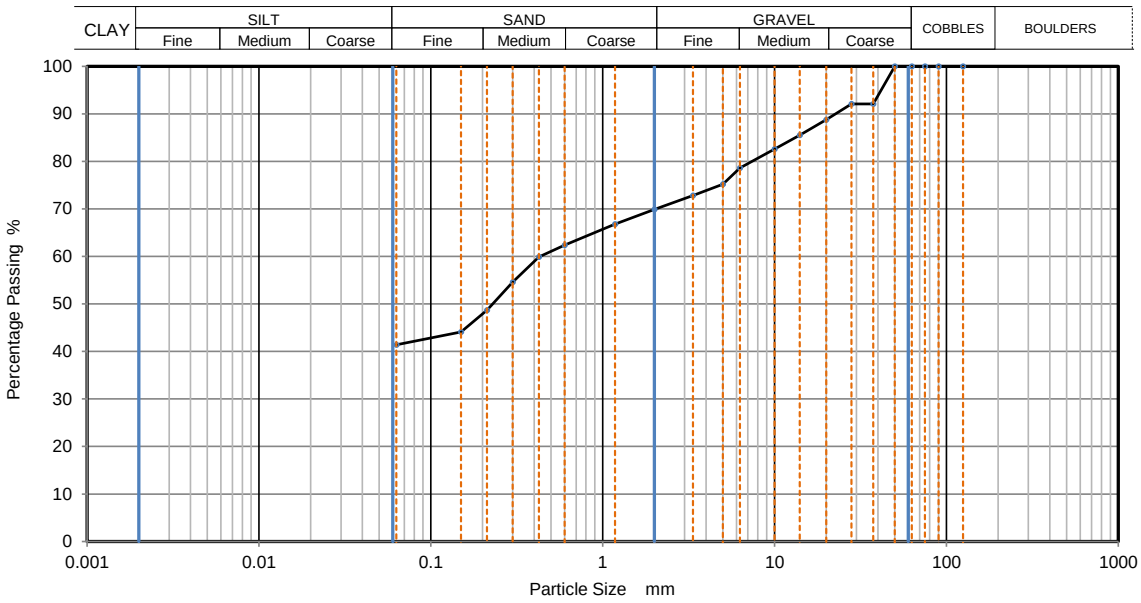
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-80960
Site Name	WSP Eastern & Midlands Region			Sample No.	22
Project No.	2021OY102	Client	Irish Drilling	Depth Top	7.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	8.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	92		
20	89		
14	86		
10	83		
6.3	79		
5	75		
3.35	73		
2	70		
1.18	67		
0.6	62		
0.425	60		
0.3	55		
0.212	49		
0.15	44		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.1
Sand	28.5
Fines <0.063mm	41.4

Grading Analysis		
D100	mm	
D60	mm	0.429
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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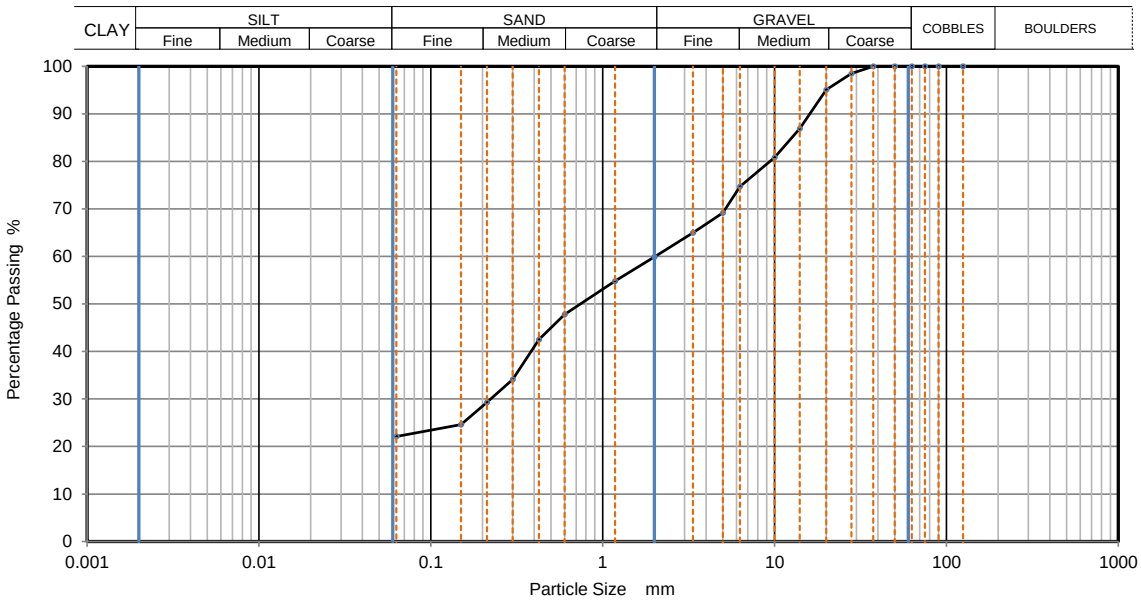
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-82974
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	95		
14	87		
10	81		
6.3	75		
5	69		
3.35	65		
2	60		
1.18	55		
0.6	48		
0.425	43		
0.3	34		
0.212	29		
0.15	25		
0.063	22		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	40.1
Sand	37.8
Fines <0.063mm	22.1

Grading Analysis		
D100	mm	
D60	mm	2.03
D30	mm	0.223
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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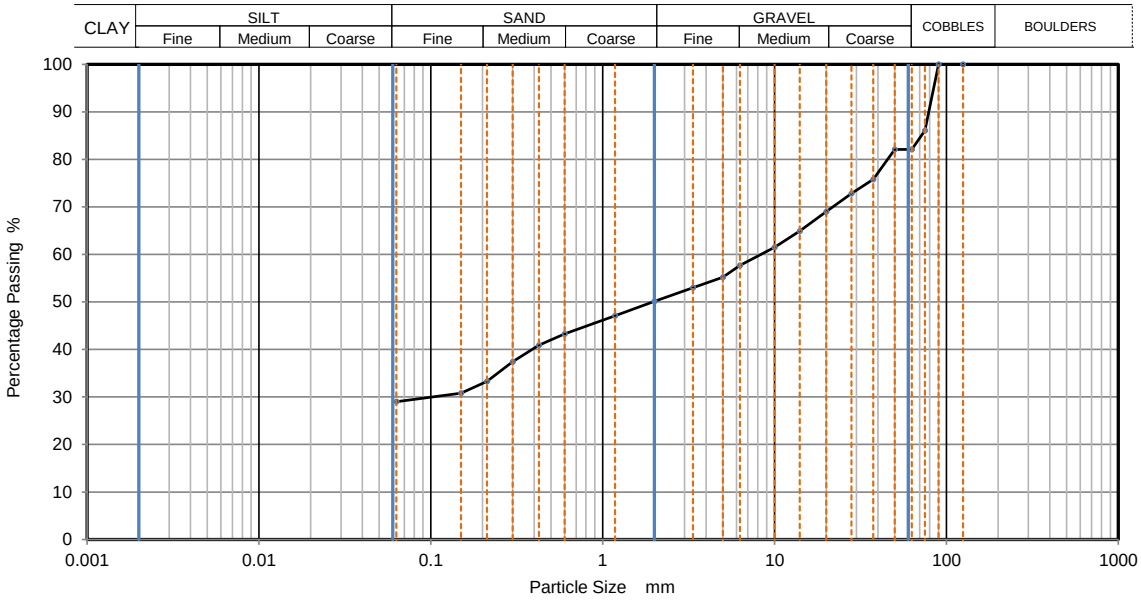
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-82974
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	86		
63	82		
50	82		
37.5	76		
28	73		
20	69		
14	65		
10	62		
6.3	58		
5	55		
3.35	53		
2	50		
1.18	47		
0.6	43		
0.425	41		
0.3	37		
0.212	33		
0.15	31		
0.063	29		

Sample Proportions	% dry mass
Very coarse	17.9
Gravel	32.0
Sand	21.0
Fines <0.063mm	29.0

Grading Analysis		
D100	mm	
D60	mm	8.29
D30	mm	0.1
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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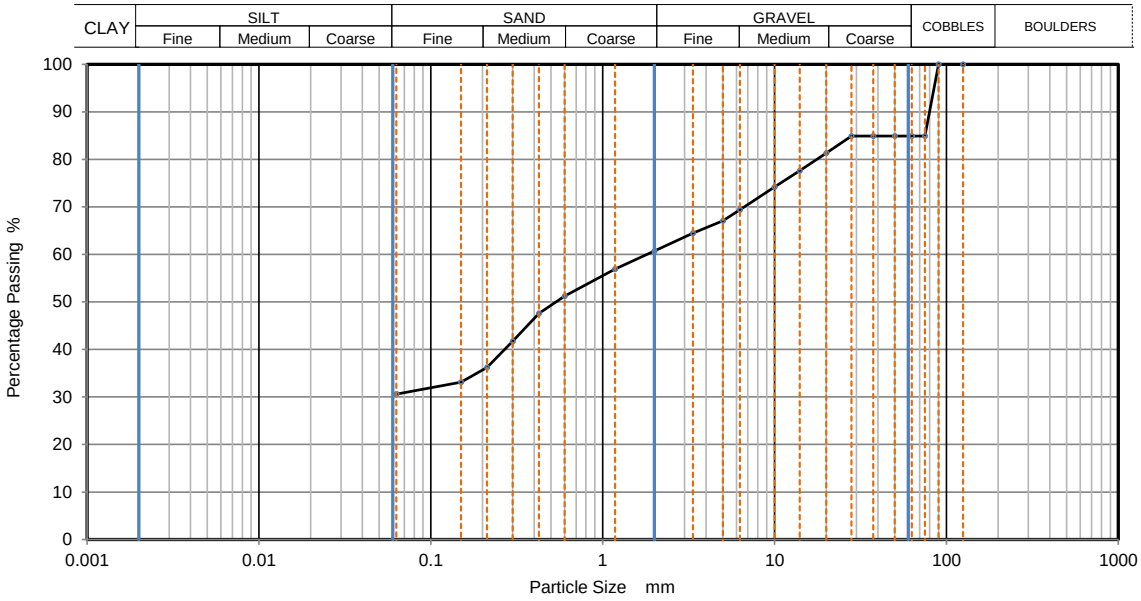
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-83591
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	85		
63	85		
50	85		
37.5	85		
28	85		
20	81		
14	78		
10	74		
6.3	69		
5	67		
3.35	65		
2	61		
1.18	57		
0.6	51		
0.425	48		
0.3	42		
0.212	36		
0.15	33		
0.063	31		

Sample Proportions	% dry mass
Very coarse	15.1
Gravel	24.2
Sand	30.1
Fines <0.063mm	30.6

Grading Analysis		
D100	mm	
D60	mm	1.81
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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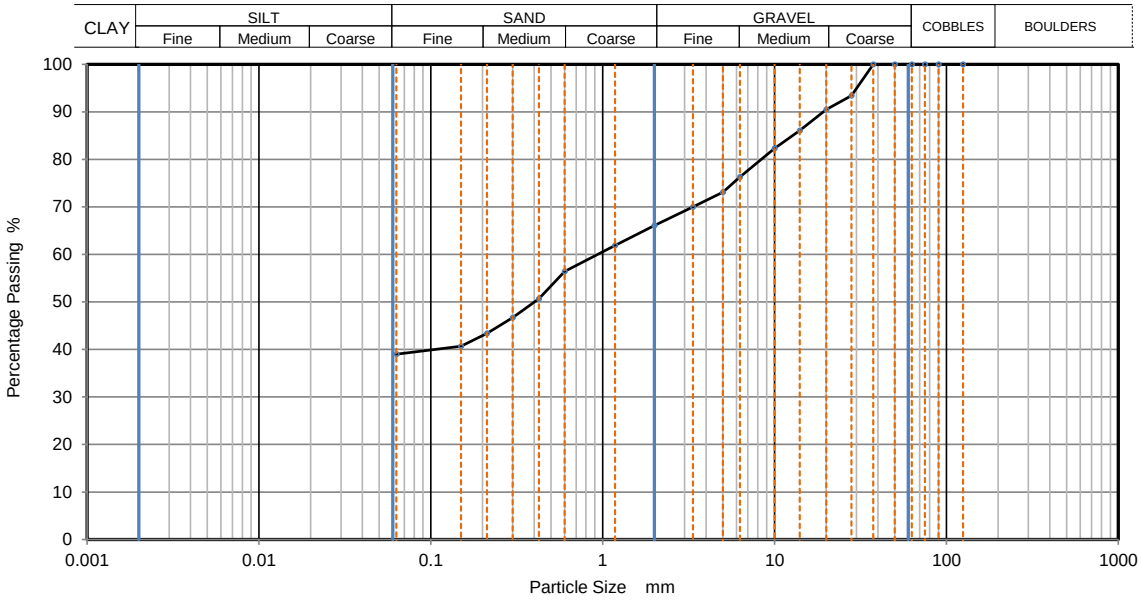
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-84203
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	91		
14	86		
10	82		
6.3	76		
5	73		
3.35	70		
2	66		
1.18	62		
0.6	56		
0.425	51		
0.3	47		
0.212	43		
0.15	41		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.9
Sand	27.1
Fines <0.063mm	39.0

Grading Analysis		
D100	mm	
D60	mm	0.932
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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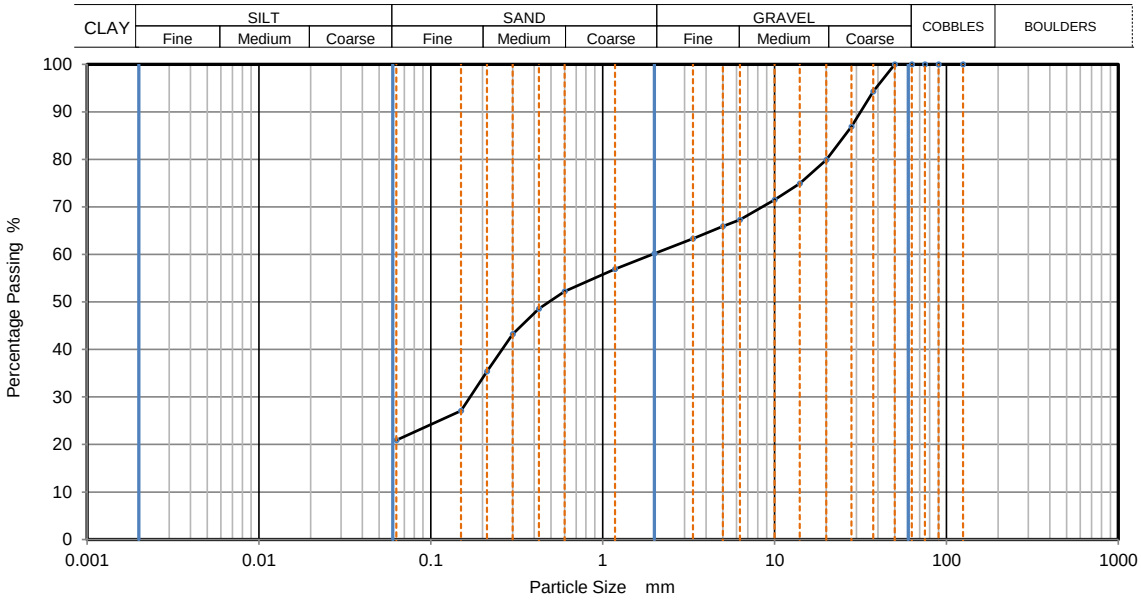
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-84800
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Dark grey clayey silty very sandy GRAVEL (gravel is fmc and sub-rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	87		
20	80		
14	75		
10	72		
6.3	67		
5	66		
3.35	63		
2	60		
1.18	57		
0.6	52		
0.425	49		
0.3	43		
0.212	35		
0.15	27		
0.063	21		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.8
Sand	39.3
Fines <0.063mm	21.0

Grading Analysis		
D100	mm	
D60	mm	1.93
D30	mm	0.169
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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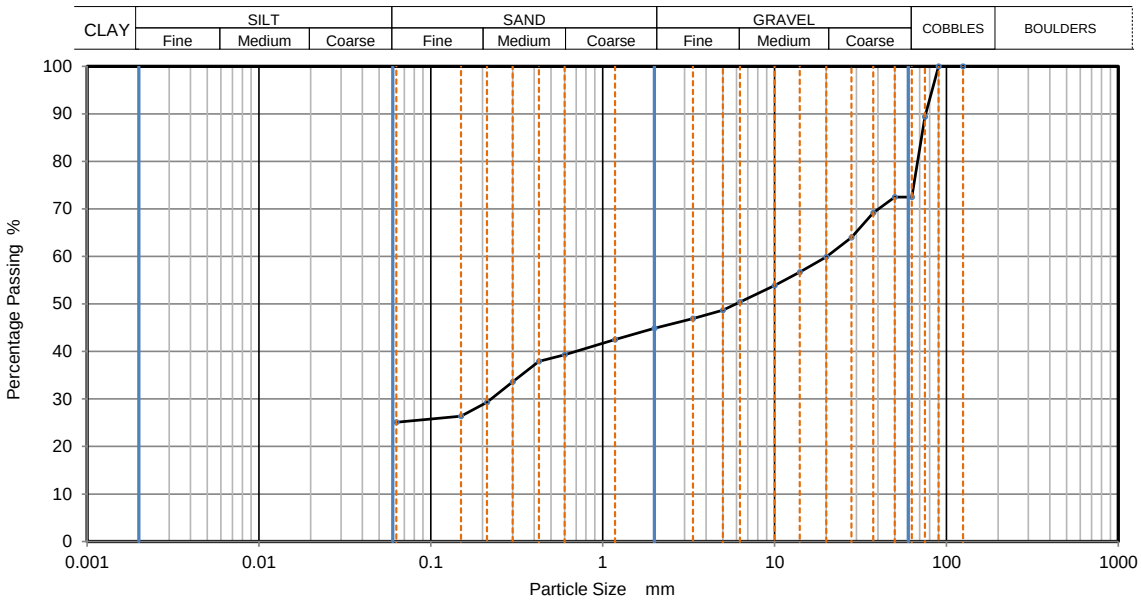
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey slightly sandy gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	89		
63	73		
50	73		
37.5	69		
28	64		
20	60		
14	57		
10	54		
6.3	50		
5	49		
3.35	47		
2	45		
1.18	43		
0.6	39		
0.425	38		
0.3	34		
0.212	29		
0.15	26		
0.063	25		

Sample Proportions	% dry mass
Very coarse	27.5
Gravel	27.6
Sand	19.8
Fines <0.063mm	25.1

Grading Analysis		
D100	mm	
D60	mm	20.1
D30	mm	0.225
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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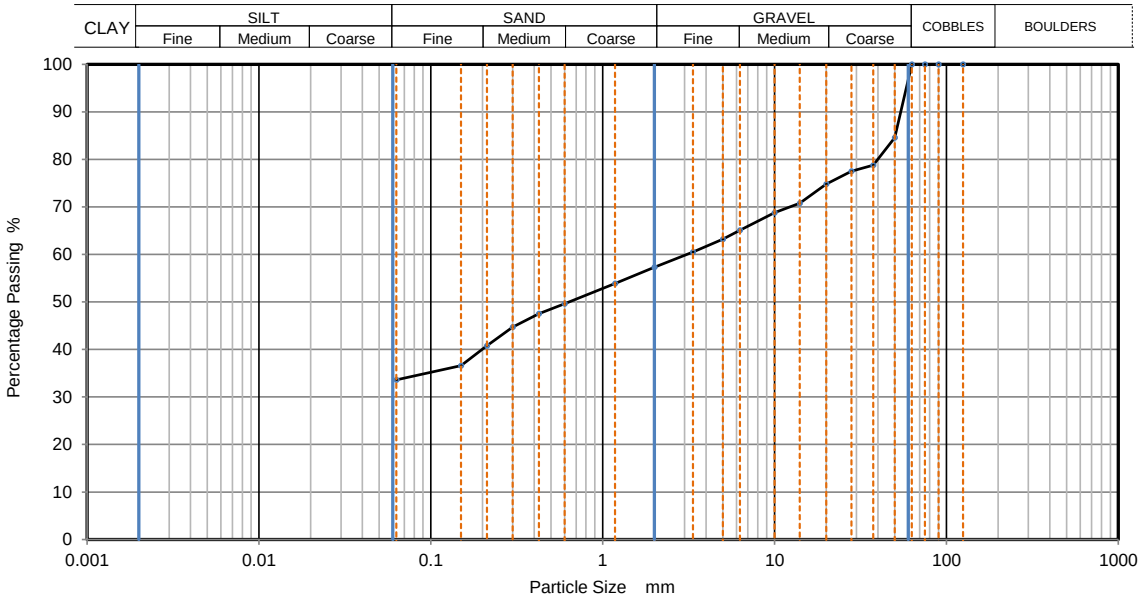
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-85791
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey and brown clayey silty very sandy GRAVEL (gravel is fmc and sub-rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	85		
37.5	79		
28	78		
20	75		
14	71		
10	69		
6.3	65		
5	63		
3.35	61		
2	57		
1.18	54		
0.6	50		
0.425	48		
0.3	45		
0.212	41		
0.15	37		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	42.7
Sand	23.6
Fines <0.063mm	33.6

Grading Analysis		
D100	mm	
D60	mm	3.1
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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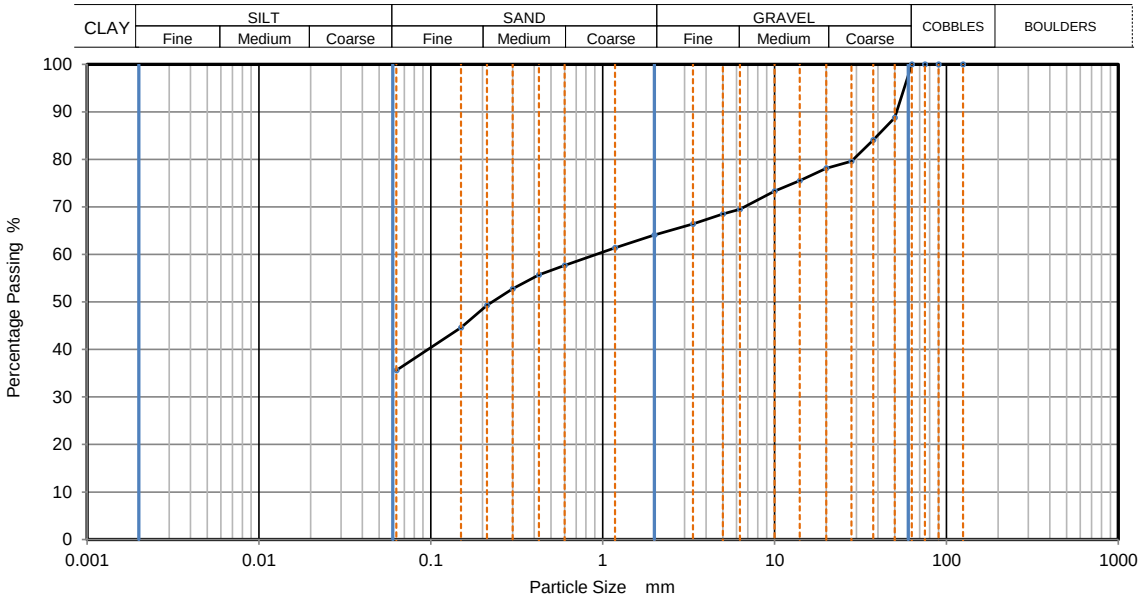
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-86203
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	89		
37.5	84		
28	80		
20	78		
14	76		
10	73		
6.3	70		
5	69		
3.35	66		
2	64		
1.18	61		
0.6	58		
0.425	56		
0.3	53		
0.212	49		
0.15	45		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.9
Sand	28.5
Fines <0.063mm	35.6

Grading Analysis		
D100	mm	
D60	mm	0.91
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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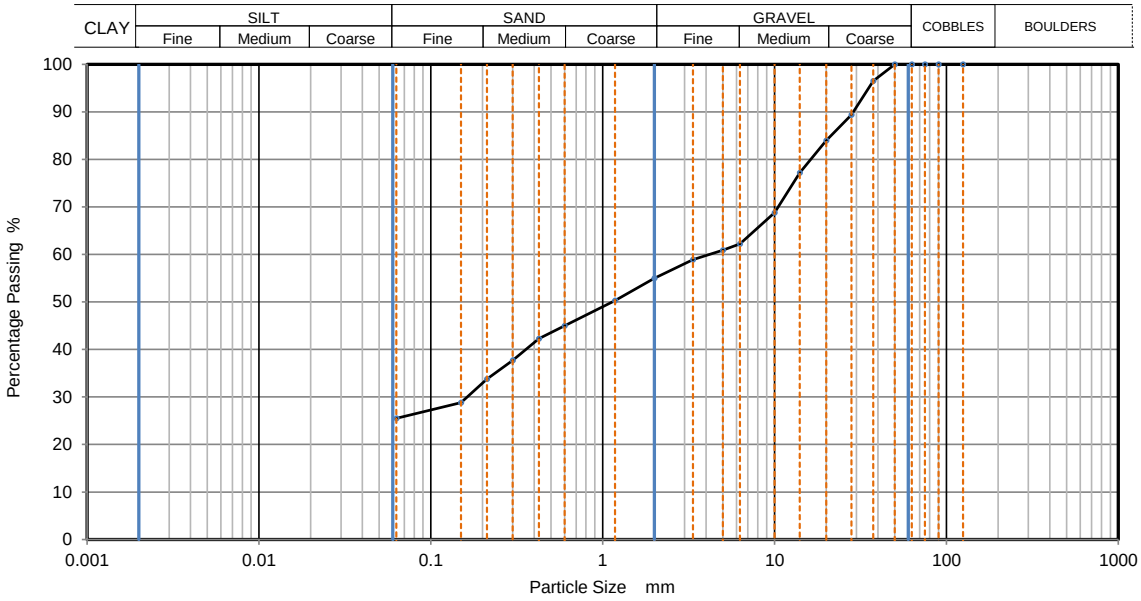
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-86203
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	89		
20	84		
14	77		
10	69		
6.3	62		
5	61		
3.35	59		
2	55		
1.18	50		
0.6	45		
0.425	42		
0.3	38		
0.212	34		
0.15	29		
0.063	26		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	45.0
Sand	29.5
Fines <0.063mm	25.5

Grading Analysis		
D100	mm	
D60	mm	4.17
D30	mm	0.163
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

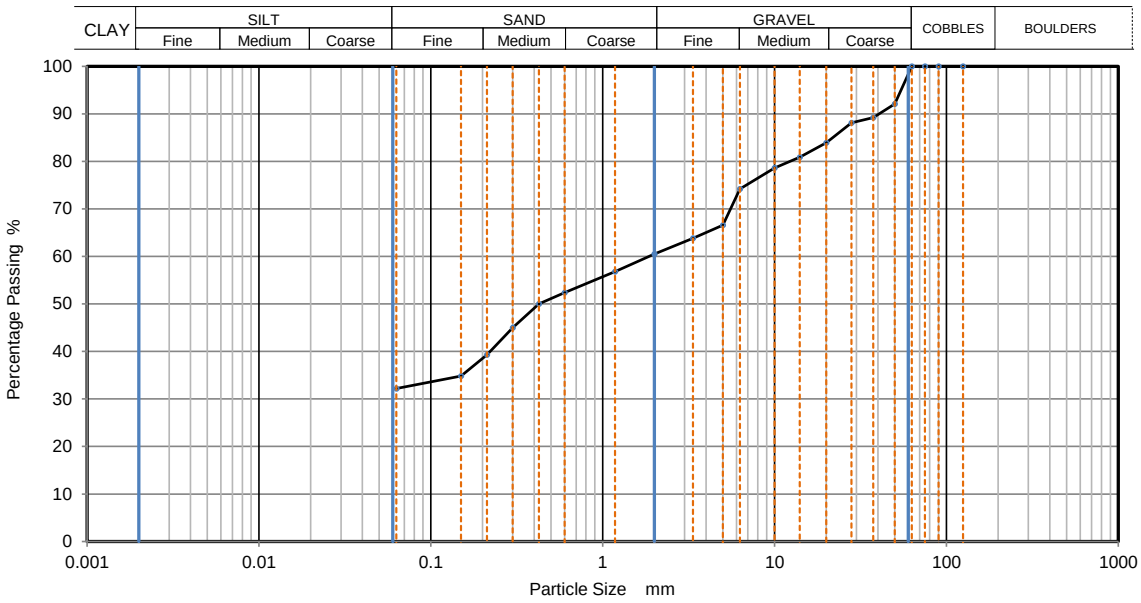
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-86592
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	92		
37.5	89		
28	88		
20	84		
14	81		
10	79		
6.3	74		
5	67		
3.35	64		
2	61		
1.18	57		
0.6	52		
0.425	50		
0.3	45		
0.212	39		
0.15	35		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.5
Sand	28.3
Fines <0.063mm	32.2

Grading Analysis		
D100	mm	
D60	mm	1.87
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

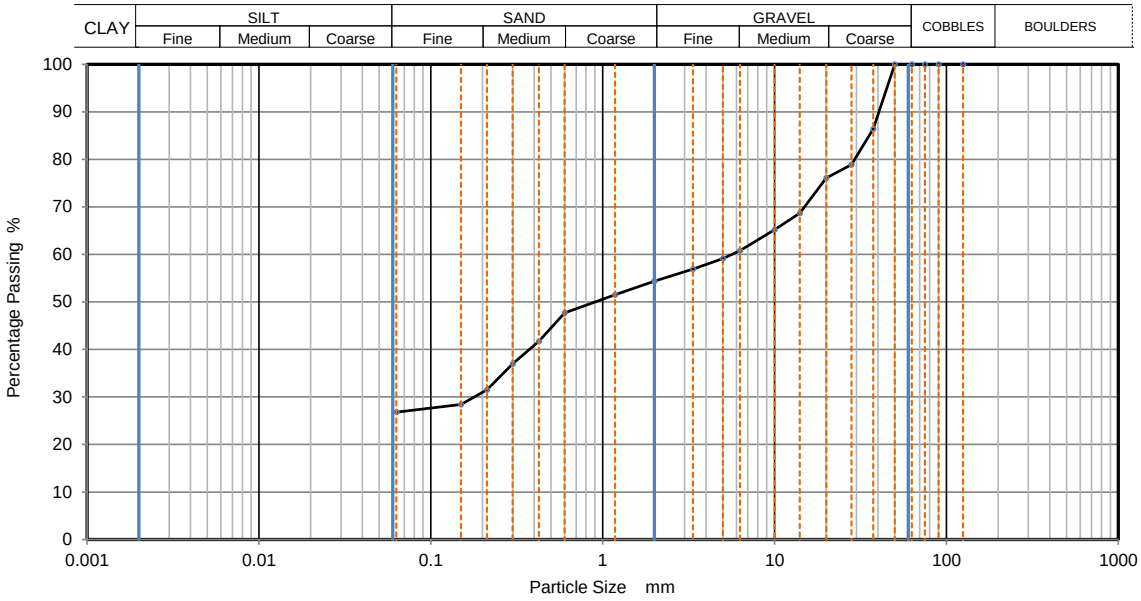
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-86592
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	86		
28	79		
20	76		
14	69		
10	65		
6.3	61		
5	59		
3.35	57		
2	54		
1.18	52		
0.6	48		
0.425	42		
0.3	37		
0.212	32		
0.15	28		
0.063	27		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	45.6
Sand	27.6
Fines <0.063mm	26.8

Grading Analysis		
D100	mm	
D60	mm	5.67
D30	mm	0.18
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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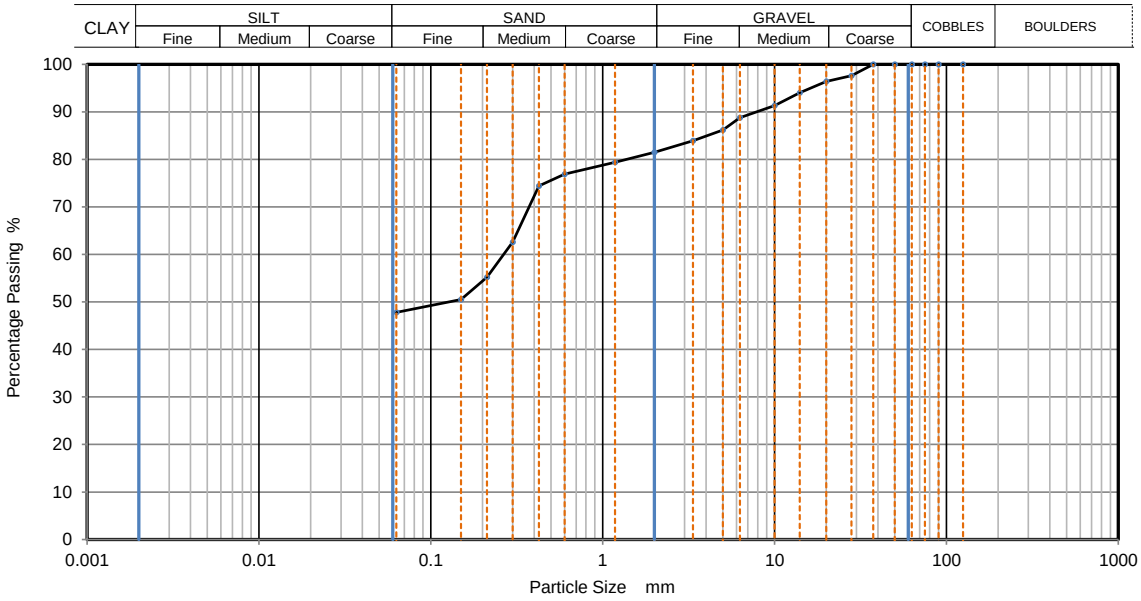
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-87806
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	94		
10	91		
6.3	89		
5	86		
3.35	84		
2	82		
1.18	79		
0.6	77		
0.425	74		
0.3	63		
0.212	55		
0.15	51		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	18.5
Sand	33.7
Fines <0.063mm	47.8

Grading Analysis		
D100	mm	
D60	mm	0.266
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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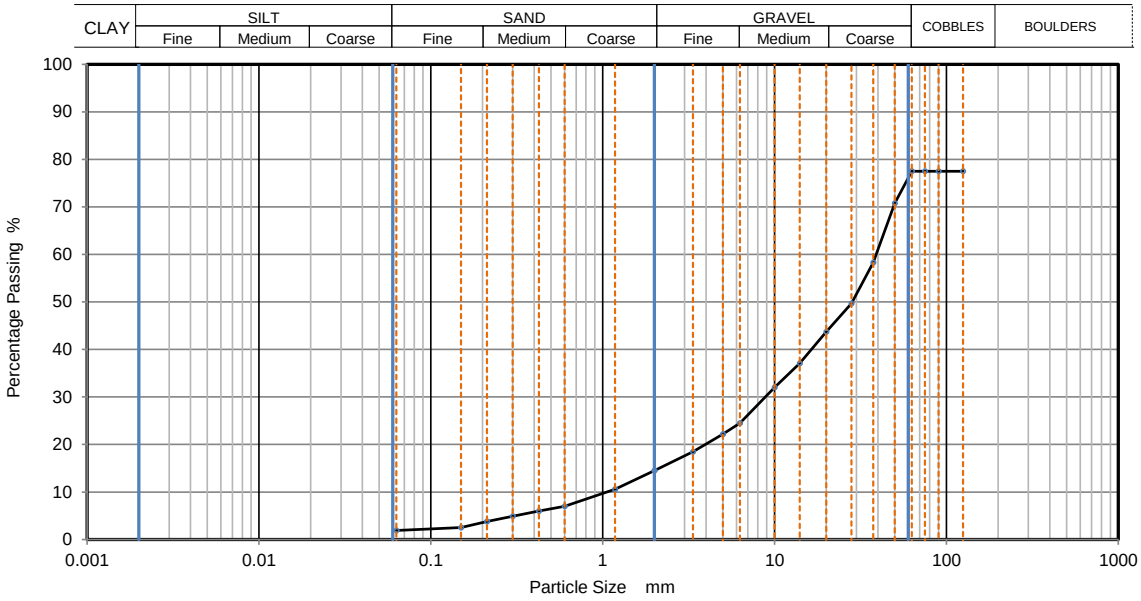
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-87806
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly clayey sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	78		
90	78		
75	78		
63	78		
50	71		
37.5	58		
28	50		
20	44		
14	37		
10	32		
6.3	25		
5	22		
3.35	19		
2	15		
1.18	11		
0.6	7		
0.425	6		
0.3	5		
0.212	4		
0.15	3		
0.063	2		

Sample Proportions	% dry mass
Very coarse	22.5
Gravel	63.0
Sand	12.6
Fines <0.063mm	1.9

Grading Analysis		
D100	mm	
D60	mm	39
D30	mm	8.84
D10	mm	1.06
Uniformity Coefficient		37
Curvature Coefficient		1.9

Remarks

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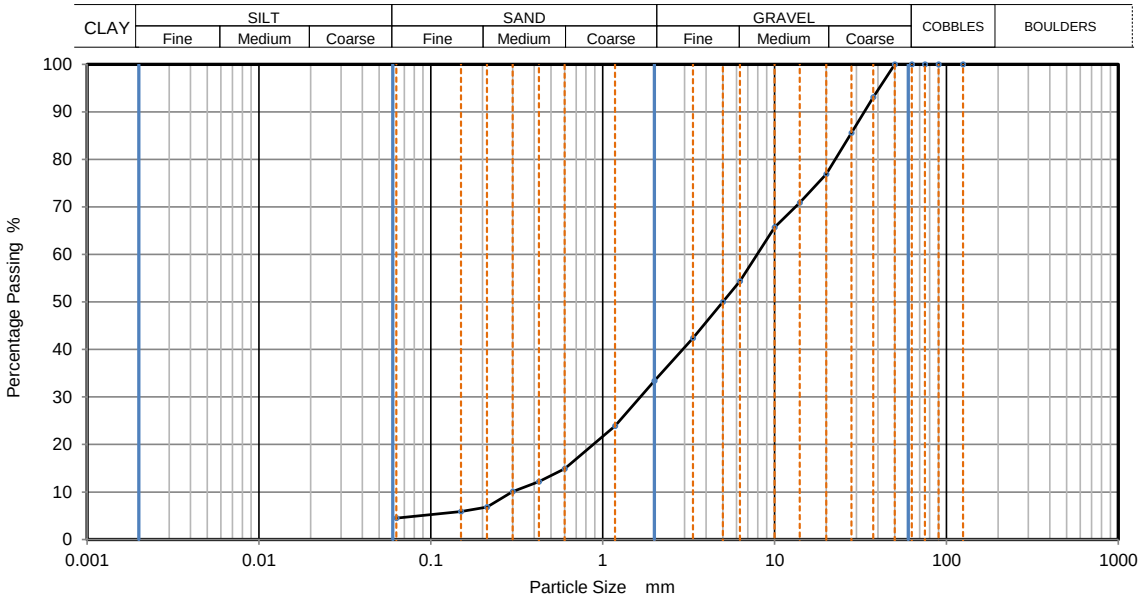
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-87999
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey slightly clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	86		
20	77		
14	71		
10	66		
6.3	54		
5	50		
3.35	42		
2	33		
1.18	24		
0.6	15		
0.425	12		
0.3	10		
0.212	7		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	66.6
Sand	28.9
Fines <0.063mm	4.5

Grading Analysis		
D100	mm	
D60	mm	7.91
D30	mm	1.66
D10	mm	0.297
Uniformity Coefficient		27
Curvature Coefficient		1.2

Remarks

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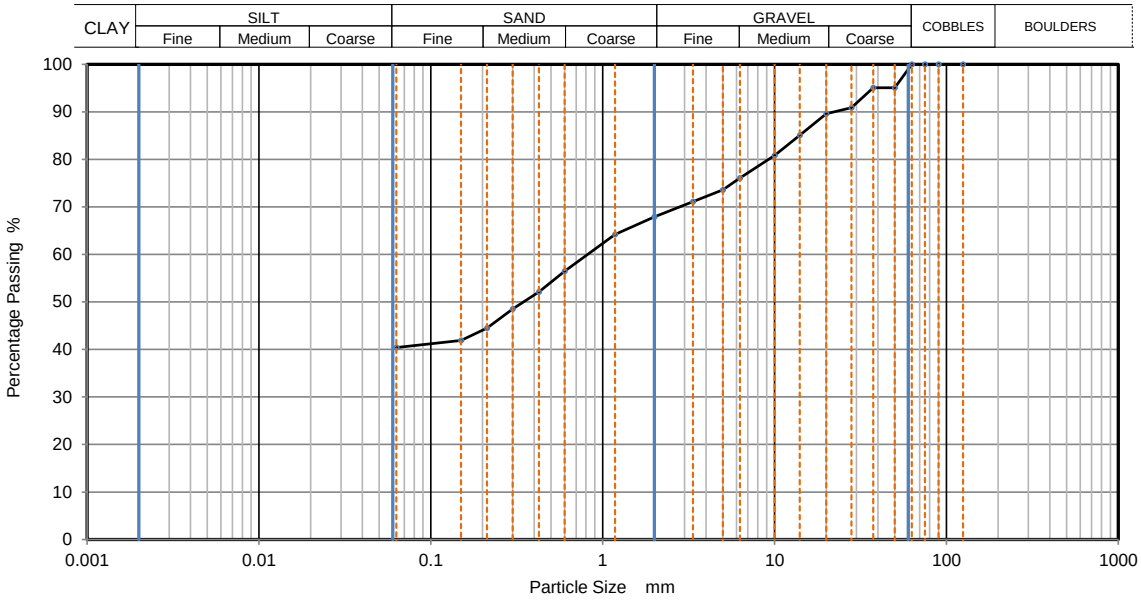
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-88759
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	95		
37.5	95		
28	91		
20	90		
14	85		
10	81		
6.3	76		
5	74		
3.35	71		
2	68		
1.18	64		
0.6	57		
0.425	52		
0.3	49		
0.212	45		
0.15	42		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.1
Sand	27.5
Fines <0.063mm	40.4

Grading Analysis		
D100	mm	
D60	mm	0.814
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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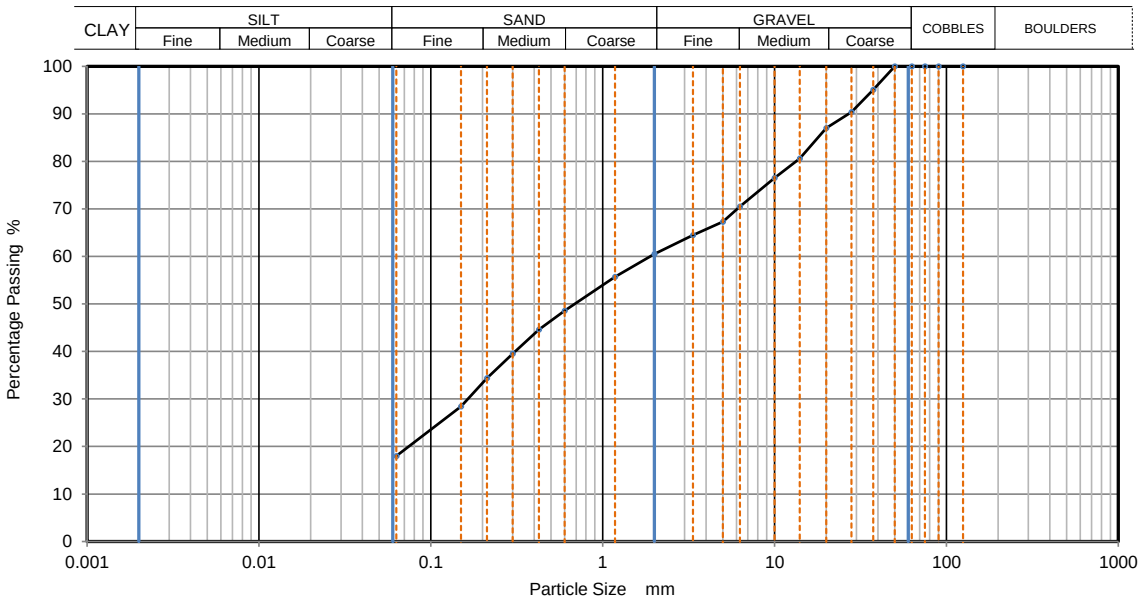
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89092
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey silty clayey very gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	90		
20	87		
14	81		
10	77		
6.3	71		
5	67		
3.35	65		
2	61		
1.18	56		
0.6	49		
0.425	45		
0.3	40		
0.212	34		
0.15	28		
0.063	18		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.5
Sand	42.5
Fines <0.063mm	18.0

Grading Analysis		
D100	mm	
D60	mm	1.89
D30	mm	0.165
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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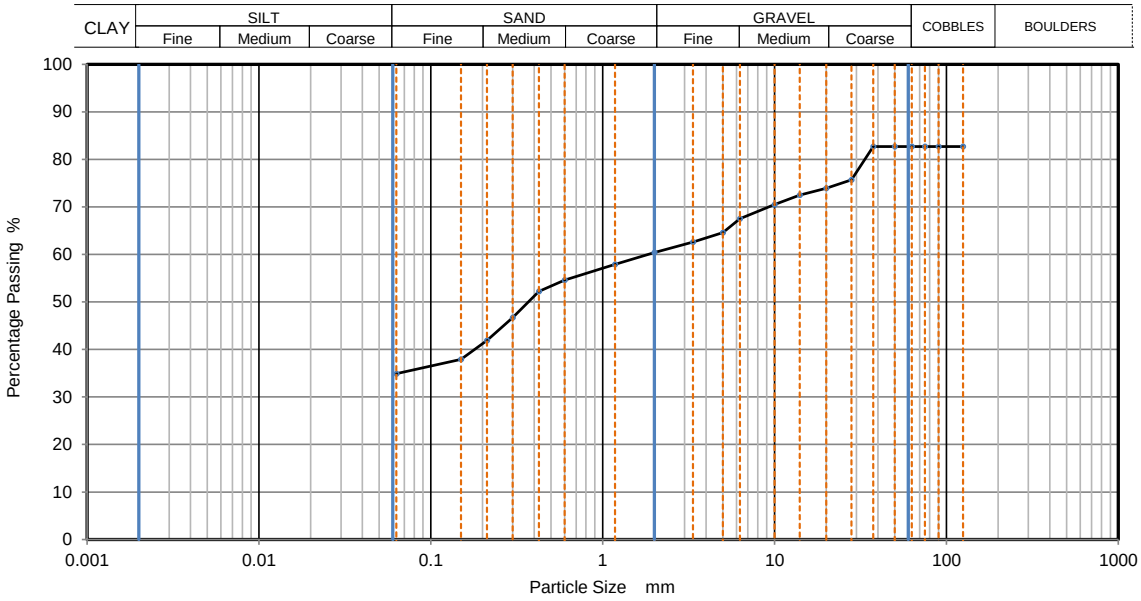
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89604
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	83		
90	83		
75	83		
63	83		
50	83		
37.5	83		
28	76		
20	74		
14	73		
10	71		
6.3	68		
5	65		
3.35	63		
2	60		
1.18	58		
0.6	55		
0.425	52		
0.3	47		
0.212	42		
0.15	38		
0.063	35		

Sample Proportions	% dry mass
Very coarse	17.3
Gravel	22.3
Sand	25.4
Fines <0.063mm	34.9

Grading Analysis		
D100	mm	
D60	mm	1.85
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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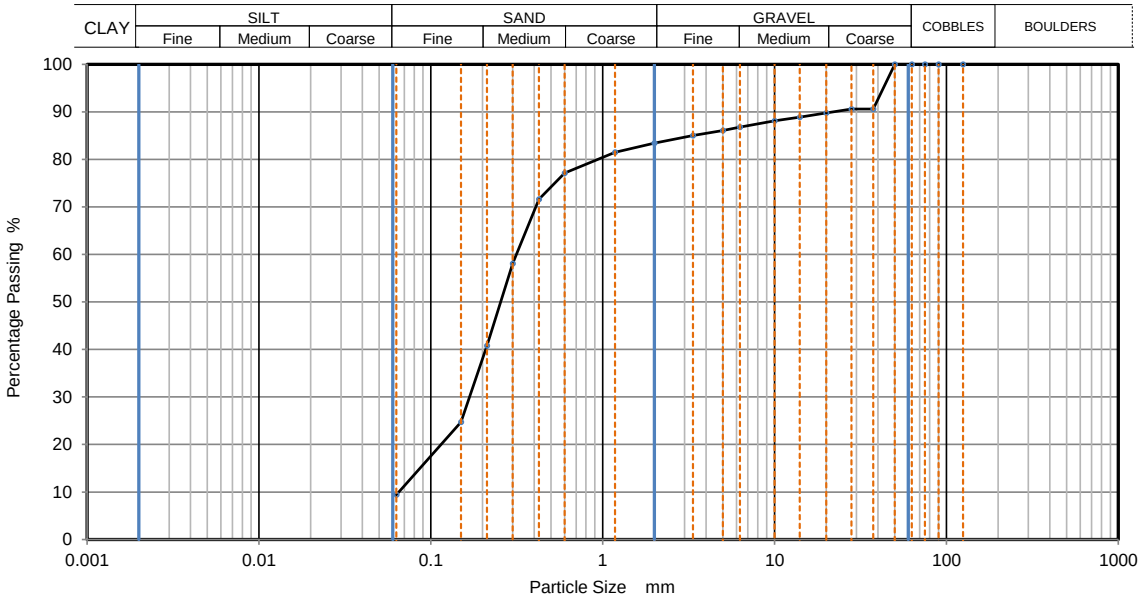
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89604
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey slightly clayey silty gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	91		
28	91		
20	90		
14	89		
10	88		
6.3	87		
5	86		
3.35	85		
2	83		
1.18	82		
0.6	77		
0.425	72		
0.3	58		
0.212	41		
0.15	25		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	16.6
Sand	74.0
Fines <0.063mm	9.4

Grading Analysis		
D100	mm	
D60	mm	0.315
D30	mm	0.168
D10	mm	0.065
Uniformity Coefficient		4.8
Curvature Coefficient		1.4

Remarks

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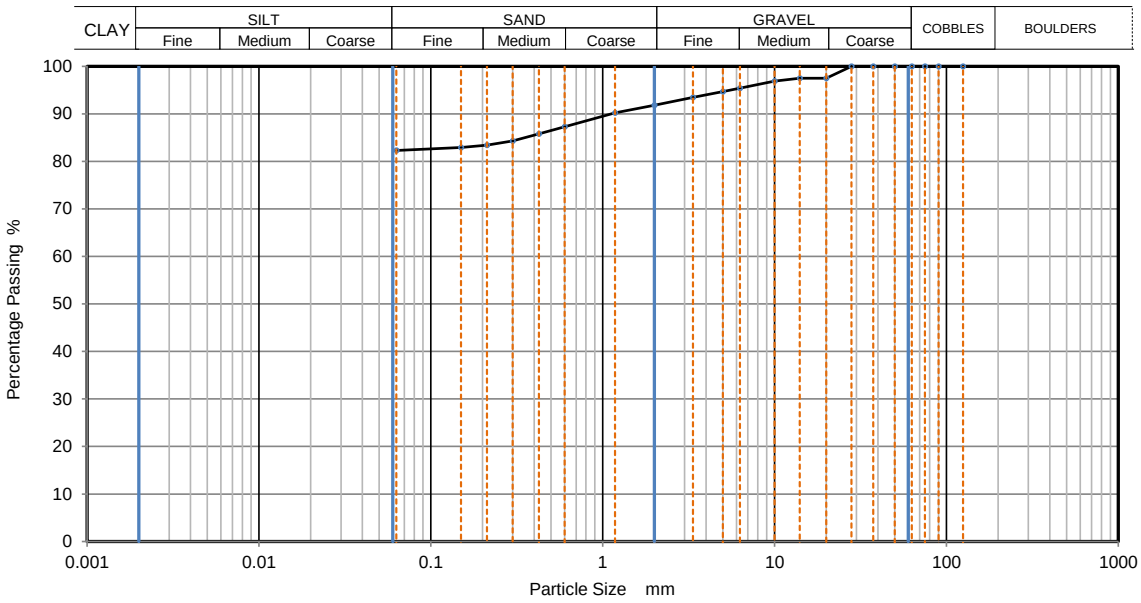
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-89604
Project No.	2021OY102	Client	Irish Drilling	Sample No.	
				Depth Top	6.00 m
Soil Description	Dark grey slightly gravelly slightly sandy clayey SILT (gravel is fmc and sub-angular to rounded)			Depth Base	7.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	98		
10	97		
6.3	95		
5	95		
3.35	94		
2	92		
1.18	90		
0.6	87		
0.425	86		
0.3	84		
0.212	83		
0.15	83		
0.063	82		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	8.2
Sand	9.6
Fines <0.063mm	82.3

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Tel: 01923 711288

Checked and Approved

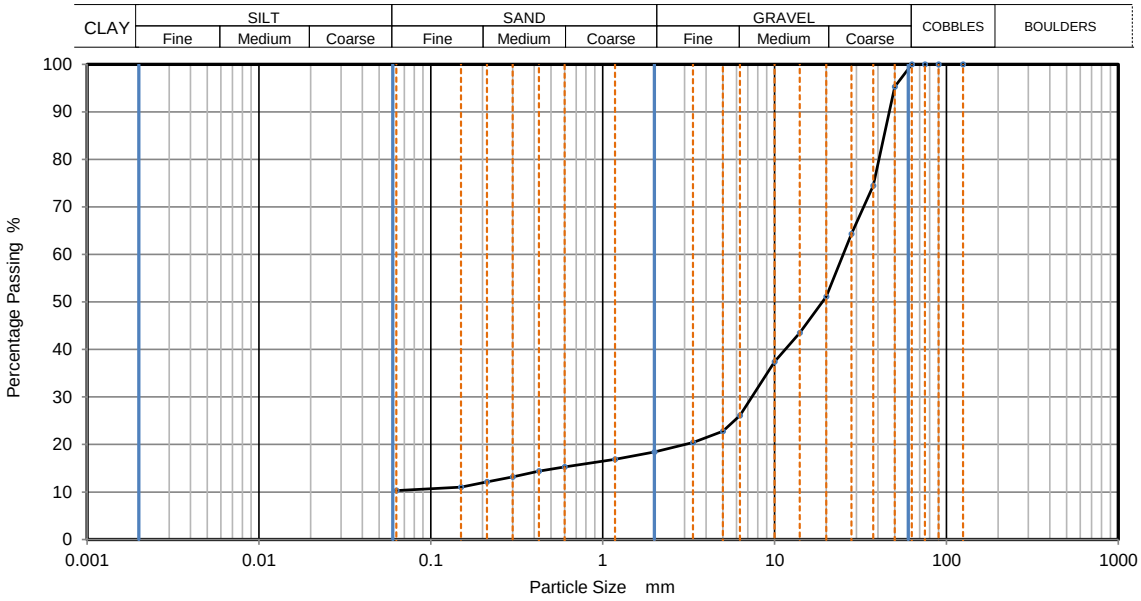
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89604
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	9.00 m
Soil Description	Grey clayey silty sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	10.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	95		
37.5	75		
28	64		
20	51		
14	44		
10	37		
6.3	26		
5	23		
3.35	20		
2	18		
1.18	17		
0.6	15		
0.425	14		
0.3	13		
0.212	12		
0.15	11		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	81.6
Sand	8.1
Fines <0.063mm	10.3

Grading Analysis		
D100	mm	
D60	mm	25.1
D30	mm	7.39
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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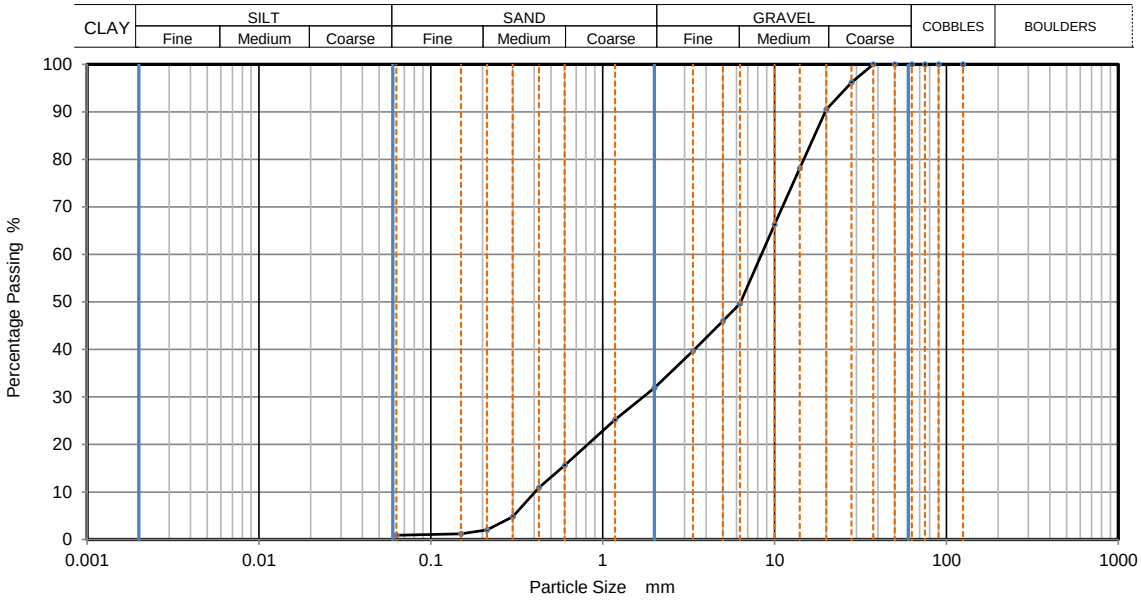
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89662
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	91		
14	78		
10	66		
6.3	50		
5	46		
3.35	40		
2	32		
1.18	25		
0.6	16		
0.425	11		
0.3	5		
0.212	2		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	68.1
Sand	31.0
Fines <0.063mm	0.9

Grading Analysis		
D100	mm	
D60	mm	8.41
D30	mm	1.72
D10	mm	0.404
Uniformity Coefficient		21
Curvature Coefficient		0.87

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Date: 14/12/2022

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

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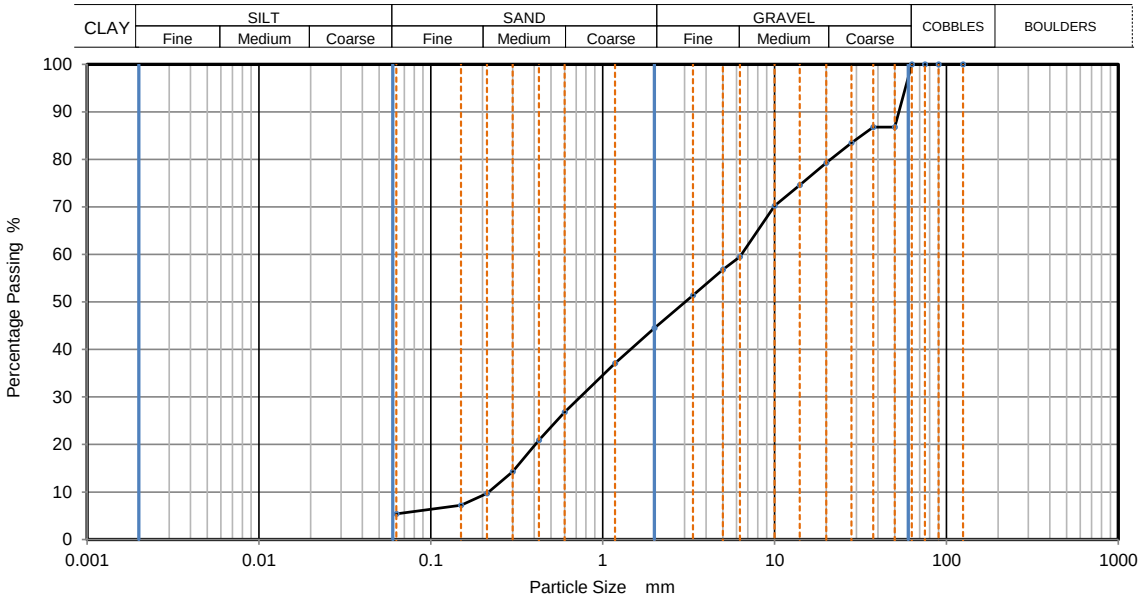
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89662
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	87		
37.5	87		
28	84		
20	79		
14	75		
10	70		
6.3	60		
5	57		
3.35	51		
2	45		
1.18	37		
0.6	27		
0.425	21		
0.3	14		
0.212	10		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	55.5
Sand	39.1
Fines <0.063mm	5.4

Grading Analysis		
D100	mm	
D60	mm	6.43
D30	mm	0.739
D10	mm	0.217
Uniformity Coefficient		30
Curvature Coefficient		0.39

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PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89662
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	6.00 m
Soil Description	Dark grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	7.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

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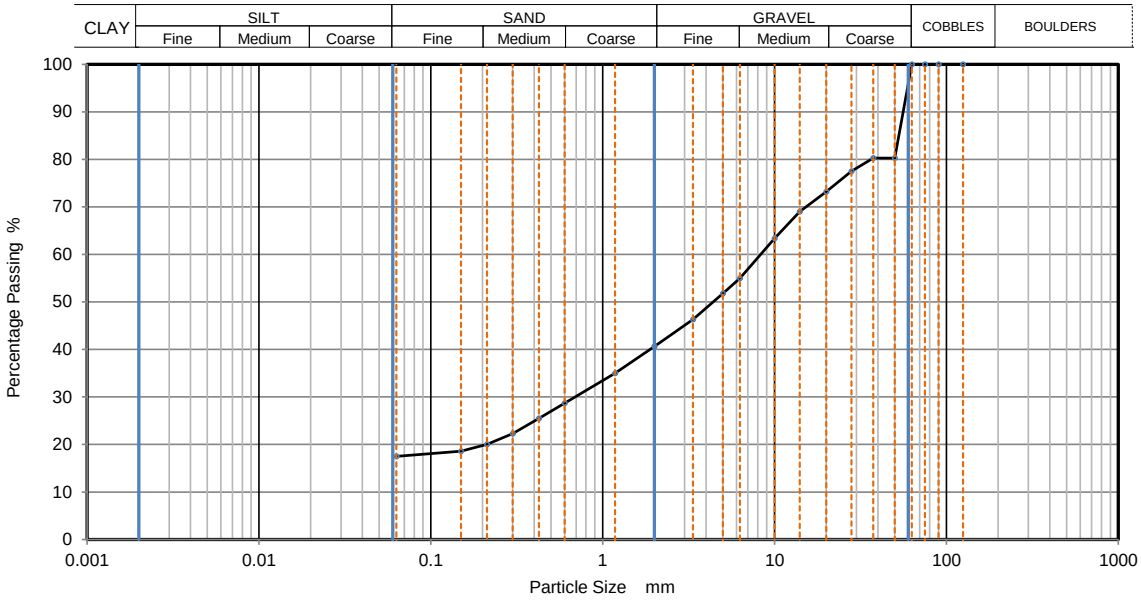

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	80		
37.5	80		
28	78		
20	73		
14	69		
10	63		
6.3	55		
5	52		
3.35	46		
2	41		
1.18	35		
0.6	29		
0.425	26		
0.3	22		
0.212	20		
0.15	19		
0.063	18		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	59.4
Sand	23.1
Fines <0.063mm	17.5

Grading Analysis		
D100	mm	
D60	mm	8.3
D30	mm	0.688
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89690
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly clayey slightly silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

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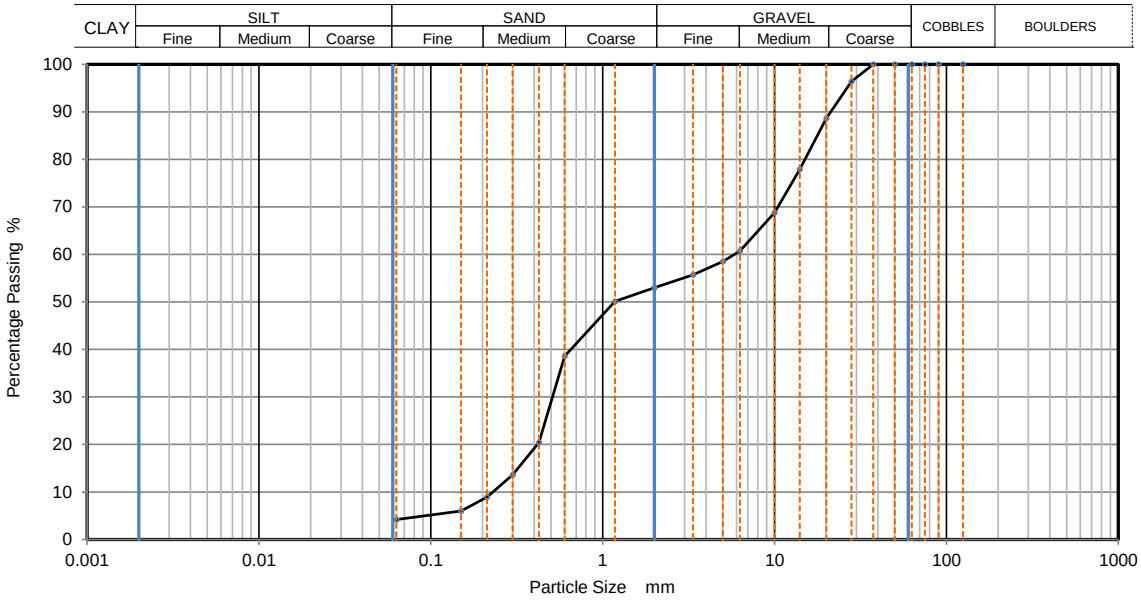

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	89		
14	78		
10	69		
6.3	61		
5	59		
3.35	56		
2	53		
1.18	50		
0.6	39		
0.425	20		
0.3	14		
0.212	9		
0.15	6		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	47.0
Sand	48.8
Fines <0.063mm	4.2

Grading Analysis		
D100	mm	
D60	mm	5.84
D30	mm	0.51
D10	mm	0.23
Uniformity Coefficient		25
Curvature Coefficient		0.19

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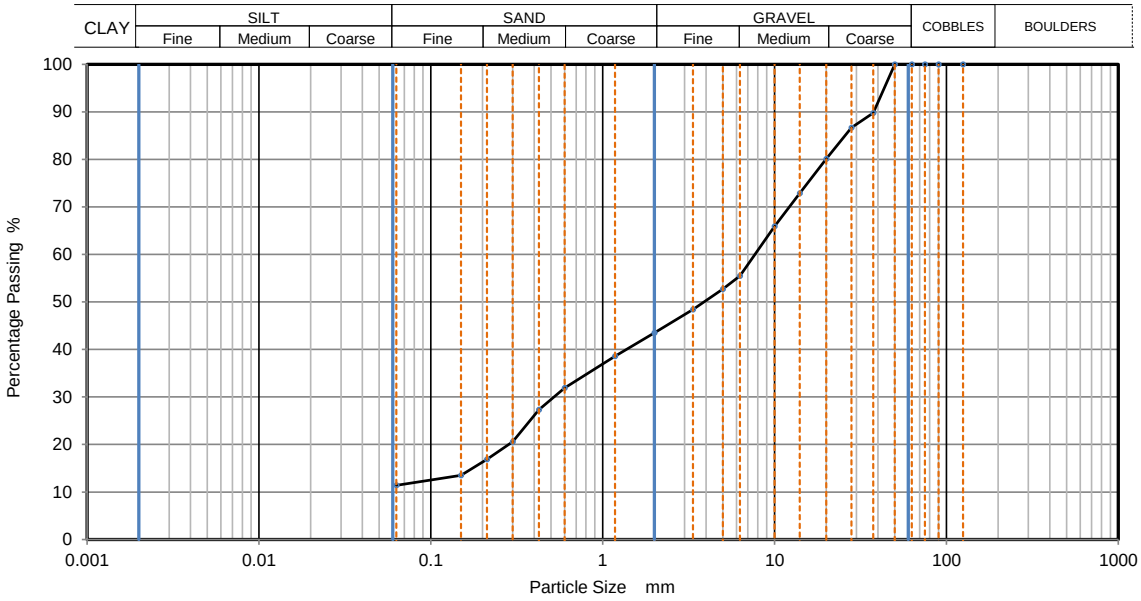
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89690
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	90		
28	87		
20	80		
14	73		
10	66		
6.3	56		
5	53		
3.35	48		
2	44		
1.18	39		
0.6	32		
0.425	27		
0.3	21		
0.212	17		
0.15	14		
0.063	11		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	56.5
Sand	32.0
Fines <0.063mm	11.4

Grading Analysis		
D100	mm	
D60	mm	7.71
D30	mm	0.519
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89747
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark grey slightly silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

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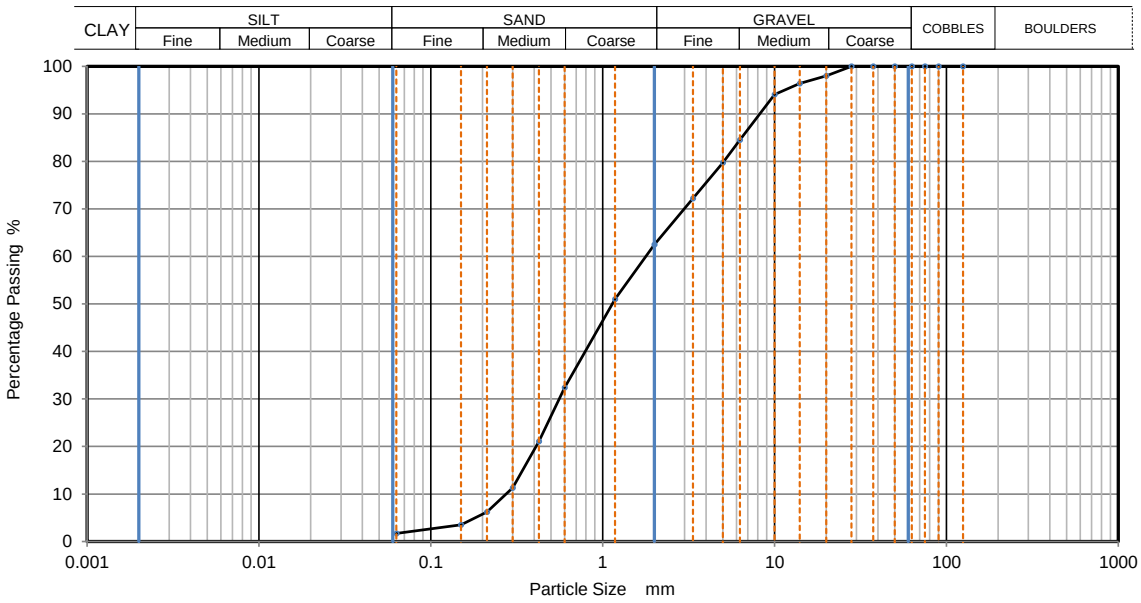

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	96		
10	94		
6.3	85		
5	80		
3.35	72		
2	63		
1.18	51		
0.6	32		
0.425	21		
0.3	11		
0.212	6		
0.15	4		
0.063	2		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	37.5
Sand	60.8
Fines <0.063mm	1.7

Grading Analysis		
D100	mm	
D60	mm	1.79
D30	mm	0.558
D10	mm	0.274
Uniformity Coefficient		6.5
Curvature Coefficient		0.64

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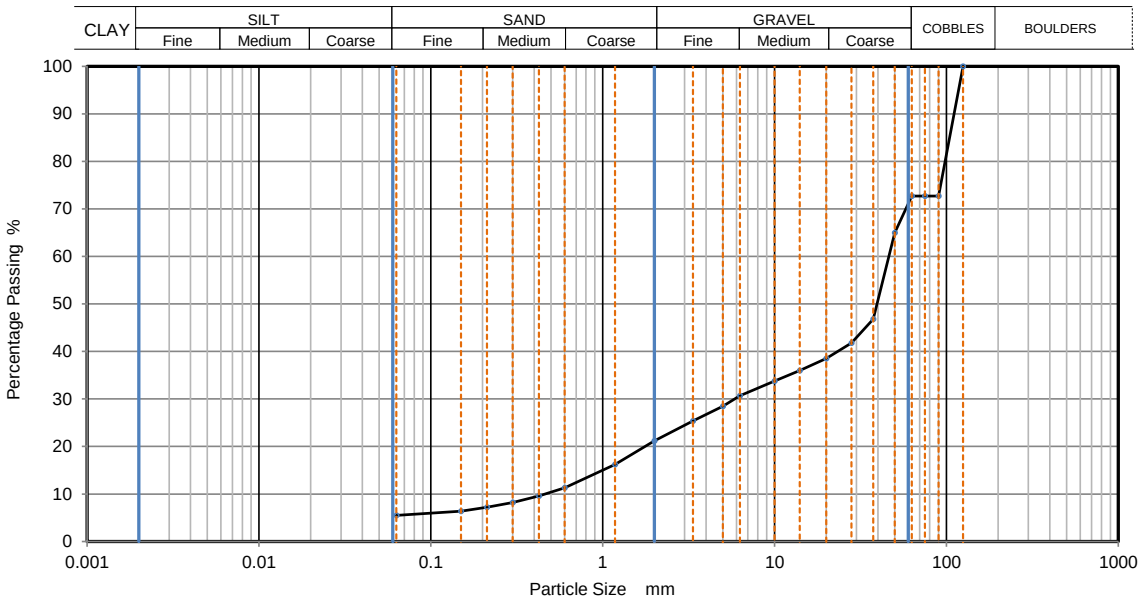
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-89747
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark grey slightly silty slightly clayey very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	73		
75	73		
63	73		
50	65		
37.5	47		
28	42		
20	39		
14	36		
10	34		
6.3	31		
5	29		
3.35	25		
2	21		
1.18	16		
0.6	11		
0.425	10		
0.3	8		
0.212	7		
0.15	6		
0.063	6		

Sample Proportions	% dry mass
Very coarse	27.3
Gravel	51.5
Sand	15.7
Fines <0.063mm	5.5

Grading Analysis		
D100	mm	125
D60	mm	46.2
D30	mm	5.86
D10	mm	0.46
Uniformity Coefficient		100
Curvature Coefficient		1.6

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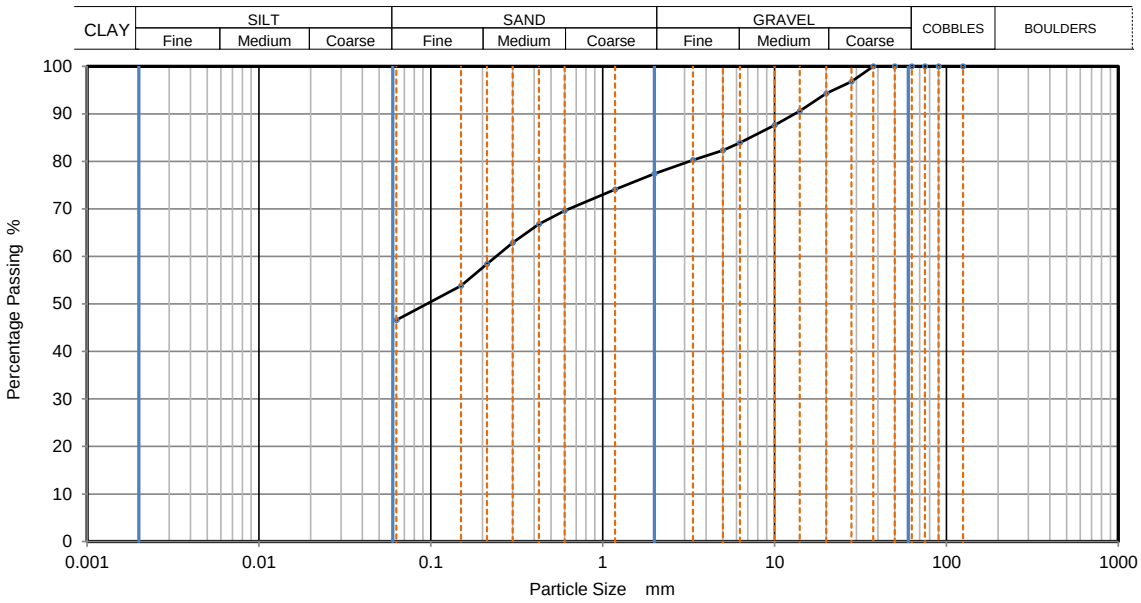
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-90003
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	94		
14	91		
10	88		
6.3	84		
5	82		
3.35	80		
2	77		
1.18	74		
0.6	70		
0.425	67		
0.3	63		
0.212	58		
0.15	54		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.6
Sand	30.8
Fines <0.063mm	46.7

Grading Analysis		
D100	mm	
D60	mm	0.24
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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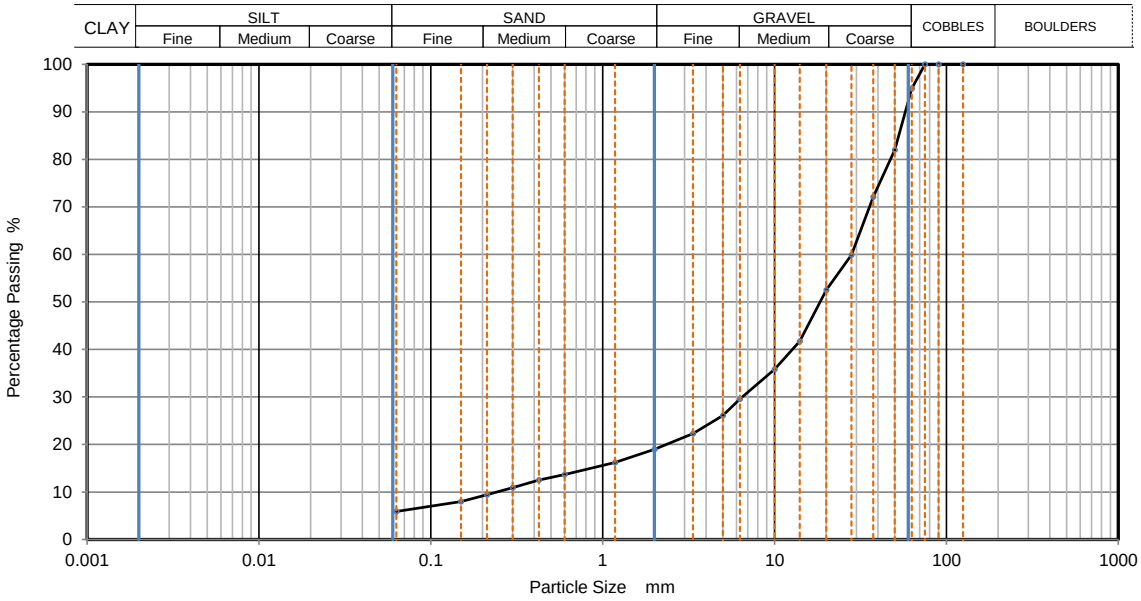
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-90003
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey slightly silty slightly clayey sandy GRAVEL with rare cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	95		
50	82		
37.5	72		
28	60		
20	53		
14	42		
10	36		
6.3	30		
5	26		
3.35	22		
2	19		
1.18	16		
0.6	14		
0.425	13		
0.3	11		
0.212	9		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Very coarse	5.1
Gravel	76.0
Sand	13.0
Fines <0.063mm	5.9

Grading Analysis		
D100	mm	
D60	mm	28
D30	mm	6.48
D10	mm	0.241
Uniformity Coefficient		120
Curvature Coefficient		6.2

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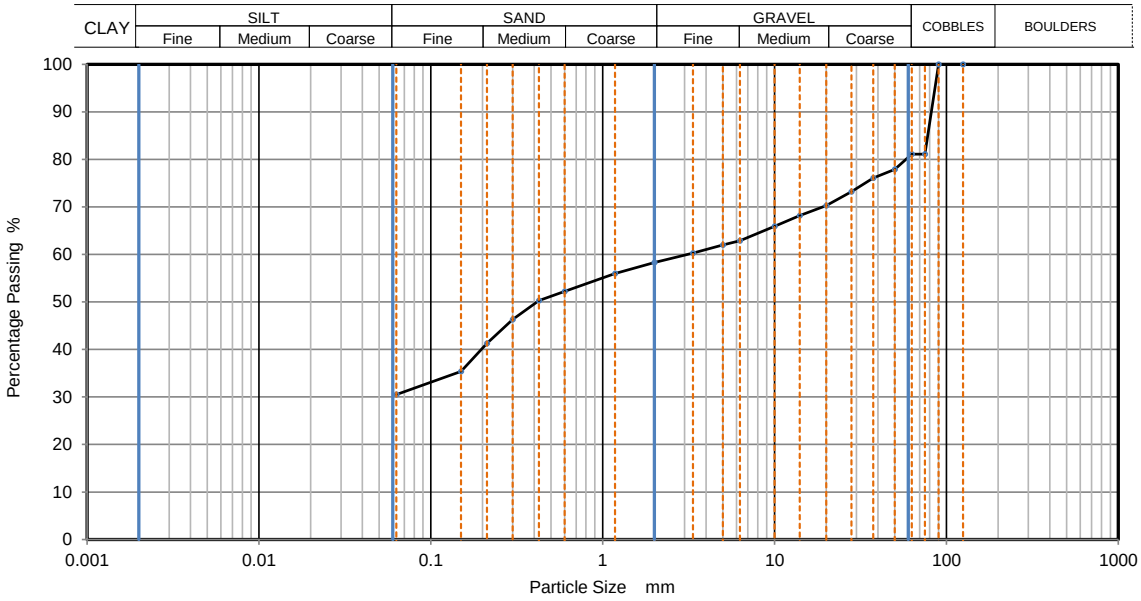
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-90402
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greenish grey slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	81		
63	81		
50	78		
37.5	76		
28	73		
20	70		
14	68		
10	66		
6.3	63		
5	62		
3.35	60		
2	58		
1.18	56		
0.6	52		
0.425	50		
0.3	46		
0.212	41		
0.15	35		
0.063	31		

Sample Proportions	% dry mass
Very coarse	18.9
Gravel	22.9
Sand	27.7
Fines <0.063mm	30.5

Grading Analysis		
D100	mm	
D60	mm	3.12
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

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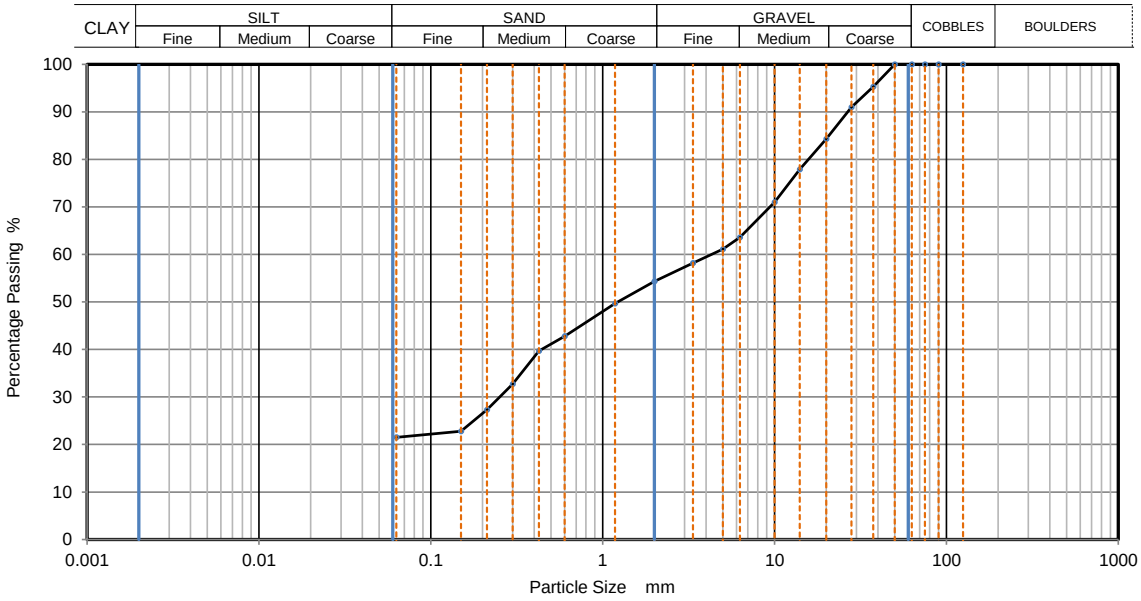
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-90402
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	05/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	91		
20	84		
14	78		
10	71		
6.3	64		
5	61		
3.35	58		
2	54		
1.18	50		
0.6	43		
0.425	40		
0.3	33		
0.212	27		
0.15	23		
0.063	22		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	45.7
Sand	32.8
Fines <0.063mm	21.5

Grading Analysis		
D100	mm	
D60	mm	4.29
D30	mm	0.252
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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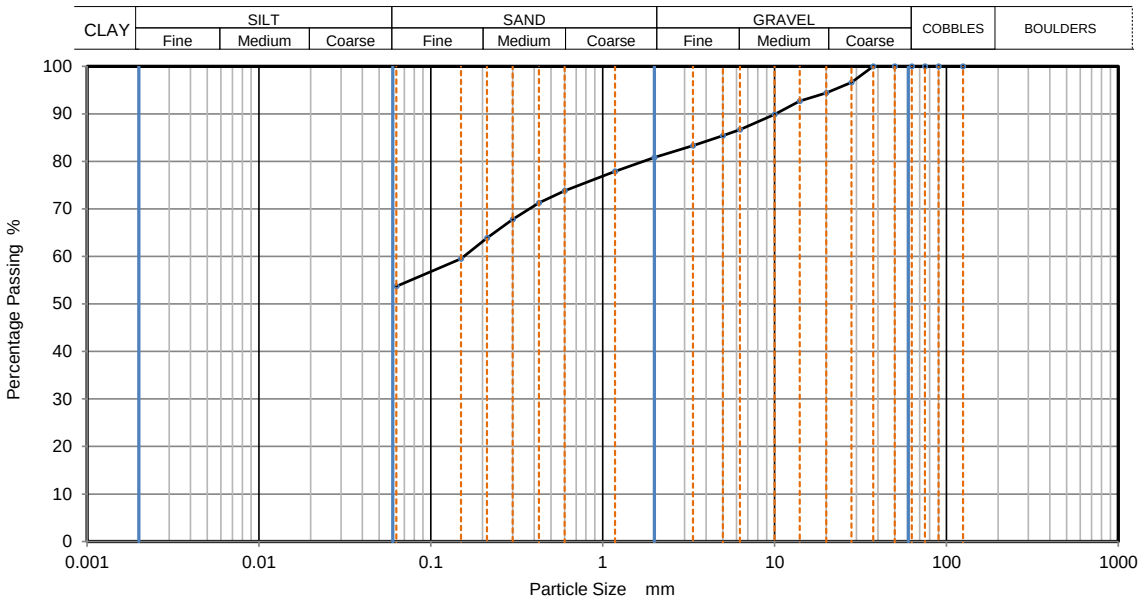
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-91011
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	94		
14	93		
10	90		
6.3	87		
5	85		
3.35	83		
2	81		
1.18	78		
0.6	74		
0.425	71		
0.3	68		
0.212	64		
0.15	60		
0.063	54		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.2
Sand	27.1
Fines <0.063mm	53.7

Grading Analysis		
D100	mm	
D60	mm	0.156
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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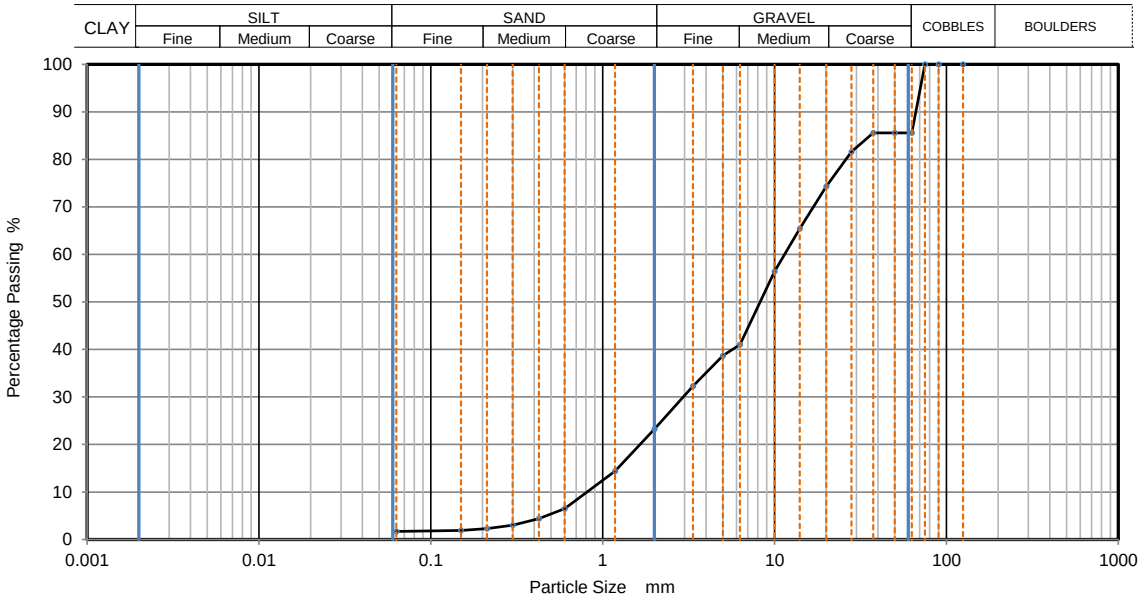
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-91011
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey slightly clayey slightly sandy silty very sandy GRAVEL with ccasional cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	86		
50	86		
37.5	86		
28	82		
20	74		
14	65		
10	56		
6.3	41		
5	39		
3.35	32		
2	23		
1.18	14		
0.6	7		
0.425	4		
0.3	3		
0.212	2		
0.15	2		
0.063	2		

Sample Proportions	% dry mass
Very coarse	14.4
Gravel	62.4
Sand	21.5
Fines <0.063mm	1.7

Grading Analysis		
D100	mm	
D60	mm	11.4
D30	mm	2.94
D10	mm	0.808
Uniformity Coefficient		14
Curvature Coefficient		0.93

Remarks

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Date: 14/12/2022

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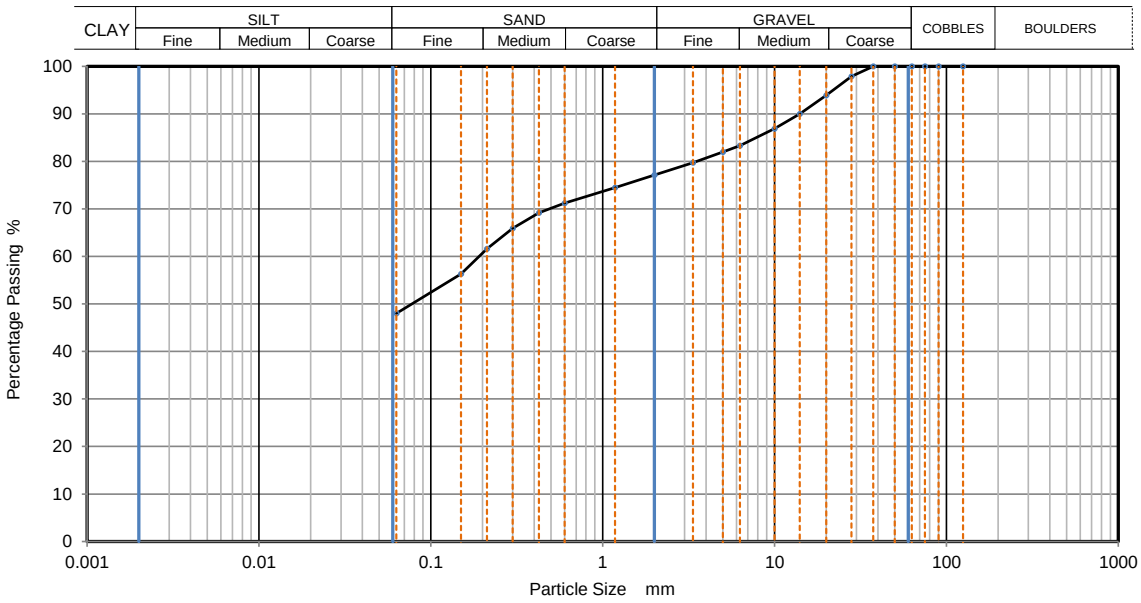
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-92206
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greenish grey and brown slightly slightly sandy sandy gravelly sandy silty CLAY (gravel is fmc and sub-angular)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	94		
14	90		
10	87		
6.3	83		
5	82		
3.35	80		
2	77		
1.18	75		
0.6	71		
0.425	69		
0.3	66		
0.212	62		
0.15	56		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.9
Sand	29.1
Fines <0.063mm	48.0

Grading Analysis		
D100	mm	
D60	mm	0.191
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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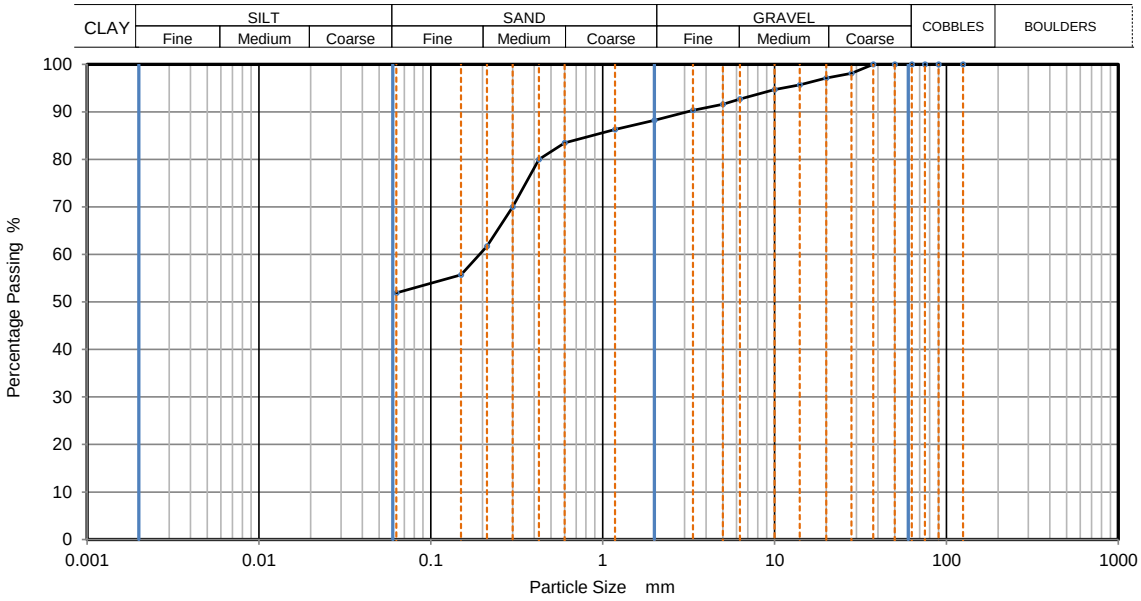
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-93391
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Orangish brown slightly mottled bluish grey slightly gravelly sandy organic silty CLAY (gravel is fmc and sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	97		
14	96		
10	95		
6.3	93		
5	92		
3.35	90		
2	88		
1.18	86		
0.6	84		
0.425	80		
0.3	70		
0.212	62		
0.15	56		
0.063	52		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	11.8
Sand	36.3
Fines <0.063mm	51.9

Grading Analysis		
D100	mm	
D60	mm	0.192
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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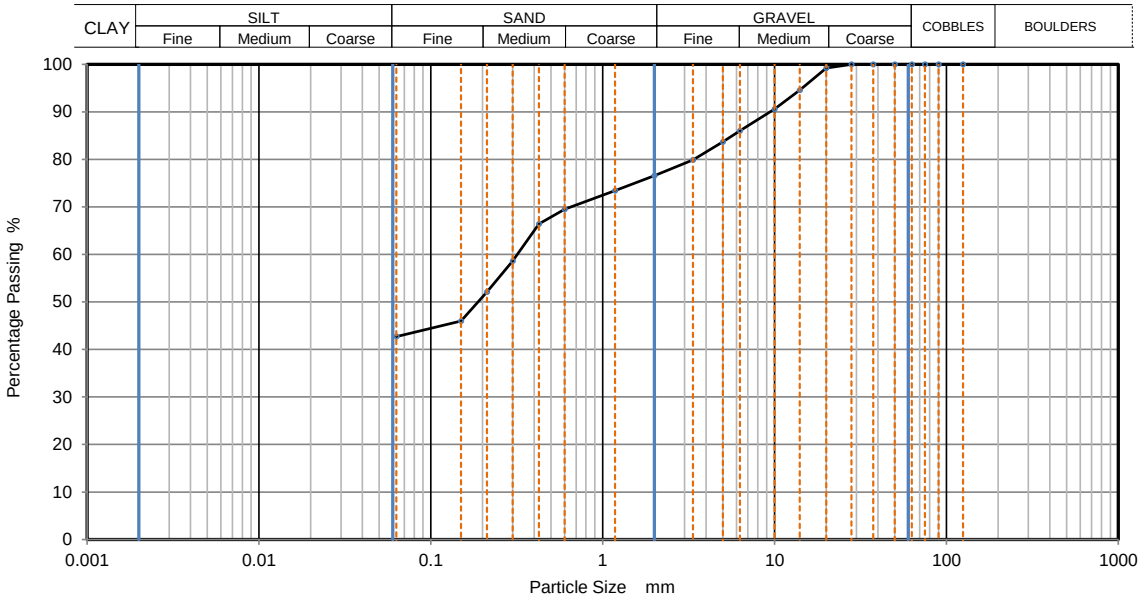
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-93391
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	95		
10	91		
6.3	86		
5	84		
3.35	80		
2	77		
1.18	73		
0.6	70		
0.425	66		
0.3	59		
0.212	52		
0.15	46		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.4
Sand	33.9
Fines <0.063mm	42.7

Grading Analysis		
D100	mm	
D60	mm	0.319
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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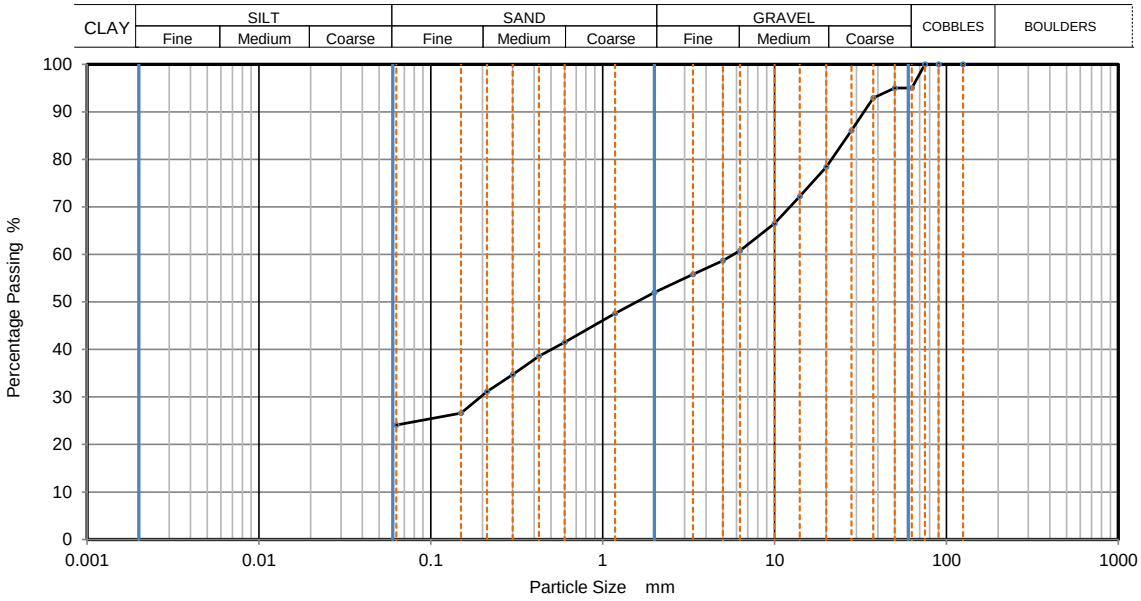
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-93803
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey and brown silty clayey very sandy GRAVEL with rare cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	95		
50	95		
37.5	93		
28	86		
20	78		
14	72		
10	67		
6.3	61		
5	59		
3.35	56		
2	52		
1.18	48		
0.6	42		
0.425	39		
0.3	35		
0.212	31		
0.15	27		
0.063	24		

Sample Proportions	% dry mass
Very coarse	5.0
Gravel	43.1
Sand	27.9
Fines <0.063mm	24.1

Grading Analysis		
D100	mm	
D60	mm	5.79
D30	mm	0.194
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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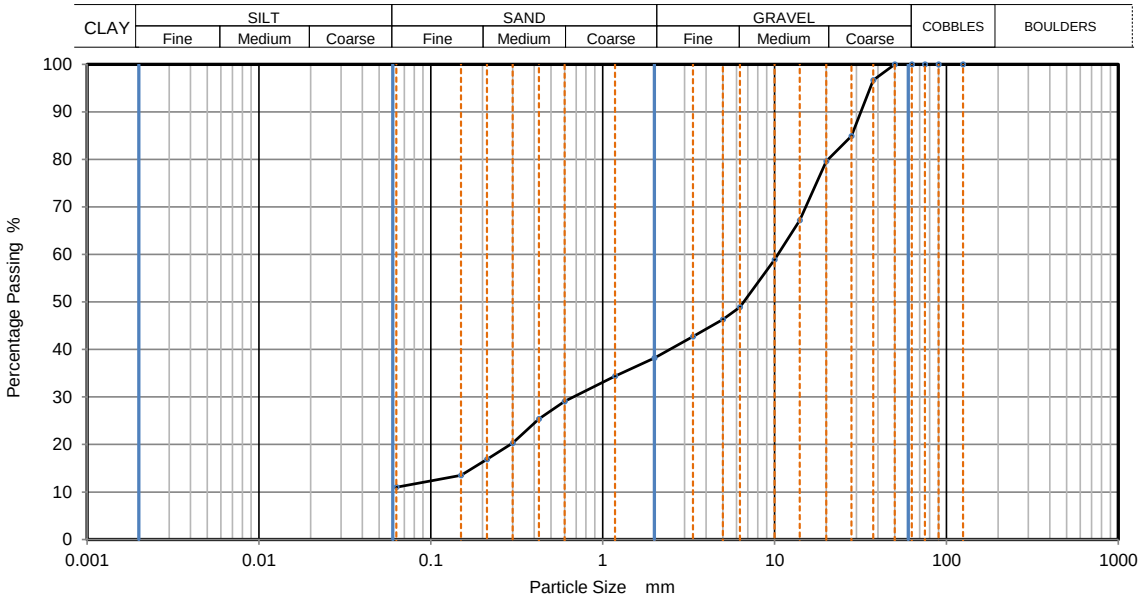
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-94016
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	85		
20	80		
14	67		
10	59		
6.3	49		
5	46		
3.35	43		
2	38		
1.18	34		
0.6	29		
0.425	25		
0.3	20		
0.212	17		
0.15	14		
0.063	11		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	61.8
Sand	27.1
Fines <0.063mm	11.0

Grading Analysis		
D100	mm	
D60	mm	10.5
D30	mm	0.677
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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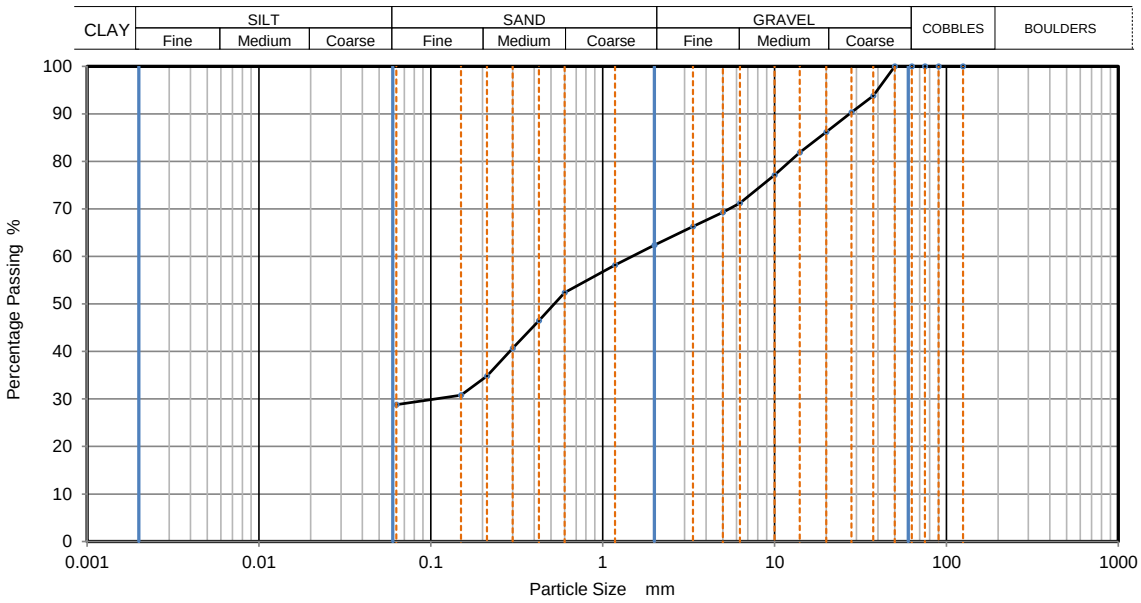
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-94403
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	90		
20	86		
14	82		
10	77		
6.3	71		
5	69		
3.35	66		
2	62		
1.18	58		
0.6	52		
0.425	47		
0.3	41		
0.212	35		
0.15	31		
0.063	29		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	37.6
Sand	33.6
Fines <0.063mm	28.8

Grading Analysis		
D100	mm	
D60	mm	1.48
D30	mm	0.107
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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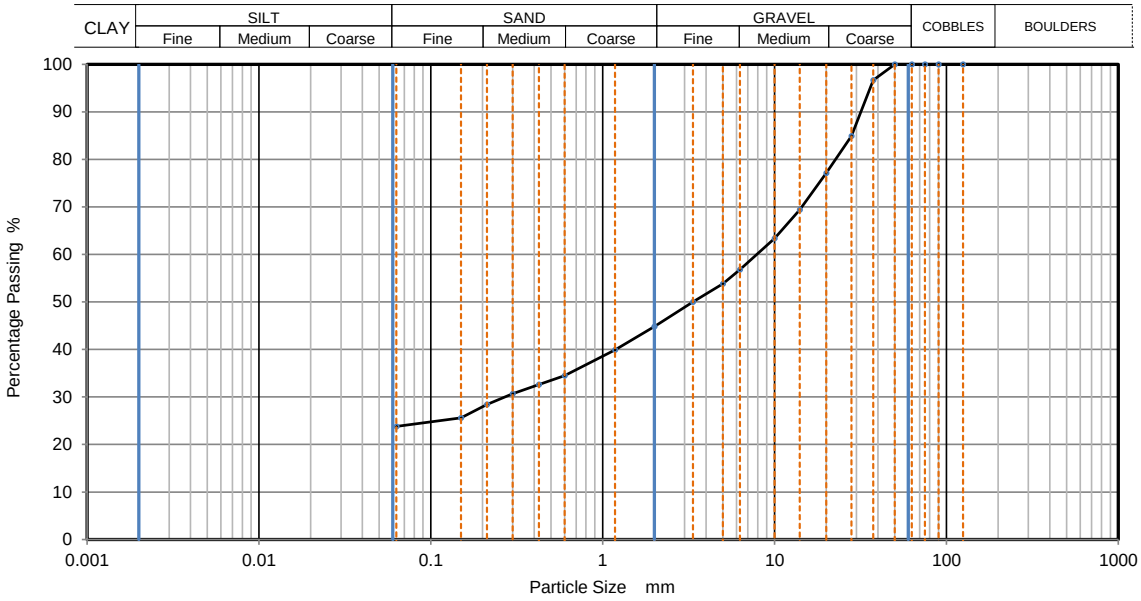
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-95064
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown clayey silty very sandy GRAVEL (gravel is fmc and sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	85		
20	77		
14	69		
10	63		
6.3	57		
5	54		
3.35	50		
2	45		
1.18	40		
0.6	35		
0.425	33		
0.3	31		
0.212	28		
0.15	26		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	55.2
Sand	21.0
Fines <0.063mm	23.8

Grading Analysis		
D100	mm	
D60	mm	7.88
D30	mm	0.269
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

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Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

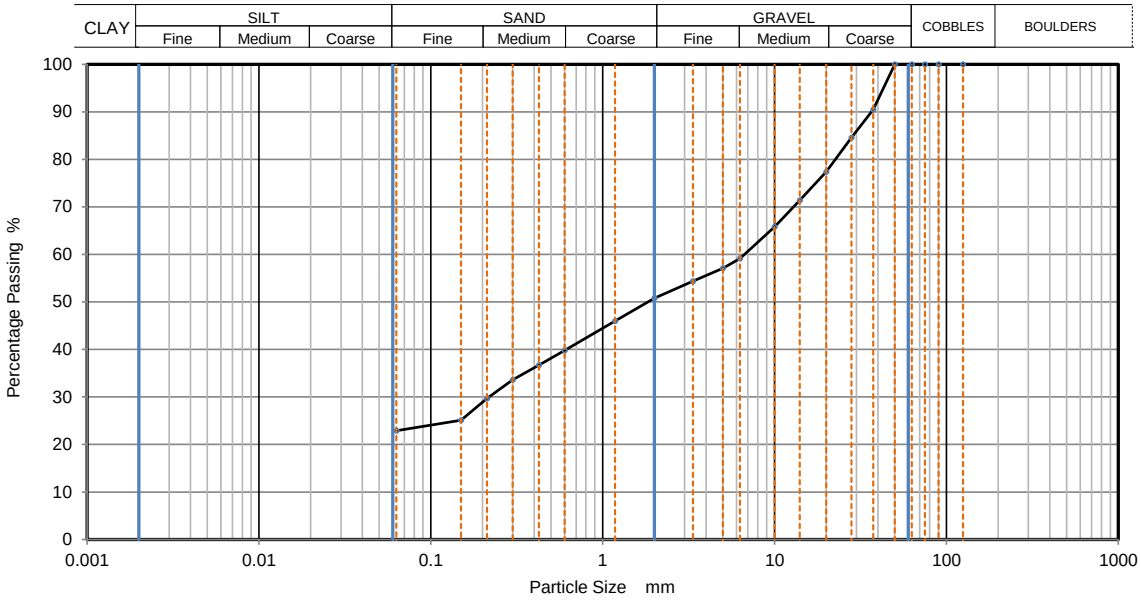
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-96005
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	91		
28	85		
20	77		
14	71		
10	66		
6.3	59		
5	57		
3.35	54		
2	51		
1.18	46		
0.6	40		
0.425	37		
0.3	34		
0.212	30		
0.15	25		
0.063	23		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	49.2
Sand	27.8
Fines <0.063mm	22.9

Grading Analysis		
D100	mm	
D60	mm	6.69
D30	mm	0.217
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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UKAS TESTING

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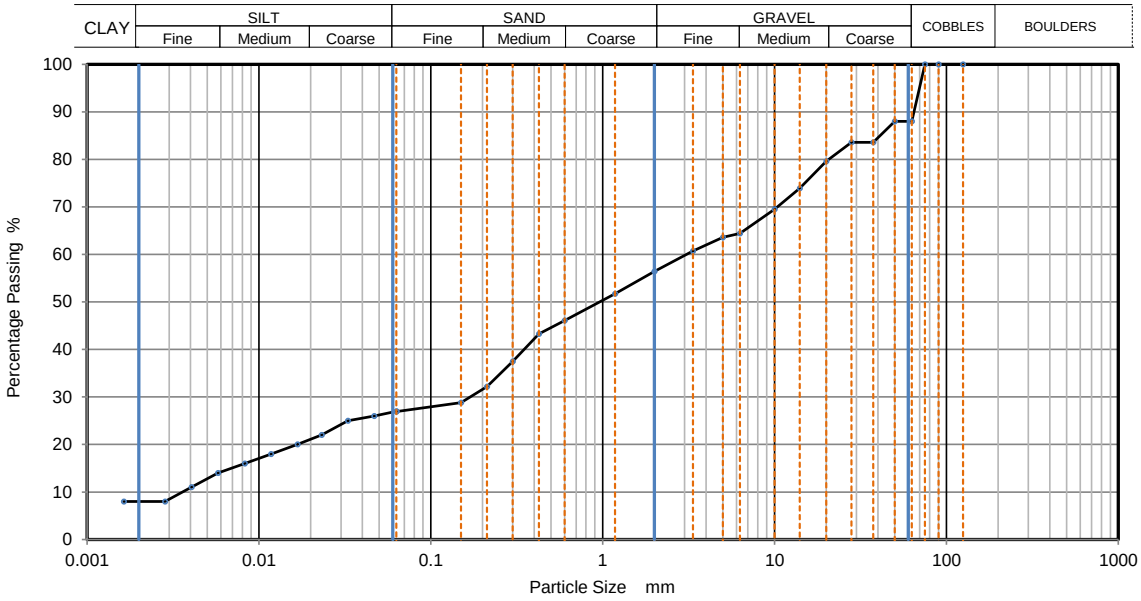
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-96364
Project No.	2021OY102	Client	Irish Drilling	Sample No.	7
				Depth Top	2.00 m
Soil Description	Dark grey clayey very silty very sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	27
90	100	0.0468	26
75	100	0.0330	25
63	88	0.0231	22
50	88	0.0168	20
37.5	84	0.0118	18
28	84	0.0083	16
20	80	0.0058	14
14	74	0.0041	11
10	70	0.0028	8
6.3	64	0.0016	8
5	64		
3.35	61		
2	56		
1.18	52		
0.6	46	Particle density (assumed)	
0.425	43	2.70	Mg/m3
0.3	38		
0.212	32		
0.15	29		
0.063	27		

Sample Proportions	% dry mass
Very coarse	12.0
Gravel	31.6
Sand	29.5
Silt	18.9
Clay	8.0

Grading Analysis		
D100	mm	
D60	mm	3.09
D30	mm	0.17
D10	mm	0.00344
Uniformity Coefficient		900
Curvature Coefficient		2.7

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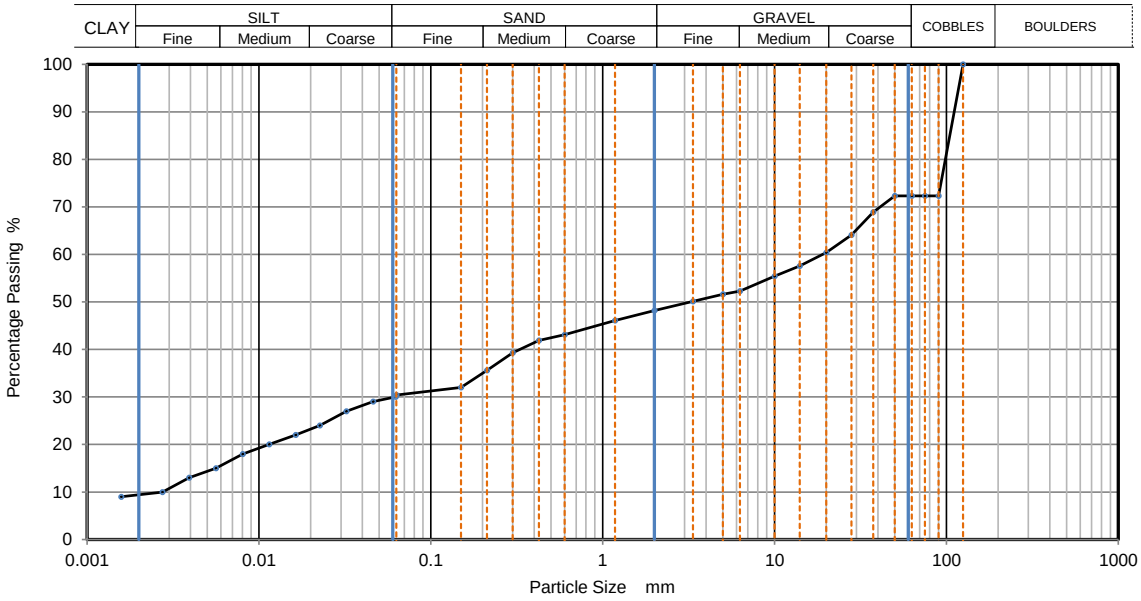
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-96858
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly sandy slightly gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0623	30
90	72	0.0462	29
75	72	0.0323	27
63	72	0.0226	24
50	72	0.0164	22
37.5	69	0.0115	20
28	64	0.0080	18
20	60	0.0056	15
14	58	0.0039	13
10	55	0.0027	10
6.3	52	0.0016	9
5	52		
3.35	50		
2	48		
1.18	46		
0.6	43	Particle density (assumed)	
0.425	42	2.70	Mg/m3
0.3	39		
0.212	36		
0.15	32		
0.063	30		

Sample Proportions	% dry mass
Very coarse	27.7
Gravel	24.1
Sand	17.8
Silt	20.8
Clay	9.6

Grading Analysis		
D100	mm	125
D60	mm	19.1
D30	mm	0.0548
D10	mm	0.0026
Uniformity Coefficient		7300
Curvature Coefficient		0.061

Remarks

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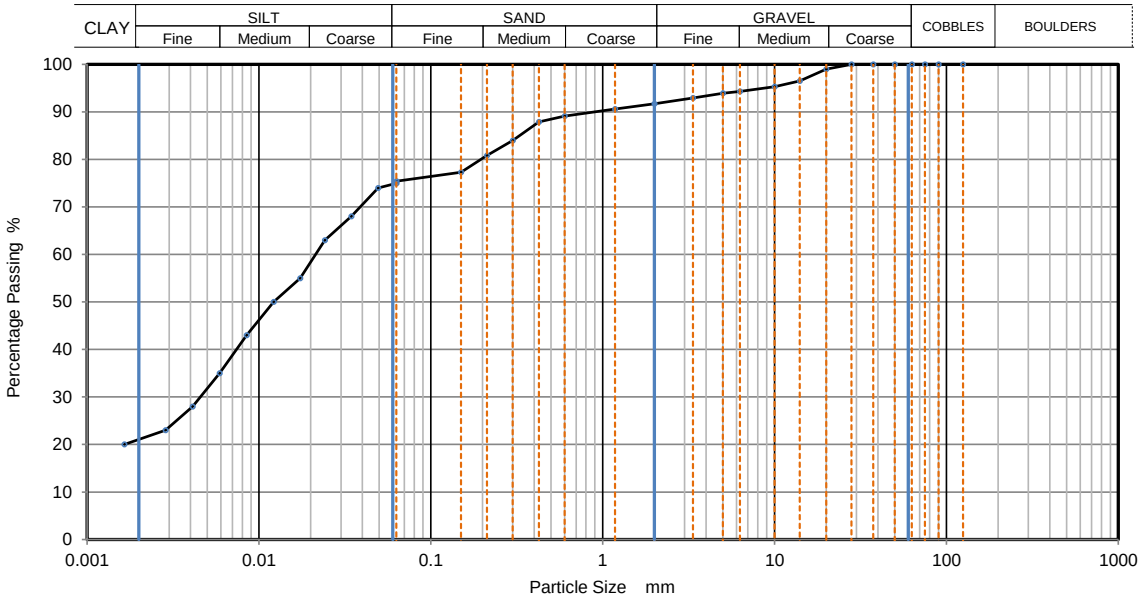
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-97837
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	75
90	100	0.0493	74
75	100	0.0345	68
63	100	0.0241	63
50	100	0.0174	55
37.5	100	0.0122	50
28	100	0.0085	43
20	99	0.0059	35
14	97	0.0041	28
10	95	0.0029	23
6.3	94	0.0016	20
5	94		
3.35	93		
2	92		
1.18	91		
0.6	89	Particle density	(assumed)
0.425	88	2.70	Mg/m3
0.3	84		
0.212	81		
0.15	77		
0.063	75		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	8.3
Sand	16.3
Silt	54.2
Clay	21.2

Grading Analysis		
D100	mm	
D60	mm	0.0214
D30	mm	0.00452
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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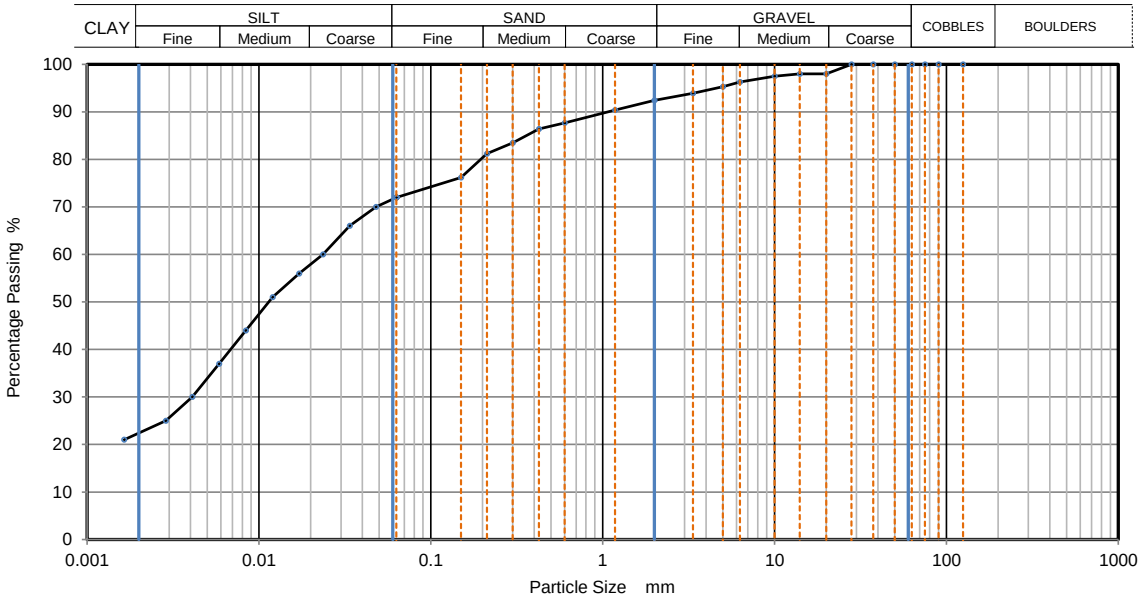
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-97837
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	72
90	100	0.0479	70
75	100	0.0337	66
63	100	0.0236	60
50	100	0.0171	56
37.5	100	0.0120	51
28	100	0.0084	44
20	98	0.0059	37
14	98	0.0041	30
10	98	0.0029	25
6.3	96	0.0016	21
5	95		
3.35	94		
2	92		
1.18	90		
0.6	88	Particle density (assumed)	
0.425	86	2.70	Mg/m3
0.3	84		
0.212	81		
0.15	76		
0.063	72		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	7.6
Sand	20.3
Silt	49.6
Clay	22.5

Grading Analysis		
D100	mm	
D60	mm	0.0229
D30	mm	0.00398
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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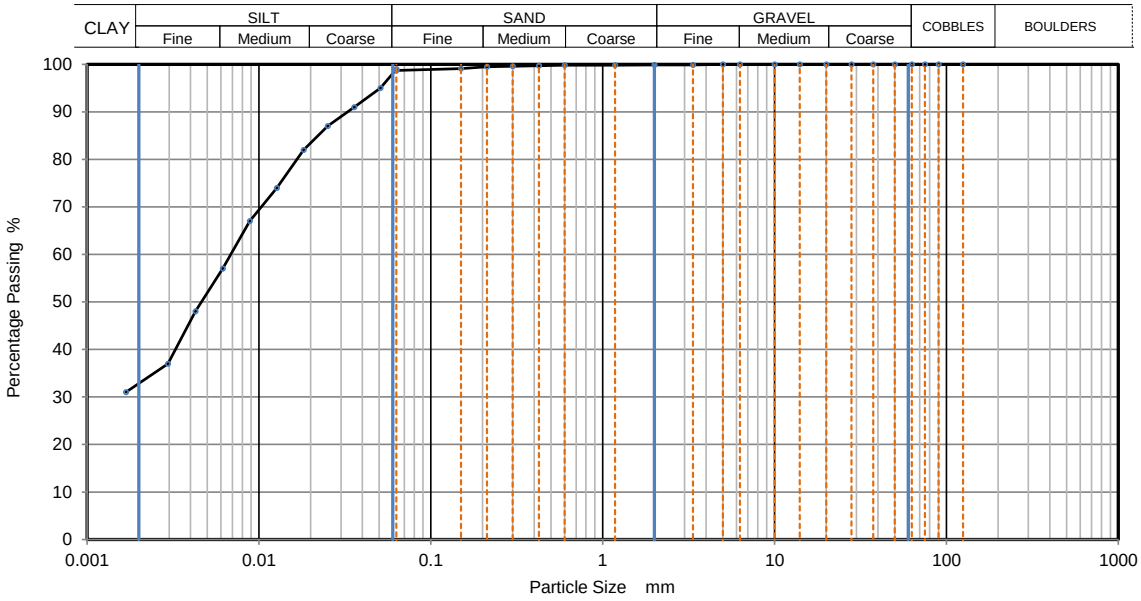
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-97881
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy sandy silty CLAY			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0509	95
75	100	0.0358	91
63	100	0.0251	87
50	100	0.0182	82
37.5	100	0.0127	74
28	100	0.0088	67
20	100	0.0061	57
14	100	0.0043	48
10	100	0.0030	37
6.3	100	0.0017	31
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density	(assumed)
0.425	100	2.70	Mg/m3
0.3	100		
0.212	100		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.1
Sand	1.2
Silt	65.8
Clay	32.9

Grading Analysis		
D100	mm	
D60	mm	0.00683
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-97881
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greenish grey and brown slightly sandy sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/12/2022

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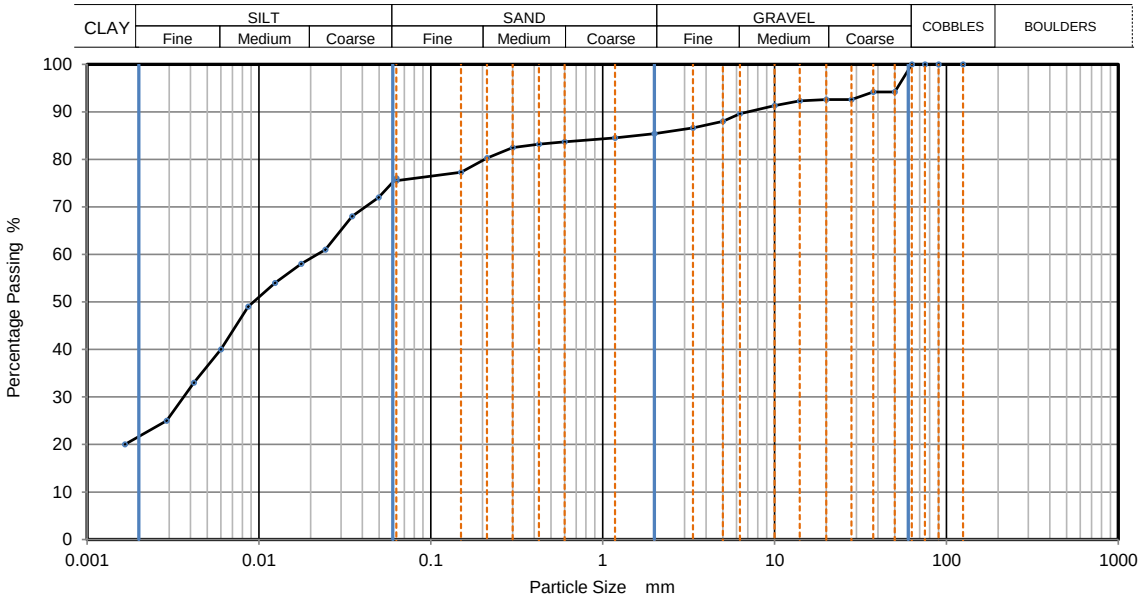

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	76
90	100	0.0496	72
75	100	0.0349	68
63	100	0.0243	61
50	94	0.0176	58
37.5	94	0.0124	54
28	93	0.0087	49
20	93	0.0060	40
14	92	0.0042	33
10	91	0.0029	25
6.3	90	0.0017	20
5	88		
3.35	87		
2	85		
1.18	85		
0.6	84	Particle density (assumed)	
0.425	83	2.70 Mg/m3	
0.3	83		
0.212	80		
0.15	77		
0.063	76		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	14.6
Sand	9.9
Silt	53.9
Clay	21.6

Grading Analysis		
D100	mm	
D60	mm	0.0218
D30	mm	0.00371
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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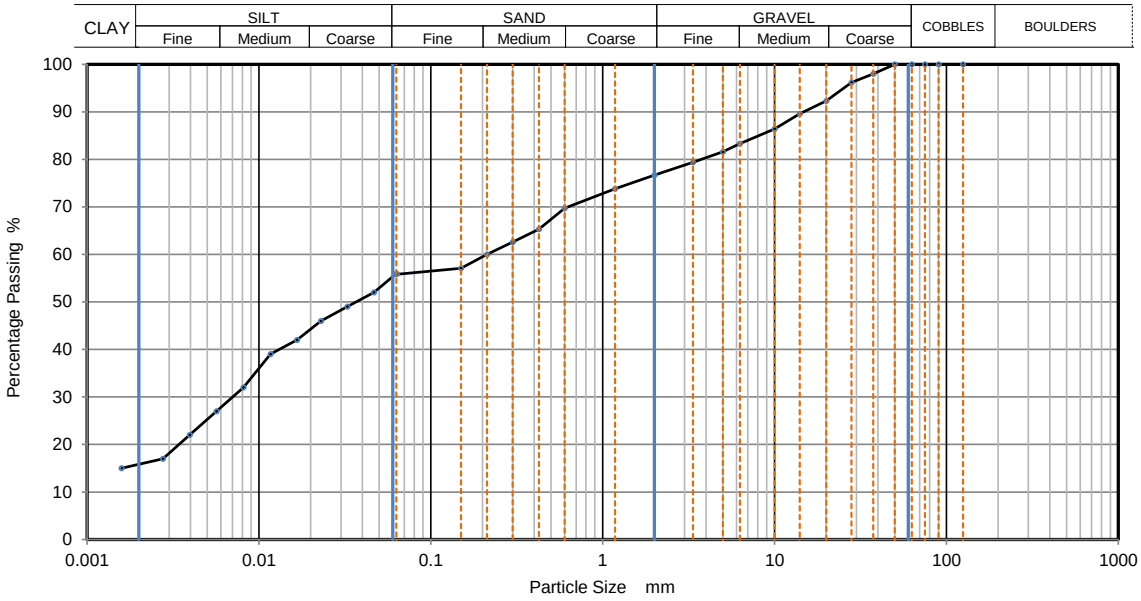
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-97881
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	7.00 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	8.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	56
90	100	0.0466	52
75	100	0.0327	49
63	100	0.0229	46
50	100	0.0166	42
37.5	98	0.0117	39
28	96	0.0081	32
20	92	0.0057	27
14	90	0.0040	22
10	86	0.0028	17
6.3	83	0.0016	15
5	82		
3.35	79		
2	77		
1.18	74		
0.6	70	Particle density (assumed)	
0.425	65	2.70 Mg/m3	
0.3	63		
0.212	60		
0.15	57		
0.063	56		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.3
Sand	20.9
Silt	40.0
Clay	15.8

Grading Analysis		
D100	mm	
D60	mm	0.213
D30	mm	0.00706
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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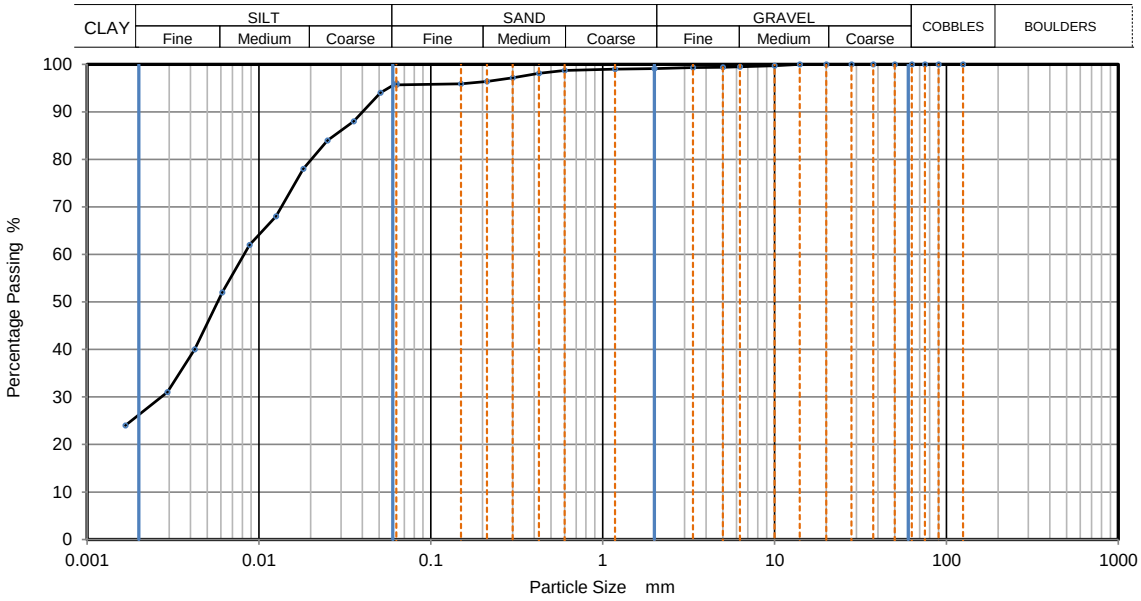
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-97914
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fine and sub-angular)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	96
90	100	0.0509	94
75	100	0.0356	88
63	100	0.0250	84
50	100	0.0181	78
37.5	100	0.0126	68
28	100	0.0088	62
20	100	0.0061	52
14	100	0.0042	40
10	100	0.0029	31
6.3	100	0.0017	24
5	99		
3.35	99		
2	99		
1.18	99		
0.6	99	Particle density (assumed)	
0.425	98	2.70 Mg/m3	
0.3	97		
0.212	96		
0.15	96		
0.063	96		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.9
Sand	3.5
Silt	69.3
Clay	26.3

Grading Analysis		
D100	mm	
D60	mm	0.00819
D30	mm	0.00278
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Date: 14/12/2022

UKAS TESTING

2519

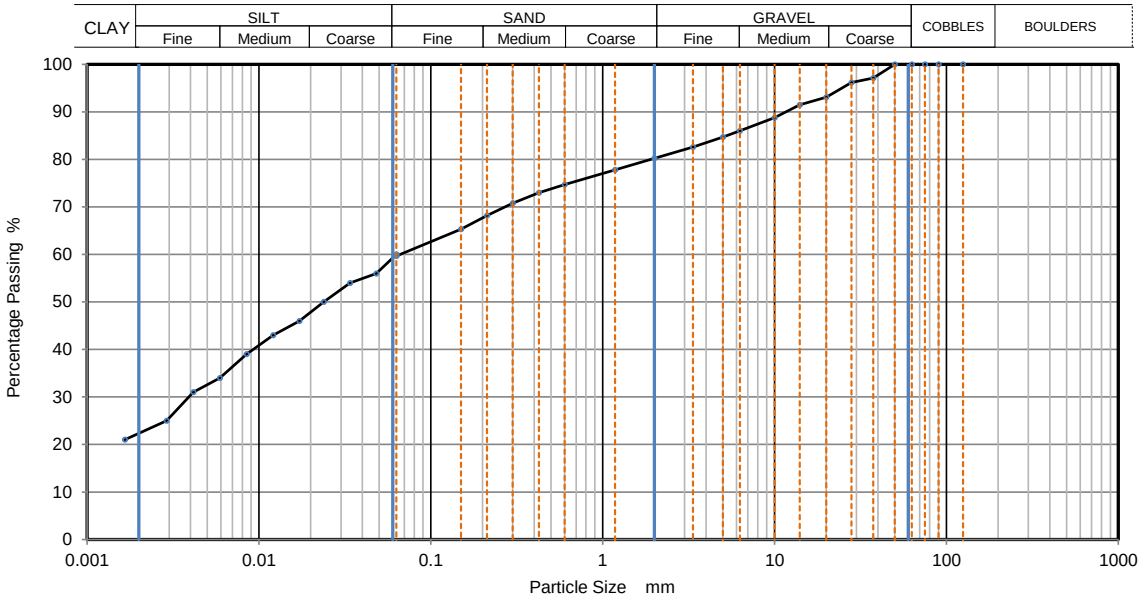
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-98002
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	60
90	100	0.0482	56
75	100	0.0339	54
63	100	0.0238	50
50	100	0.0172	46
37.5	97	0.0121	43
28	96	0.0085	39
20	93	0.0059	34
14	92	0.0042	31
10	89	0.0029	25
6.3	86	0.0017	21
5	85		
3.35	83		
2	80		
1.18	78		
0.6	75	Particle density	(assumed)
0.425	73	2.70	Mg/m3
0.3	71		
0.212	68		
0.15	65		
0.063	60		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.8
Sand	20.5
Silt	37.6
Clay	22.1

Grading Analysis		
D100	mm	
D60	mm	0.0657
D30	mm	0.00399
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Email: james@k4soils.com

Tel: 01923 711288

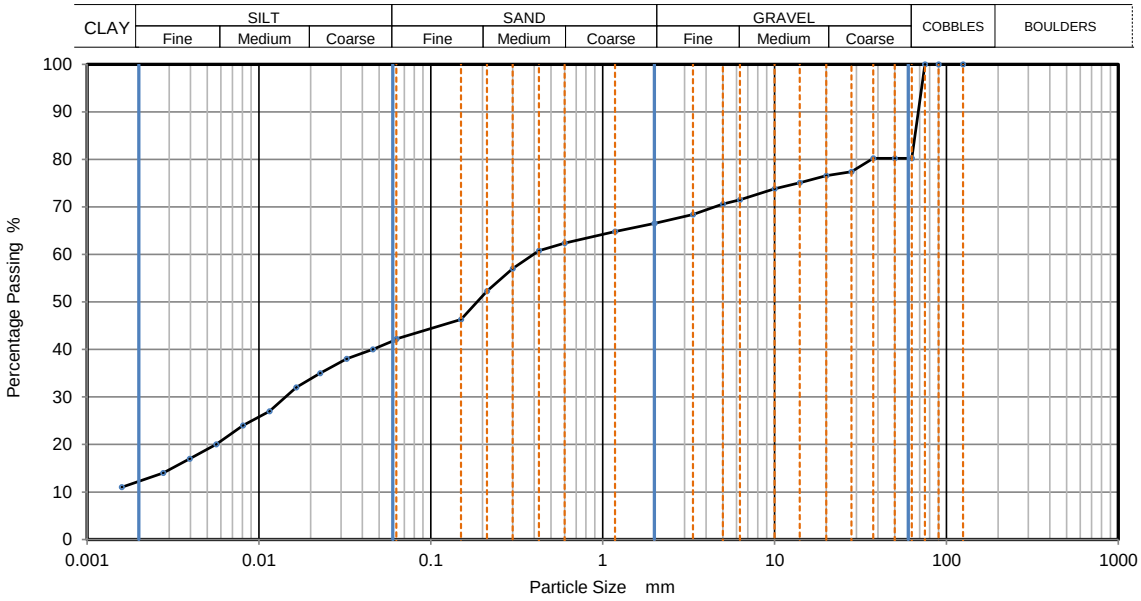
Checked and Approved

Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-98314
Project No.	2021OY102	Client	Irish Drilling	Sample No.	4
				Depth Top	1.00 m
Soil Description	Greyish brown and grey slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	24/11/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0622	42
90	100	0.0460	40
75	100	0.0324	38
63	80	0.0227	35
50	80	0.0165	32
37.5	80	0.0115	27
28	77	0.0081	24
20	77	0.0056	20
14	75	0.0040	17
10	74	0.0028	14
6.3	72	0.0016	11
5	71		
3.35	68		
2	67		
1.18	65		
0.6	62	Particle density (assumed)	
0.425	61	2.70	Mg/m3
0.3	57		
0.212	52		
0.15	46		
0.063	42		

Sample Proportions	% dry mass
Very coarse	19.8
Gravel	13.7
Sand	24.3
Silt	29.9
Clay	12.3

Grading Analysis		
D100	mm	
D60	mm	0.394
D30	mm	0.0141
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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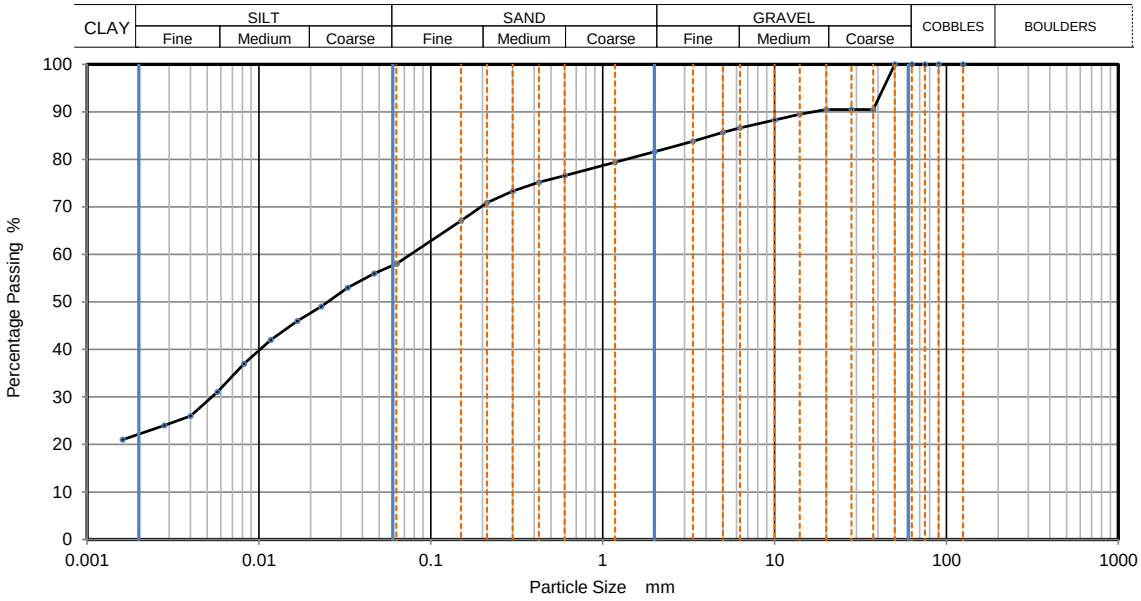
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	BH-98314
Project No.	2021OY102	Client	Irish Drilling	Sample No.	10
				Depth Top	3.00 m
Soil Description	Greyish brown and dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	58
90	100	0.0468	56
75	100	0.0328	53
63	100	0.0230	49
50	100	0.0167	46
37.5	91	0.0117	42
28	91	0.0082	37
20	91	0.0057	31
14	90	0.0040	26
10	88	0.0028	24
6.3	87	0.0016	21
5	86		
3.35	84		
2	82		
1.18	79		
0.6	77	Particle density (assumed)	
0.425	75	2.70	Mg/m3
0.3	73		
0.212	71		
0.15	67		
0.063	58		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	18.4
Sand	23.6
Silt	35.9
Clay	22.1

Grading Analysis		
D100	mm	
D60	mm	0.0763
D30	mm	0.00517
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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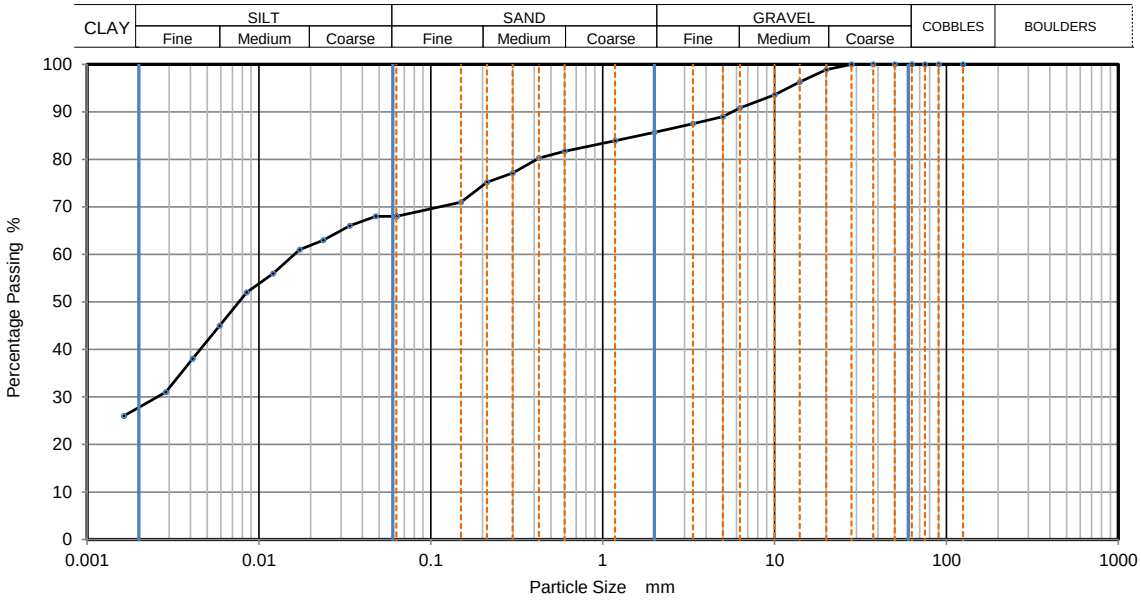
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	68
90	100	0.0479	68
75	100	0.0337	66
63	100	0.0237	63
50	100	0.0172	61
37.5	100	0.0121	56
28	100	0.0085	52
20	99	0.0059	45
14	96	0.0041	38
10	94	0.0029	31
6.3	91	0.0016	26
5	89		
3.35	88		
2	86		
1.18	84		
0.6	82	Particle density (assumed)	
0.425	80	2.70 Mg/m3	
0.3	77		
0.212	75		
0.15	71		
0.063	68		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	14.3
Sand	17.7
Silt	40.4
Clay	27.6

Grading Analysis		
D100	mm	
D60	mm	0.0162
D30	mm	0.00258
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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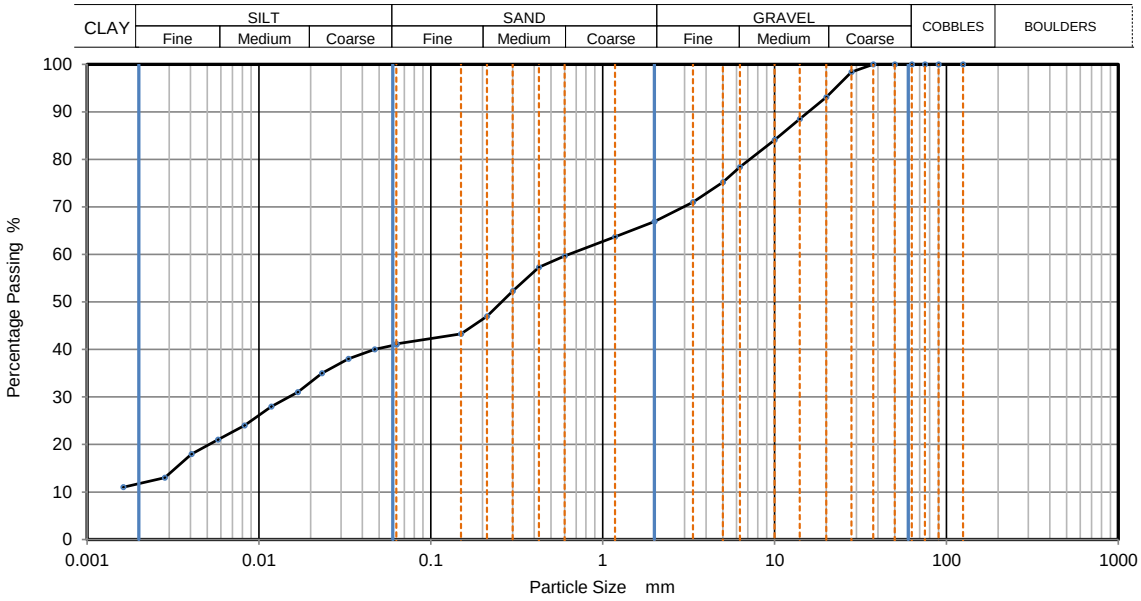
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	16
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	41
90	100	0.0471	40
75	100	0.0332	38
63	100	0.0233	35
50	100	0.0168	31
37.5	100	0.0118	28
28	98	0.0082	24
20	93	0.0058	21
14	89	0.0041	18
10	84	0.0028	13
6.3	78	0.0016	11
5	75		
3.35	71		
2	67		
1.18	64		
0.6	60	Particle density	(assumed)
0.425	57	2.70	Mg/m3
0.3	52		
0.212	47		
0.15	43		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.1
Sand	25.7
Silt	29.4
Clay	11.8

Grading Analysis		
D100	mm	
D60	mm	0.632
D30	mm	0.0147
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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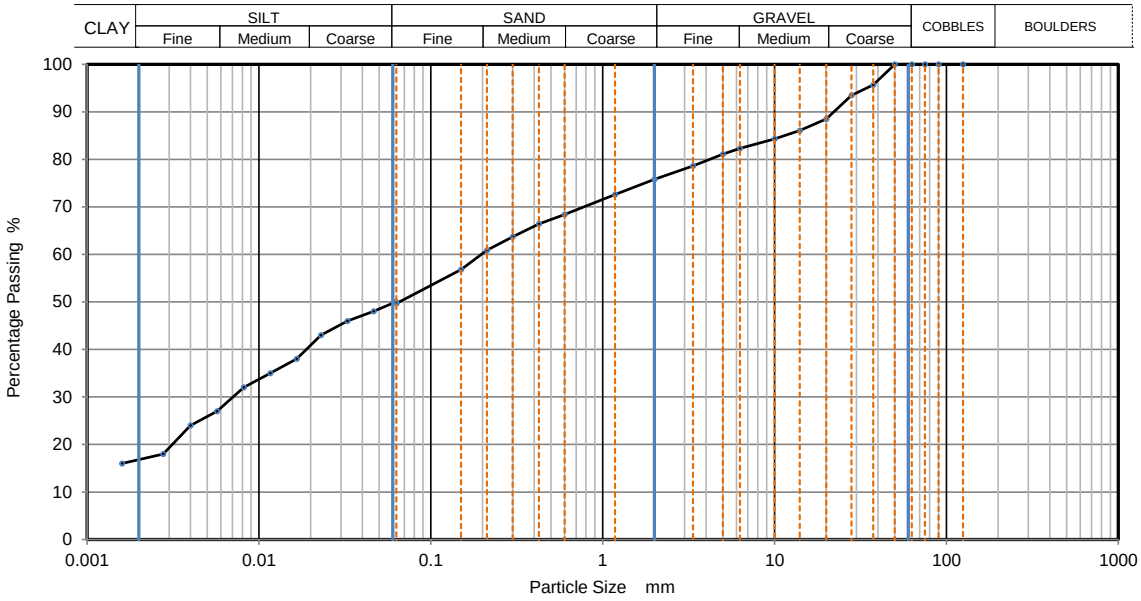
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-99204
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0627	50
90	100	0.0464	48
75	100	0.0327	46
63	100	0.0229	43
50	100	0.0166	38
37.5	96	0.0116	35
28	94	0.0081	32
20	89	0.0057	27
14	86	0.0040	24
10	84	0.0028	18
6.3	82	0.0016	16
5	81		
3.35	79		
2	76		
1.18	73		
0.6	68	Particle density (assumed)	
0.425	66	2.70 Mg/m3	
0.3	64		
0.212	61		
0.15	57		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.2
Sand	26.1
Silt	33.1
Clay	16.6

Grading Analysis		
D100	mm	
D60	mm	0.197
D30	mm	0.00705
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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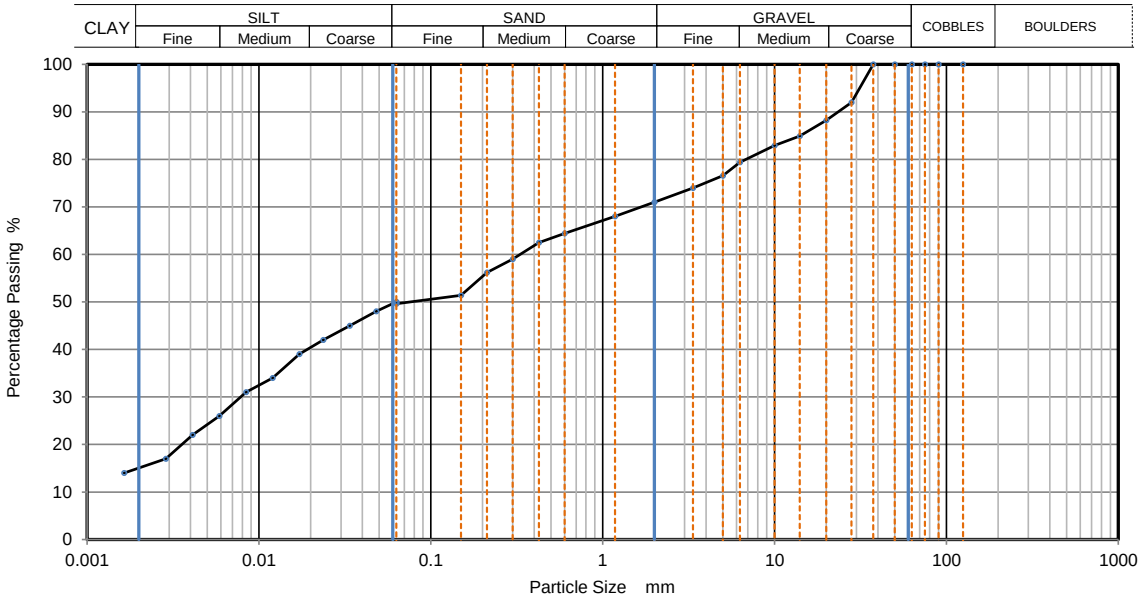
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-99204
Site Name	WSP Eastern & Midlands Region			Sample No.	22
Project No.	2021OY102	Client	Irish Drilling	Depth Top	7.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	8.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	50
90	100	0.0481	48
75	100	0.0338	45
63	100	0.0237	42
50	100	0.0172	39
37.5	100	0.0120	34
28	92	0.0084	31
20	88	0.0059	26
14	85	0.0041	22
10	83	0.0029	17
6.3	79	0.0016	14
5	77		
3.35	74		
2	71		
1.18	68		
0.6	64	Particle density (assumed)	
0.425	63	2.70	Mg/m3
0.3	59		
0.212	56		
0.15	51		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.0
Sand	21.4
Silt	34.3
Clay	15.3

Grading Analysis		
D100	mm	
D60	mm	0.333
D30	mm	0.00773
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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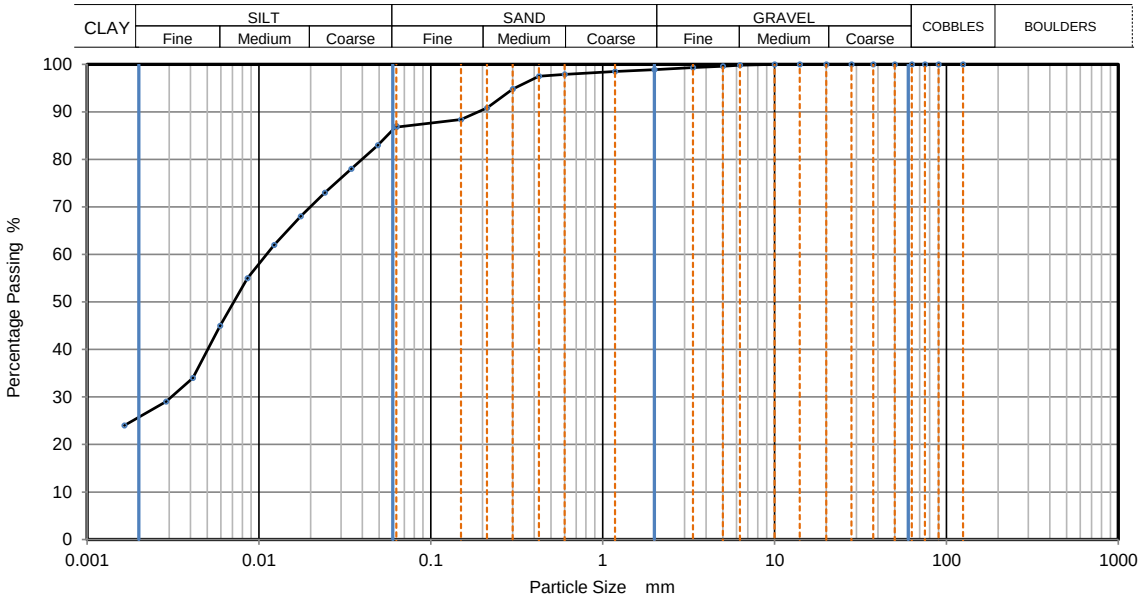
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-99777
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown slightly gravelly slightly sandy very silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	87
90	100	0.0491	83
75	100	0.0345	78
63	100	0.0242	73
50	100	0.0175	68
37.5	100	0.0122	62
28	100	0.0086	55
20	100	0.0059	45
14	100	0.0041	34
10	100	0.0029	29
6.3	100	0.0016	24
5	100		
3.35	99		
2	99		
1.18	99		
0.6	98	Particle density	(assumed)
0.425	98	2.70	Mg/m3
0.3	95		
0.212	91		
0.15	88		
0.063	87		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	1.1
Sand	12.1
Silt	61.3
Clay	25.5

Grading Analysis		
D100	mm	
D60	mm	0.0112
D30	mm	0.00315
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

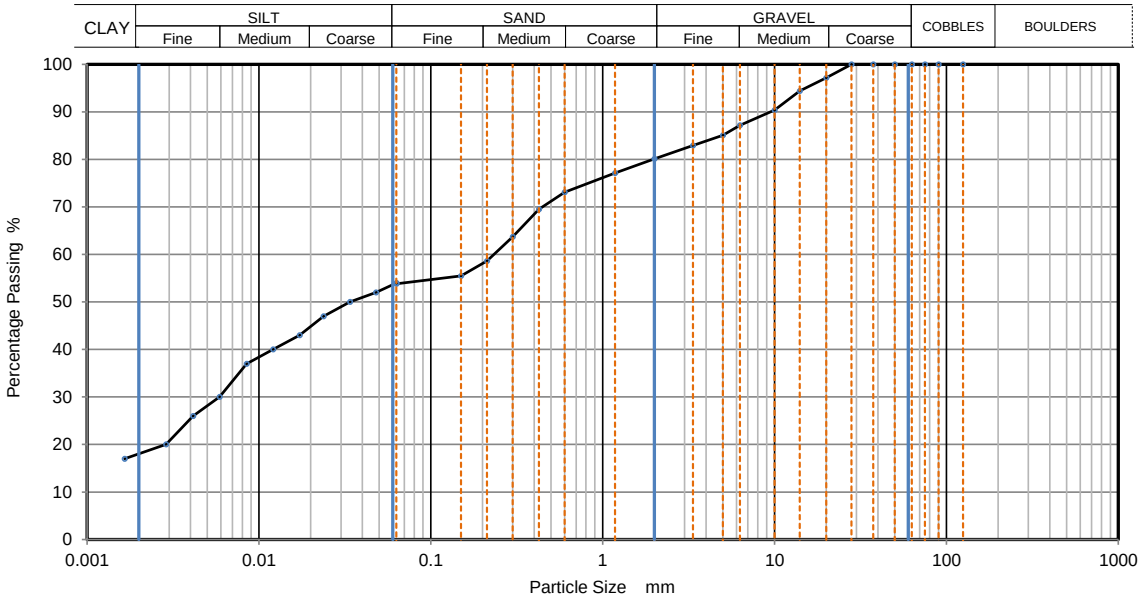
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-99777
Site Name	WSP Eastern & Midlands Region			Sample No.	16
Project No.	2021OY102	Client	Irish Drilling	Depth Top	5.00 m
Soil Description	Dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	6.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	54
90	100	0.0480	52
75	100	0.0338	50
63	100	0.0237	47
50	100	0.0172	43
37.5	100	0.0121	40
28	100	0.0085	37
20	97	0.0059	30
14	94	0.0041	26
10	90	0.0029	20
6.3	87	0.0017	17
5	85		
3.35	83		
2	80		
1.18	77		
0.6	73	Particle density (assumed)	
0.425	70	2.70	Mg/m3
0.3	64		
0.212	59		
0.15	56		
0.063	54		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.9
Sand	26.3
Silt	35.6
Clay	18.2

Grading Analysis		
D100	mm	
D60	mm	0.233
D30	mm	0.00601
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

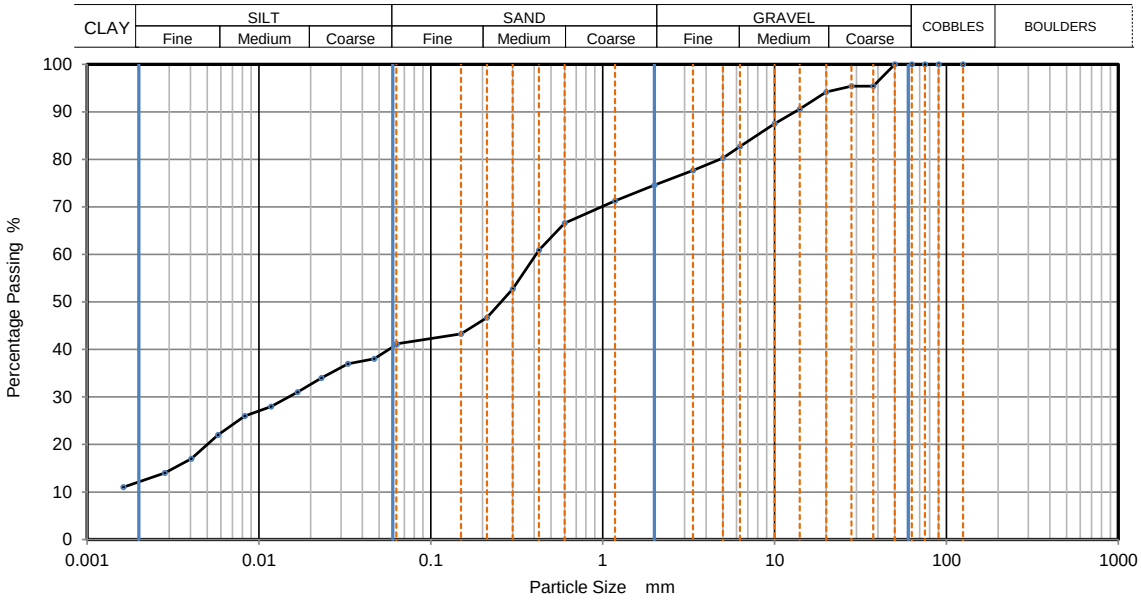
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-100012
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	22/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	41
90	100	0.0467	38
75	100	0.0329	37
63	100	0.0231	34
50	100	0.0167	31
37.5	95	0.0118	28
28	95	0.0083	26
20	94	0.0058	22
14	91	0.0040	17
10	88	0.0028	14
6.3	83	0.0016	11
5	80		
3.35	78		
2	75		
1.18	71		
0.6	67	Particle density (assumed)	
0.425	61	2.70	Mg/m3
0.3	53		
0.212	47		
0.15	43		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.4
Sand	33.4
Silt	28.8
Clay	12.4

Grading Analysis		
D100	mm	
D60	mm	0.41
D30	mm	0.0153
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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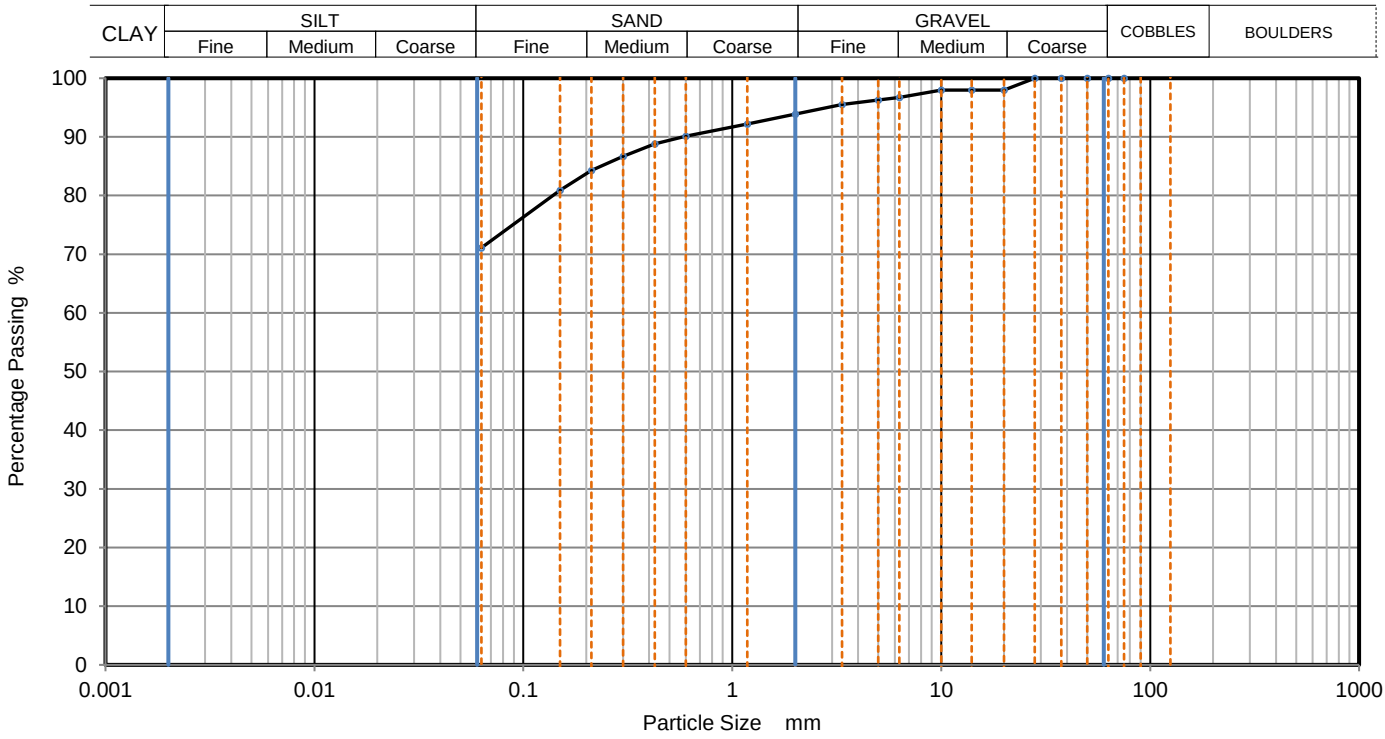
Checked and Approved

Initials: **J.P**

Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-100203
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark grey slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202301060



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	98		
10	98		
6.3	97		
5	96		
3.35	96		
2	94		
1.18	92		
0.6	90		
0.425	89		
0.3	87		
0.212	84		
0.15	81		
0.063	71		

Dry Mass of sample, g	1252

Sample Proportions	% dry mass
Very coarse	0
Gravel	6
Sand	23
Fines <0.063mm	71

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

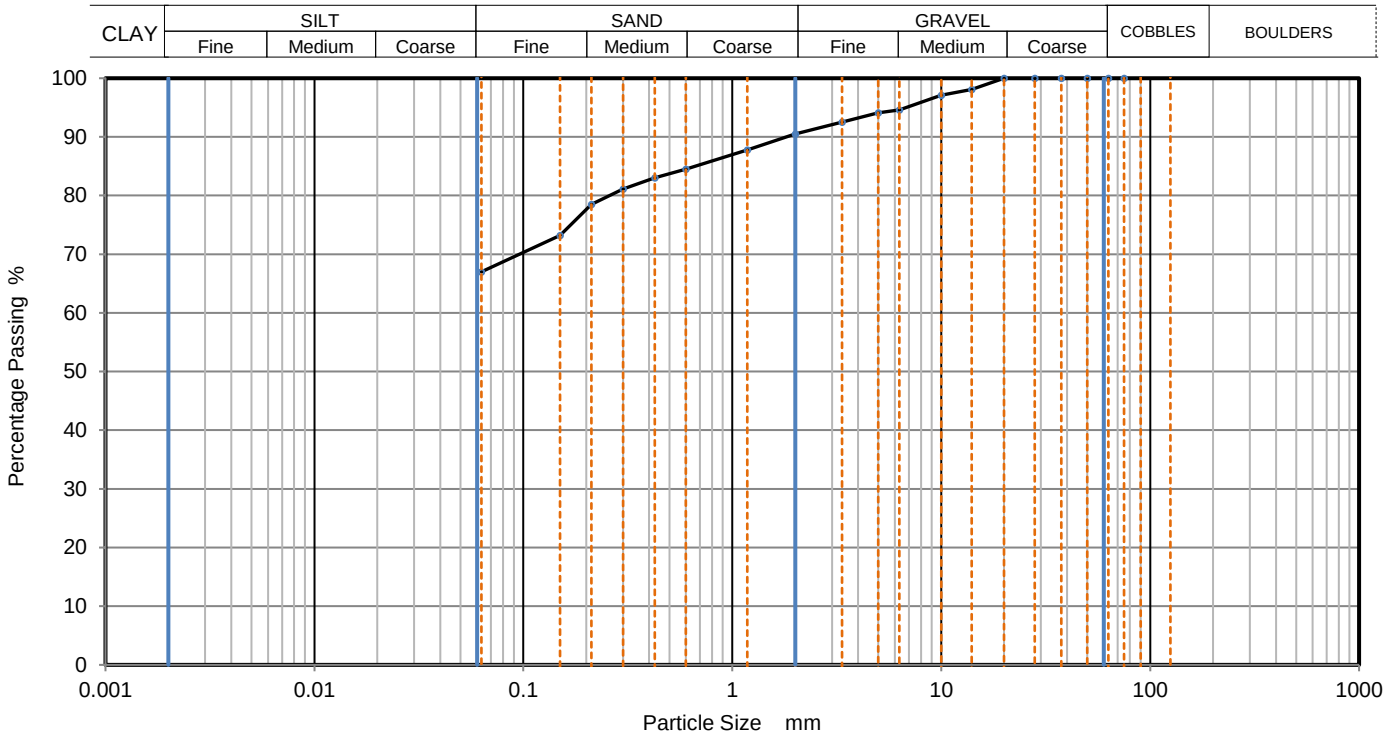
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/01/2023 14:19	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-100203
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Dark grey slightly gravelly slightly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202301062



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	95		
5	94		
3.35	93		
2	91		
1.18	88		
0.6	85		
0.425	83		
0.3	81		
0.212	79		
0.15	73		
0.063	67		

Dry Mass of sample, g	873

Sample Proportions	% dry mass
Very coarse	0
Gravel	10
Sand	24
Fines <0.063mm	67

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/01/2023 14:19	**1**
				QC From No:R2

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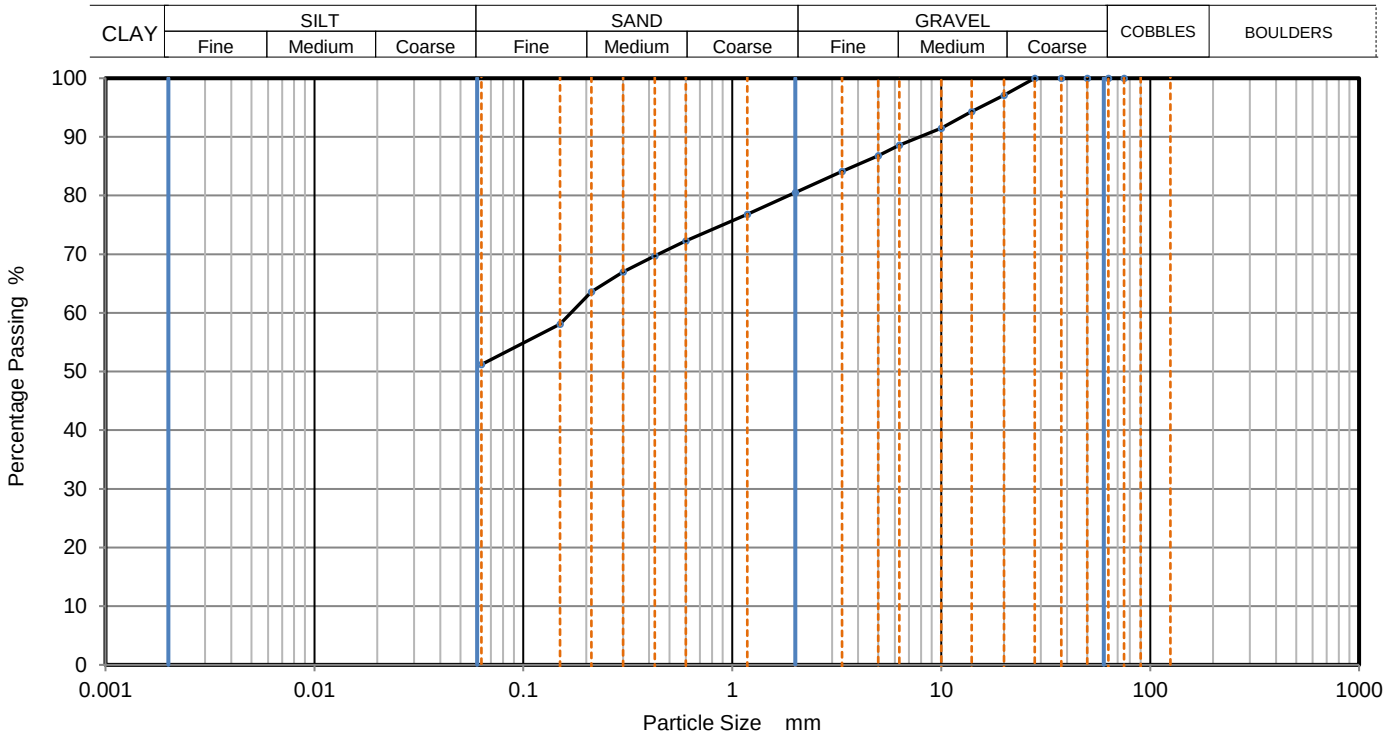
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-101404
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Greenish-brown slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202301065



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	94		
10	92		
6.3	89		
5	87		
3.35	84		
2	81		
1.18	77		
0.6	72		
0.425	70		
0.3	67		
0.212	64		
0.15	58		
0.063	51		

Dry Mass of sample, g	766

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	29
Fines <0.063mm	51

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.169
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	12/01/2023 14:19	**1** QC From No:R2

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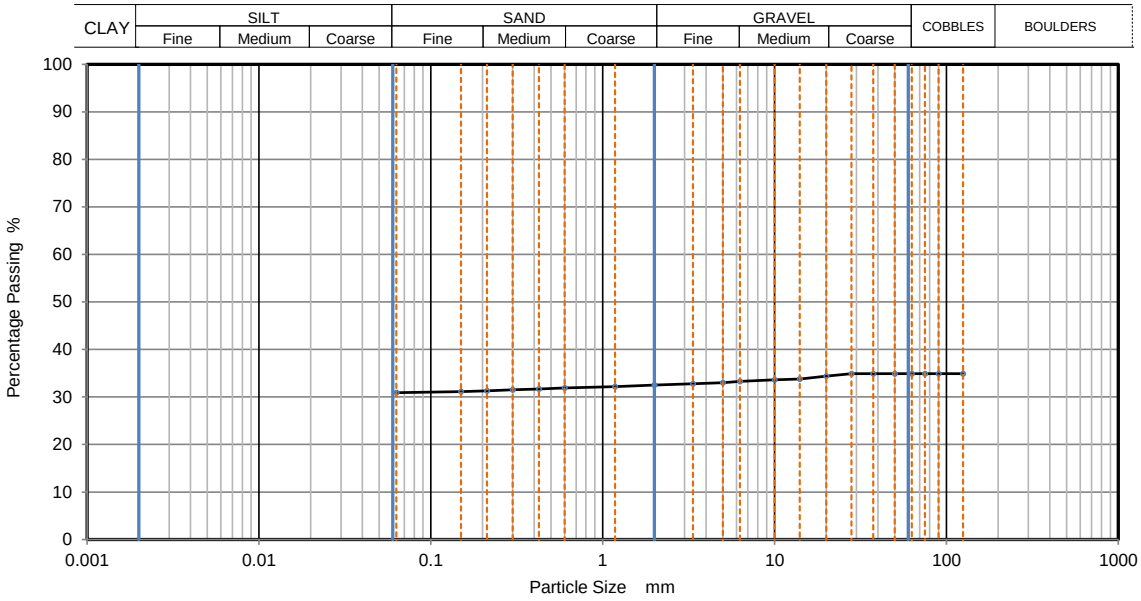
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-102037
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	35		
90	35		
75	35		
63	35		
50	35		
37.5	35		
28	35		
20	34		
14	34		
10	34		
6.3	33		
5	33		
3.35	33		
2	33		
1.18	32		
0.6	32		
0.425	32		
0.3	32		
0.212	31		
0.15	31		
0.063	31		

Sample Proportions	% dry mass
Very coarse	65.1
Gravel	2.4
Sand	1.6
Fines <0.063mm	30.9

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

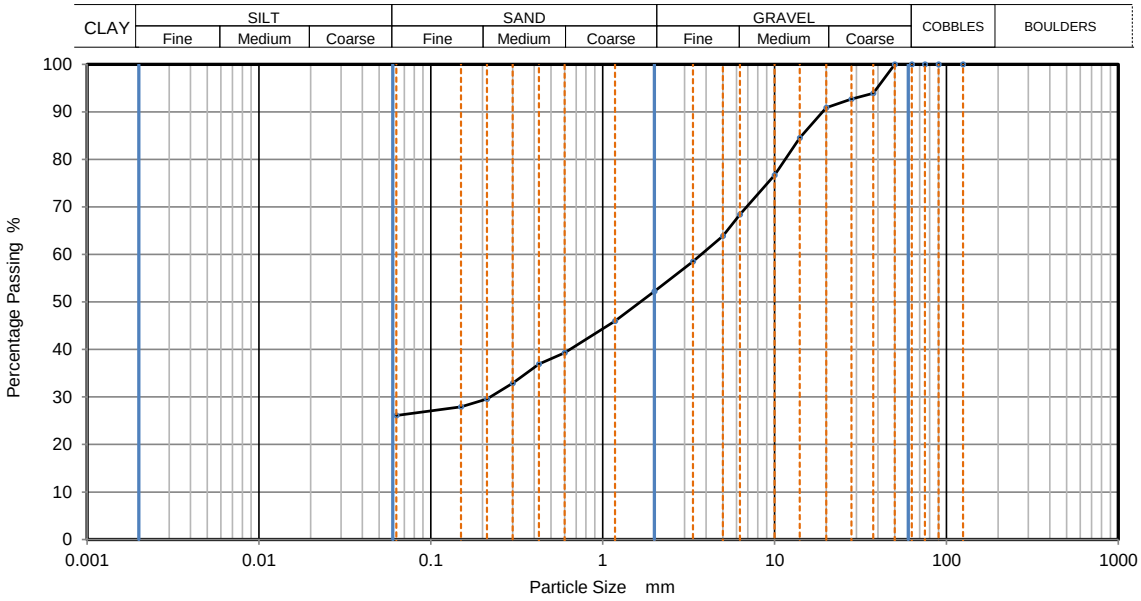
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-102037
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	93		
20	91		
14	85		
10	77		
6.3	68		
5	64		
3.35	59		
2	52		
1.18	46		
0.6	39		
0.425	37		
0.3	33		
0.212	30		
0.15	28		
0.063	26		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	47.8
Sand	26.1
Fines <0.063mm	26.1

Grading Analysis		
D100	mm	
D60	mm	3.74
D30	mm	0.221
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

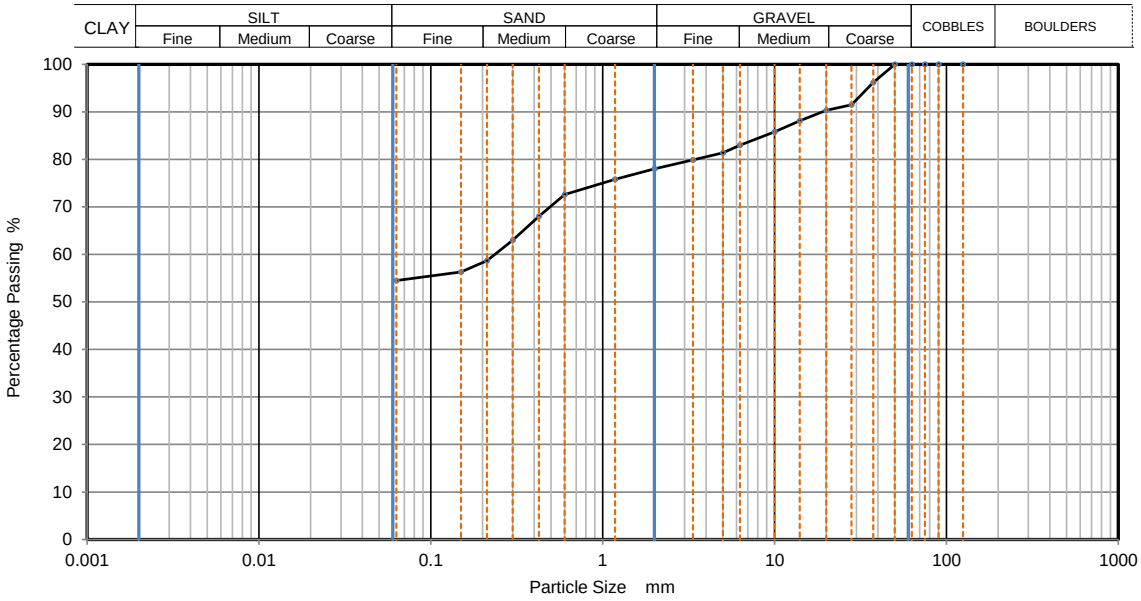
Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-102528
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	92		
20	90		
14	88		
10	86		
6.3	83		
5	81		
3.35	80		
2	78		
1.18	76		
0.6	73		
0.425	68		
0.3	63		
0.212	59		
0.15	56		
0.063	55		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.0
Sand	23.5
Fines <0.063mm	54.5

Grading Analysis		
D100	mm	
D60	mm	0.236
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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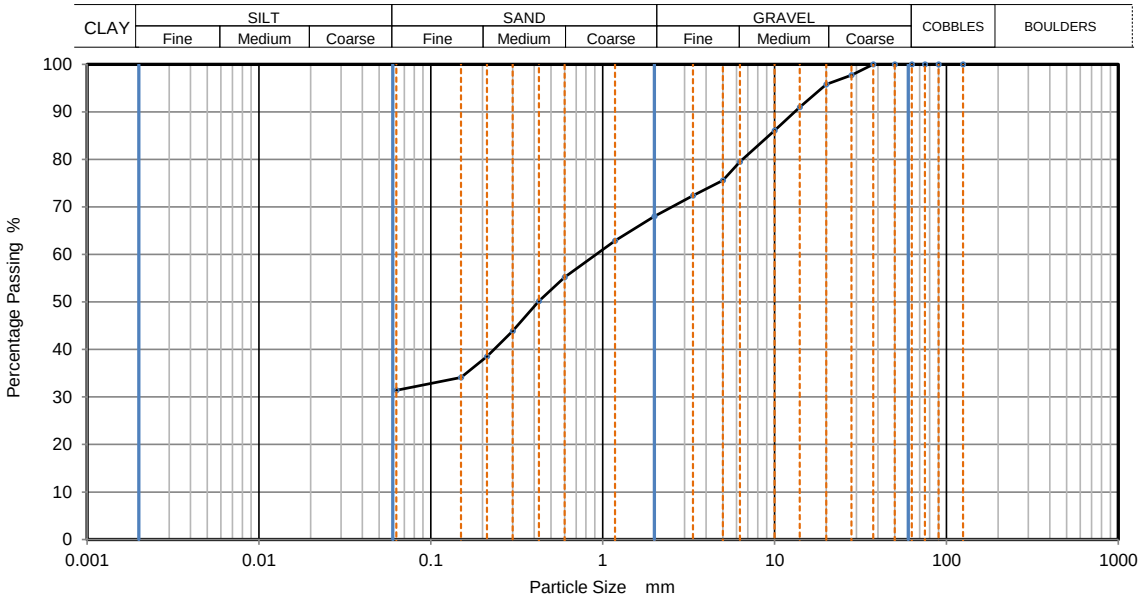
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-103234
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey silty clayey very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	91		
10	86		
6.3	80		
5	76		
3.35	72		
2	68		
1.18	63		
0.6	55		
0.425	50		
0.3	44		
0.212	39		
0.15	34		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.0
Sand	36.6
Fines <0.063mm	31.4

Grading Analysis		
D100	mm	
D60	mm	0.912
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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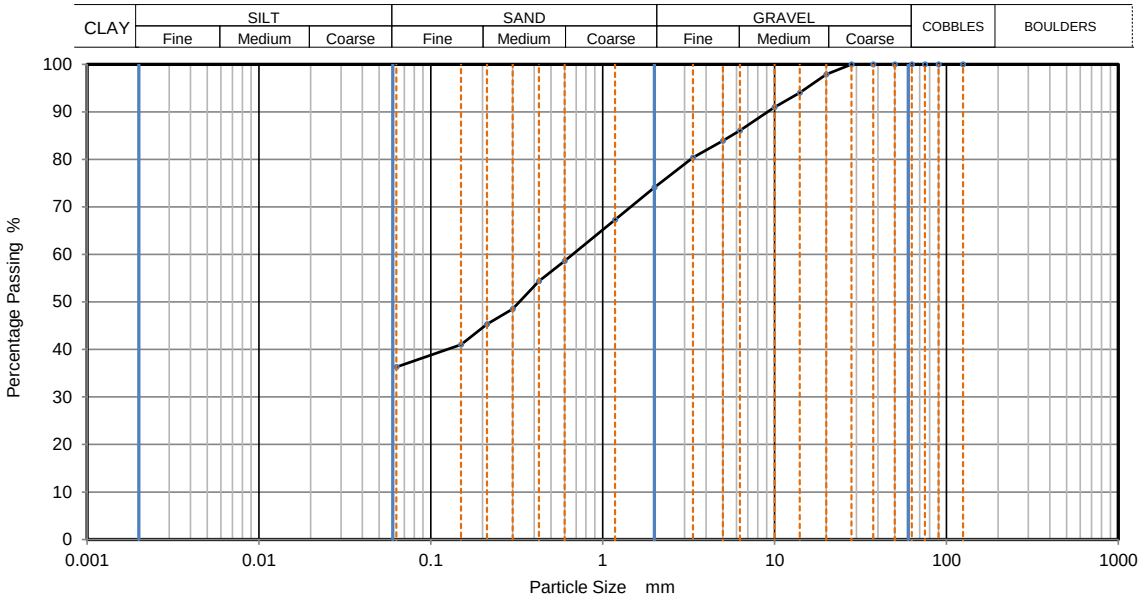
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	BH-103234
Site Name	WSP Eastern & Midlands Region			Sample No.	
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	91		
6.3	86		
5	84		
3.35	80		
2	74		
1.18	67		
0.6	59		
0.425	54		
0.3	49		
0.212	45		
0.15	41		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.9
Sand	37.8
Fines <0.063mm	36.3

Grading Analysis		
D100	mm	
D60	mm	0.67
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 14/12/2022

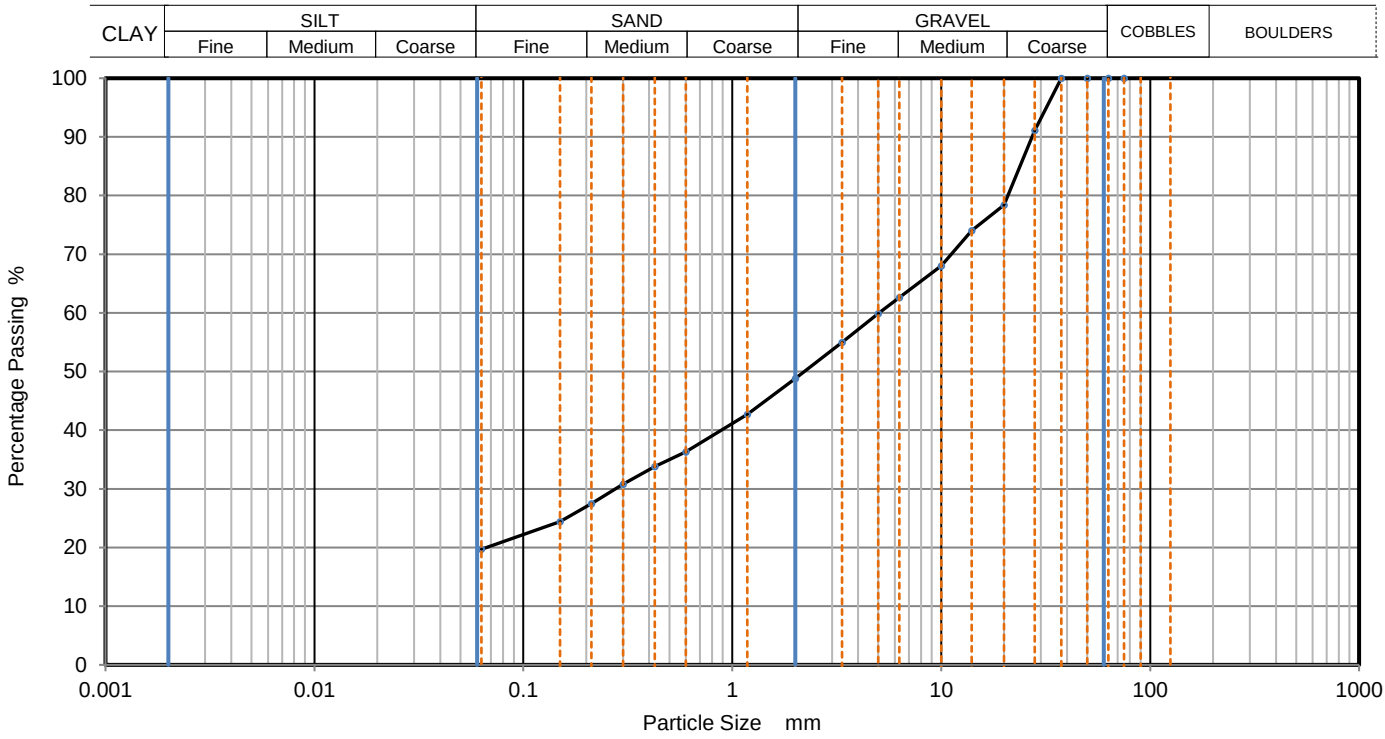
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-36861
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy coarse GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202111023



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	78		
14	74		
10	68		
6.3	63		
5	60		
3.35	55		
2	49		
1.18	43		
0.6	36		
0.425	34		
0.3	31		
0.212	28		
0.15	24		
0.063	20		

Dry Mass of sample, g	762

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	29
Fines <0.063mm	20

Grading Analysis		
D100	mm	
D60	mm	5.05
D30	mm	0.276
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

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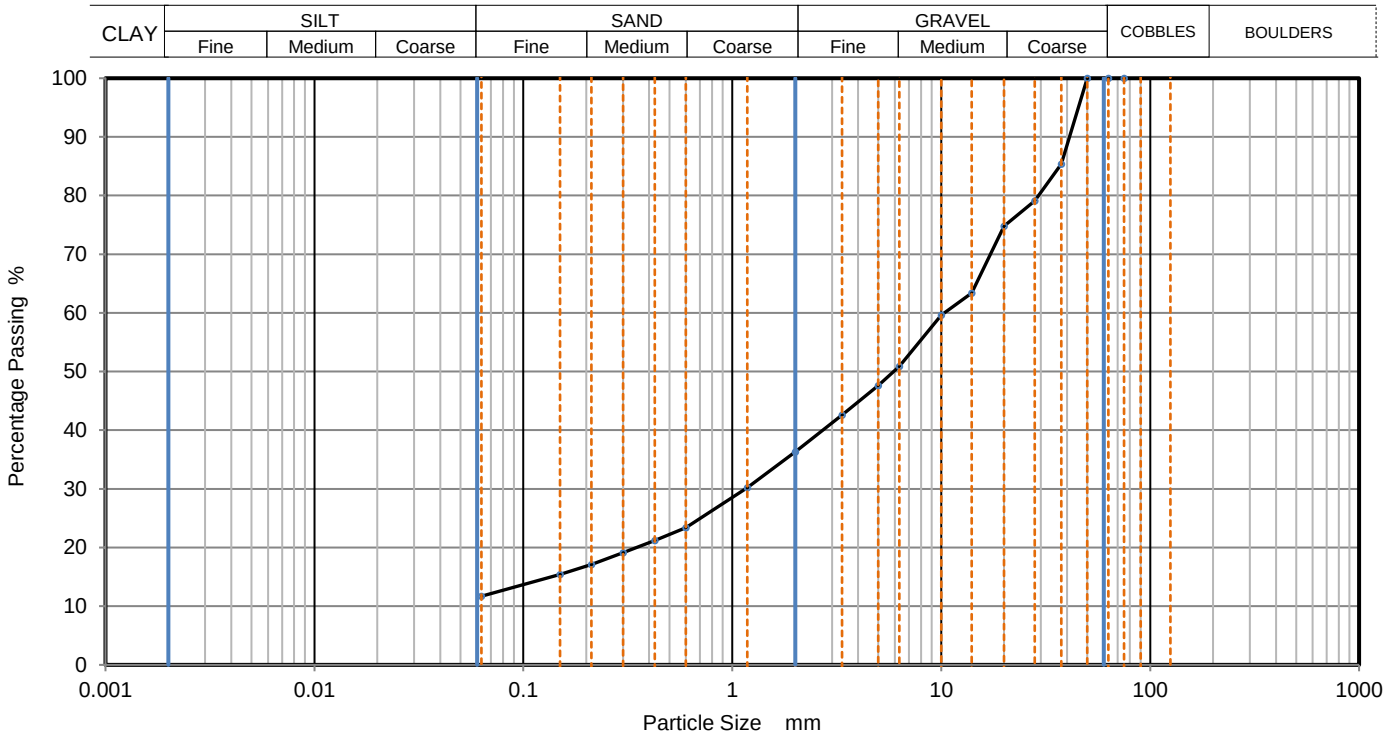
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-36861
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown silty very sandy medium and coarse GRAVEL.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202111025



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	85		
28	79		
20	75		
14	63		
10	60		
6.3	51		
5	48		
3.35	43		
2	36		
1.18	30		
0.6	23		
0.425	21		
0.3	19		
0.212	17		
0.15	15		
0.063	12		

Dry Mass of sample, g	967

Sample Proportions	% dry mass
Very coarse	0
Gravel	64
Sand	25
Fines <0.063mm	12

Grading Analysis		
D100	mm	
D60	mm	10.4
D30	mm	1.16
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

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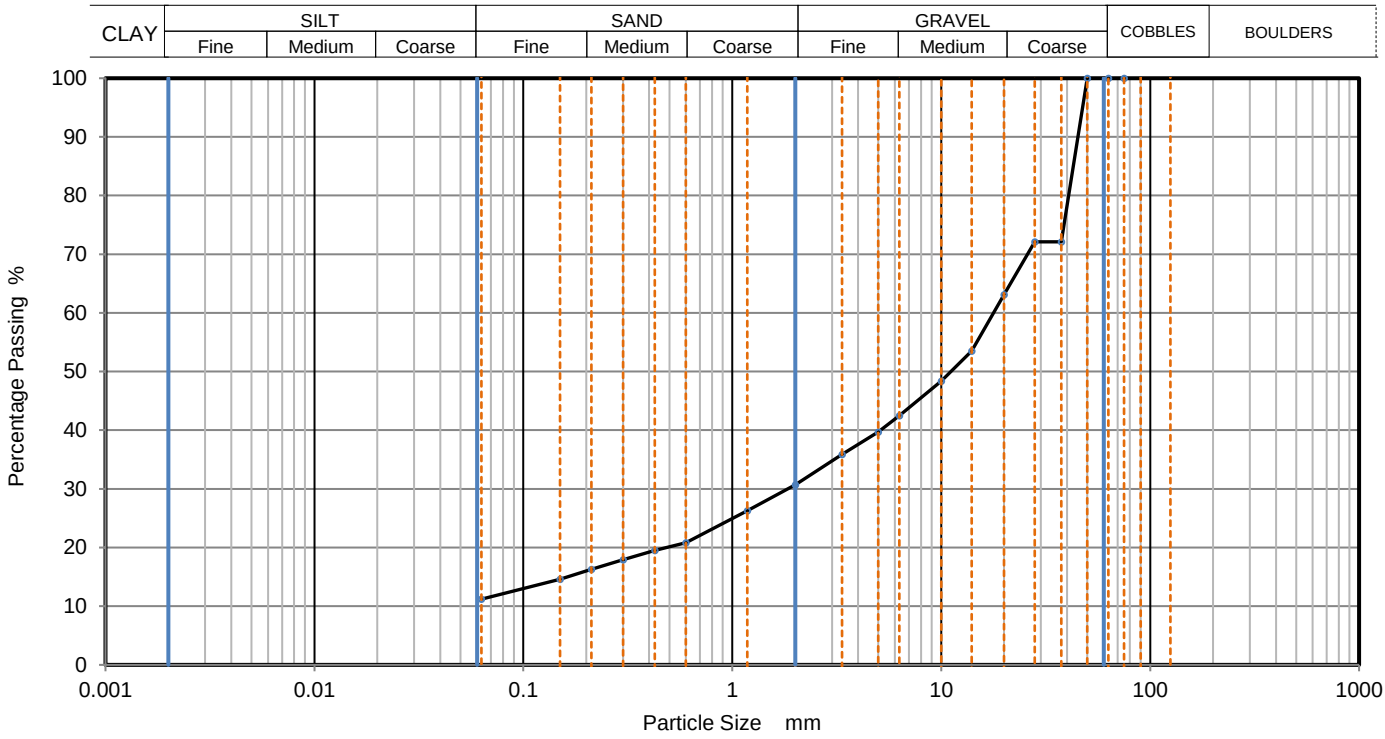
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-37001
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202111029



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	72		
28	72		
20	63		
14	54		
10	48		
6.3	43		
5	40		
3.35	36		
2	31		
1.18	26		
0.6	21		
0.425	20		
0.3	18		
0.212	16		
0.15	15		
0.063	11		

Dry Mass of sample, g	732

Sample Proportions	% dry mass
Very coarse	0
Gravel	69
Sand	20
Fines <0.063mm	11

Grading Analysis		
D100	mm	
D60	mm	17.8
D30	mm	1.83
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

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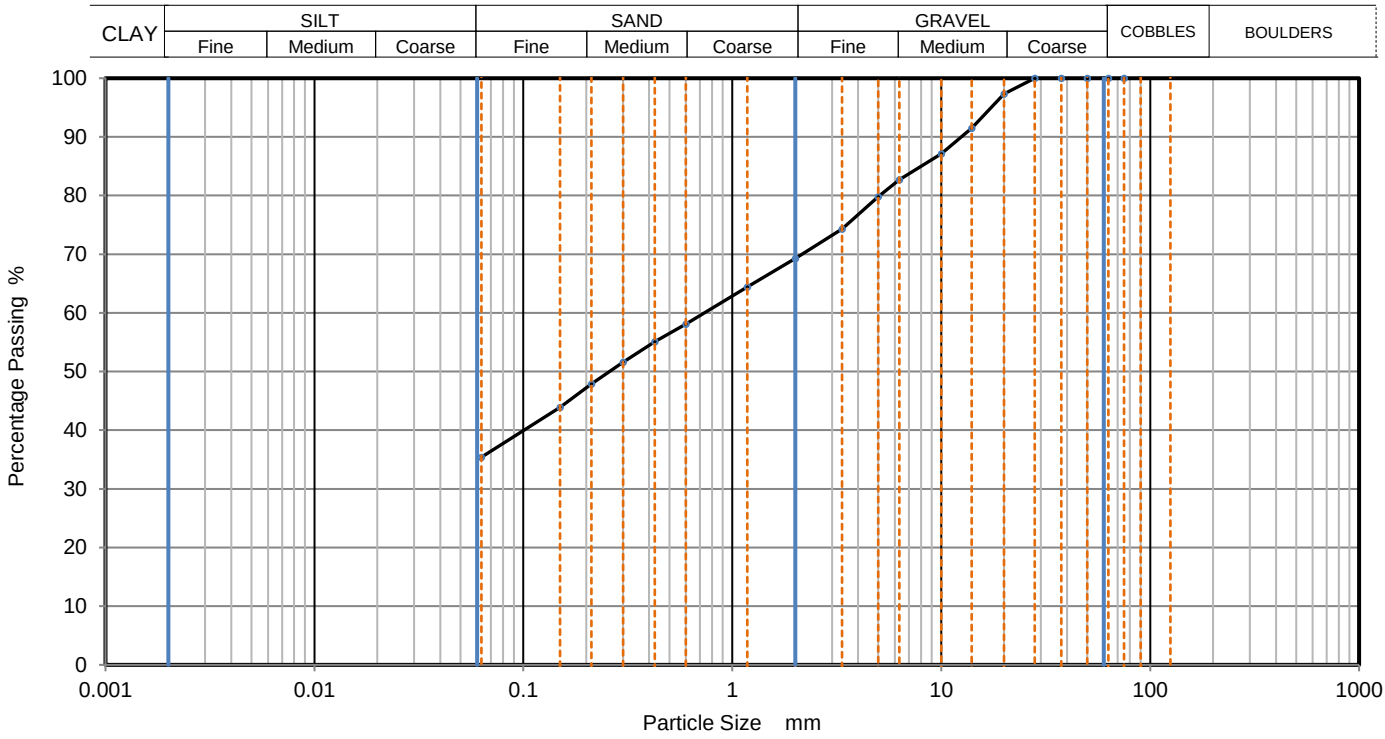
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-37102
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110213



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	92		
10	87		
6.3	83		
5	80		
3.35	74		
2	69		
1.18	64		
0.6	58		
0.425	55		
0.3	52		
0.212	48		
0.15	44		
0.063	35		

Dry Mass of sample, g	822

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	34
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	0.734
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

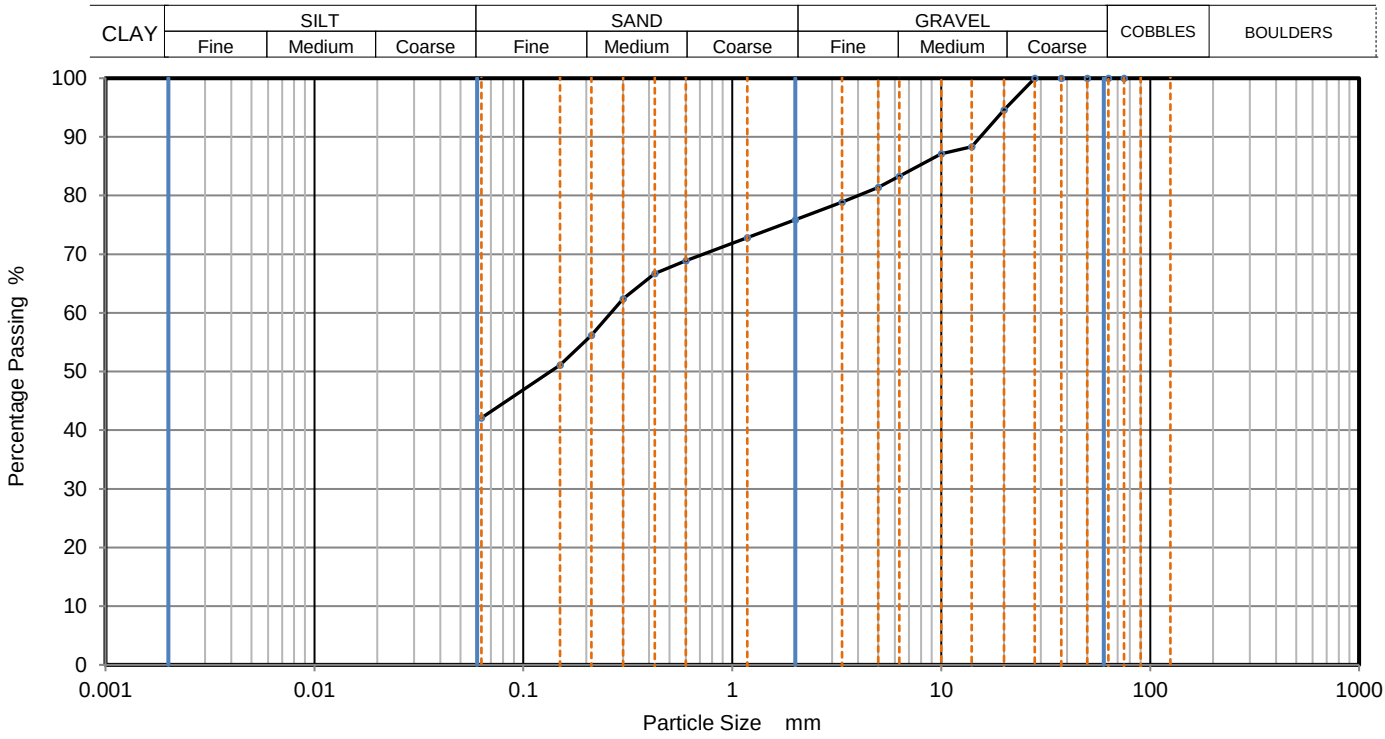
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

Job Ref	**2021OY102**		
Borehole/Pit No.	TP-37201		
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.	Depth, m	0.20
Specimen Reference		Specimen Depth / m	
Sample Type	B		
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL12021110215



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	88		
10	87		
6.3	83		
5	81		
3.35	79		
2	76		
1.18	73		
0.6	69		
0.425	67		
0.3	62		
0.212	56		
0.15	51		
0.063	42		

Dry Mass of sample, g: 621

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	34
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.262
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

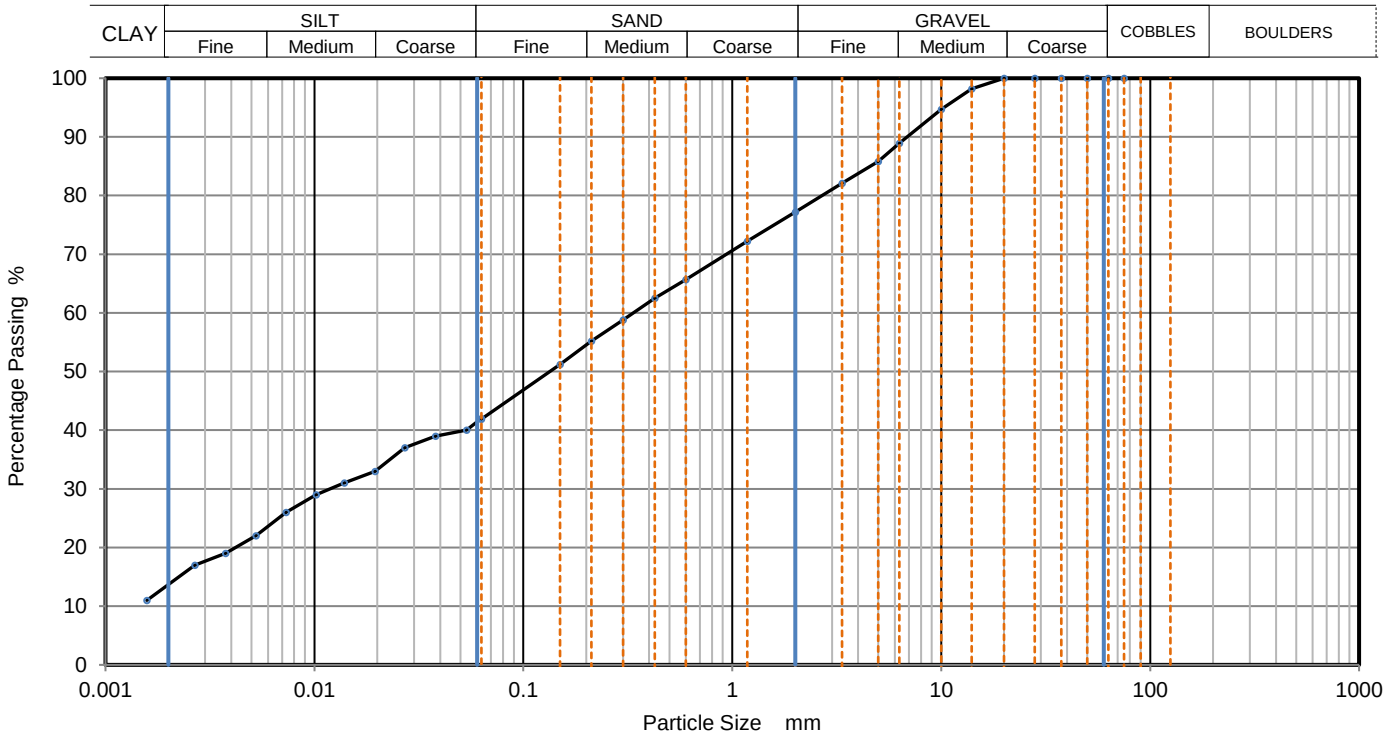
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-37698
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202110142



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0534	40
75	100	0.0380	39
63	100	0.0271	37
50	100	0.0195	33
37.5	100	0.0139	31
28	100	0.0102	29
20	100	0.0073	26
14	98	0.0053	22
10	95	0.0038	19
6.3	89	0.0027	17
5	86	0.0016	11
3.35	82		
2	77		
1.18	72		
0.6	66	Particle density (assumed)	
0.425	63	2.65	Mg/m3
0.3	59		
0.212	55		
0.15	51		
0.063	42		

Dry Mass of sample, g	261

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	35
Silt	28
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.336
D30	mm	0.0113
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

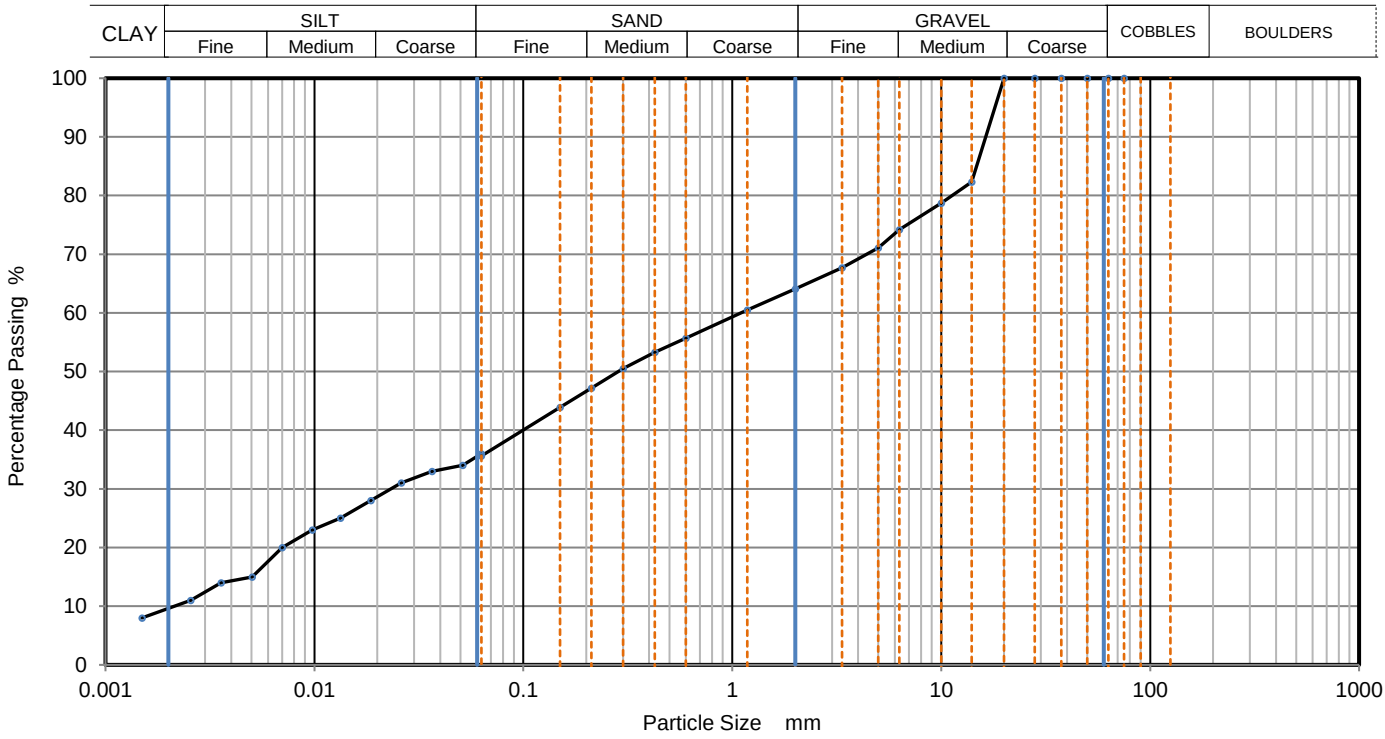
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-37698
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Brown slightly sandy gravelly SILT. Gravel is medium.	Depth, m	2.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL1202110144



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0513	34
75	100	0.0365	33
63	100	0.0260	31
50	100	0.0186	28
37.5	100	0.0133	25
28	100	0.0098	23
20	100	0.0070	20
14	82	0.0050	15
10	79	0.0036	14
6.3	74	0.0026	11
5	71	0.0015	8
3.35	68		
2	64		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	51		
0.212	47		
0.15	44		
0.063	36		

Dry Mass of sample, g	246

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	29
Silt	26
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.1
D30	mm	0.0234
D10	mm	0.00221
Uniformity Coefficient		500
Curvature Coefficient		0.23

Remarks

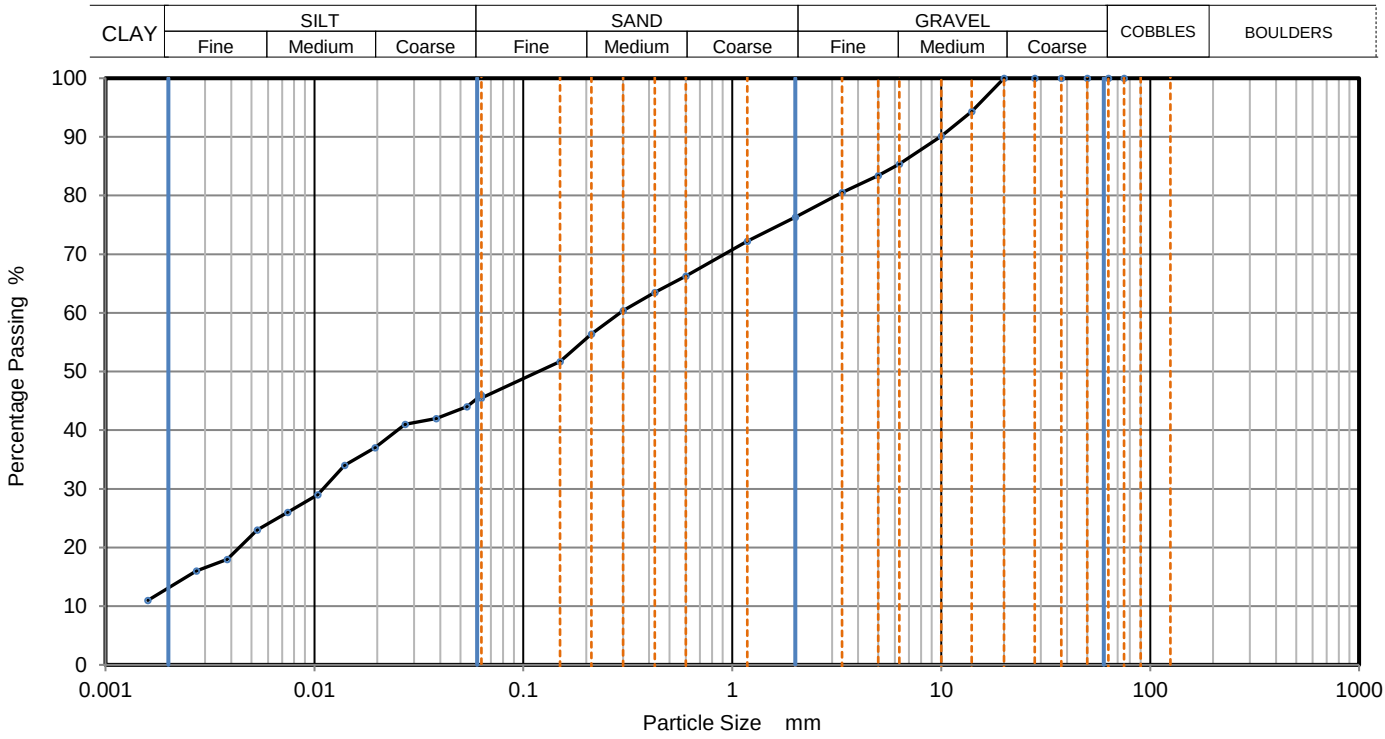
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 09:57	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-37778
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202110202



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0537	44
75	100	0.0382	42
63	100	0.0272	41
50	100	0.0195	37
37.5	100	0.0140	34
28	100	0.0104	29
20	100	0.0074	26
14	94	0.0053	23
10	90	0.0038	18
6.3	85	0.0027	16
5	83	0.0016	11
3.35	81		
2	76		
1.18	72		
0.6	66	Particle density (assumed)	
0.425	64	2.65	Mg/m3
0.3	60		
0.212	56		
0.15	52		
0.063	46		

Dry Mass of sample, g	417

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	31
Silt	32
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.289
D30	mm	0.0109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

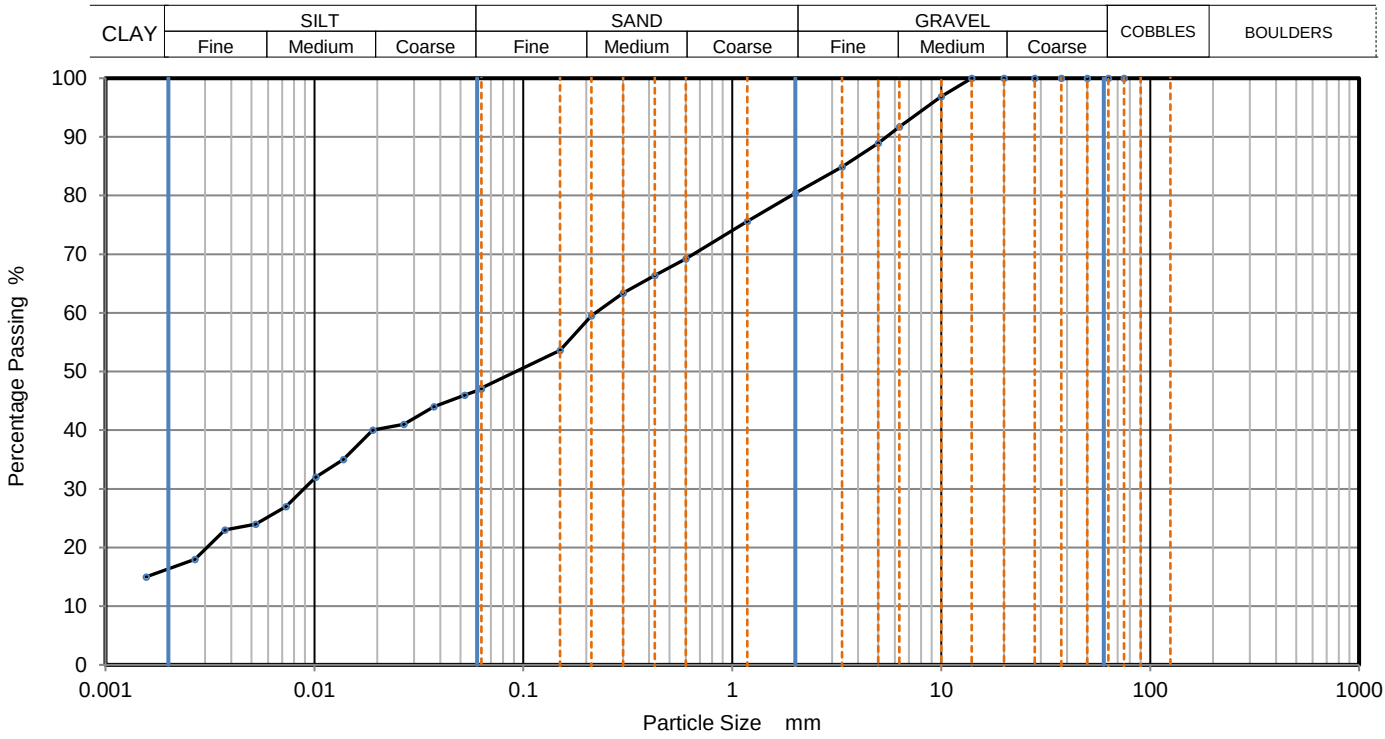
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2022 16:58	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-37778
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202110204



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0524	46
75	100	0.0373	44
63	100	0.0267	41
50	100	0.0190	40
37.5	100	0.0137	35
28	100	0.0102	32
20	100	0.0073	27
14	100	0.0052	24
10	97	0.0037	23
6.3	92	0.0027	18
5	89	0.0016	15
3.35	85		
2	80		
1.18	76		
0.6	69	Particle density (assumed)	
0.425	66	2.65	Mg/m3
0.3	63		
0.212	60		
0.15	54		
0.063	47		

Dry Mass of sample, g: 544

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	33
Silt	31
Clay	17

Grading Analysis		
D100	mm	
D60	mm	0.222
D30	mm	0.00881
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

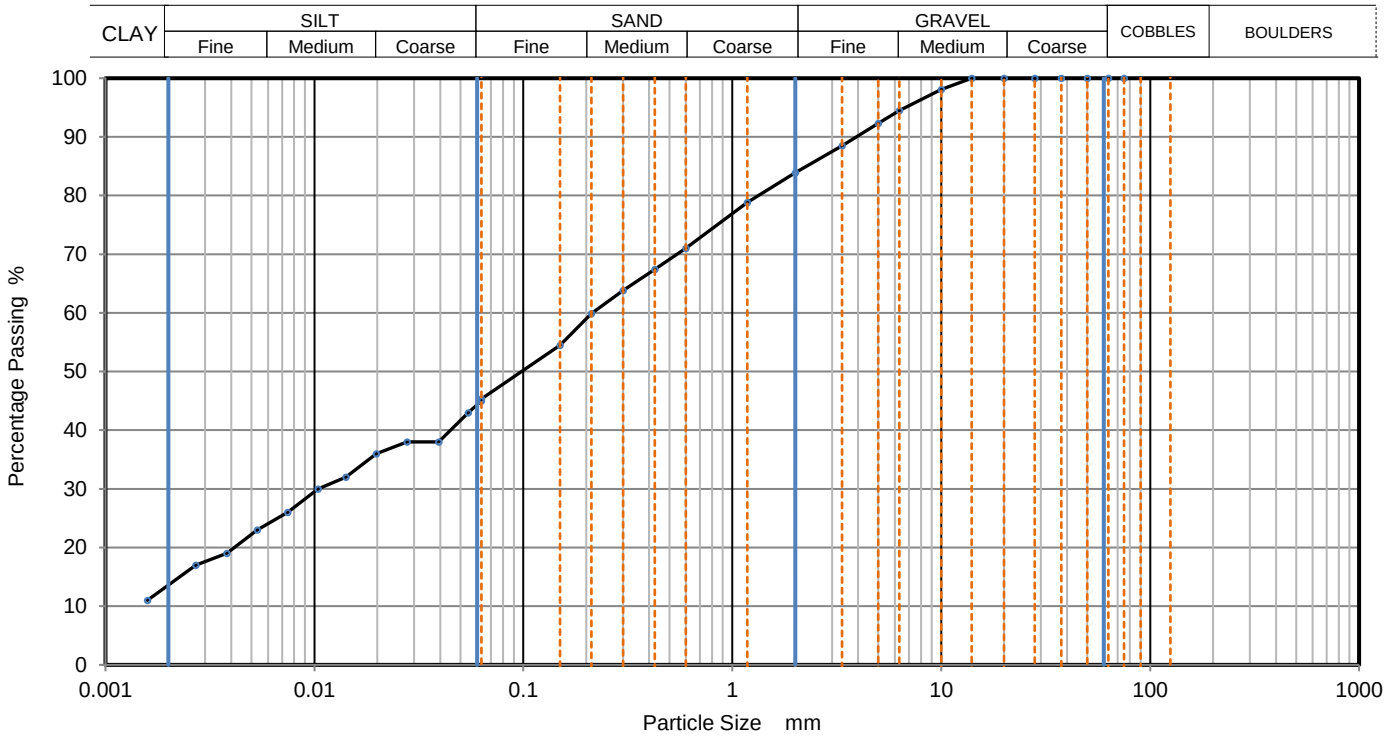
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2022 16:58	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-37903
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202110209



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0545	43
75	100	0.0393	38
63	100	0.0278	38
50	100	0.0198	36
37.5	100	0.0141	32
28	100	0.0104	30
20	100	0.0074	26
14	100	0.0053	23
10	98	0.0038	19
6.3	95	0.0027	17
5	92	0.0016	11
3.35	89		
2	84		
1.18	79		
0.6	71	Particle density	(assumed)
0.425	67	2.65	Mg/m3
0.3	64		
0.212	60		
0.15	55		
0.063	45		

Dry Mass of sample, g	664

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	39
Silt	31
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.215
D30	mm	0.0102
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

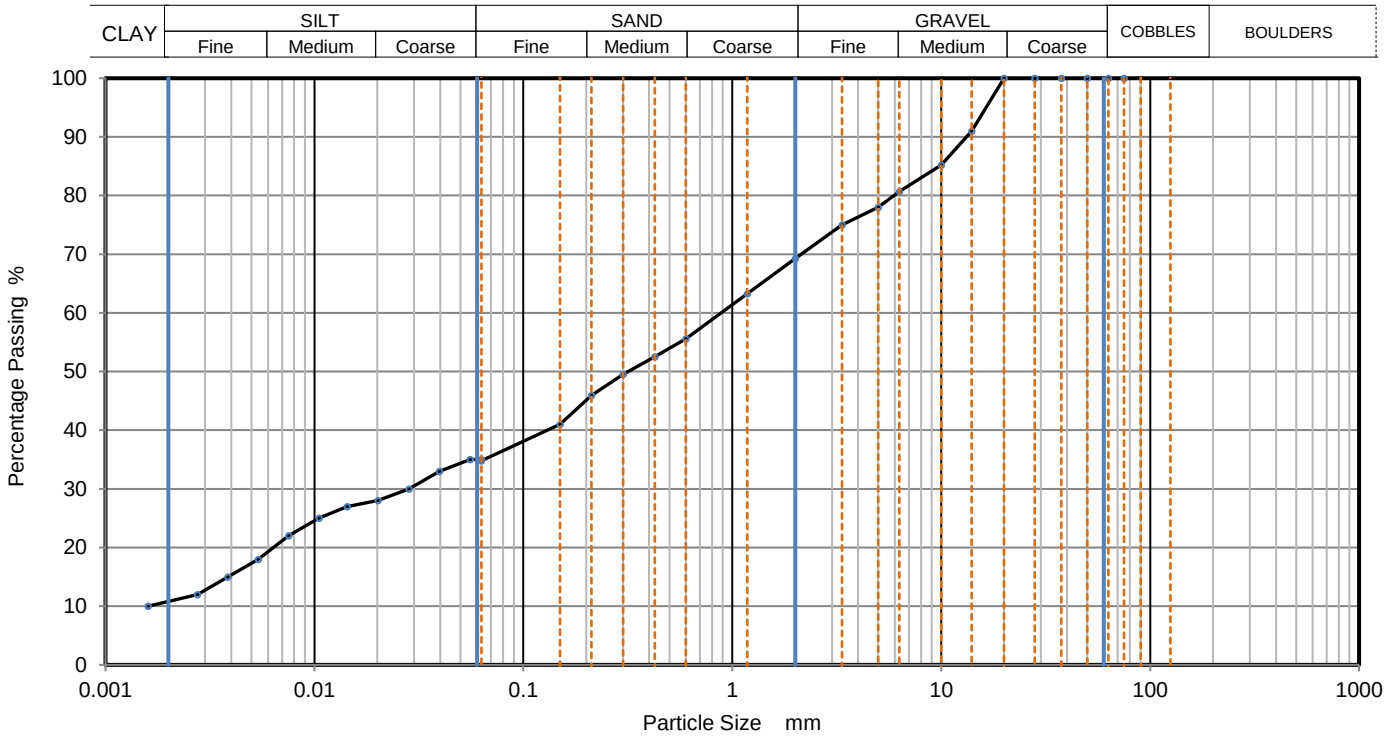
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:49	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38100
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102013



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0556	35
75	100	0.0396	33
63	100	0.0283	30
50	100	0.0202	28
37.5	100	0.0143	27
28	100	0.0105	25
20	100	0.0075	22
14	91	0.0054	18
10	85	0.0039	15
6.3	81	0.0028	12
5	78	0.0016	10
3.35	75		
2	69		
1.18	63		
0.6	56	Particle density (assumed)	
0.425	53	2.65	Mg/m3
0.3	50		
0.212	46		
0.15	41		
0.063	35		

Dry Mass of sample, g	428

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	35
Silt	24
Clay	11

Grading Analysis		
D100	mm	
D60	mm	0.884
D30	mm	0.0288
D10	mm	0.00163
Uniformity Coefficient		540
Curvature Coefficient		0.58

Remarks

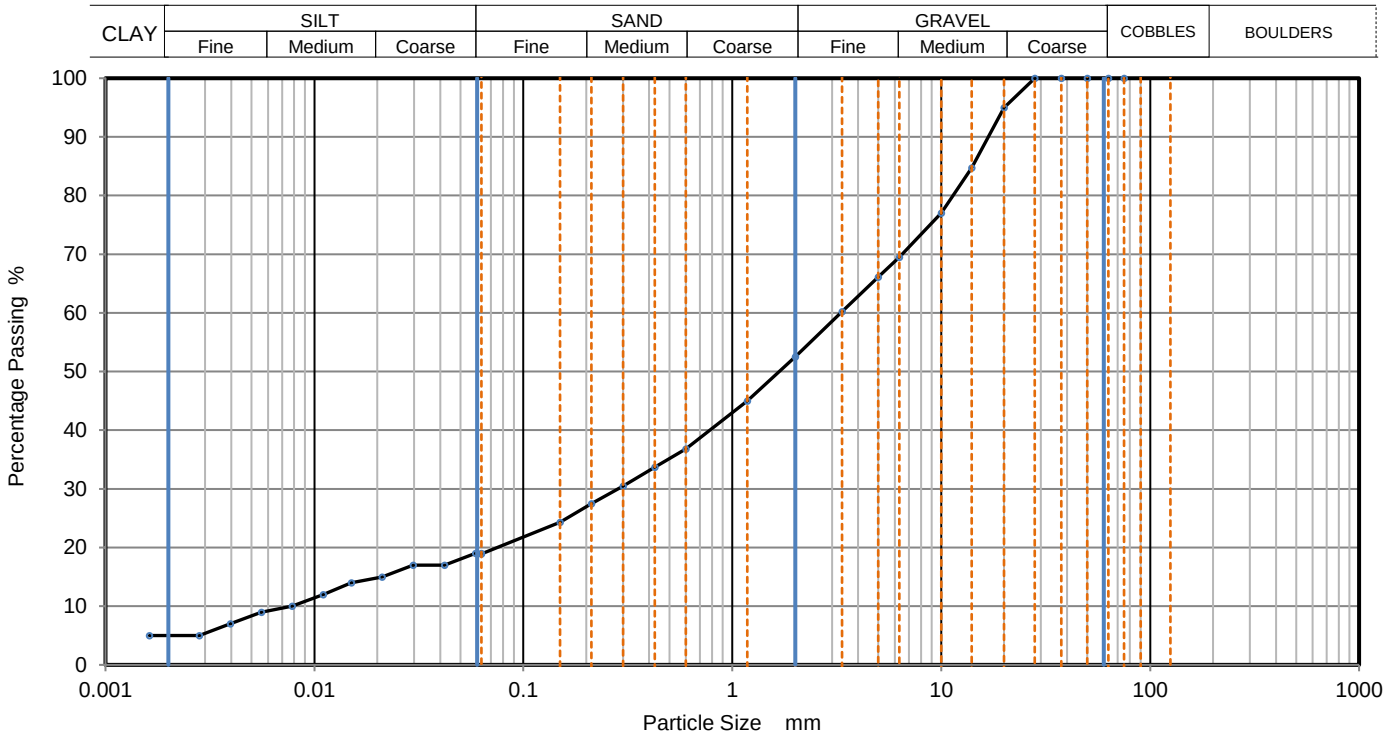
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2022 16:59	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38100
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102015



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	19
		0.0590	19
75	100	0.0420	17
63	100	0.0297	17
50	100	0.0211	15
37.5	100	0.0150	14
28	100	0.0110	12
20	95	0.0078	10
14	85	0.0056	9
10	77	0.0040	7
6.3	70	0.0028	5
5	66	0.0016	5
3.35	60		
2	53		
1.18	45		
0.6	37	Particle density (assumed)	
0.425	34	2.65 Mg/m3	
0.3	31		
0.212	28		
0.15	24		
0.063	19		

Dry Mass of sample, g	543

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	34
Silt	14
Clay	5

Grading Analysis		
D100	mm	
D60	mm	3.31
D30	mm	0.283
D10	mm	0.00737
Uniformity Coefficient		450
Curvature Coefficient		3.3

Remarks

Preparation and testing in accordance with BS1377 unless noted below

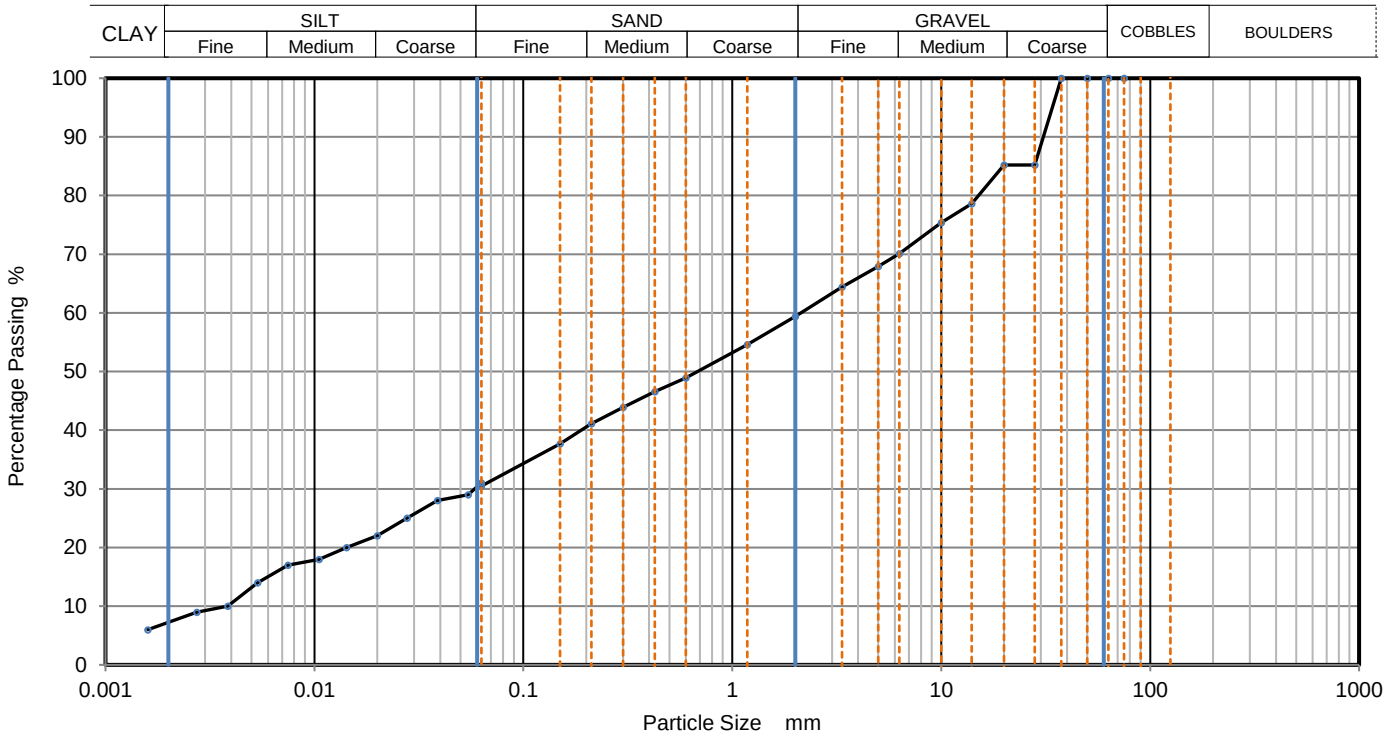
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2022 16:59	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38205
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very sandy very silty GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0545	29
75	100	0.0388	28
63	100	0.0278	25
50	100	0.0200	22
37.5	100	0.0142	20
28	85	0.0105	18
20	85	0.0075	17
14	79	0.0053	14
10	75	0.0038	10
6.3	70	0.0027	9
5	68	0.0016	6
3.35	64		
2	59		
1.18	55		
0.6	49	Particle density (assumed)	
0.425	47	2.65	Mg/m3
0.3	44		
0.212	41		
0.15	38		
0.063	31		

Dry Mass of sample, g	475

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	29
Silt	23
Clay	7

Grading Analysis		
D100	mm	
D60	mm	2.12
D30	mm	0.0595
D10	mm	0.00368
Uniformity Coefficient		580
Curvature Coefficient		0.45

Remarks

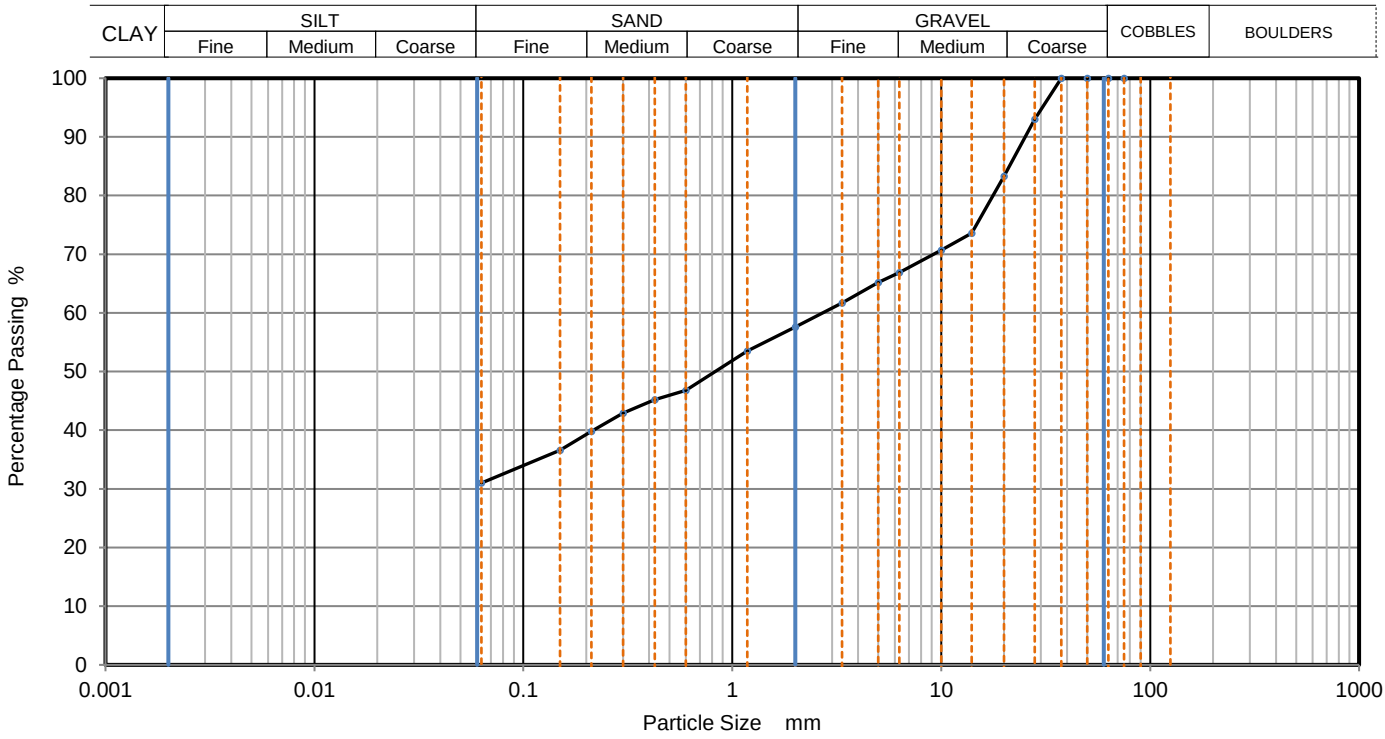
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:49	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38313
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty medium and coarse GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110224



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	83		
14	74		
10	71		
6.3	67		
5	65		
3.35	62		
2	58		
1.18	54		
0.6	47		
0.425	45		
0.3	43		
0.212	40		
0.15	37		
0.063	31		

Dry Mass of sample, g	1020

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	27
Fines <0.063mm	31

Grading Analysis		
D100	mm	
D60	mm	2.71
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

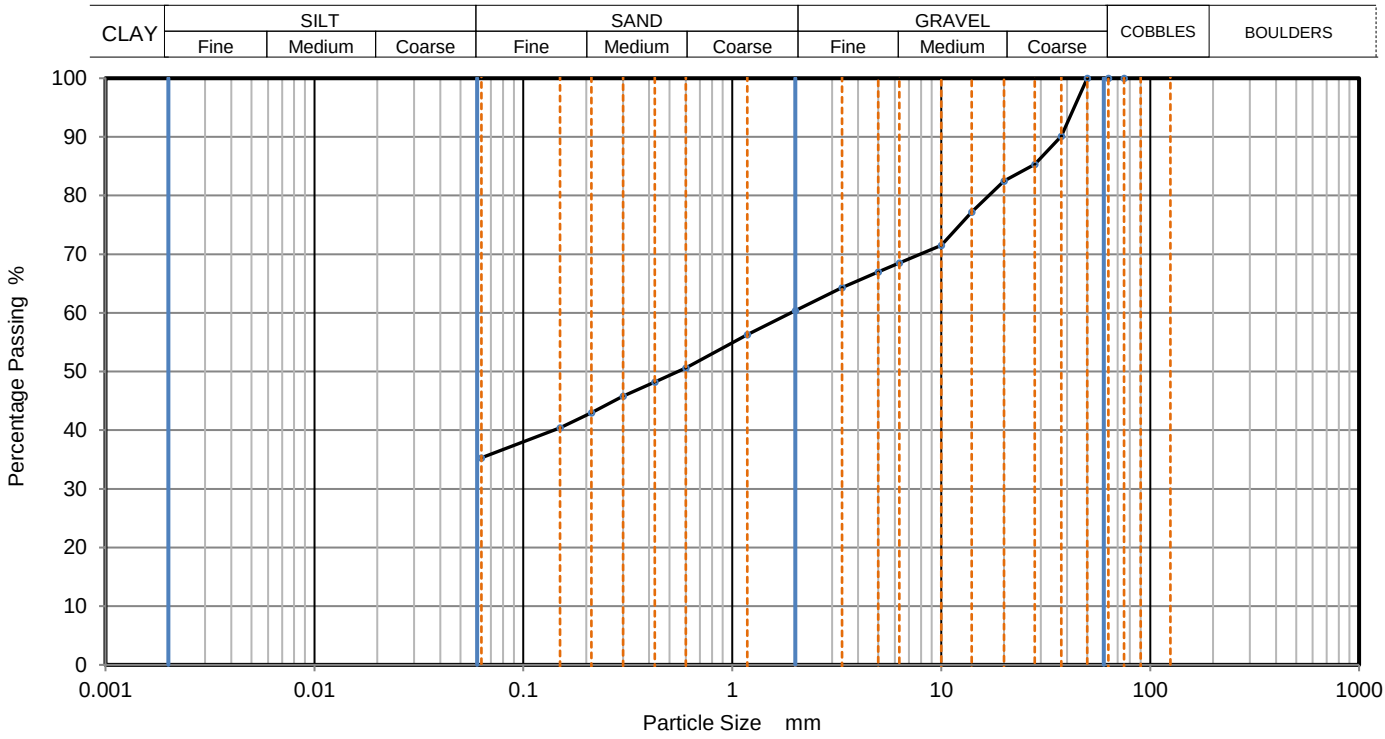
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38500
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly sandy gravelly SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110228



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	90		
28	85		
20	83		
14	77		
10	72		
6.3	69		
5	67		
3.35	64		
2	60		
1.18	56		
0.6	51		
0.425	48		
0.3	46		
0.212	43		
0.15	40		
0.063	35		

Dry Mass of sample, g	837

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	25
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	1.9
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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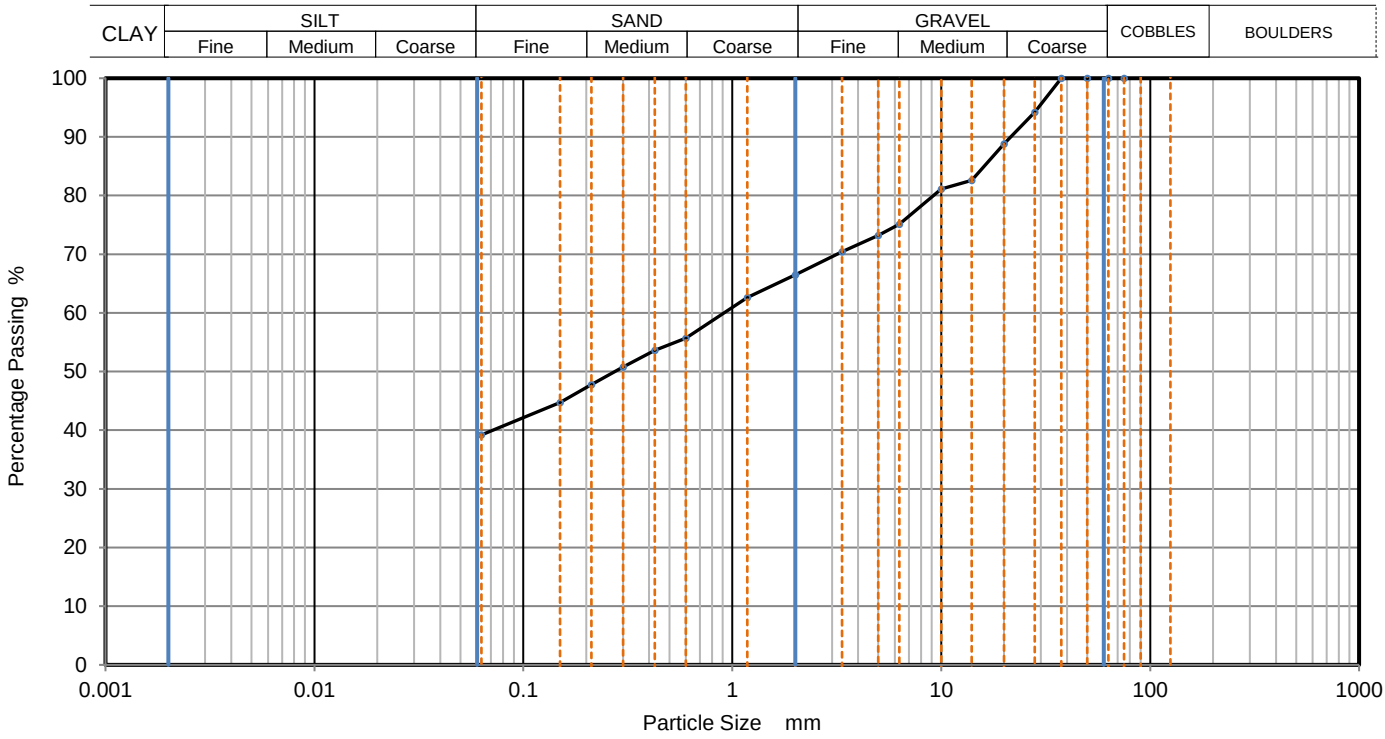
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38604
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly sandy gravelly SILT.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110233



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	89		
14	83		
10	81		
6.3	75		
5	73		
3.35	70		
2	67		
1.18	63		
0.6	56		
0.425	54		
0.3	51		
0.212	48		
0.15	45		
0.063	39		

Dry Mass of sample, g	839

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	27
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.916
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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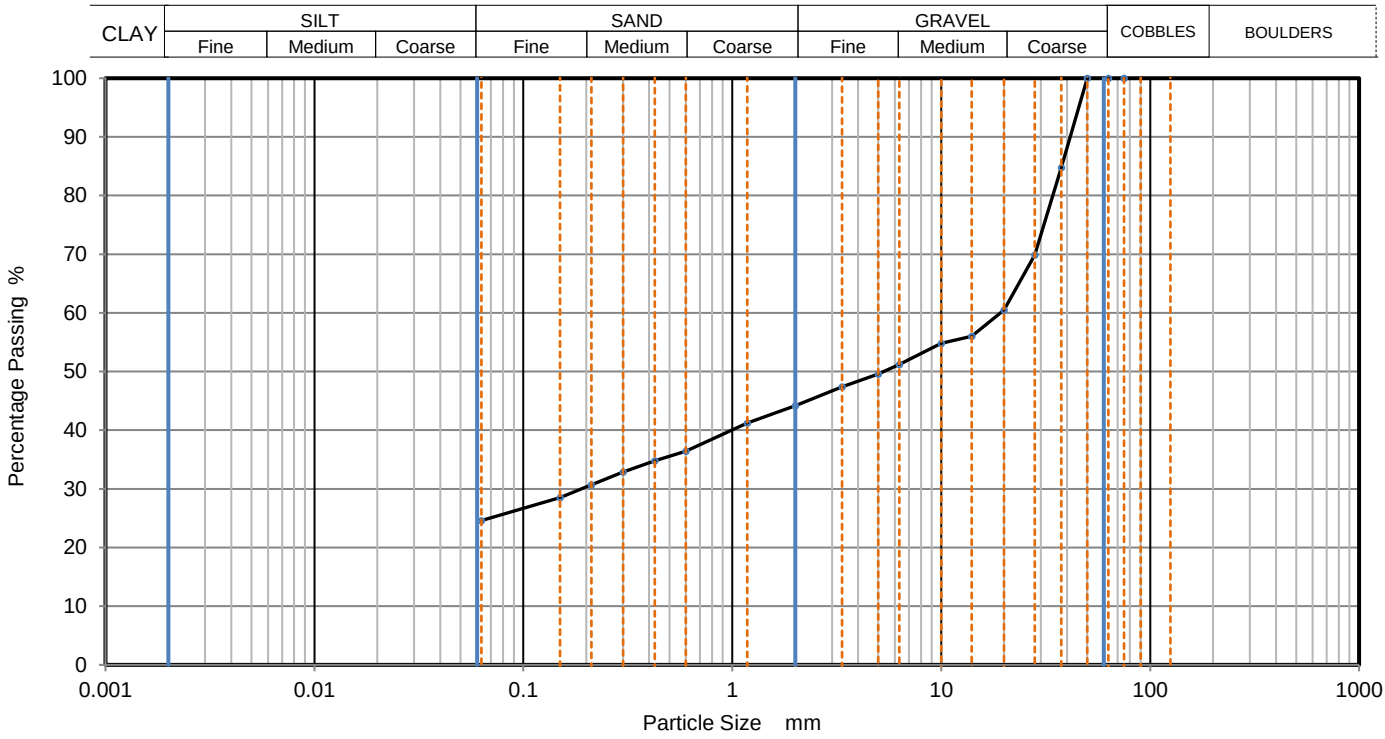
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38604
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very sandy very silty coarse GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110235



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	85		
28	70		
20	61		
14	56		
10	55		
6.3	51		
5	50		
3.35	47		
2	44		
1.18	41		
0.6	36		
0.425	35		
0.3	33		
0.212	31		
0.15	29		
0.063	25		

Dry Mass of sample, g	837

Sample Proportions	% dry mass
Very coarse	0
Gravel	56
Sand	20
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	19.2
D30	mm	0.191
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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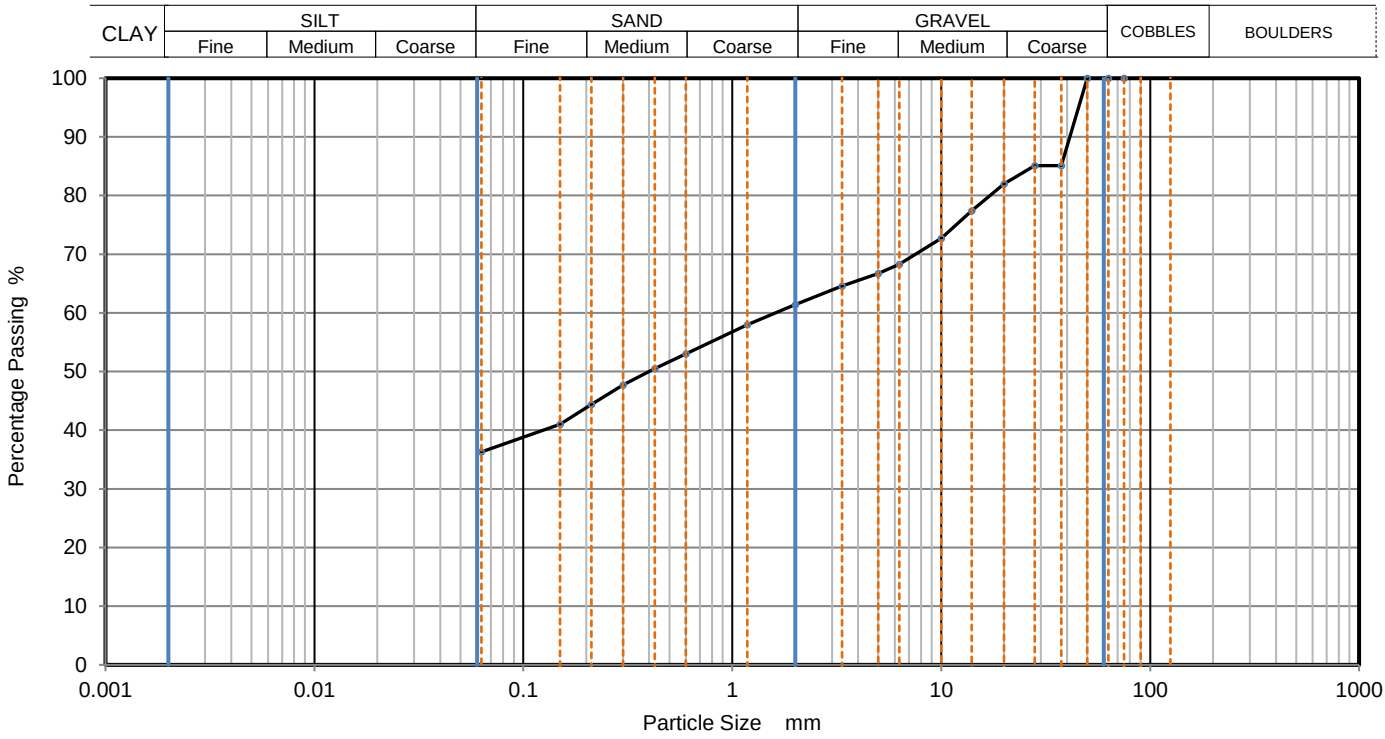
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38700
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT. Gravel is coarse and medium.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110240



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	85		
28	85		
20	82		
14	77		
10	73		
6.3	68		
5	67		
3.35	65		
2	61		
1.18	58		
0.6	53		
0.425	51		
0.3	48		
0.212	44		
0.15	41		
0.063	36		

Dry Mass of sample, g	1157

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	25
Fines <0.063mm	36

Grading Analysis		
D100	mm	
D60	mm	1.61
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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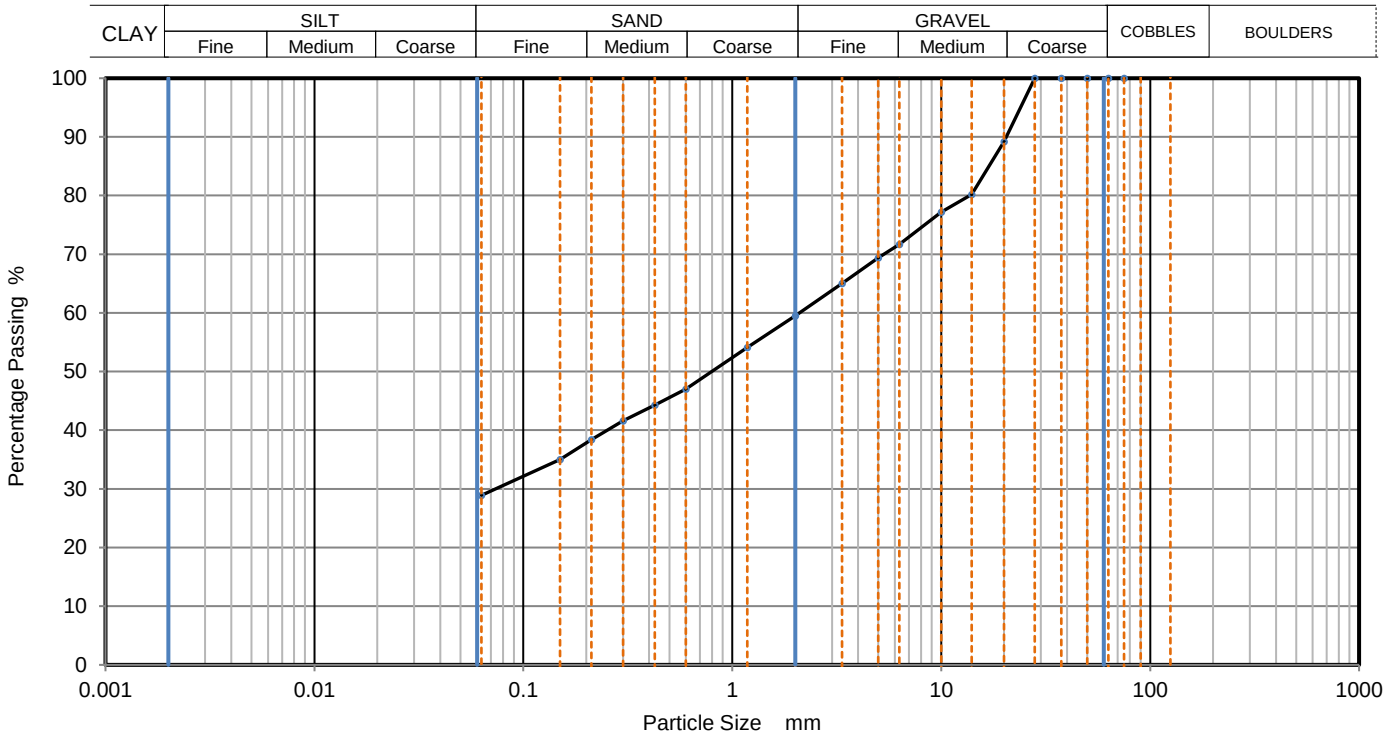
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38700
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey very silty very sandy GRAVEL.			Depth, m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110242



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	80		
10	77		
6.3	72		
5	69		
3.35	65		
2	60		
1.18	54		
0.6	47		
0.425	44		
0.3	42		
0.212	38		
0.15	35		
0.063	29		

Dry Mass of sample, g	673

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	31
Fines <0.063mm	29

Grading Analysis		
D100	mm	
D60	mm	2.1
D30	mm	0.0732
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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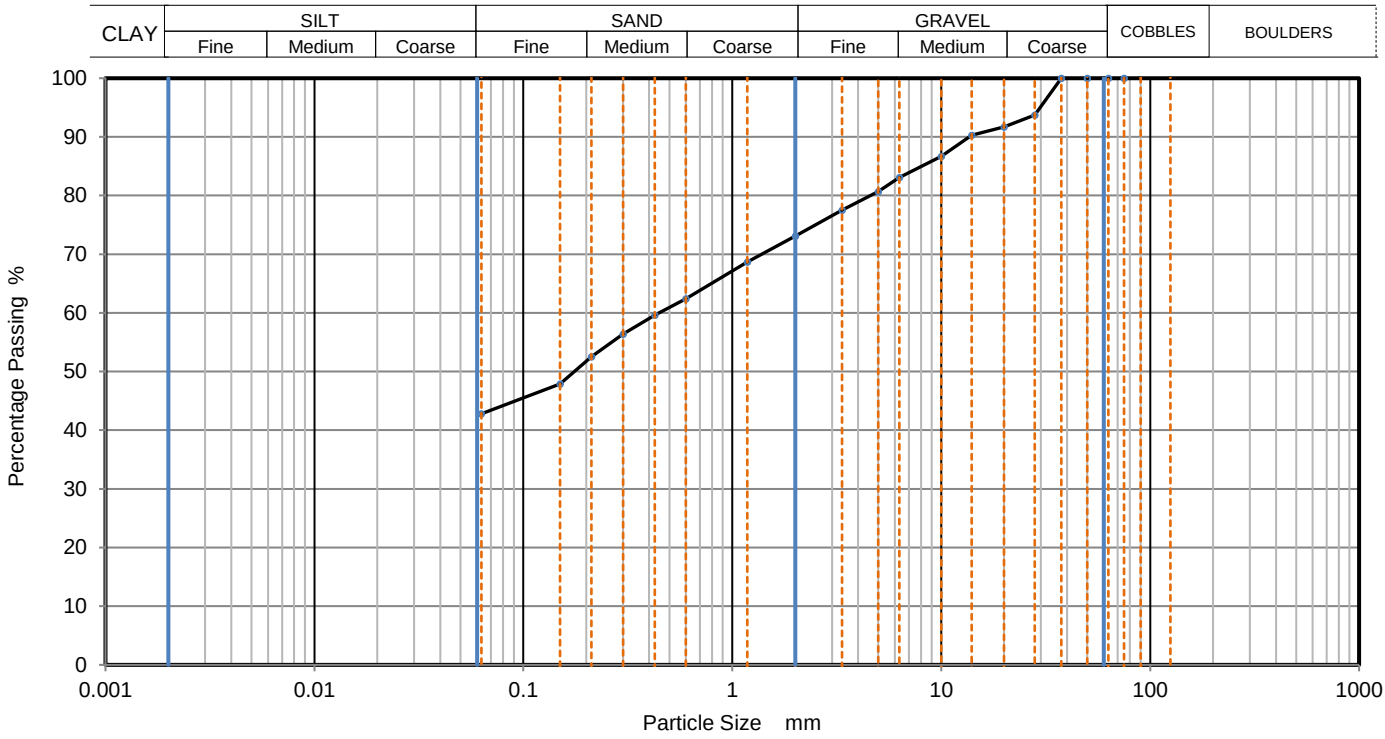
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38777
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110246



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	92		
14	90		
10	87		
6.3	83		
5	81		
3.35	78		
2	73		
1.18	69		
0.6	62		
0.425	60		
0.3	56		
0.212	53		
0.15	48		
0.063	43		

Dry Mass of sample, g	1332

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	30
Fines <0.063mm	43

Grading Analysis		
D100	mm	
D60	mm	0.447
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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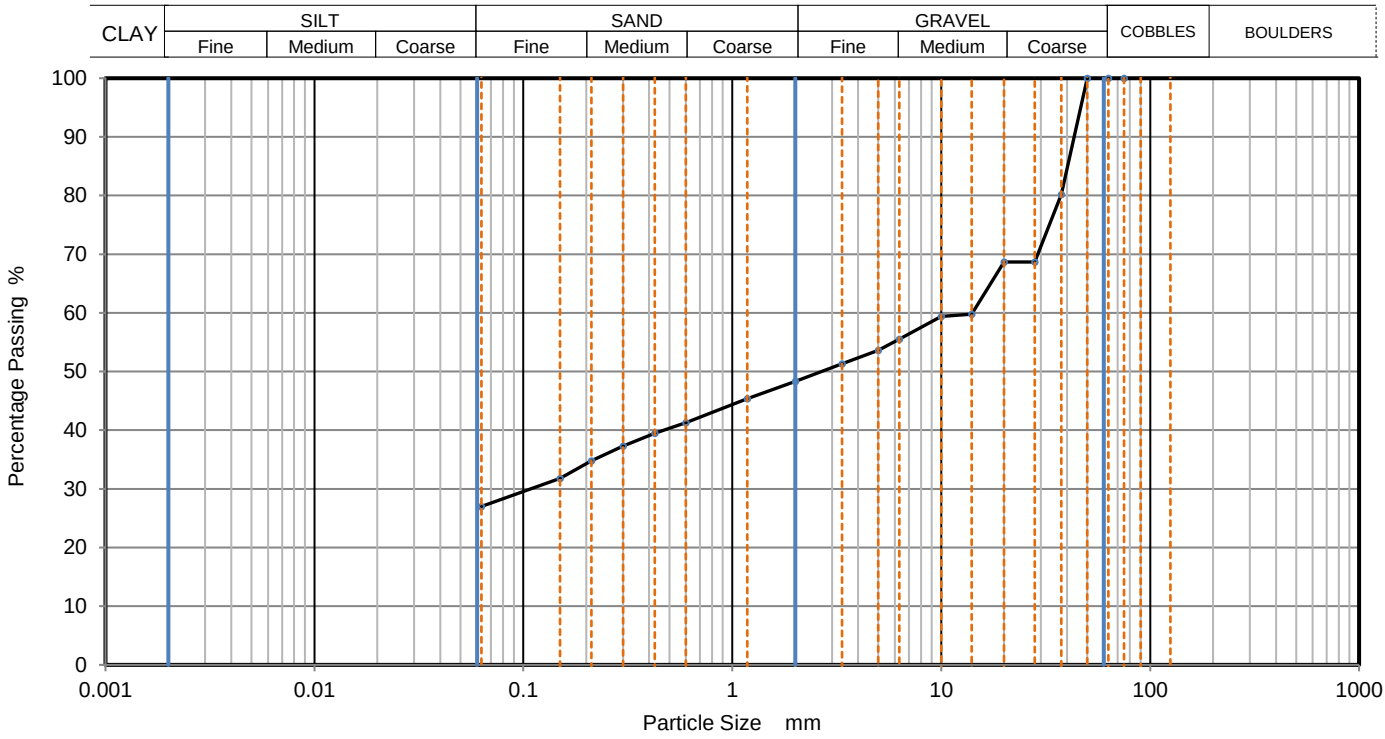
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38777
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey very sandy very silty coarse GRAVEL.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110248



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	80		
28	69		
20	69		
14	60		
10	59		
6.3	56		
5	54		
3.35	51		
2	48		
1.18	45		
0.6	41		
0.425	40		
0.3	37		
0.212	35		
0.15	32		
0.063	27		

Dry Mass of sample, g	876

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	21
Fines <0.063mm	27

Grading Analysis		
D100	mm	
D60	mm	14.1
D30	mm	0.108
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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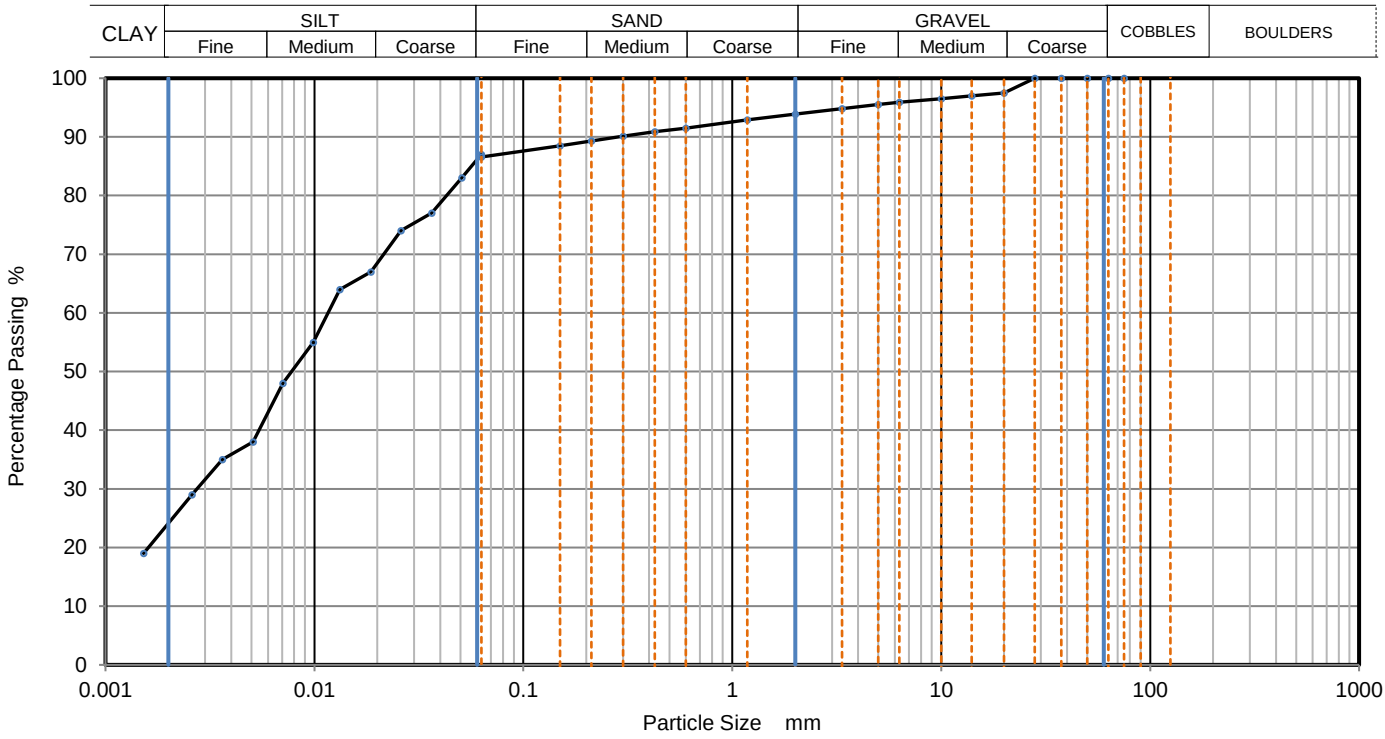
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38901
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202110146



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	87
		0.0508	83
75	100	0.0364	77
63	100	0.0259	74
50	100	0.0186	67
37.5	100	0.0132	64
28	100	0.0099	55
20	98	0.0071	48
14	97	0.0051	38
10	97	0.0036	35
6.3	96	0.0026	29
5	96	0.0015	19
3.35	95		
2	94		
1.18	93		
0.6	92	Particle density (assumed)	
0.425	91	2.65 Mg/m3	
0.3	90		
0.212	89		
0.15	89		
0.063	87		

Dry Mass of sample, g	1051

Sample Proportions	% dry mass
Very coarse	0
Gravel	6
Sand	7
Silt	62
Clay	24

Grading Analysis		
D100	mm	
D60	mm	0.0117
D30	mm	0.00275
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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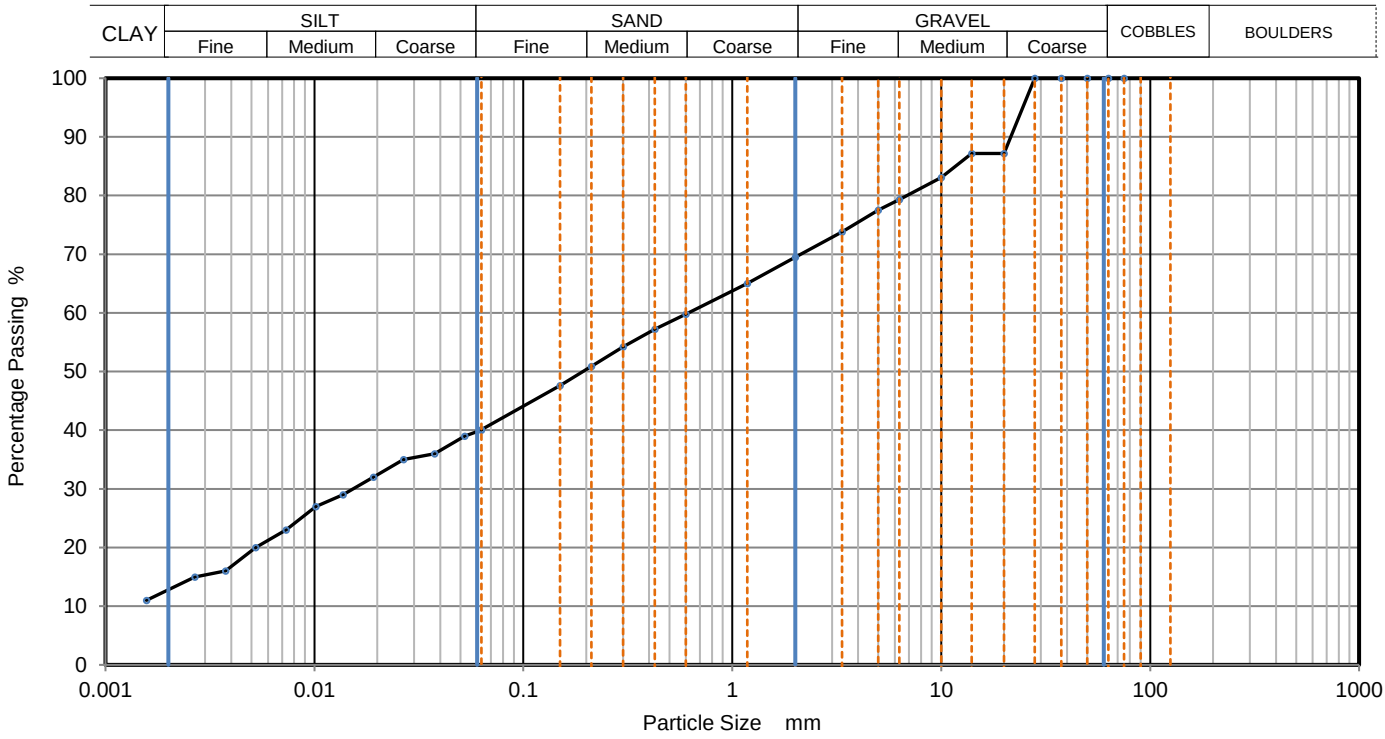
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-38901
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101410



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0524	39
75	100	0.0375	36
63	100	0.0267	35
50	100	0.0192	32
37.5	100	0.0137	29
28	100	0.0101	27
20	87	0.0073	23
14	87	0.0052	20
10	83	0.0038	16
6.3	79	0.0027	15
5	78	0.0016	11
3.35	74		
2	70		
1.18	65		
0.6	60	Particle density (assumed)	
0.425	57	2.65	Mg/m3
0.3	54		
0.212	51		
0.15	48		
0.063	40		

Dry Mass of sample, g	358

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	30
Silt	28
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.613
D30	mm	0.0148
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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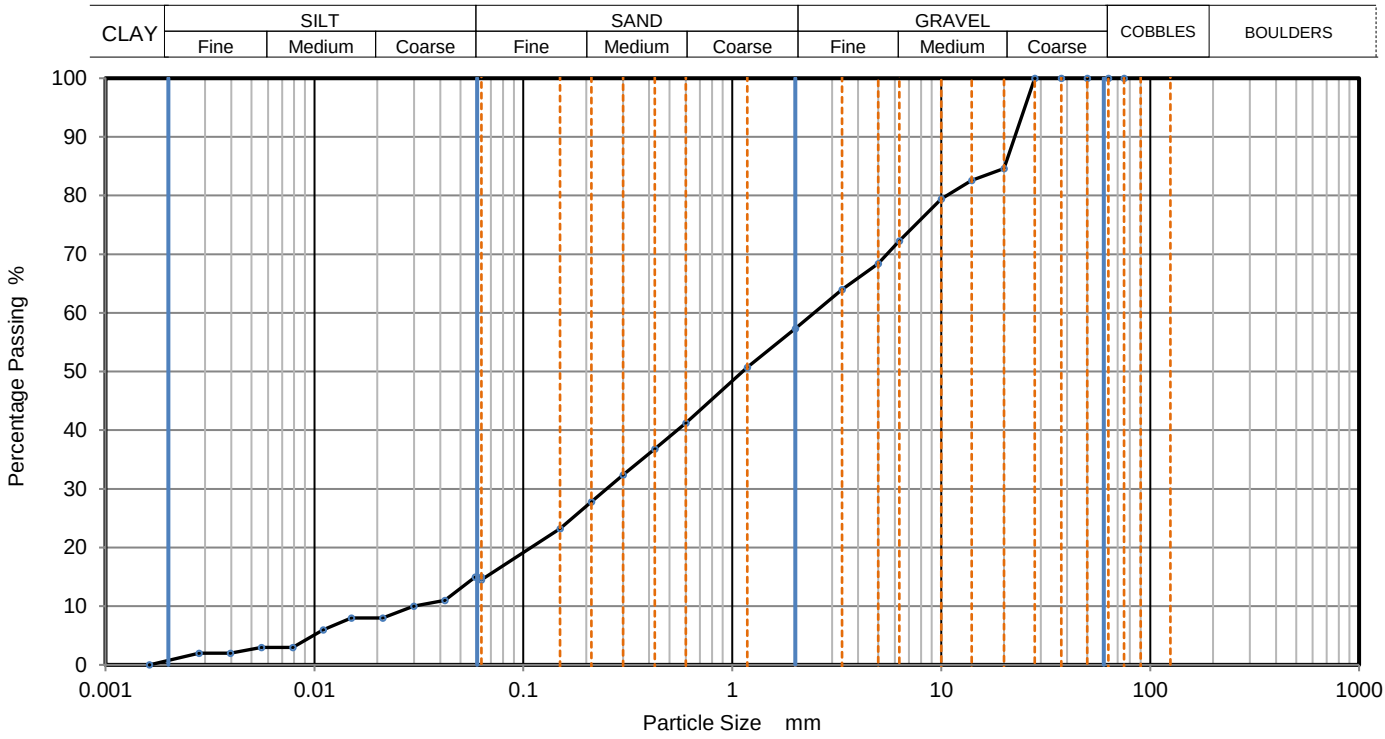
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39006
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Grey silty SAND and GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101413



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	15
		0.0588	15
75	100	0.0420	11
63	100	0.0299	10
50	100	0.0212	8
37.5	100	0.0150	8
28	100	0.0110	6
20	85	0.0079	3
14	83	0.0056	3
10	79	0.0040	2
6.3	72	0.0028	2
5	68	0.0016	0
3.35	64		
2	57		
1.18	51		
0.6	41	Particle density (assumed)	
0.425	37	2.65	Mg/m3
0.3	32		
0.212	28		
0.15	23		
0.063	15		

Dry Mass of sample, g	361

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	43
Silt	14
Clay	1

Grading Analysis		
D100	mm	
D60	mm	2.46
D30	mm	0.25
D10	mm	0.0321
Uniformity Coefficient		77
Curvature Coefficient		0.79

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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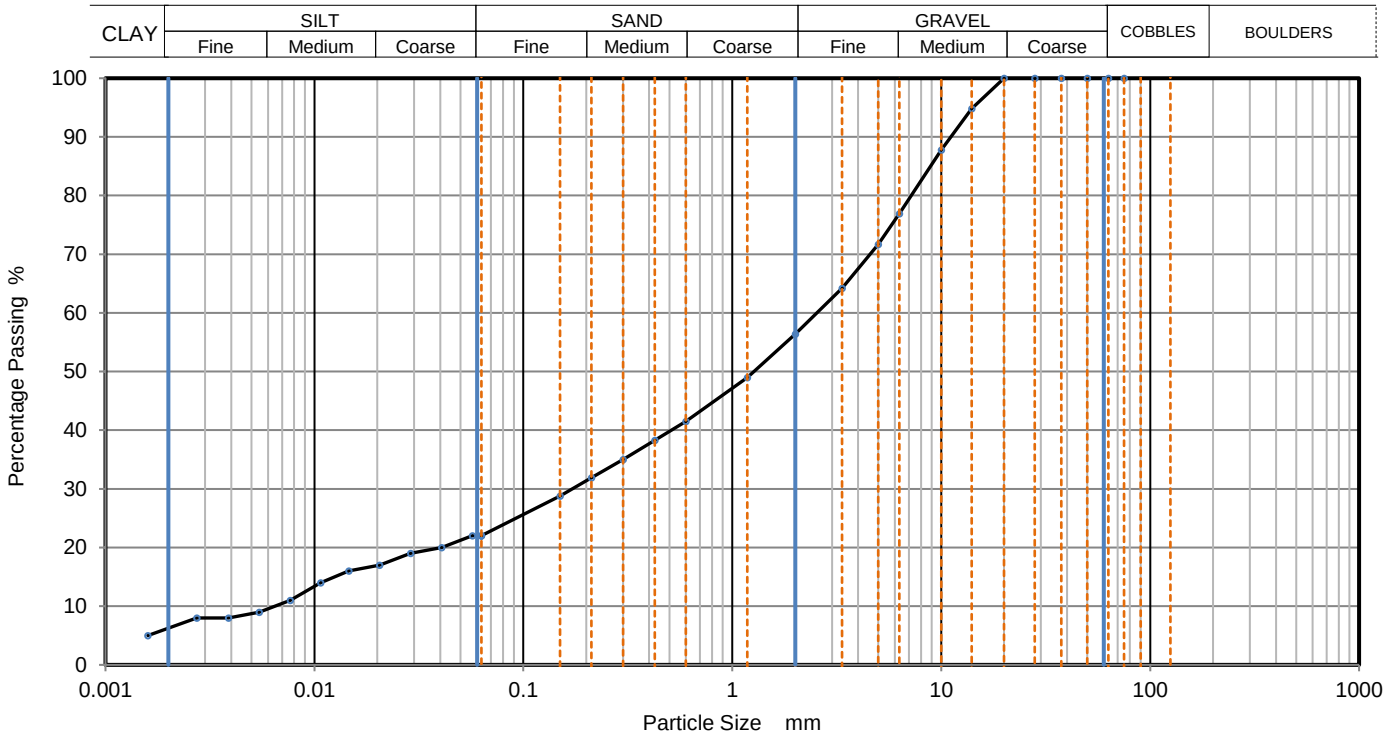
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39006
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown very silty very sandy medium and fine GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101415



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0570	22
75	100	0.0406	20
63	100	0.0289	19
50	100	0.0205	17
37.5	100	0.0146	16
28	100	0.0107	14
20	100	0.0077	11
14	95	0.0054	9
10	88	0.0039	8
6.3	77	0.0027	8
5	72	0.0016	5
3.35	64		
2	56		
1.18	49		
0.6	42	Particle density (assumed)	
0.425	38	2.65 Mg/m3	
0.3	35		
0.212	32		
0.15	29		
0.063	22		

Dry Mass of sample, g	218

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	34
Silt	16
Clay	6

Grading Analysis		
D100	mm	
D60	mm	2.54
D30	mm	0.171
D10	mm	0.00616
Uniformity Coefficient		410
Curvature Coefficient		1.9

Remarks

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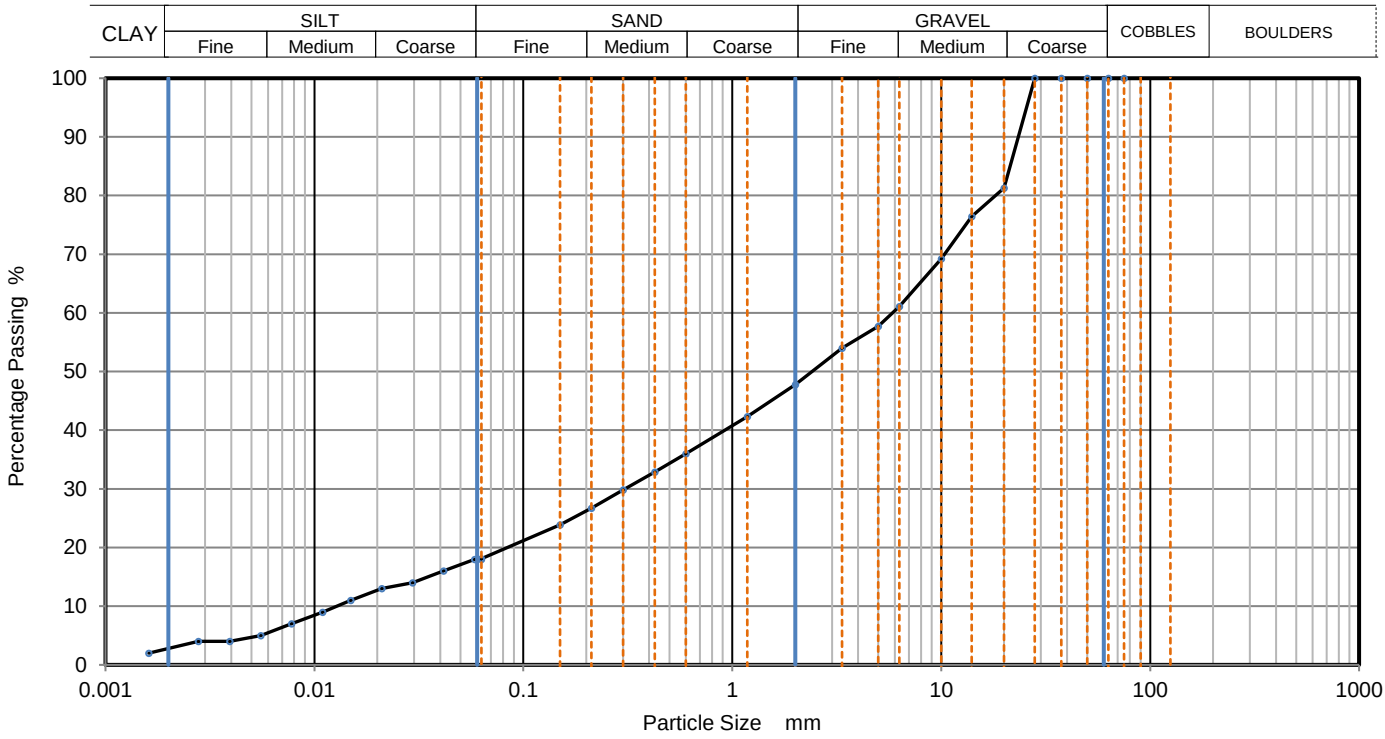
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39101
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown silty very sandy medium and coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101417



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0584	18
75	100	0.0415	16
63	100	0.0295	14
50	100	0.0210	13
37.5	100	0.0149	11
28	100	0.0109	9
20	81	0.0078	7
14	76	0.0055	5
10	69	0.0039	4
6.3	61	0.0028	4
5	58	0.0016	2
3.35	54		
2	48		
1.18	42		
0.6	36	Particle density (assumed)	
0.425	33	2.65	Mg/m3
0.3	30		
0.212	27		
0.15	24		
0.063	18		

Dry Mass of sample, g	269

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	30
Silt	16
Clay	3

Grading Analysis		
D100	mm	
D60	mm	5.85
D30	mm	0.307
D10	mm	0.0129
Uniformity Coefficient		450
Curvature Coefficient		1.3

Remarks

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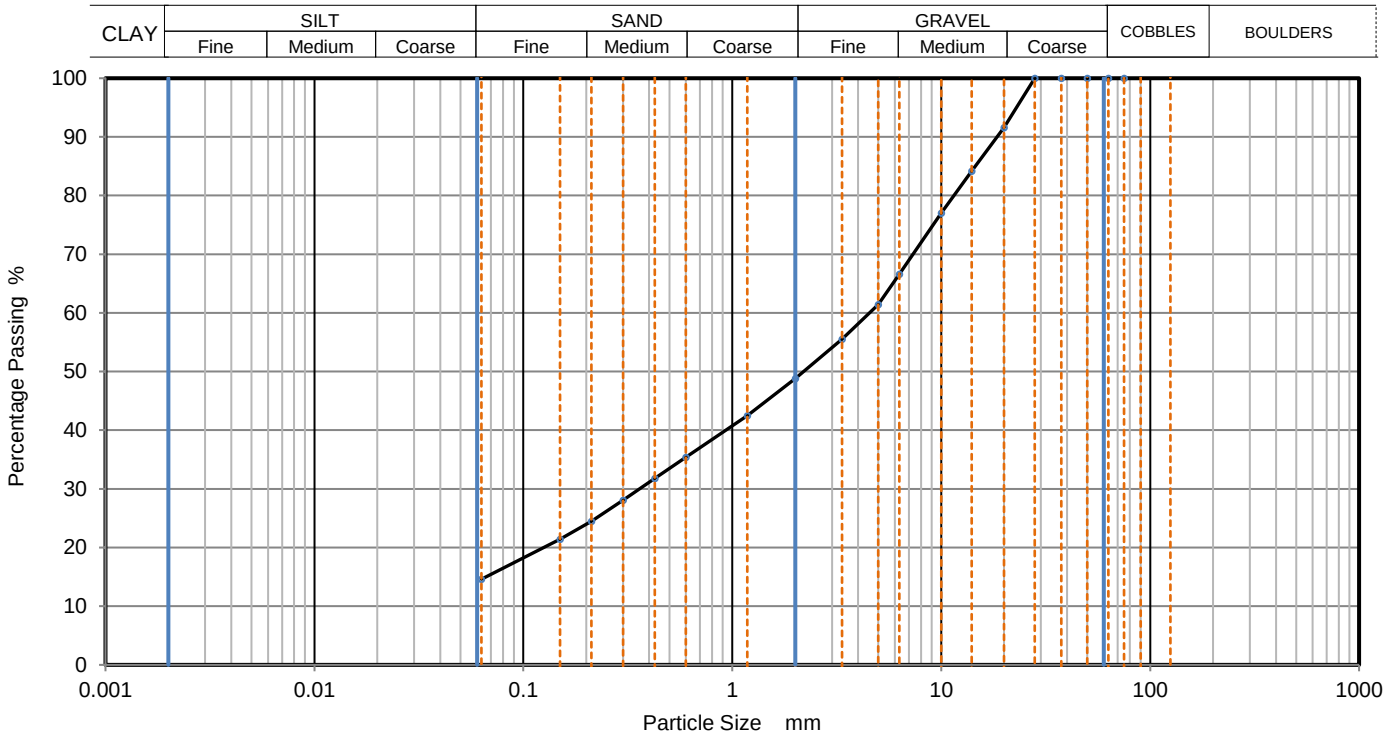
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39101
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021101419



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	84		
10	77		
6.3	67		
5	61		
3.35	56		
2	49		
1.18	43		
0.6	35		
0.425	32		
0.3	28		
0.212	25		
0.15	21		
0.063	15		

Dry Mass of sample, g	231

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	34
Fines <0.063mm	15

Grading Analysis		
D100	mm	
D60	mm	4.55
D30	mm	0.359
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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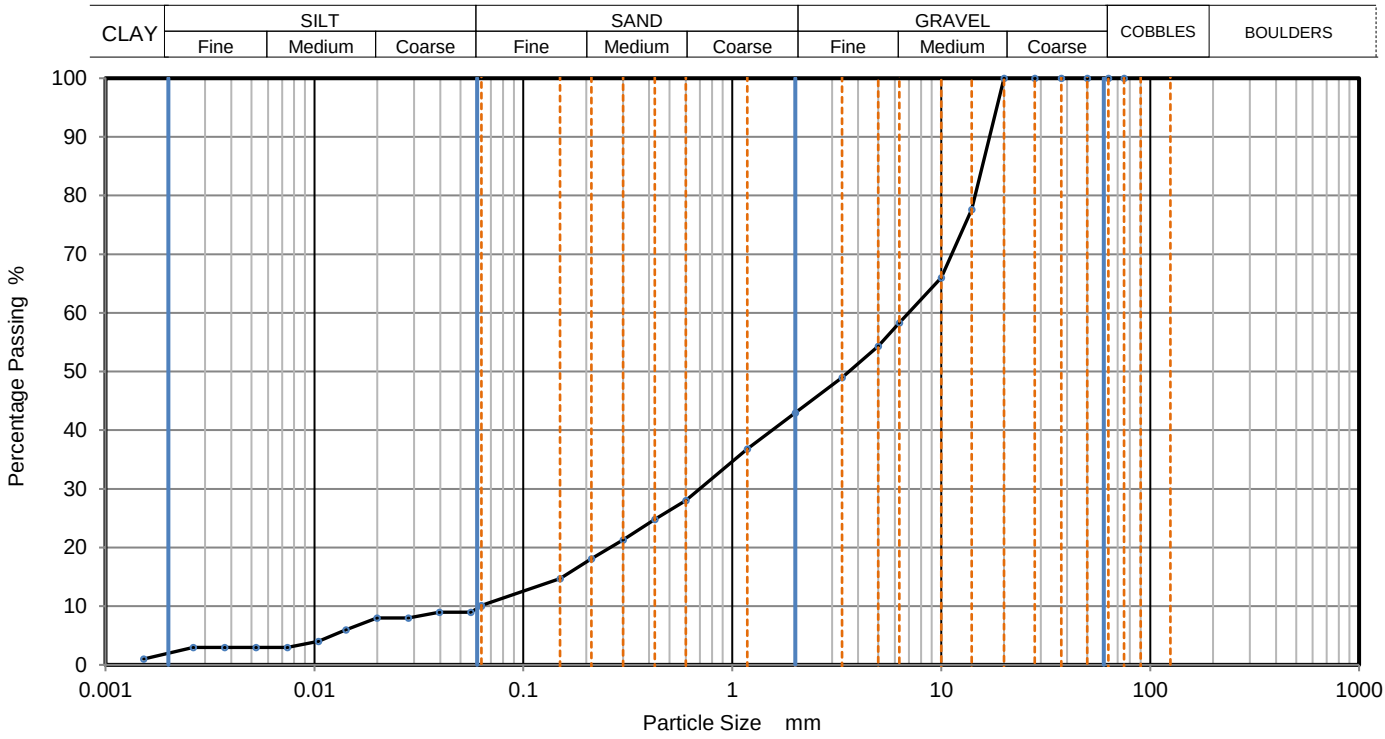
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39218
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark brown silty very sandy medium GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101421



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	10
		0.0560	9
75	100	0.0396	9
63	100	0.0282	8
50	100	0.0199	8
37.5	100	0.0142	6
28	100	0.0105	4
20	100	0.0074	3
14	78	0.0053	3
10	66	0.0037	3
6.3	58	0.0026	3
5	54	0.0015	1
3.35	49		
2	43		
1.18	37		
0.6	28	Particle density (assumed)	
0.425	25	2.65 Mg/m3	
0.3	21		
0.212	18		
0.15	15		
0.063	10		

Dry Mass of sample, g	285

Sample Proportions	% dry mass
Very coarse	0
Gravel	57
Sand	33
Silt	8
Clay	2

Grading Analysis		
D100	mm	
D60	mm	6.98
D30	mm	0.698
D10	mm	0.0626
Uniformity Coefficient		110
Curvature Coefficient		1.1

Remarks

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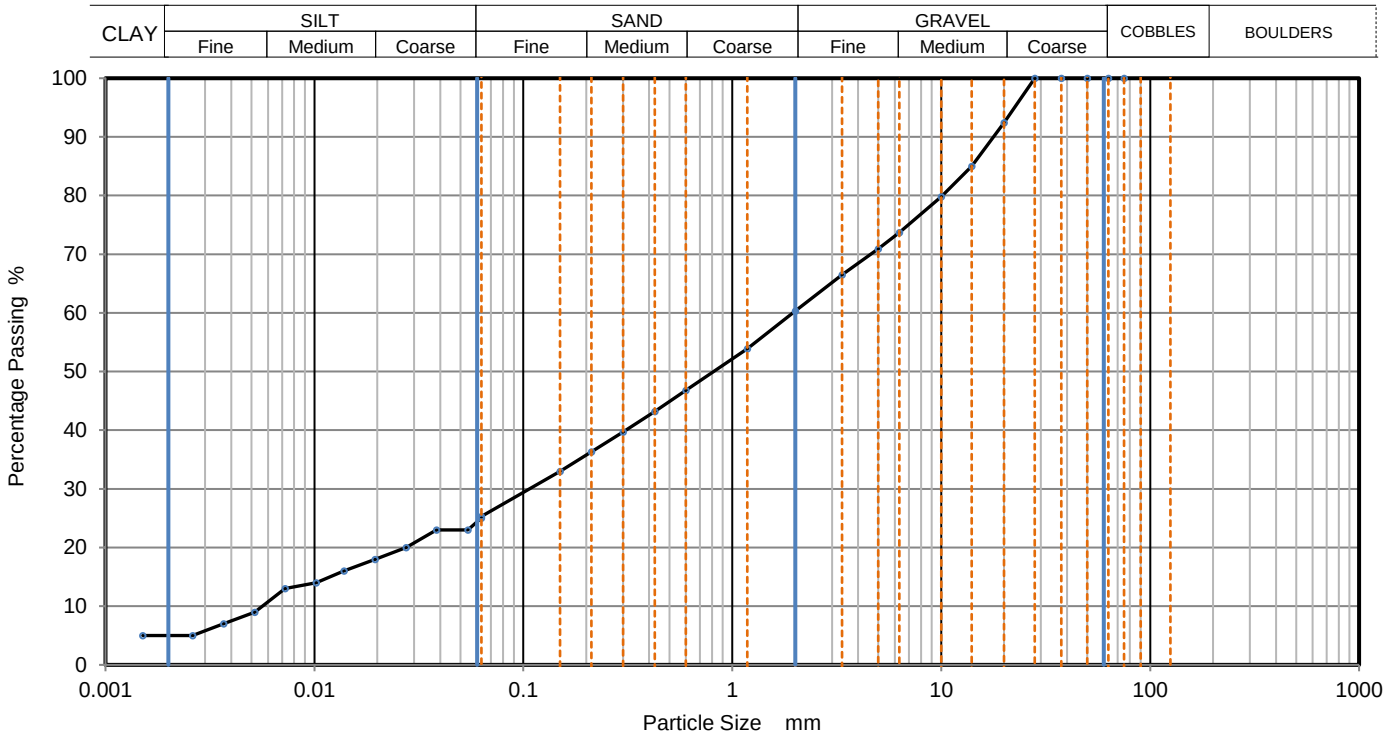
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39300
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty very sandy medium GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101423



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0542	23
75	100	0.0383	23
63	100	0.0274	20
50	100	0.0195	18
37.5	100	0.0139	16
28	100	0.0102	14
20	92	0.0072	13
14	85	0.0052	9
10	80	0.0037	7
6.3	74	0.0026	5
5	71	0.0015	5
3.35	67		
2	60		
1.18	54		
0.6	47	Particle density (assumed)	
0.425	43	2.65 Mg/m3	
0.3	40		
0.212	36		
0.15	33		
0.063	25		

Dry Mass of sample, g	218

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	35
Silt	20
Clay	5

Grading Analysis		
D100	mm	
D60	mm	1.95
D30	mm	0.107
D10	mm	0.00566
Uniformity Coefficient		350
Curvature Coefficient		1

Remarks

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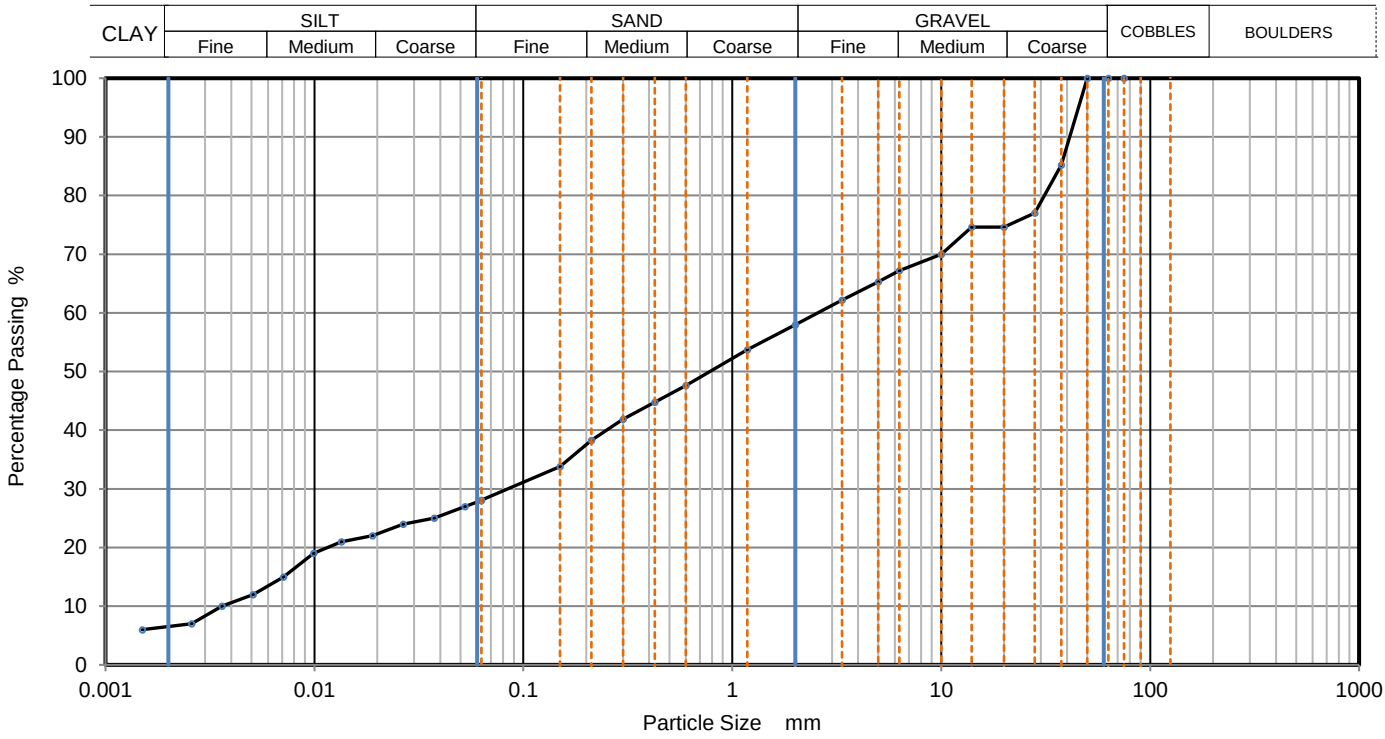
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39403
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey very silty very sandy coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101425



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0526	27
75	100	0.0374	25
63	100	0.0266	24
50	100	0.0189	22
37.5	85	0.0135	21
28	77	0.0099	19
20	75	0.0071	15
14	75	0.0051	12
10	70	0.0036	10
6.3	67	0.0026	7
5	65	0.0015	6
3.35	62		
2	58		
1.18	54		
0.6	48	Particle density (assumed)	
0.425	45	2.65	Mg/m3
0.3	42		
0.212	38		
0.15	34		
0.063	28		

Dry Mass of sample, g	444

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	30
Silt	21
Clay	7

Grading Analysis		
D100	mm	
D60	mm	2.55
D30	mm	0.0843
D10	mm	0.00348
Uniformity Coefficient		730
Curvature Coefficient		0.8

Remarks

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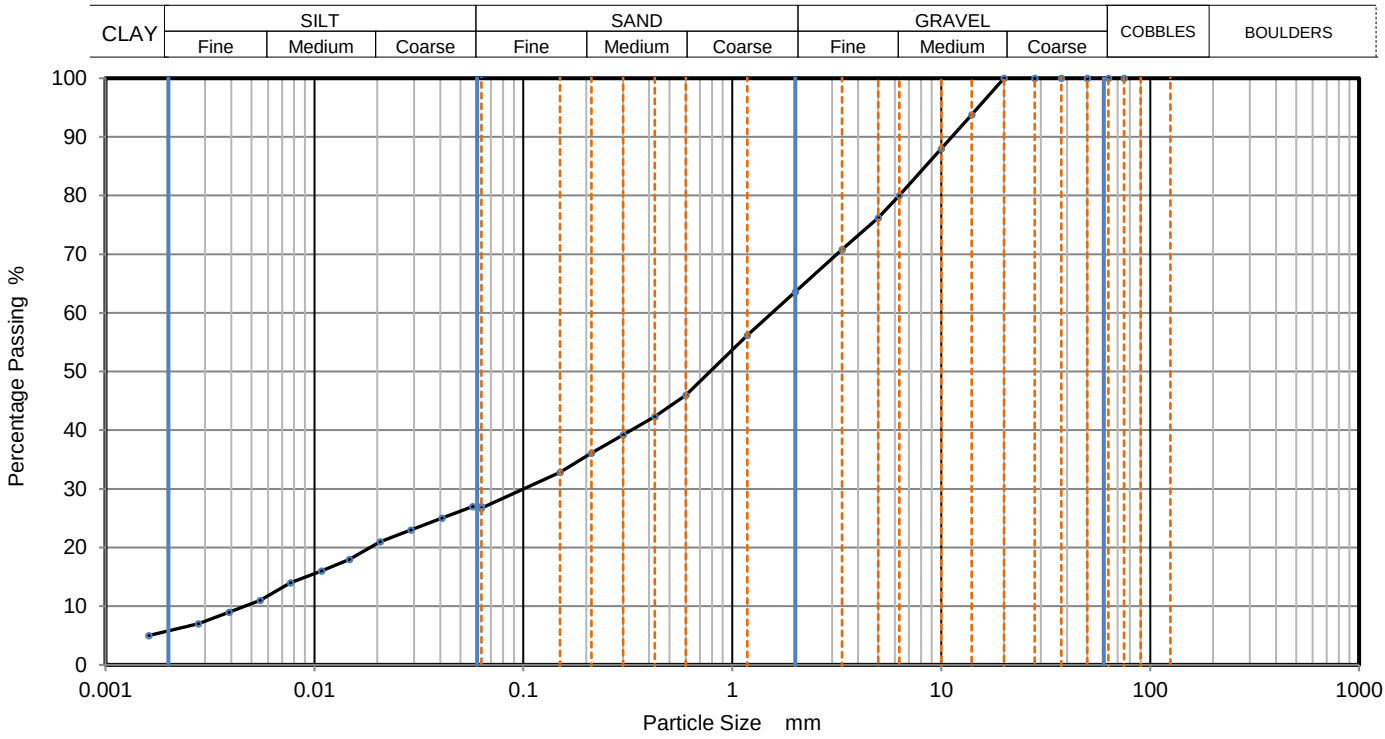
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39403
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey very silty SAND and GRAVEL. Sand is coarse, gravel is fine and medium.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101427



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0573	27
75	100	0.0407	25
63	100	0.0290	23
50	100	0.0206	21
37.5	100	0.0147	18
28	100	0.0108	16
20	100	0.0077	14
14	94	0.0055	11
10	88	0.0039	9
6.3	80	0.0028	7
5	76	0.0016	5
3.35	71		
2	64		
1.18	56		
0.6	46	Particle density (assumed)	
0.425	42	2.65	Mg/m3
0.3	39		
0.212	36		
0.15	33		
0.063	27		

Dry Mass of sample, g	280

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	37
Silt	21
Clay	6

Grading Analysis		
D100	mm	
D60	mm	1.55
D30	mm	0.101
D10	mm	0.00482
Uniformity Coefficient		320
Curvature Coefficient		1.4

Remarks

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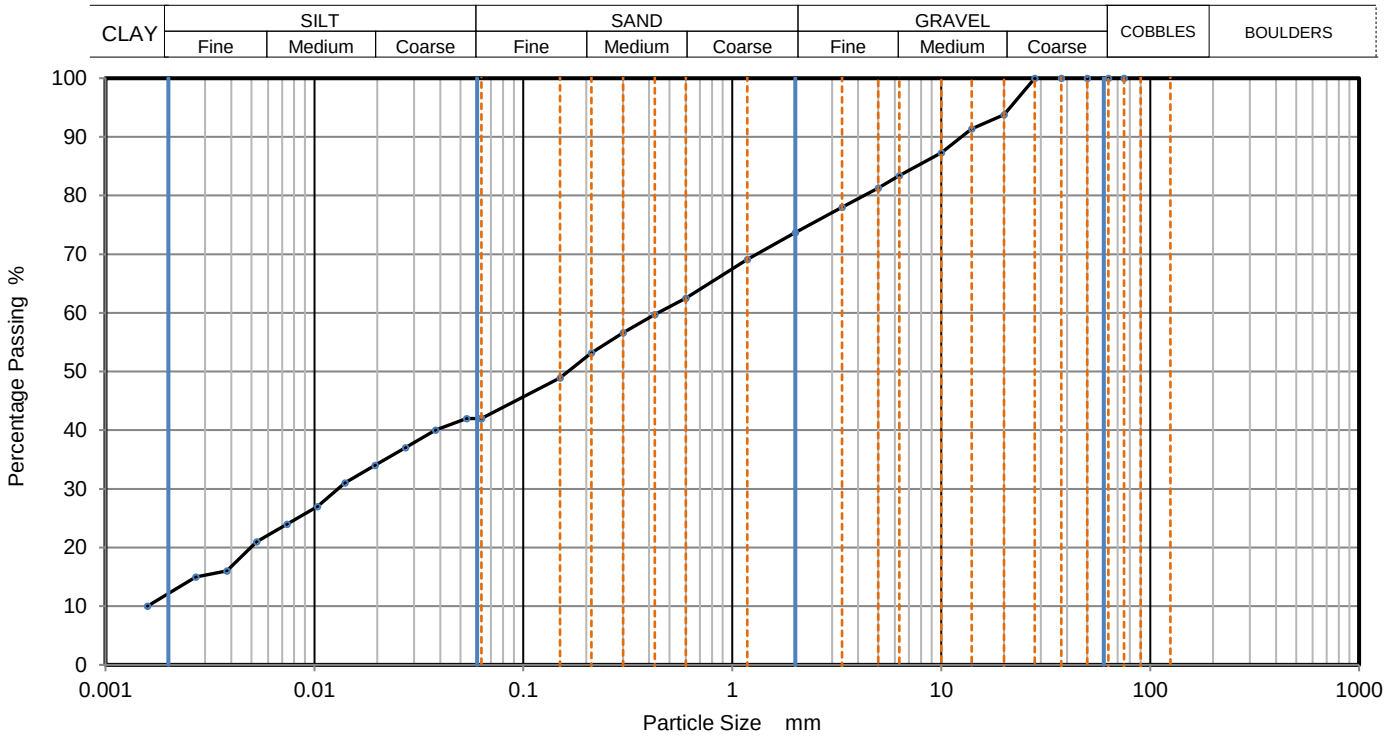
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39503
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101429



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0534	42
75	100	0.0380	40
63	100	0.0273	37
50	100	0.0195	34
37.5	100	0.0140	31
28	100	0.0103	27
20	94	0.0074	24
14	91	0.0053	21
10	87	0.0038	16
6.3	83	0.0027	15
5	81	0.0016	10
3.35	78		
2	74		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	57		
0.212	53		
0.15	49		
0.063	42		

Dry Mass of sample, g	294

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	32
Silt	30
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.441
D30	mm	0.0131
D10	mm	0.00164
Uniformity Coefficient		270
Curvature Coefficient		0.24

Remarks

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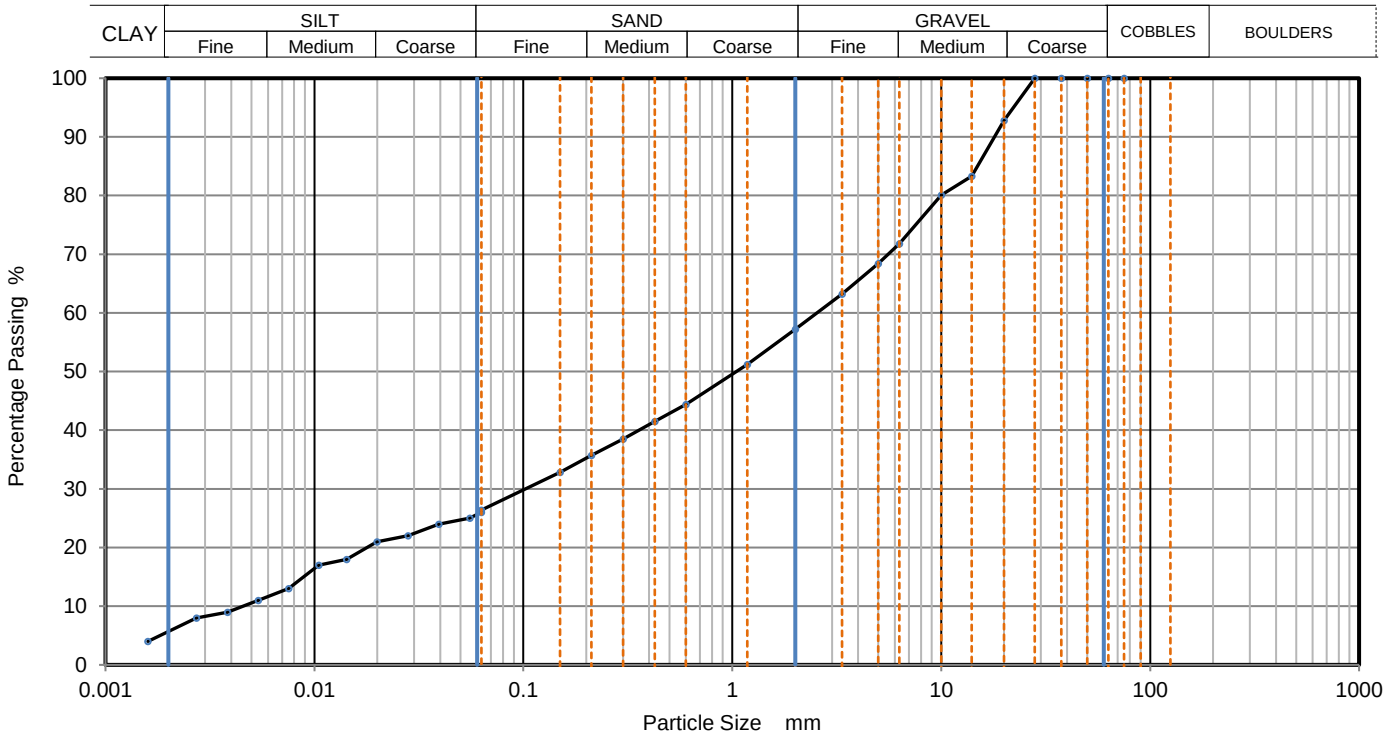
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy medium GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101431



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0554	25
75	100	0.0394	24
63	100	0.0280	22
50	100	0.0199	21
37.5	100	0.0143	18
28	100	0.0105	17
20	93	0.0075	13
14	83	0.0054	11
10	80	0.0038	9
6.3	72	0.0027	8
5	68	0.0016	4
3.35	63		
2	57		
1.18	51		
0.6	44	Particle density (assumed)	
0.425	42	2.65 Mg/m3	
0.3	39		
0.212	36		
0.15	33		
0.063	26		

Dry Mass of sample, g	307

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	31
Silt	21
Clay	6

Grading Analysis		
D100	mm	
D60	mm	2.55
D30	mm	0.102
D10	mm	0.00466
Uniformity Coefficient		550
Curvature Coefficient		0.88

Remarks

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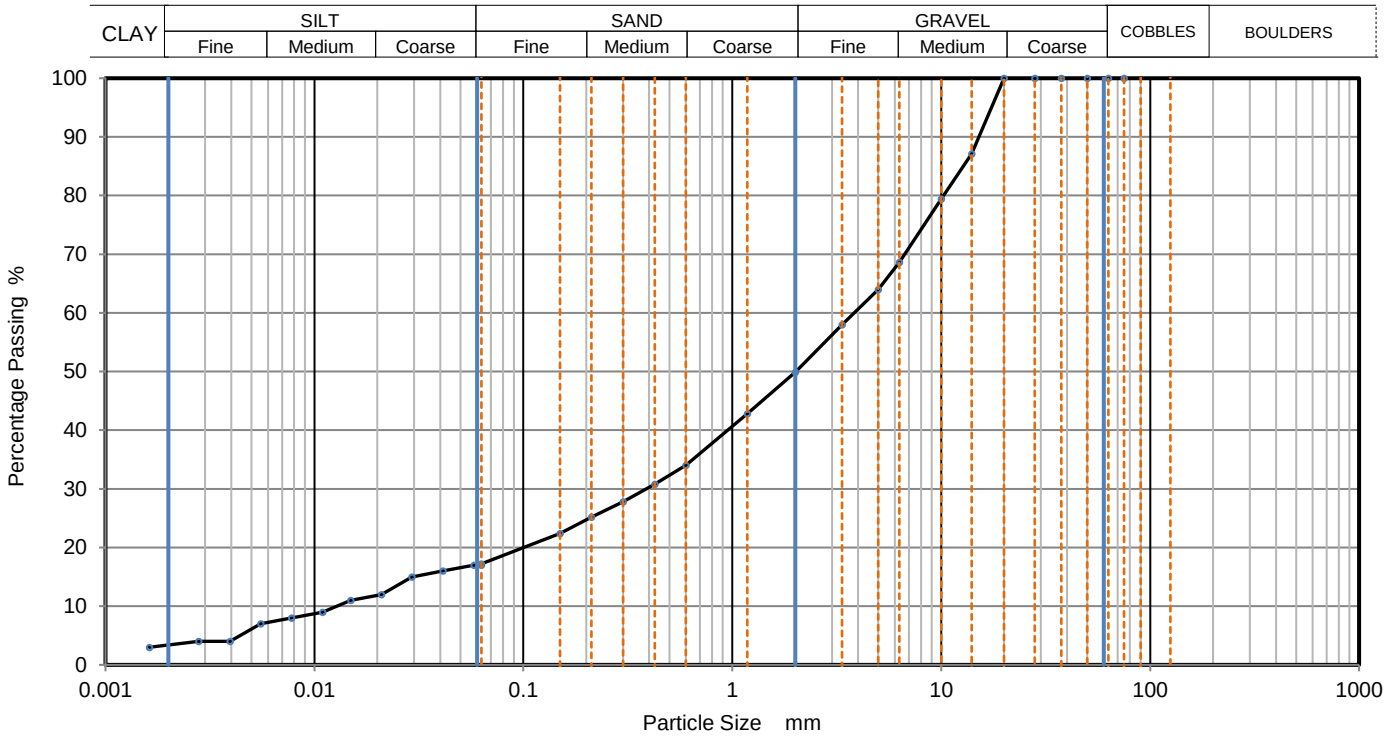
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39601
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101433



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	17
		0.0579	17
75	100	0.0412	16
63	100	0.0293	15
50	100	0.0209	12
37.5	100	0.0149	11
28	100	0.0109	9
20	100	0.0078	8
14	87	0.0055	7
10	79	0.0039	4
6.3	69	0.0028	4
5	64	0.0016	3
3.35	58		
2	50		
1.18	43		
0.6	34	Particle density (assumed)	
0.425	31	2.65	Mg/m3
0.3	28		
0.212	25		
0.15	22		
0.063	17		

Dry Mass of sample, g	342

Sample Proportions	% dry mass
Very coarse	0
Gravel	50
Sand	33
Silt	14
Clay	3

Grading Analysis		
D100	mm	
D60	mm	3.83
D30	mm	0.388
D10	mm	0.013
Uniformity Coefficient		290
Curvature Coefficient		3

Remarks

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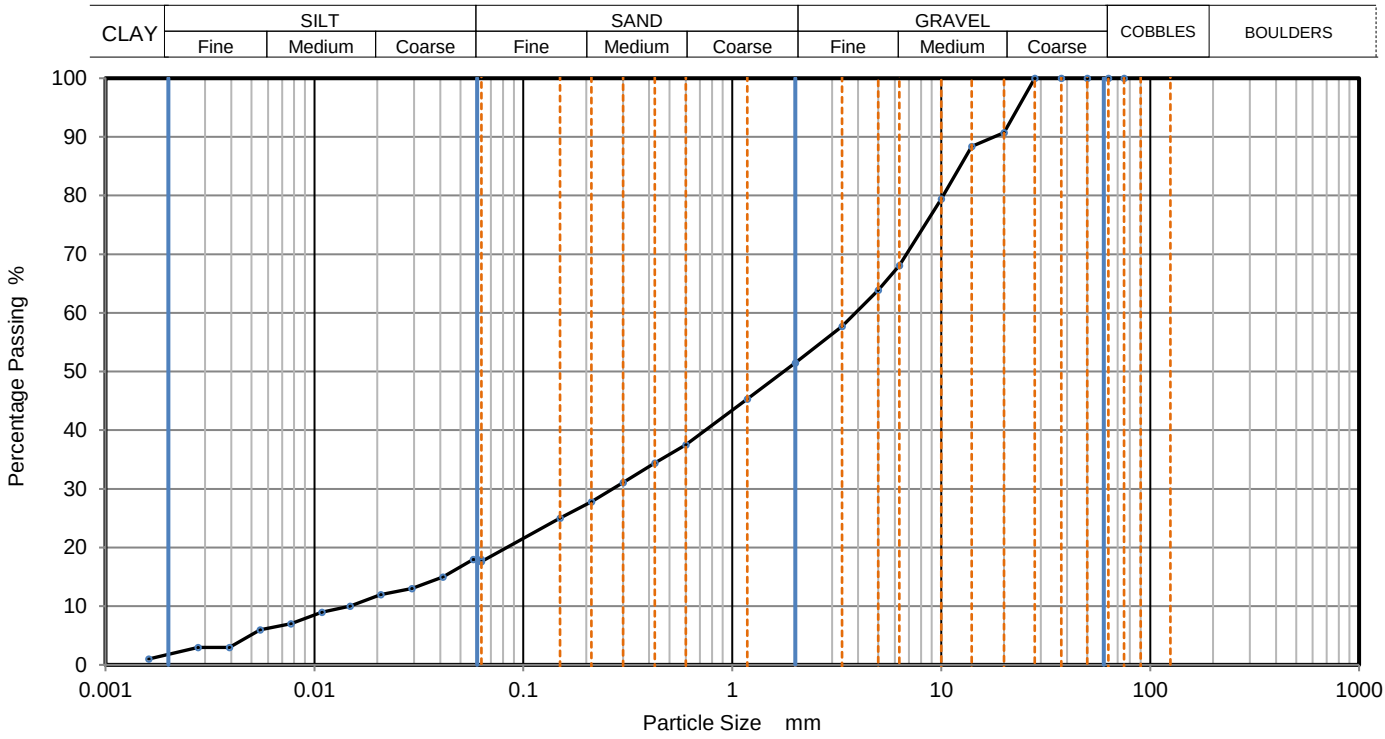
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39706
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101435



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0576	18
75	100	0.0412	15
63	100	0.0293	13
50	100	0.0208	12
37.5	100	0.0148	10
28	100	0.0109	9
20	91	0.0077	7
14	88	0.0055	6
10	79	0.0039	3
6.3	68	0.0028	3
5	64	0.0016	1
3.35	58		
2	52		
1.18	45		
0.6	38	Particle density (assumed)	
0.425	34	2.65 Mg/m3	
0.3	31		
0.212	28		
0.15	25		
0.063	18		

Dry Mass of sample, g	200

Sample Proportions	% dry mass
Very coarse	0
Gravel	49
Sand	34
Silt	16
Clay	2

Grading Analysis		
D100	mm	
D60	mm	3.89
D30	mm	0.268
D10	mm	0.014
Uniformity Coefficient		280
Curvature Coefficient		1.3

Remarks

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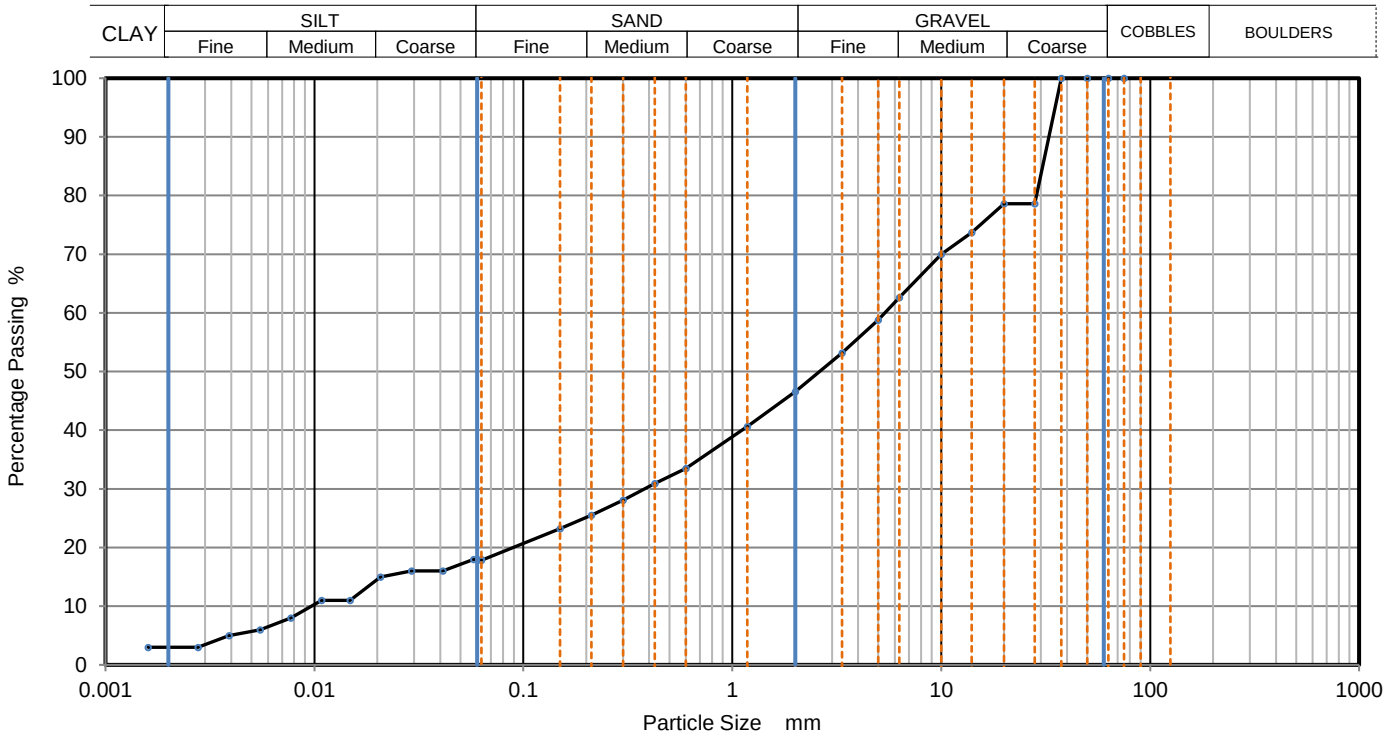
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39805
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly sandy gravelly SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101437



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0579	18
75	100	0.0412	16
63	100	0.0291	16
50	100	0.0207	15
37.5	100	0.0148	11
28	79	0.0108	11
20	79	0.0077	8
14	74	0.0055	6
10	70	0.0039	5
6.3	63	0.0028	3
5	59	0.0016	3
3.35	53		
2	47		
1.18	41		
0.6	34	Particle density (assumed)	
0.425	31	2.65	Mg/m3
0.3	28		
0.212	26		
0.15	23		
0.063	18		

Dry Mass of sample, g	258

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	29
Silt	15
Clay	3

Grading Analysis		
D100	mm	
D60	mm	5.38
D30	mm	0.381
D10	mm	0.00941
Uniformity Coefficient		570
Curvature Coefficient		2.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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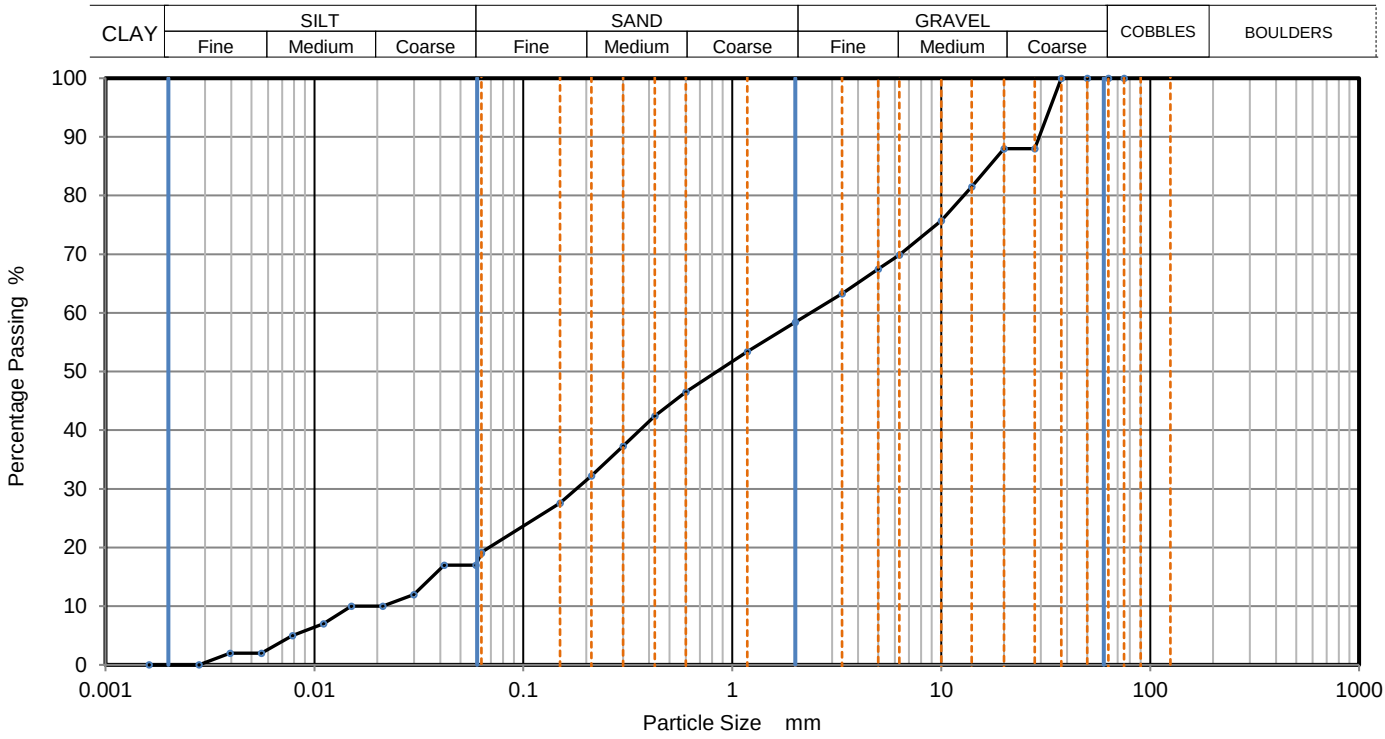
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39906
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey silty SAND and GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101439



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	19
		0.0592	17
75	100	0.0418	17
63	100	0.0299	12
50	100	0.0213	10
37.5	100	0.0150	10
28	88	0.0110	7
20	88	0.0078	5
14	82	0.0056	2
10	76	0.0039	2
6.3	70	0.0028	0
5	68	0.0016	0
3.35	63		
2	58		
1.18	53		
0.6	47	Particle density (assumed)	
0.425	42	2.65	Mg/m3
0.3	37		
0.212	32		
0.15	28		
0.063	19		

Dry Mass of sample, g	294

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	39
Silt	19
Clay	0

Grading Analysis		
D100	mm	
D60	mm	2.36
D30	mm	0.18
D10	mm	0.0225
Uniformity Coefficient		100
Curvature Coefficient		0.61

Remarks

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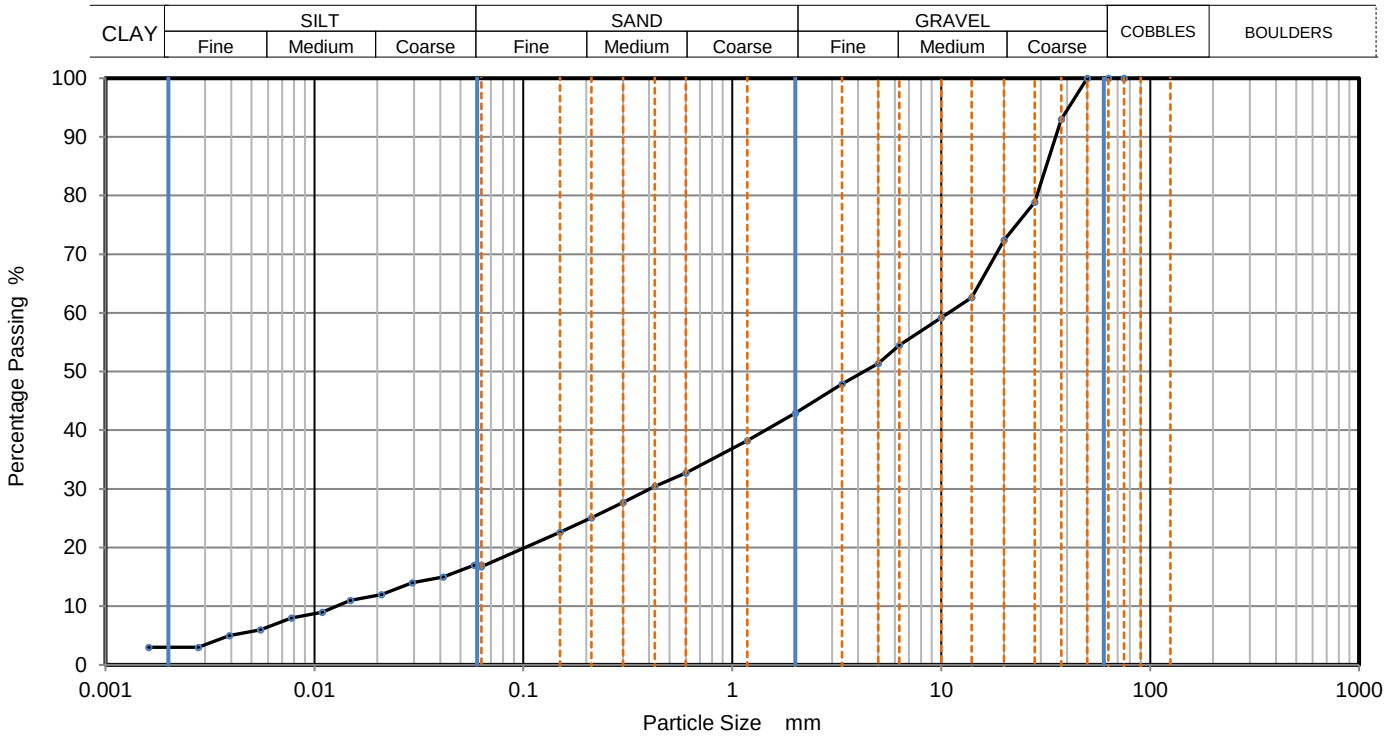
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-39906
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey-brown silty very sandy coarse GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101441



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	17
		0.0582	17
75	100	0.0414	15
63	100	0.0294	14
50	100	0.0209	12
37.5	93	0.0149	11
28	79	0.0109	9
20	72	0.0078	8
14	63	0.0055	6
10	59	0.0039	5
6.3	55	0.0028	3
5	51	0.0016	3
3.35	48		
2	43		
1.18	38		
0.6	33	Particle density (assumed)	
0.425	30	2.65	Mg/m3
0.3	28		
0.212	25		
0.15	23		
0.063	17		

Dry Mass of sample, g	1397

Sample Proportions	% dry mass
Very coarse	0
Gravel	57
Sand	26
Silt	14
Clay	3

Grading Analysis		
D100	mm	
D60	mm	10.8
D30	mm	0.406
D10	mm	0.0131
Uniformity Coefficient		820
Curvature Coefficient		1.2

Remarks

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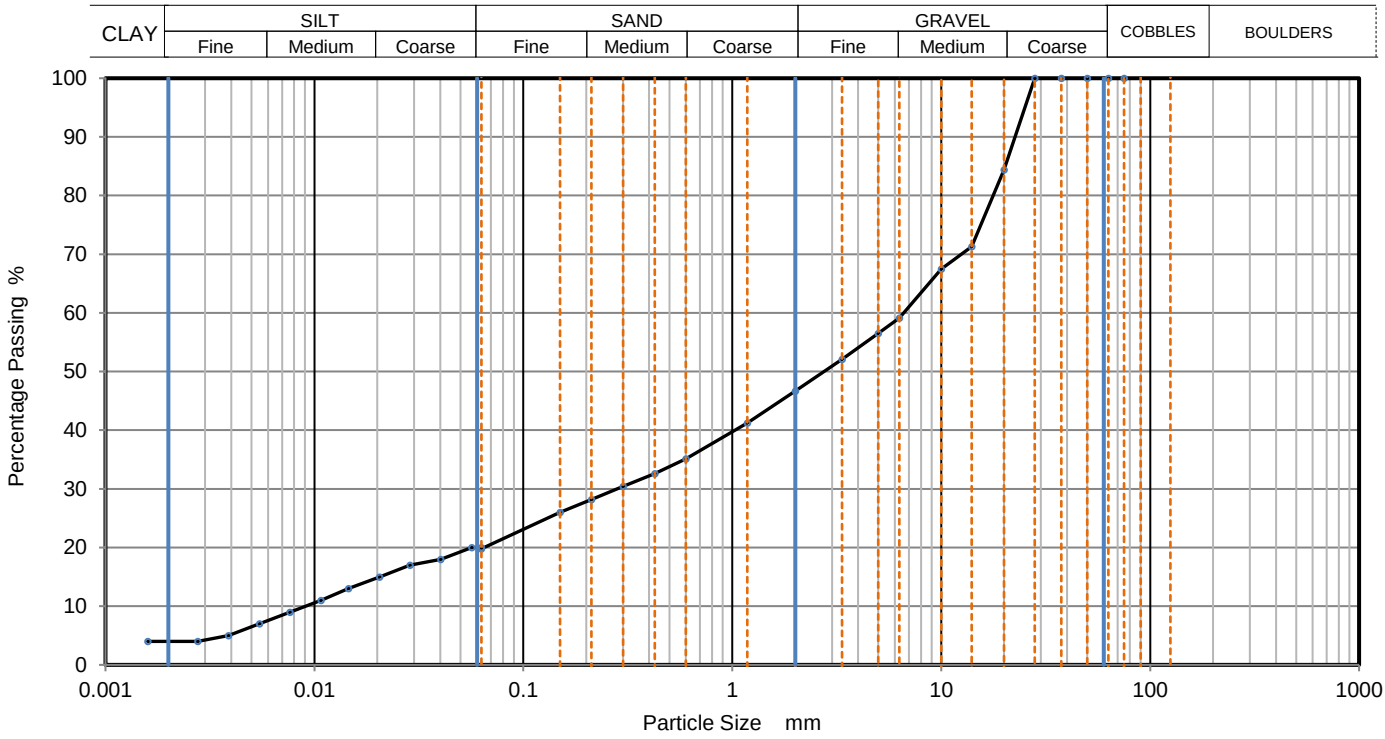
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40001
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey very silty very sandy medium GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101443



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	20
		0.0566	20
75	100	0.0402	18
63	100	0.0286	17
50	100	0.0205	15
37.5	100	0.0146	13
28	100	0.0107	11
20	84	0.0076	9
14	71	0.0055	7
10	68	0.0039	5
6.3	59	0.0028	4
5	57	0.0016	4
3.35	52		
2	47		
1.18	41		
0.6	35	Particle density (assumed)	
0.425	33	2.65 Mg/m3	
0.3	30		
0.212	28		
0.15	26		
0.063	20		

Dry Mass of sample, g	292

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	27
Silt	16
Clay	4

Grading Analysis		
D100	mm	
D60	mm	6.61
D30	mm	0.283
D10	mm	0.0093
Uniformity Coefficient		710
Curvature Coefficient		1.3

Remarks

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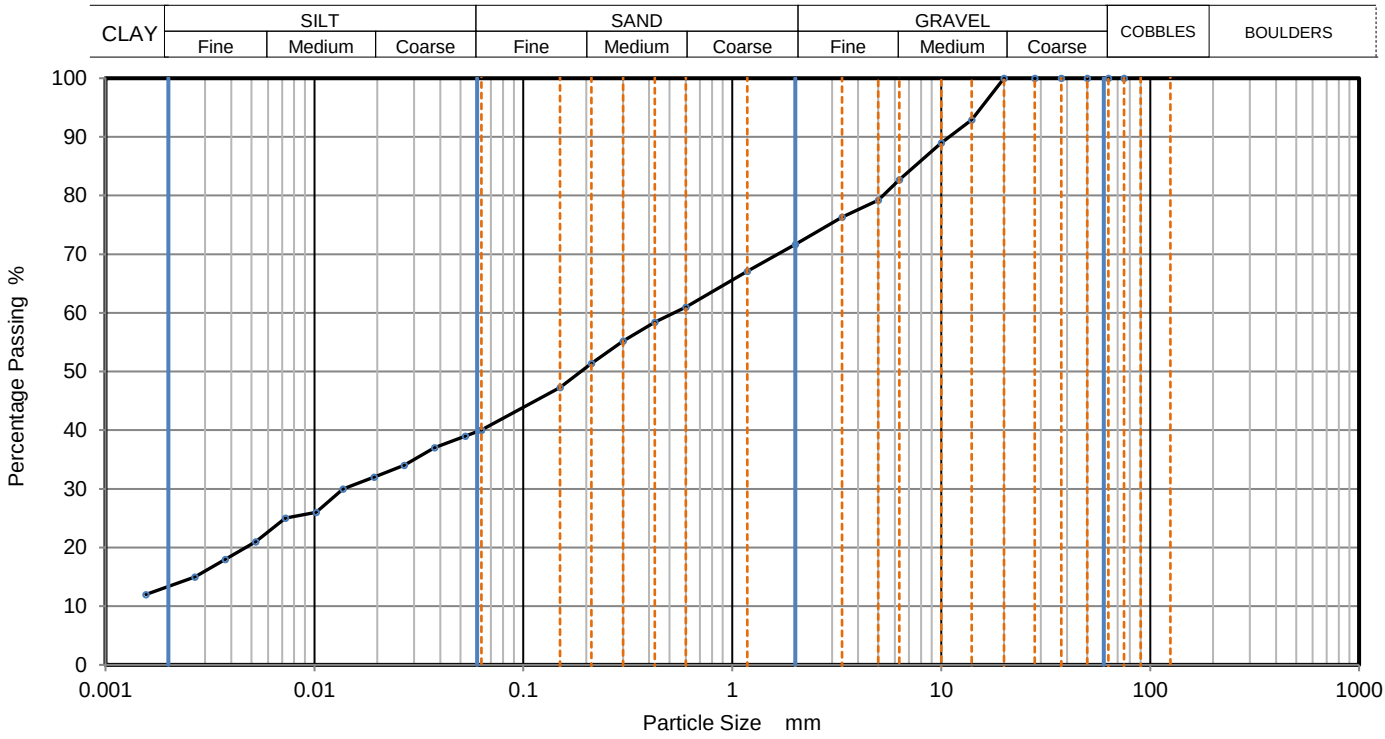
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40001
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101445



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0527	39
75	100	0.0375	37
63	100	0.0269	34
50	100	0.0193	32
37.5	100	0.0137	30
28	100	0.0102	26
20	100	0.0073	25
14	93	0.0052	21
10	89	0.0037	18
6.3	83	0.0027	15
5	79	0.0016	12
3.35	76		
2	72		
1.18	67		
0.6	61	Particle density (assumed)	
0.425	58	2.65	Mg/m3
0.3	55		
0.212	51		
0.15	47		
0.063	40		

Dry Mass of sample, g	229

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	32
Silt	26
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.526
D30	mm	0.0134
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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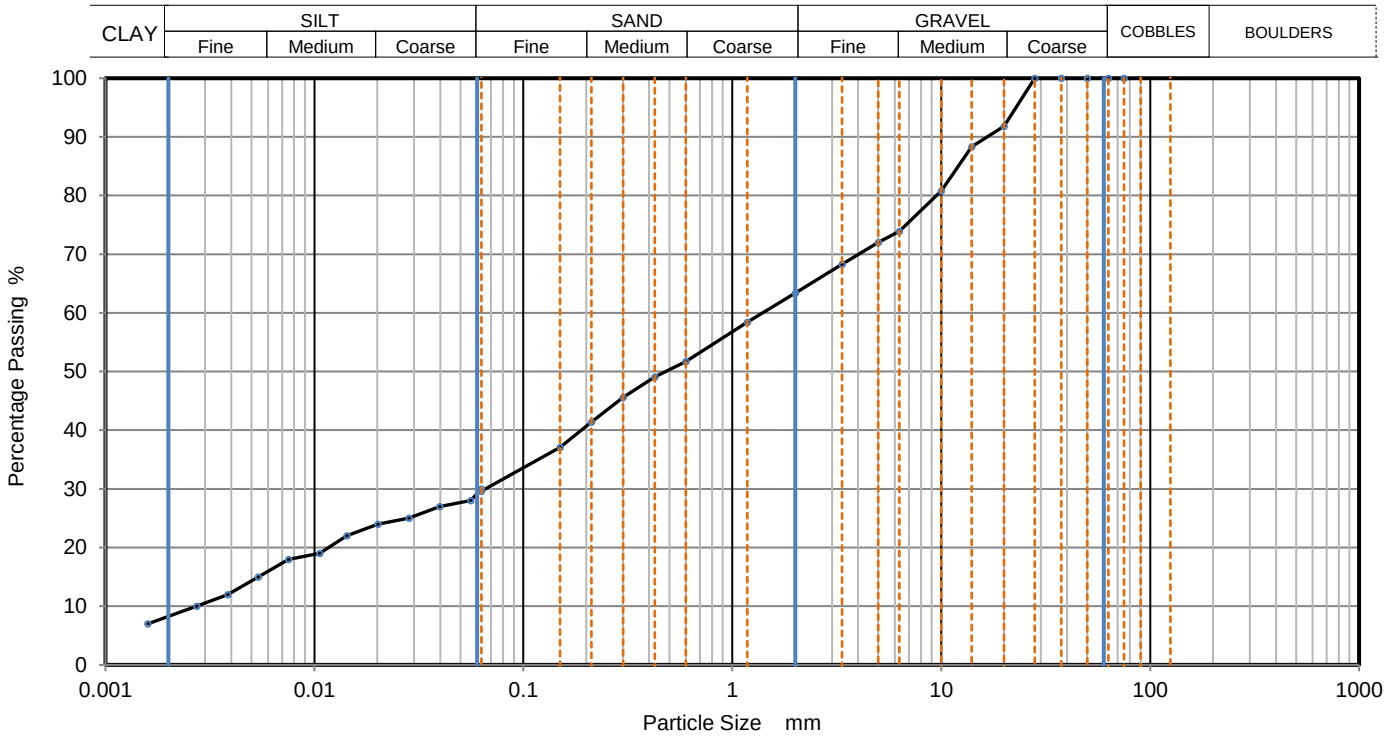
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40001
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey very silty SAND and GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101447



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0559	28
75	100	0.0398	27
63	100	0.0283	25
50	100	0.0201	24
37.5	100	0.0143	22
28	100	0.0106	19
20	92	0.0075	18
14	88	0.0054	15
10	81	0.0038	12
6.3	74	0.0027	10
5	72	0.0016	7
3.35	68		
2	63		
1.18	58		
0.6	52	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	46		
0.212	41		
0.15	37		
0.063	30		

Dry Mass of sample, g	389

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	34
Silt	21
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.4
D30	mm	0.0662
D10	mm	0.00256
Uniformity Coefficient		550
Curvature Coefficient		1.2

Remarks

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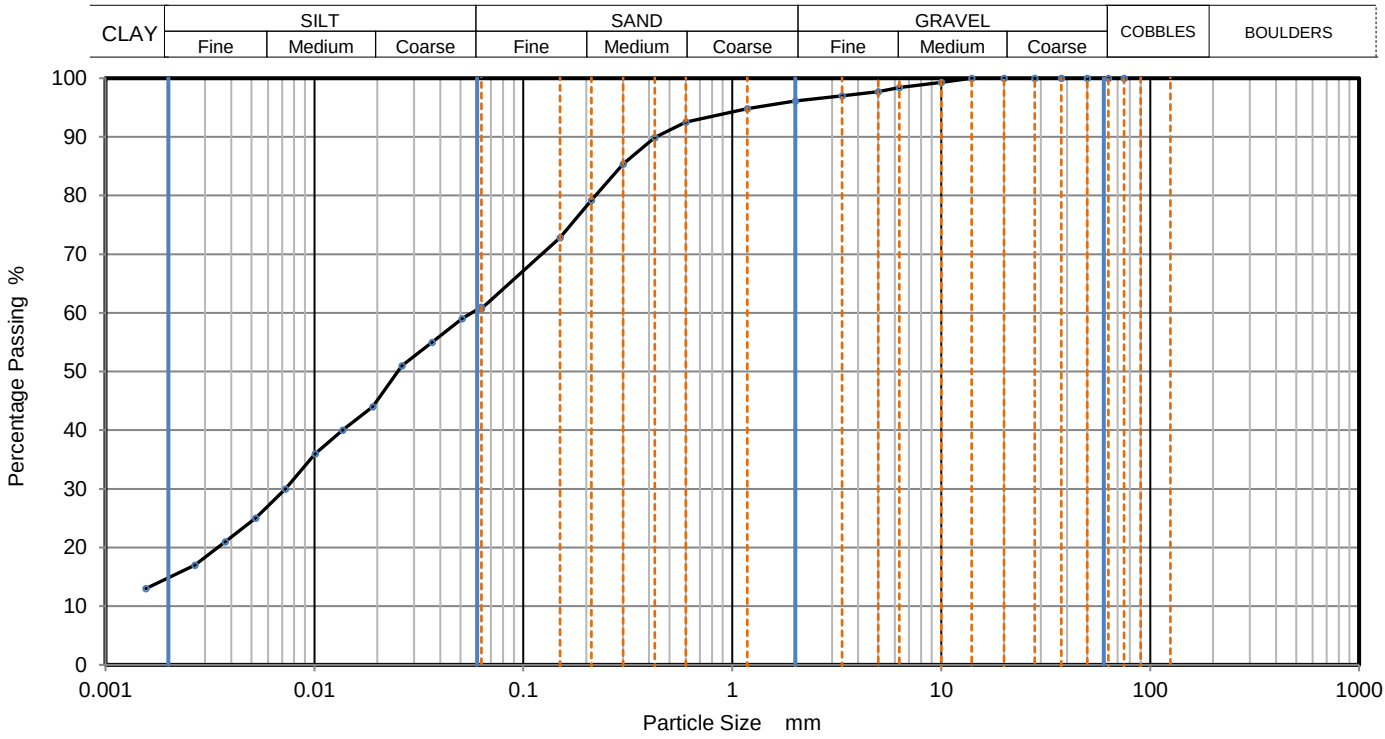
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-40205
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT. Sand is fine and medium.	Depth, m	0.20
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021101449



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	61
		0.0510	59
75	100	0.0366	55
63	100	0.0262	51
50	100	0.0190	44
37.5	100	0.0136	40
28	100	0.0101	36
20	100	0.0073	30
14	100	0.0052	25
10	99	0.0037	21
6.3	98	0.0027	17
5	98	0.0016	13
3.35	97		
2	96		
1.18	95		
0.6	93	Particle density (assumed)	
0.425	90	2.65 Mg/m3	
0.3	85		
0.212	79		
0.15	73		
0.063	61		

Dry Mass of sample, g	288

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	35
Silt	46
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.0581
D30	mm	0.00712
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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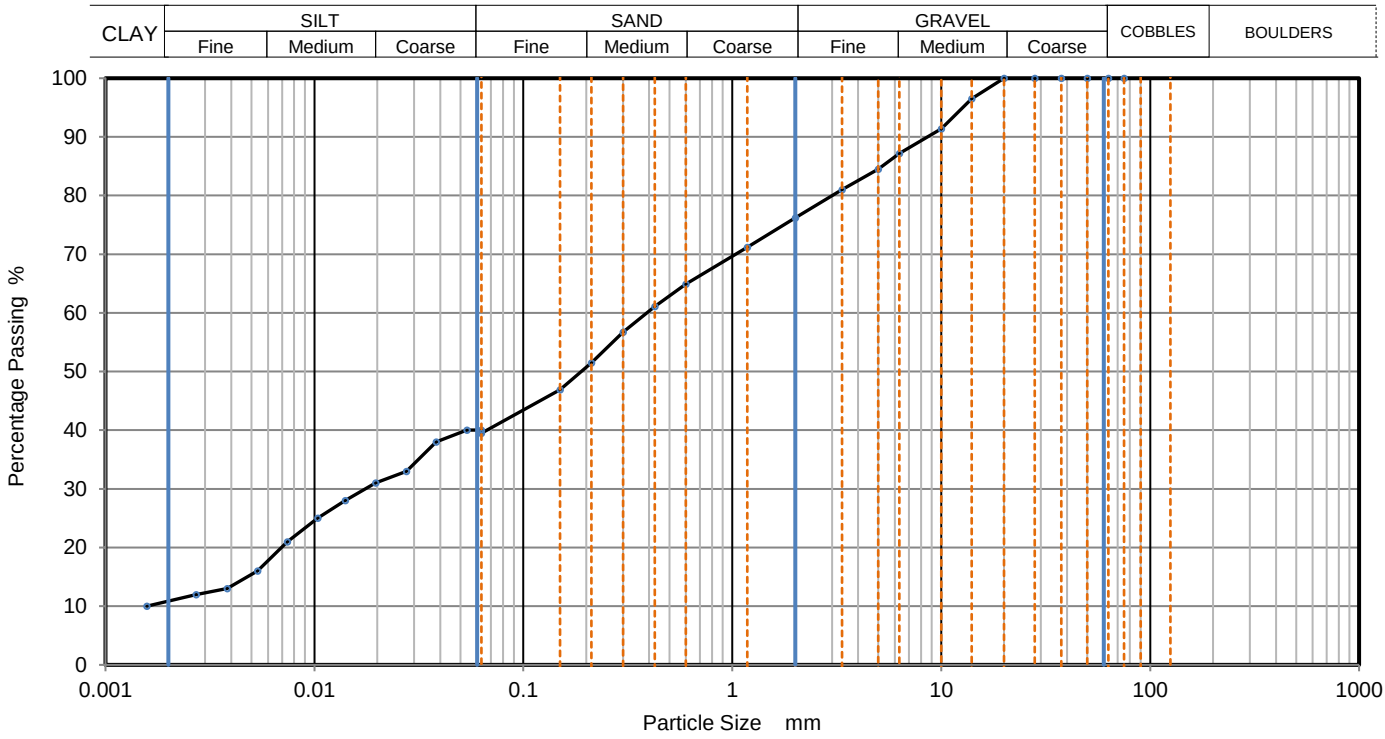
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40205
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101451



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0538	40
75	100	0.0383	38
63	100	0.0276	33
50	100	0.0196	31
37.5	100	0.0140	28
28	100	0.0104	25
20	100	0.0074	21
14	97	0.0053	16
10	91	0.0038	13
6.3	87	0.0027	12
5	85	0.0016	10
3.35	81		
2	76		
1.18	71		
0.6	65	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	57		
0.212	52		
0.15	47		
0.063	40		

Dry Mass of sample, g: 272

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	37
Silt	29
Clay	11

Grading Analysis		
D100	mm	
D60	mm	0.389
D30	mm	0.0172
D10	mm	0.00164
Uniformity Coefficient		240
Curvature Coefficient		0.47

Remarks

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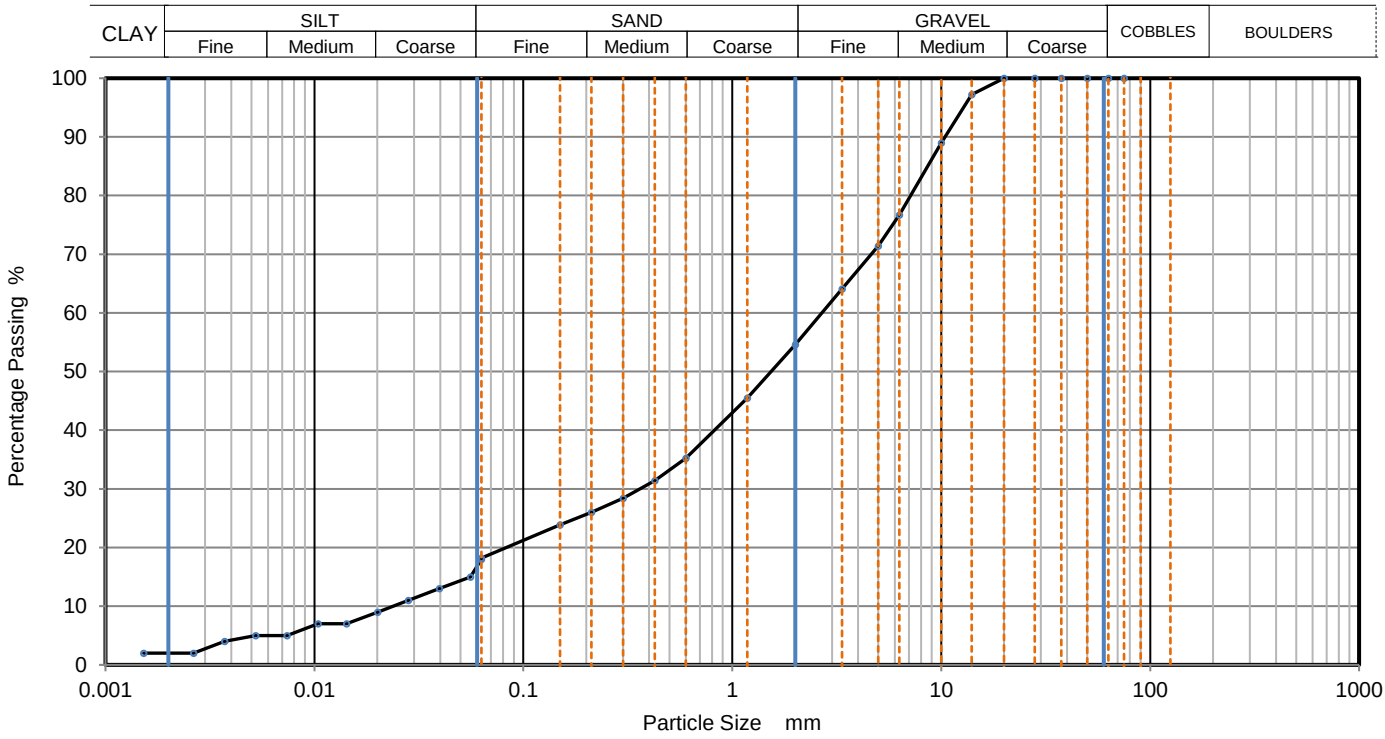
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40305
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Grey silty very sandy medium GRAVEL. Sand is coarse.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101454



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0557	15
75	100	0.0396	13
63	100	0.0282	11
50	100	0.0200	9
37.5	100	0.0142	7
28	100	0.0104	7
20	100	0.0074	5
14	97	0.0052	5
10	89	0.0037	4
6.3	77	0.0026	2
5	71	0.0015	2
3.35	64		
2	55		
1.18	46		
0.6	35	Particle density (assumed)	
0.425	31	2.65 Mg/m3	
0.3	28		
0.212	26		
0.15	24		
0.063	18		

Dry Mass of sample, g	425

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	36
Silt	16
Clay	2

Grading Analysis		
D100	mm	
D60	mm	2.68
D30	mm	0.361
D10	mm	0.0237
Uniformity Coefficient		110
Curvature Coefficient		2

Remarks

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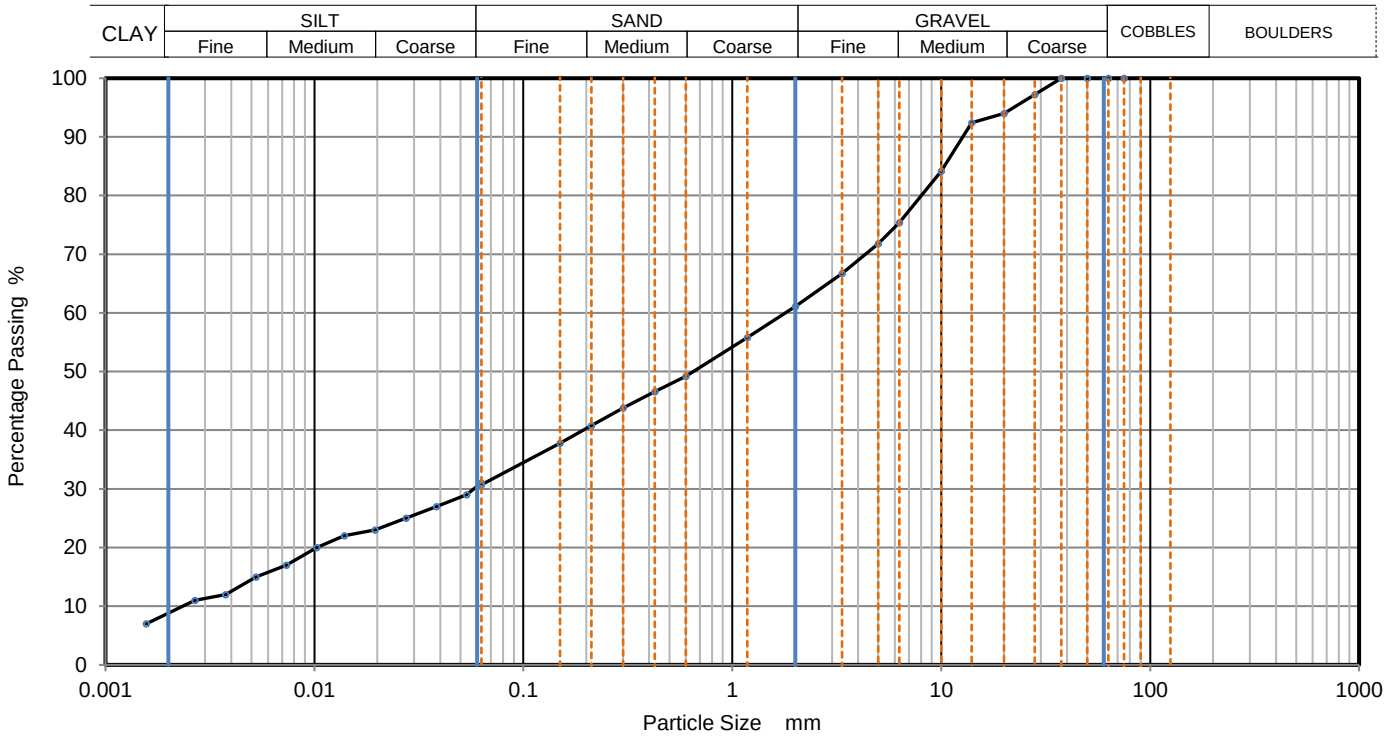
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40305
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Grey very silty very sandy GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101456



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0535	29
75	100	0.0383	27
63	100	0.0274	25
50	100	0.0195	23
37.5	100	0.0139	22
28	97	0.0103	20
20	94	0.0073	17
14	92	0.0053	15
10	84	0.0038	12
6.3	75	0.0027	11
5	72	0.0016	7
3.35	67		
2	61		
1.18	56		
0.6	49	Particle density (assumed)	
0.425	47	2.65	Mg/m3
0.3	44		
0.212	41		
0.15	38		
0.063	31		

Dry Mass of sample, g	1301

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	31
Silt	22
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.79
D30	mm	0.0575
D10	mm	0.00229
Uniformity Coefficient		780
Curvature Coefficient		0.81

Remarks

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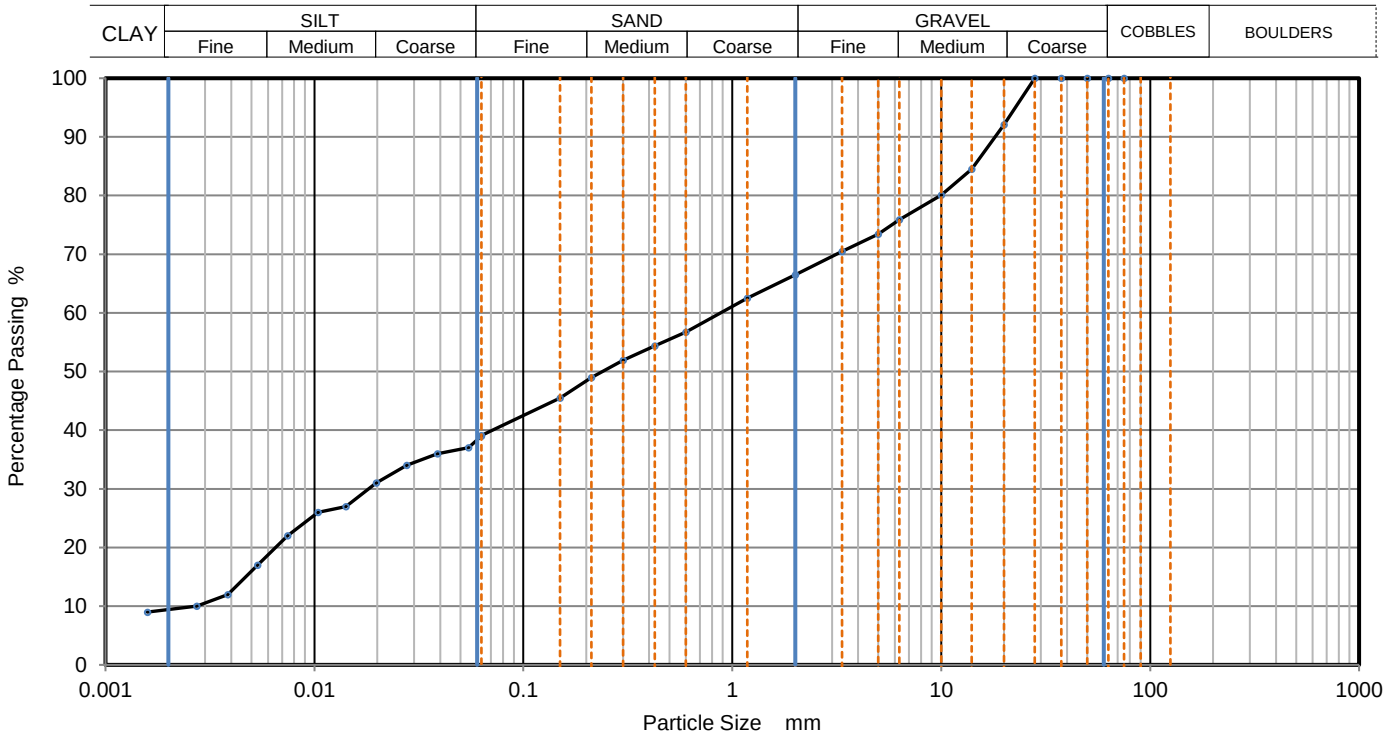
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40404
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey slightly sandy gravelly SILT. Gravel is medium.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101458



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0545	37
75	100	0.0388	36
63	100	0.0276	34
50	100	0.0198	31
37.5	100	0.0141	27
28	100	0.0104	26
20	92	0.0074	22
14	85	0.0053	17
10	80	0.0038	12
6.3	76	0.0027	10
5	73	0.0016	9
3.35	71		
2	67		
1.18	63		
0.6	57	Particle density (assumed)	
0.425	54	2.65 Mg/m3	
0.3	52		
0.212	49		
0.15	46		
0.063	39		

Dry Mass of sample, g	329

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	27
Silt	30
Clay	9

Grading Analysis		
D100	mm	
D60	mm	0.881
D30	mm	0.0186
D10	mm	0.00256
Uniformity Coefficient		340
Curvature Coefficient		0.15

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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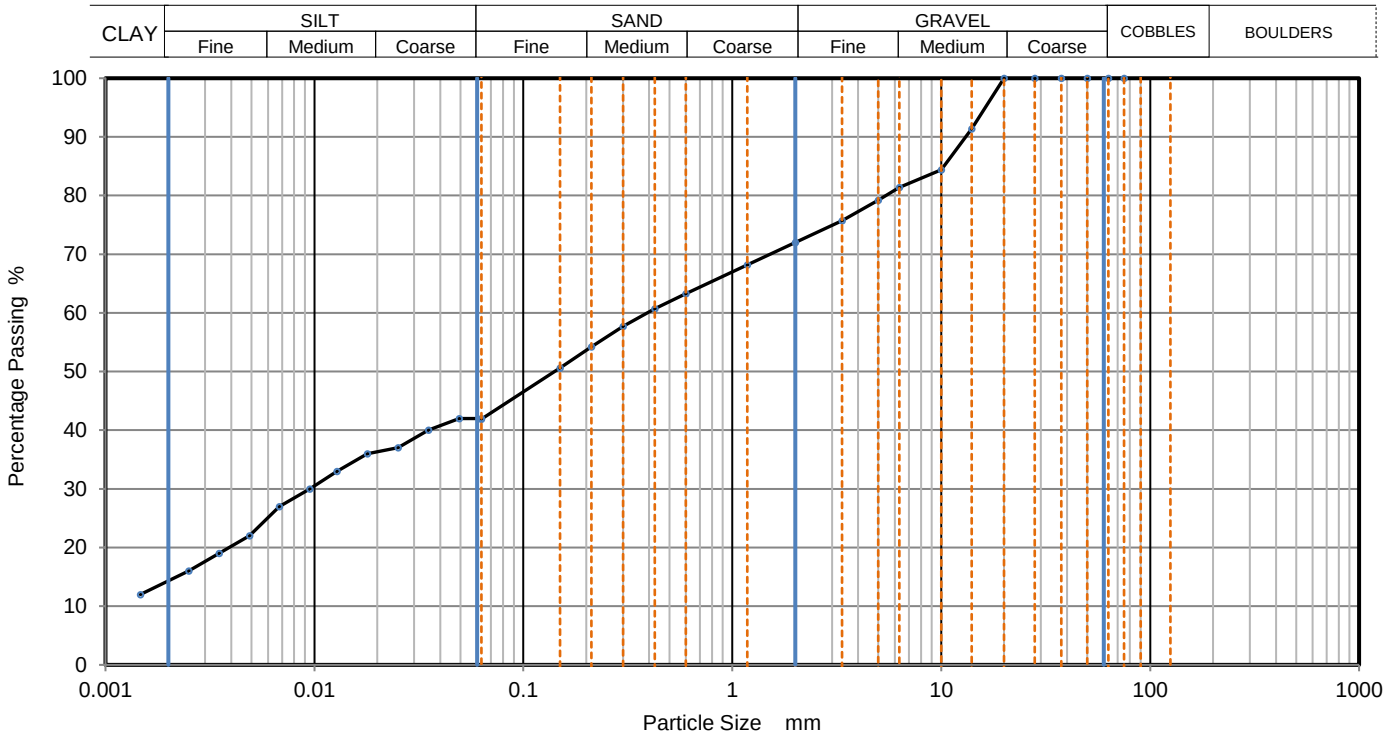
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40404
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey slightly gravelly slightly sandy SILT. Gravel is medium.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101460



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0493	42
75	100	0.0351	40
63	100	0.0252	37
50	100	0.0179	36
37.5	100	0.0128	33
28	100	0.0095	30
20	100	0.0068	27
14	91	0.0049	22
10	84	0.0035	19
6.3	81	0.0025	16
5	79	0.0015	12
3.35	76		
2	72		
1.18	68		
0.6	63	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	58		
0.212	54		
0.15	51		
0.063	42		

Dry Mass of sample, g	331

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	30
Silt	27
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.394
D30	mm	0.00956
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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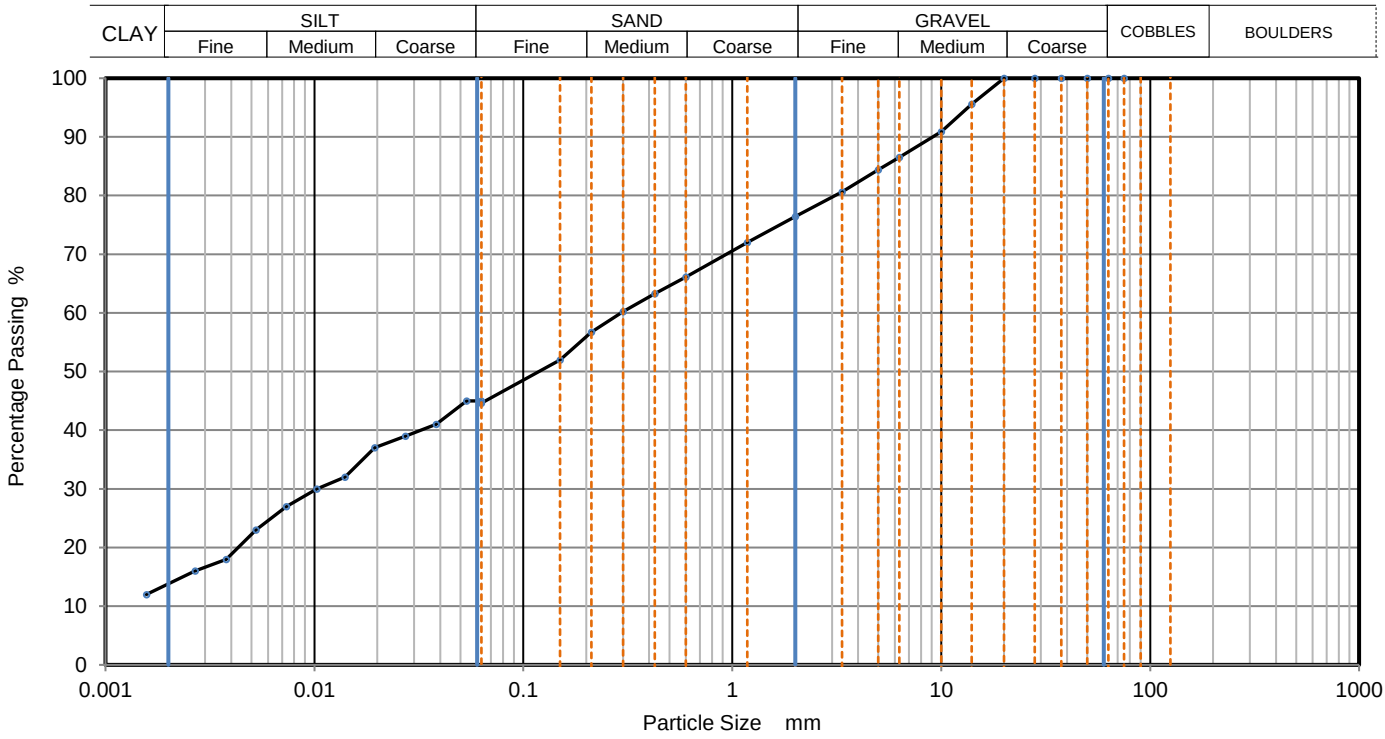
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40404
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101462



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0535	45
75	100	0.0383	41
63	100	0.0273	39
50	100	0.0194	37
37.5	100	0.0140	32
28	100	0.0103	30
20	100	0.0073	27
14	96	0.0053	23
10	91	0.0038	18
6.3	87	0.0027	16
5	84	0.0016	12
3.35	81		
2	76		
1.18	72		
0.6	66	Particle density (assumed)	
0.425	63	2.65	Mg/m3
0.3	60		
0.212	57		
0.15	52		
0.063	45		

Dry Mass of sample, g	470

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	32
Silt	31
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.295
D30	mm	0.00996
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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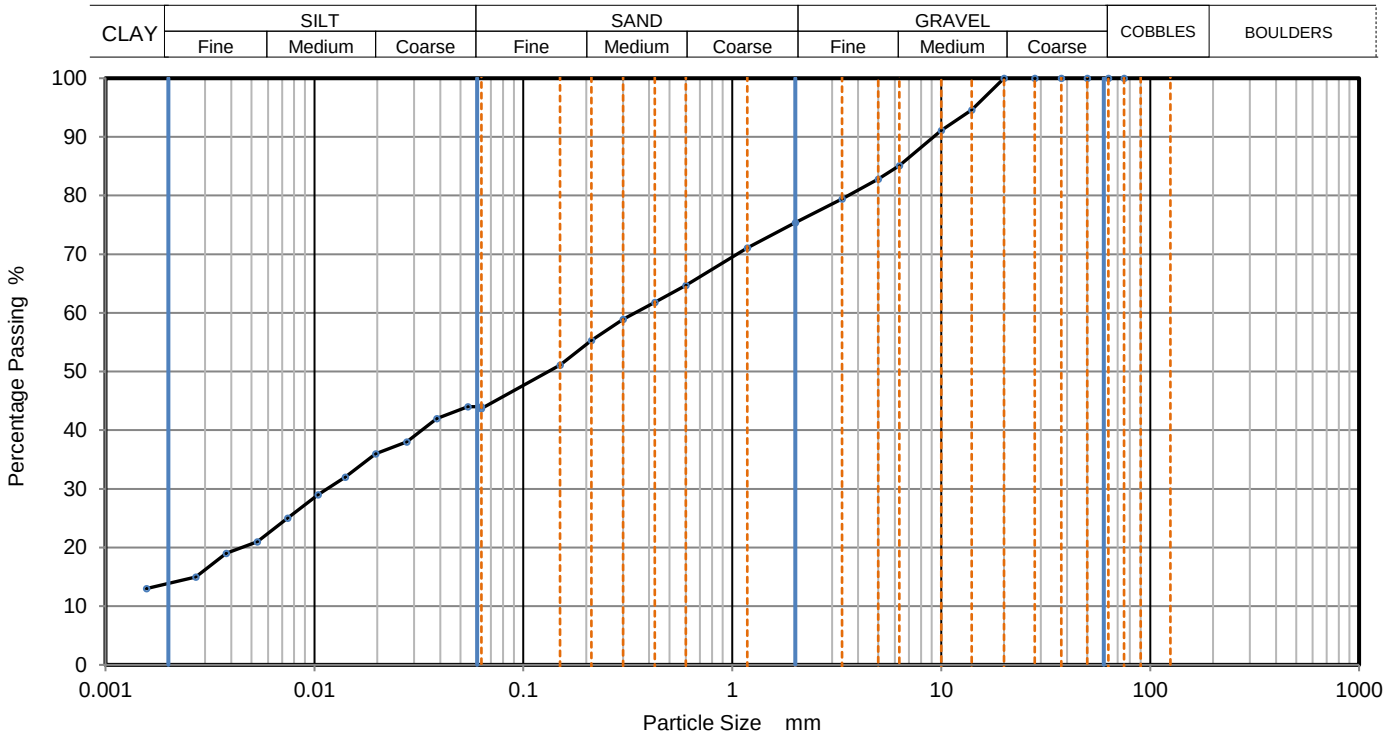
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40505
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101466



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0542	44
75	100	0.0386	42
63	100	0.0276	38
50	100	0.0196	36
37.5	100	0.0141	32
28	100	0.0104	29
20	100	0.0074	25
14	95	0.0053	21
10	91	0.0038	19
6.3	85	0.0027	15
5	83	0.0016	13
3.35	79		
2	75		
1.18	71		
0.6	65	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	59		
0.212	55		
0.15	51		
0.063	44		

Dry Mass of sample, g: 341

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	32
Silt	30
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.343
D30	mm	0.0117
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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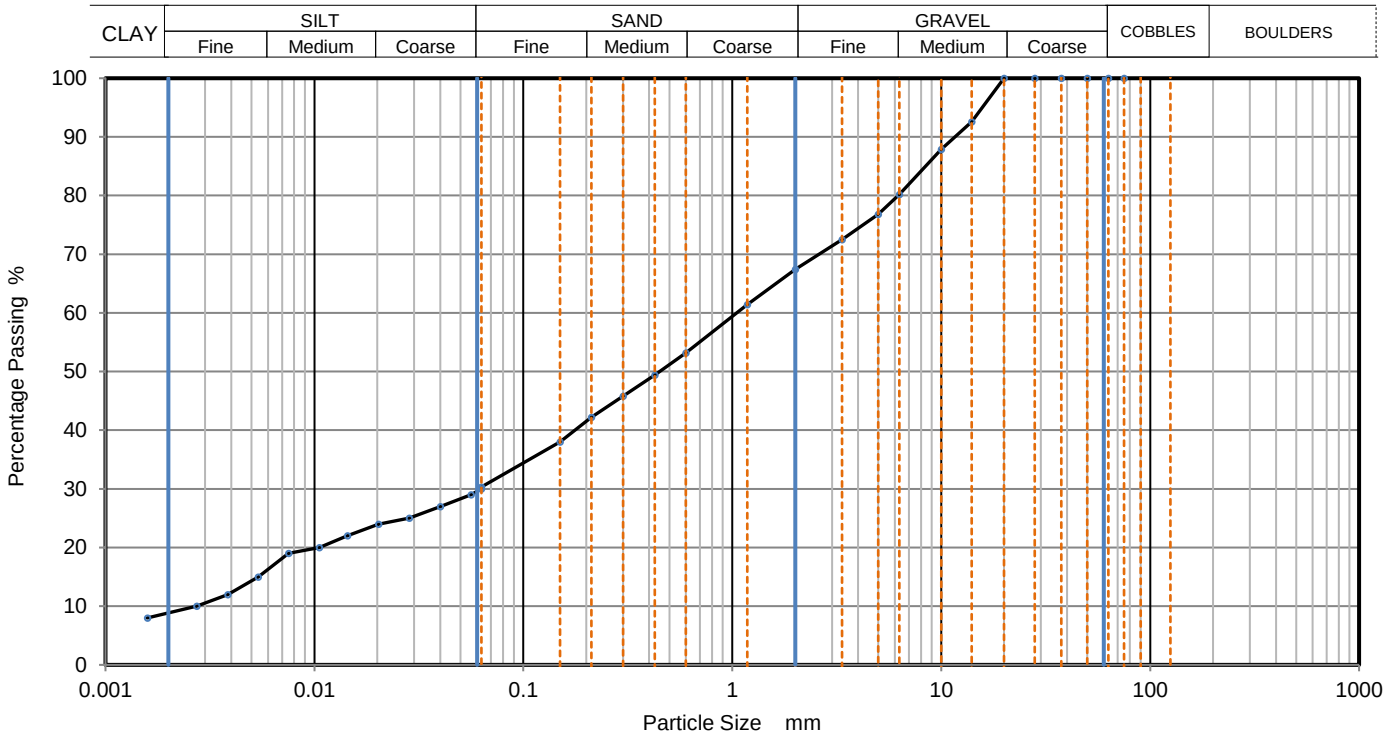
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40505
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly gravelly sandy SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101468



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0562	29
75	100	0.0400	27
63	100	0.0285	25
50	100	0.0202	24
37.5	100	0.0144	22
28	100	0.0106	20
20	100	0.0075	19
14	93	0.0054	15
10	88	0.0038	12
6.3	80	0.0027	10
5	77	0.0016	8
3.35	73		
2	67		
1.18	61		
0.6	53	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	46		
0.212	42		
0.15	38		
0.063	30		

Dry Mass of sample, g	300

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	37
Silt	21
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.05
D30	mm	0.0619
D10	mm	0.00264
Uniformity Coefficient		400
Curvature Coefficient		1.4

Remarks

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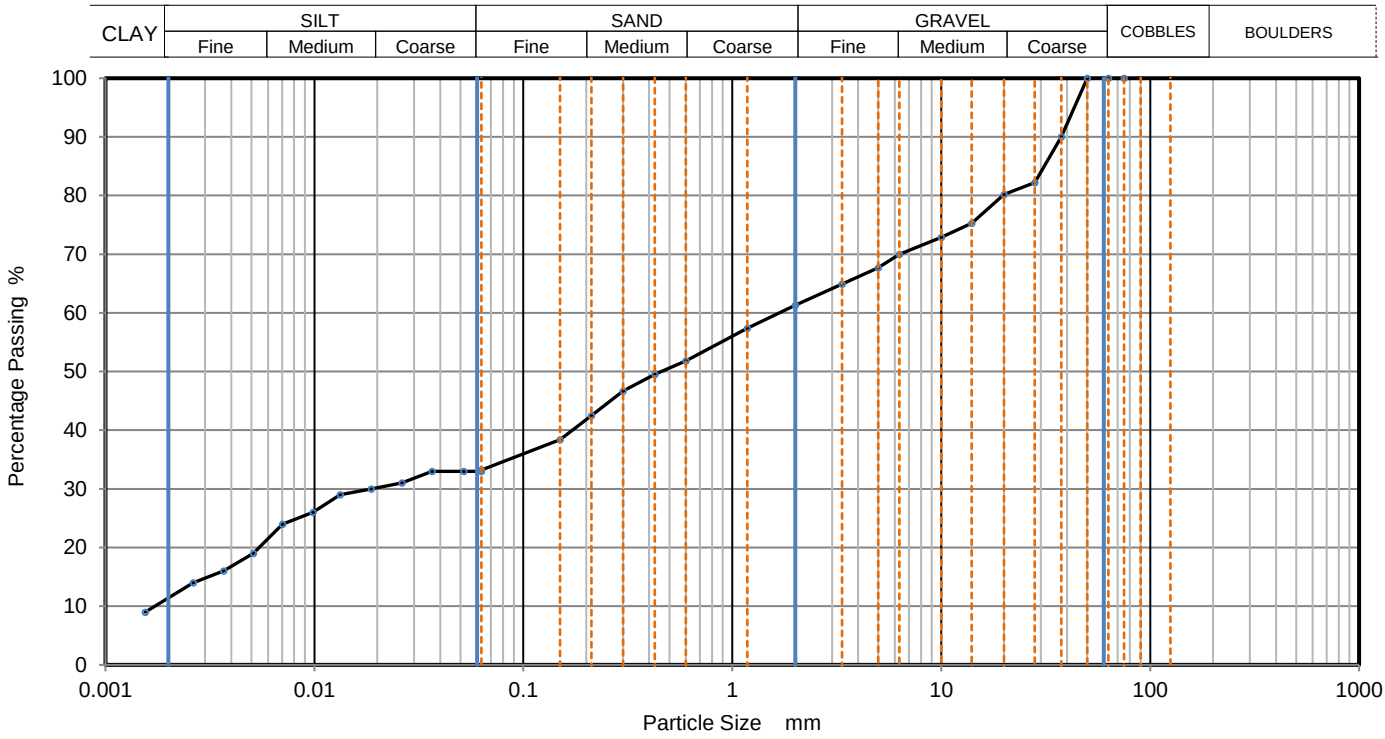
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40605
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey very sandy very silty coarse GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101472



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0517	33
75	100	0.0366	33
63	100	0.0262	31
50	100	0.0187	30
37.5	90	0.0133	29
28	82	0.0098	26
20	80	0.0070	24
14	75	0.0051	19
10	73	0.0037	16
6.3	70	0.0026	14
5	68	0.0016	9
3.35	65		
2	61		
1.18	57		
0.6	52	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	47		
0.212	43		
0.15	38		
0.063	33		

Dry Mass of sample, g	1046

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	28
Silt	22
Clay	11

Grading Analysis		
D100	mm	
D60	mm	1.67
D30	mm	0.02
D10	mm	0.00171
Uniformity Coefficient		980
Curvature Coefficient		0.14

Remarks

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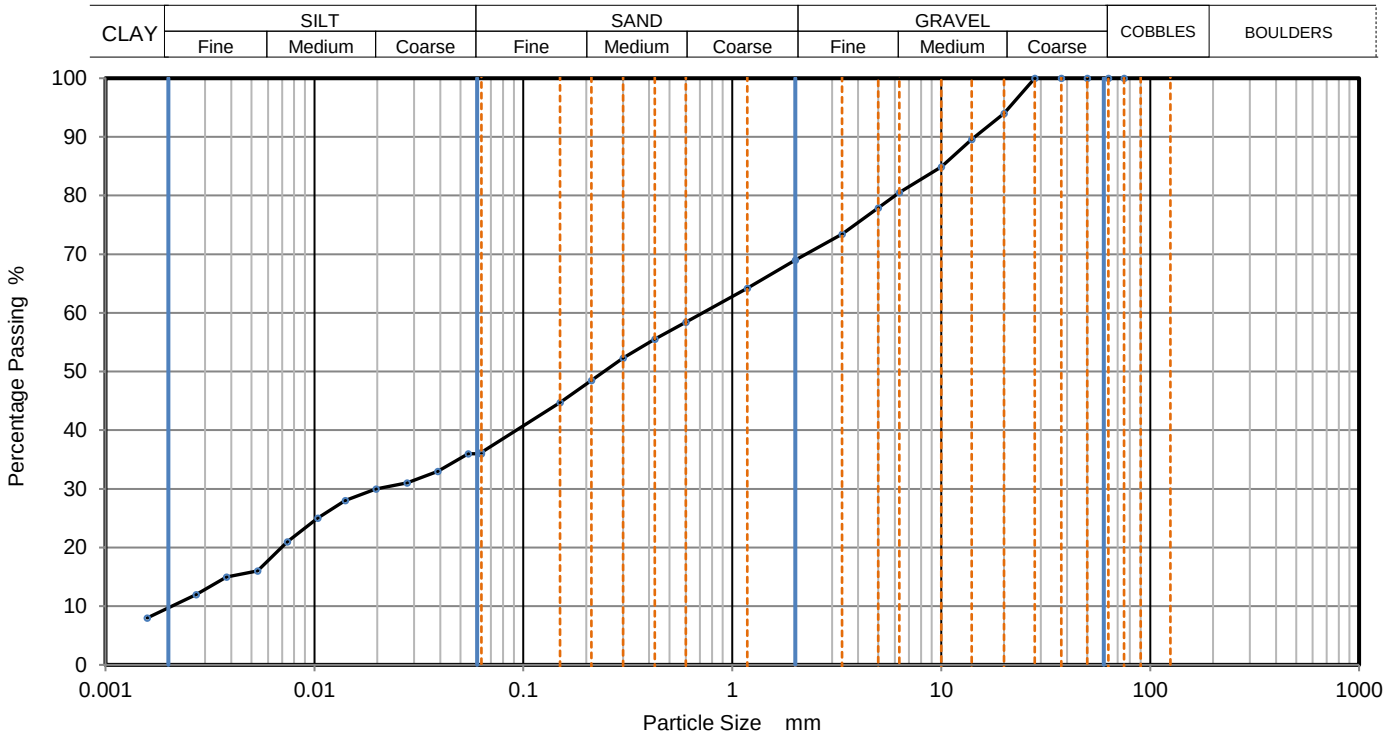
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-40605
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101474



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0545	36
75	100	0.0390	33
63	100	0.0278	31
50	100	0.0197	30
37.5	100	0.0140	28
28	100	0.0104	25
20	94	0.0074	21
14	90	0.0053	16
10	85	0.0038	15
6.3	81	0.0027	12
5	78	0.0016	8
3.35	73		
2	69		
1.18	64		
0.6	58	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	52		
0.212	49		
0.15	45		
0.063	36		

Dry Mass of sample, g	398

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	33
Silt	27
Clay	10

Grading Analysis		
D100	mm	
D60	mm	0.722
D30	mm	0.0214
D10	mm	0.00212
Uniformity Coefficient		340
Curvature Coefficient		0.3

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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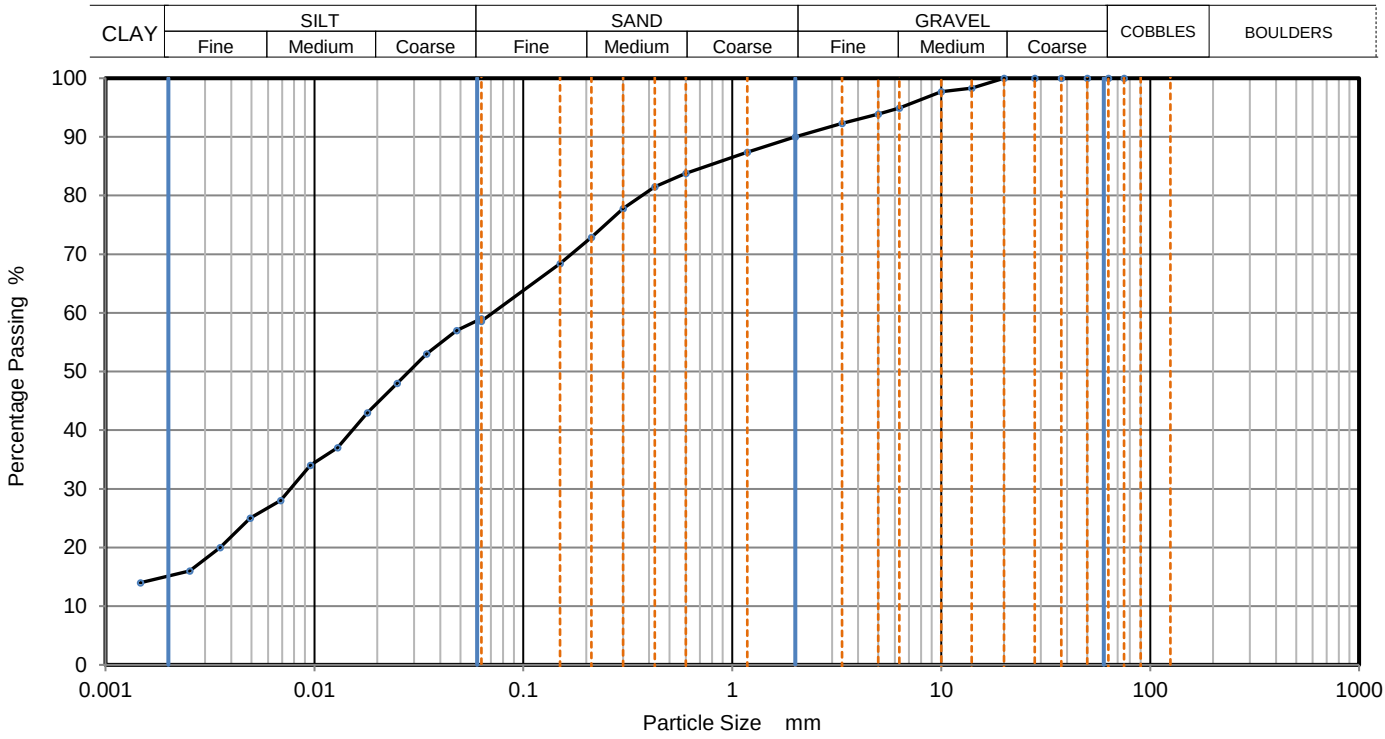
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43108
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101476



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	59
		0.0480	57
75	100	0.0344	53
63	100	0.0248	48
50	100	0.0179	43
37.5	100	0.0129	37
28	100	0.0096	34
20	100	0.0069	28
14	98	0.0049	25
10	98	0.0035	20
6.3	95	0.0025	16
5	94	0.0015	14
3.35	92		
2	90		
1.18	87		
0.6	84	Particle density (assumed)	
0.425	82	2.65 Mg/m3	
0.3	78		
0.212	73		
0.15	68		
0.063	59		

Dry Mass of sample, g	283

Sample Proportions	% dry mass
Very coarse	0
Gravel	10
Sand	31
Silt	43
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.0714
D30	mm	0.00759
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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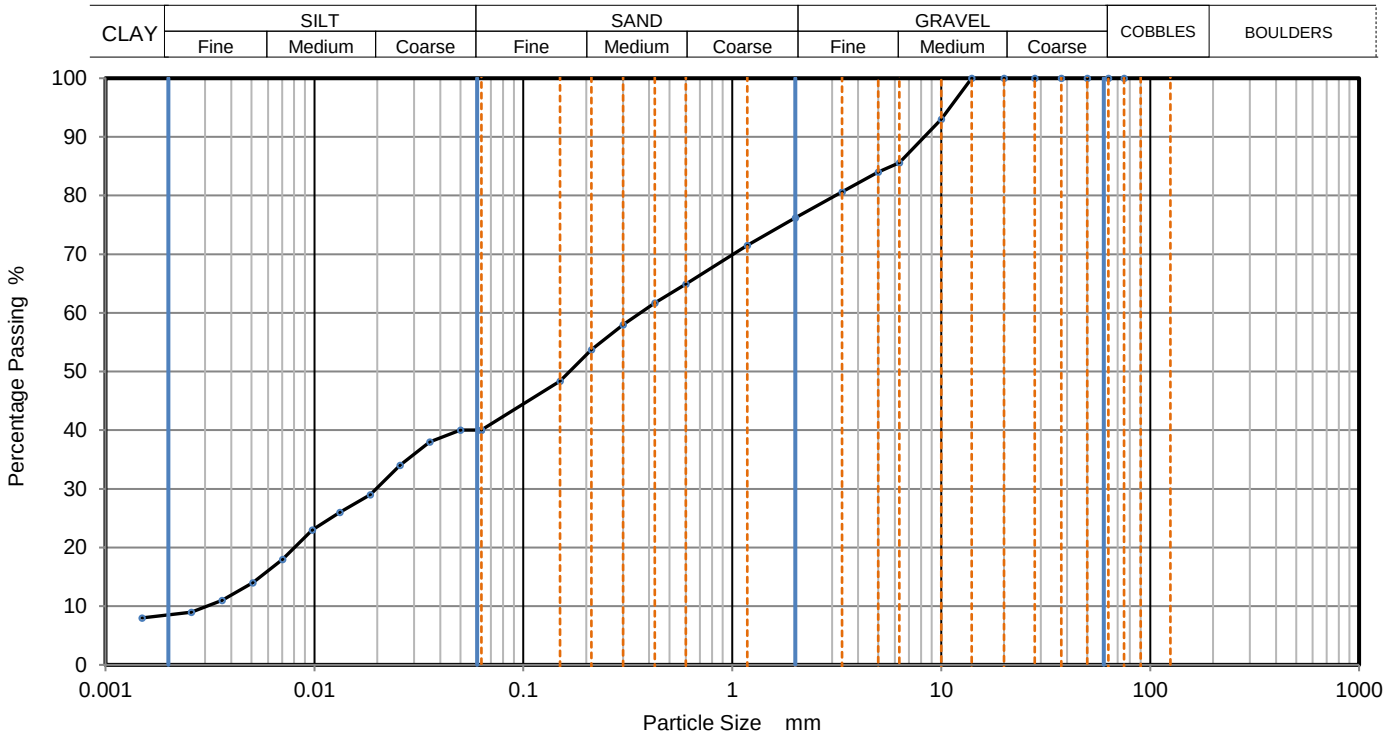
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43108
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey slightly gravelly sandy SILT.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101478



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0500	40
75	100	0.0356	38
63	100	0.0257	34
50	100	0.0185	29
37.5	100	0.0132	26
28	100	0.0098	23
20	100	0.0070	18
14	100	0.0051	14
10	93	0.0036	11
6.3	86	0.0026	9
5	84	0.0015	8
3.35	81		
2	76		
1.18	72		
0.6	65	Particle density (assumed)	
0.425	62	2.65 Mg/m3	
0.3	58		
0.212	54		
0.15	48		
0.063	40		

Dry Mass of sample, g	350

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	36
Silt	31
Clay	9

Grading Analysis		
D100	mm	
D60	mm	0.363
D30	mm	0.0195
D10	mm	0.00305
Uniformity Coefficient		120
Curvature Coefficient		0.34

Remarks

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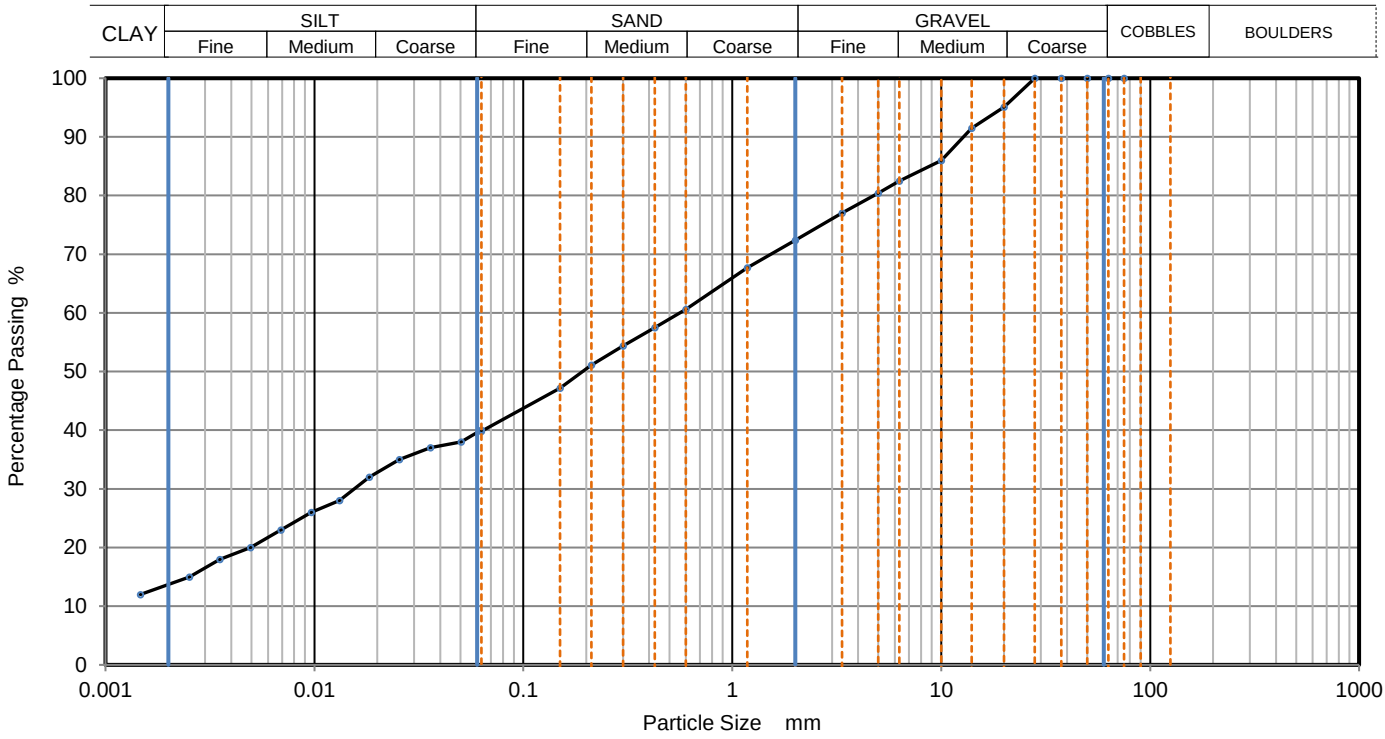
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-43108
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Grey slightly gravelly slightly sandy SILT.	Depth, m	1.80
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021101480



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0504	38
75	100	0.0358	37
63	100	0.0255	35
50	100	0.0183	32
37.5	100	0.0132	28
28	100	0.0097	26
20	95	0.0069	23
14	92	0.0049	20
10	86	0.0035	18
6.3	83	0.0025	15
5	80	0.0015	12
3.35	77		
2	72		
1.18	68		
0.6	61	Particle density (assumed)	
0.425	58	2.65 Mg/m3	
0.3	54		
0.212	51		
0.15	47		
0.063	40		

Dry Mass of sample, g	257

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	33
Silt	26
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.56
D30	mm	0.0157
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:03	**1** QC From No:R2

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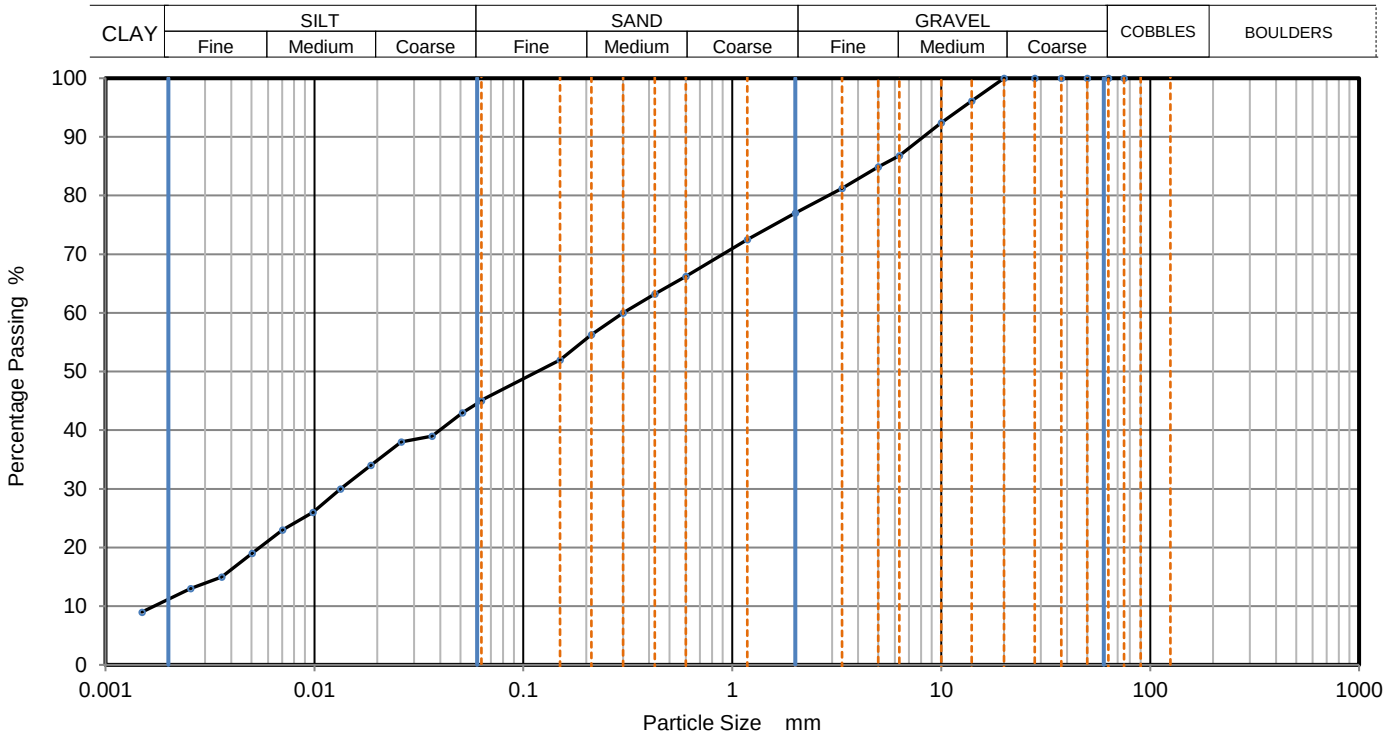
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43207
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slighlty gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101482



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0510	43
75	100	0.0365	39
63	100	0.0260	38
50	100	0.0186	34
37.5	100	0.0133	30
28	100	0.0098	26
20	100	0.0070	23
14	96	0.0050	19
10	92	0.0036	15
6.3	87	0.0026	13
5	85	0.0015	9
3.35	81		
2	77		
1.18	73		
0.6	66	Particle density (assumed)	
0.425	63	2.65	Mg/m3
0.3	60		
0.212	56		
0.15	52		
0.063	45		

Dry Mass of sample, g	381

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	32
Silt	34
Clay	11

Grading Analysis		
D100	mm	
D60	mm	0.3
D30	mm	0.0132
D10	mm	0.00163
Uniformity Coefficient		180
Curvature Coefficient		0.36

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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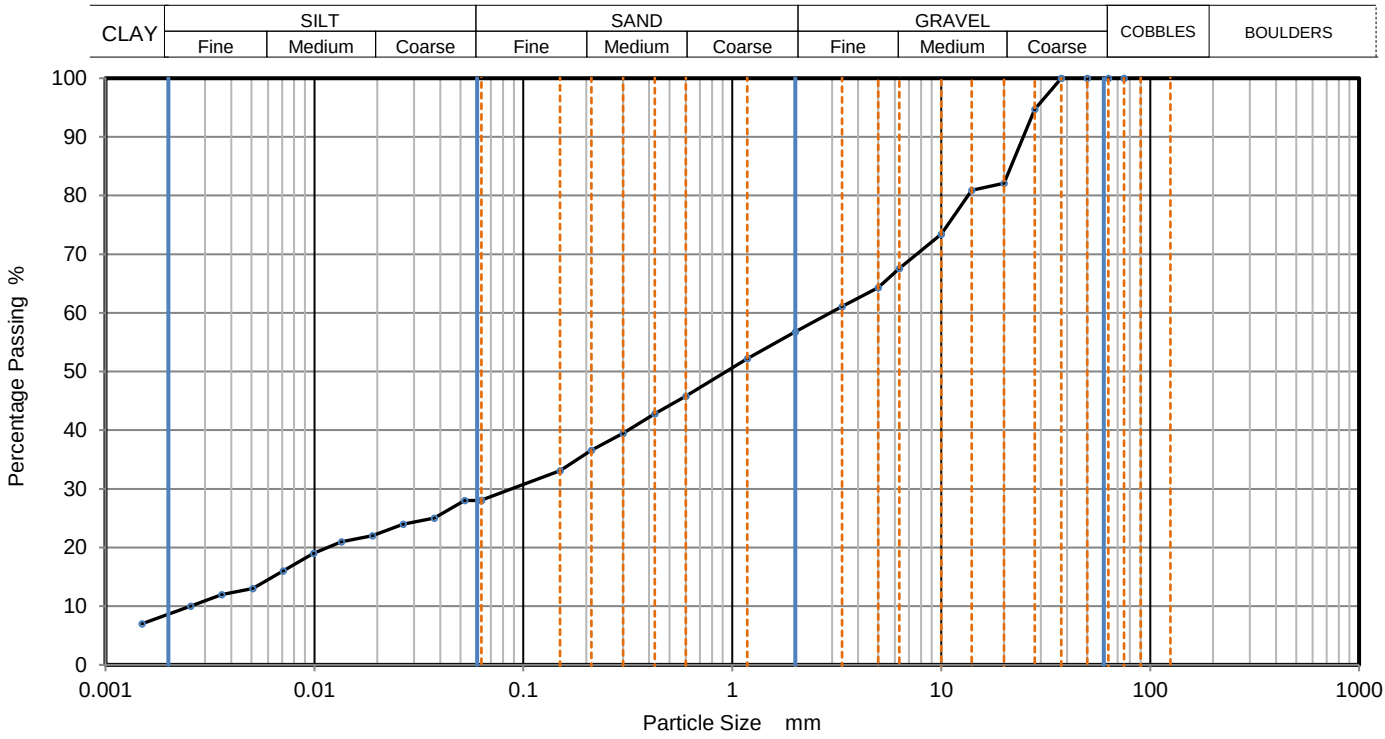
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43207
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey very silty very sandy GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101484



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0523	28
75	100	0.0374	25
63	100	0.0266	24
50	100	0.0189	22
37.5	100	0.0135	21
28	95	0.0099	19
20	82	0.0071	16
14	81	0.0051	13
10	73	0.0036	12
6.3	68	0.0026	10
5	64	0.0015	7
3.35	61		
2	57		
1.18	52		
0.6	46	Particle density (assumed)	
0.425	43	2.65	Mg/m3
0.3	40		
0.212	37		
0.15	33		
0.063	28		

Dry Mass of sample, g	402

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	29
Silt	19
Clay	9

Grading Analysis		
D100	mm	
D60	mm	2.93
D30	mm	0.0874
D10	mm	0.0024
Uniformity Coefficient		1200
Curvature Coefficient		1.1

Remarks

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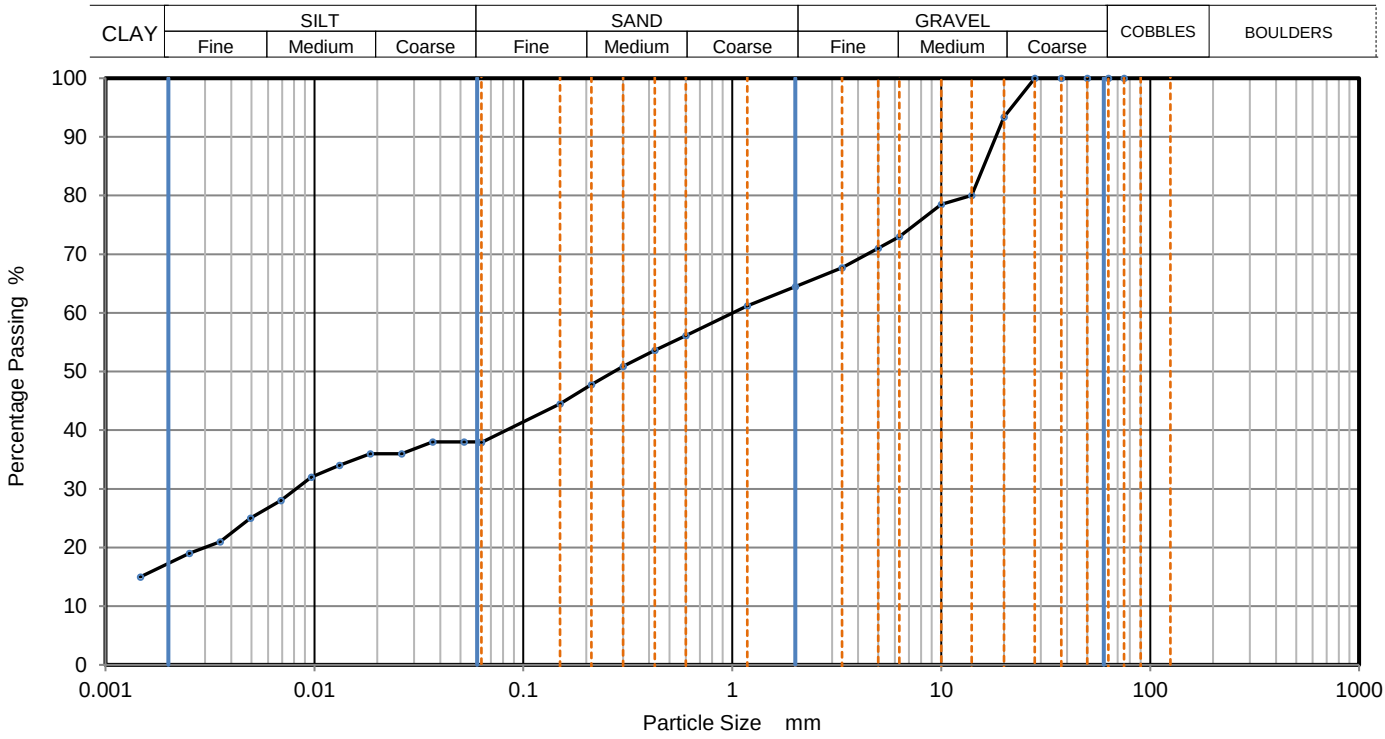
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43308
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly sandy gravelly SILT. Gravel is medium.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101488



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0520	38
75	100	0.0368	38
63	100	0.0262	36
50	100	0.0185	36
37.5	100	0.0132	34
28	100	0.0097	32
20	93	0.0069	28
14	80	0.0049	25
10	79	0.0035	21
6.3	73	0.0025	19
5	71	0.0015	15
3.35	68		
2	65		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	54	2.65 Mg/m3	
0.3	51		
0.212	48		
0.15	45		
0.063	38		

Dry Mass of sample, g	234

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	27
Silt	21
Clay	17

Grading Analysis		
D100	mm	
D60	mm	1.01
D30	mm	0.00795
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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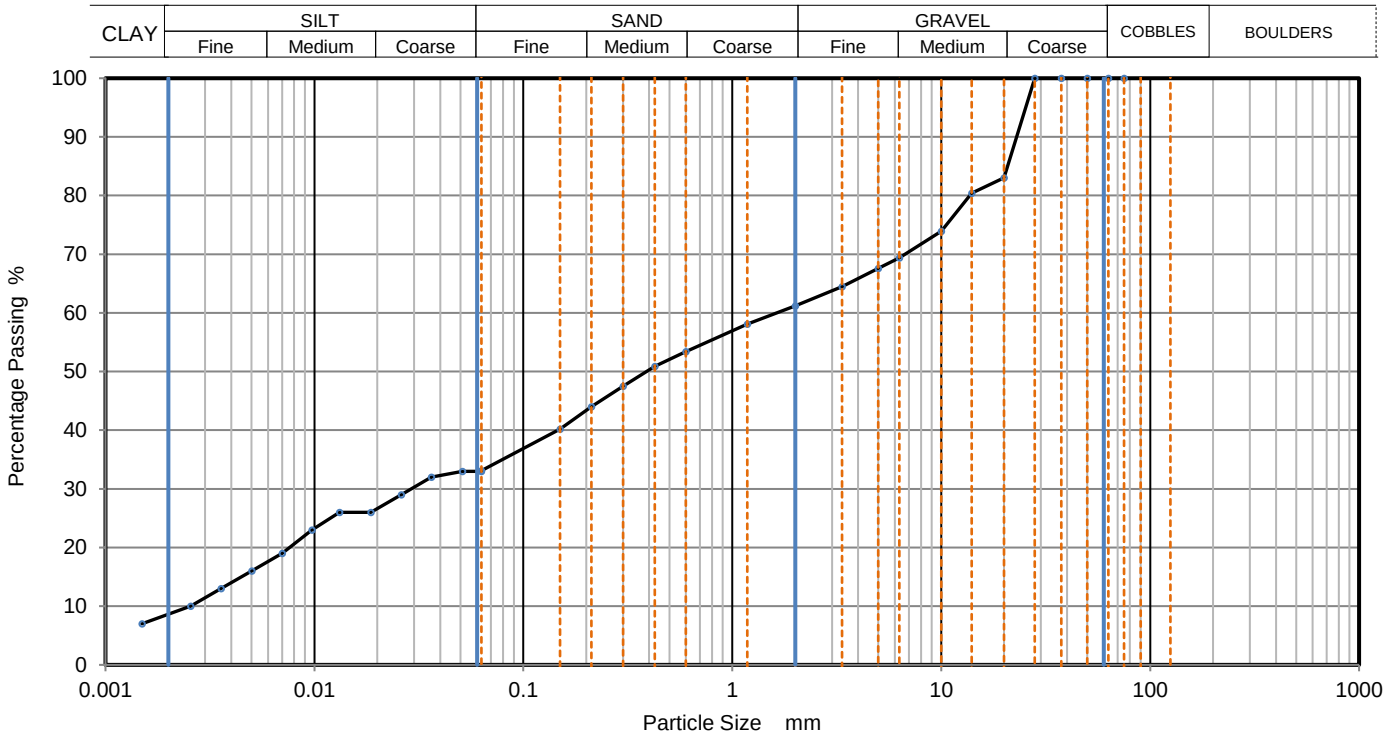
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43308
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very sandy very silty medium and coarse GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101490



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0510	33
75	100	0.0363	32
63	100	0.0260	29
50	100	0.0186	26
37.5	100	0.0132	26
28	100	0.0097	23
20	83	0.0070	19
14	80	0.0050	16
10	74	0.0036	13
6.3	69	0.0026	10
5	68	0.0015	7
3.35	65		
2	61		
1.18	58		
0.6	53	Particle density (assumed)	
0.425	51	2.65 Mg/m3	
0.3	48		
0.212	44		
0.15	40		
0.063	33		

Dry Mass of sample, g	253

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	28
Silt	24
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.63
D30	mm	0.0299
D10	mm	0.00252
Uniformity Coefficient		640
Curvature Coefficient		0.22

Remarks

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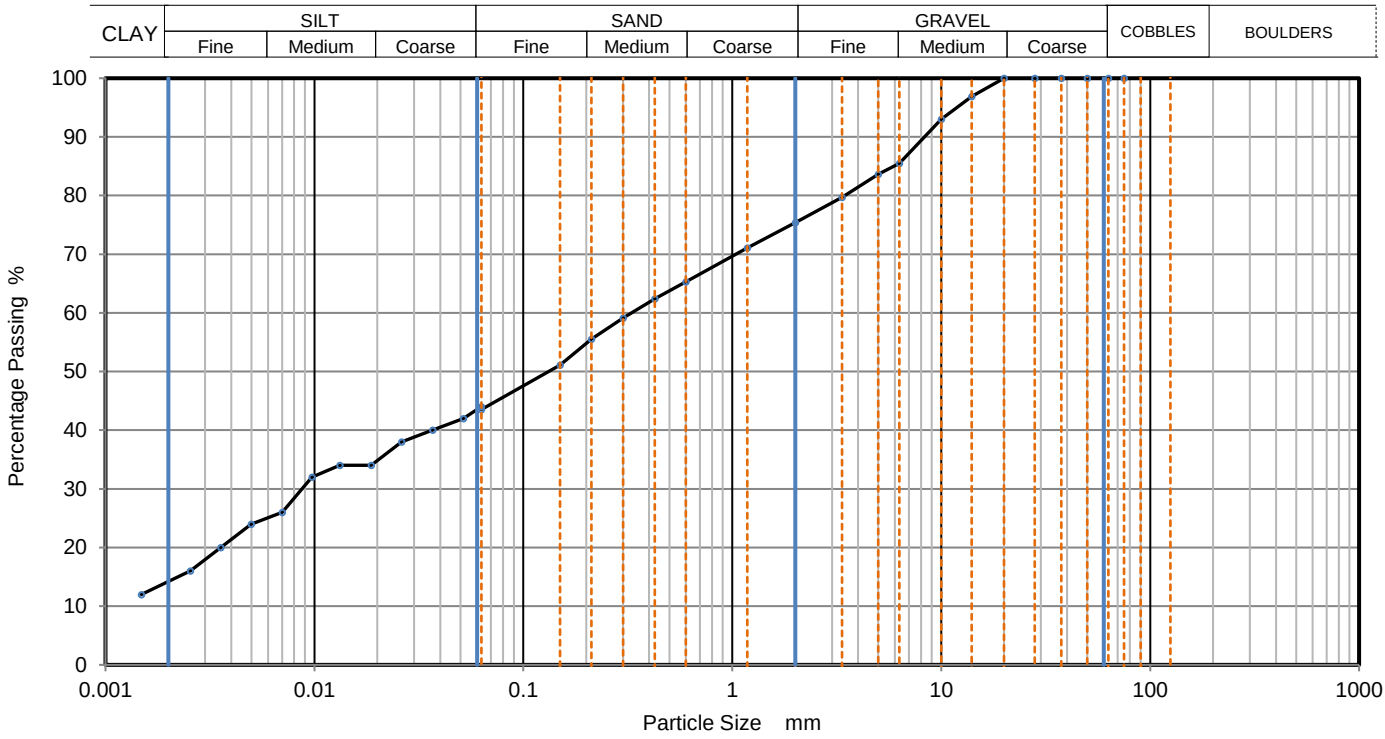
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43406
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101495



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0517	42
75	100	0.0368	40
63	100	0.0262	38
50	100	0.0187	34
37.5	100	0.0132	34
28	100	0.0097	32
20	100	0.0070	26
14	97	0.0050	24
10	93	0.0036	20
6.3	86	0.0025	16
5	84	0.0015	12
3.35	80		
2	75		
1.18	71		
0.6	65	Particle density (assumed)	
0.425	62	2.65 Mg/m3	
0.3	59		
0.212	56		
0.15	51		
0.063	44		

Dry Mass of sample, g	427

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	32
Silt	29
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.331
D30	mm	0.00888
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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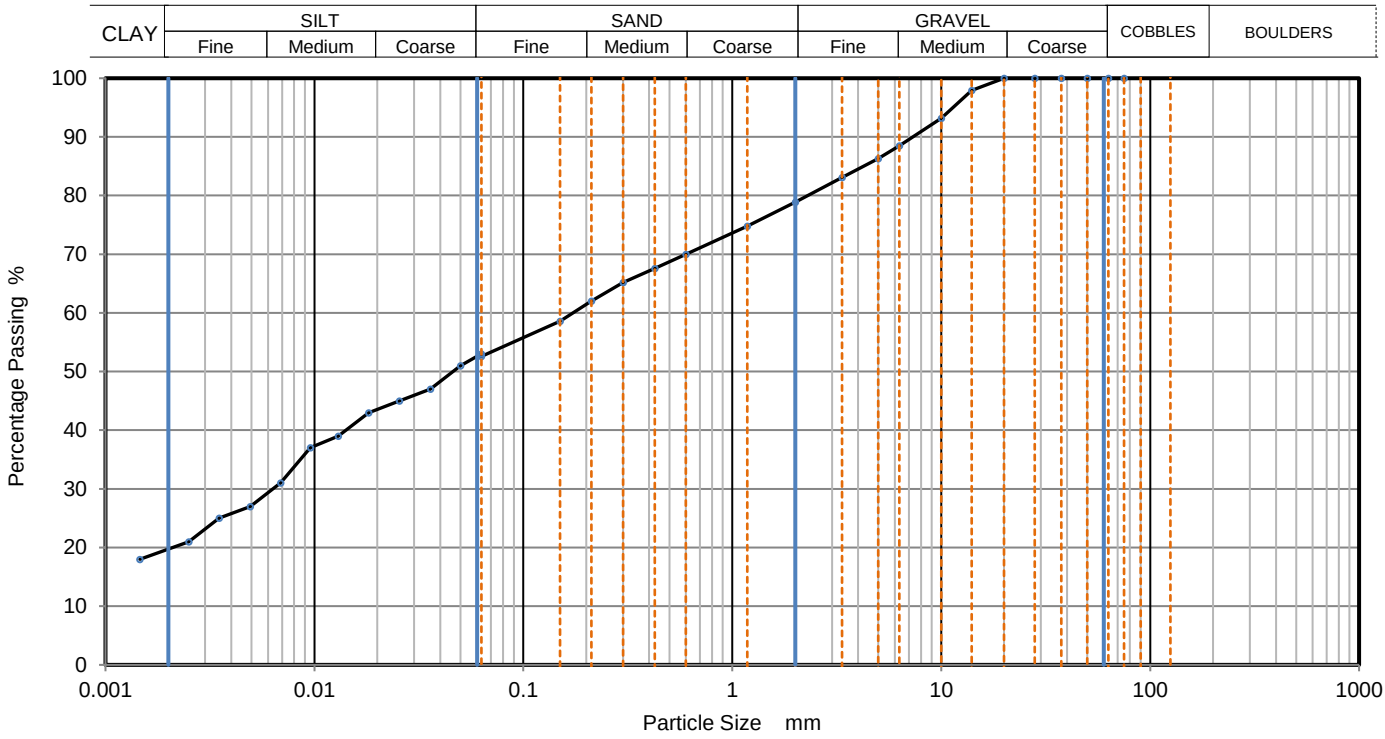
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43406
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101497



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	53
		0.0500	51
75	100	0.0358	47
63	100	0.0255	45
50	100	0.0182	43
37.5	100	0.0130	39
28	100	0.0096	37
20	100	0.0069	31
14	98	0.0049	27
10	93	0.0035	25
6.3	89	0.0025	21
5	86	0.0015	18
3.35	83		
2	79		
1.18	75		
0.6	70	Particle density (assumed)	
0.425	68	2.65 Mg/m3	
0.3	65		
0.212	62		
0.15	59		
0.063	53		

Dry Mass of sample, g: 460

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	26
Silt	33
Clay	20

Grading Analysis		
D100	mm	
D60	mm	0.172
D30	mm	0.00622
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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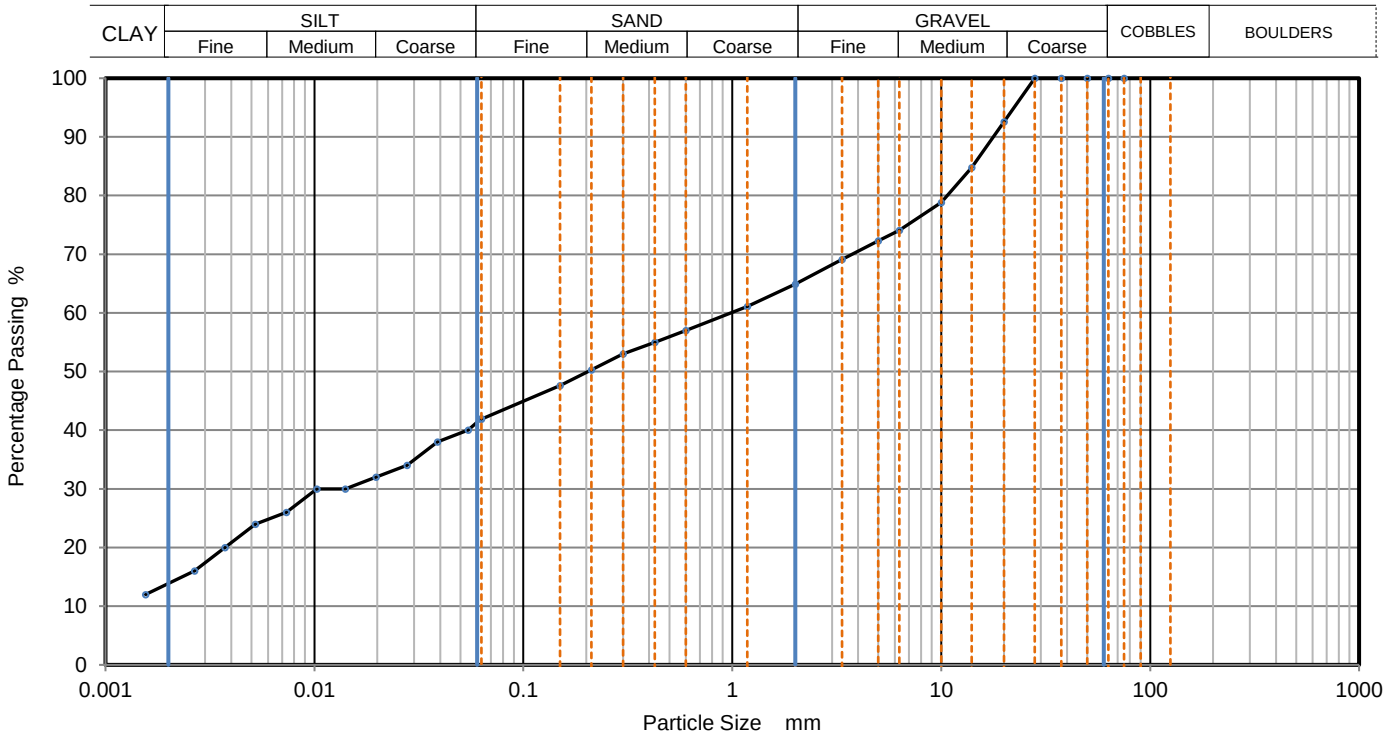
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43507
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly sandy gravelly SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021101499



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0545	40
75	100	0.0388	38
63	100	0.0278	34
50	100	0.0197	32
37.5	100	0.0140	30
28	100	0.0103	30
20	93	0.0073	26
14	85	0.0052	24
10	79	0.0037	20
6.3	74	0.0027	16
5	72	0.0016	12
3.35	69		
2	65		
1.18	61		
0.6	57	Particle density (assumed)	
0.425	55	2.65	Mg/m3
0.3	53		
0.212	50		
0.15	48		
0.063	42		

Dry Mass of sample, g: 340

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	23
Silt	28
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.98
D30	mm	0.0142
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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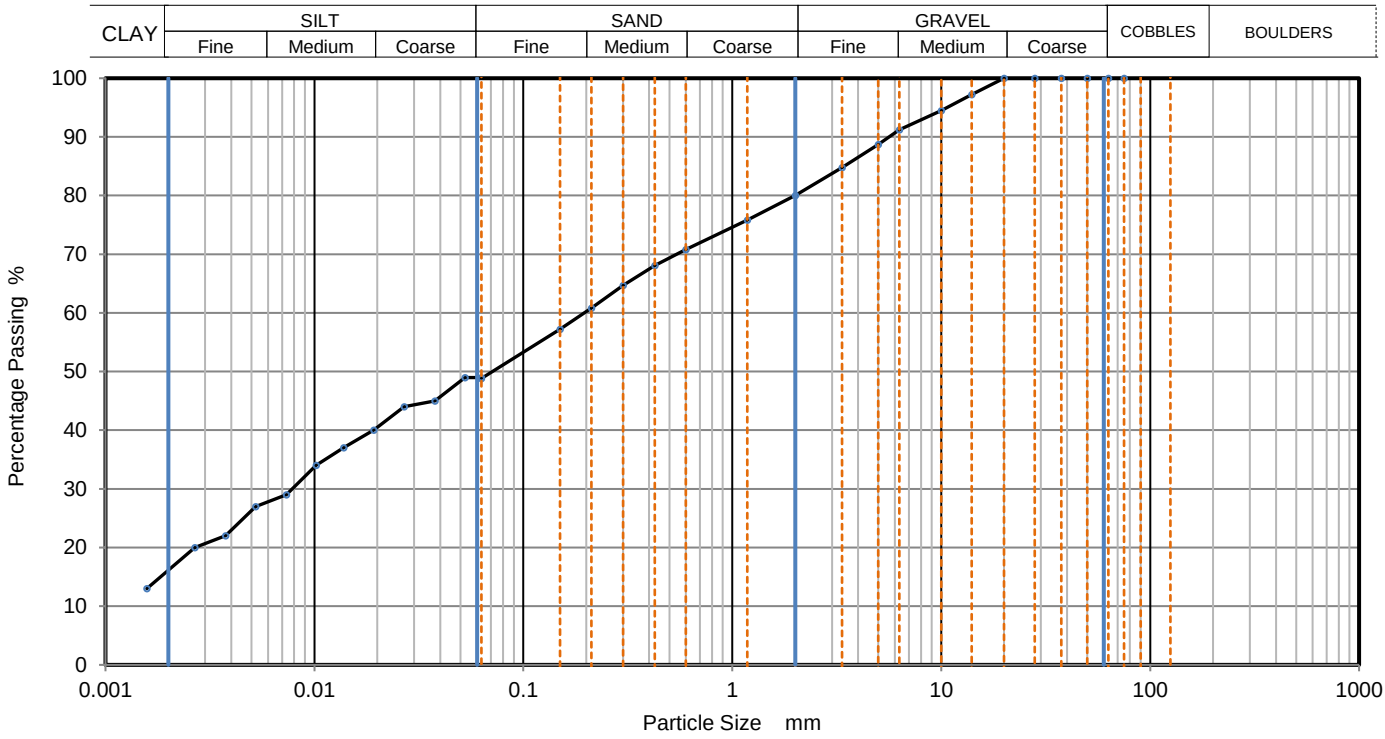
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43507
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	49
		0.0526	49
75	100	0.0377	45
63	100	0.0269	44
50	100	0.0192	40
37.5	100	0.0138	37
28	100	0.0102	34
20	100	0.0073	29
14	97	0.0052	27
10	95	0.0038	22
6.3	91	0.0027	20
5	89	0.0016	13
3.35	85		
2	80		
1.18	76		
0.6	71	Particle density (assumed)	
0.425	68	2.65 Mg/m3	
0.3	65		
0.212	61		
0.15	57		
0.063	49		

Dry Mass of sample, g: 426

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	31
Silt	32
Clay	17

Grading Analysis		
D100	mm	
D60	mm	0.196
D30	mm	0.00804
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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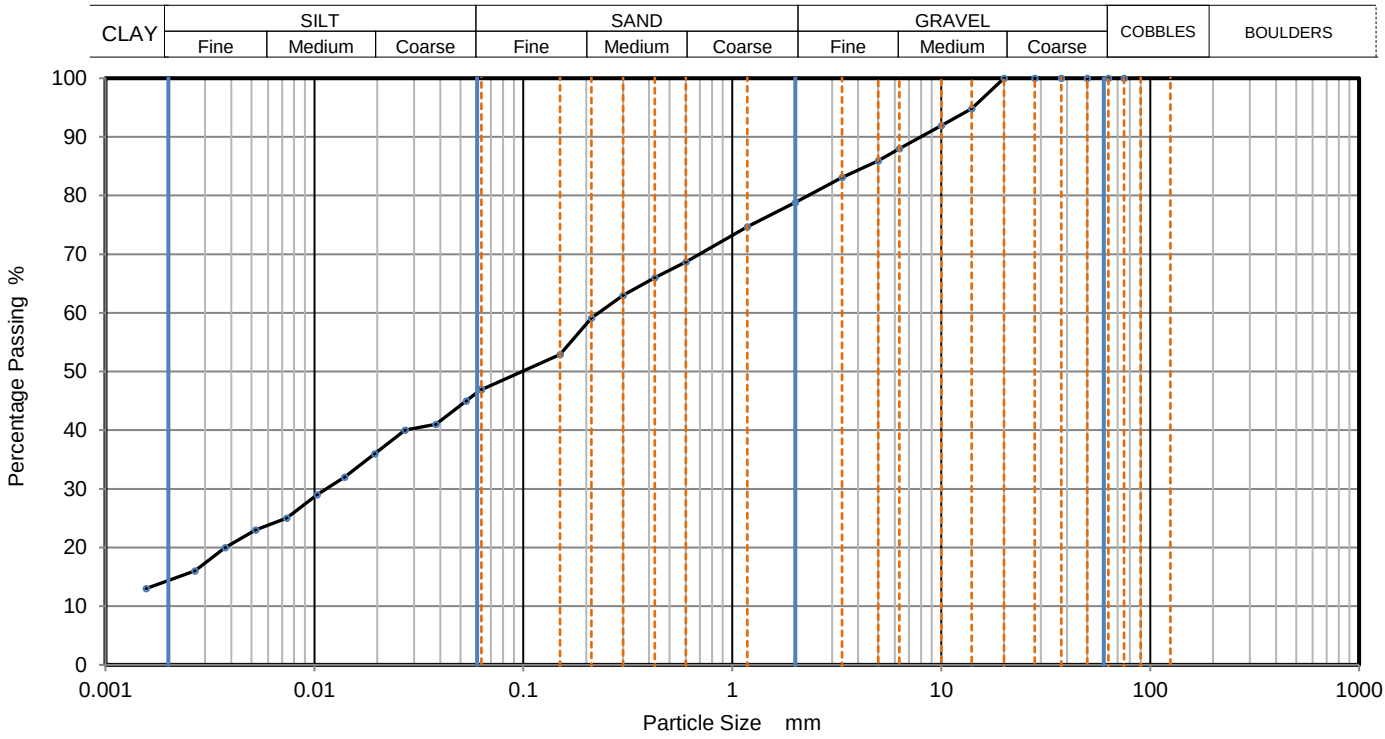
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43507
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014104



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0533	45
75	100	0.0382	41
63	100	0.0272	40
50	100	0.0195	36
37.5	100	0.0139	32
28	100	0.0103	29
20	100	0.0074	25
14	95	0.0052	23
10	92	0.0037	20
6.3	88	0.0027	16
5	86	0.0016	13
3.35	83		
2	79		
1.18	75		
0.6	69	Particle density (assumed)	
0.425	66	2.65	Mg/m3
0.3	63		
0.212	59		
0.15	53		
0.063	47		

Dry Mass of sample, g	437

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	32
Silt	33
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.23
D30	mm	0.0113
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	11/08/2022 14:03	**1** QC From No:R2

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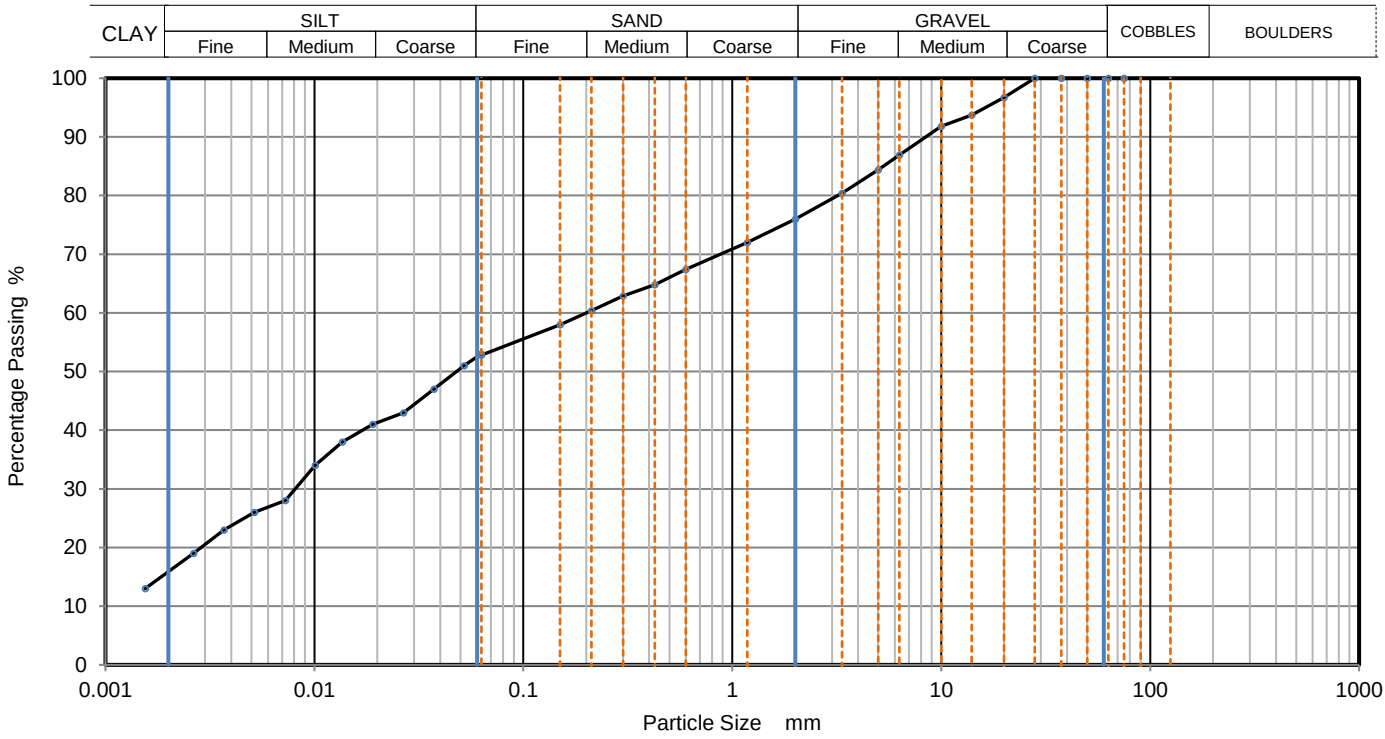
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-43607
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown slightly sandy slightly gravelly SILT.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211014106



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	53
		0.0521	51
75	100	0.0373	47
63	100	0.0267	43
50	100	0.0190	41
37.5	100	0.0136	38
28	100	0.0101	34
20	97	0.0073	28
14	94	0.0052	26
10	92	0.0037	23
6.3	87	0.0026	19
5	84	0.0015	13
3.35	80		
2	76		
1.18	72		
0.6	67	Particle density (assumed)	
0.425	65	2.65 Mg/m3	
0.3	63		
0.212	60		
0.15	58		
0.063	53		

Dry Mass of sample, g	534

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	23
Silt	37
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.201
D30	mm	0.00801
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:03	**1** QC From No:R2

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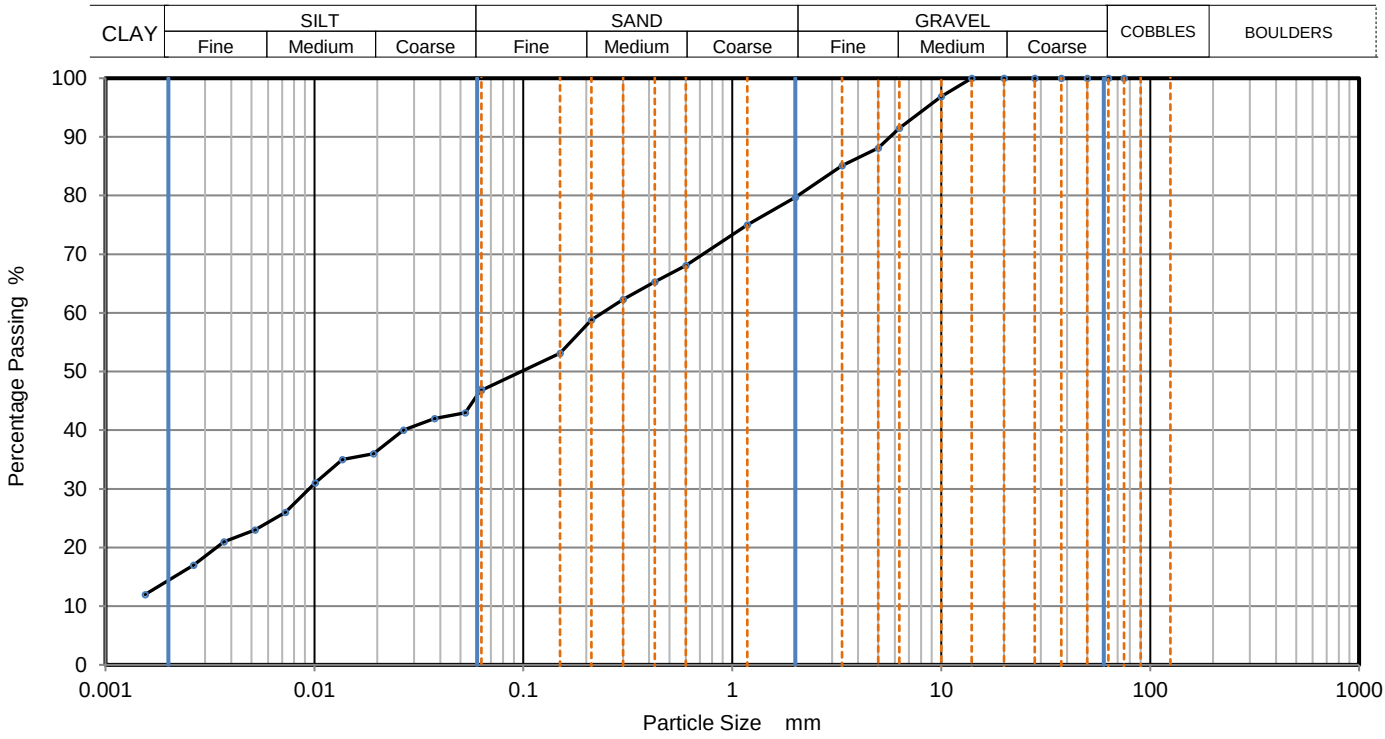
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43607
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014108



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0528	43
75	100	0.0376	42
63	100	0.0267	40
50	100	0.0191	36
37.5	100	0.0136	35
28	100	0.0101	31
20	100	0.0073	26
14	100	0.0052	23
10	97	0.0037	21
6.3	92	0.0026	17
5	88	0.0015	12
3.35	85		
2	80		
1.18	75		
0.6	68	Particle density (assumed)	
0.425	65	2.65	Mg/m3
0.3	62		
0.212	59		
0.15	53		
0.063	47		

Dry Mass of sample, g	257

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	33
Silt	32
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.239
D30	mm	0.00934
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

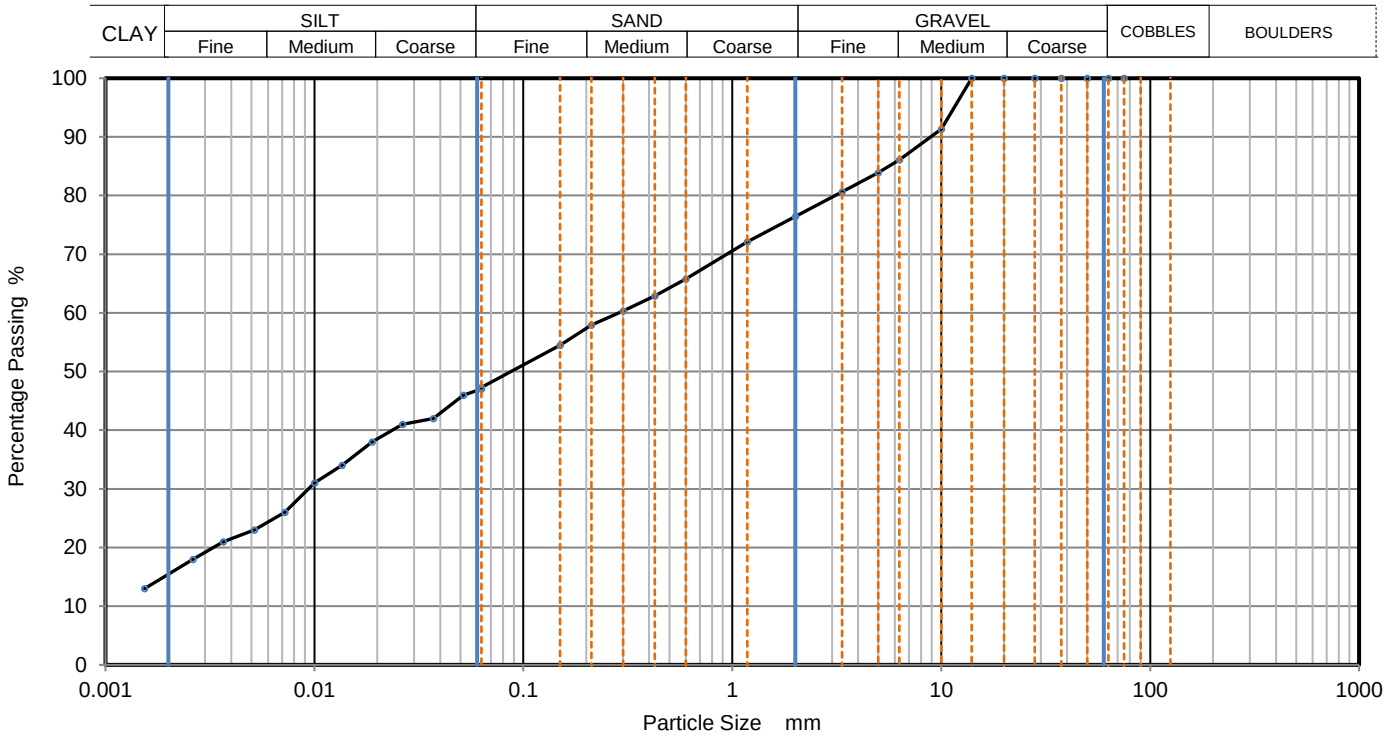
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:03	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43607
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0517	46
75	100	0.0371	42
63	100	0.0264	41
50	100	0.0189	38
37.5	100	0.0135	34
28	100	0.0100	31
20	100	0.0072	26
14	100	0.0052	23
10	91	0.0037	21
6.3	86	0.0026	18
5	84	0.0015	13
3.35	81		
2	76		
1.18	72		
0.6	66	Particle density (assumed)	
0.425	63	2.65	Mg/m3
0.3	60		
0.212	58		
0.15	55		
0.063	47		

Dry Mass of sample, g	222

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	29
Silt	32
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.288
D30	mm	0.00937
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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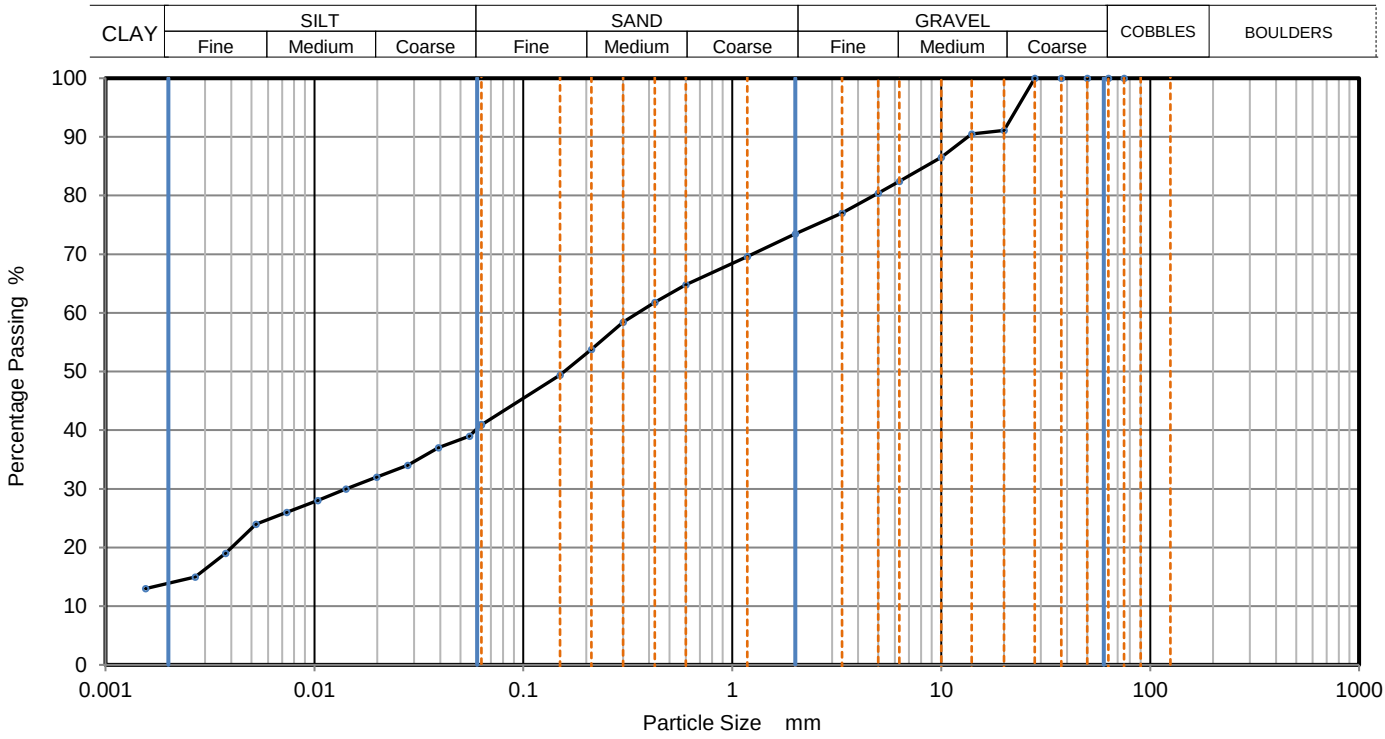
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43708
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Reddish-brown slightly gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014113



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0552	39
75	100	0.0392	37
63	100	0.0279	34
50	100	0.0199	32
37.5	100	0.0141	30
28	100	0.0104	28
20	91	0.0074	26
14	91	0.0052	24
10	87	0.0038	19
6.3	82	0.0027	15
5	80	0.0016	13
3.35	77		
2	74		
1.18	70		
0.6	65	Particle density (assumed)	
0.425	62	2.65 Mg/m3	
0.3	58		
0.212	54		
0.15	49		
0.063	41		

Dry Mass of sample, g	498

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	33
Silt	27
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.354
D30	mm	0.0138
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	11/08/2022 14:03	**1** QC From No:R2

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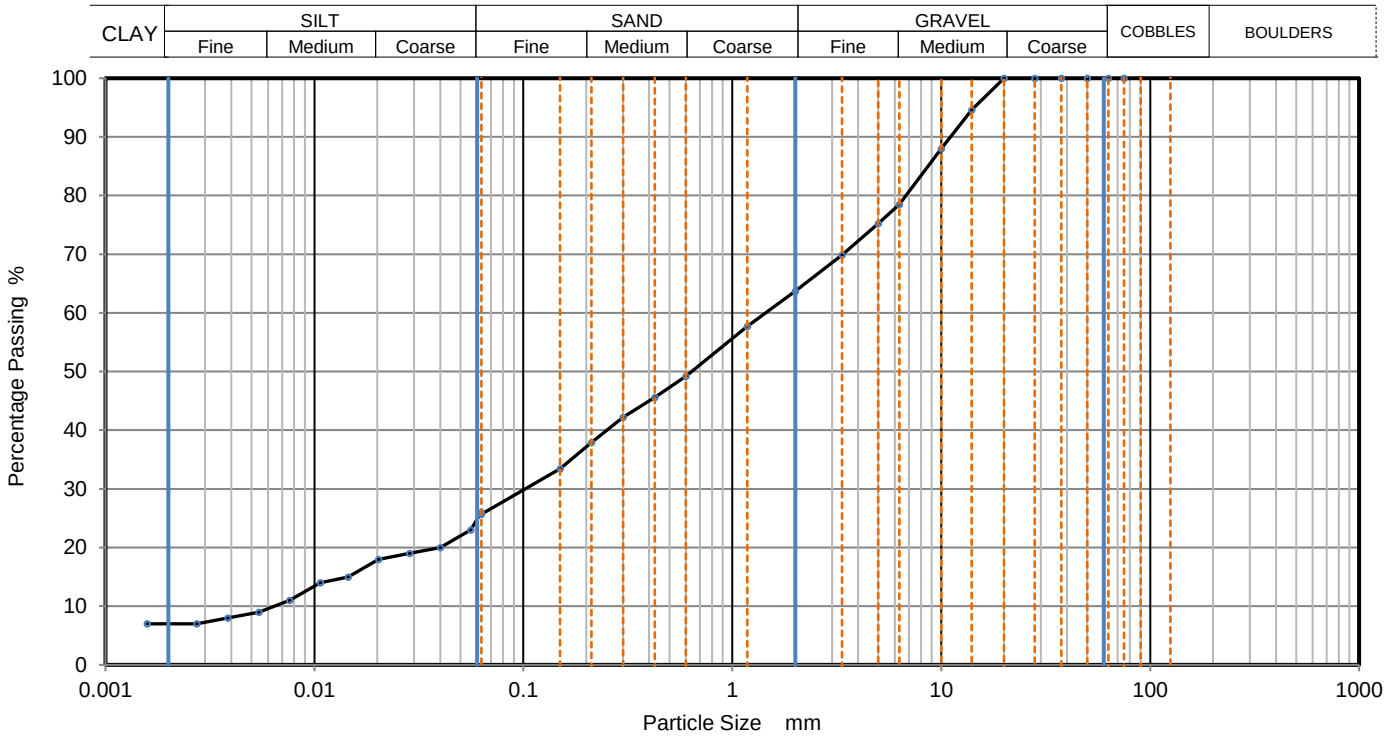
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43708
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty SAND and GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014115



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0560	23
75	100	0.0401	20
63	100	0.0285	19
50	100	0.0203	18
37.5	100	0.0145	15
28	100	0.0107	14
20	100	0.0076	11
14	95	0.0054	9
10	88	0.0038	8
6.3	79	0.0027	7
5	75	0.0016	7
3.35	70		
2	64		
1.18	58		
0.6	49	Particle density (assumed)	
0.425	46	2.65 Mg/m3	
0.3	42		
0.212	38		
0.15	33		
0.063	26		

Dry Mass of sample, g	463

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	38
Silt	19
Clay	7

Grading Analysis		
D100	mm	
D60	mm	1.45
D30	mm	0.102
D10	mm	0.00619
Uniformity Coefficient		230
Curvature Coefficient		1.2

Remarks

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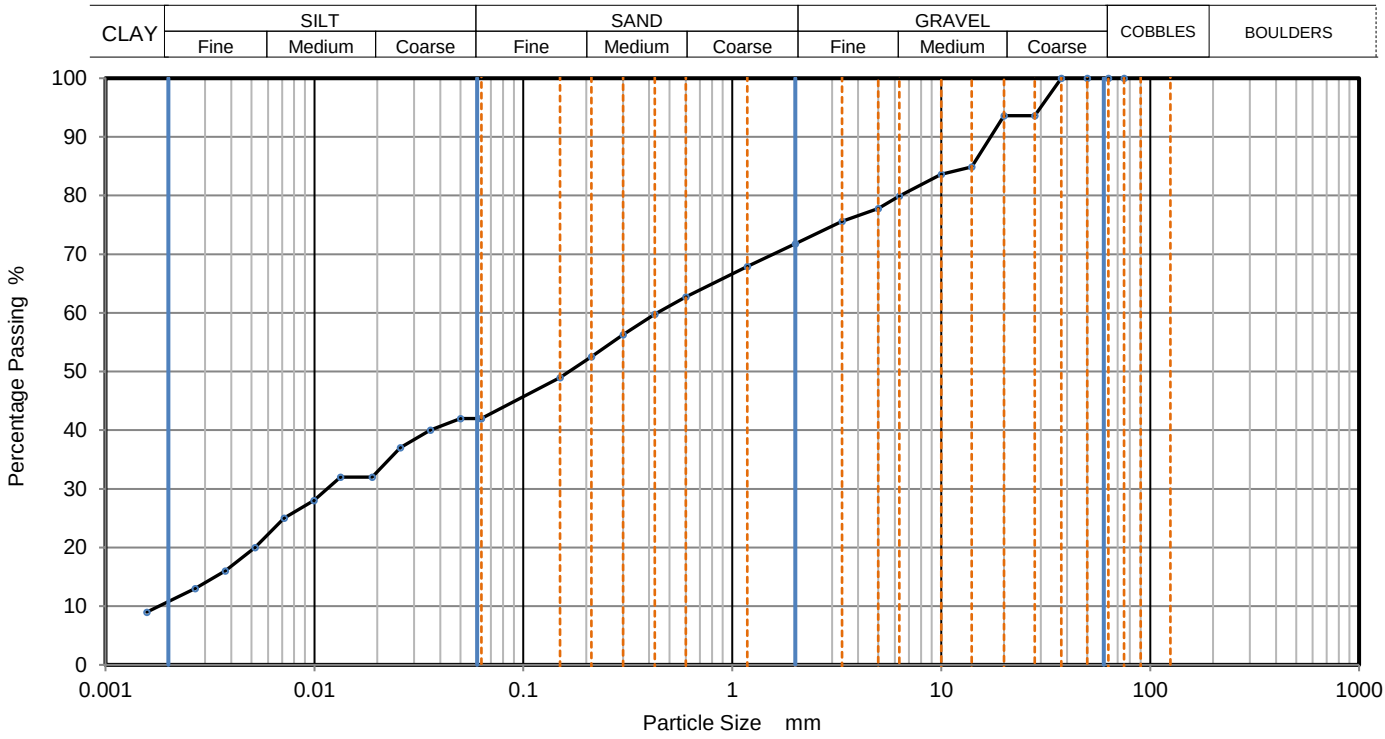
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43815
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014117



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0626	42
		0.0500	42
75	100	0.0359	40
63	100	0.0257	37
50	100	0.0189	32
37.5	100	0.0133	32
28	94	0.0099	28
20	94	0.0072	25
14	85	0.0052	20
10	84	0.0037	16
6.3	80	0.0027	13
5	78	0.0016	9
3.35	76		
2	72		
1.18	68		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	56		
0.212	53		
0.15	49		
0.063	42		

Dry Mass of sample, g	516

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	30
Silt	31
Clay	11

Grading Analysis		
D100	mm	
D60	mm	0.434
D30	mm	0.0118
D10	mm	0.00175
Uniformity Coefficient		250
Curvature Coefficient		0.18

Remarks

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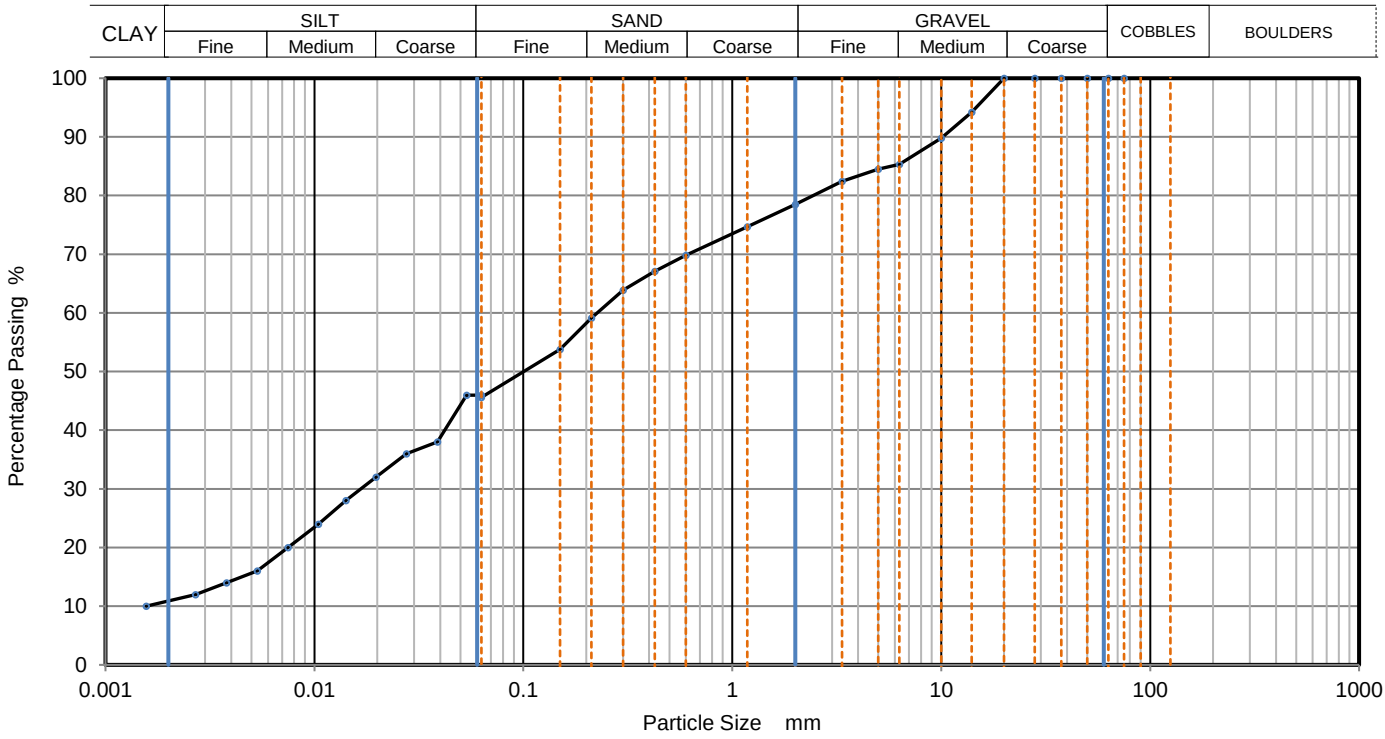
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43815
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014120



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0535	46
75	100	0.0388	38
63	100	0.0276	36
50	100	0.0197	32
37.5	100	0.0141	28
28	100	0.0104	24
20	100	0.0075	20
14	94	0.0053	16
10	90	0.0038	14
6.3	85	0.0027	12
5	85	0.0016	10
3.35	82		
2	79		
1.18	75		
0.6	70	Particle density (assumed)	
0.425	67	2.65 Mg/m3	
0.3	64		
0.212	59		
0.15	54		
0.063	46		

Dry Mass of sample, g	256

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	33
Silt	35
Clay	11

Grading Analysis		
D100	mm	
D60	mm	0.226
D30	mm	0.0171
D10	mm	0.0016
Uniformity Coefficient		140
Curvature Coefficient		0.8

Remarks

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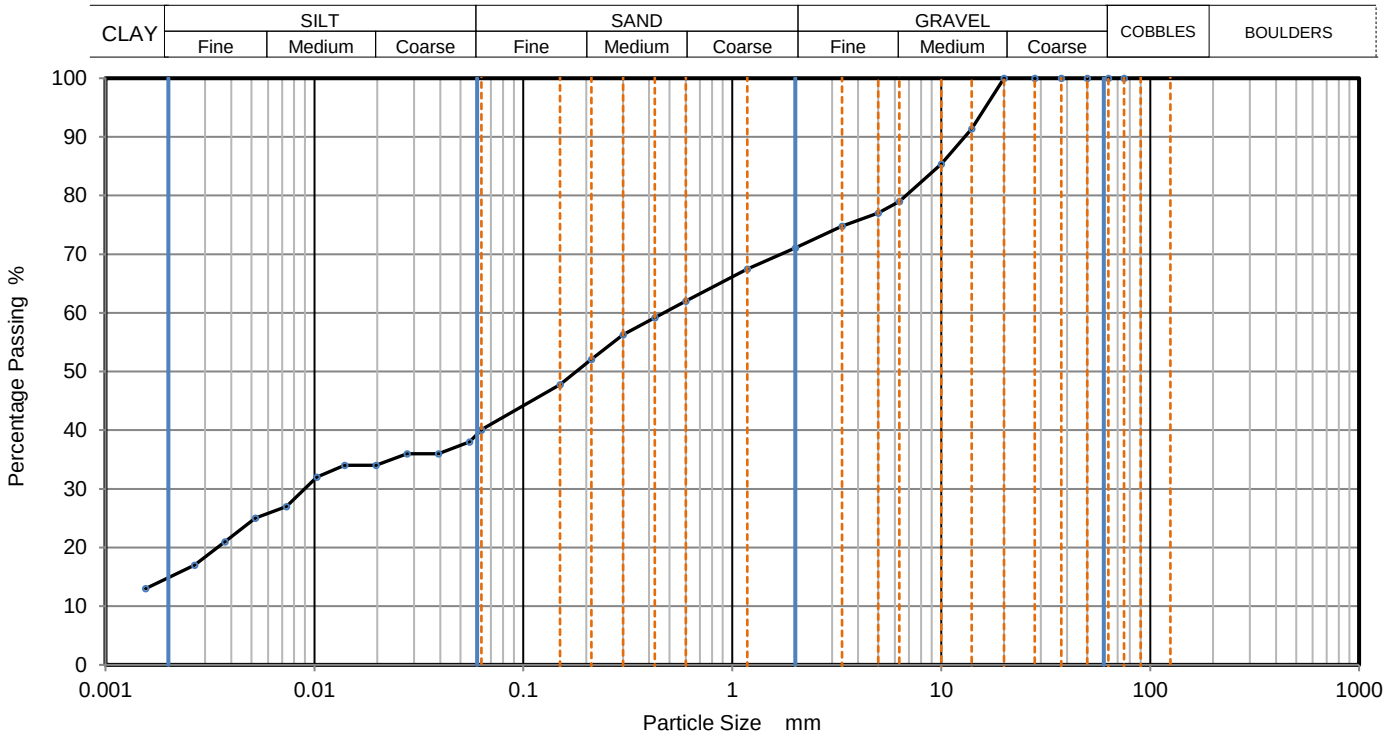
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43905
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014122



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0552	38
75	100	0.0392	36
63	100	0.0278	36
50	100	0.0197	34
37.5	100	0.0140	34
28	100	0.0103	32
20	100	0.0073	27
14	91	0.0052	25
10	85	0.0037	21
6.3	79	0.0027	17
5	77	0.0016	13
3.35	75		
2	71		
1.18	68		
0.6	62	Particle density (assumed)	
0.425	59	2.65	Mg/m3
0.3	56		
0.212	52		
0.15	48		
0.063	40		

Dry Mass of sample, g	242

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	31
Silt	26
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.47
D30	mm	0.00899
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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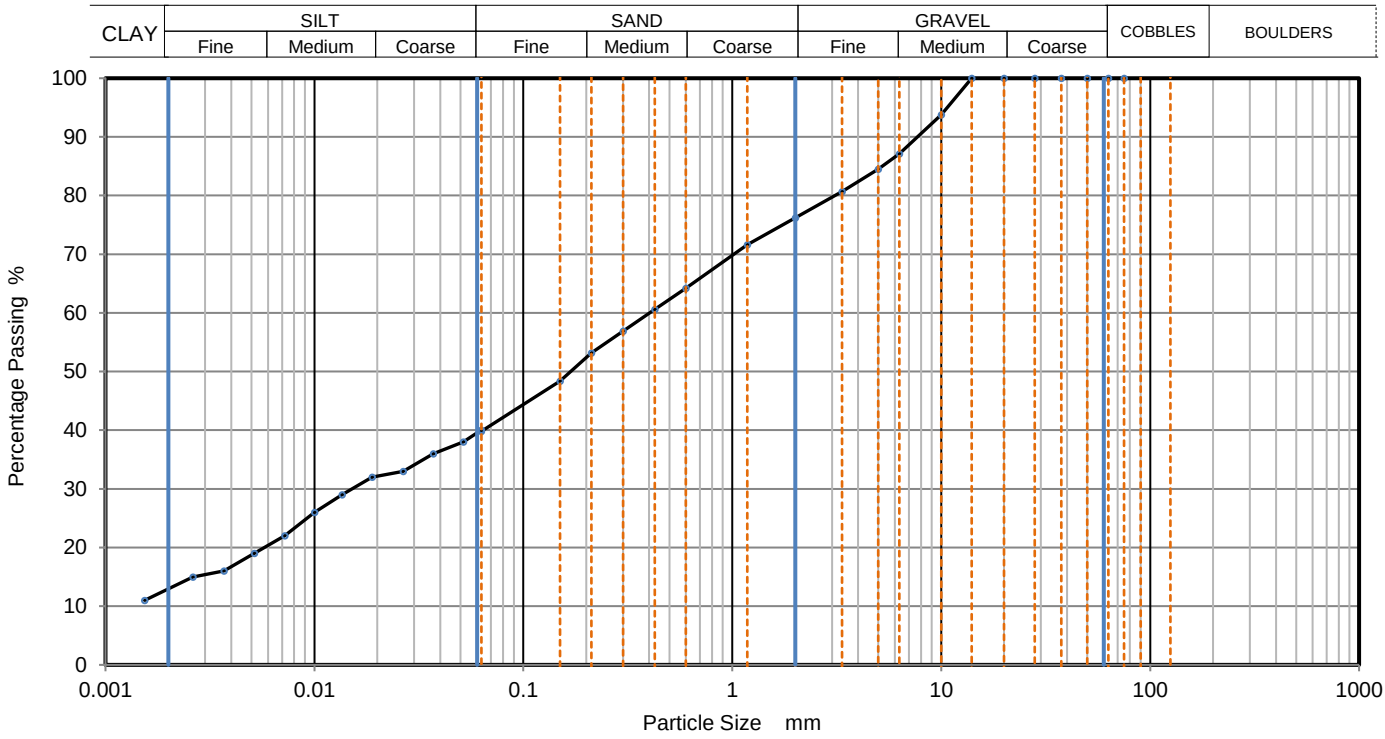
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-43905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014124



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0517	38
75	100	0.0371	36
63	100	0.0266	33
50	100	0.0189	32
37.5	100	0.0135	29
28	100	0.0100	26
20	100	0.0072	22
14	100	0.0052	19
10	94	0.0037	16
6.3	87	0.0026	15
5	85	0.0015	11
3.35	81		
2	76		
1.18	72		
0.6	64	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	57		
0.212	53		
0.15	48		
0.063	40		

Dry Mass of sample, g	430

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	36
Silt	27
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.4
D30	mm	0.0156
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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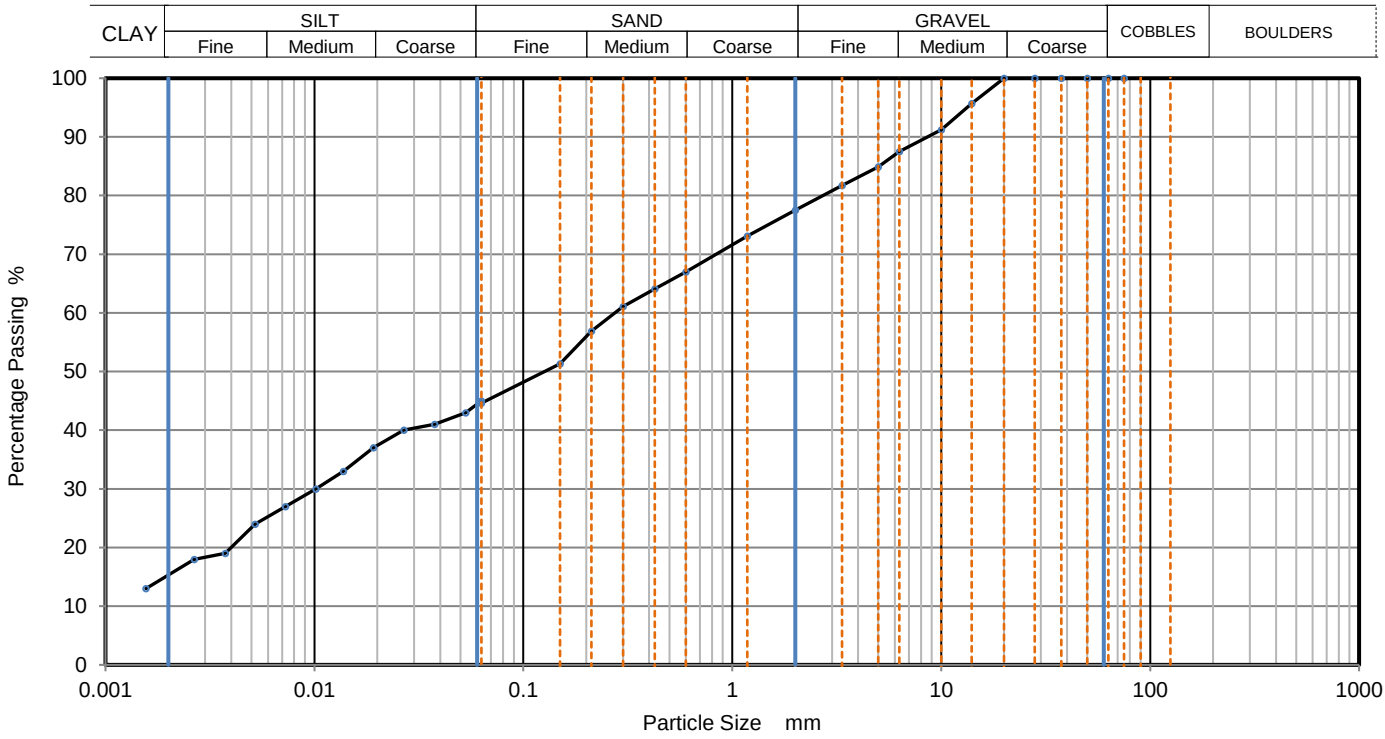
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44003
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014130



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0528	43
75	100	0.0376	41
63	100	0.0268	40
50	100	0.0192	37
37.5	100	0.0137	33
28	100	0.0102	30
20	100	0.0073	27
14	96	0.0052	24
10	91	0.0037	19
6.3	88	0.0027	18
5	85	0.0016	13
3.35	82		
2	78		
1.18	73		
0.6	67	Particle density (assumed)	
0.425	64	2.65	Mg/m3
0.3	61		
0.212	57		
0.15	51		
0.063	45		

Dry Mass of sample, g	281

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	33
Silt	30
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.274
D30	mm	0.00988
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:03	**1** QC From No:R2

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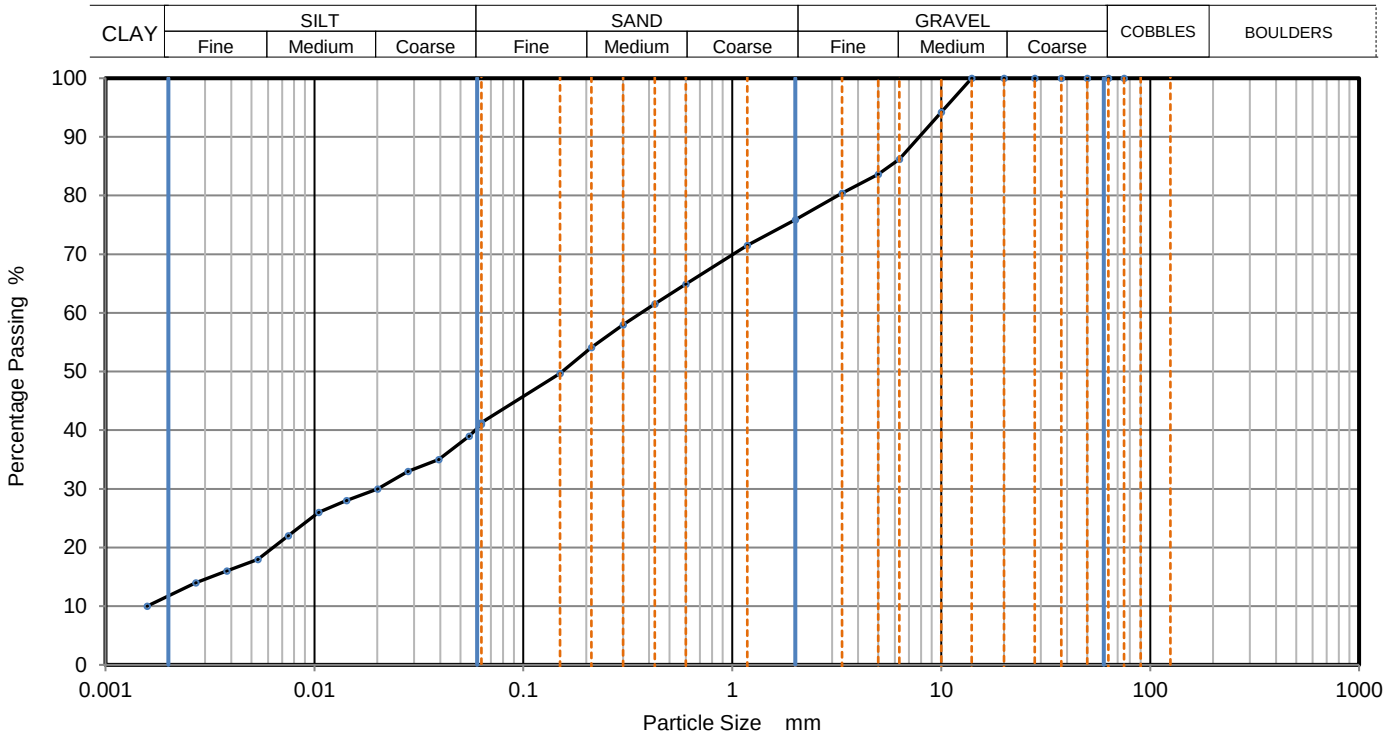
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44003
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014132



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0550	39
75	100	0.0394	35
63	100	0.0280	33
50	100	0.0201	30
37.5	100	0.0143	28
28	100	0.0105	26
20	100	0.0075	22
14	100	0.0054	18
10	94	0.0038	16
6.3	86	0.0027	14
5	84	0.0016	10
3.35	80		
2	76		
1.18	72		
0.6	65	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	58		
0.212	54		
0.15	50		
0.063	41		

Dry Mass of sample, g	502

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	35
Silt	30
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.366
D30	mm	0.0209
D10	mm	0.00162
Uniformity Coefficient		230
Curvature Coefficient		0.74

Remarks

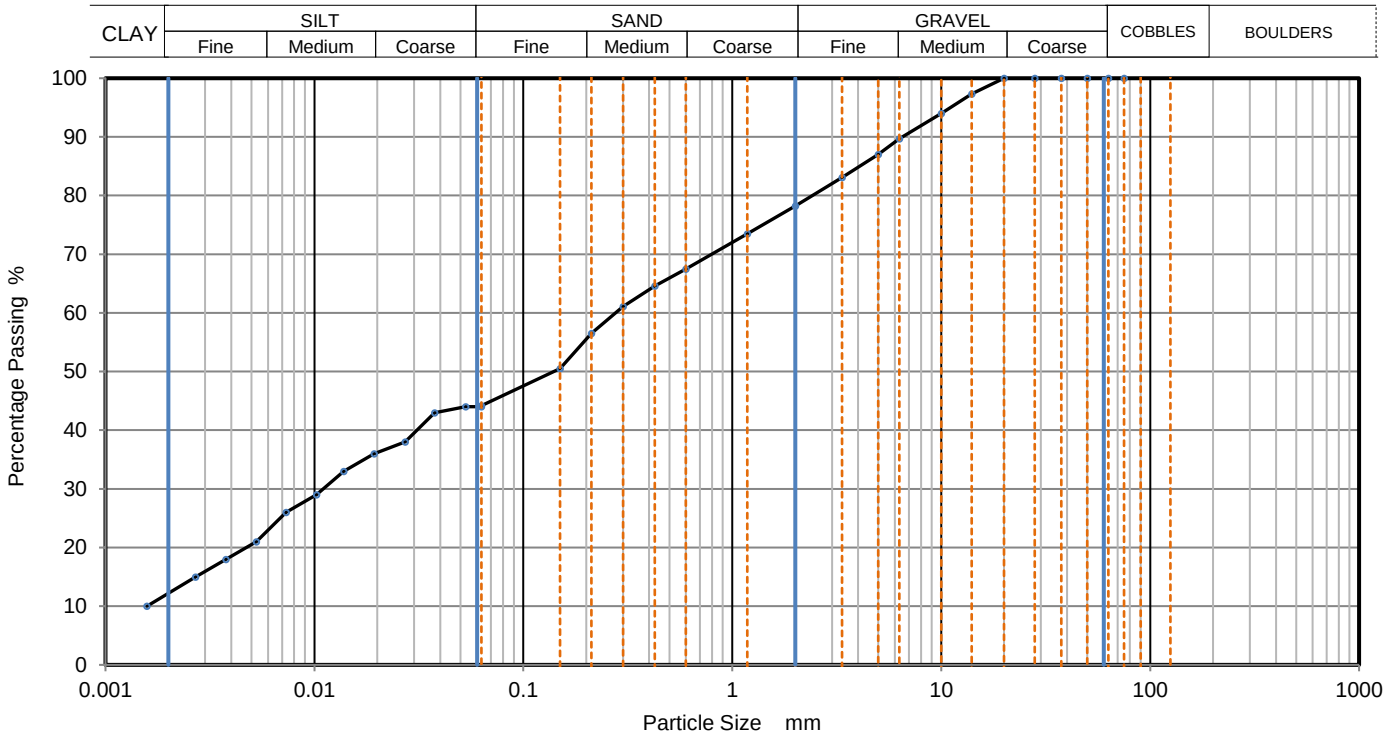
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:03	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44104
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014134



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0528	44
75	100	0.0376	43
63	100	0.0271	38
50	100	0.0193	36
37.5	100	0.0138	33
28	100	0.0102	29
20	100	0.0073	26
14	97	0.0053	21
10	94	0.0038	18
6.3	90	0.0027	15
5	87	0.0016	10
3.35	83		
2	78		
1.18	74		
0.6	68	Particle density (assumed)	
0.425	65	2.65	Mg/m3
0.3	61		
0.212	57		
0.15	51		
0.063	44		

Dry Mass of sample, g	457

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	34
Silt	32
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.275
D30	mm	0.0107
D10	mm	0.00161
Uniformity Coefficient		170
Curvature Coefficient		0.26

Remarks

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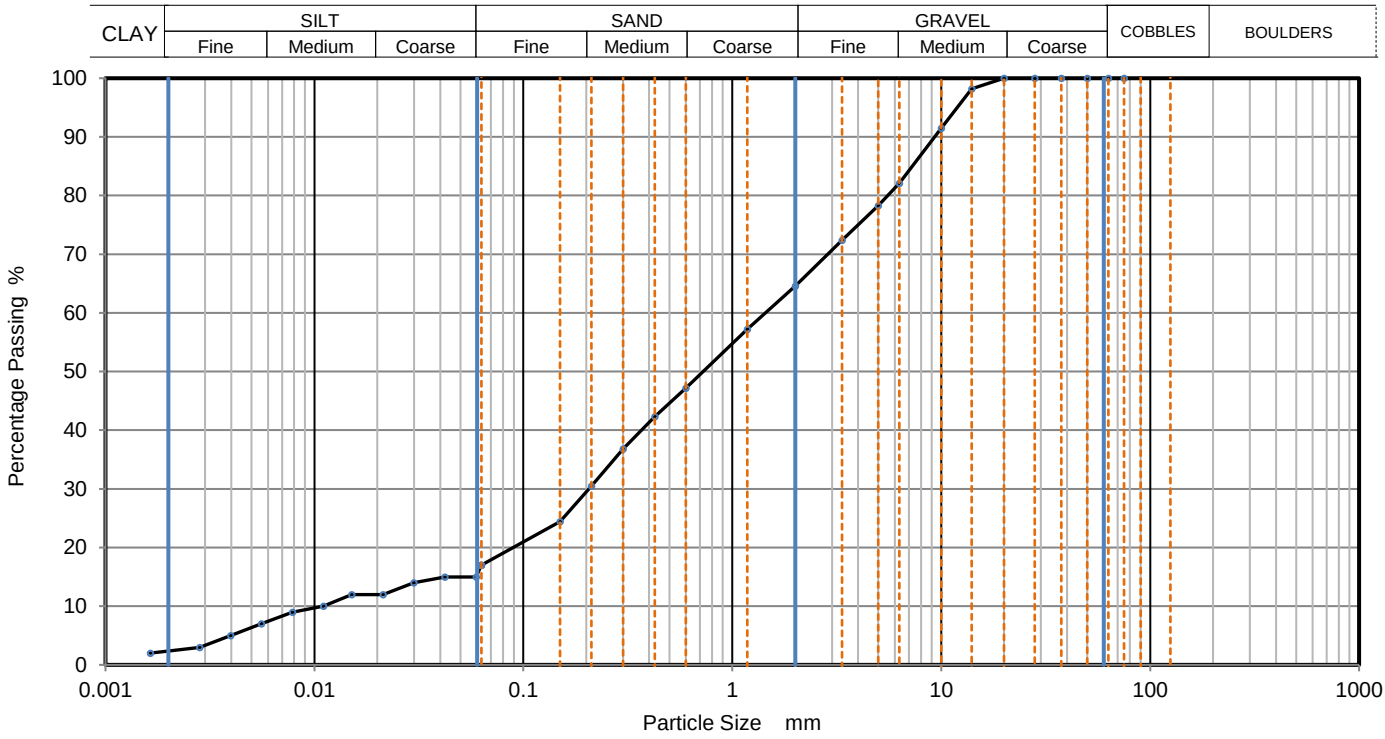
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44104
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey silty very gravelly SAND.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014136



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	17
		0.0595	15
75	100	0.0421	15
63	100	0.0299	14
50	100	0.0213	12
37.5	100	0.0150	12
28	100	0.0110	10
20	100	0.0079	9
14	98	0.0056	7
10	92	0.0040	5
6.3	82	0.0028	3
5	78	0.0016	2
3.35	72		
2	65		
1.18	57		
0.6	47	Particle density (assumed)	
0.425	42	2.65 Mg/m3	
0.3	37		
0.212	31		
0.15	24		
0.063	17		

Dry Mass of sample, g	451

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	48
Silt	15
Clay	2

Grading Analysis		
D100	mm	
D60	mm	1.44
D30	mm	0.207
D10	mm	0.0106
Uniformity Coefficient		140
Curvature Coefficient		2.8

Remarks

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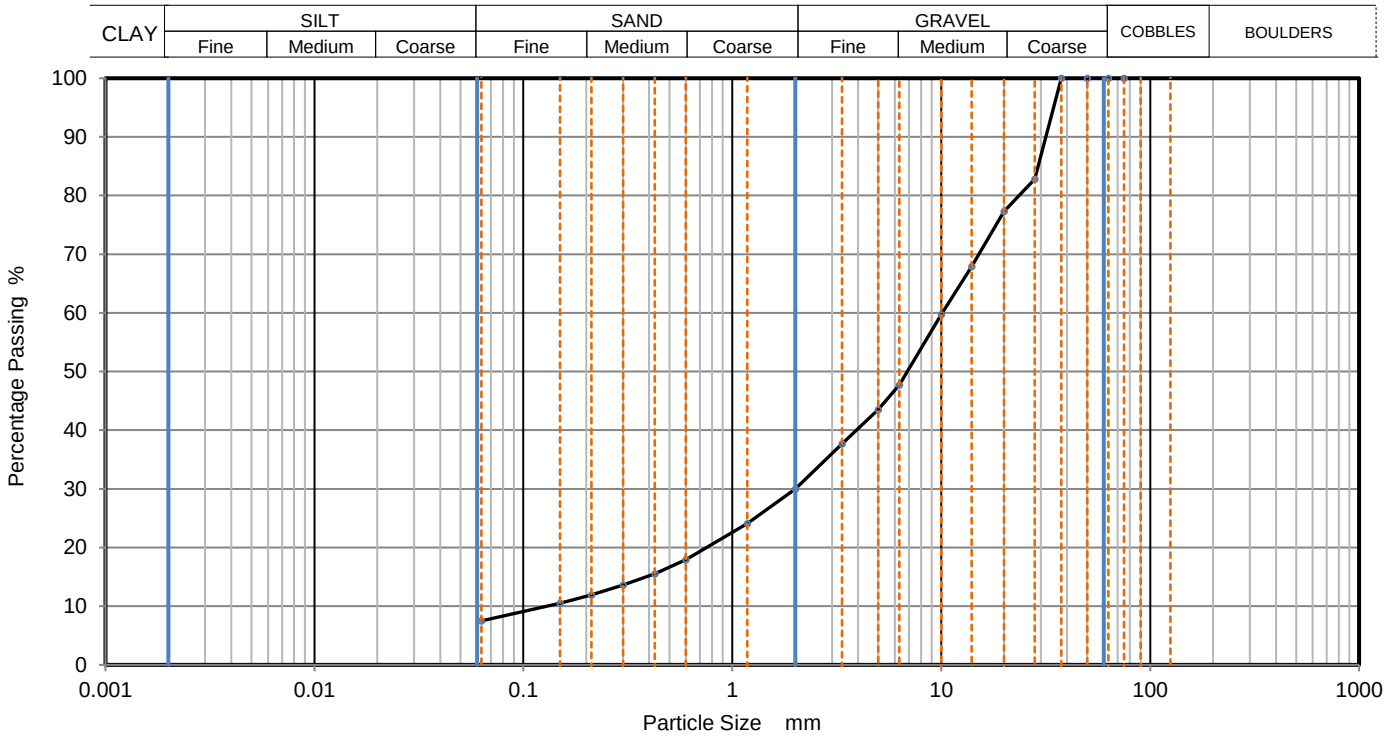
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44104
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Reddish-brown silty very sandy medium GRAVEL.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211014138



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	83		
20	77		
14	68		
10	60		
6.3	48		
5	44		
3.35	38		
2	30		
1.18	24		
0.6	18	Particle density (assumed)	
0.425	16	2.65	Mg/m3
0.3	14		
0.212	12		
0.15	11		
0.063	8		

Dry Mass of sample, g	802

Sample Proportions	% dry mass
Very coarse	0
Gravel	70
Sand	23
Fines <0.063mm	8

Grading Analysis		
D100	mm	
D60	mm	10.1
D30	mm	2
D10	mm	0.13
Uniformity Coefficient		78
Curvature Coefficient		3

Remarks

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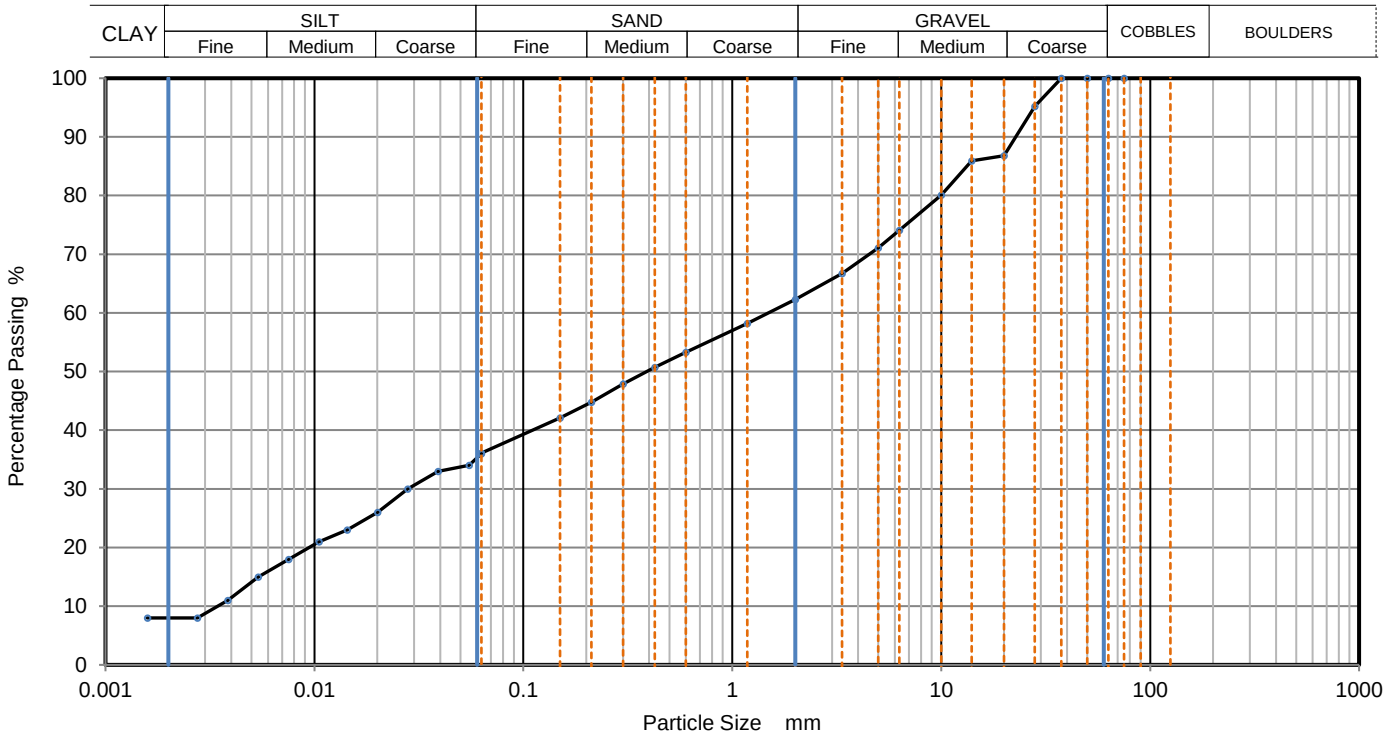
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44211
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Grey slightly sandy gravelly SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014142



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0549	34
75	100	0.0391	33
63	100	0.0280	30
50	100	0.0200	26
37.5	100	0.0143	23
28	95	0.0105	21
20	87	0.0075	18
14	86	0.0054	15
10	80	0.0038	11
6.3	74	0.0027	8
5	71	0.0016	8
3.35	67		
2	62		
1.18	58		
0.6	53	Particle density (assumed)	
0.425	51	2.65 Mg/m3	
0.3	48		
0.212	45		
0.15	42		
0.063	36		

Dry Mass of sample, g: 516

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	26
Silt	28
Clay	8

Grading Analysis		
D100	mm	
D60	mm	1.49
D30	mm	0.0293
D10	mm	0.0033
Uniformity Coefficient		450
Curvature Coefficient		0.17

Remarks

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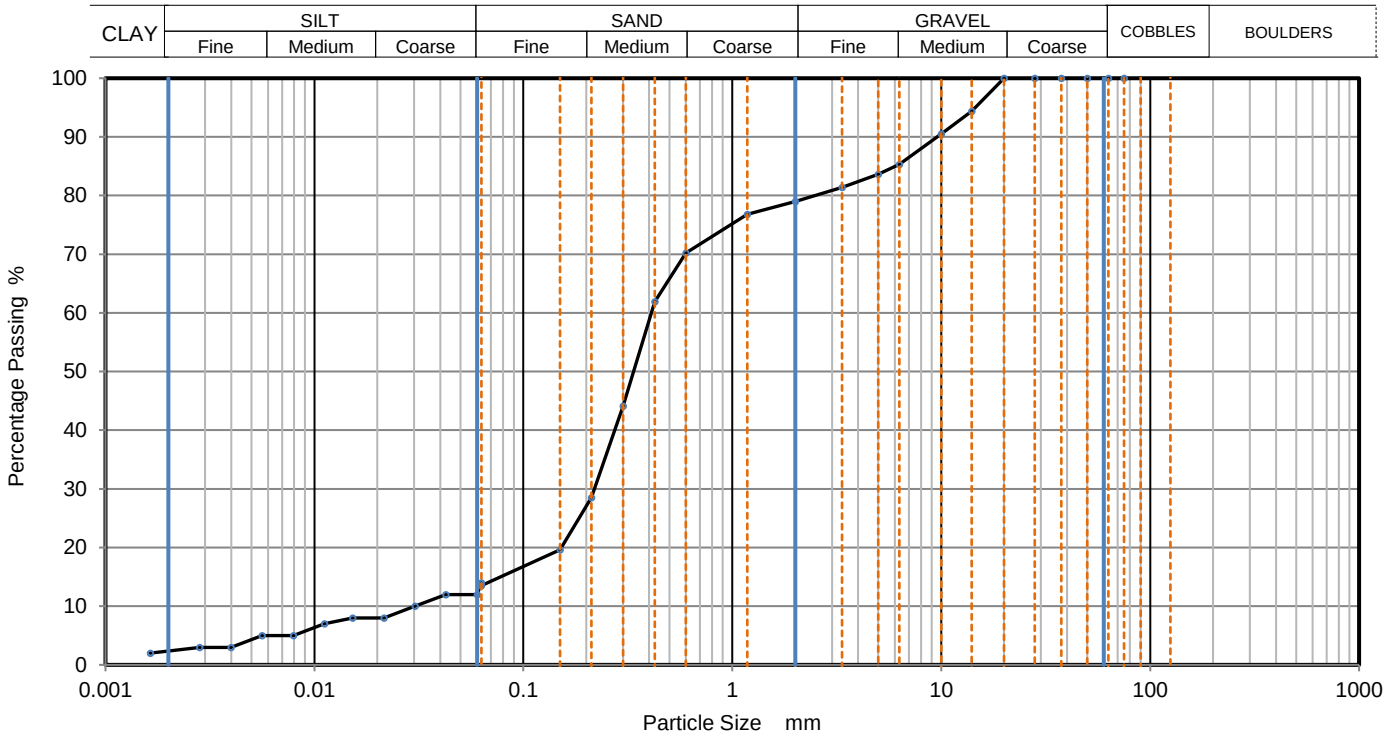
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44211
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown silty very gravelly medium SAND.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014144



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	14
		0.0602	12
75	100	0.0426	12
63	100	0.0303	10
50	100	0.0215	8
37.5	100	0.0152	8
28	100	0.0112	7
20	100	0.0079	5
14	94	0.0056	5
10	91	0.0040	3
6.3	85	0.0028	3
5	84	0.0016	2
3.35	81		
2	79		
1.18	77		
0.6	70	Particle density (assumed)	
0.425	62	2.65 Mg/m3	
0.3	44		
0.212	29		
0.15	20		
0.063	14		

Dry Mass of sample, g	429

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	66
Silt	11
Clay	2

Grading Analysis		
D100	mm	
D60	mm	0.409
D30	mm	0.219
D10	mm	0.0295
Uniformity Coefficient		14
Curvature Coefficient		4

Remarks

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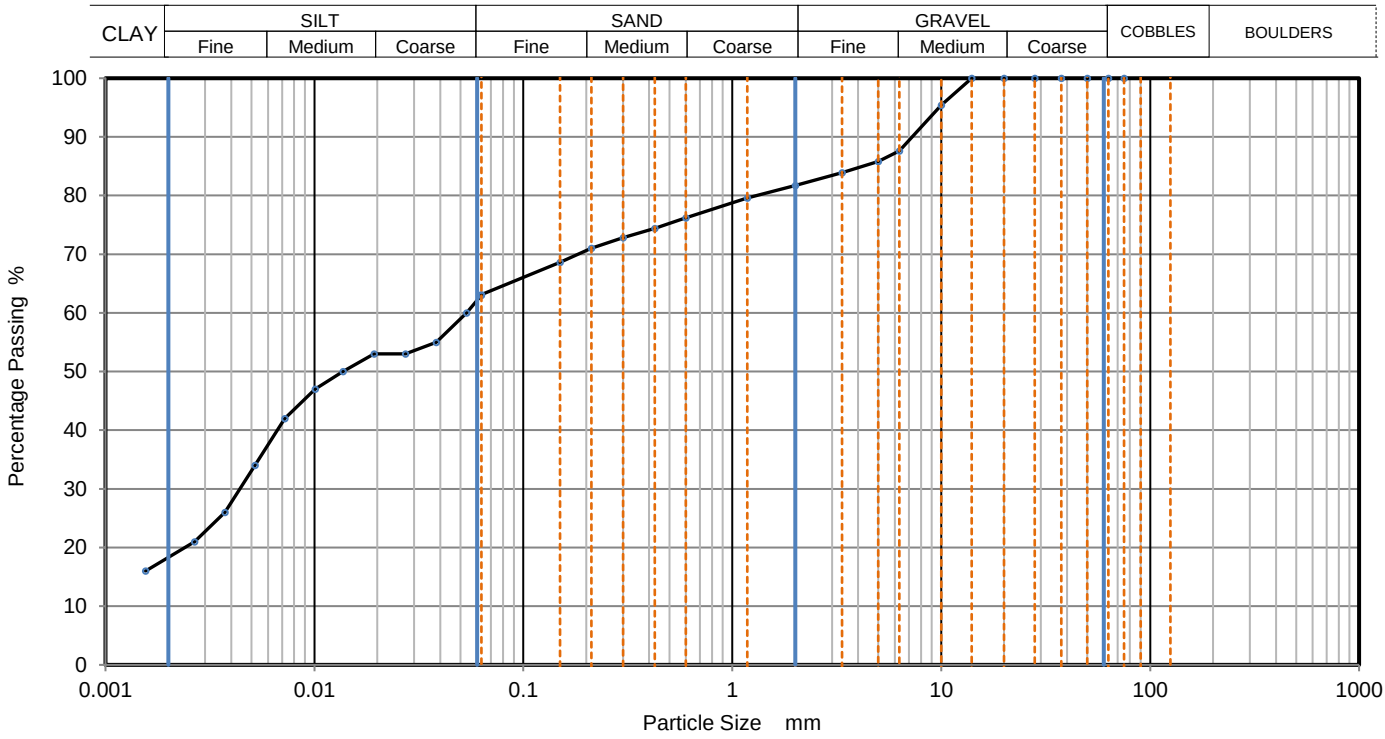
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44309
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014146



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	63
		0.0535	60
75	100	0.0383	55
63	100	0.0272	53
50	100	0.0193	53
37.5	100	0.0137	50
28	100	0.0101	47
20	100	0.0072	42
14	100	0.0052	34
10	95	0.0037	26
6.3	88	0.0027	21
5	86	0.0016	16
3.35	84		
2	82		
1.18	80		
0.6	76	Particle density (assumed)	
0.425	74	2.65	Mg/m3
0.3	73		
0.212	71		
0.15	69		
0.063	63		

Dry Mass of sample, g	360

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	19
Silt	45
Clay	18

Grading Analysis		
D100	mm	
D60	mm	0.0519
D30	mm	0.00436
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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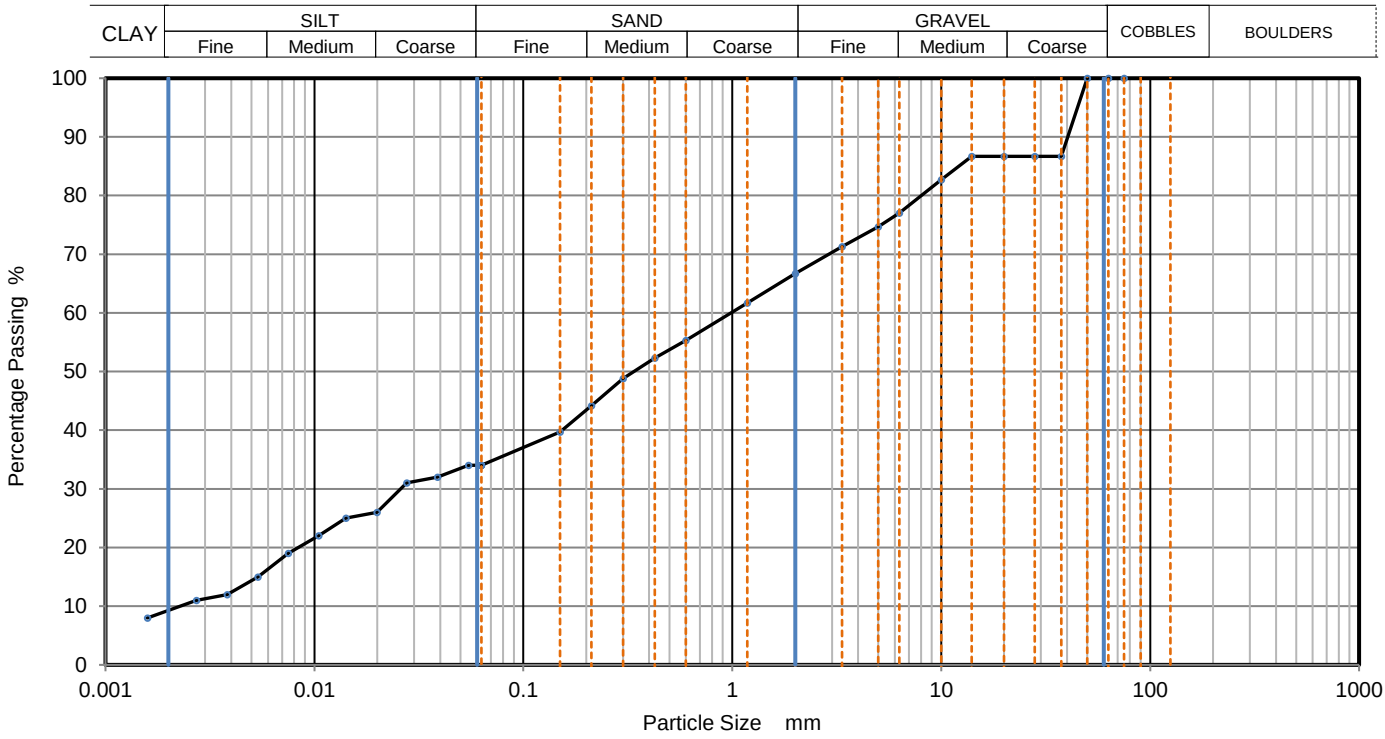
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44309
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey very silty SAND and GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014149



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0546	34
75	100	0.0389	32
63	100	0.0276	31
50	100	0.0199	26
37.5	87	0.0142	25
28	87	0.0105	22
20	87	0.0075	19
14	87	0.0054	15
10	83	0.0038	12
6.3	77	0.0027	11
5	75	0.0016	8
3.35	71		
2	67		
1.18	62		
0.6	55	Particle density (assumed)	
0.425	52	2.65	Mg/m3
0.3	49		
0.212	44		
0.15	40		
0.063	34		

Dry Mass of sample, g	503

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	33
Silt	25
Clay	9

Grading Analysis		
D100	mm	
D60	mm	0.984
D30	mm	0.0259
D10	mm	0.00236
Uniformity Coefficient		420
Curvature Coefficient		0.29

Remarks

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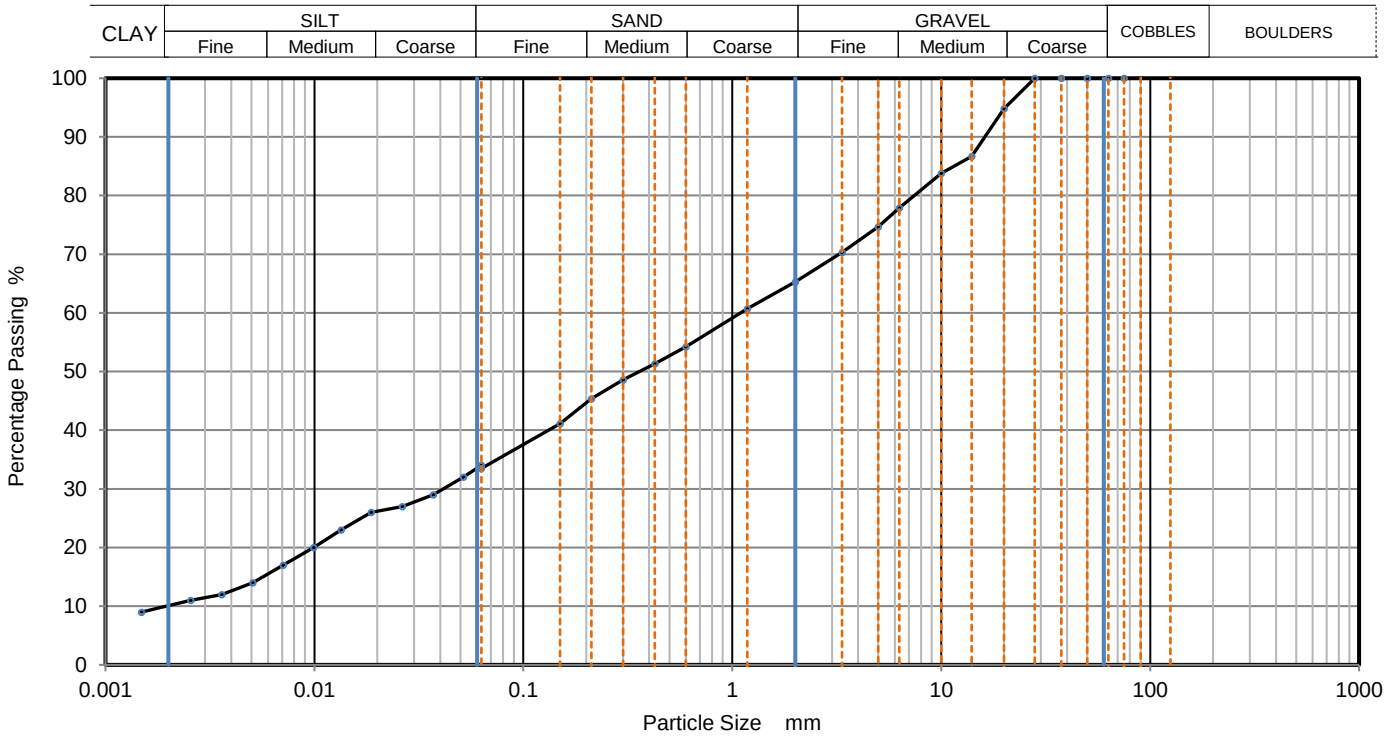
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44309
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly sandy gravelly SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014151



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0517	32
75	100	0.0370	29
63	100	0.0263	27
50	100	0.0187	26
37.5	100	0.0134	23
28	100	0.0099	20
20	95	0.0071	17
14	87	0.0051	14
10	84	0.0036	12
6.3	78	0.0026	11
5	75	0.0015	9
3.35	70		
2	65		
1.18	61		
0.6	54	Particle density (assumed)	
0.425	51	2.65	Mg/m3
0.3	49		
0.212	45		
0.15	41		
0.063	34		

Dry Mass of sample, g	558

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	32
Silt	24
Clay	10

Grading Analysis		
D100	mm	
D60	mm	1.09
D30	mm	0.0416
D10	mm	0.00202
Uniformity Coefficient		540
Curvature Coefficient		0.78

Remarks

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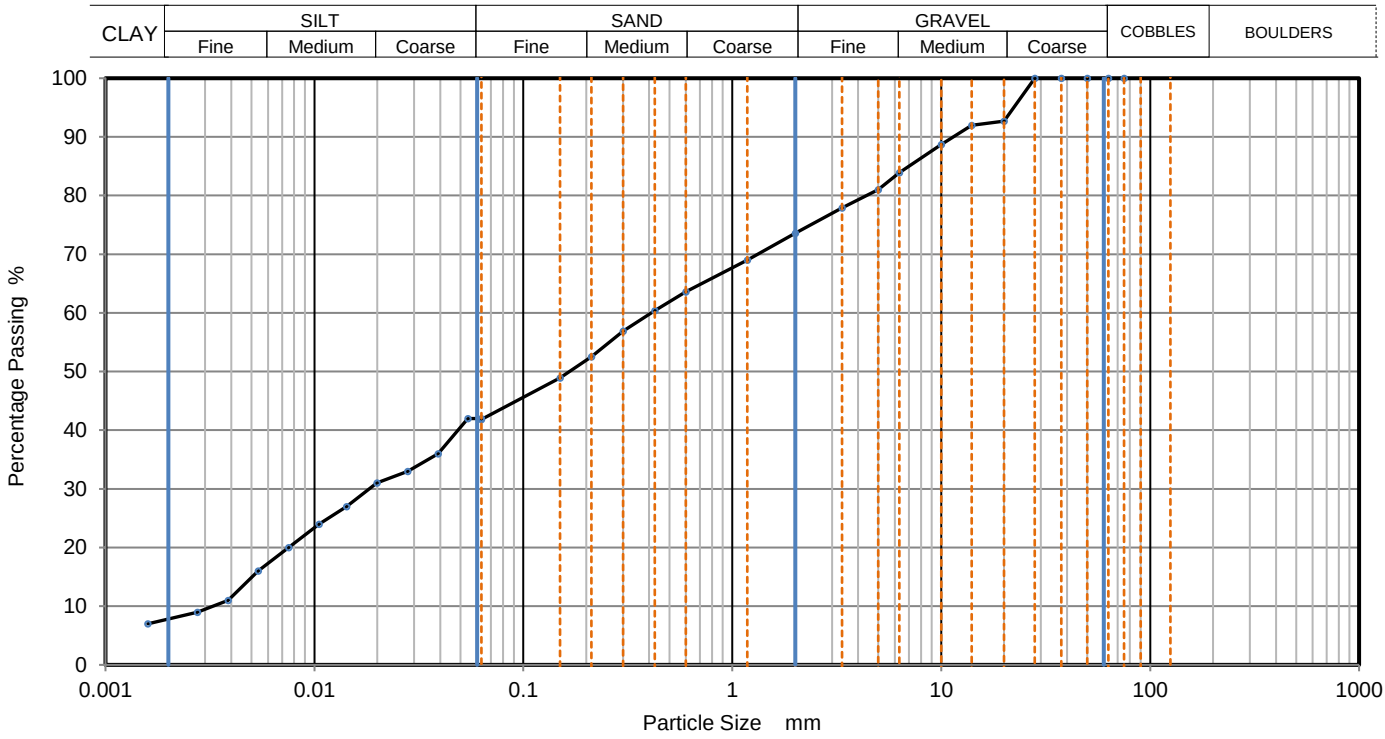
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44408
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014153



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0543	42
75	100	0.0391	36
63	100	0.0280	33
50	100	0.0199	31
37.5	100	0.0142	27
28	100	0.0105	24
20	93	0.0075	20
14	92	0.0054	16
10	89	0.0039	11
6.3	84	0.0027	9
5	81	0.0016	7
3.35	78		
2	74		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	60	2.65	Mg/m3
0.3	57		
0.212	53		
0.15	49		
0.063	42		

Dry Mass of sample, g	484

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	32
Silt	34
Clay	8

Grading Analysis		
D100	mm	
D60	mm	0.41
D30	mm	0.0183
D10	mm	0.00326
Uniformity Coefficient		130
Curvature Coefficient		0.25

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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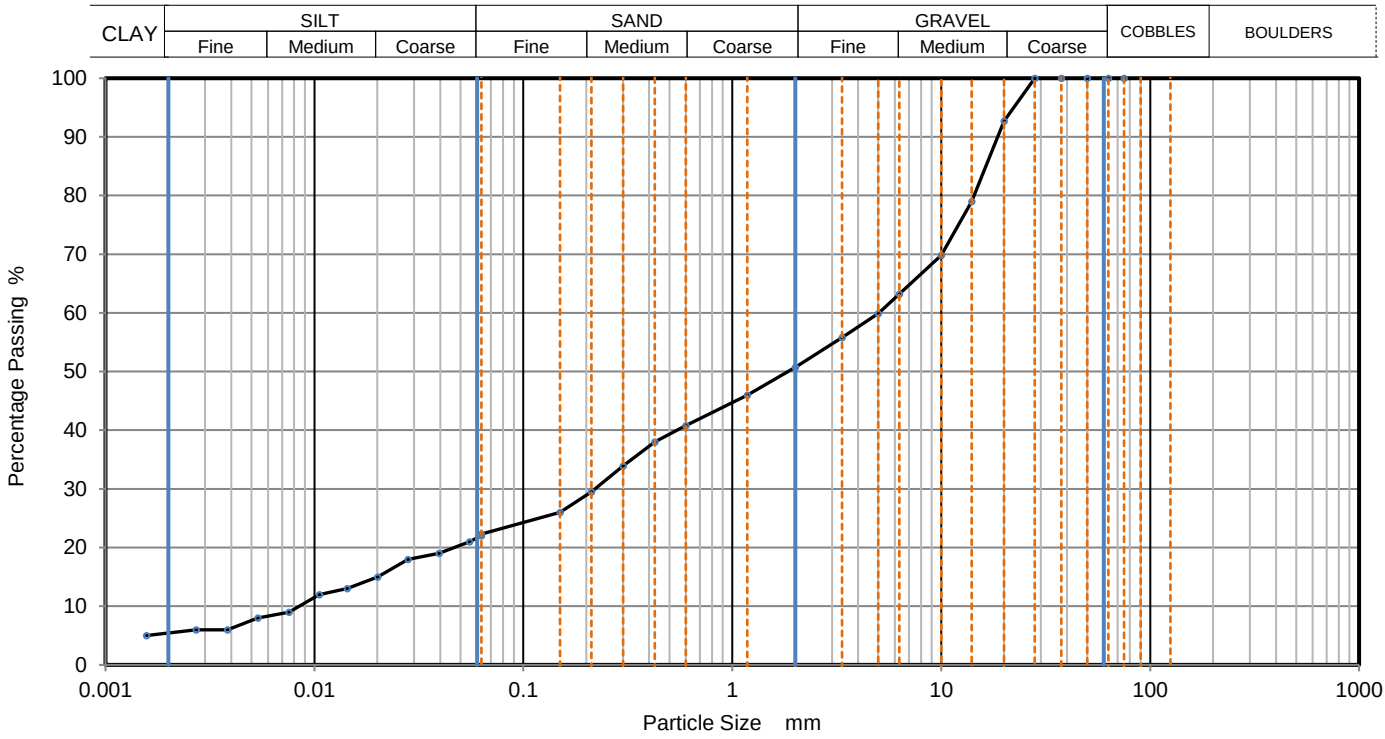
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44408
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy medium GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014155



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0552	21
75	100	0.0395	19
63	100	0.0281	18
50	100	0.0201	15
37.5	100	0.0144	13
28	100	0.0106	12
20	93	0.0075	9
14	79	0.0054	8
10	70	0.0038	6
6.3	63	0.0027	6
5	60	0.0016	5
3.35	56		
2	51		
1.18	46		
0.6	41	Particle density (assumed)	
0.425	38	2.65	Mg/m3
0.3	34		
0.212	30		
0.15	26		
0.063	22		

Dry Mass of sample, g	609

Sample Proportions	% dry mass
Very coarse	0
Gravel	49
Sand	28
Silt	17
Clay	5

Grading Analysis		
D100	mm	
D60	mm	5.03
D30	mm	0.221
D10	mm	0.00823
Uniformity Coefficient		610
Curvature Coefficient		1.2

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:04	**1** QC From No:R2

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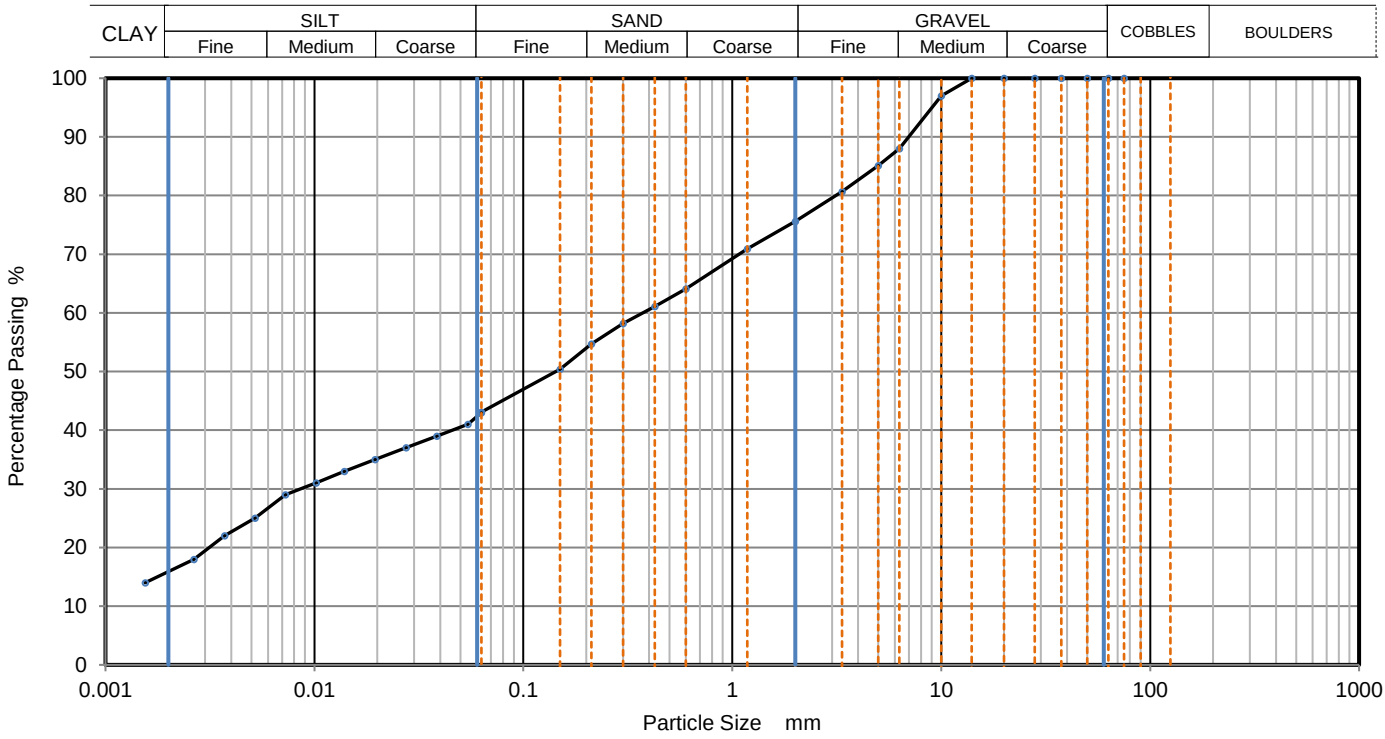
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44508
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014157



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0542	41
75	100	0.0385	39
63	100	0.0274	37
50	100	0.0195	35
37.5	100	0.0139	33
28	100	0.0102	31
20	100	0.0073	29
14	100	0.0052	25
10	97	0.0037	22
6.3	88	0.0027	18
5	85	0.0015	14
3.35	81		
2	76		
1.18	71		
0.6	64	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	58		
0.212	55		
0.15	50		
0.063	43		

Dry Mass of sample, g	423

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	33
Silt	27
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.373
D30	mm	0.00807
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	11/08/2022 14:04	**1** QC From No:R2

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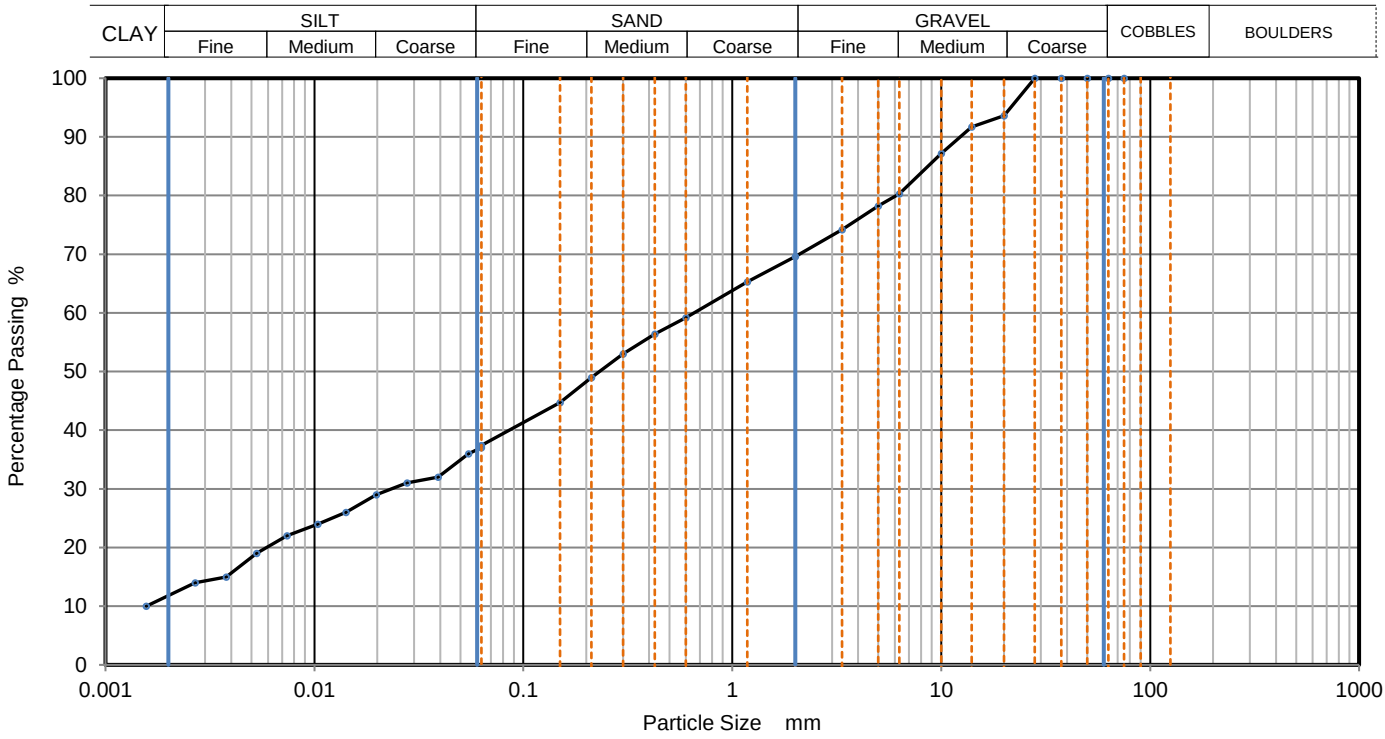
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44508
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014159



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0545	36
75	100	0.0391	32
63	100	0.0278	31
50	100	0.0198	29
37.5	100	0.0141	26
28	100	0.0104	24
20	94	0.0074	22
14	92	0.0053	19
10	87	0.0038	15
6.3	80	0.0027	14
5	78	0.0016	10
3.35	74		
2	70		
1.18	65		
0.6	59	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	53		
0.212	49		
0.15	45		
0.063	37		

Dry Mass of sample, g	459

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	32
Silt	26
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.653
D30	mm	0.0246
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:04	**1** QC From No:R2

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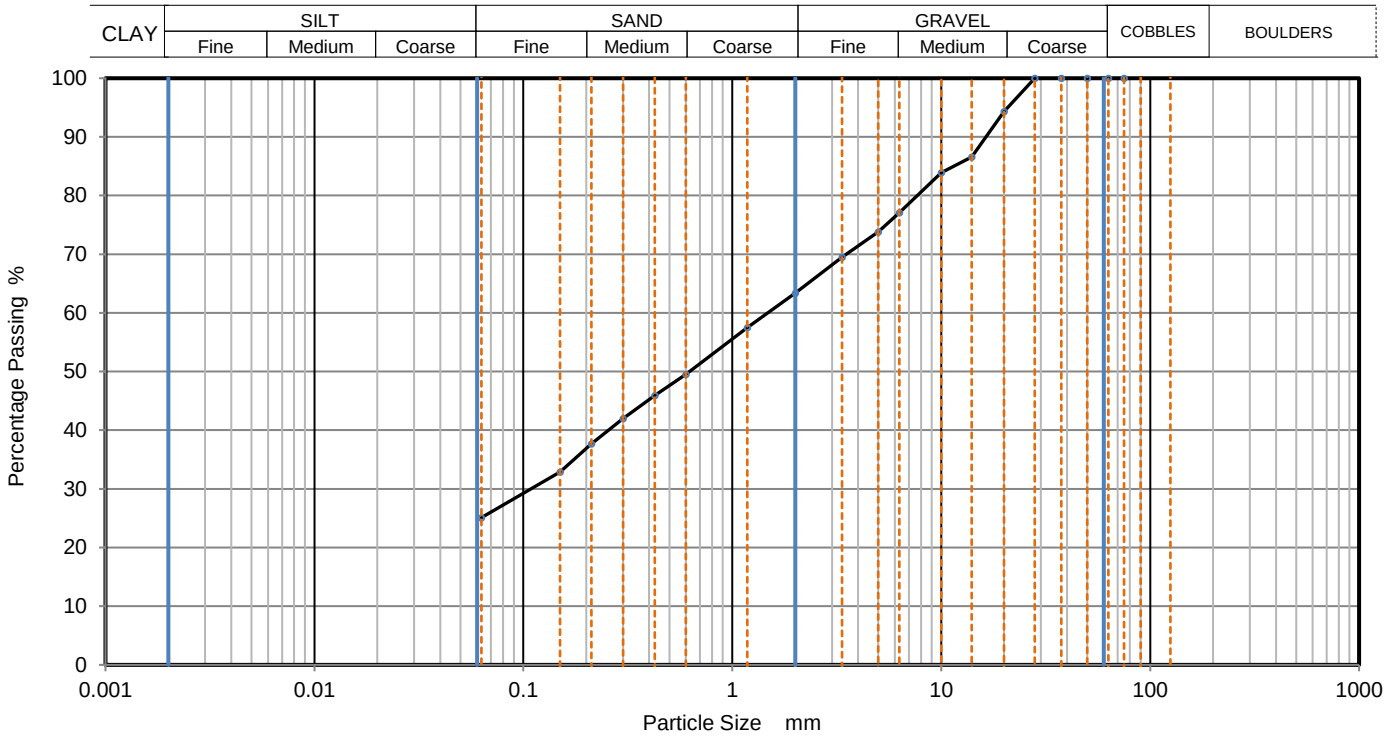
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44508
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very silty SAND and GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211014161



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	87		
10	84		
6.3	77		
5	74		
3.35	70		
2	63		
1.18	58		
0.6	50		
0.425	46		
0.3	42		
0.212	38		
0.15	33		
0.063	25		

Dry Mass of sample, g	526

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	38
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	1.47
D30	mm	0.109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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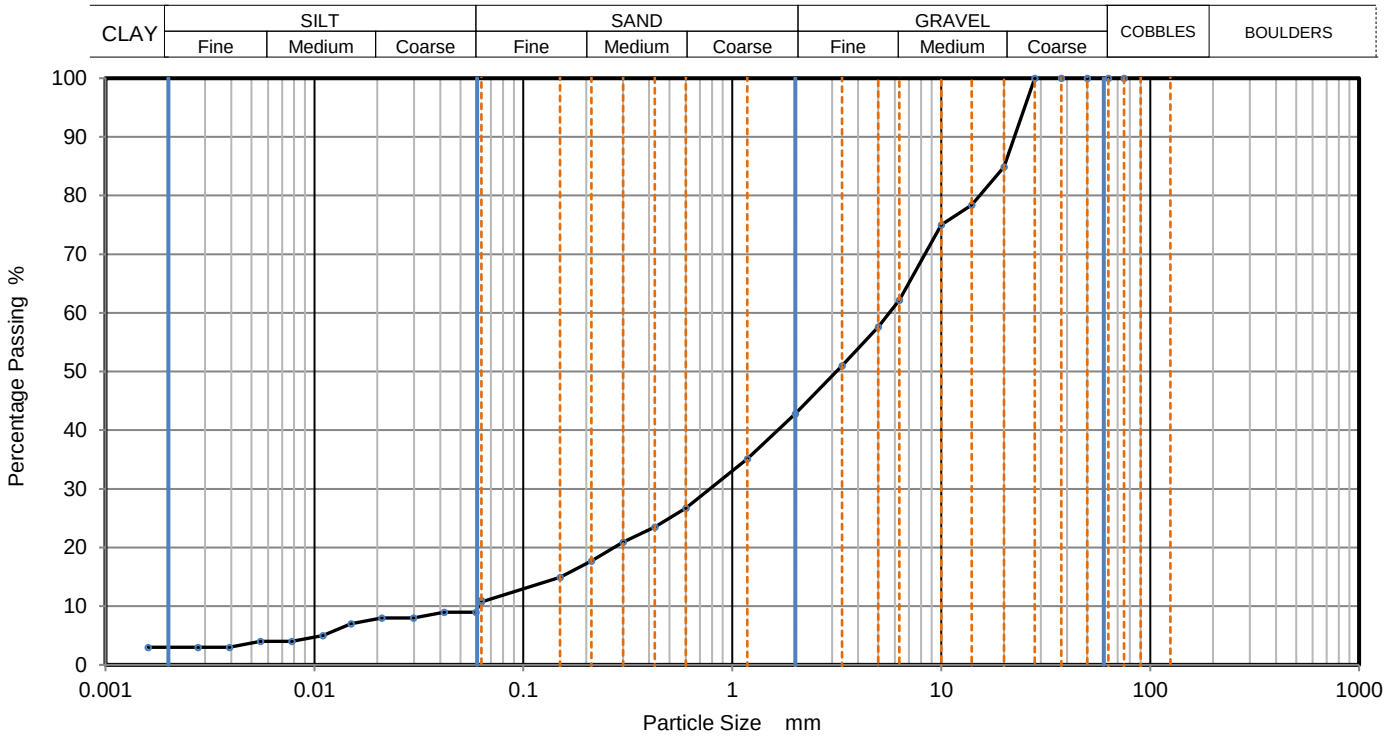
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44611
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey silty very sandy medium GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014163



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	11
		0.0592	9
75	100	0.0418	9
63	100	0.0297	8
50	100	0.0210	8
37.5	100	0.0149	7
28	100	0.0110	5
20	85	0.0078	4
14	78	0.0055	4
10	75	0.0039	3
6.3	62	0.0028	3
5	58	0.0016	3
3.35	51		
2	43		
1.18	35		
0.6	27	Particle density (assumed)	
0.425	24	2.65	Mg/m3
0.3	21		
0.212	18		
0.15	15		
0.063	11		

Dry Mass of sample, g: 485

Sample Proportions	% dry mass
Very coarse	0
Gravel	57
Sand	32
Silt	8
Clay	3

Grading Analysis		
D100	mm	
D60	mm	5.64
D30	mm	0.782
D10	mm	0.061
Uniformity Coefficient		93
Curvature Coefficient		1.8

Remarks

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		Dympna Darcy B.Sc.	11/08/2022 14:04	**1** QC From No:R2

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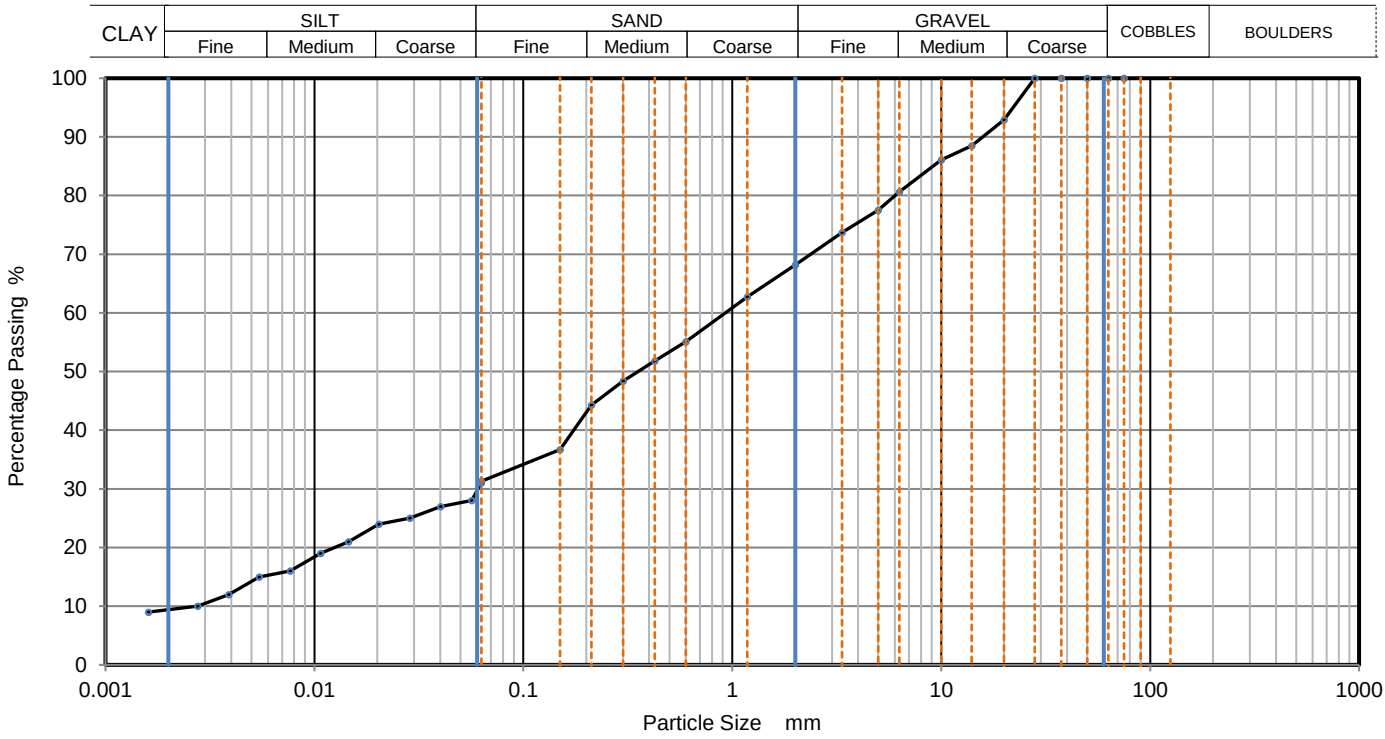
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-44611
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey very silty GRAVEL and SAND.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014165



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0565	28
75	100	0.0402	27
63	100	0.0286	25
50	100	0.0204	24
37.5	100	0.0146	21
28	100	0.0107	19
20	93	0.0076	16
14	89	0.0054	15
10	86	0.0039	12
6.3	81	0.0028	10
5	78	0.0016	9
3.35	74		
2	68		
1.18	63		
0.6	55	Particle density (assumed)	
0.425	52	2.65	Mg/m3
0.3	48		
0.212	44		
0.15	37		
0.063	31		

Dry Mass of sample, g	498

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	37
Silt	22
Clay	10

Grading Analysis		
D100	mm	
D60	mm	0.931
D30	mm	0.06
D10	mm	0.00236
Uniformity Coefficient		390
Curvature Coefficient		1.6

Remarks

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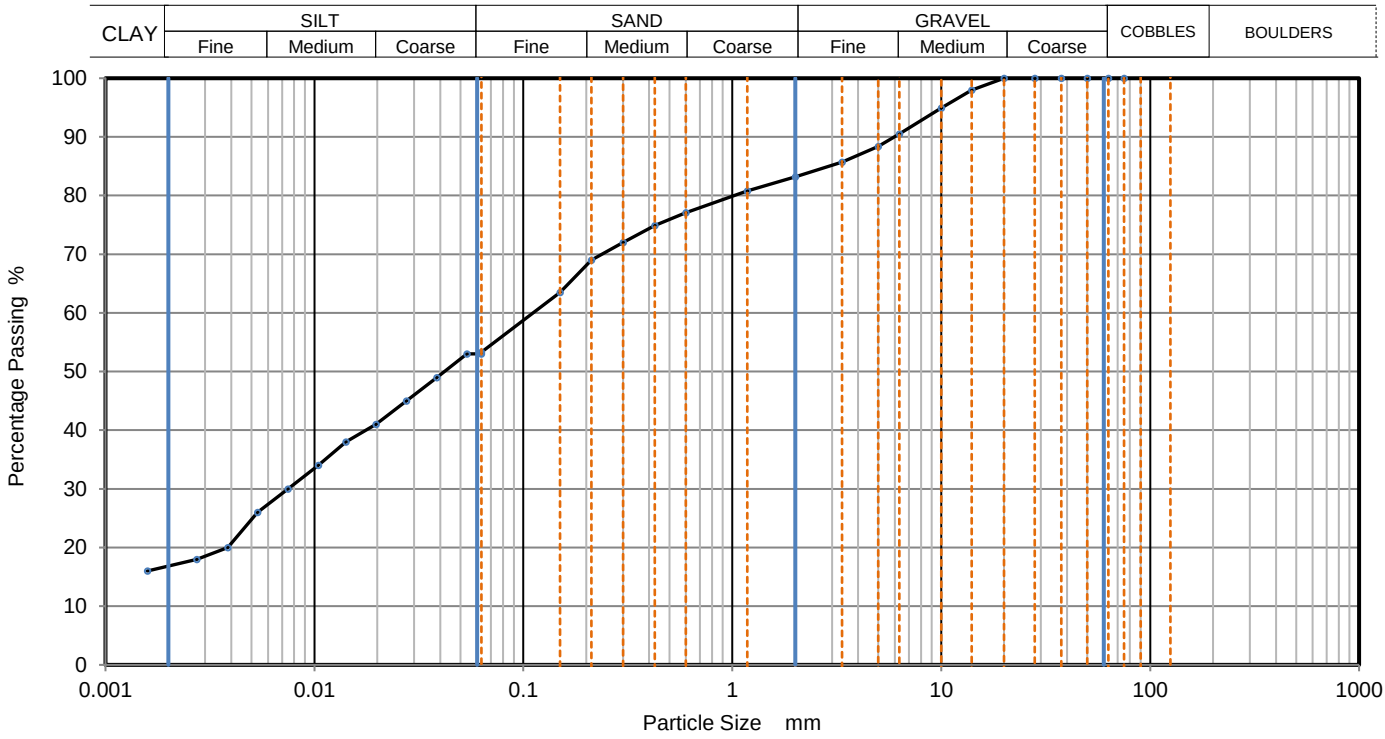
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46303
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014169



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	53
		0.0537	53
75	100	0.0385	49
63	100	0.0276	45
50	100	0.0197	41
37.5	100	0.0141	38
28	100	0.0104	34
20	100	0.0075	30
14	98	0.0053	26
10	95	0.0038	20
6.3	91	0.0027	18
5	88	0.0016	16
3.35	86		
2	83		
1.18	81		
0.6	77	Particle density (assumed)	
0.425	75	2.65	Mg/m3
0.3	72		
0.212	69		
0.15	64		
0.063	53		

Dry Mass of sample, g	206

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	30
Silt	37
Clay	17

Grading Analysis		
D100	mm	
D60	mm	0.111
D30	mm	0.00773
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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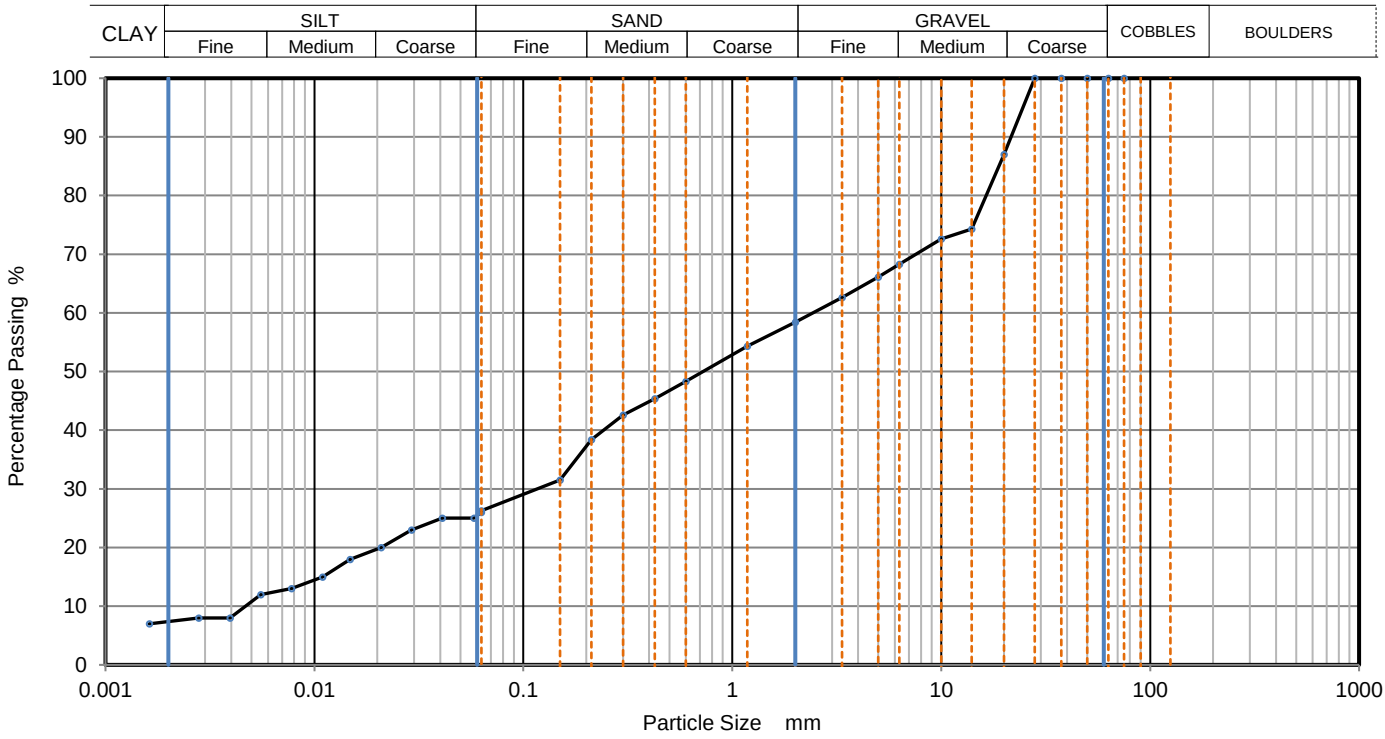
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46303
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy medium GRAVEL.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014172



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0579	25
75	100	0.0409	25
63	100	0.0291	23
50	100	0.0208	20
37.5	100	0.0148	18
28	100	0.0109	15
20	87	0.0078	13
14	74	0.0055	12
10	73	0.0040	8
6.3	68	0.0028	8
5	66	0.0016	7
3.35	63		
2	58		
1.18	54		
0.6	48	Particle density (assumed)	
0.425	45	2.65 Mg/m3	
0.3	43		
0.212	38		
0.15	32		
0.063	26		

Dry Mass of sample, g	351

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	32
Silt	19
Clay	7

Grading Analysis		
D100	mm	
D60	mm	2.44
D30	mm	0.117
D10	mm	0.00474
Uniformity Coefficient		520
Curvature Coefficient		1.2

Remarks

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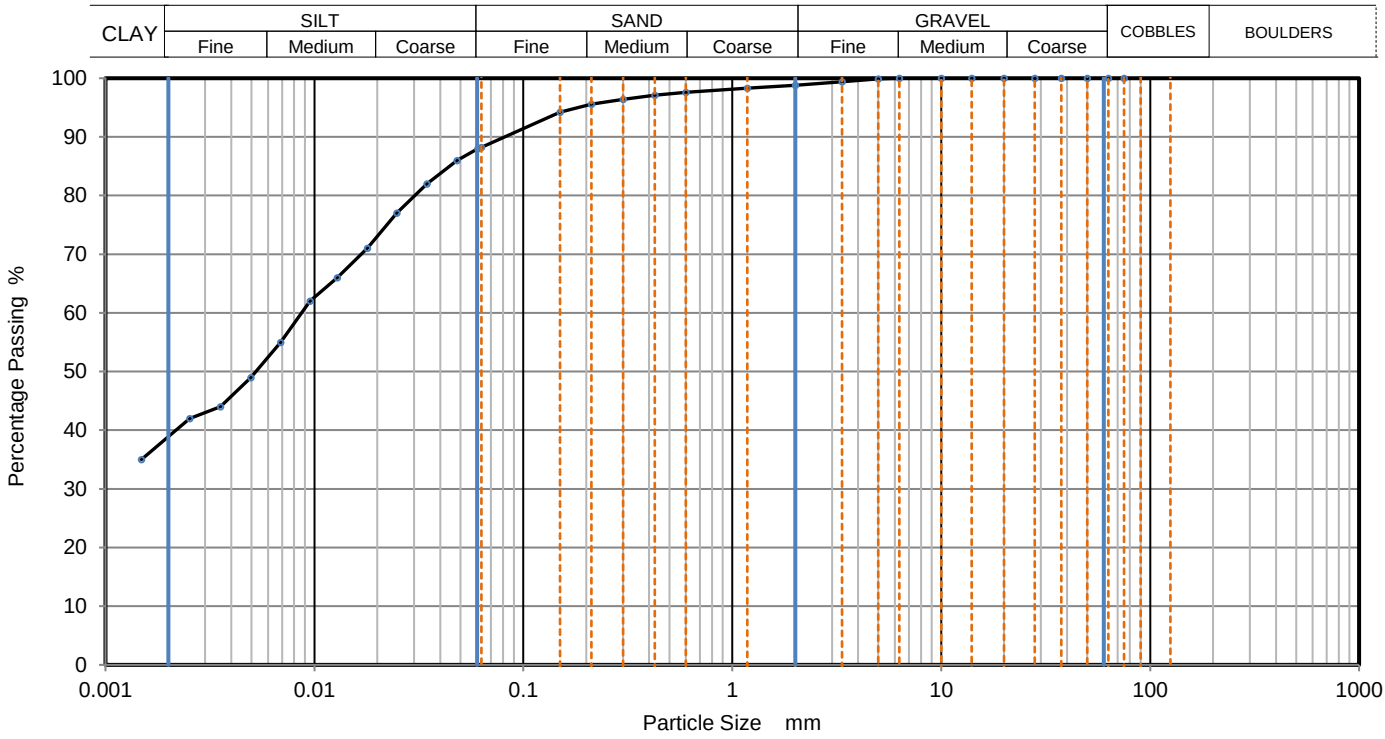
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46502
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014176



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0606	88
		0.0481	86
75	100	0.0345	82
63	100	0.0248	77
50	100	0.0179	71
37.5	100	0.0129	66
28	100	0.0095	62
20	100	0.0069	55
14	100	0.0050	49
10	100	0.0036	44
6.3	100	0.0025	42
5	100	0.0015	35
3.35	99		
2	99		
1.18	98		
0.6	98	Particle density	(assumed)
0.425	97	2.65	Mg/m3
0.3	96		
0.212	96		
0.15	94		
0.063	88		

Dry Mass of sample, g	387

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	11
Silt	49
Clay	39

Grading Analysis		
D100	mm	
D60	mm	0.00875
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:04	**1** QC From No:R2

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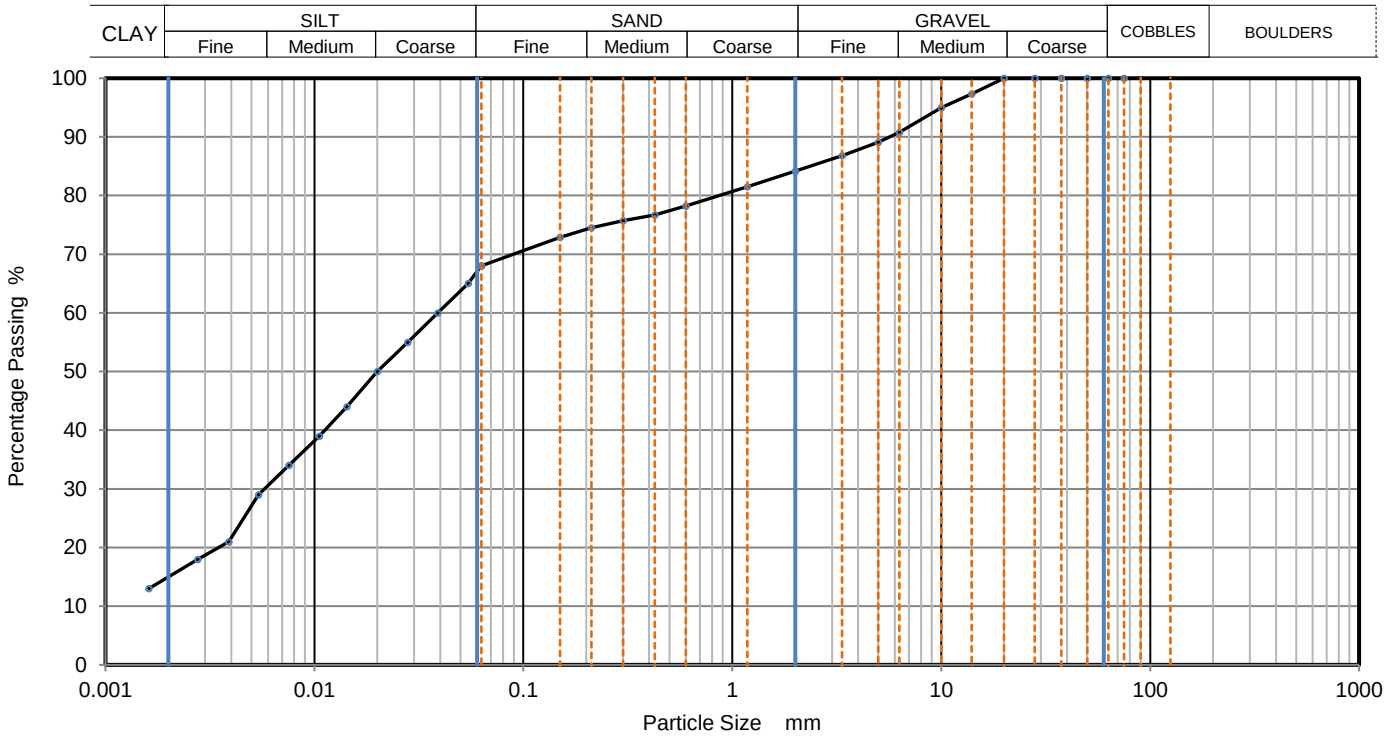
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46502
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014178



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	68
		0.0544	65
75	100	0.0390	60
63	100	0.0279	55
50	100	0.0200	50
37.5	100	0.0143	44
28	100	0.0106	39
20	100	0.0076	34
14	97	0.0054	29
10	95	0.0039	21
6.3	91	0.0028	18
5	89	0.0016	13
3.35	87		
2	84		
1.18	82		
0.6	78	Particle density (assumed)	
0.425	77	2.65 Mg/m3	
0.3	76		
0.212	75		
0.15	73		
0.063	68		

Dry Mass of sample, g: 617

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	16
Silt	53
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.0386
D30	mm	0.00585
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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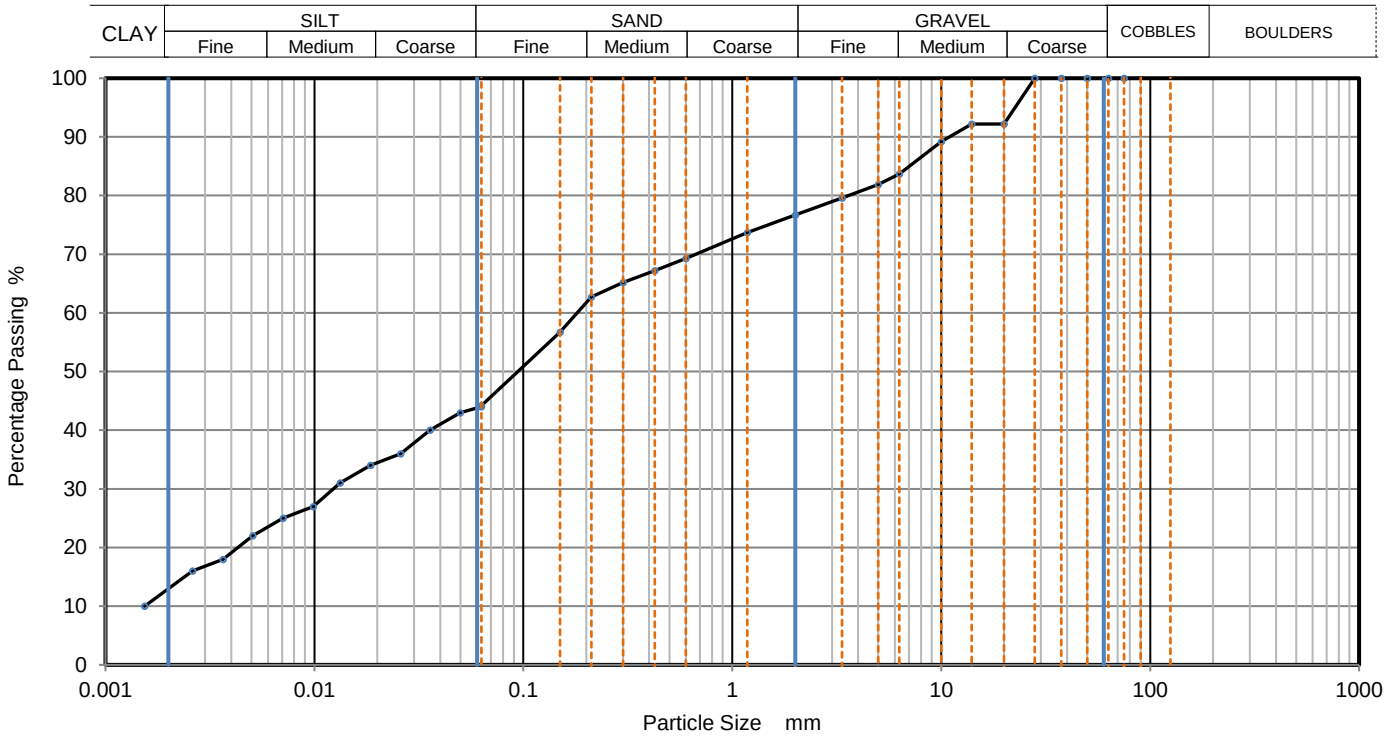
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46502
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014180



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0499	43
75	100	0.0358	40
63	100	0.0259	36
50	100	0.0185	34
37.5	100	0.0133	31
28	100	0.0099	27
20	92	0.0071	25
14	92	0.0051	22
10	89	0.0036	18
6.3	84	0.0026	16
5	82	0.0015	10
3.35	80		
2	77		
1.18	74		
0.6	69	Particle density (assumed)	
0.425	67	2.65 Mg/m3	
0.3	65		
0.212	63		
0.15	57		
0.063	44		

Dry Mass of sample, g	454

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	33
Silt	31
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.181
D30	mm	0.0121
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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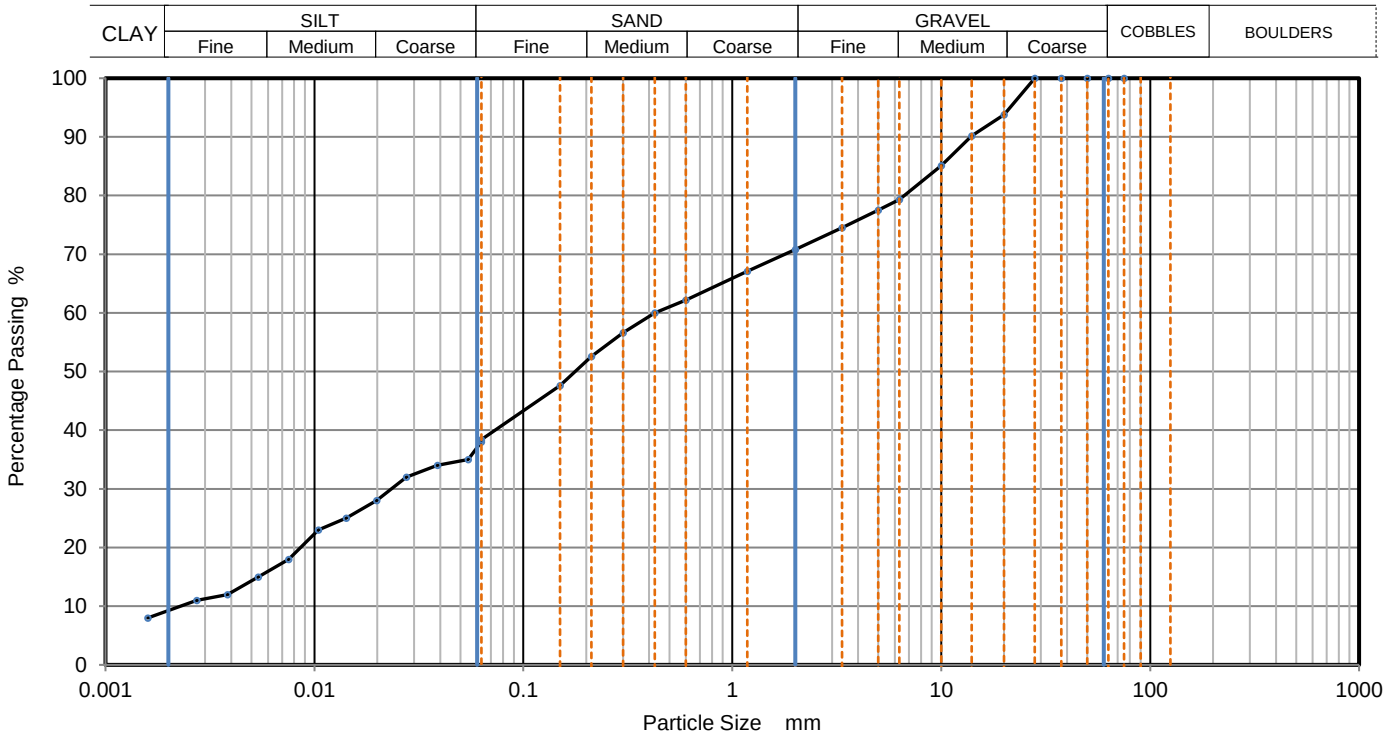
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46603
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slighlty gravelly slightly sandy SILT.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014183



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0545	35
75	100	0.0388	34
63	100	0.0276	32
50	100	0.0199	28
37.5	100	0.0142	25
28	100	0.0104	23
20	94	0.0075	18
14	90	0.0054	15
10	85	0.0038	12
6.3	79	0.0027	11
5	78	0.0016	8
3.35	75		
2	71		
1.18	67		
0.6	62	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	57		
0.212	53		
0.15	48		
0.063	38		

Dry Mass of sample, g	394

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	32
Silt	29
Clay	9

Grading Analysis		
D100	mm	
D60	mm	0.427
D30	mm	0.0235
D10	mm	0.00239
Uniformity Coefficient		180
Curvature Coefficient		0.54

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:04	**1** QC From No:R2

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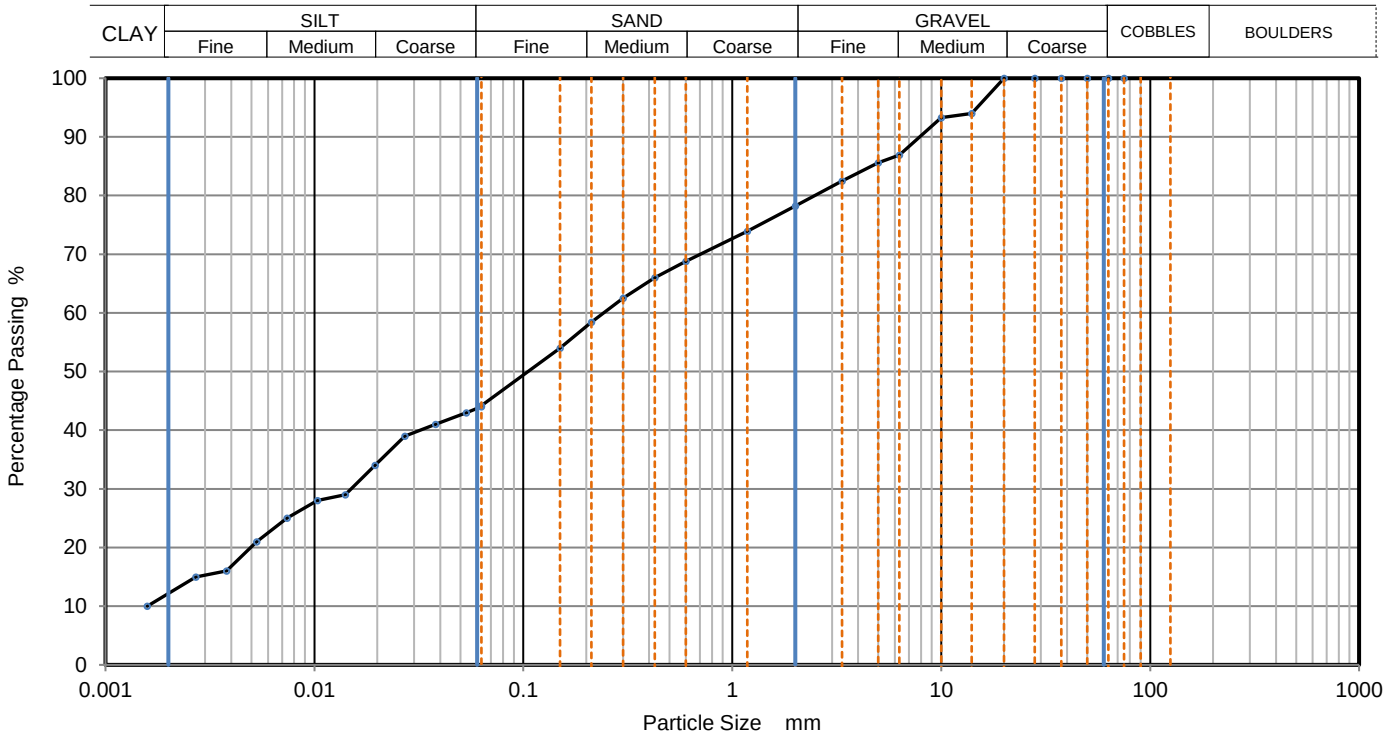
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46603
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014185



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0534	43
75	100	0.0380	41
63	100	0.0270	39
50	100	0.0195	34
37.5	100	0.0140	29
28	100	0.0103	28
20	100	0.0074	25
14	94	0.0053	21
10	93	0.0038	16
6.3	87	0.0027	15
5	86	0.0016	10
3.35	83		
2	78		
1.18	74		
0.6	69	Particle density (assumed)	
0.425	66	2.65	Mg/m3
0.3	63		
0.212	58		
0.15	54		
0.063	44		

Dry Mass of sample, g	499

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	34
Silt	32
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.242
D30	mm	0.0146
D10	mm	0.00162
Uniformity Coefficient		150
Curvature Coefficient		0.54

Remarks

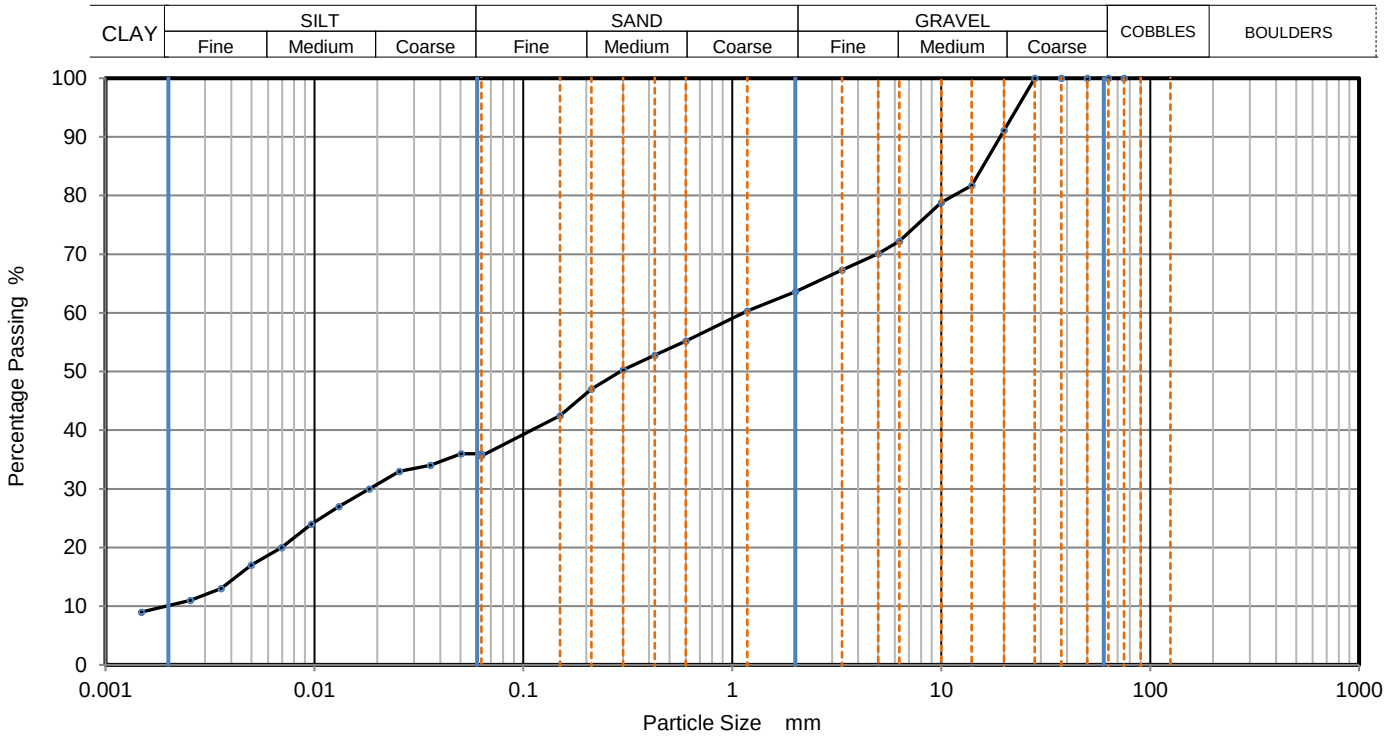
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:04	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46603
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly sandy gravelly SILT.			Depth, m	2.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211014187



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0504	36
75	100	0.0358	34
63	100	0.0255	33
50	100	0.0183	30
37.5	100	0.0131	27
28	100	0.0097	24
20	91	0.0070	20
14	82	0.0050	17
10	79	0.0036	13
6.3	72	0.0025	11
5	70	0.0015	9
3.35	67		
2	64		
1.18	60		
0.6	55	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	312

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	28
Silt	26
Clay	10

Grading Analysis		
D100	mm	
D60	mm	1.13
D30	mm	0.0185
D10	mm	0.00196
Uniformity Coefficient		580
Curvature Coefficient		0.15

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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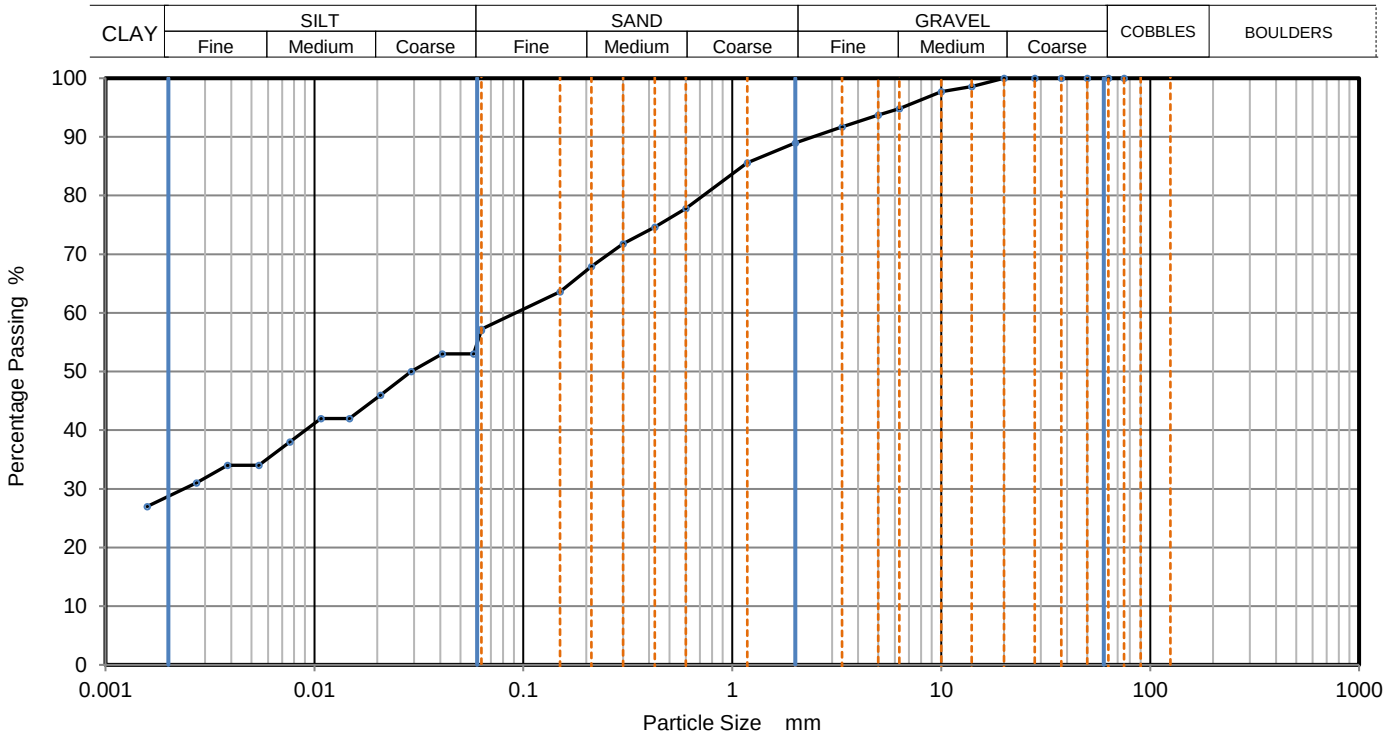
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46717
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102024



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	57
		0.0578	53
75	100	0.0409	53
63	100	0.0291	50
50	100	0.0207	46
37.5	100	0.0147	42
28	100	0.0107	42
20	100	0.0076	38
14	99	0.0054	34
10	98	0.0038	34
6.3	95	0.0027	31
5	94	0.0016	27
3.35	92		
2	89		
1.18	86		
0.6	78	Particle density (assumed)	
0.425	75	2.65 Mg/m3	
0.3	72		
0.212	68		
0.15	64		
0.063	57		

Dry Mass of sample, g	654

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	32
Silt	29
Clay	28

Grading Analysis		
D100	mm	
D60	mm	0.0923
D30	mm	0.00254
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:49	**1** QC From No:R2

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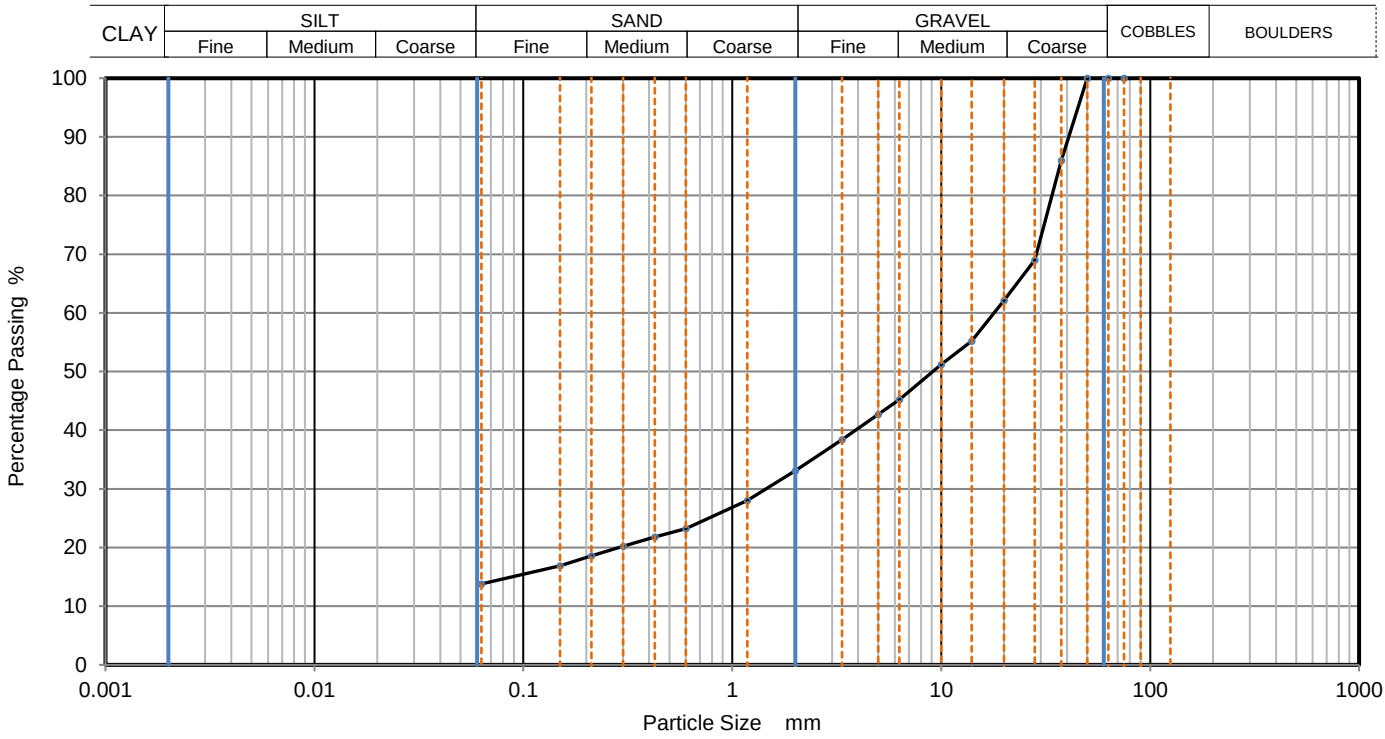
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46717
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty sandy coarse GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021102026



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	86		
28	69		
20	62		
14	55		
10	51		
6.3	45		
5	43		
3.35	38		
2	33		
1.18	28		
0.6	23		
0.425	22		
0.3	20		
0.212	19		
0.15	17		
0.063	14		

Dry Mass of sample, g	875

Sample Proportions	% dry mass
Very coarse	0
Gravel	67
Sand	19
Fines <0.063mm	14

Grading Analysis		
D100	mm	
D60	mm	17.9
D30	mm	1.45
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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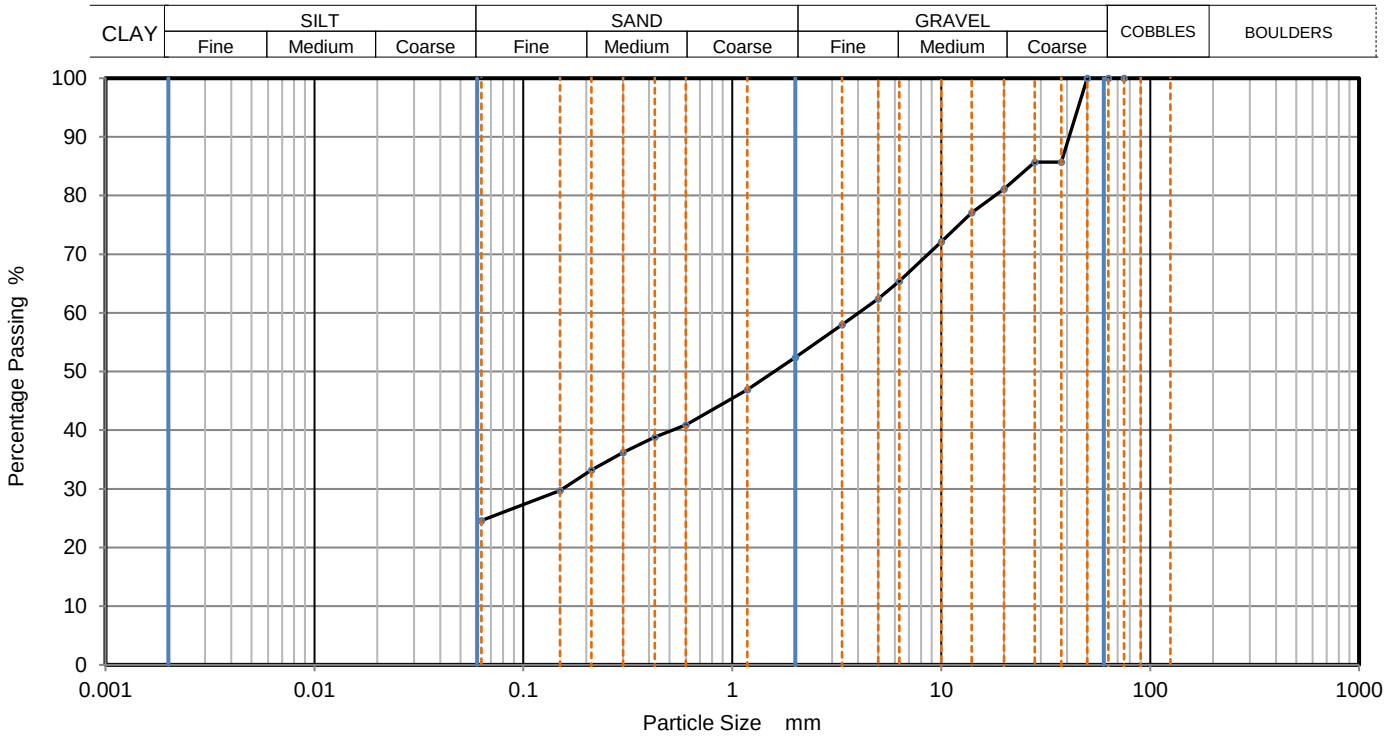
		Dympna Darcy B.Sc.	11/08/2022 14:49	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46717
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown sandy very silty coarse GRAVEL.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021102028



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	86		
28	86		
20	81		
14	77		
10	72		
6.3	65		
5	62		
3.35	58		
2	52		
1.18	47		
0.6	41		
0.425	39		
0.3	36		
0.212	33		
0.15	30		
0.063	25		

Dry Mass of sample, g	977

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	28
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	4.02
D30	mm	0.154
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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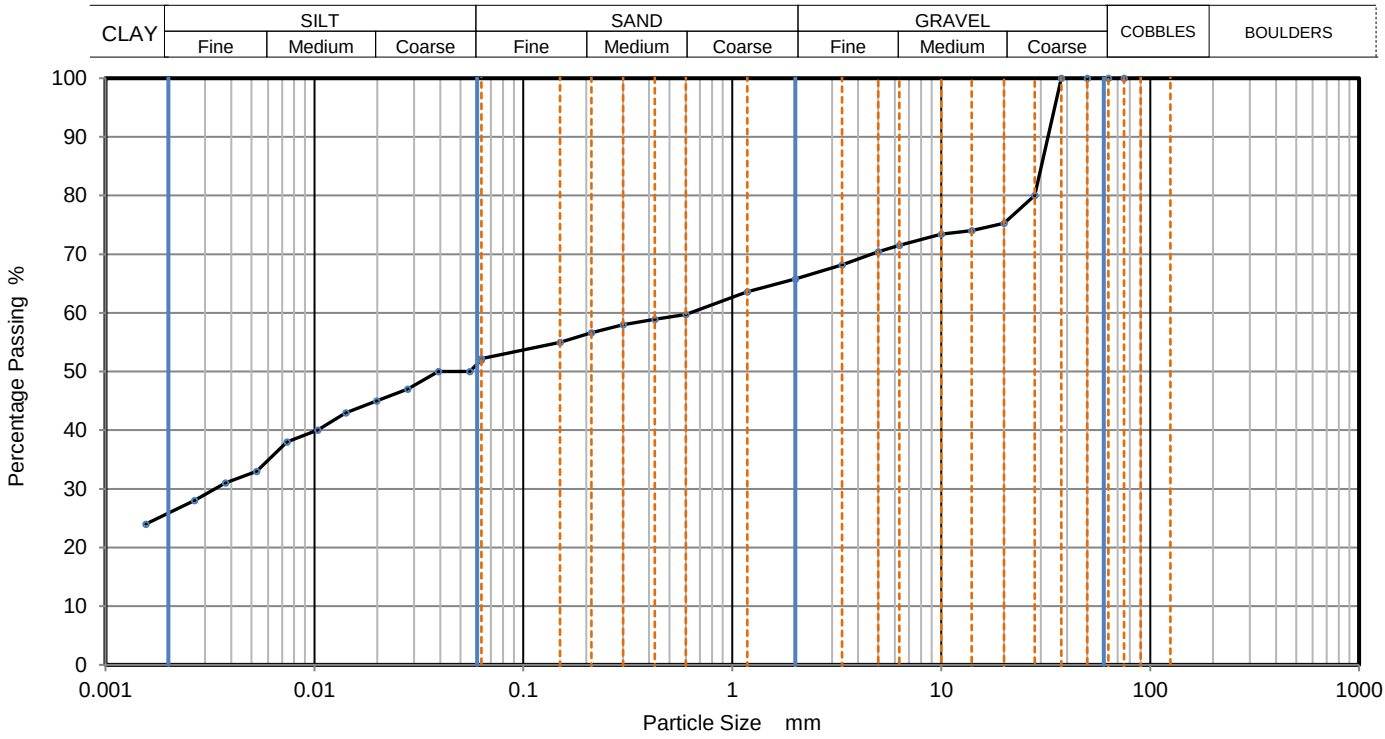
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46801
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102032



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	52
		0.0555	50
75	100	0.0392	50
63	100	0.0279	47
50	100	0.0199	45
37.5	100	0.0141	43
28	80	0.0104	40
20	75	0.0074	38
14	74	0.0053	33
10	73	0.0038	31
6.3	72	0.0027	28
5	70	0.0016	24
3.35	68		
2	66		
1.18	64		
0.6	60	Particle density (assumed)	
0.425	59	2.65	Mg/m3
0.3	58		
0.212	57		
0.15	55		
0.063	52		

Dry Mass of sample, g	765

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	14
Silt	26
Clay	26

Grading Analysis		
D100	mm	
D60	mm	0.63
D30	mm	0.00333
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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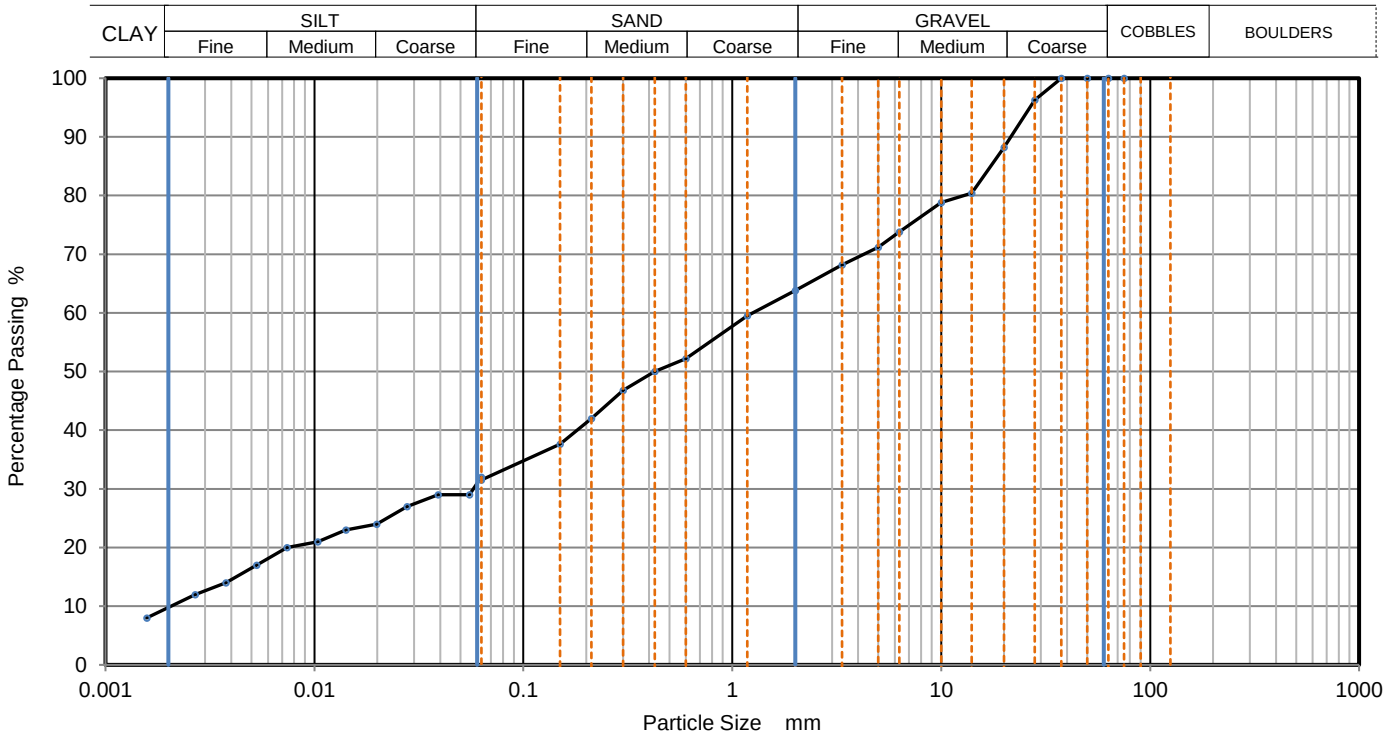
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46801
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102034



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0552	29
75	100	0.0390	29
63	100	0.0278	27
50	100	0.0199	24
37.5	100	0.0141	23
28	96	0.0104	21
20	88	0.0074	20
14	80	0.0053	17
10	79	0.0038	14
6.3	74	0.0027	12
5	71	0.0016	8
3.35	68		
2	64		
1.18	60		
0.6	52	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	47		
0.212	42		
0.15	38		
0.063	32		

Dry Mass of sample, g	1064

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	32
Silt	22
Clay	10

Grading Analysis		
D100	mm	
D60	mm	1.25
D30	mm	0.059
D10	mm	0.00212
Uniformity Coefficient		590
Curvature Coefficient		1.3

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:50	**1** QC From No:R2

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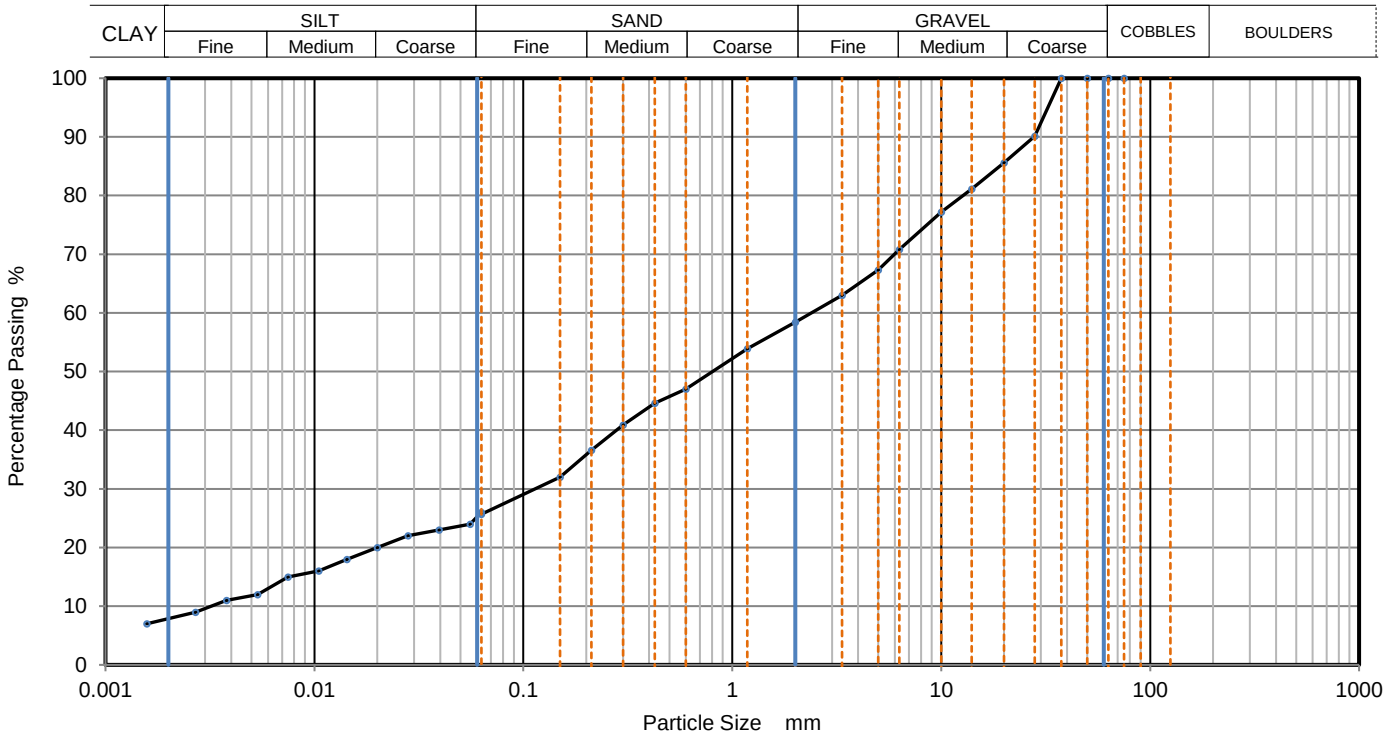
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-46901
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102038



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0555	24
75	100	0.0395	23
63	100	0.0281	22
50	100	0.0200	20
37.5	100	0.0143	18
28	90	0.0105	16
20	86	0.0075	15
14	81	0.0053	12
10	77	0.0038	11
6.3	71	0.0027	9
5	67	0.0016	7
3.35	63		
2	58		
1.18	54		
0.6	47	Particle density (assumed)	
0.425	45	2.65	Mg/m3
0.3	41		
0.212	37		
0.15	32		
0.063	26		

Dry Mass of sample, g	791

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	33
Silt	18
Clay	8

Grading Analysis		
D100	mm	
D60	mm	2.39
D30	mm	0.114
D10	mm	0.00308
Uniformity Coefficient		770
Curvature Coefficient		1.8

Remarks

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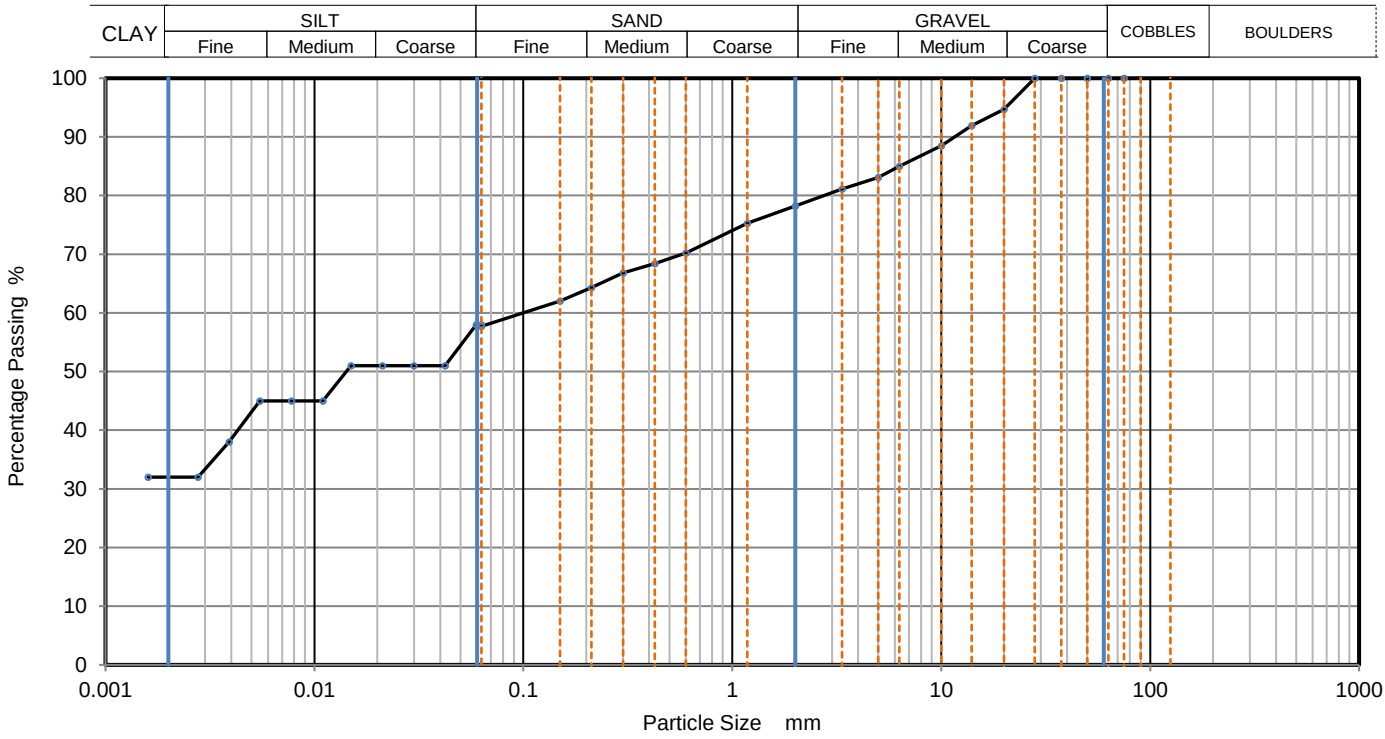
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47003
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly sandy slightly gravelly silty CLAY.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102040



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	58
		0.0595	58
75	100	0.0423	51
63	100	0.0299	51
50	100	0.0211	51
37.5	100	0.0149	51
28	100	0.0110	45
20	95	0.0078	45
14	92	0.0055	45
10	89	0.0039	38
6.3	85	0.0028	32
5	83	0.0016	32
3.35	81		
2	78		
1.18	75		
0.6	70	Particle density (assumed)	
0.425	68	2.65 Mg/m3	
0.3	67		
0.212	64		
0.15	62		
0.063	58		

Dry Mass of sample, g	707

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	21
Silt	26
Clay	32

Grading Analysis		
D100	mm	
D60	mm	0.101
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	11/08/2022 14:50	**1** QC From No:R2

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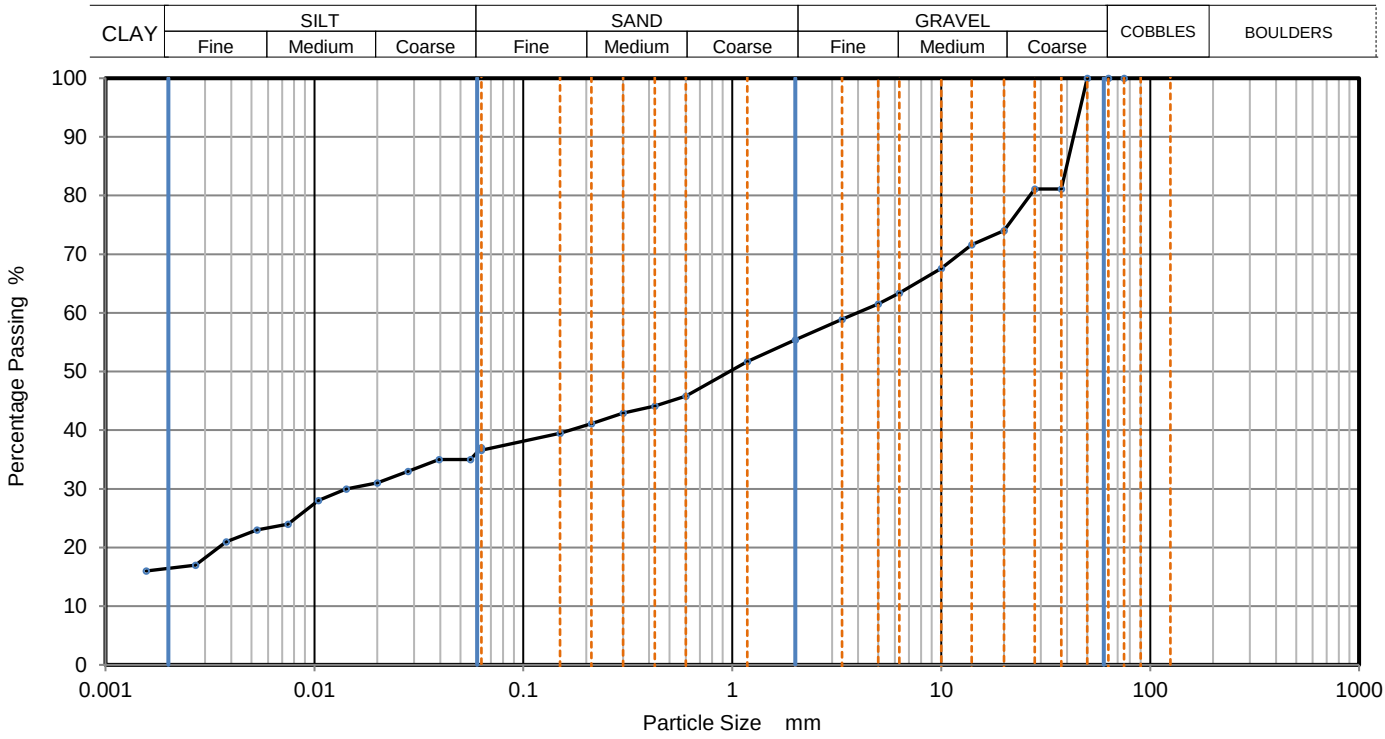
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47003
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102042



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0558	35
75	100	0.0395	35
63	100	0.0281	33
50	100	0.0200	31
37.5	81	0.0142	30
28	81	0.0104	28
20	74	0.0075	24
14	72	0.0053	23
10	68	0.0038	21
6.3	63	0.0027	17
5	62	0.0016	16
3.35	59		
2	55		
1.18	52		
0.6	46	Particle density (assumed)	
0.425	44	2.65 Mg/m3	
0.3	43		
0.212	41		
0.15	40		
0.063	37		

Dry Mass of sample, g	1008

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	19
Silt	20
Clay	17

Grading Analysis		
D100	mm	
D60	mm	3.98
D30	mm	0.0153
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

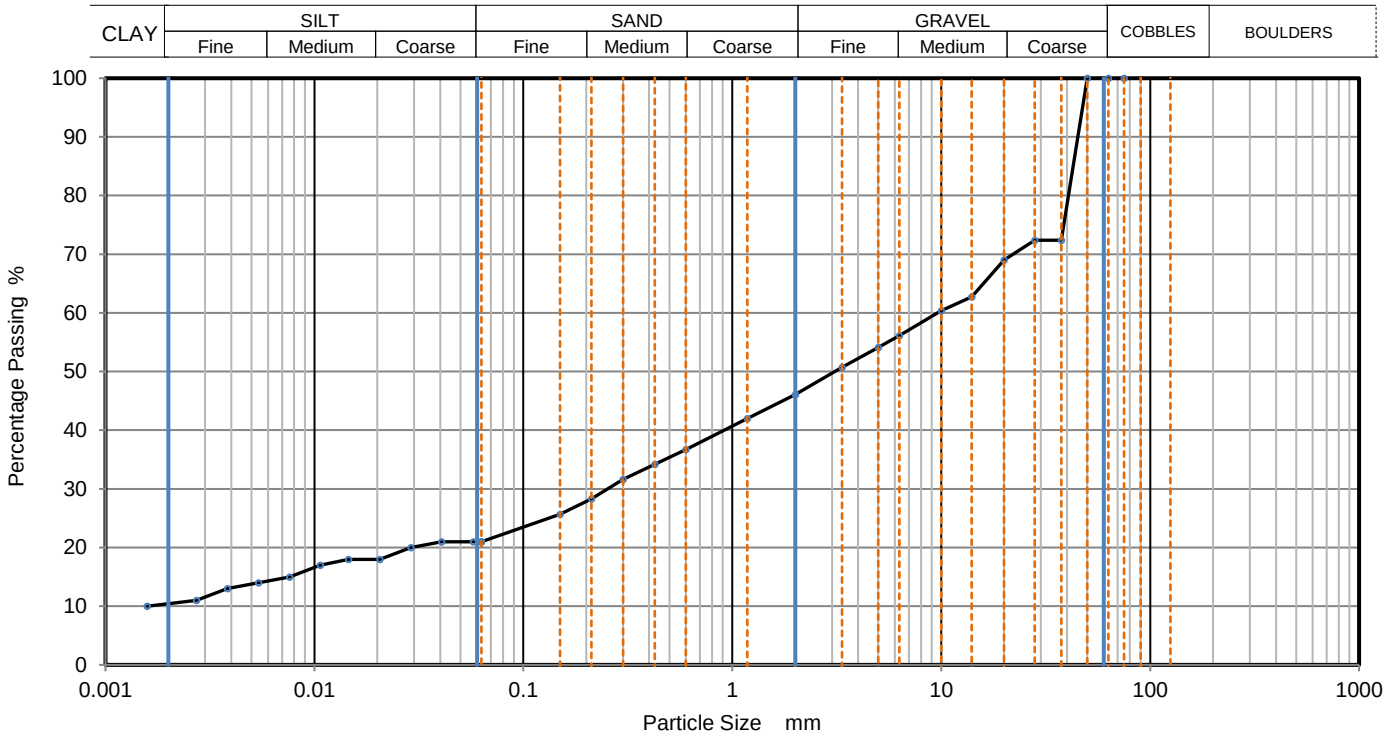
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:50	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47003
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very silty very sandy GRAVEL.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102044



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0575	21
75	100	0.0407	21
63	100	0.0289	20
50	100	0.0206	18
37.5	72	0.0145	18
28	72	0.0107	17
20	69	0.0076	15
14	63	0.0054	14
10	60	0.0038	13
6.3	56	0.0027	11
5	54	0.0016	10
3.35	51		
2	46		
1.18	42		
0.6	37	Particle density (assumed)	
0.425	34	2.65	Mg/m3
0.3	32		
0.212	28		
0.15	26		
0.063	21		

Dry Mass of sample, g	861

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	25
Silt	11
Clay	10

Grading Analysis		
D100	mm	
D60	mm	9.57
D30	mm	0.253
D10	mm	0.00171
Uniformity Coefficient		5600
Curvature Coefficient		3.9

Remarks

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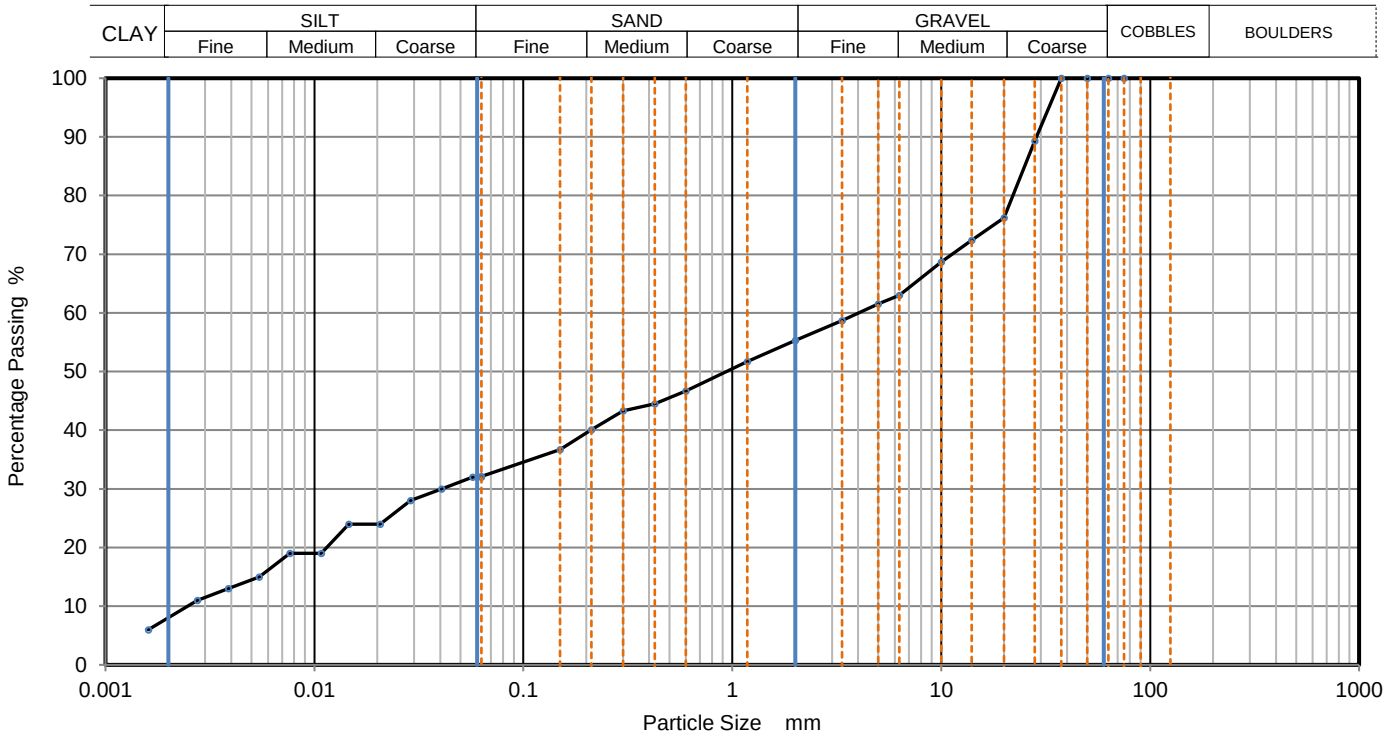
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47102
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very sandy very silty coarse GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102048



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0571	32
75	100	0.0406	30
63	100	0.0289	28
50	100	0.0206	24
37.5	100	0.0146	24
28	89	0.0108	19
20	76	0.0076	19
14	72	0.0054	15
10	69	0.0039	13
6.3	63	0.0028	11
5	62	0.0016	6
3.35	59		
2	55		
1.18	52		
0.6	47	Particle density (assumed)	
0.425	45	2.65 Mg/m3	
0.3	43		
0.212	40		
0.15	37		
0.063	32		

Dry Mass of sample, g	892

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	23
Silt	24
Clay	8

Grading Analysis		
D100	mm	
D60	mm	4.03
D30	mm	0.0409
D10	mm	0.00252
Uniformity Coefficient		1600
Curvature Coefficient		0.16

Remarks

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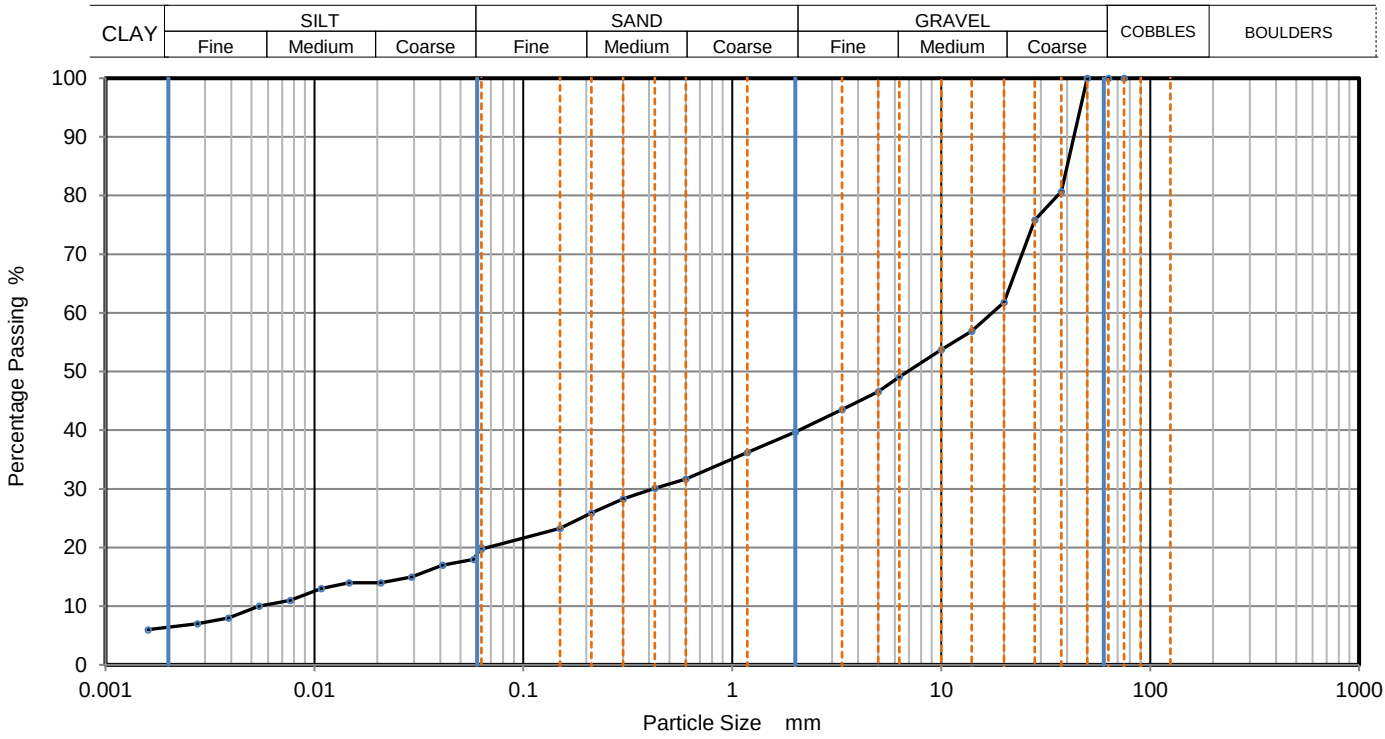
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47102
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown very silty very sandy coarse GRAVEL.			Depth, m	3.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102052



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	20
		0.0577	18
75	100	0.0411	17
63	100	0.0292	15
50	100	0.0208	14
37.5	81	0.0147	14
28	76	0.0108	13
20	62	0.0077	11
14	57	0.0054	10
10	54	0.0039	8
6.3	49	0.0028	7
5	47	0.0016	6
3.35	44		
2	40		
1.18	36		
0.6	32	Particle density (assumed)	
0.425	30	2.65 Mg/m3	
0.3	28		
0.212	26		
0.15	23		
0.063	20		

Dry Mass of sample, g	1056

Sample Proportions	% dry mass
Very coarse	0
Gravel	60
Sand	20
Silt	14
Clay	6

Grading Analysis		
D100	mm	
D60	mm	17.5
D30	mm	0.414
D10	mm	0.00565
Uniformity Coefficient		3100
Curvature Coefficient		1.7

Remarks

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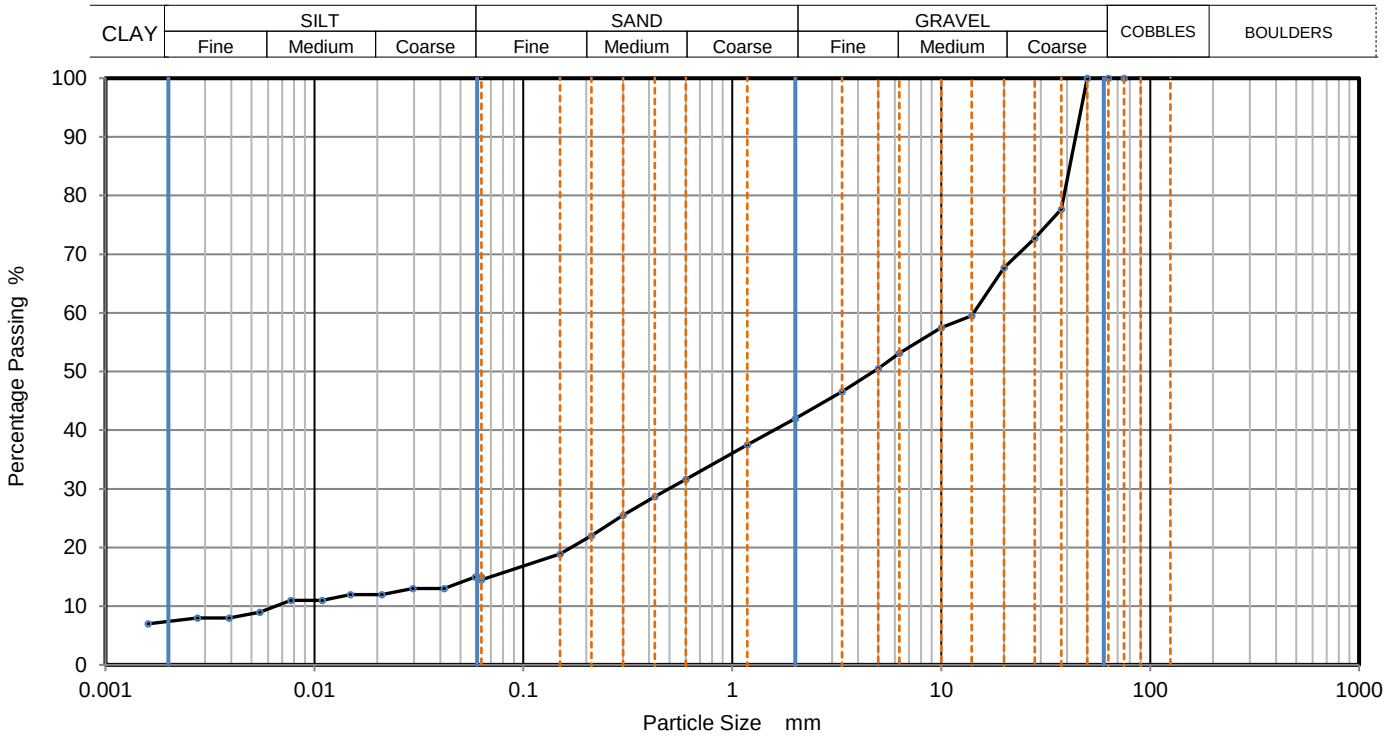
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47202
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102056



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	15
		0.0588	15
75	100	0.0418	13
63	100	0.0296	13
50	100	0.0210	12
37.5	78	0.0149	12
28	73	0.0109	11
20	68	0.0077	11
14	60	0.0055	9
10	58	0.0039	8
6.3	53	0.0028	8
5	51	0.0016	7
3.35	47		
2	42		
1.18	38		
0.6	32	Particle density (assumed)	
0.425	29	2.65 Mg/m3	
0.3	26		
0.212	22		
0.15	19		
0.063	15		

Dry Mass of sample, g	1106

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	27
Silt	8
Clay	7

Grading Analysis		
D100	mm	
D60	mm	14.3
D30	mm	0.498
D10	mm	0.0067
Uniformity Coefficient		2100
Curvature Coefficient		2.6

Remarks

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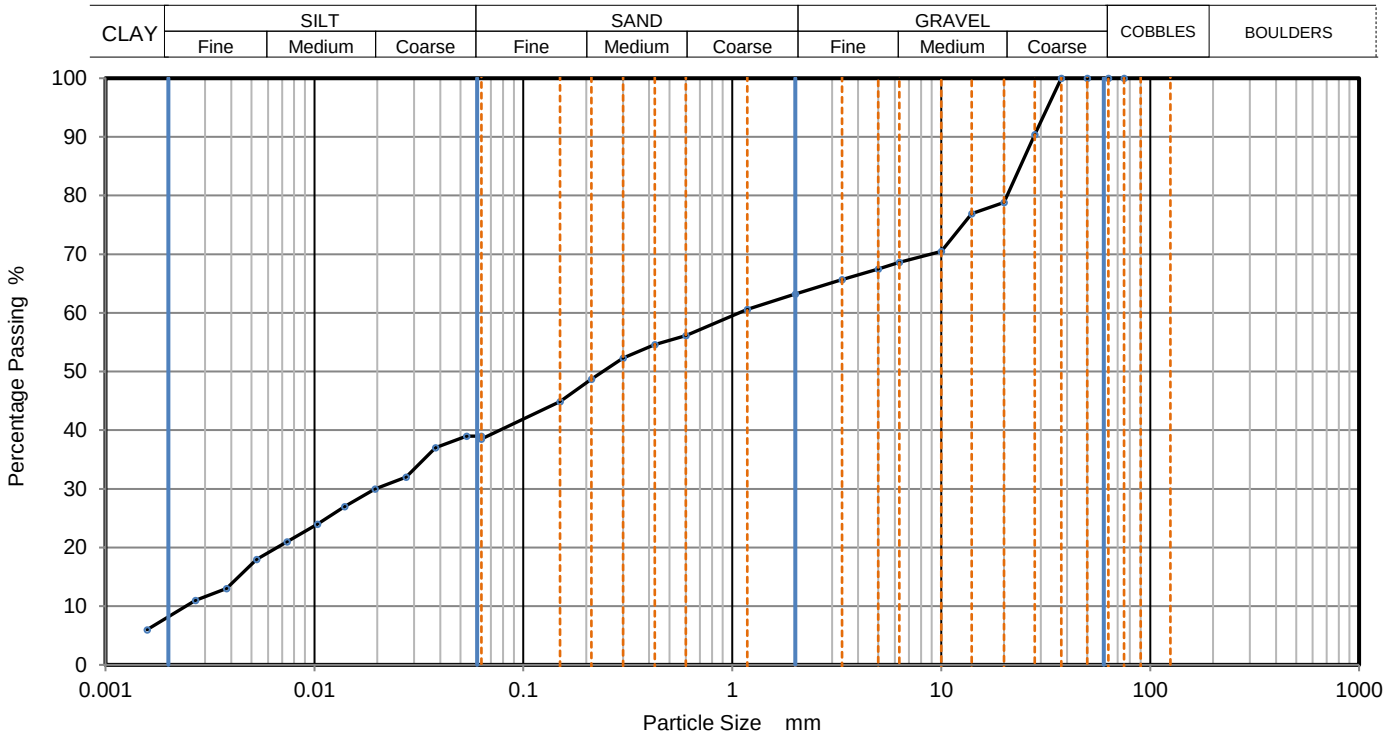
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47202
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102060



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0534	39
75	100	0.0380	37
63	100	0.0274	32
50	100	0.0195	30
37.5	100	0.0140	27
28	90	0.0103	24
20	79	0.0074	21
14	77	0.0053	18
10	71	0.0038	13
6.3	69	0.0027	11
5	68	0.0016	6
3.35	66		
2	63		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	52		
0.212	49		
0.15	45		
0.063	39		

Dry Mass of sample, g	758

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	25
Silt	30
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.08
D30	mm	0.0186
D10	mm	0.00235
Uniformity Coefficient		460
Curvature Coefficient		0.14

Remarks

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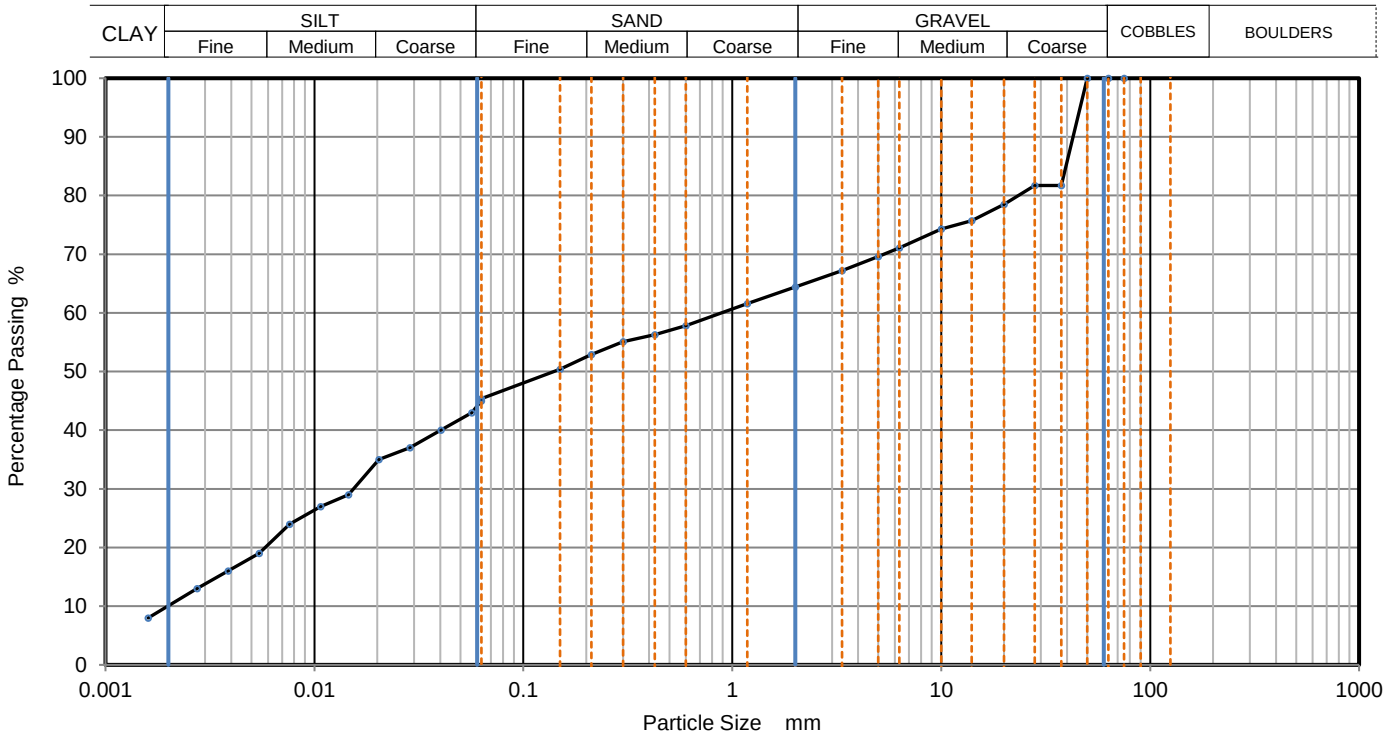
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47308
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Orangish-brown slightly sandy gravelly SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102064



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0566	43
75	100	0.0403	40
63	100	0.0286	37
50	100	0.0204	35
37.5	82	0.0146	29
28	82	0.0107	27
20	79	0.0076	24
14	76	0.0054	19
10	74	0.0039	16
6.3	71	0.0027	13
5	70	0.0016	8
3.35	67		
2	64		
1.18	62		
0.6	58	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	55		
0.212	53		
0.15	50		
0.063	45		

Dry Mass of sample, g	888

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	19
Silt	35
Clay	10

Grading Analysis		
D100	mm	
D60	mm	0.888
D30	mm	0.0151
D10	mm	0.00196
Uniformity Coefficient		450
Curvature Coefficient		0.13

Remarks

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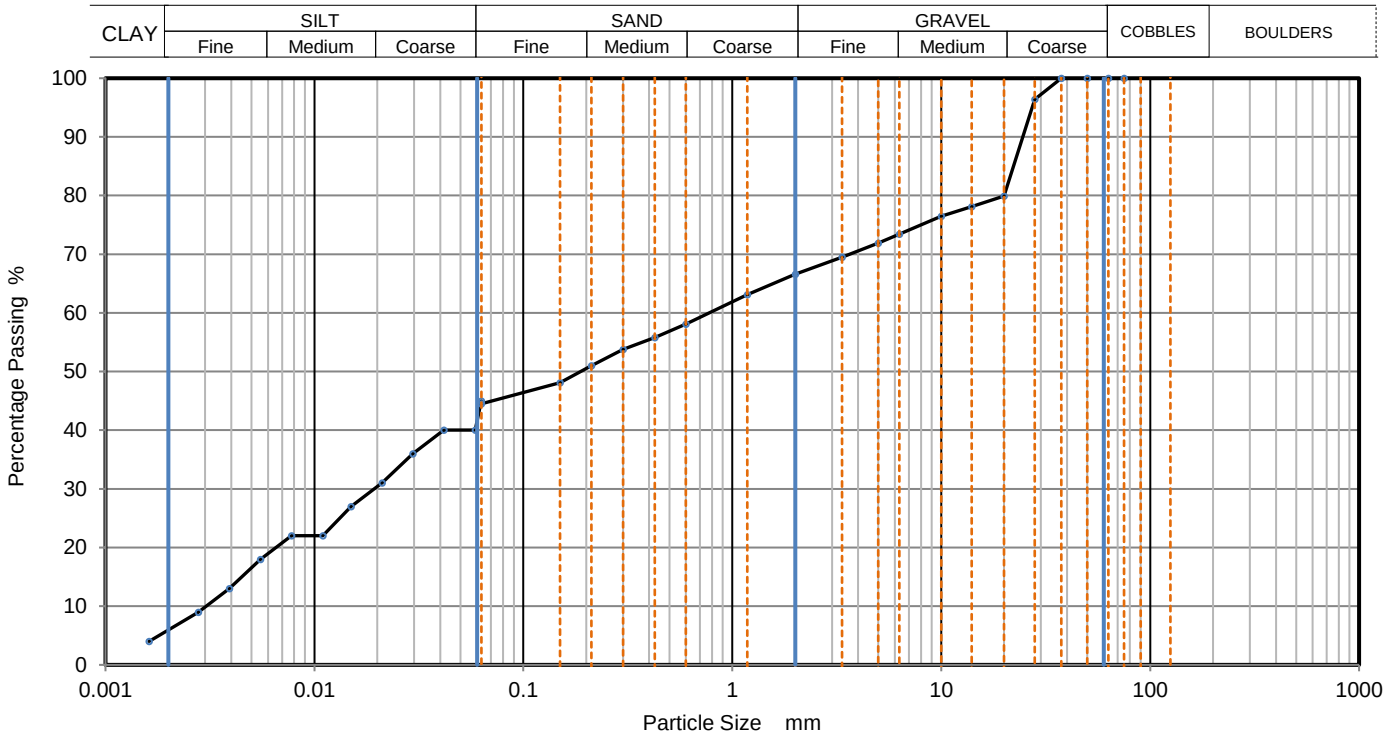
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47392
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly sandy slightly gravelly SILT. Gravel is coarse.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102070



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0589	40
75	100	0.0416	40
63	100	0.0296	36
50	100	0.0210	31
37.5	100	0.0150	27
28	96	0.0110	22
20	80	0.0078	22
14	78	0.0055	18
10	77	0.0039	13
6.3	73	0.0028	9
5	72	0.0016	4
3.35	70		
2	67		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	54		
0.212	51		
0.15	48		
0.063	45		

Dry Mass of sample, g	839

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	22
Silt	38
Clay	6

Grading Analysis		
D100	mm	
D60	mm	0.776
D30	mm	0.0193
D10	mm	0.00303
Uniformity Coefficient		260
Curvature Coefficient		0.16

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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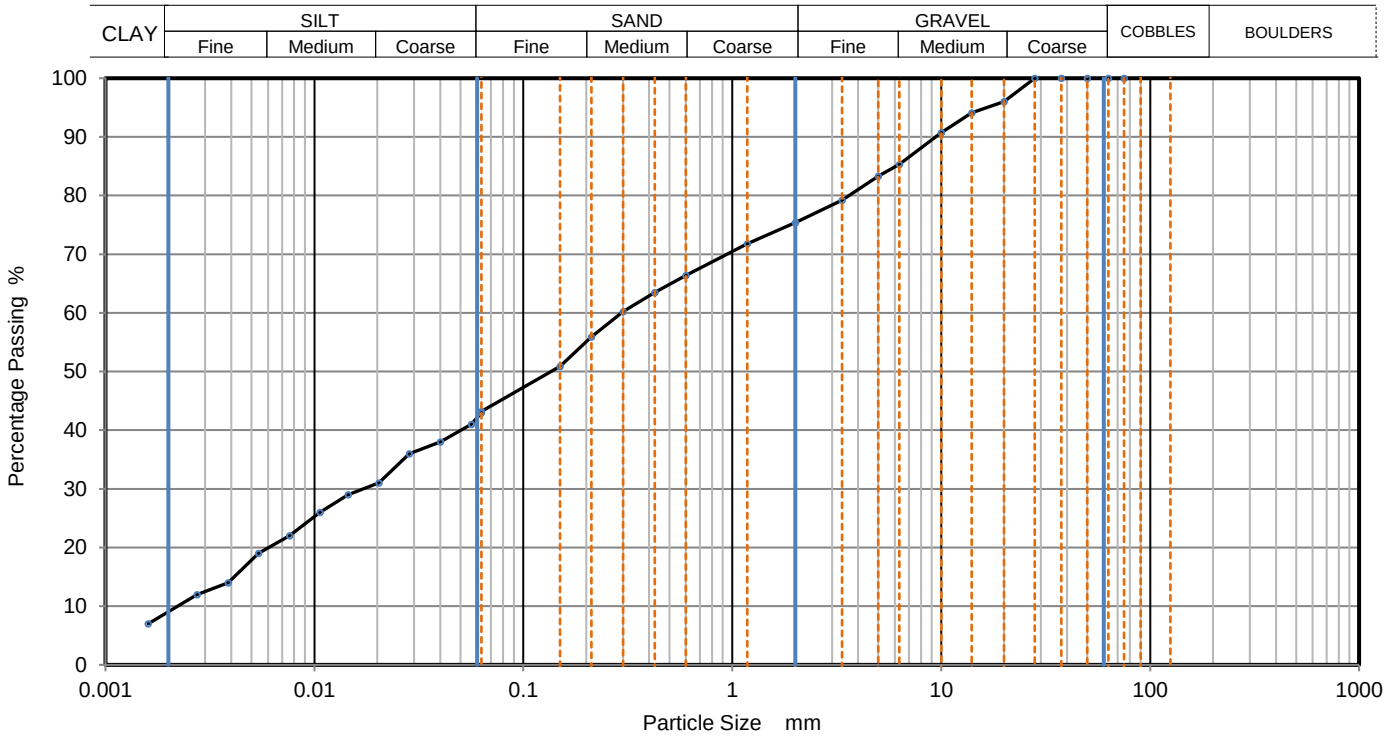
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47392
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102072



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0563	41
75	100	0.0400	38
63	100	0.0285	36
50	100	0.0204	31
37.5	100	0.0145	29
28	100	0.0106	26
20	96	0.0076	22
14	94	0.0054	19
10	91	0.0039	14
6.3	85	0.0027	12
5	83	0.0016	7
3.35	79		
2	75		
1.18	72		
0.6	66	Particle density (assumed)	
0.425	64	2.65	Mg/m3
0.3	60		
0.212	56		
0.15	51		
0.063	43		

Dry Mass of sample, g	882

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	32
Silt	34
Clay	9

Grading Analysis		
D100	mm	
D60	mm	0.296
D30	mm	0.0172
D10	mm	0.00219
Uniformity Coefficient		130
Curvature Coefficient		0.45

Remarks

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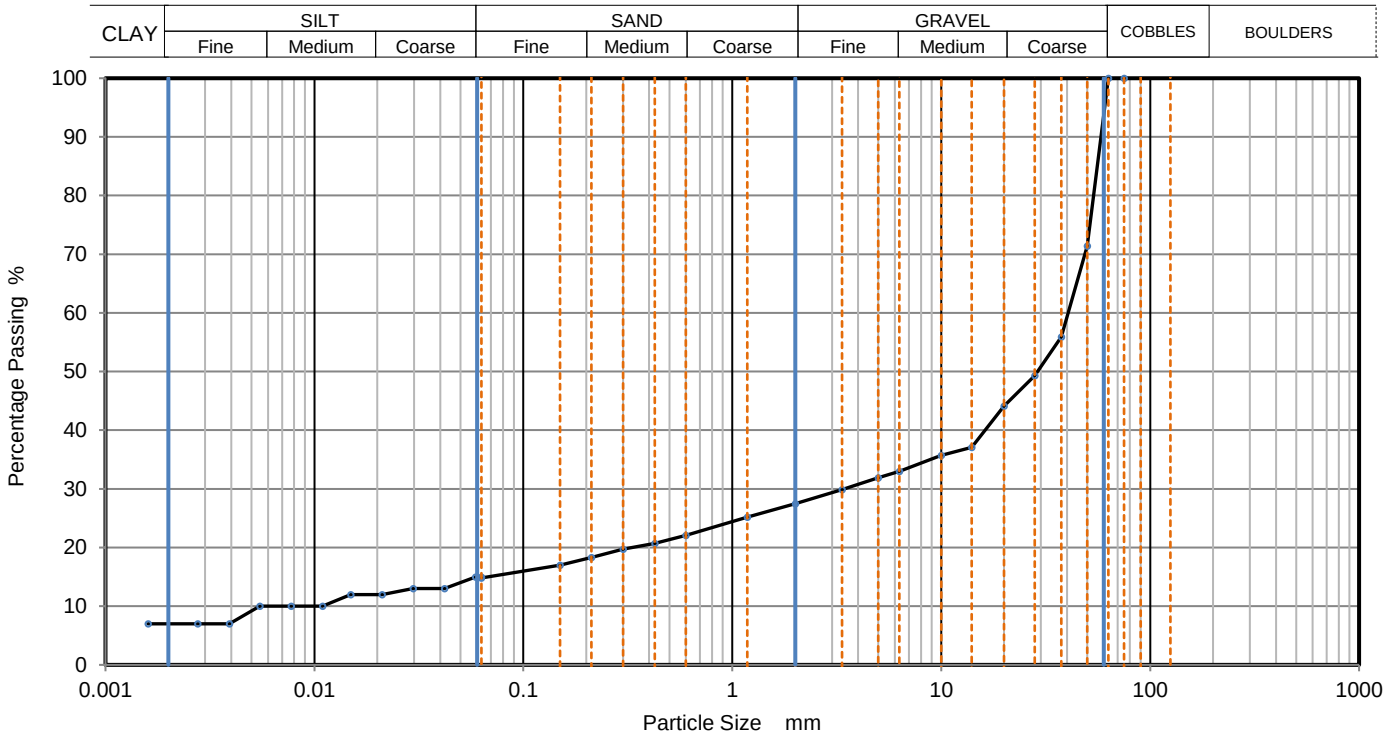
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47507
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown sandy silty coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102079



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	15
		0.0590	15
75	100	0.0420	13
63	100	0.0297	13
50	71	0.0211	12
37.5	56	0.0149	12
28	49	0.0109	10
20	44	0.0077	10
14	37	0.0055	10
10	36	0.0039	7
6.3	33	0.0028	7
5	32	0.0016	7
3.35	30		
2	28		
1.18	25		
0.6	22	Particle density (assumed)	
0.425	21	2.65	Mg/m3
0.3	20		
0.212	18		
0.15	17		
0.063	15		

Dry Mass of sample, g: 980

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	13
Silt	8
Clay	7

Grading Analysis		
D100	mm	
D60	mm	40.5
D30	mm	3.42
D10	mm	0.0112
Uniformity Coefficient		3600
Curvature Coefficient		26

Remarks

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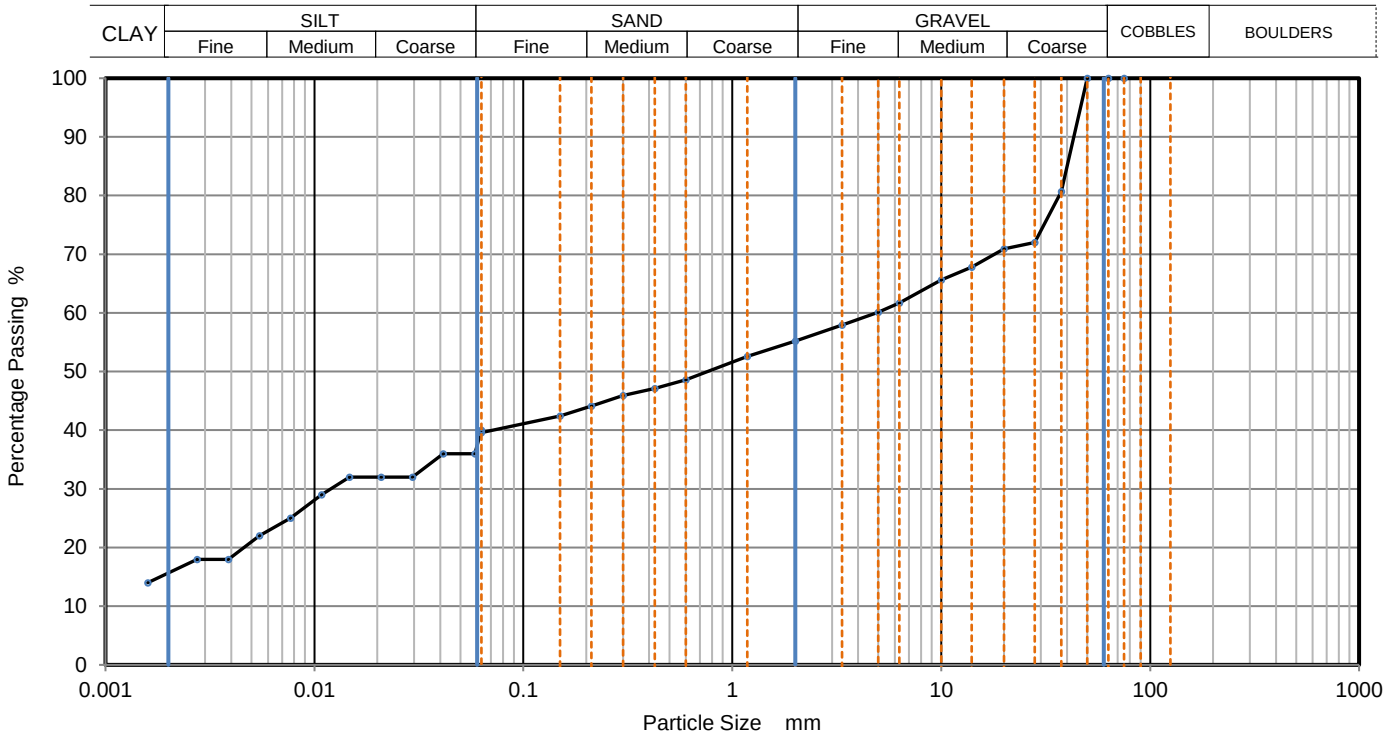
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47507
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102081



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0586	36
75	100	0.0414	36
63	100	0.0294	32
50	100	0.0208	32
37.5	81	0.0147	32
28	72	0.0108	29
20	71	0.0077	25
14	68	0.0055	22
10	66	0.0039	18
6.3	62	0.0027	18
5	60	0.0016	14
3.35	58		
2	55		
1.18	53		
0.6	49	Particle density (assumed)	
0.425	47	2.65 Mg/m3	
0.3	46		
0.212	44		
0.15	42		
0.063	40		

Dry Mass of sample, g	1035

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	16
Silt	24
Clay	16

Grading Analysis		
D100	mm	
D60	mm	4.95
D30	mm	0.012
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	11/08/2022 14:50	**1** QC From No:R2

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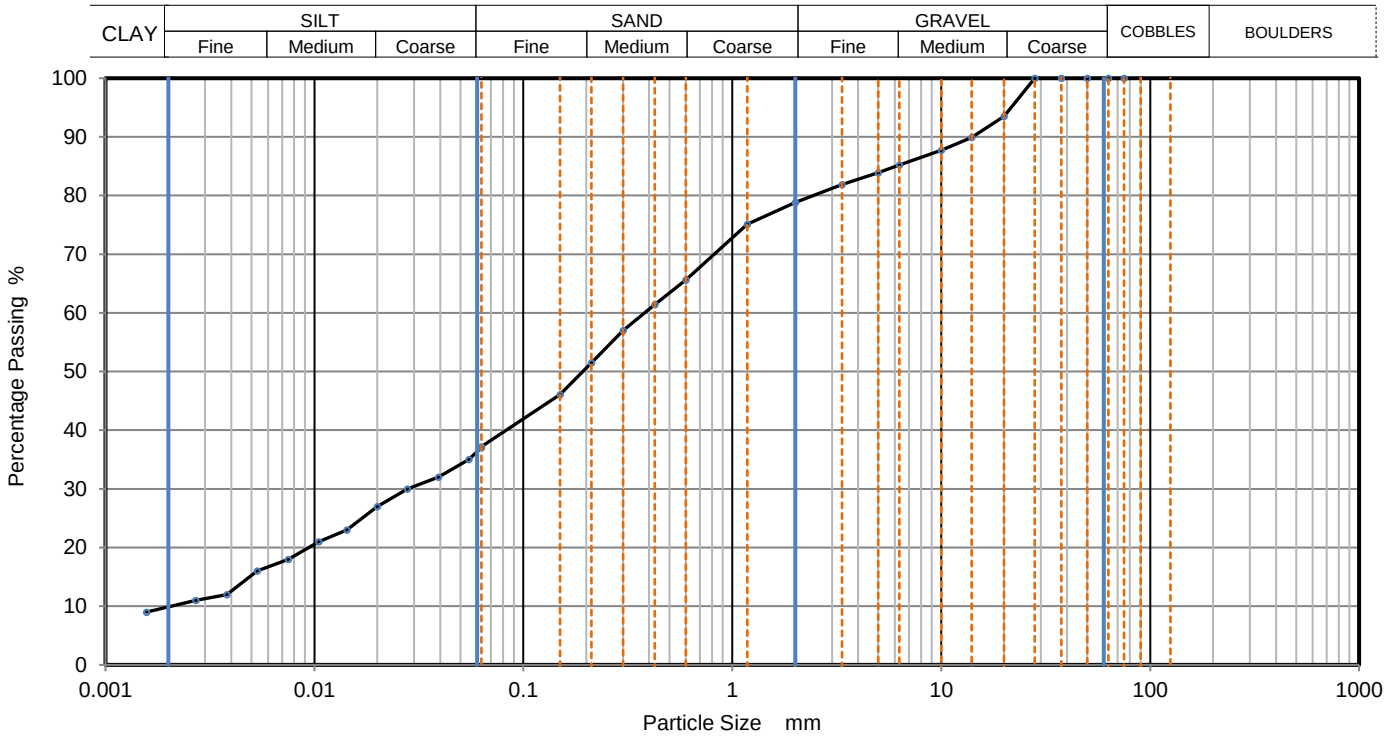
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-47615
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Yelllowish-brown slightly gravelly sandy SILT.	Depth, m	0.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021102083



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0548	35
75	100	0.0392	32
63	100	0.0279	30
50	100	0.0200	27
37.5	100	0.0143	23
28	100	0.0105	21
20	94	0.0075	18
14	90	0.0053	16
10	88	0.0038	12
6.3	85	0.0027	11
5	84	0.0016	9
3.35	82		
2	79		
1.18	75		
0.6	66	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	57		
0.212	52		
0.15	46		
0.063	37		

Dry Mass of sample, g	639

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	42
Silt	28
Clay	10

Grading Analysis		
D100	mm	
D60	mm	0.381
D30	mm	0.0276
D10	mm	0.00223
Uniformity Coefficient		170
Curvature Coefficient		0.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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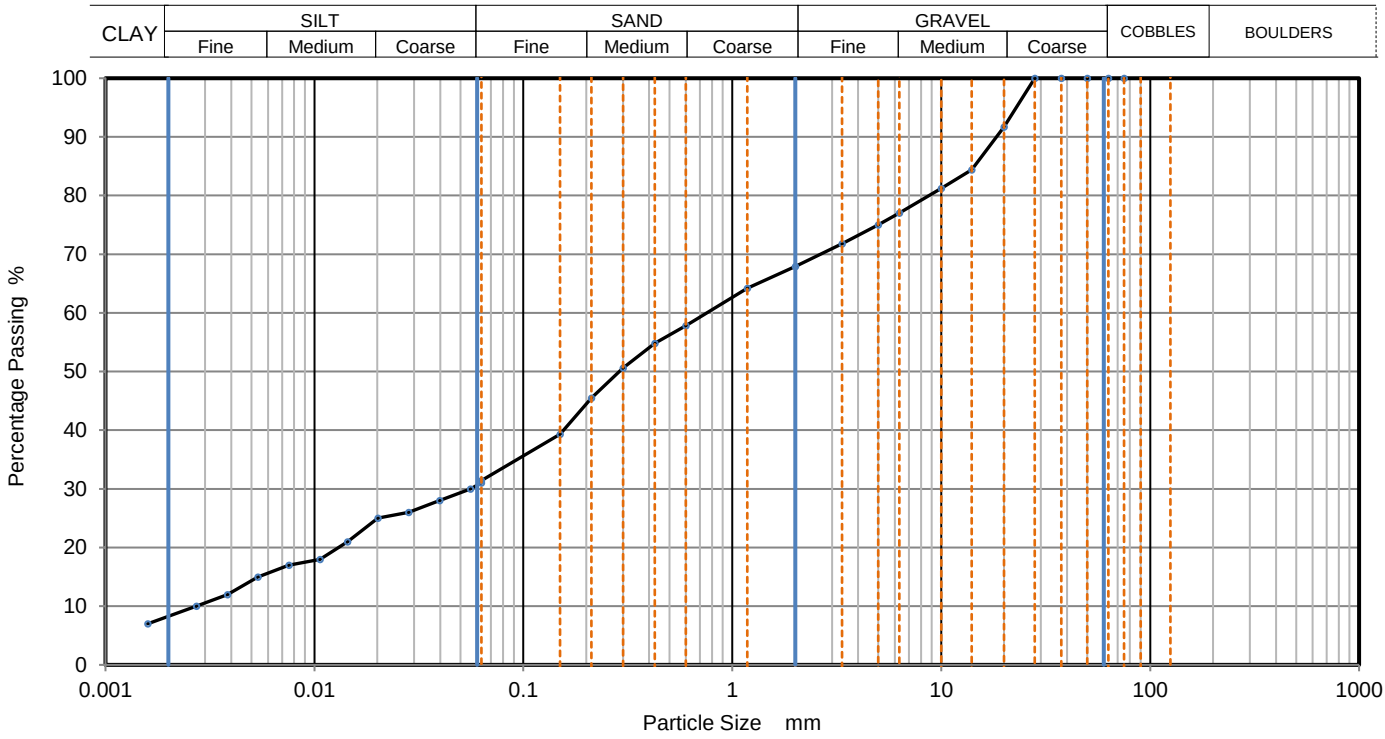
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47615
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty GRAVEL and SAND.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102086



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0558	30
75	100	0.0397	28
63	100	0.0283	26
50	100	0.0201	25
37.5	100	0.0144	21
28	100	0.0106	18
20	92	0.0076	17
14	84	0.0054	15
10	81	0.0038	12
6.3	77	0.0027	10
5	75	0.0016	7
3.35	72		
2	68		
1.18	64		
0.6	58	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	51		
0.212	46		
0.15	39		
0.063	31		

Dry Mass of sample, g	704

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	37
Silt	23
Clay	8

Grading Analysis		
D100	mm	
D60	mm	0.755
D30	mm	0.0569
D10	mm	0.00278
Uniformity Coefficient		270
Curvature Coefficient		1.5

Remarks

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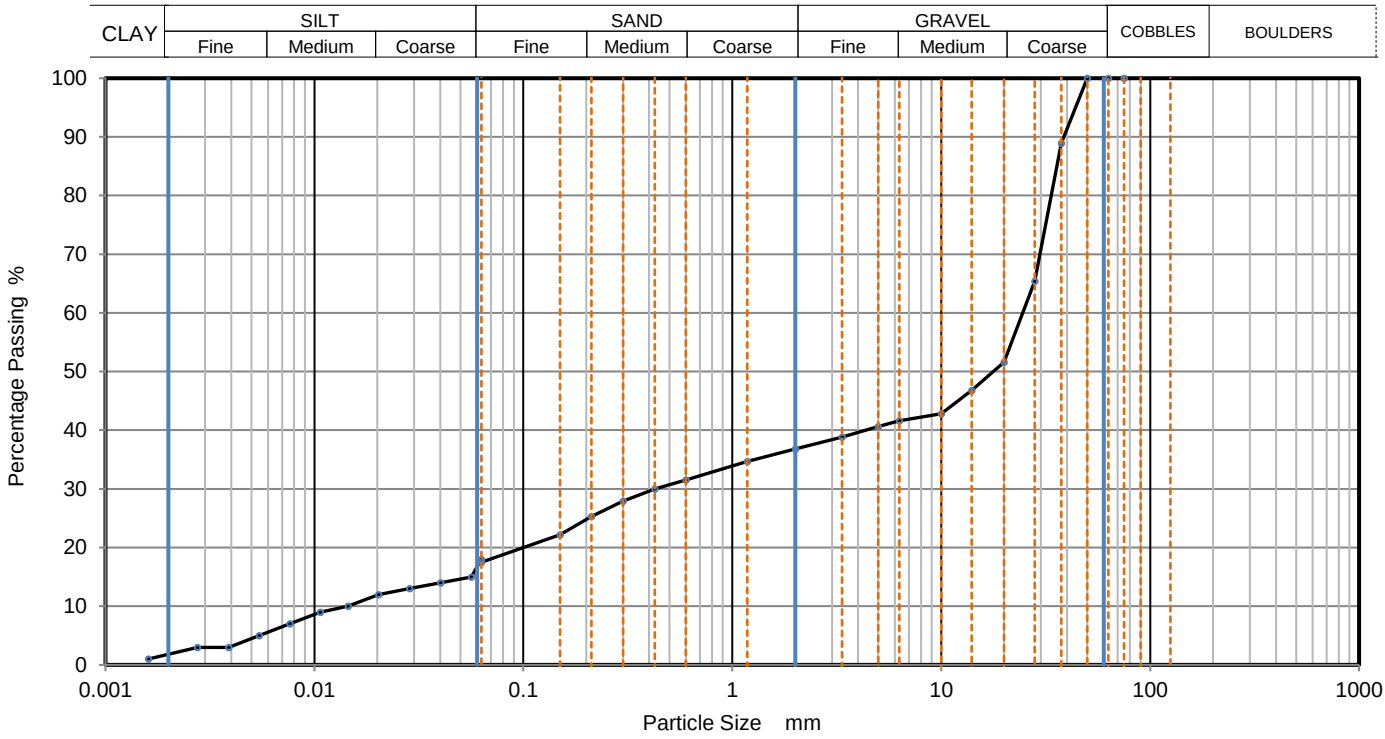
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47615
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown silty sandy coarse GRAVEL.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102088



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0564	15
75	100	0.0401	14
63	100	0.0285	13
50	100	0.0203	12
37.5	89	0.0145	10
28	65	0.0107	9
20	52	0.0076	7
14	47	0.0054	5
10	43	0.0039	3
6.3	42	0.0028	3
5	41	0.0016	1
3.35	39		
2	37		
1.18	35		
0.6	32	Particle density (assumed)	
0.425	30	2.65	Mg/m3
0.3	28		
0.212	25		
0.15	22		
0.063	18		

Dry Mass of sample, g	929

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	19
Silt	16
Clay	2

Grading Analysis		
D100	mm	
D60	mm	24.6
D30	mm	0.424
D10	mm	0.0133
Uniformity Coefficient		1800
Curvature Coefficient		0.55

Remarks

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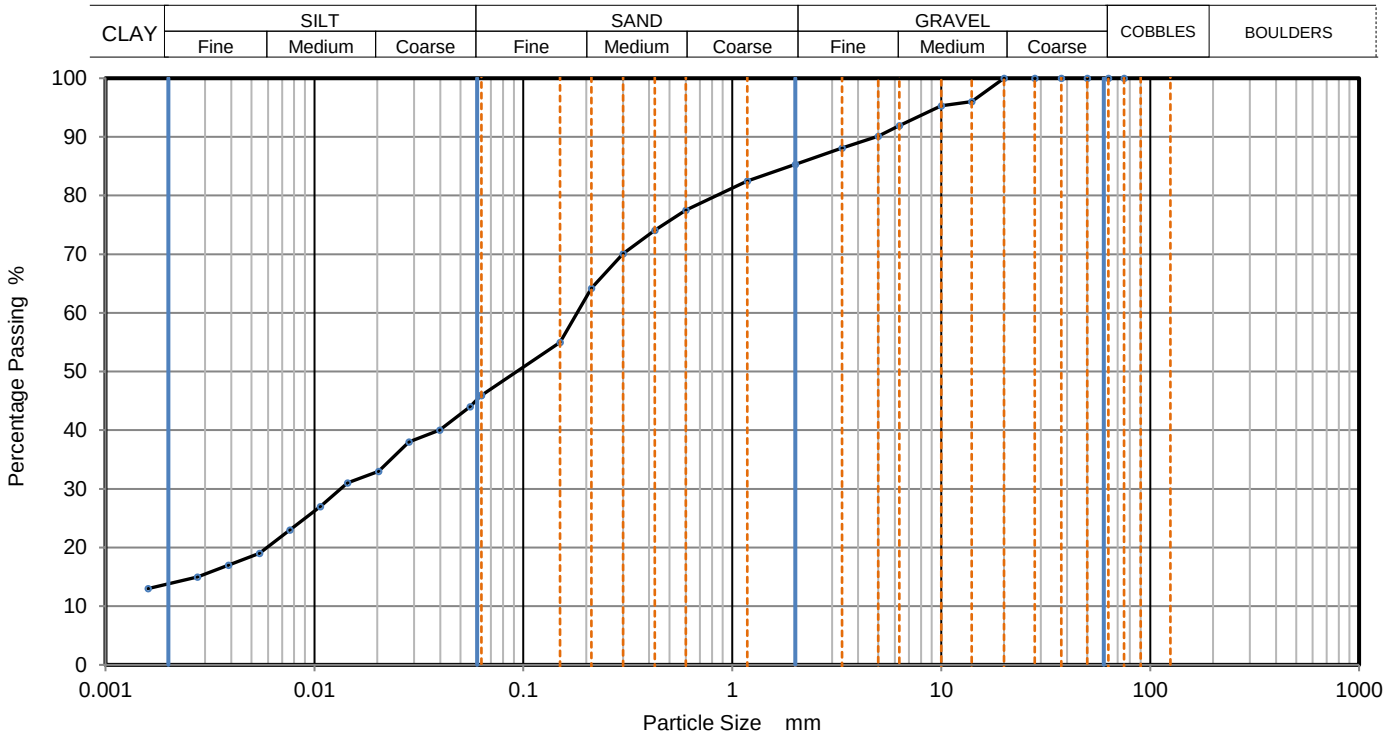
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47705
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orange-brown slightly gravelly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021102091



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0556	44
75	100	0.0398	40
63	100	0.0283	38
50	100	0.0203	33
37.5	100	0.0144	31
28	100	0.0107	27
20	100	0.0076	23
14	96	0.0054	19
10	95	0.0039	17
6.3	92	0.0028	15
5	90	0.0016	13
3.35	88		
2	85		
1.18	83		
0.6	78	Particle density (assumed)	
0.425	74	2.65	Mg/m3
0.3	70		
0.212	64		
0.15	55		
0.063	46		

Dry Mass of sample, g	378

Sample Proportions	% dry mass
Very coarse	0
Gravel	15
Sand	39
Silt	33
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.181
D30	mm	0.0131
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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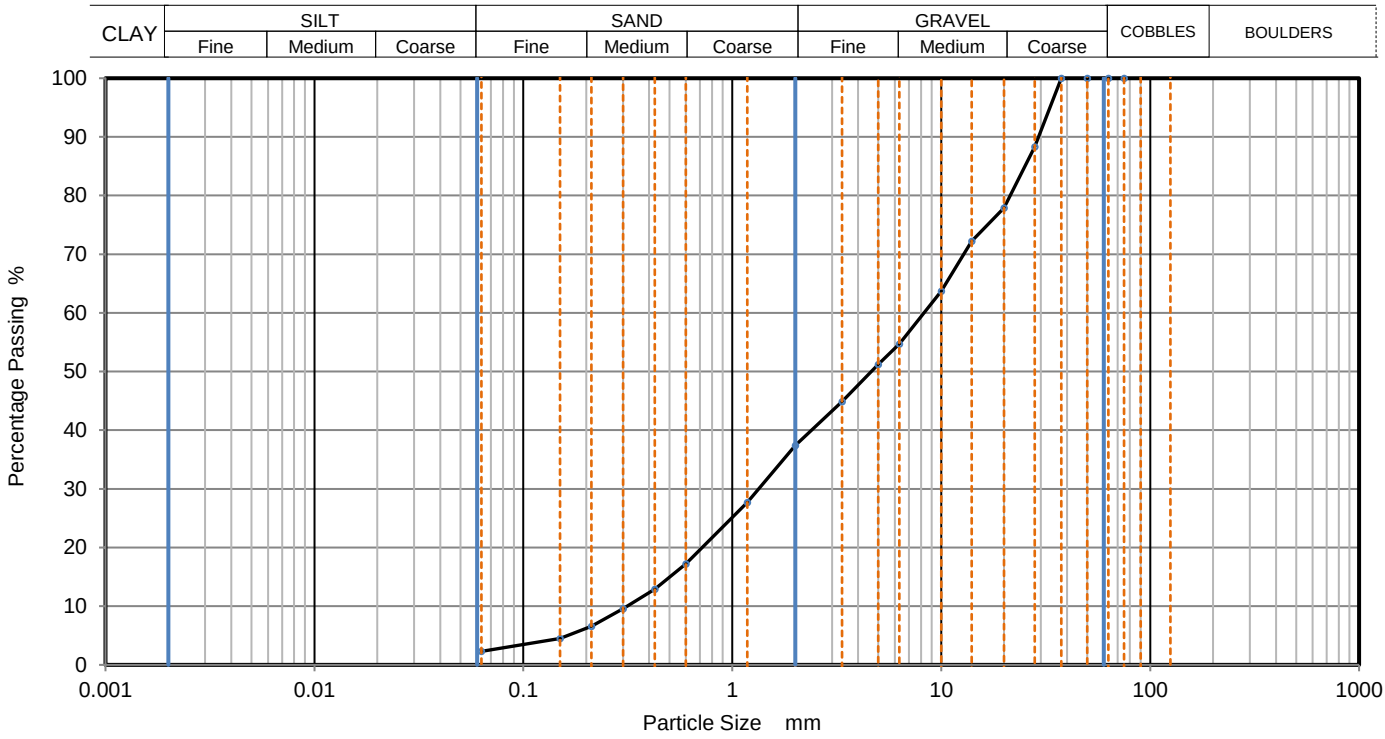
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47801
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey slightly silty very sandy GRAVEL. Sand is coarse.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211020100



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	88		
20	78		
14	72		
10	64		
6.3	55		
5	51		
3.35	45		
2	37		
1.18	28		
0.6	17		
0.425	13		
0.3	10		
0.212	7		
0.15	5		
0.063	2		

Dry Mass of sample, g	617

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	35
Fines <0.063mm	2

Grading Analysis		
D100	mm	
D60	mm	8.27
D30	mm	1.34
D10	mm	0.312
Uniformity Coefficient		26
Curvature Coefficient		0.69

Remarks

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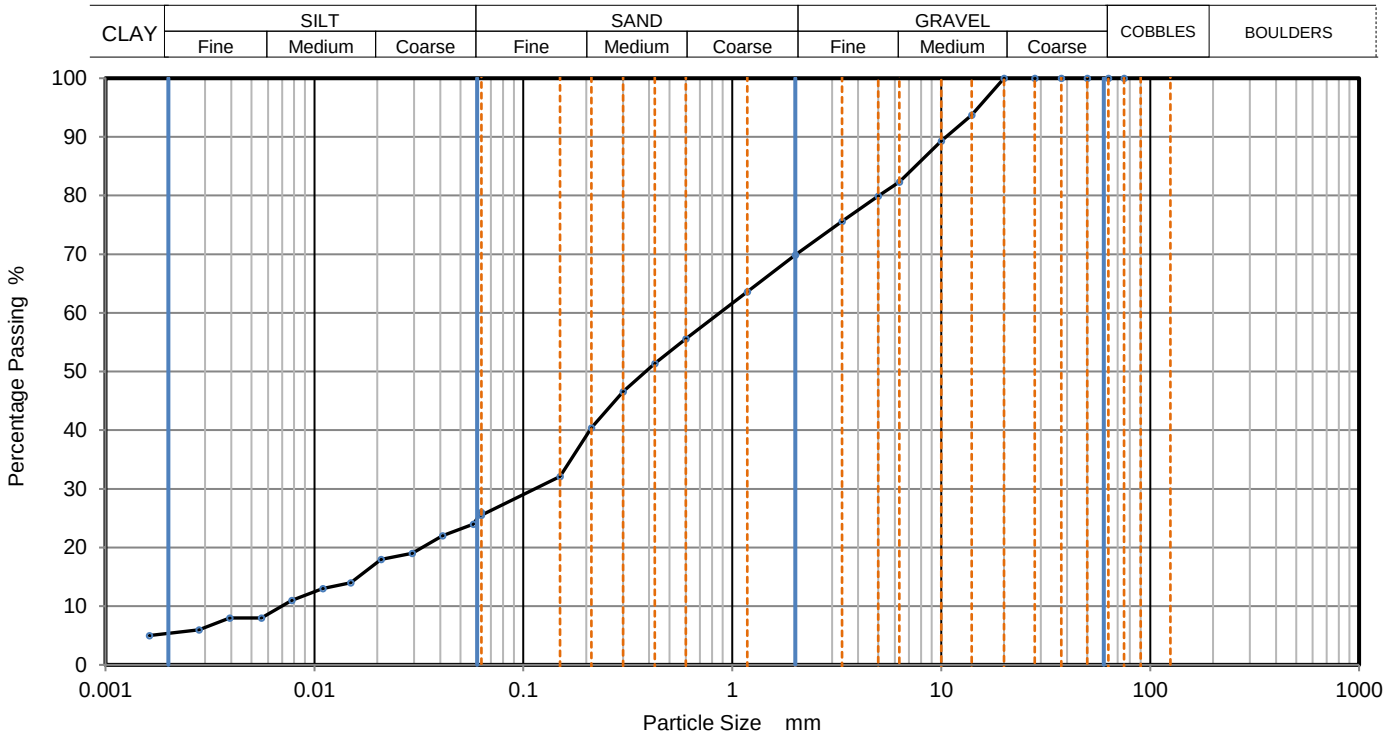
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47801
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Orange-brown very silty very gravelly SAND. Gravel is medium.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0577	24
75	100	0.0410	22
63	100	0.0294	19
50	100	0.0209	18
37.5	100	0.0149	14
28	100	0.0110	13
20	100	0.0078	11
14	94	0.0056	8
10	89	0.0039	8
6.3	82	0.0028	6
5	80	0.0016	5
3.35	76		
2	70		
1.18	64		
0.6	56	Particle density (assumed)	
0.425	51	2.65	Mg/m3
0.3	47		
0.212	40		
0.15	32		
0.063	26		

Dry Mass of sample, g	443

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	44
Silt	20
Clay	5

Grading Analysis		
D100	mm	
D60	mm	0.872
D30	mm	0.114
D10	mm	0.0069
Uniformity Coefficient		130
Curvature Coefficient		2.1

Remarks

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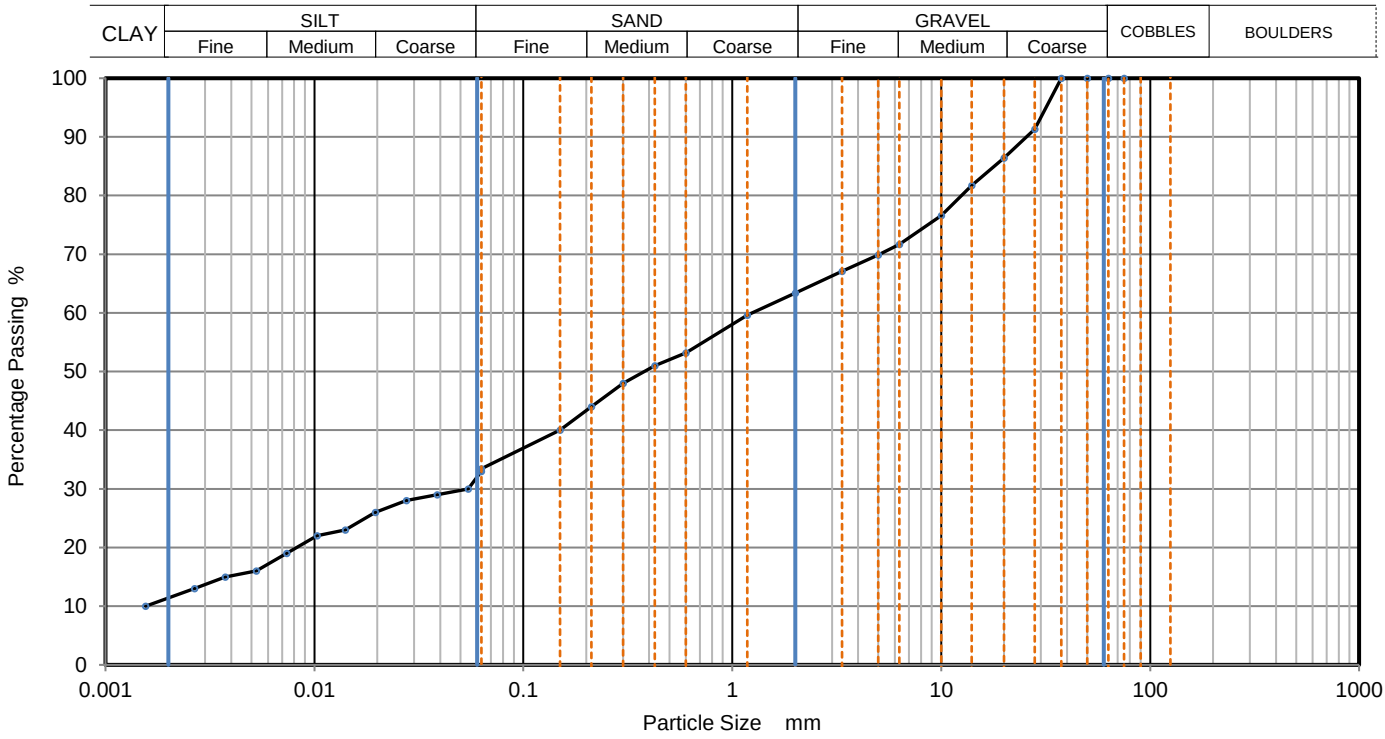
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47902
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown sandy very silty medium GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020107



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0544	30
75	100	0.0387	29
63	100	0.0275	28
50	100	0.0196	26
37.5	100	0.0140	23
28	91	0.0103	22
20	86	0.0074	19
14	82	0.0053	16
10	77	0.0037	15
6.3	72	0.0027	13
5	70	0.0016	10
3.35	67		
2	63		
1.18	60		
0.6	53	Particle density (assumed)	
0.425	51	2.65 Mg/m3	
0.3	48		
0.212	44		
0.15	40		
0.063	33		

Dry Mass of sample, g	1121

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	30
Silt	22
Clay	12

Grading Analysis		
D100	mm	
D60	mm	1.24
D30	mm	0.0484
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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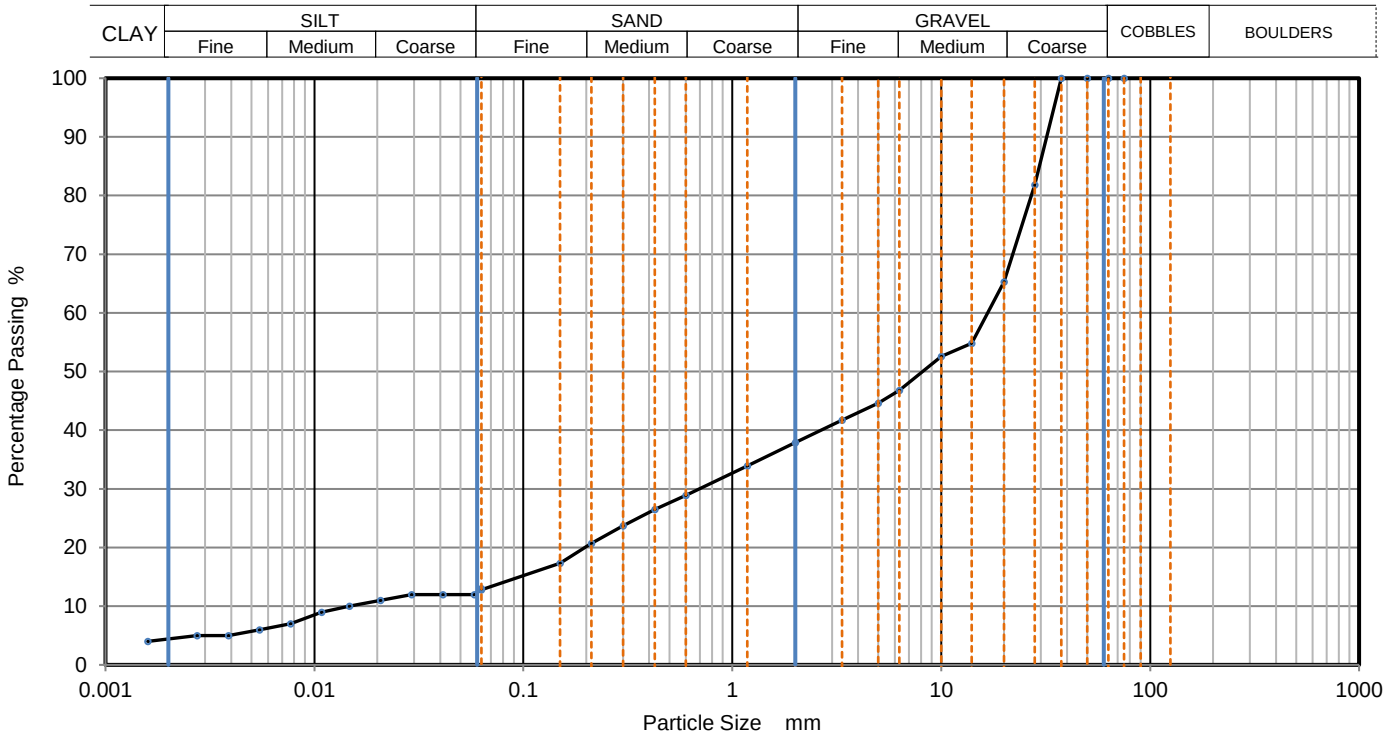
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-47902
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown silty very sandy coarse GRAVEL.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020111



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0582	12
75	100	0.0412	12
63	100	0.0291	12
50	100	0.0207	11
37.5	100	0.0147	10
28	82	0.0108	9
20	65	0.0077	7
14	55	0.0055	6
10	53	0.0039	5
6.3	47	0.0027	5
5	45	0.0016	4
3.35	42		
2	38		
1.18	34		
0.6	29	Particle density (assumed)	
0.425	27	2.65	Mg/m3
0.3	24		
0.212	21		
0.15	17		
0.063	13		

Dry Mass of sample, g	757

Sample Proportions	% dry mass
Very coarse	0
Gravel	62
Sand	25
Silt	8
Clay	5

Grading Analysis		
D100	mm	
D60	mm	16.7
D30	mm	0.695
D10	mm	0.0167
Uniformity Coefficient		1000
Curvature Coefficient		1.7

Remarks

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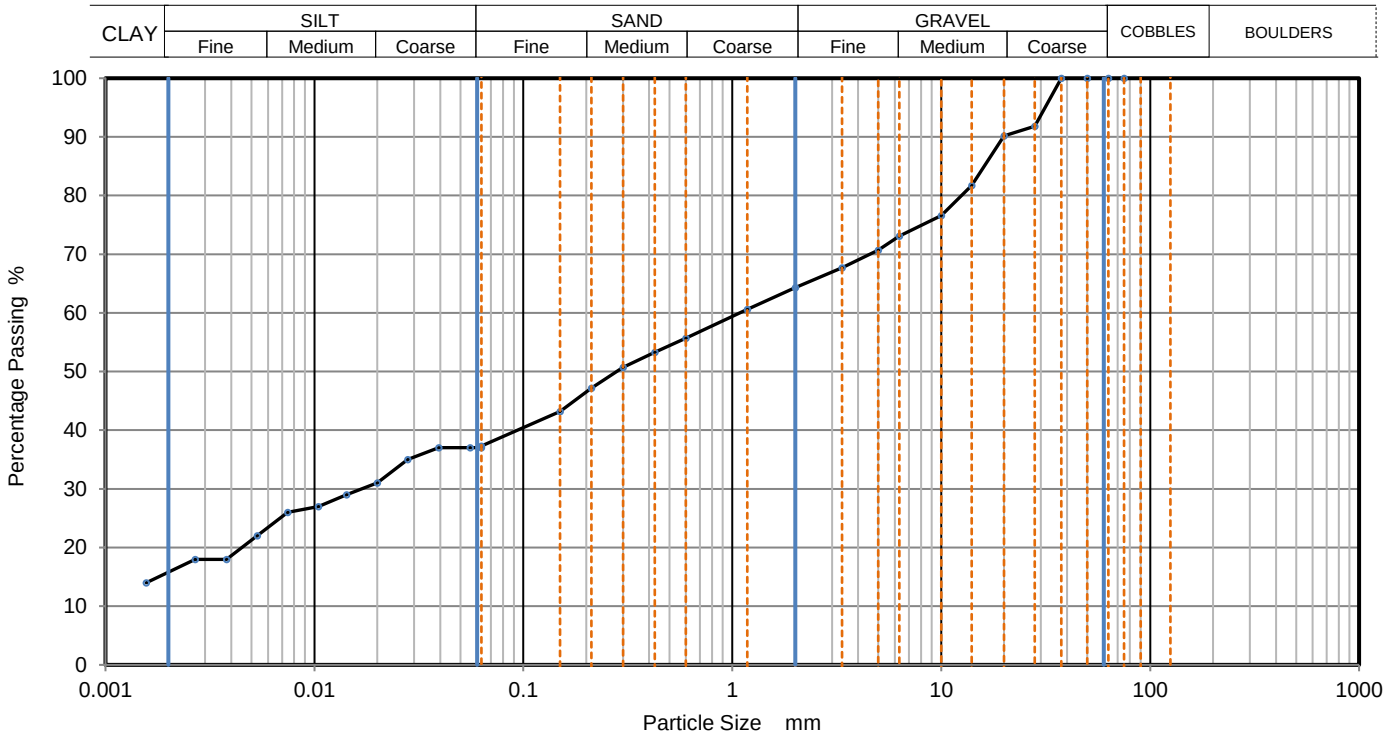
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48001
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly sandy gravelly SILT.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020113



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0556	37
75	100	0.0393	37
63	100	0.0280	35
50	100	0.0200	31
37.5	100	0.0142	29
28	92	0.0105	27
20	90	0.0074	26
14	82	0.0053	22
10	77	0.0038	18
6.3	73	0.0027	18
5	71	0.0016	14
3.35	68		
2	64		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	51		
0.212	47		
0.15	43		
0.063	37		

Dry Mass of sample, g	1045

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	27
Silt	22
Clay	16

Grading Analysis		
D100	mm	
D60	mm	1.09
D30	mm	0.0157
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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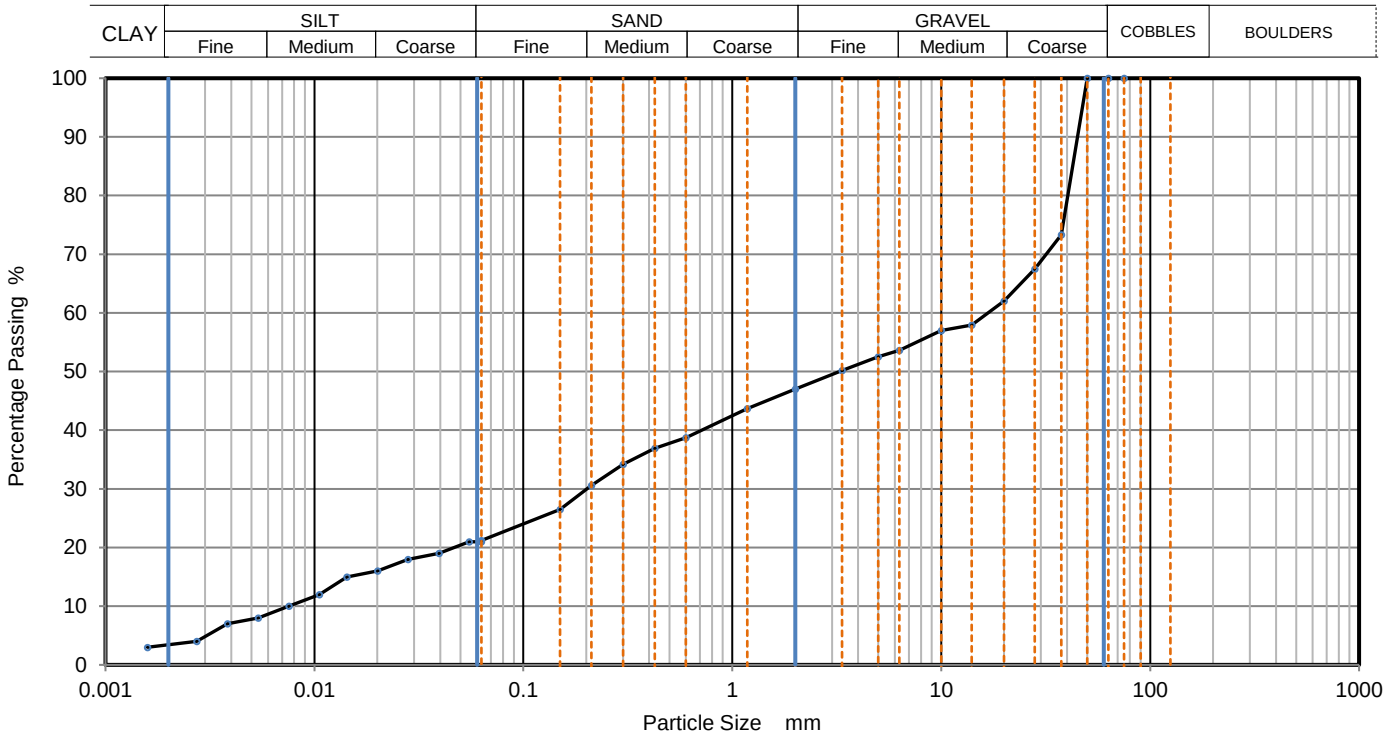
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48102
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty very sandy coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020117



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0551	21
75	100	0.0394	19
63	100	0.0281	18
50	100	0.0201	16
37.5	73	0.0143	15
28	68	0.0105	12
20	62	0.0075	10
14	58	0.0054	8
10	57	0.0038	7
6.3	54	0.0027	4
5	53	0.0016	3
3.35	50		
2	47		
1.18	44		
0.6	39	Particle density (assumed)	
0.425	37	2.65 Mg/m3	
0.3	34		
0.212	31		
0.15	27		
0.063	21		

Dry Mass of sample, g	891

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	26
Silt	17
Clay	4

Grading Analysis		
D100	mm	
D60	mm	16.8
D30	mm	0.202
D10	mm	0.00749
Uniformity Coefficient		2200
Curvature Coefficient		0.32

Remarks

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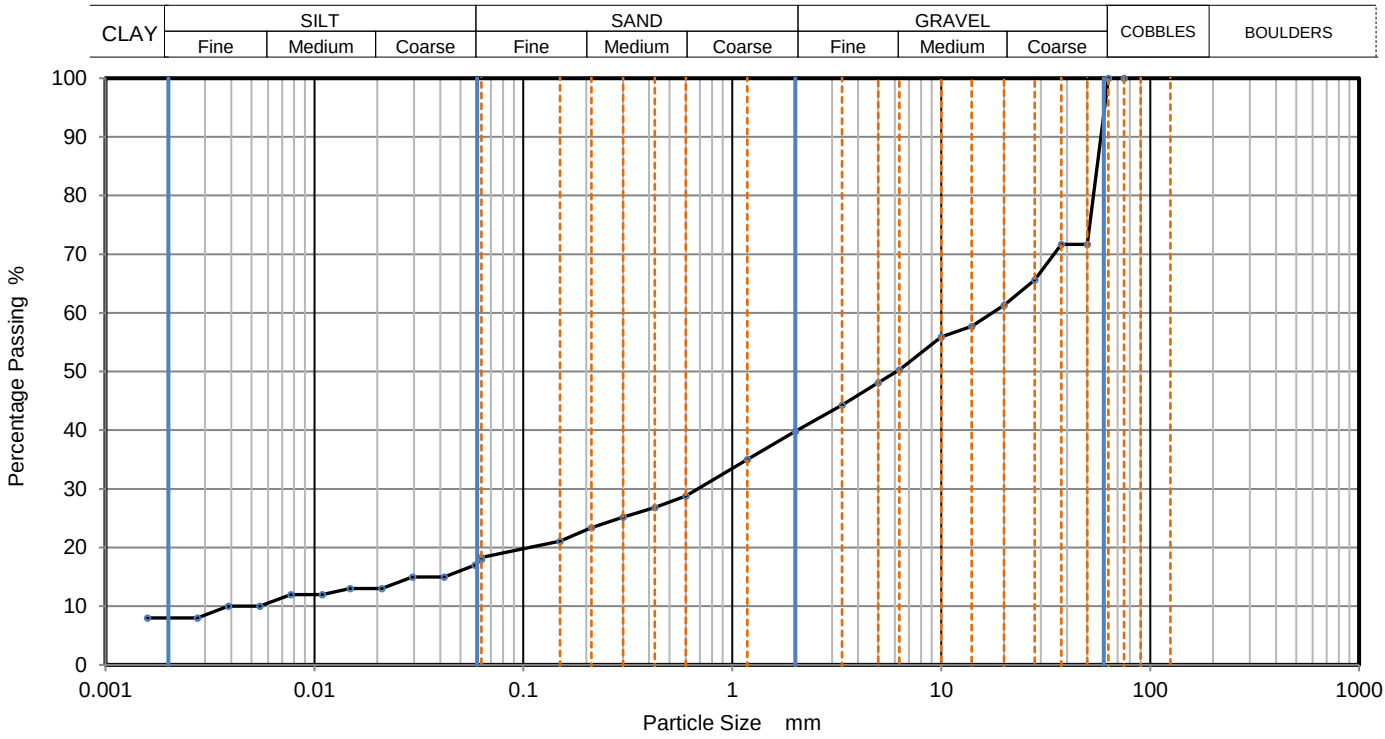
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48302
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very sandy coarse GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020124



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0587	17
75	100	0.0417	15
63	100	0.0295	15
50	72	0.0210	13
37.5	72	0.0148	13
28	66	0.0109	12
20	61	0.0077	12
14	58	0.0055	10
10	56	0.0039	10
6.3	50	0.0028	8
5	48	0.0016	8
3.35	44		
2	40		
1.18	35		
0.6	29	Particle density (assumed)	
0.425	27	2.65 Mg/m3	
0.3	25		
0.212	23		
0.15	21		
0.063	18		

Dry Mass of sample, g	1004

Sample Proportions	% dry mass
Very coarse	0
Gravel	60
Sand	22
Silt	10
Clay	8

Grading Analysis		
D100	mm	
D60	mm	17.6
D30	mm	0.683
D10	mm	0.00549
Uniformity Coefficient		3200
Curvature Coefficient		4.8

Remarks

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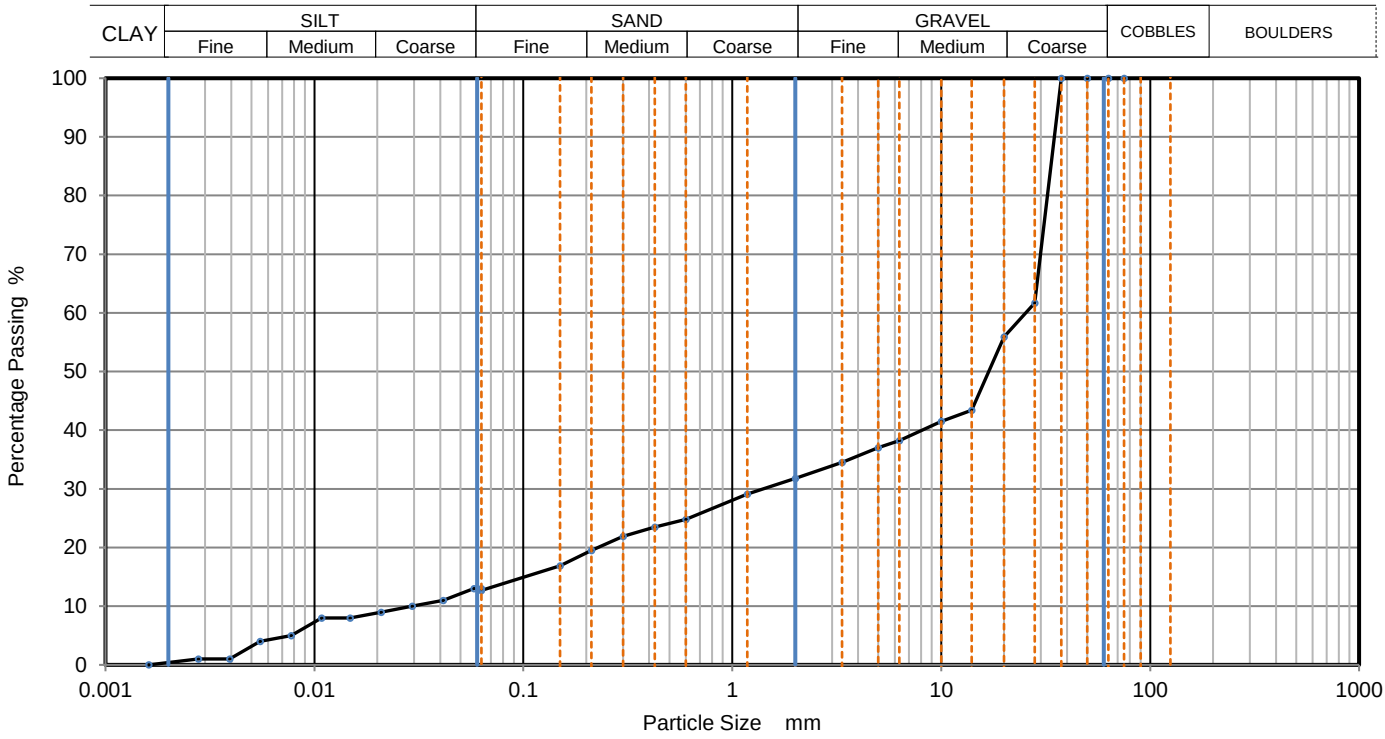
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48401
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty sandy coarse GRAVEL.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020128



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0581	13
75	100	0.0413	11
63	100	0.0294	10
50	100	0.0209	9
37.5	100	0.0148	8
28	62	0.0108	8
20	56	0.0077	5
14	43	0.0055	4
10	42	0.0039	1
6.3	38	0.0028	1
5	37	0.0016	0
3.35	35		
2	32		
1.18	29		
0.6	25	Particle density (assumed)	
0.425	24	2.65	Mg/m3
0.3	22		
0.212	20		
0.15	17		
0.063	13		

Dry Mass of sample, g	885

Sample Proportions	% dry mass
Very coarse	0
Gravel	68
Sand	19
Silt	12
Clay	1

Grading Analysis		
D100	mm	
D60	mm	25.4
D30	mm	1.4
D10	mm	0.0281
Uniformity Coefficient		900
Curvature Coefficient		2.7

Remarks

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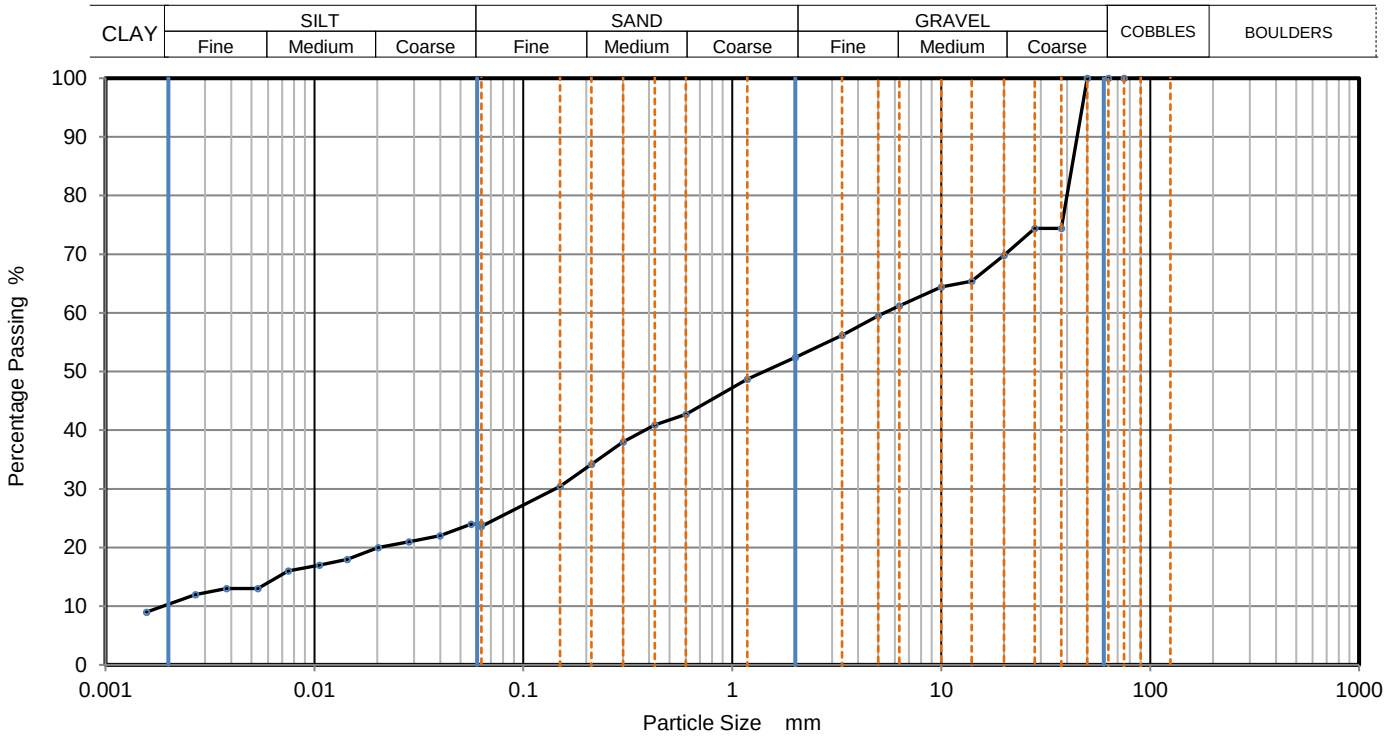
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48500
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very silty very sandy coarse GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020135



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0561	24
75	100	0.0399	22
63	100	0.0284	21
50	100	0.0202	20
37.5	74	0.0144	18
28	74	0.0105	17
20	70	0.0075	16
14	65	0.0054	13
10	64	0.0038	13
6.3	61	0.0027	12
5	60	0.0016	9
3.35	56		
2	52		
1.18	49		
0.6	43	Particle density (assumed)	
0.425	41	2.65	Mg/m3
0.3	38		
0.212	34		
0.15	30		
0.063	24		

Dry Mass of sample, g	787

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	29
Silt	13
Clay	10

Grading Analysis		
D100	mm	
D60	mm	5.33
D30	mm	0.142
D10	mm	0.00186
Uniformity Coefficient		2900
Curvature Coefficient		2

Remarks

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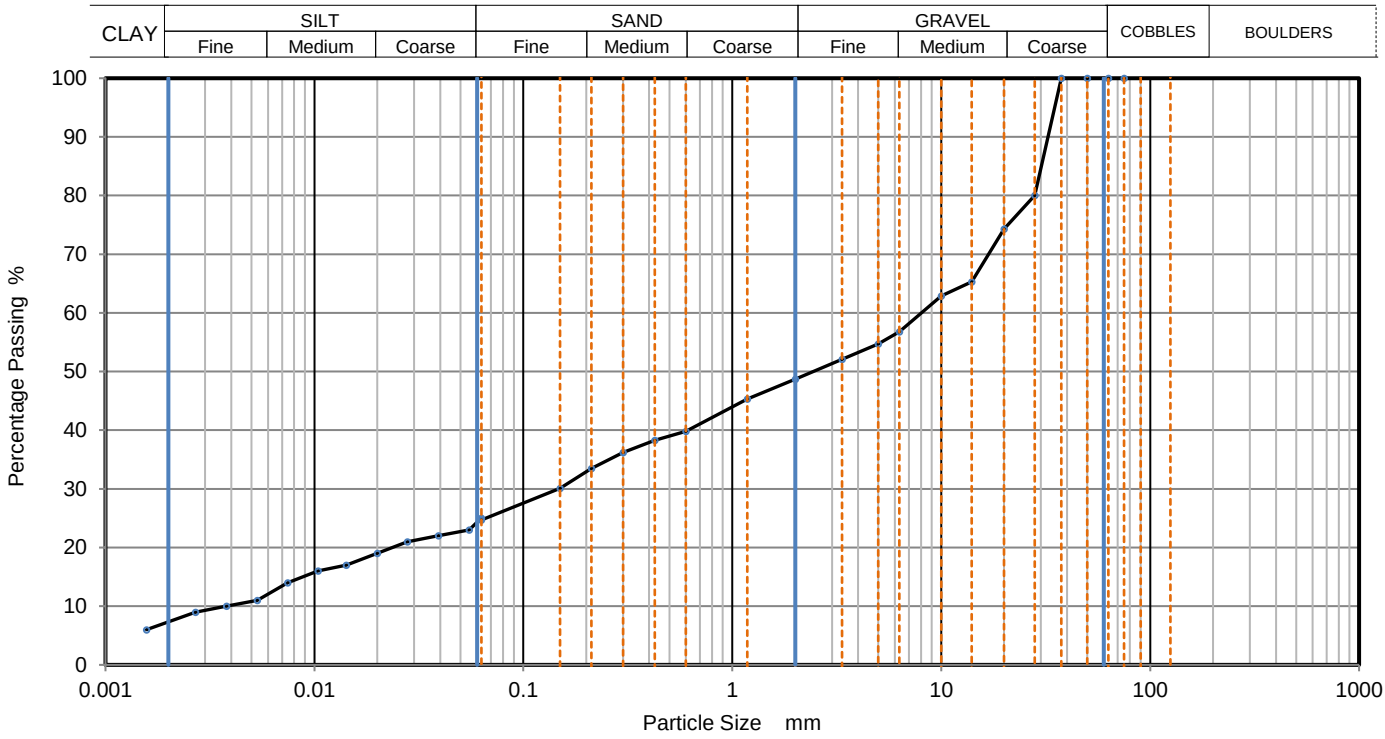
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48500
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown very sandy very silty medium and coarse GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020137



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0551	23
75	100	0.0392	22
63	100	0.0279	21
50	100	0.0200	19
37.5	100	0.0142	17
28	80	0.0104	16
20	74	0.0075	14
14	65	0.0053	11
10	63	0.0038	10
6.3	57	0.0027	9
5	55	0.0016	6
3.35	52		
2	49		
1.18	45		
0.6	40	Particle density (assumed)	
0.425	38	2.65	Mg/m3
0.3	36		
0.212	34		
0.15	30		
0.063	25		

Dry Mass of sample, g	844

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	24
Silt	17
Clay	7

Grading Analysis		
D100	mm	
D60	mm	8.03
D30	mm	0.147
D10	mm	0.00392
Uniformity Coefficient		2000
Curvature Coefficient		0.69

Remarks

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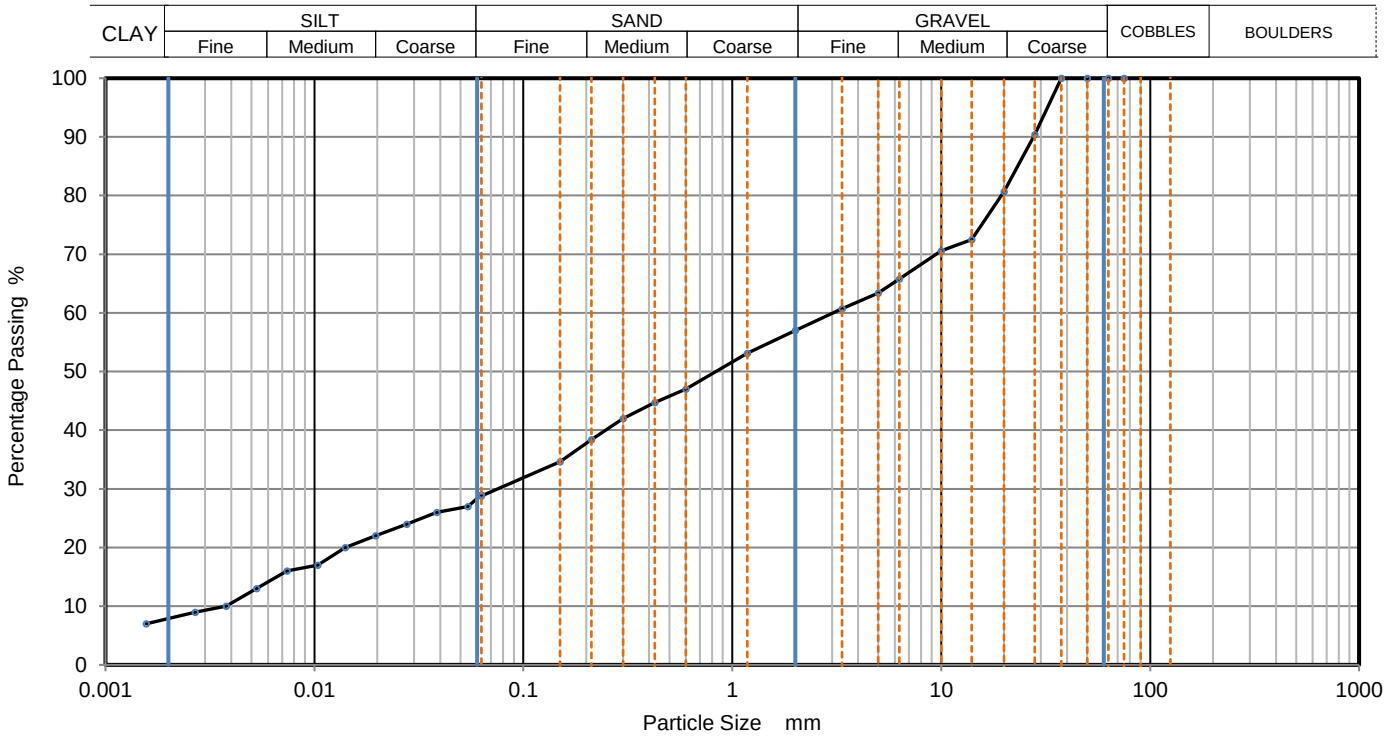
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48596
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020141



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0542	27
75	100	0.0386	26
63	100	0.0276	24
50	100	0.0196	22
37.5	100	0.0141	20
28	90	0.0104	17
20	81	0.0074	16
14	73	0.0053	13
10	71	0.0038	10
6.3	66	0.0027	9
5	63	0.0016	7
3.35	61		
2	57		
1.18	53		
0.6	47	Particle density (assumed)	
0.425	45	2.65	Mg/m3
0.3	42		
0.212	38		
0.15	35		
0.063	29		

Dry Mass of sample, g	989

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	28
Silt	21
Clay	8

Grading Analysis		
D100	mm	
D60	mm	3.04
D30	mm	0.0757
D10	mm	0.00334
Uniformity Coefficient		910
Curvature Coefficient		0.57

Remarks

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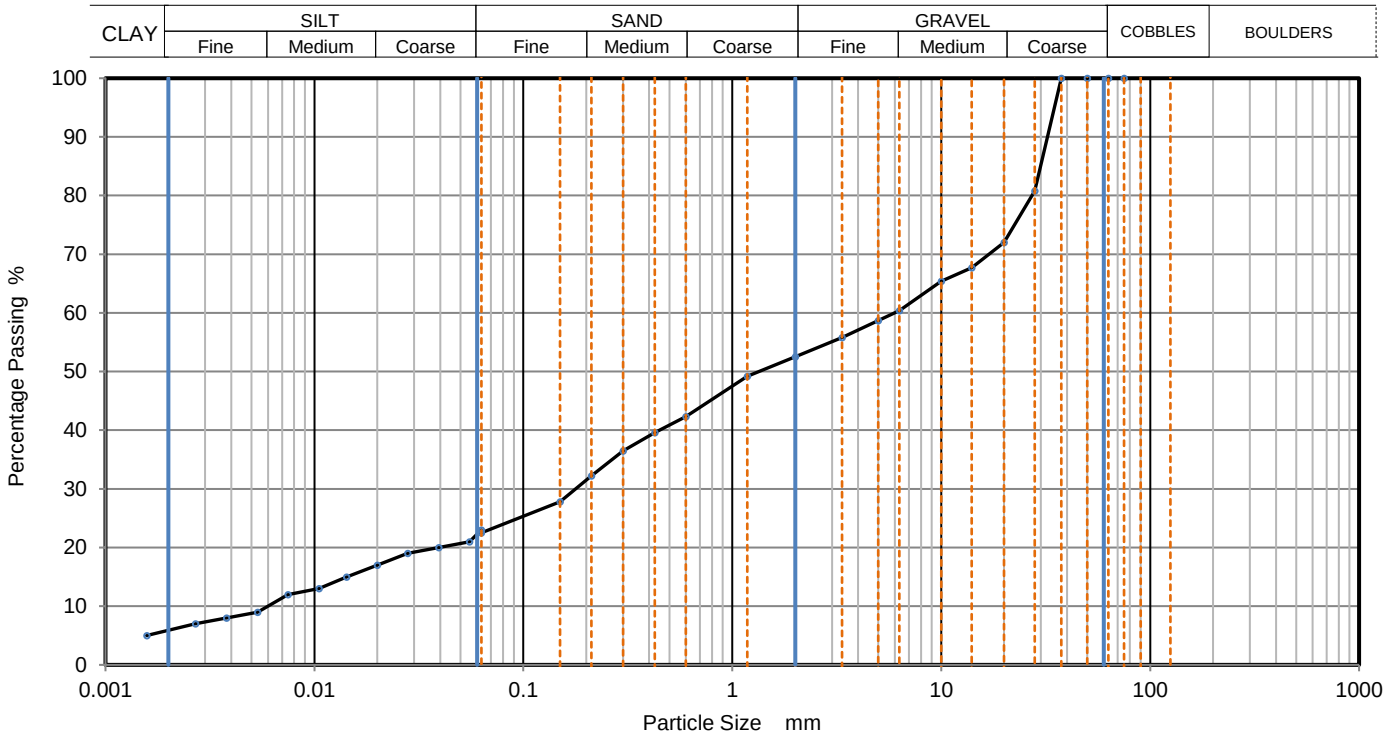
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48701
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty very sandy coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020145



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	23
		0.0552	21
75	100	0.0393	20
63	100	0.0280	19
50	100	0.0200	17
37.5	100	0.0142	15
28	81	0.0105	13
20	72	0.0075	12
14	68	0.0053	9
10	65	0.0038	8
6.3	60	0.0027	7
5	59	0.0016	5
3.35	56		
2	53		
1.18	49		
0.6	42	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	37		
0.212	32		
0.15	28		
0.063	23		

Dry Mass of sample, g	807

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	30
Silt	17
Clay	6

Grading Analysis		
D100	mm	
D60	mm	5.98
D30	mm	0.178
D10	mm	0.00575
Uniformity Coefficient		1000
Curvature Coefficient		0.92

Remarks

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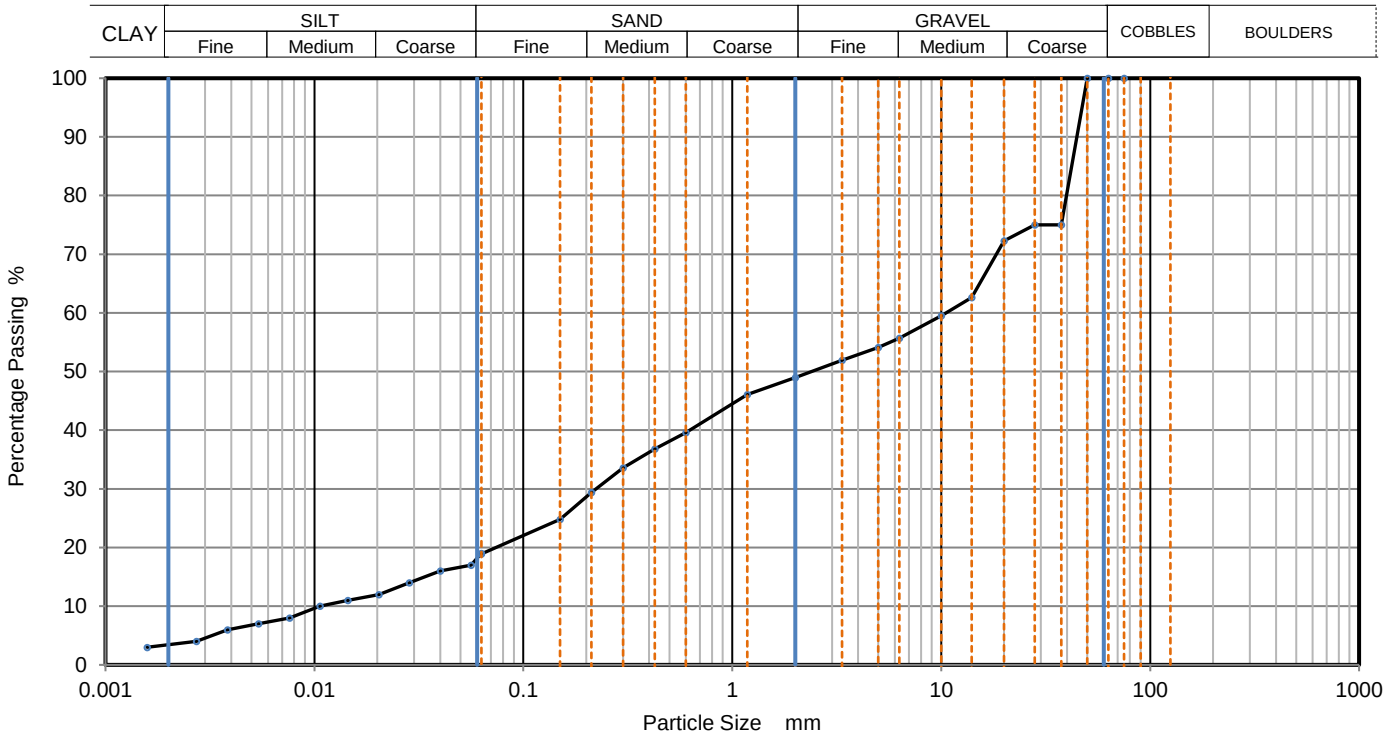
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48701
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	19
		0.0562	17
75	100	0.0400	16
63	100	0.0284	14
50	100	0.0203	12
37.5	75	0.0145	11
28	75	0.0106	10
20	72	0.0076	8
14	63	0.0054	7
10	60	0.0038	6
6.3	56	0.0027	4
5	54	0.0016	3
3.35	52		
2	49		
1.18	46		
0.6	40	Particle density (assumed)	
0.425	37	2.65	Mg/m3
0.3	34		
0.212	29		
0.15	25		
0.063	19		

Dry Mass of sample, g	1016

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	30
Silt	15
Clay	4

Grading Analysis		
D100	mm	
D60	mm	10.6
D30	mm	0.222
D10	mm	0.0106
Uniformity Coefficient		1000
Curvature Coefficient		0.44

Remarks

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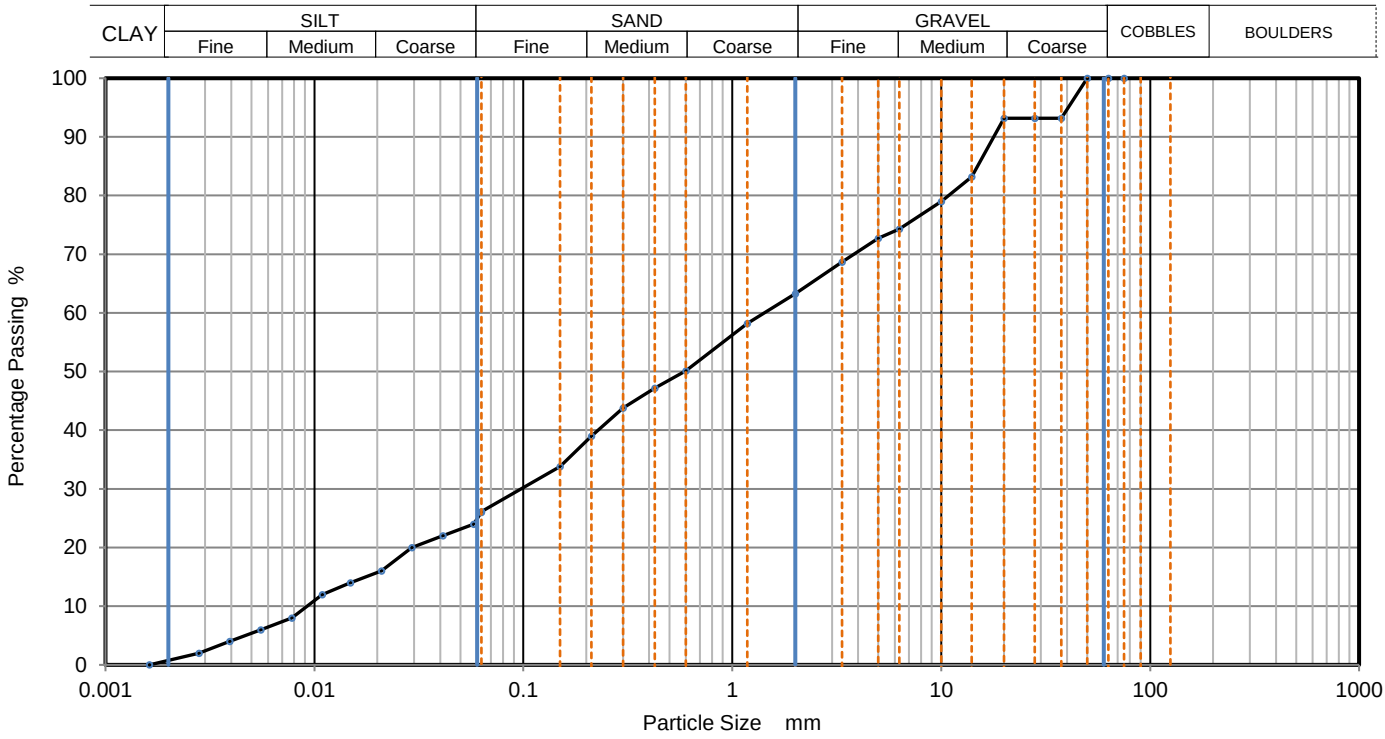
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48800
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty SAND and GRAVEL. Gravel is medium.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020154



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0579	24
75	100	0.0411	22
63	100	0.0292	20
50	100	0.0209	16
37.5	93	0.0149	14
28	93	0.0109	12
20	93	0.0078	8
14	83	0.0055	6
10	79	0.0039	4
6.3	74	0.0028	2
5	73	0.0016	0
3.35	69		
2	63		
1.18	58		
0.6	50	Particle density (assumed)	
0.425	47	2.65	Mg/m3
0.3	44		
0.212	39		
0.15	34		
0.063	26		

Dry Mass of sample, g	722

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	37
Silt	25
Clay	1

Grading Analysis		
D100	mm	
D60	mm	1.42
D30	mm	0.0977
D10	mm	0.00919
Uniformity Coefficient		150
Curvature Coefficient		0.73

Remarks

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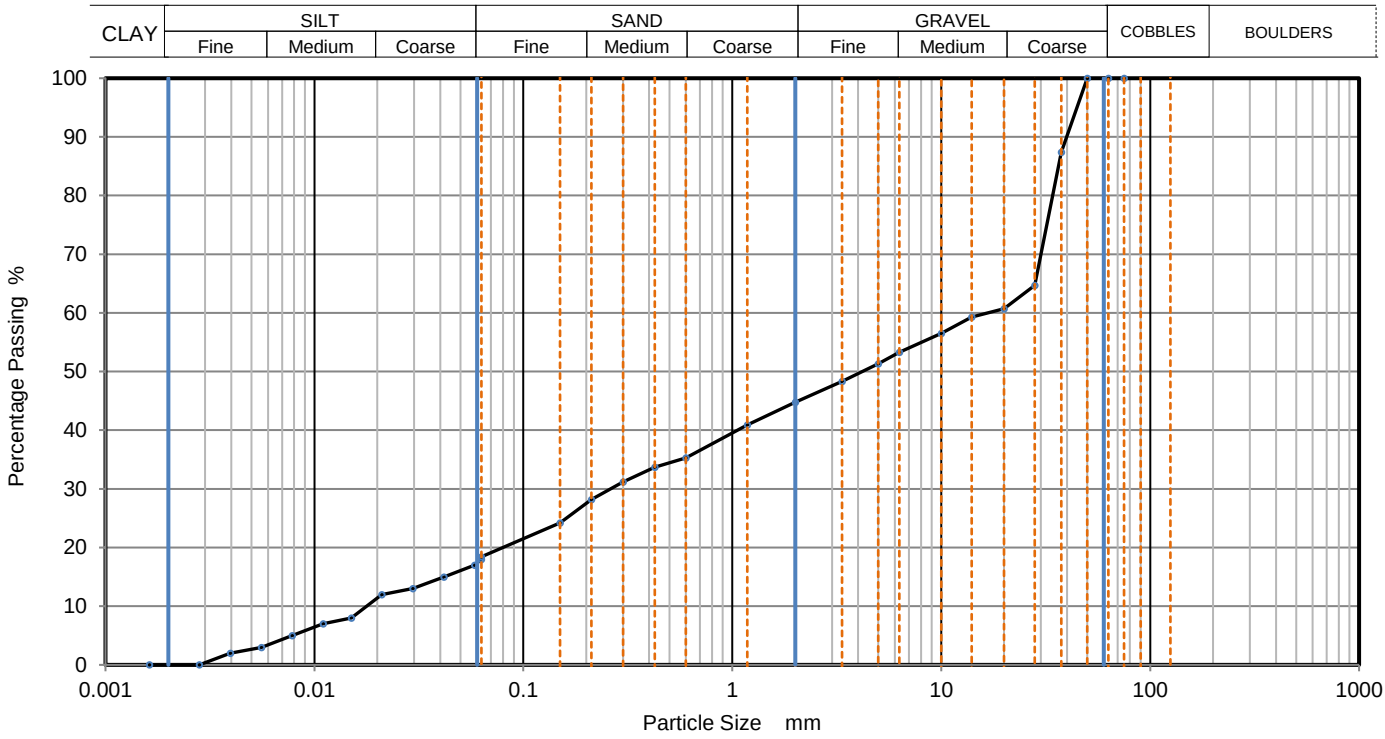
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48800
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020156



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0585	17
75	100	0.0416	15
63	100	0.0296	13
50	100	0.0210	12
37.5	87	0.0150	8
28	65	0.0110	7
20	61	0.0078	5
14	59	0.0056	3
10	57	0.0040	2
6.3	53	0.0028	0
5	51	0.0016	0
3.35	48		
2	45		
1.18	41		
0.6	35	Particle density	(assumed)
0.425	34	2.65	Mg/m3
0.3	31		
0.212	28		
0.15	24		
0.063	18		

Dry Mass of sample, g	893

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	26
Silt	18
Clay	0

Grading Analysis		
D100	mm	
D60	mm	16.7
D30	mm	0.26
D10	mm	0.0177
Uniformity Coefficient		950
Curvature Coefficient		0.23

Remarks

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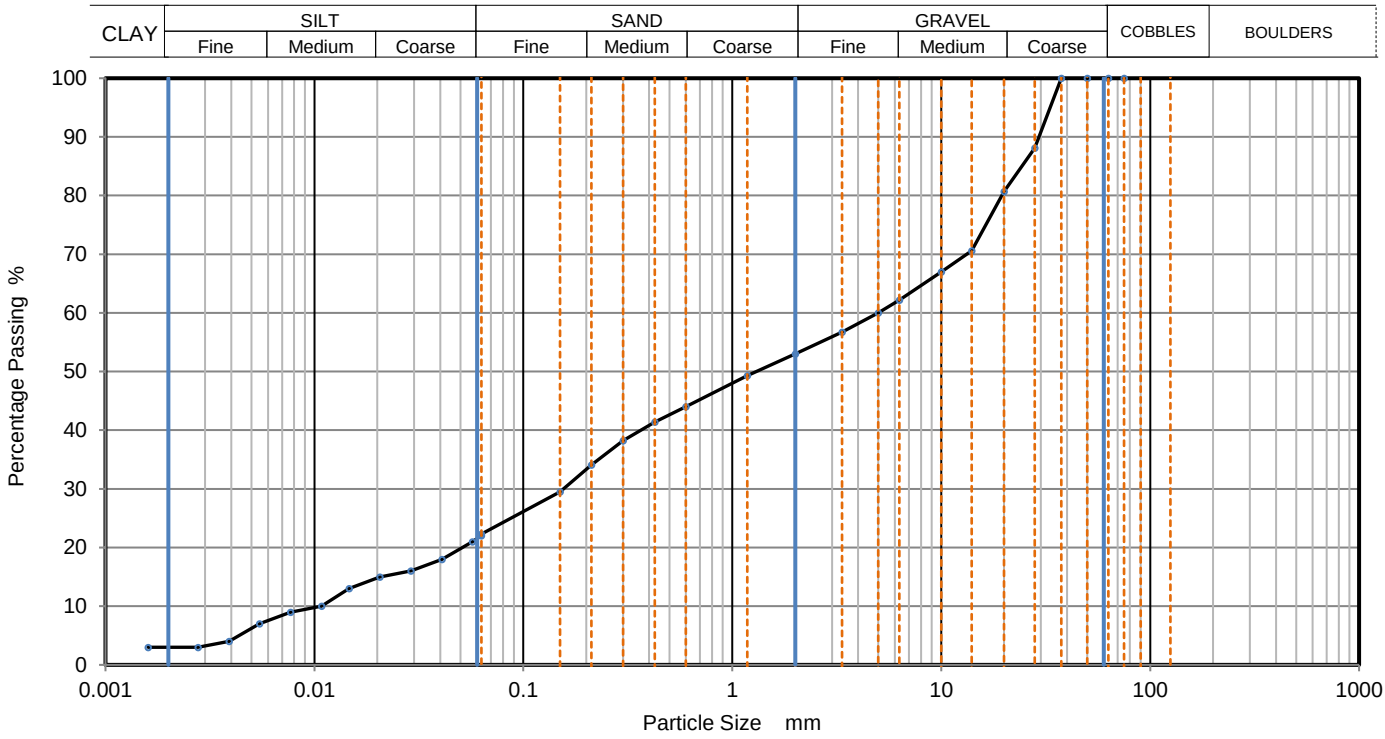
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48900
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very silty very sandy medium and coarse GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020163



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0569	21
75	100	0.0407	18
63	100	0.0289	16
50	100	0.0206	15
37.5	100	0.0146	13
28	88	0.0108	10
20	81	0.0077	9
14	71	0.0055	7
10	67	0.0039	4
6.3	62	0.0028	3
5	60	0.0016	3
3.35	57		
2	53		
1.18	49		
0.6	44	Particle density (assumed)	
0.425	41	2.65	Mg/m3
0.3	38		
0.212	34		
0.15	30		
0.063	22		

Dry Mass of sample, g	496

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	31
Silt	19
Clay	3

Grading Analysis		
D100	mm	
D60	mm	5.01
D30	mm	0.156
D10	mm	0.00984
Uniformity Coefficient		510
Curvature Coefficient		0.5

Remarks

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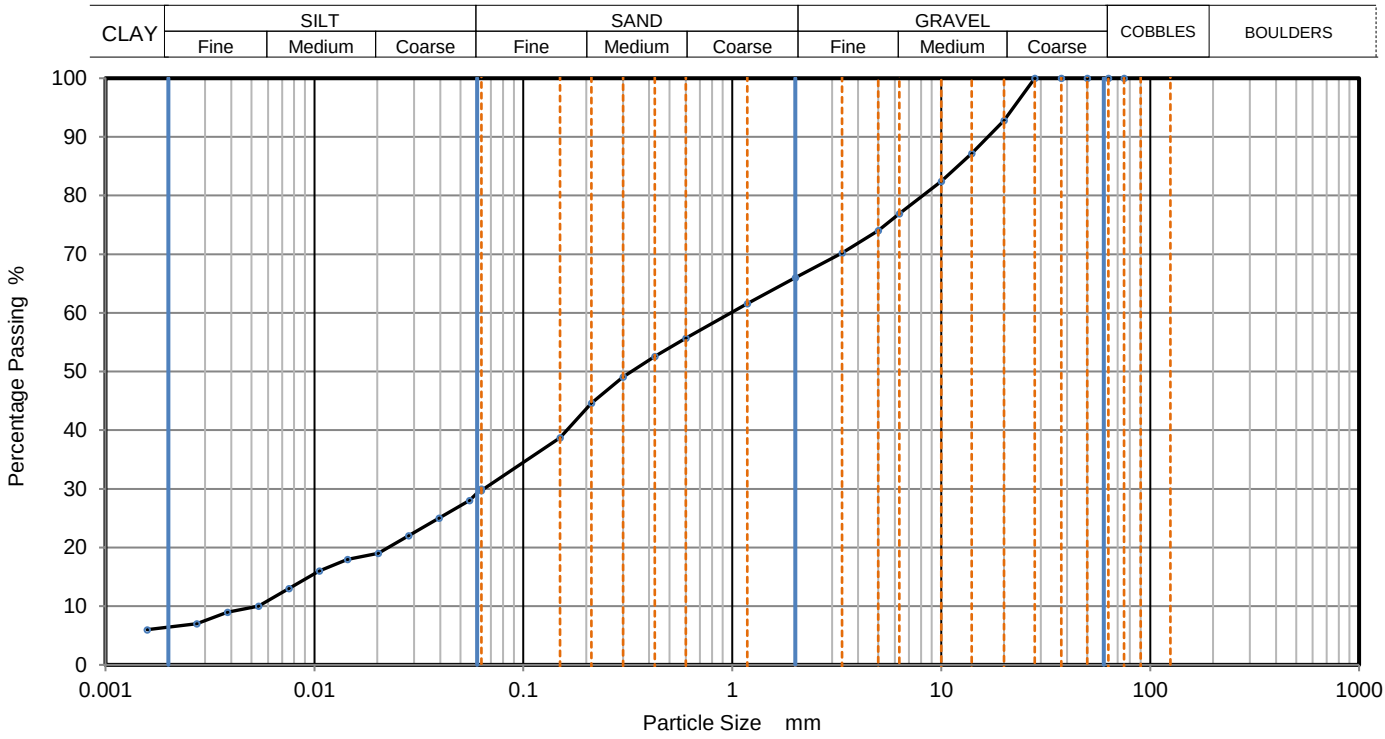
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-48900
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Brown very silty SAND and GRAVEL.			Depth, m	3.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211020165



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0552	28
75	100	0.0395	25
63	100	0.0283	22
50	100	0.0202	19
37.5	100	0.0144	18
28	100	0.0106	16
20	93	0.0076	13
14	87	0.0054	10
10	82	0.0038	9
6.3	77	0.0027	7
5	74	0.0016	6
3.35	70		
2	66		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	49		
0.212	45		
0.15	39		
0.063	30		

Dry Mass of sample, g	693

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	36
Silt	23
Clay	7

Grading Analysis		
D100	mm	
D60	mm	0.981
D30	mm	0.0647
D10	mm	0.00493
Uniformity Coefficient		200
Curvature Coefficient		0.87

Remarks

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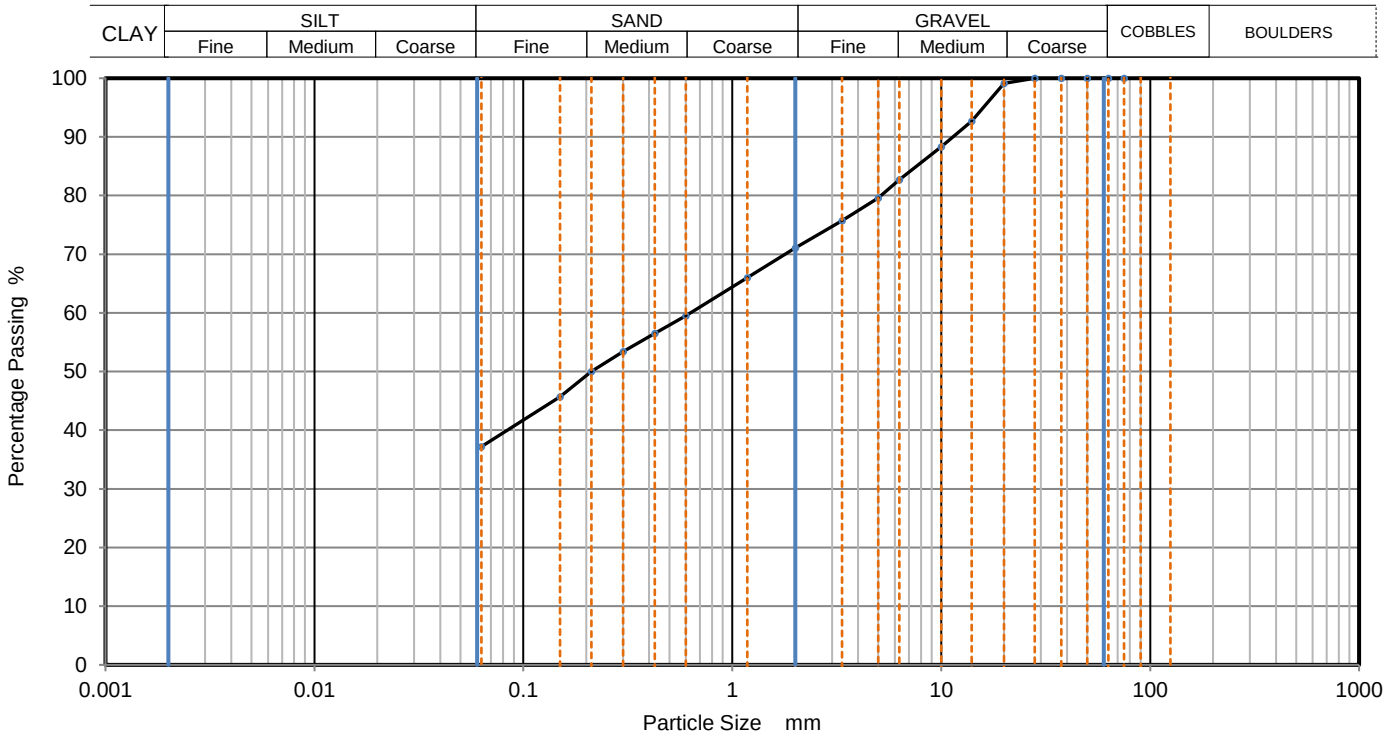
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50309
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light grey slightly gravelly sandy SILT. Gravel is medium.			Depth, m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110255



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	93		
10	88		
6.3	83		
5	80		
3.35	76		
2	71		
1.18	66		
0.6	60		
0.425	57		
0.3	53		
0.212	50		
0.15	46		
0.063	37		

Dry Mass of sample, g	1023

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	34
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	0.635
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

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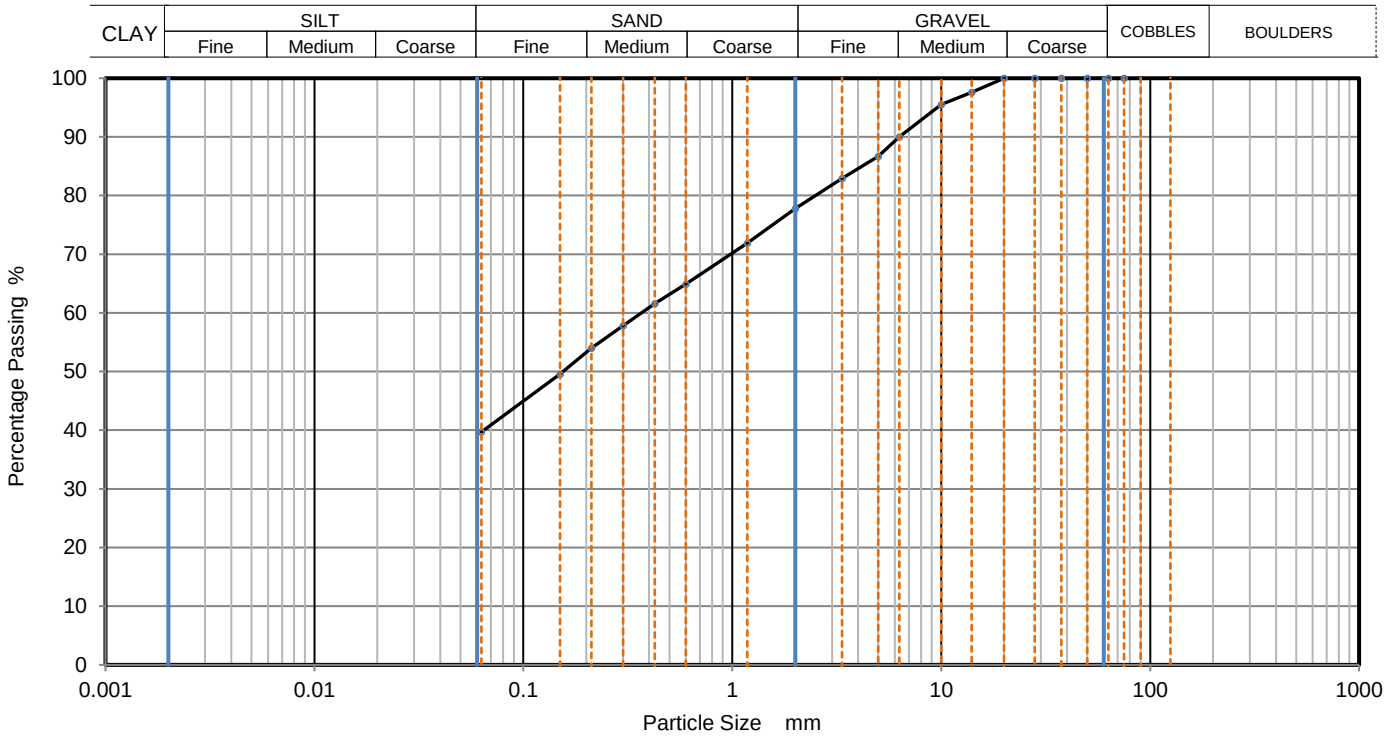
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50409
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light greyish-cream slightly gravelly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110259



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	96		
6.3	90		
5	87		
3.35	83		
2	78		
1.18	72		
0.6	65		
0.425	62		
0.3	58		
0.212	54		
0.15	50		
0.063	40		

Dry Mass of sample, g	958

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	38
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.367
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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				QC From No:R2

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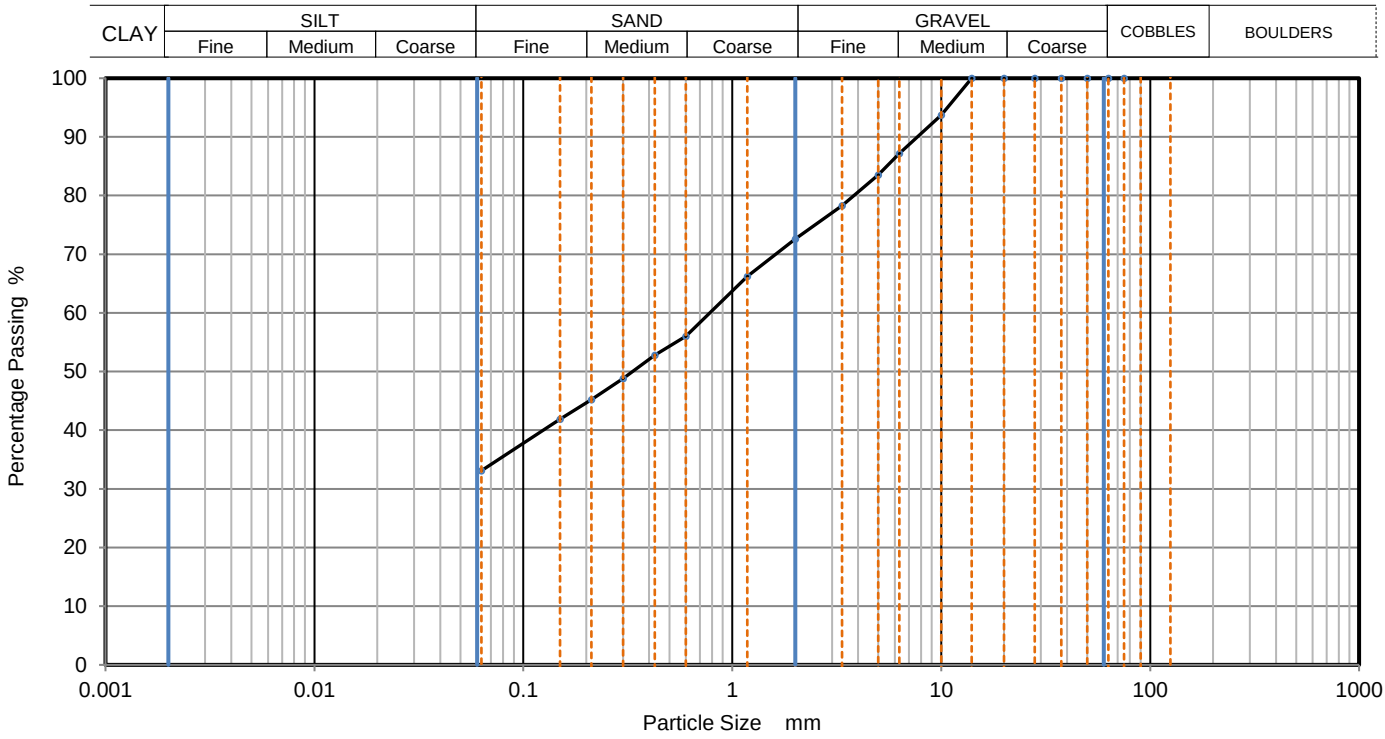
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50508
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110264



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	94		
6.3	87		
5	84		
3.35	78		
2	73		
1.18	66		
0.6	56		
0.425	53		
0.3	49		
0.212	45		
0.15	42		
0.063	33		

Dry Mass of sample, g	293

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	40
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	0.782
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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				QC From No:R2

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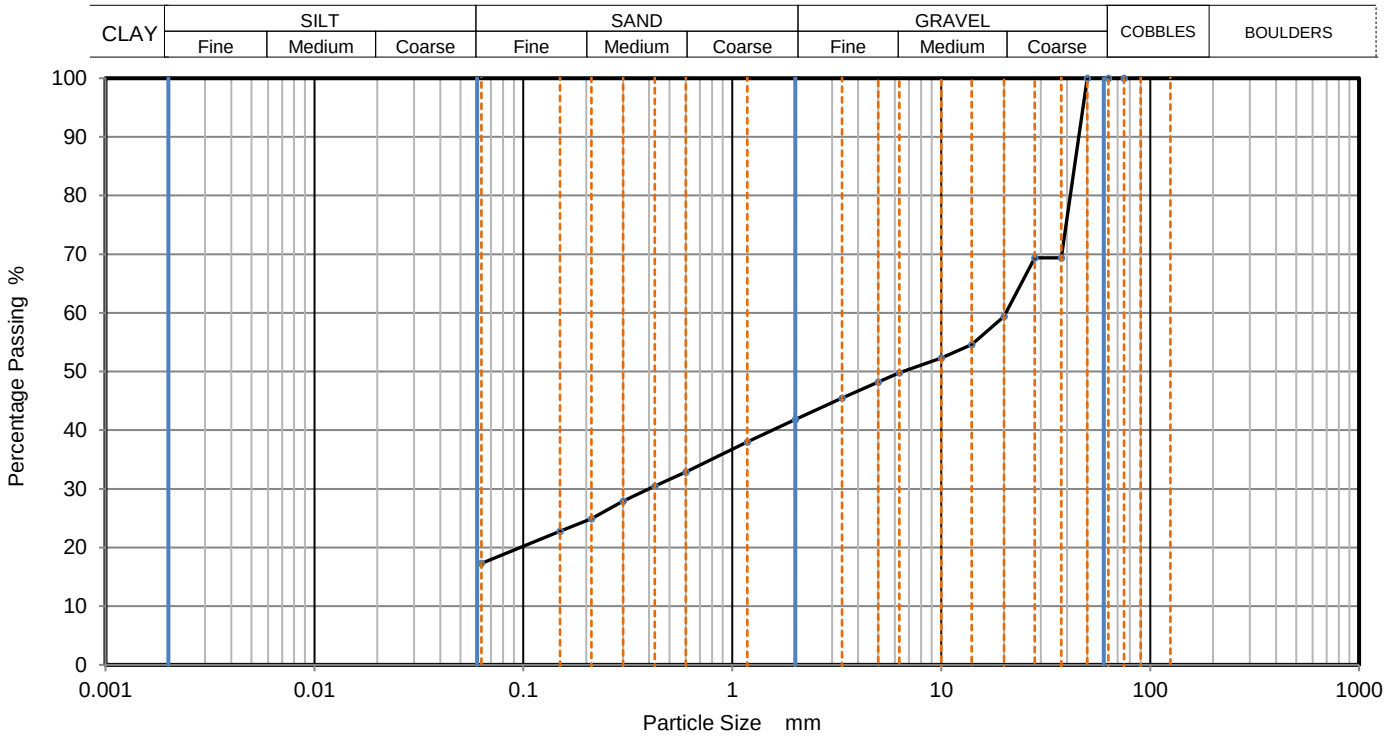
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50608
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110266



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	69		
28	69		
20	59		
14	55		
10	52		
6.3	50		
5	48		
3.35	46		
2	42		
1.18	38		
0.6	33		
0.425	31		
0.3	28		
0.212	25		
0.15	23		
0.063	17		

Dry Mass of sample, g	916

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	25
Fines <0.063mm	17

Grading Analysis		
D100	mm	
D60	mm	20.4
D30	mm	0.397
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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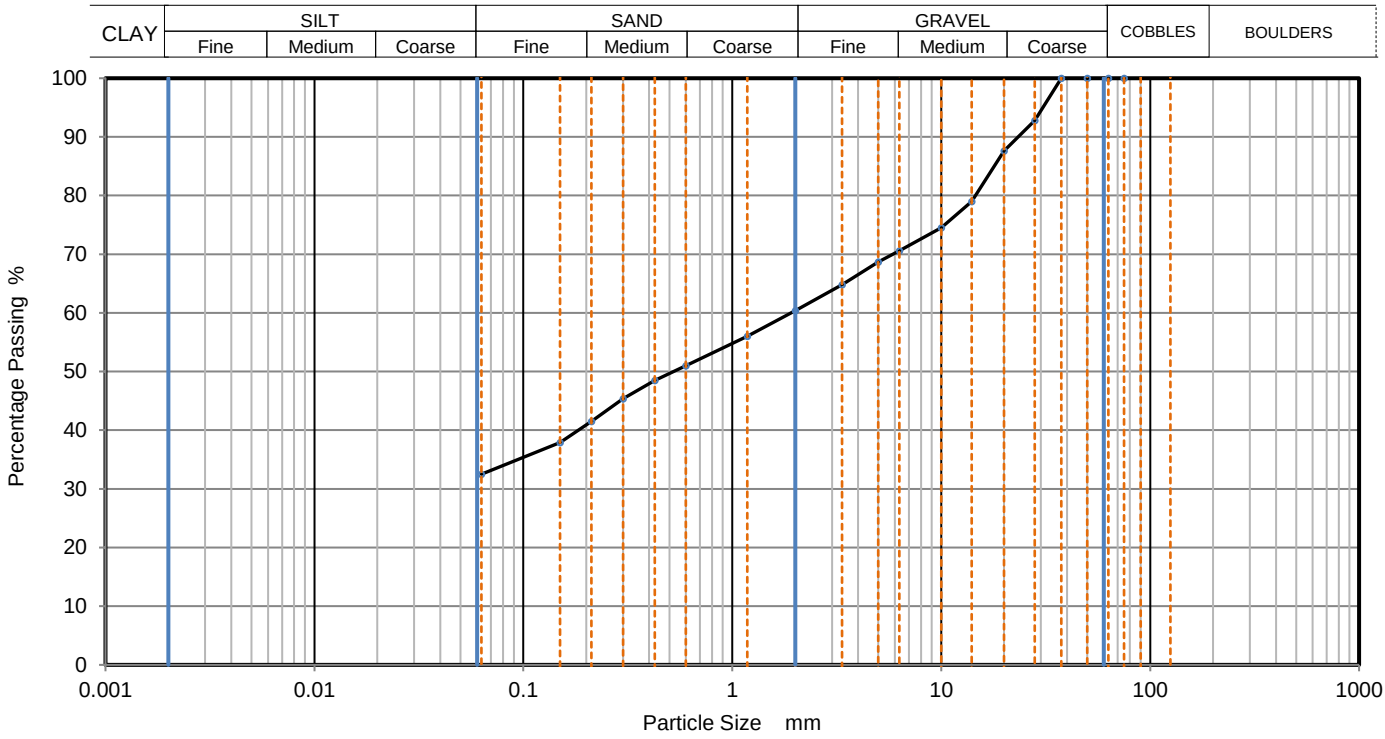
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50707
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Cream very sandy very silty GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110270



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	88		
14	79		
10	75		
6.3	71		
5	69		
3.35	65		
2	60		
1.18	56		
0.6	51		
0.425	49		
0.3	45		
0.212	42		
0.15	38		
0.063	33		

Dry Mass of sample, g	1537

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	1.9
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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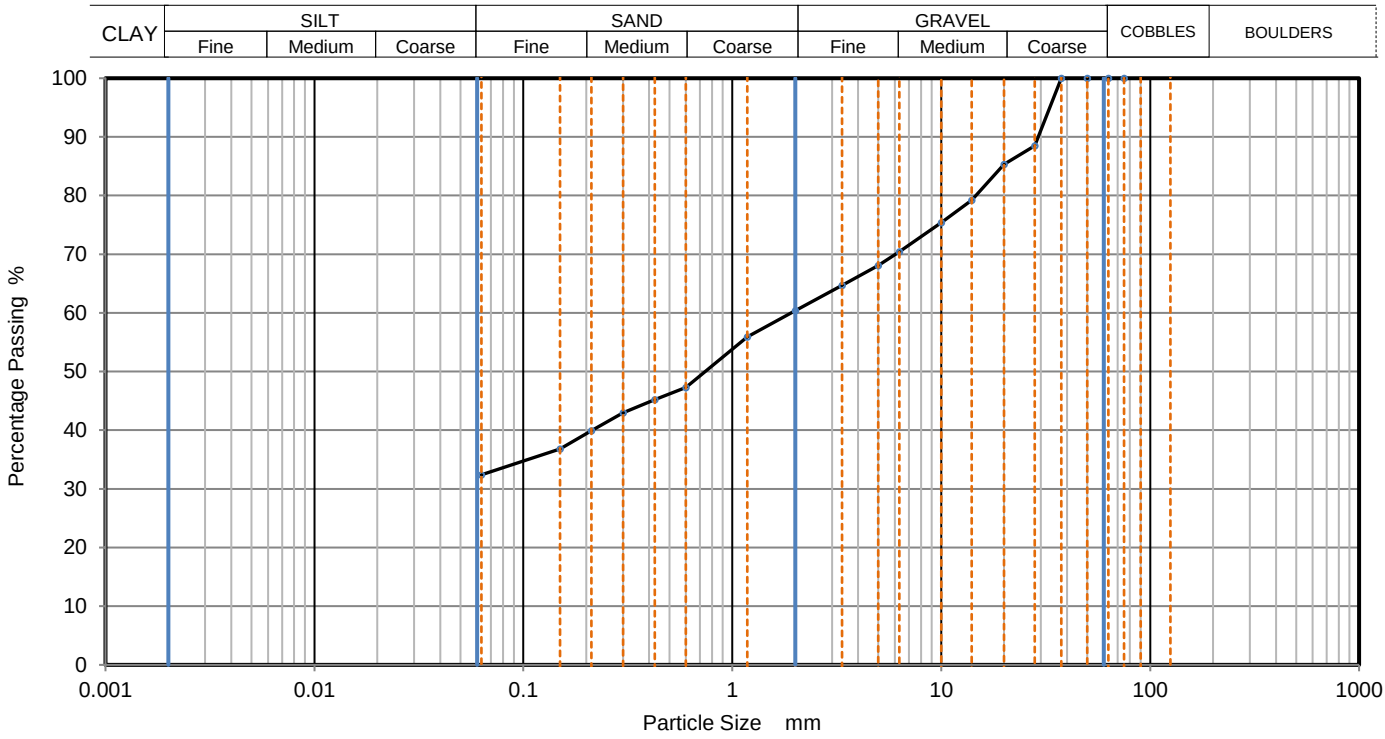
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50707
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey very sandy very silty GRAVEL.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110272



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	89		
20	85		
14	79		
10	75		
6.3	70		
5	68		
3.35	65		
2	60		
1.18	56		
0.6	47		
0.425	45		
0.3	43		
0.212	40		
0.15	37		
0.063	32		

Dry Mass of sample, g	862

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Fines <0.063mm	32

Grading Analysis		
D100	mm	
D60	mm	1.91
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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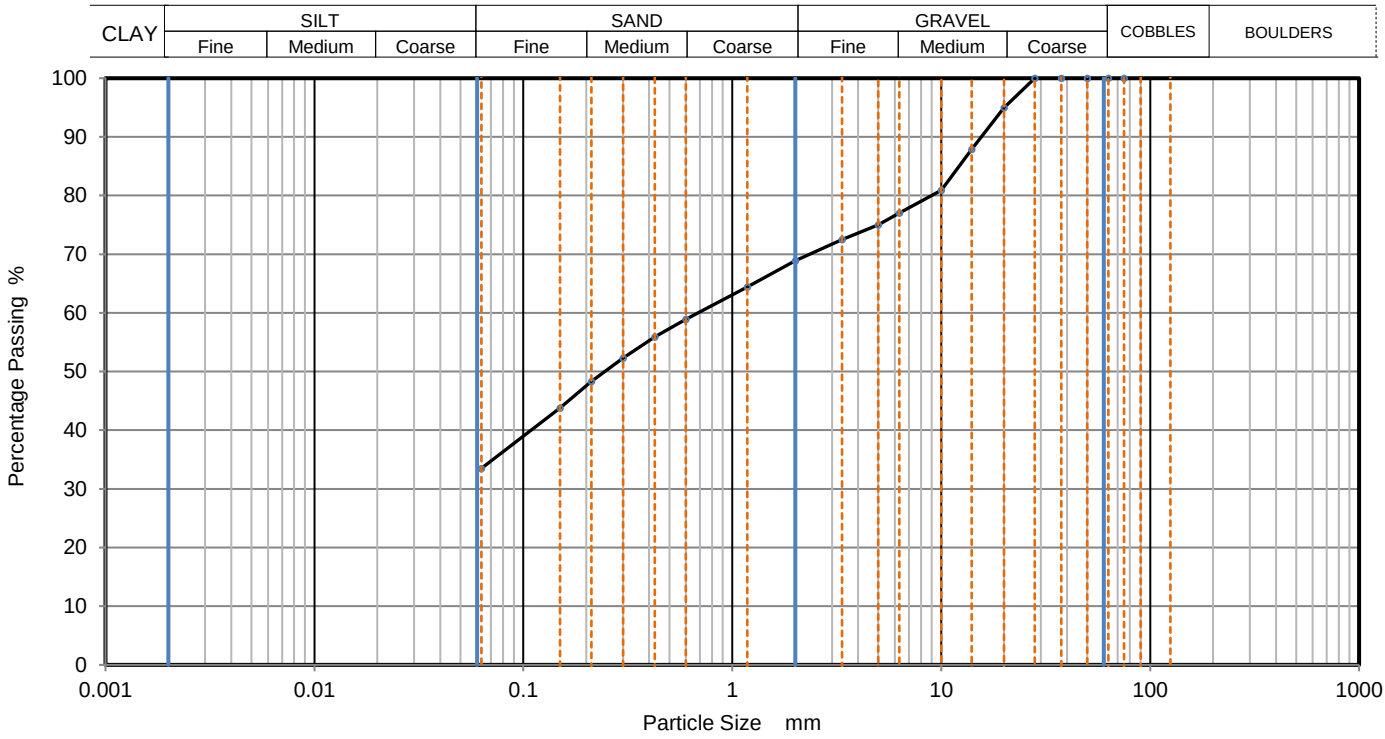
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50809
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110277



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	88		
10	81		
6.3	77		
5	75		
3.35	73		
2	69		
1.18	64		
0.6	59		
0.425	56		
0.3	52		
0.212	48		
0.15	44		
0.063	34		

Dry Mass of sample, g	367

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	35
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	0.686
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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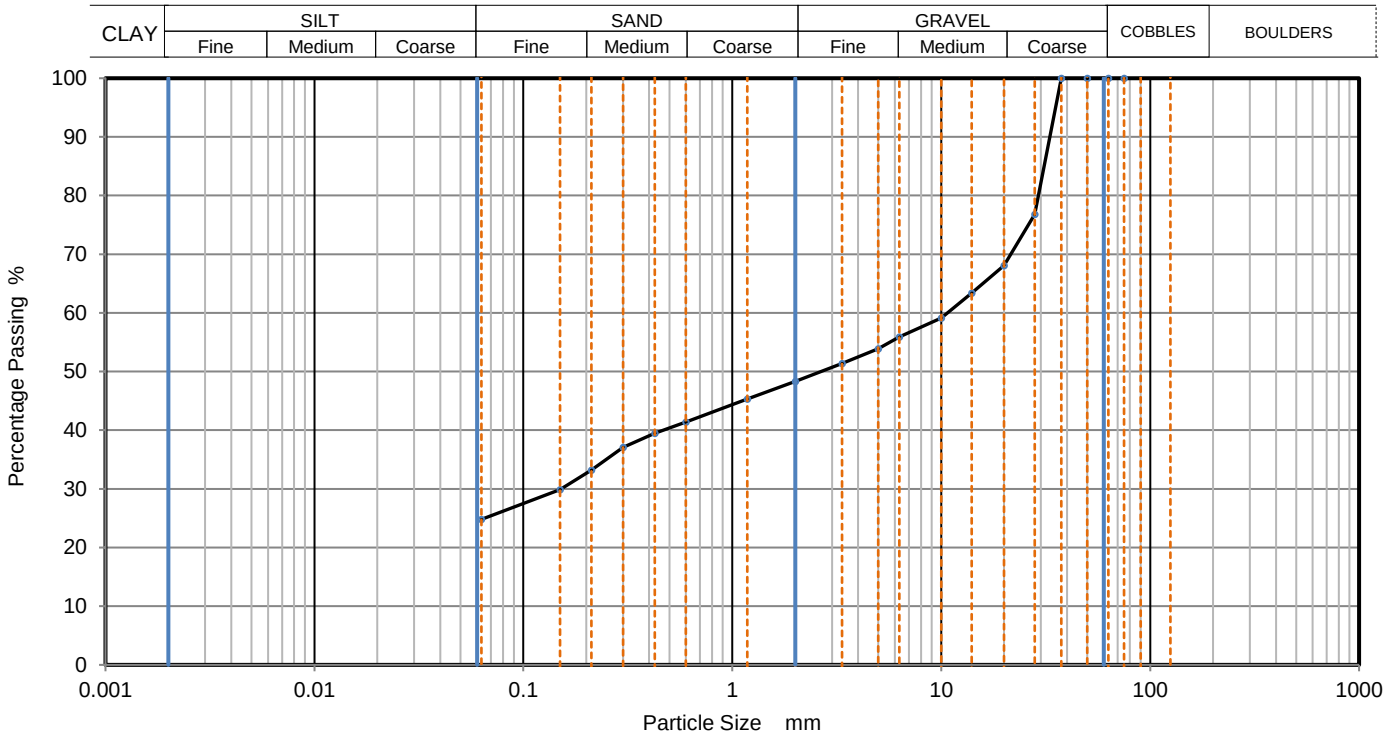
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50921
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey very sandy very silty coarse GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110283



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	77		
20	68		
14	63		
10	59		
6.3	56		
5	54		
3.35	51		
2	48		
1.18	45		
0.6	41		
0.425	40		
0.3	37		
0.212	33		
0.15	30		
0.063	25		

Dry Mass of sample, g	702

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	24
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	10.7
D30	mm	0.152
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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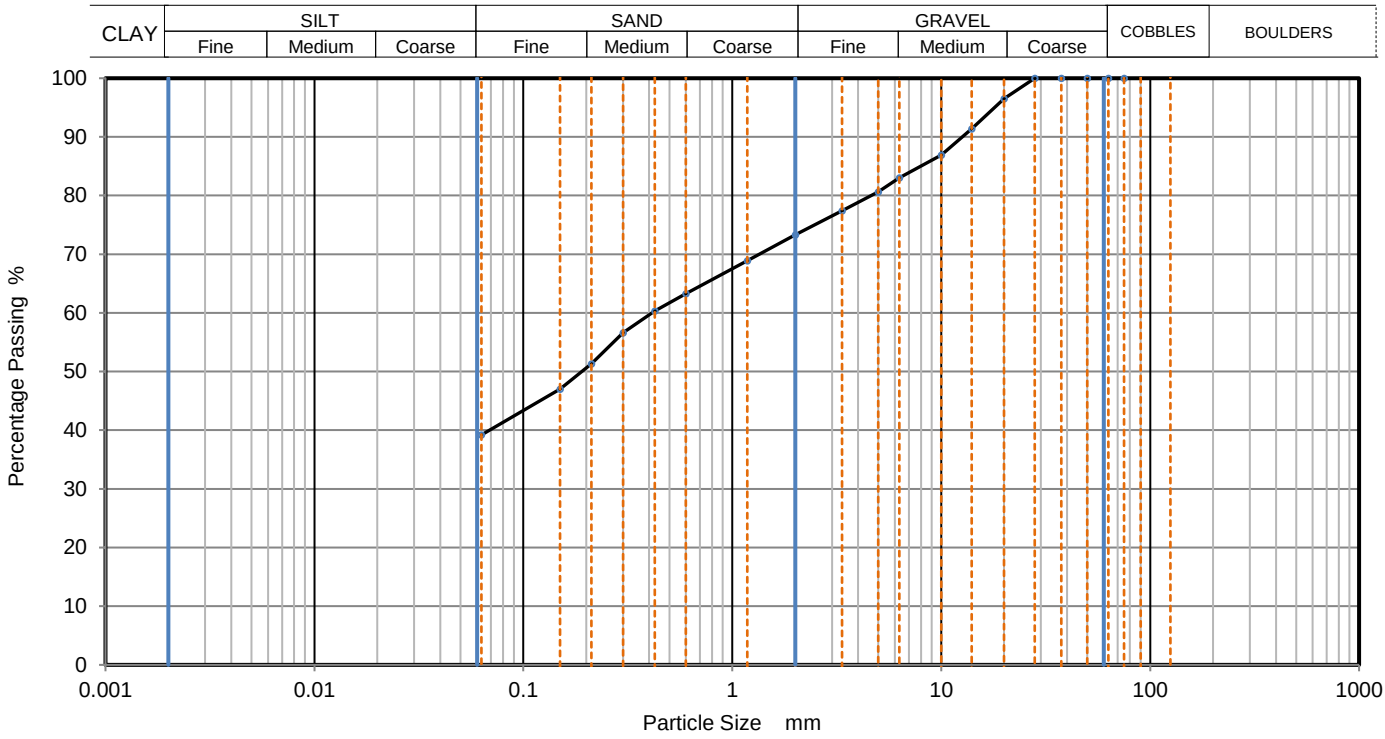
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50959
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110287



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	91		
10	87		
6.3	83		
5	81		
3.35	77		
2	73		
1.18	69		
0.6	63		
0.425	60		
0.3	57		
0.212	51		
0.15	47		
0.063	39		

Dry Mass of sample, g	906

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	34
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.413
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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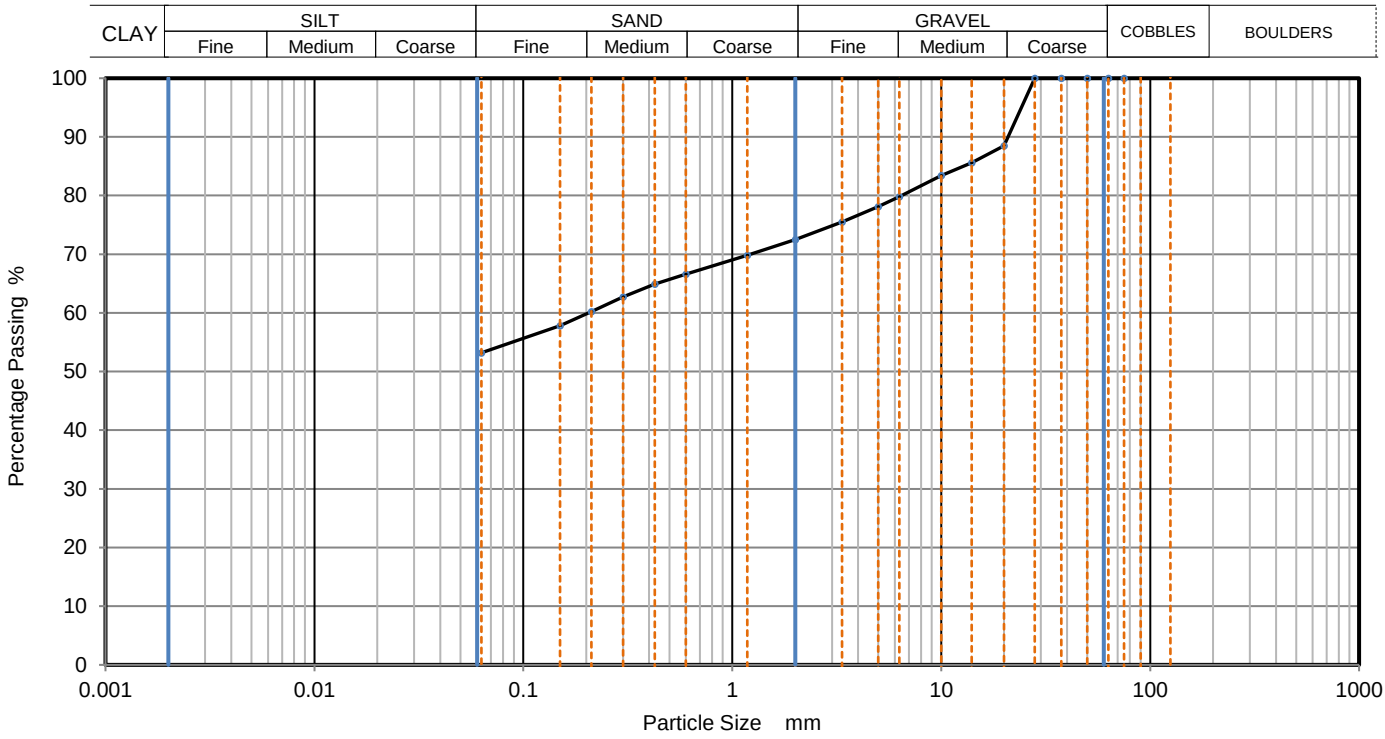
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

Job Ref	**2021OY102**		
Borehole/Pit No.	TP-50959		
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Yellowish-brown slighlty sandy slightly gravelly SILT.	Depth, m	2.30
Specimen Reference		Specimen Depth: m	Sample Type: B
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL12021110289



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	86		
10	83		
6.3	80		
5	78		
3.35	76		
2	73		
1.18	70		
0.6	67		
0.425	65		
0.3	63		
0.212	60		
0.15	58		
0.063	53		

Dry Mass of sample, g: 947

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	19
Fines <0.063mm	53

Grading Analysis		
D100	mm	
D60	mm	0.205
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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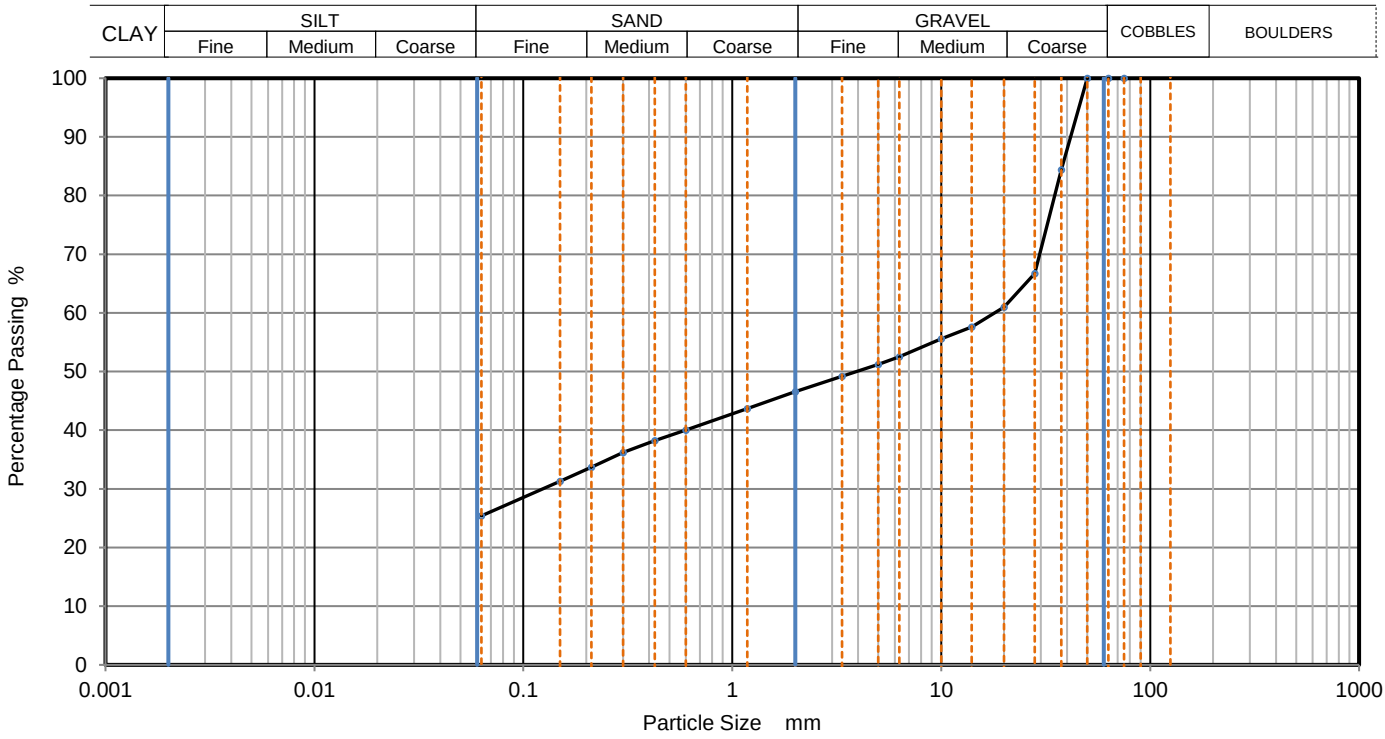
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50964
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey very sandy very silty coarse GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110293



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	84		
28	67		
20	61		
14	58		
10	56		
6.3	53		
5	51		
3.35	49		
2	47		
1.18	44		
0.6	40		
0.425	38		
0.3	36		
0.212	34		
0.15	31		
0.063	25		

Dry Mass of sample, g	697

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	21
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	18.1
D30	mm	0.123
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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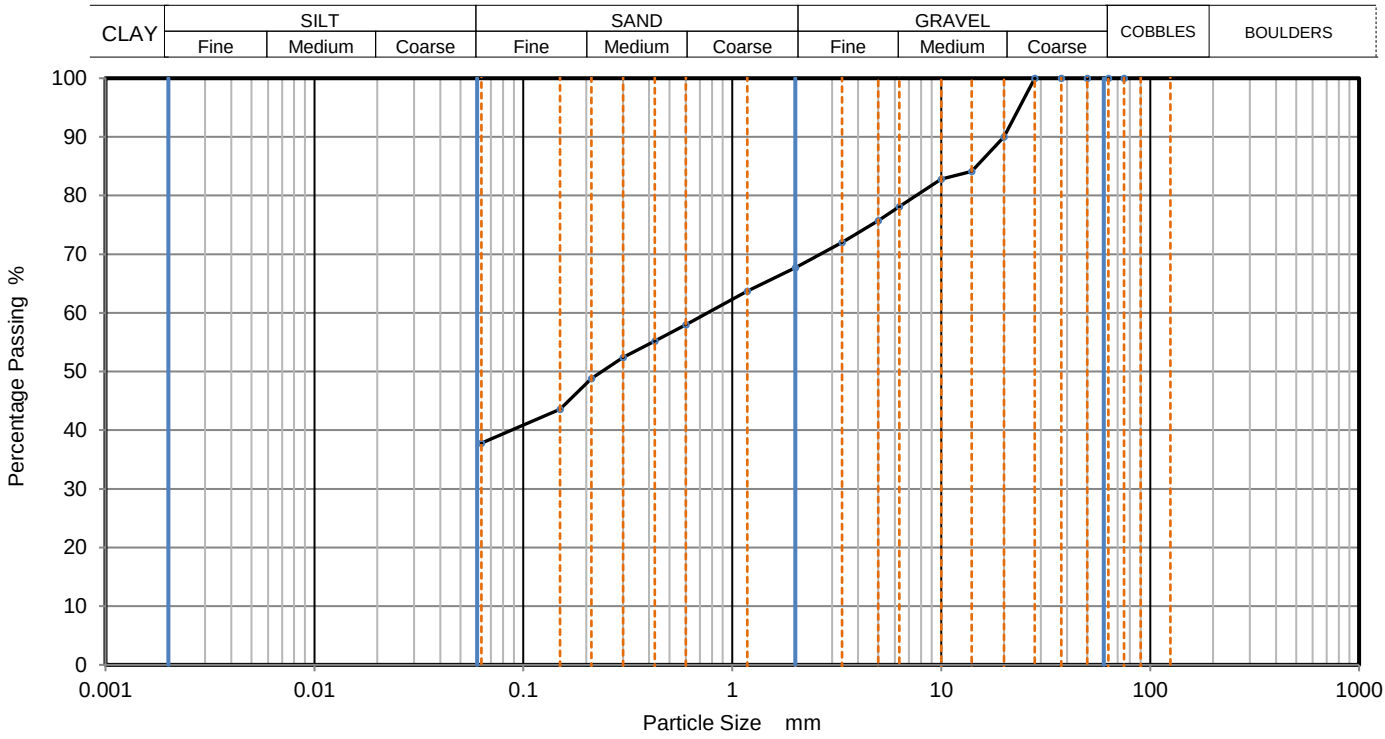
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50987
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light grey slightly sandy slightly gravelly SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201130



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	84		
10	83		
6.3	78		
5	76		
3.35	72		
2	68		
1.18	64		
0.6	58		
0.425	55		
0.3	52		
0.212	49		
0.15	44		
0.063	38		

Dry Mass of sample, g	306

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	30
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.757
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/12/2022 16:07	**1** QC From No:R2

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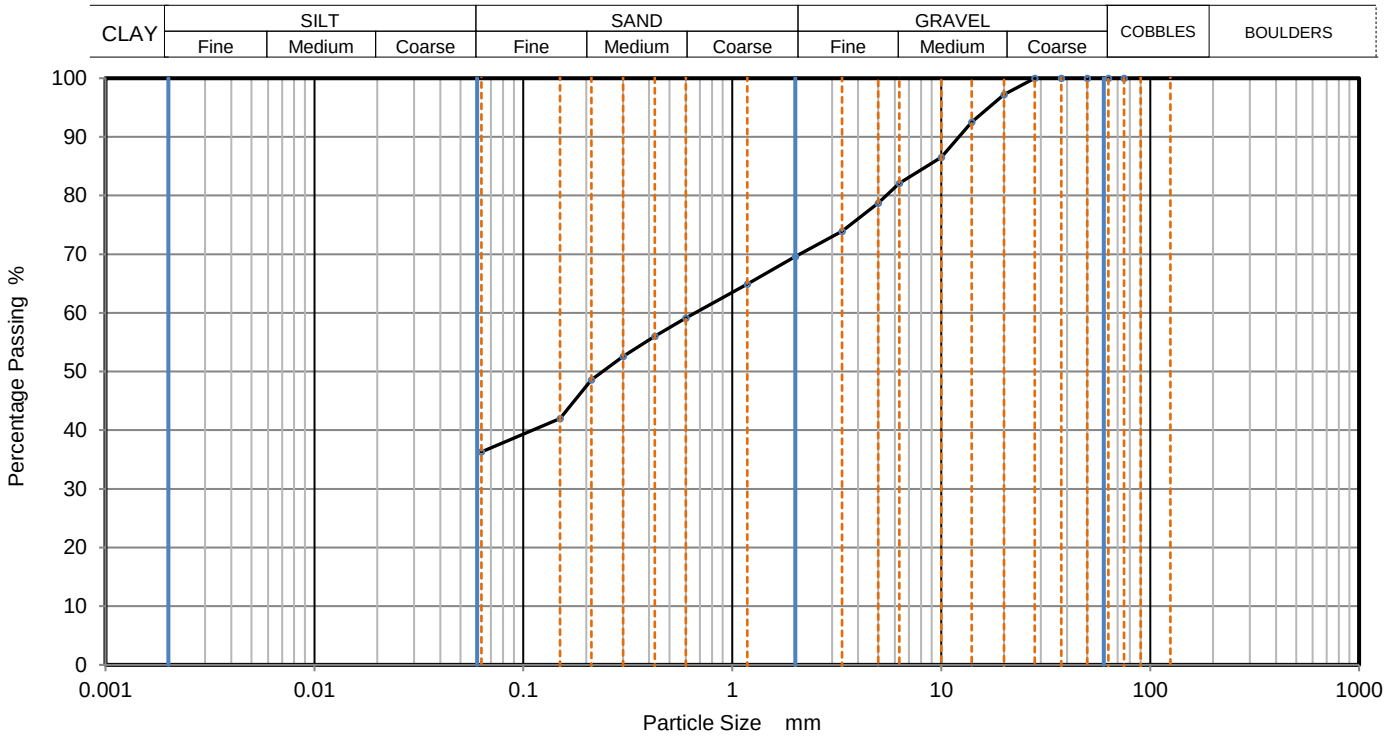
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50987
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Creamy-brown slightly gravelly slightly sandy SILT.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201133



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	93		
10	87		
6.3	82		
5	79		
3.35	74		
2	70		
1.18	65		
0.6	59		
0.425	56		
0.3	53		
0.212	49		
0.15	42		
0.063	36		

Dry Mass of sample, g	807

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	33
Fines <0.063mm	36

Grading Analysis		
D100	mm	
D60	mm	0.665
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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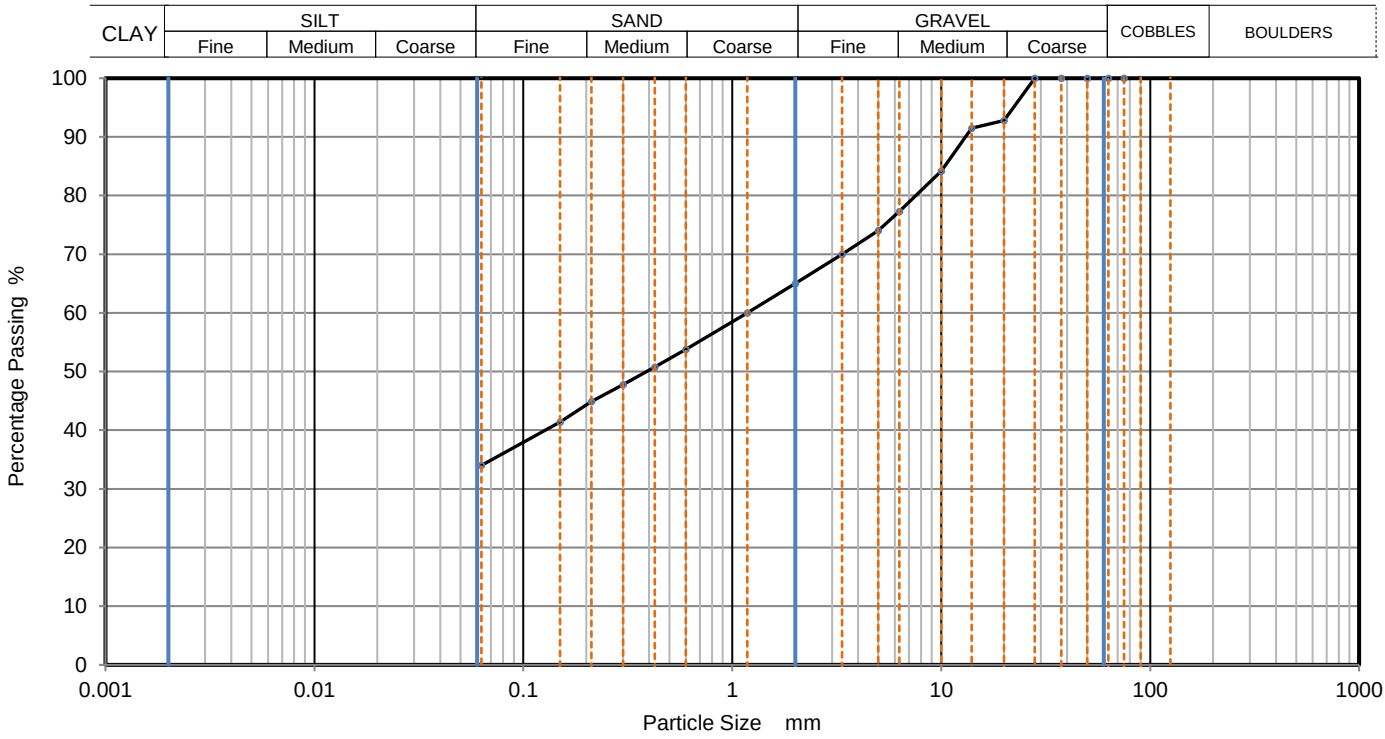
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50987
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Cream-brown very sandy very silty medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201135



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	92		
10	84		
6.3	77		
5	74		
3.35	70		
2	65		
1.18	60		
0.6	54		
0.425	51		
0.3	48		
0.212	45		
0.15	41		
0.063	34		

Dry Mass of sample, g	682

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	31
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	1.18
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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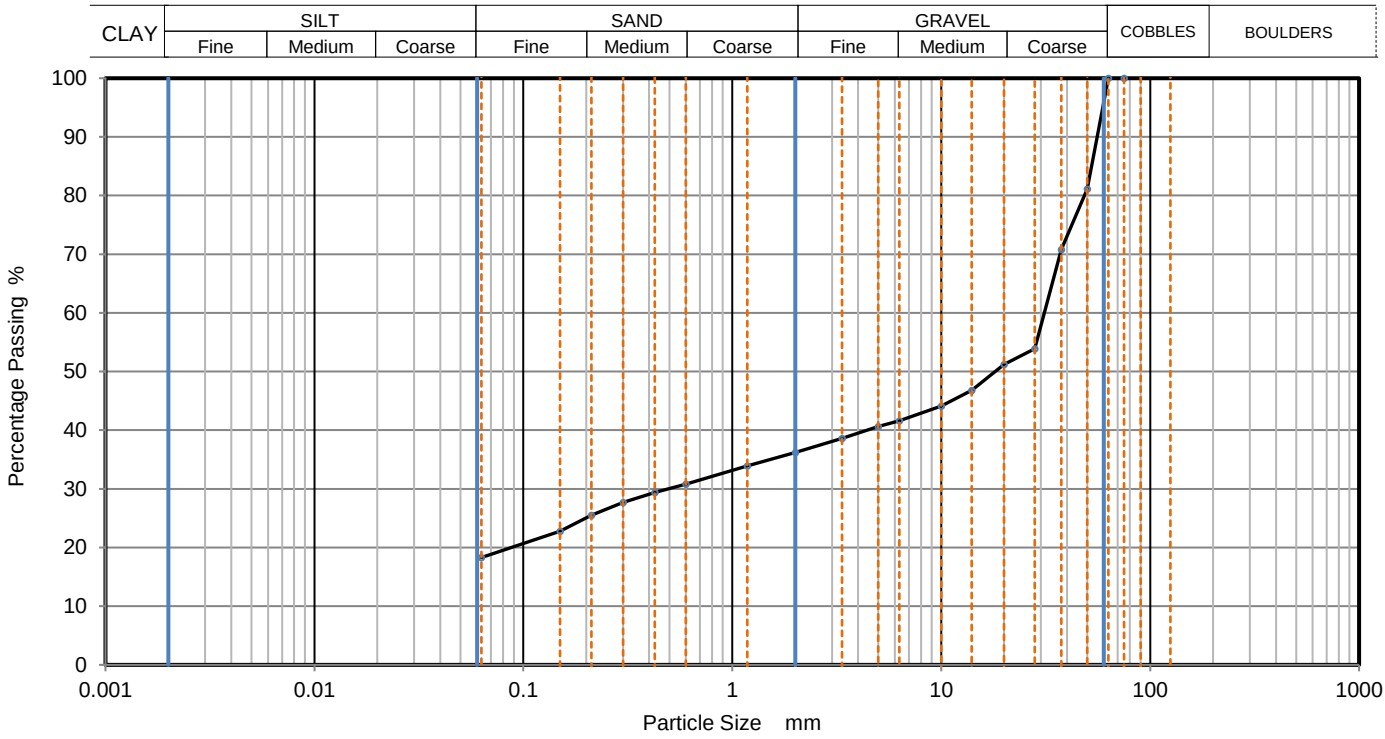
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50998
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown silty sandy coarse GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021110296



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	81		
37.5	71		
28	54		
20	51		
14	47		
10	44		
6.3	42		
5	41		
3.35	39		
2	36		
1.18	34		
0.6	31		
0.425	29		
0.3	28		
0.212	26		
0.15	23		
0.063	18		

Dry Mass of sample, g	983

Sample Proportions	% dry mass
Very coarse	0
Gravel	64
Sand	18
Fines <0.063mm	18

Grading Analysis		
D100	mm	
D60	mm	31.1
D30	mm	0.49
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

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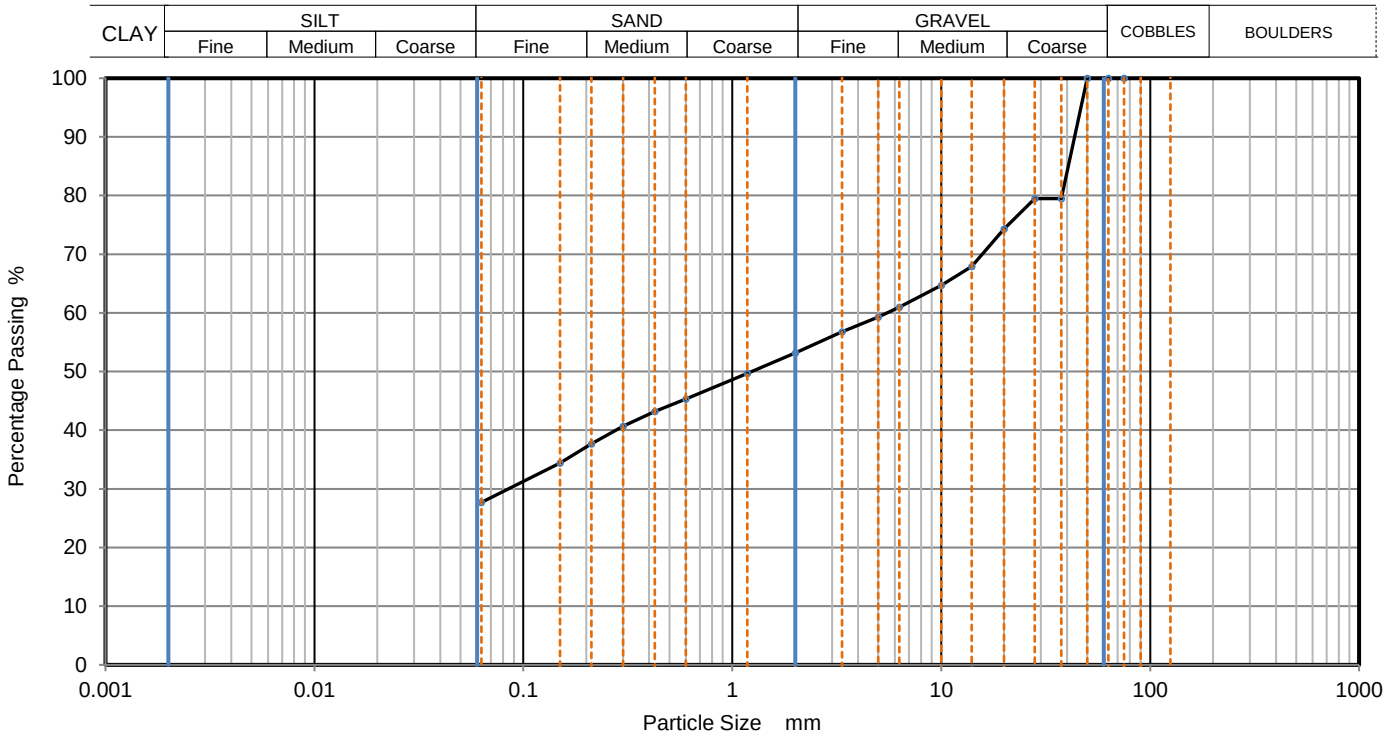
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-50998
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey very sandy very silty coarse GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102100



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	80		
28	80		
20	74		
14	68		
10	65		
6.3	61		
5	59		
3.35	57		
2	53		
1.18	50		
0.6	45		
0.425	43		
0.3	41		
0.212	38		
0.15	34		
0.063	28		

Dry Mass of sample, g	845

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	26
Fines <0.063mm	28

Grading Analysis		
D100	mm	
D60	mm	5.5
D30	mm	0.0849
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

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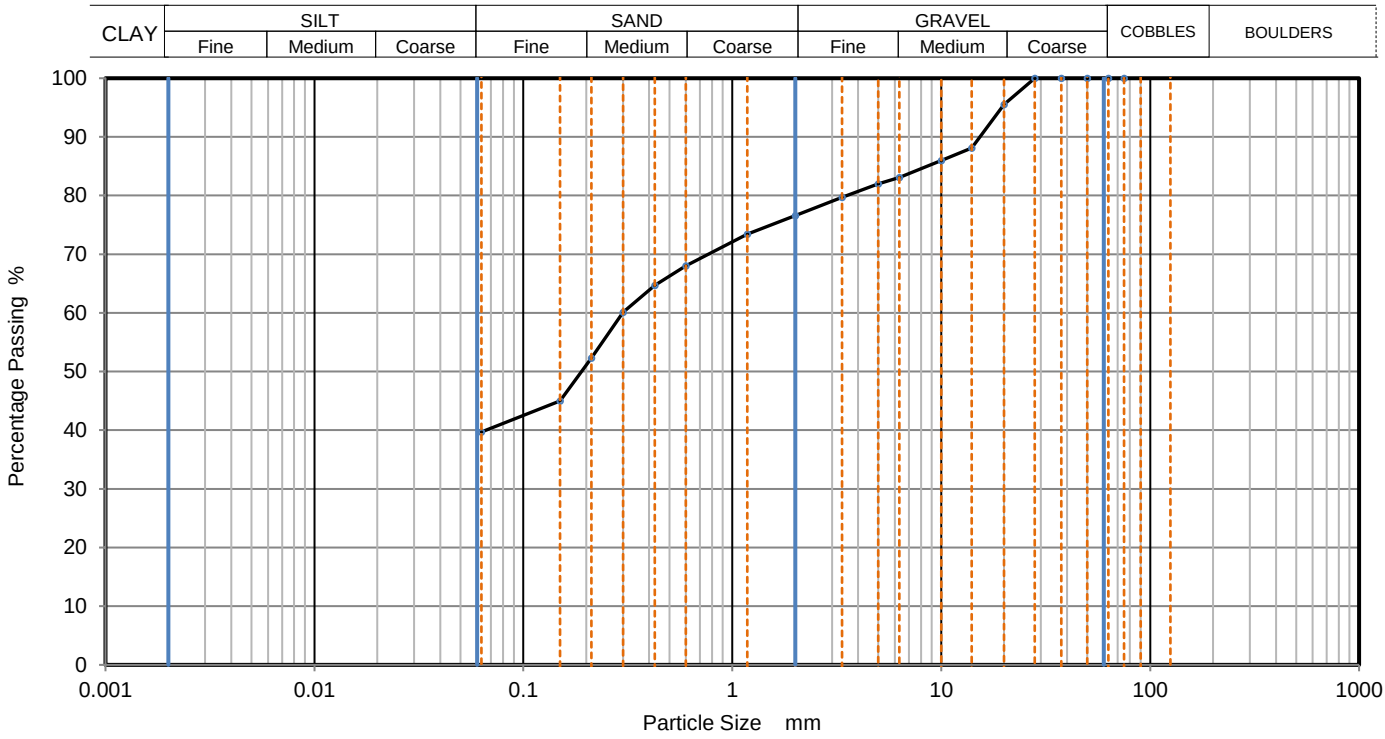
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51019
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201137



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	96		
14	88		
10	86		
6.3	83		
5	82		
3.35	80		
2	77		
1.18	73		
0.6	68		
0.425	65		
0.3	60		
0.212	52		
0.15	45		
0.063	40		

Dry Mass of sample, g	930

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	37
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.299
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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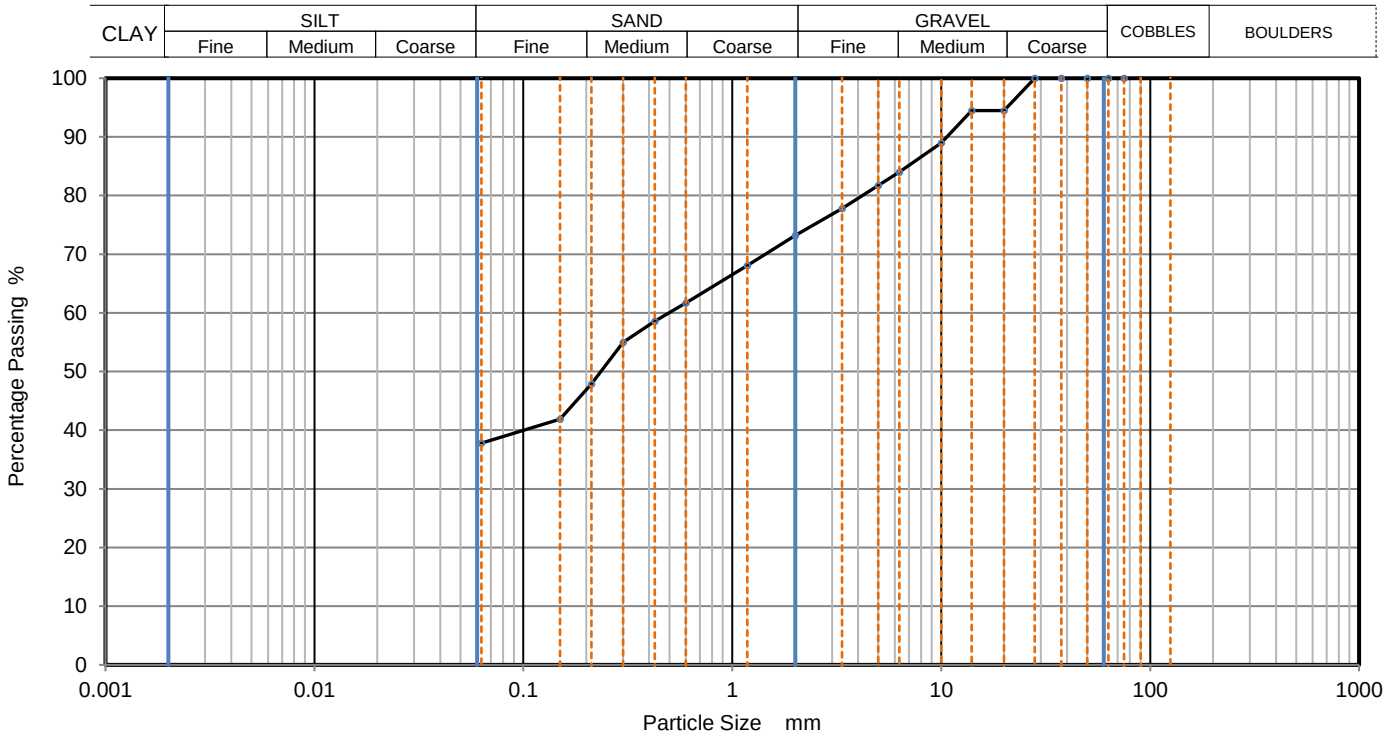
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51019
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011310



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	95		
10	89		
6.3	84		
5	82		
3.35	78		
2	73		
1.18	68		
0.6	62		
0.425	59		
0.3	55		
0.212	48		
0.15	42		
0.063	38		

Dry Mass of sample, g	786

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	35
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.498
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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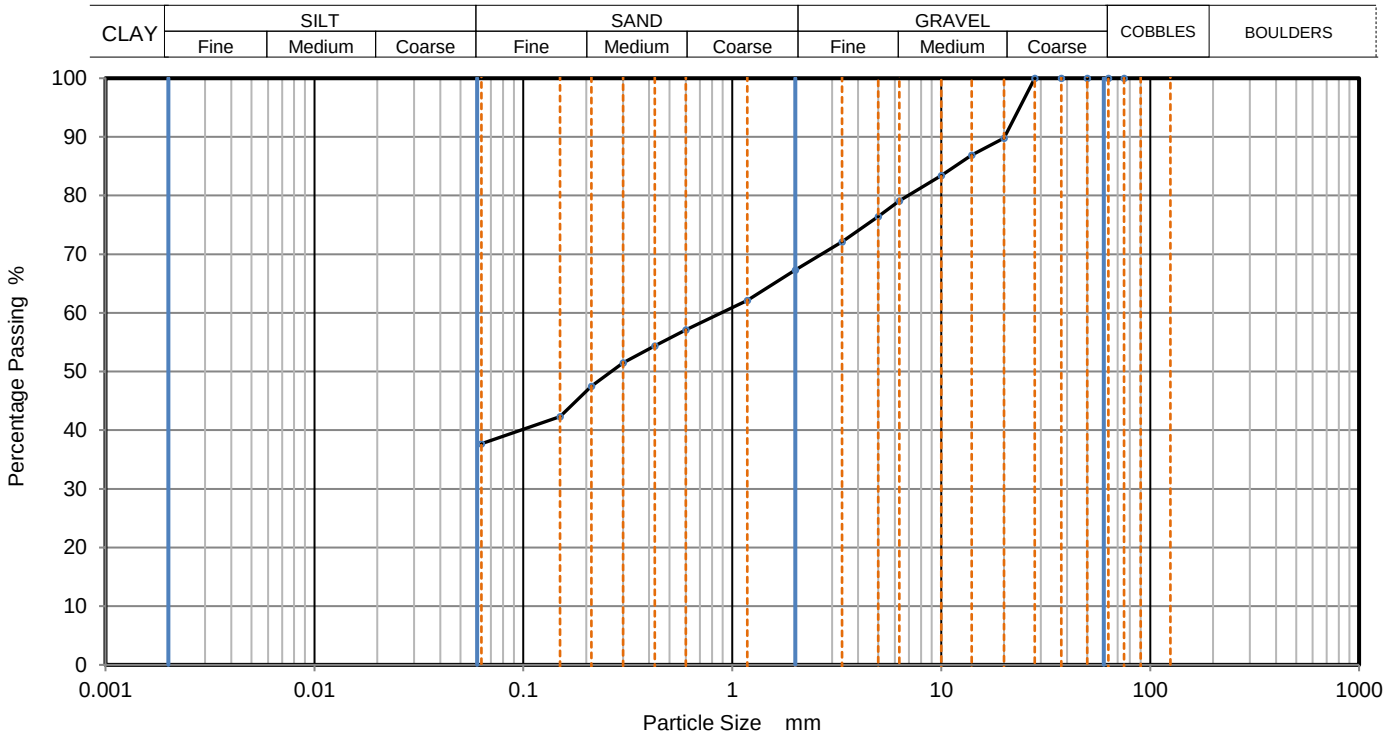
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51019
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011312



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	87		
10	83		
6.3	79		
5	76		
3.35	72		
2	67		
1.18	62		
0.6	57		
0.425	54		
0.3	52		
0.212	48		
0.15	42		
0.063	38		

Dry Mass of sample, g	826

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	30
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.889
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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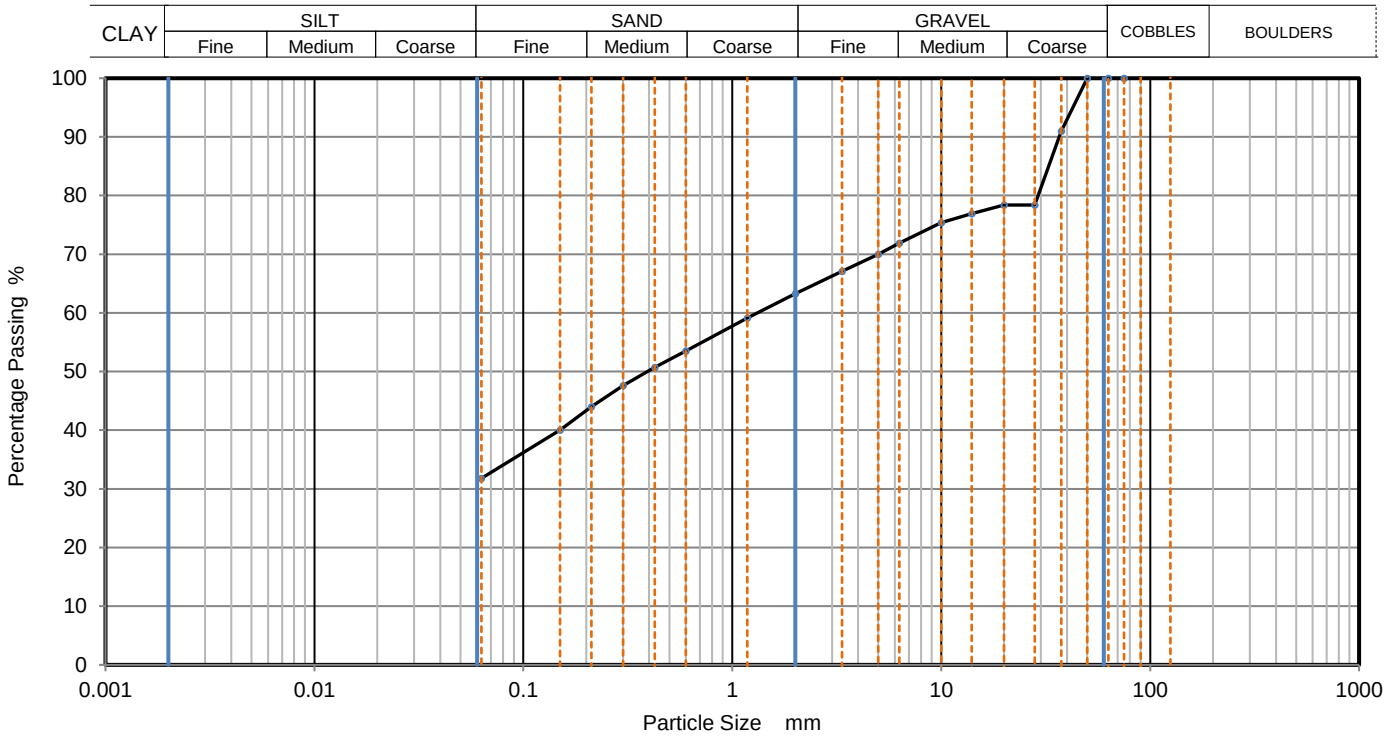
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51052
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Yellowish-brown very silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102105



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	91		
28	78		
20	78		
14	77		
10	75		
6.3	72		
5	70		
3.35	67		
2	63		
1.18	59		
0.6	54		
0.425	51		
0.3	48		
0.212	44		
0.15	40		
0.063	32		

Dry Mass of sample, g	845

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	32
Fines <0.063mm	32

Grading Analysis		
D100	mm	
D60	mm	1.32
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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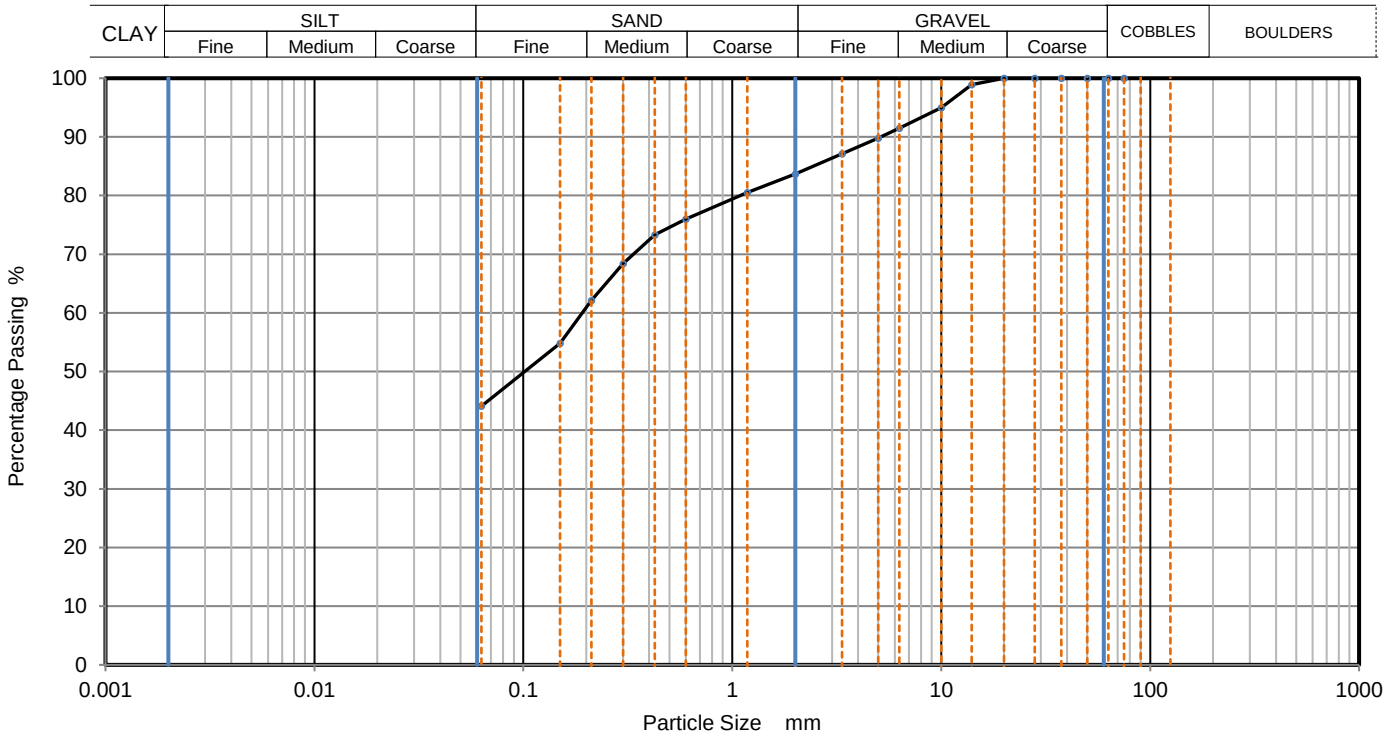
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51059
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011314



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	95		
6.3	92		
5	90		
3.35	87		
2	84		
1.18	81		
0.6	76		
0.425	73		
0.3	68		
0.212	62		
0.15	55		
0.063	44		

Dry Mass of sample, g: 607

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	40
Fines <0.063mm	44

Grading Analysis		
D100	mm	
D60	mm	0.192
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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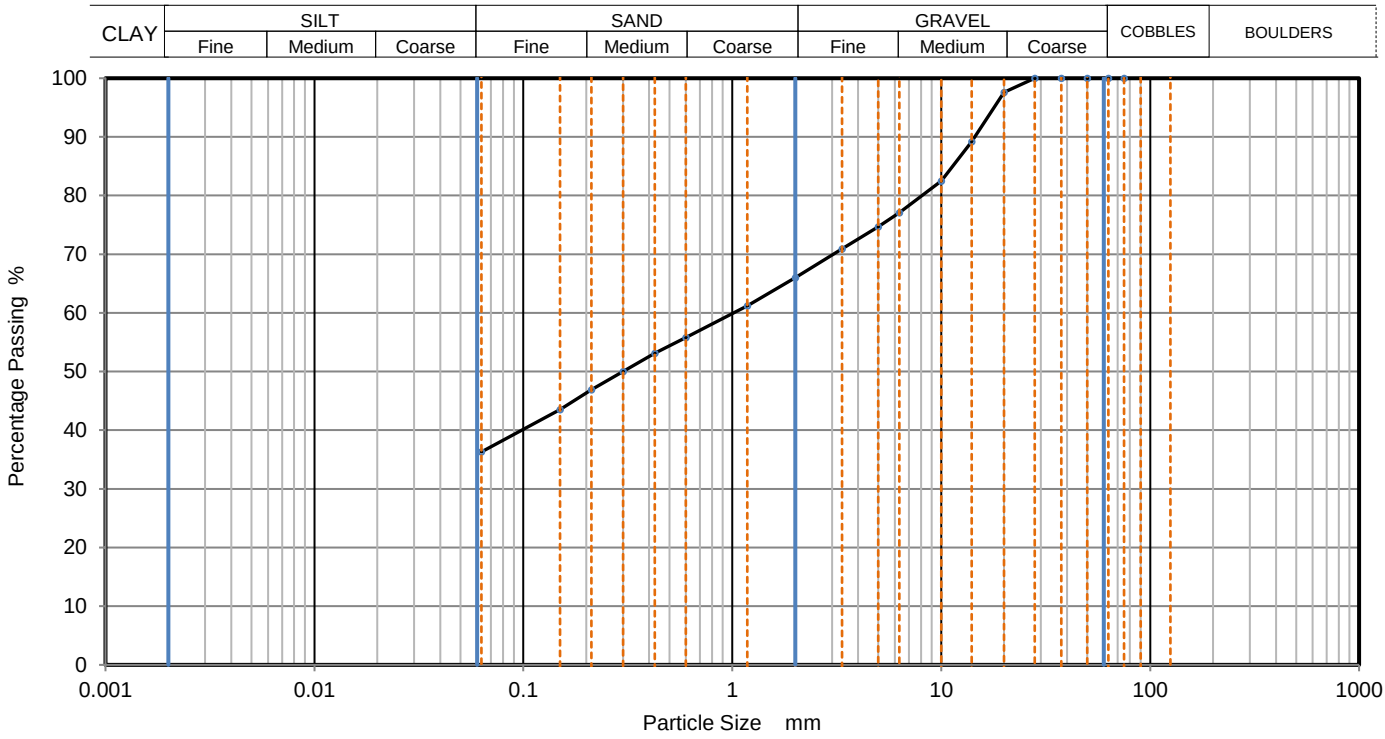
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51059
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Golden-brown slightly sandy gravelly SILT. Gravel is medium.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011317



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	98		
14	89		
10	83		
6.3	77		
5	75		
3.35	71		
2	66		
1.18	61		
0.6	56		
0.425	53		
0.3	50		
0.212	47		
0.15	44		
0.063	36		

Dry Mass of sample, g	610

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	30
Fines <0.063mm	36

Grading Analysis		
D100	mm	
D60	mm	1.01
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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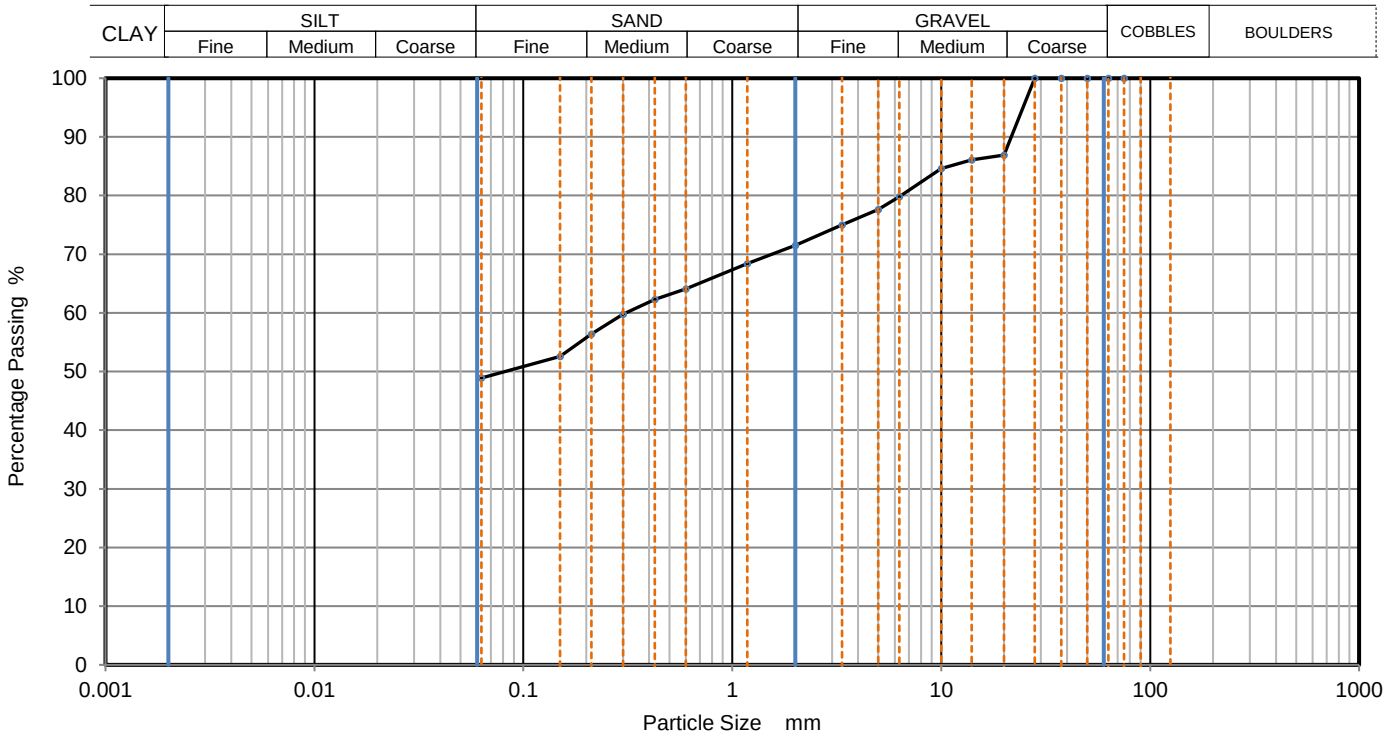
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51059
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Golden-brown slightly sandy slightly gravelly SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011319



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	86		
10	85		
6.3	80		
5	78		
3.35	75		
2	72		
1.18	68		
0.6	64		
0.425	62		
0.3	60		
0.212	56		
0.15	53		
0.063	49		

Dry Mass of sample, g	808

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	23
Fines <0.063mm	49

Grading Analysis		
D100	mm	
D60	mm	0.307
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/12/2022 16:07	**1** QC From No:R2

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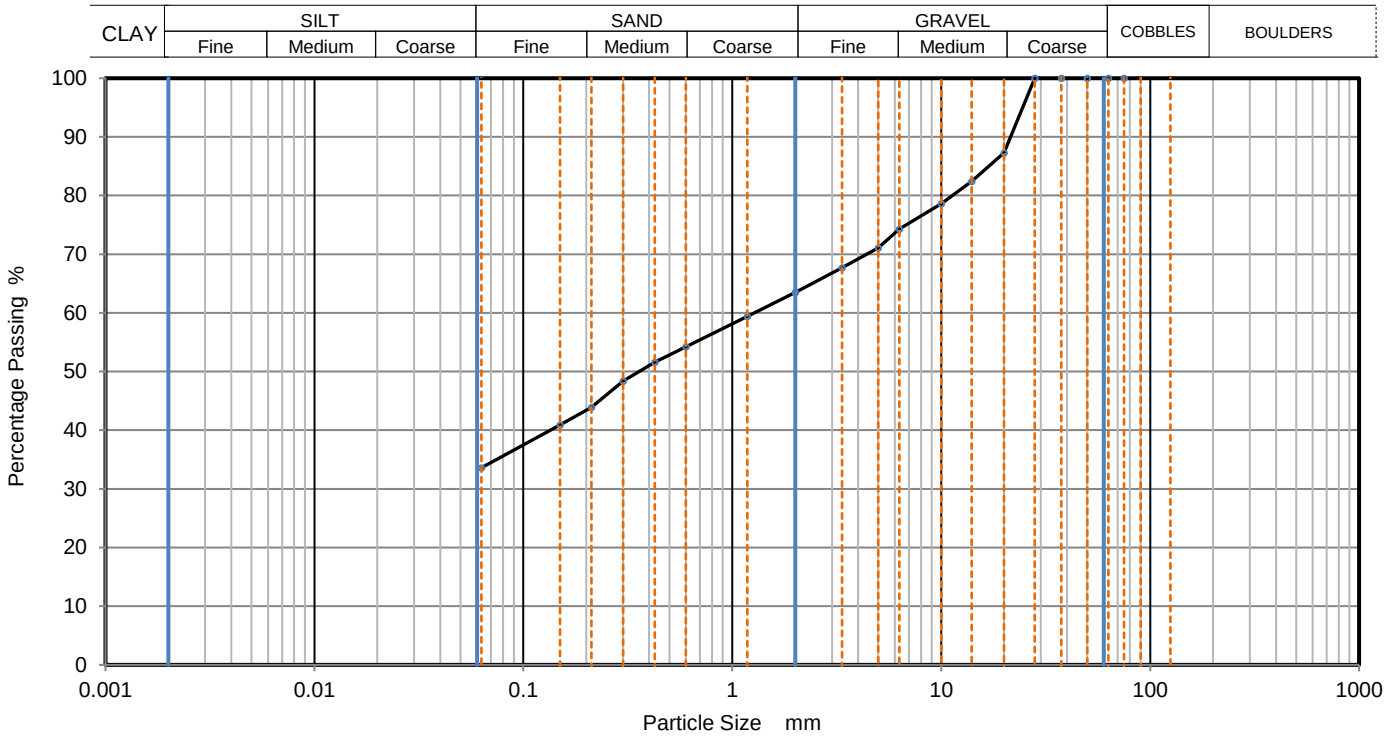
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51061
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey very sandy very silty GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102111



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	82		
10	79		
6.3	74		
5	71		
3.35	68		
2	64		
1.18	59		
0.6	54		
0.425	52		
0.3	48		
0.212	44		
0.15	41		
0.063	34		

Dry Mass of sample, g	818

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	30
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	1.28
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:58	**1** QC From No:R2

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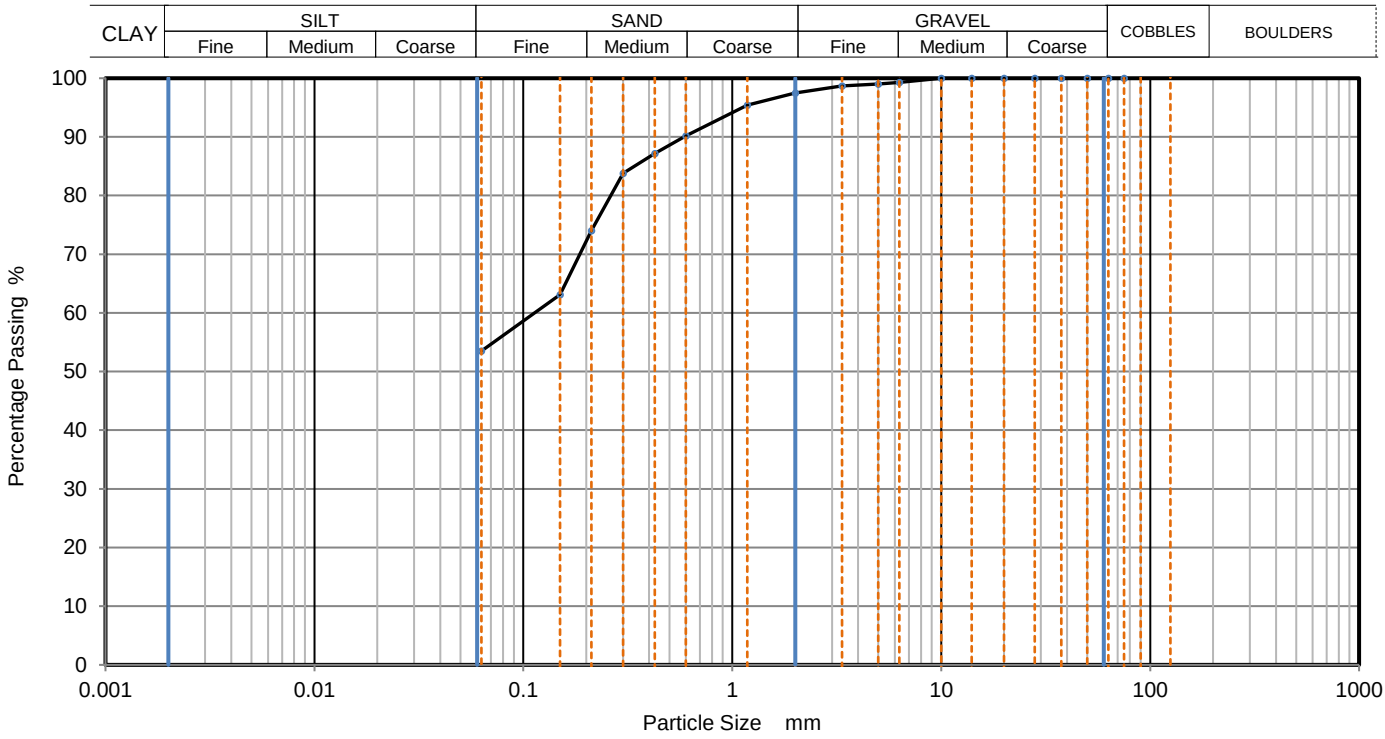
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51107
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT. Sand is fine.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011323



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	98		
1.18	95		
0.6	90		
0.425	87		
0.3	84		
0.212	74		
0.15	63		
0.063	54		

Dry Mass of sample, g	643

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	44
Fines <0.063mm	53

Grading Analysis		
D100	mm	
D60	mm	0.113
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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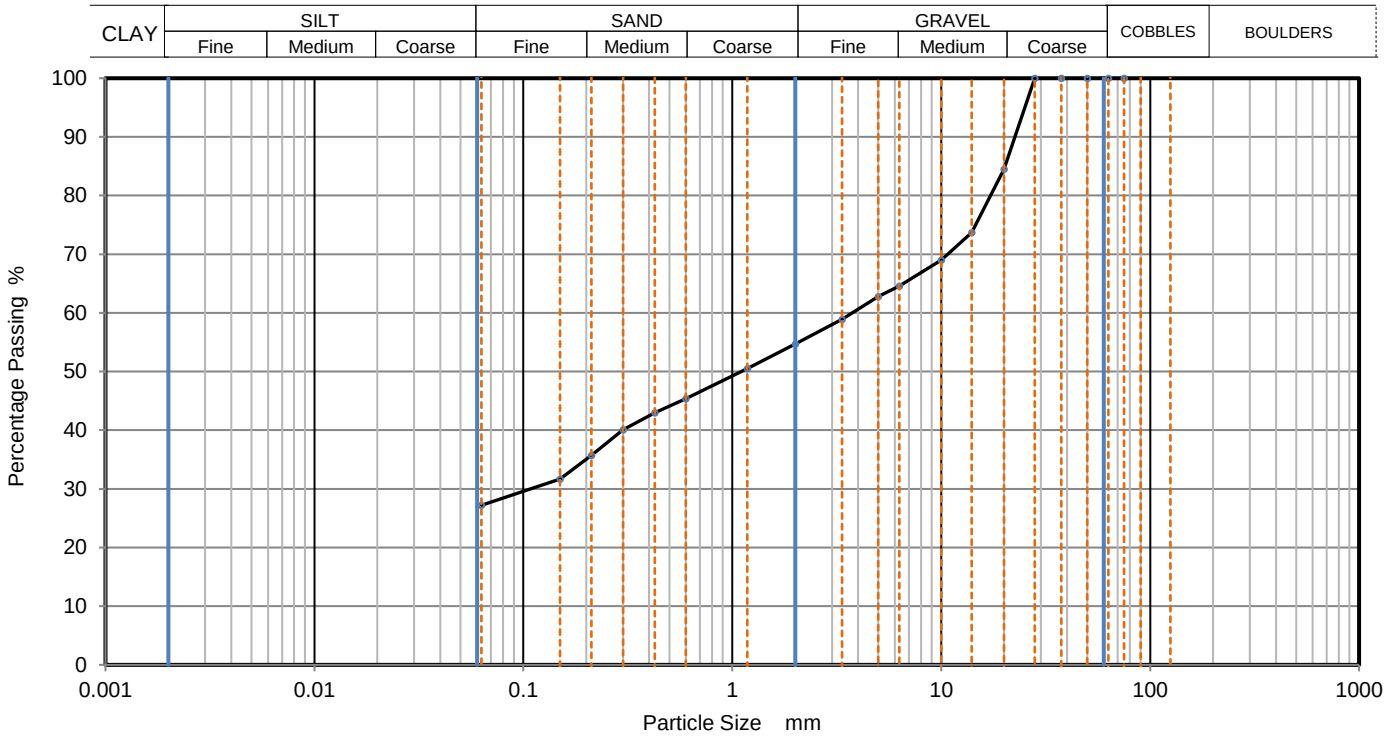
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51107
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy medium GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011326



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	85		
14	74		
10	69		
6.3	65		
5	63		
3.35	59		
2	55		
1.18	51		
0.6	45		
0.425	43		
0.3	40		
0.212	36		
0.15	32		
0.063	27		

Dry Mass of sample, g	757

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	28
Fines <0.063mm	27

Grading Analysis		
D100	mm	
D60	mm	3.75
D30	mm	0.109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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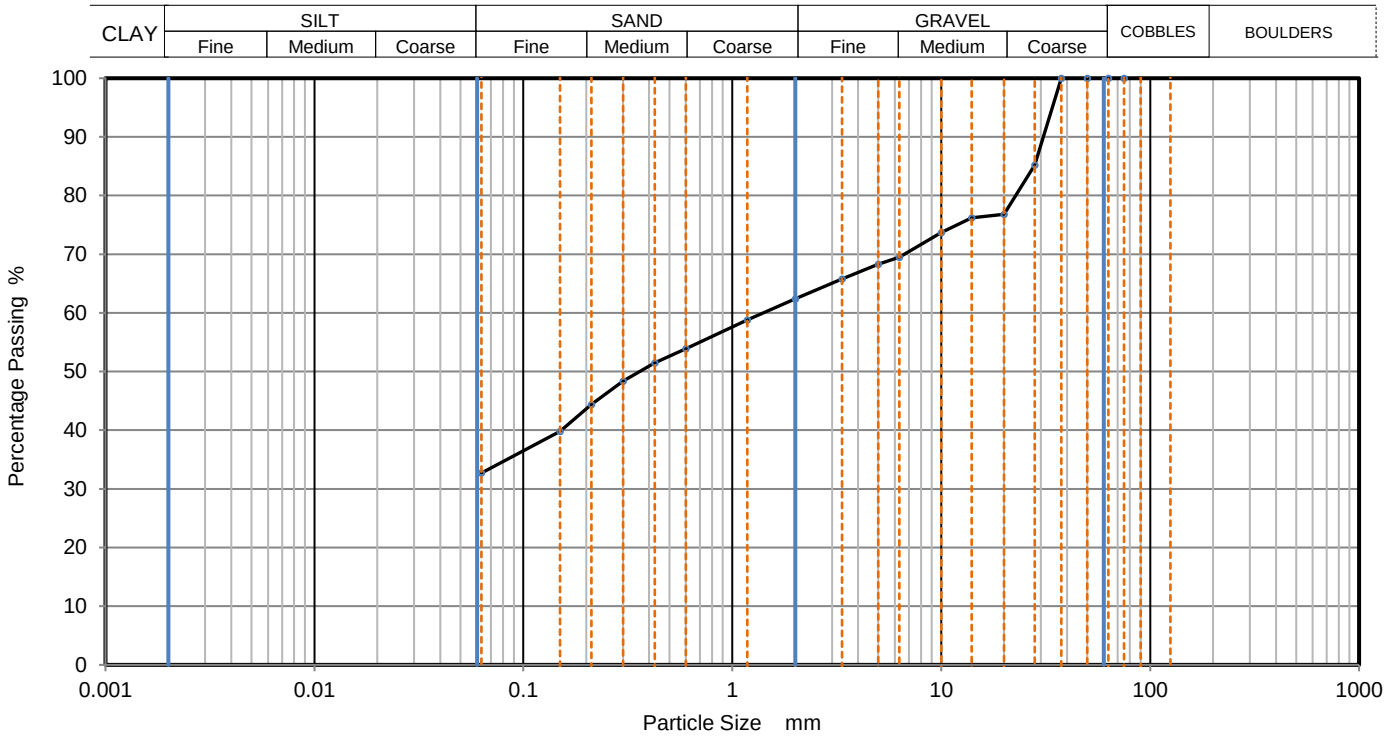
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51116
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102115



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	85		
20	77		
14	76		
10	74		
6.3	70		
5	68		
3.35	66		
2	62		
1.18	59		
0.6	54		
0.425	52		
0.3	48		
0.212	44		
0.15	40		
0.063	33		

Dry Mass of sample, g	767

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	30
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	1.41
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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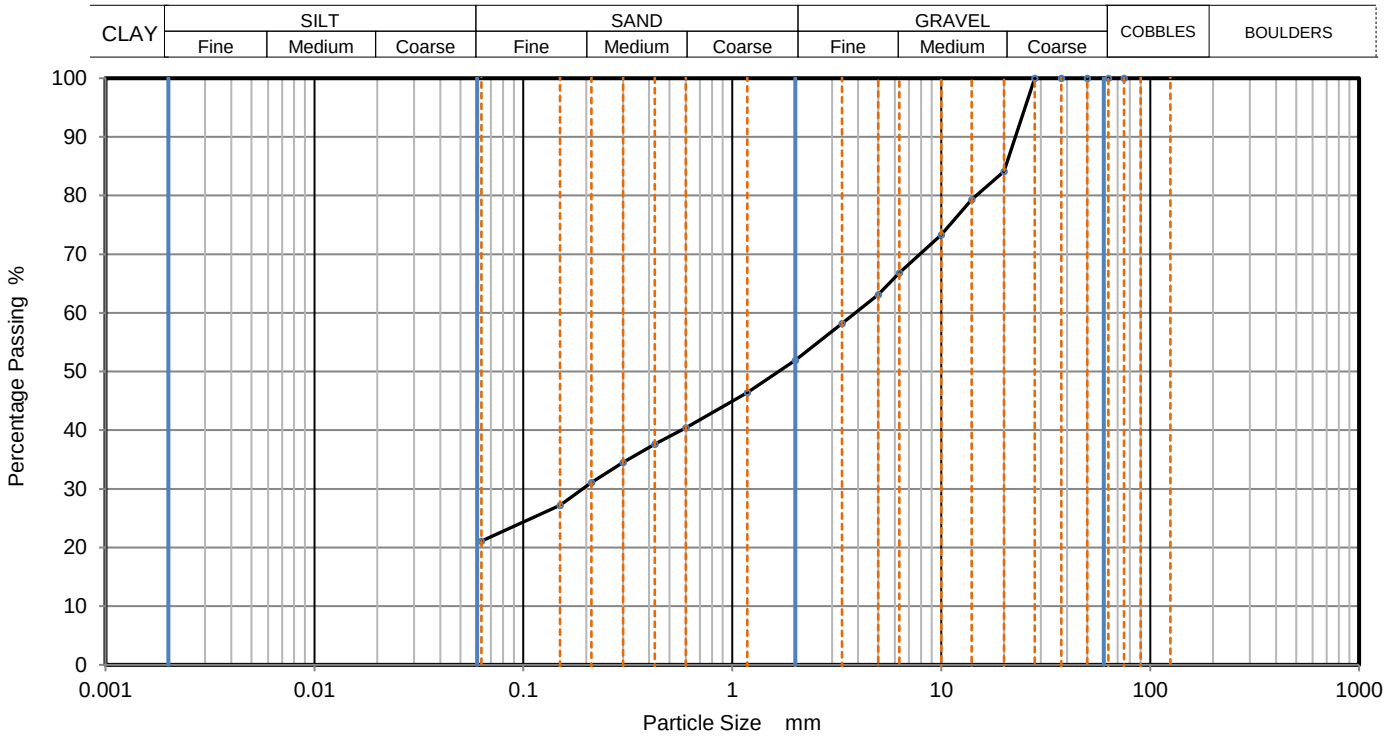
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51116
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Yellowish-brown very silty very sandy GRAVEL.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102122



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	84		
14	79		
10	73		
6.3	67		
5	63		
3.35	58		
2	52		
1.18	46		
0.6	40		
0.425	38		
0.3	35		
0.212	31		
0.15	27		
0.063	21		

Dry Mass of sample, g	912

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	31
Fines <0.063mm	21

Grading Analysis		
D100	mm	
D60	mm	3.88
D30	mm	0.193
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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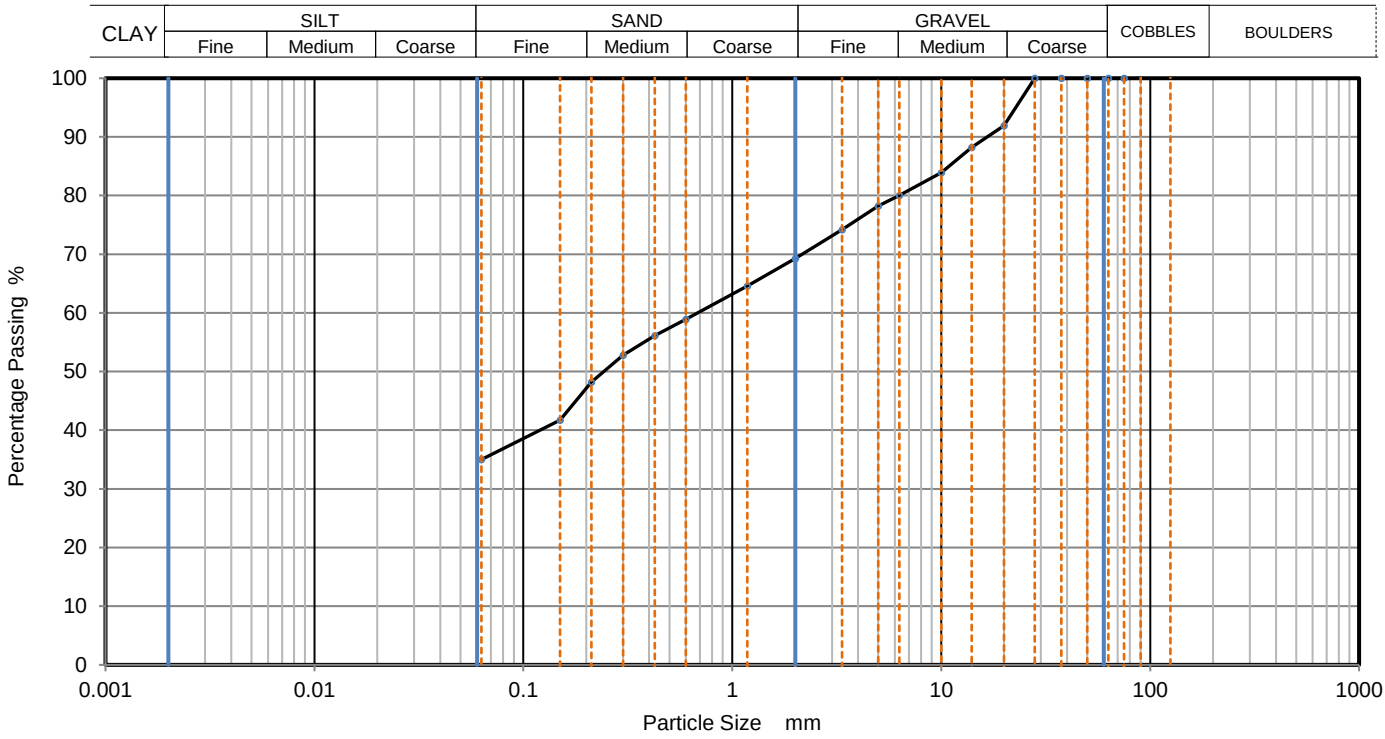
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51138
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Creamish-brown slighlty gravelly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011328



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	88		
10	84		
6.3	80		
5	78		
3.35	74		
2	69		
1.18	65		
0.6	59		
0.425	56		
0.3	53		
0.212	48		
0.15	42		
0.063	35		

Dry Mass of sample, g	664

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	34
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	0.681
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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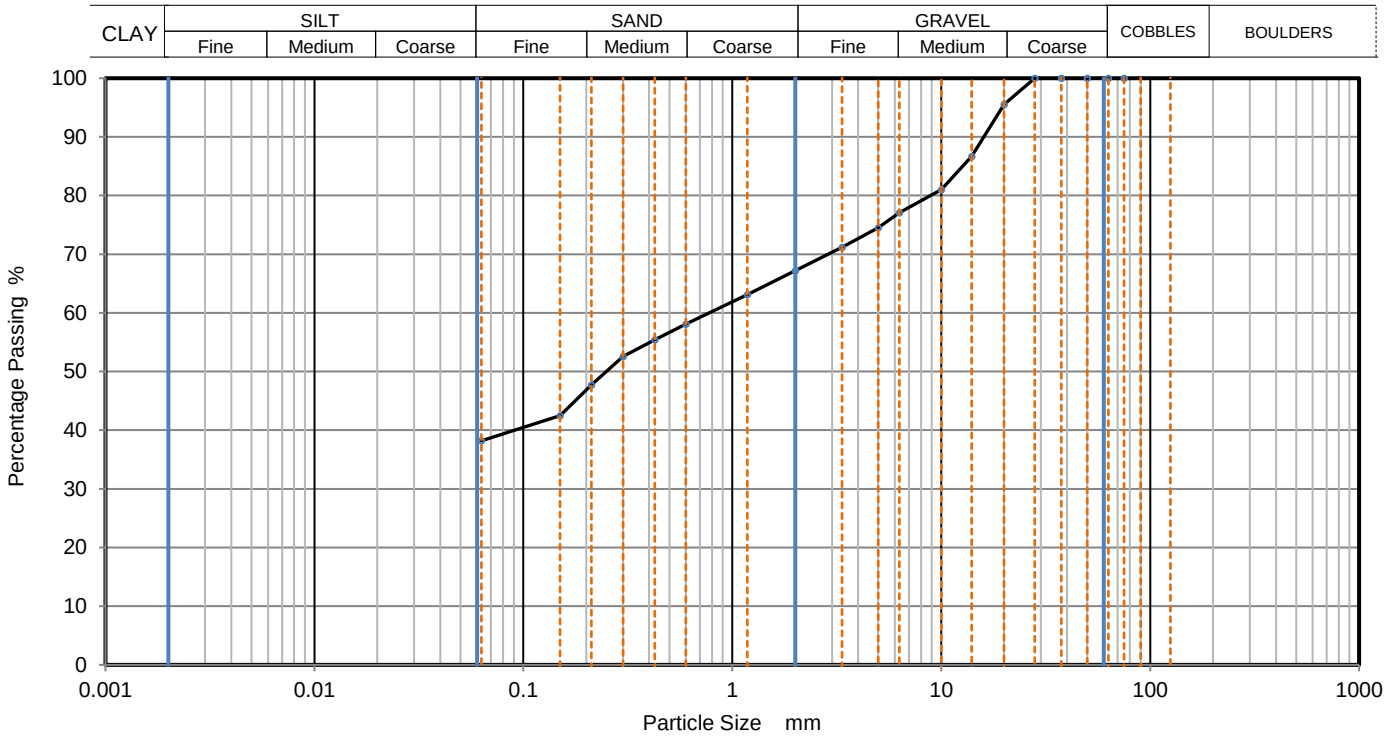
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51138
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011331



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	87		
10	81		
6.3	77		
5	75		
3.35	71		
2	67		
1.18	63		
0.6	58		
0.425	55		
0.3	53		
0.212	48		
0.15	43		
0.063	38		

Dry Mass of sample, g	845

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	29
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.775
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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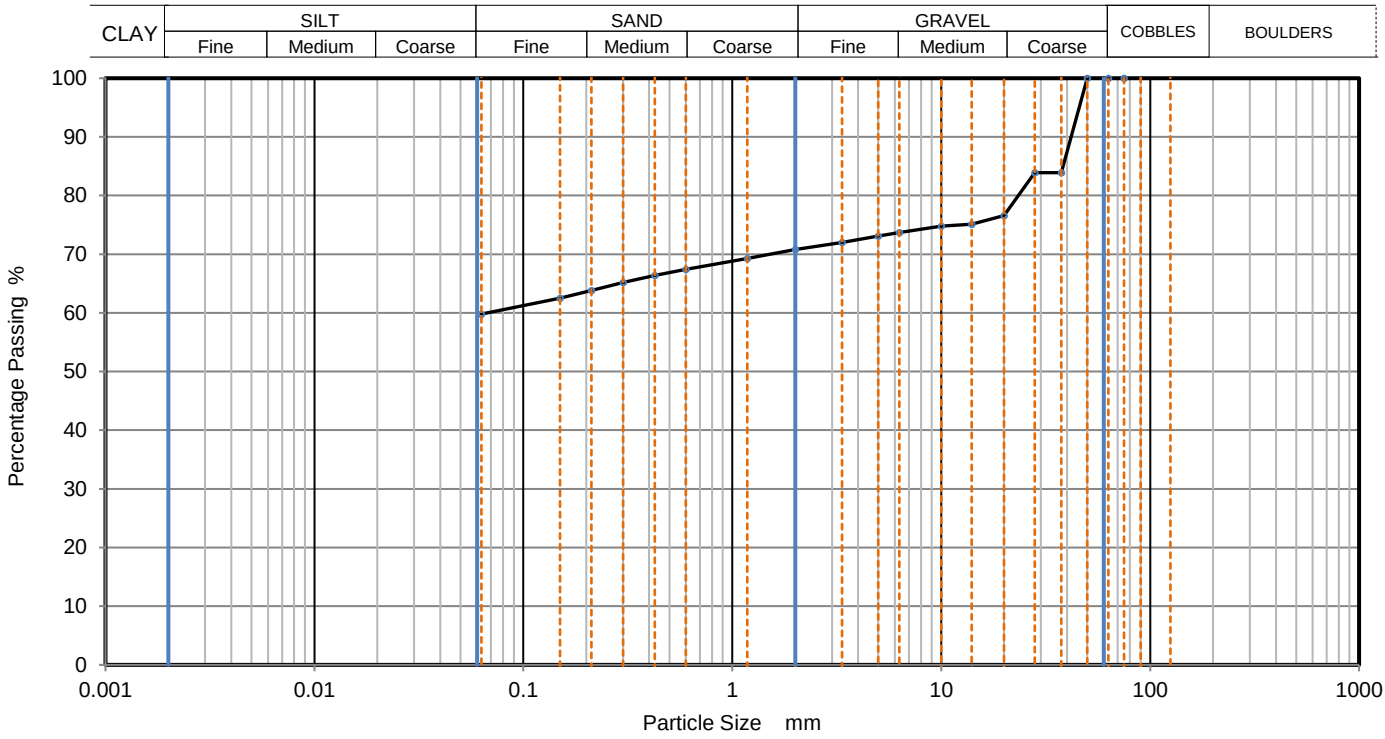
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51201
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Yellowish-brown sandy very gravelly SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102127



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	84		
28	84		
20	77		
14	75		
10	75		
6.3	74		
5	73		
3.35	72		
2	71		
1.18	69		
0.6	67		
0.425	66		
0.3	65		
0.212	64		
0.15	63		
0.063	60		

Dry Mass of sample, g	887

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	11
Fines <0.063mm	60

Grading Analysis		
D100	mm	
D60	mm	0.0676
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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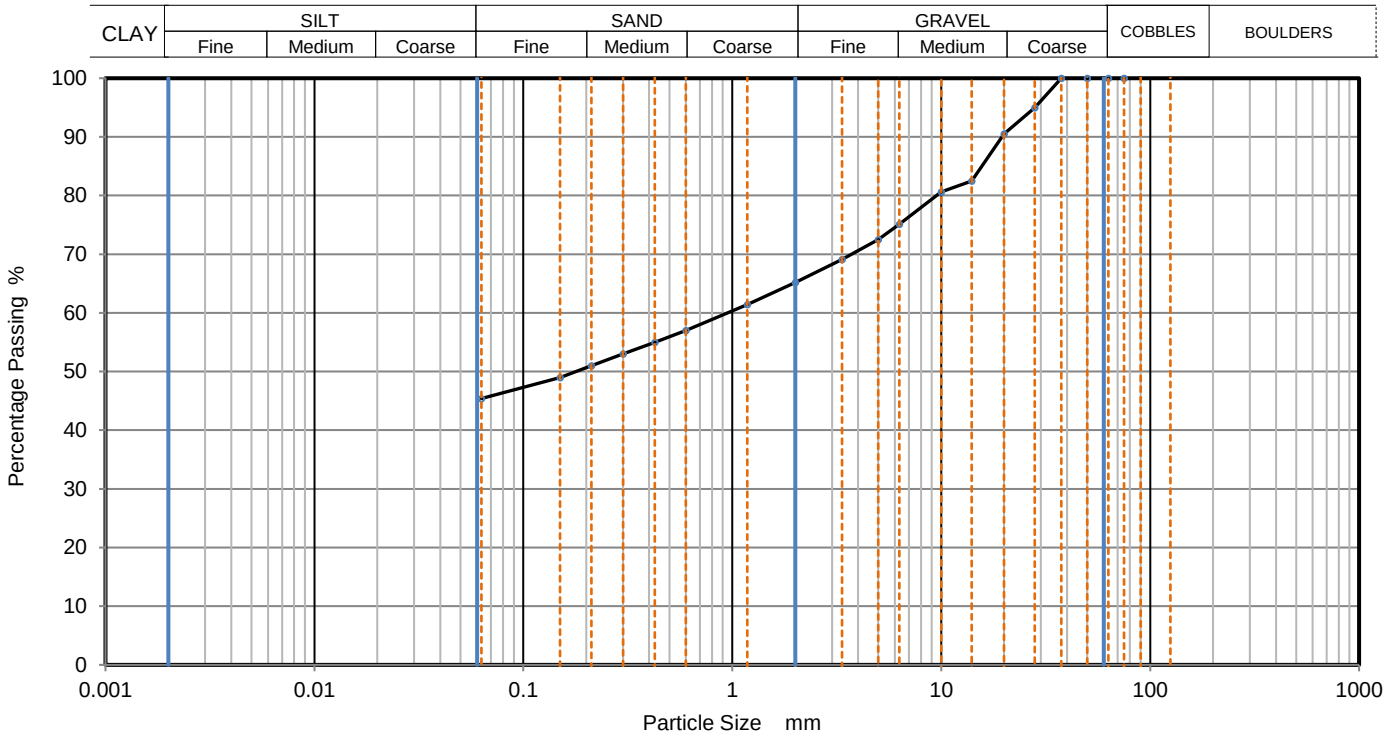
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51201
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Yellowish slightly sandy gravelly SILT.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102129



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	91		
14	83		
10	81		
6.3	75		
5	73		
3.35	69		
2	65		
1.18	61		
0.6	57		
0.425	55		
0.3	53		
0.212	51		
0.15	49		
0.063	45		

Dry Mass of sample, g	984

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	20
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.957
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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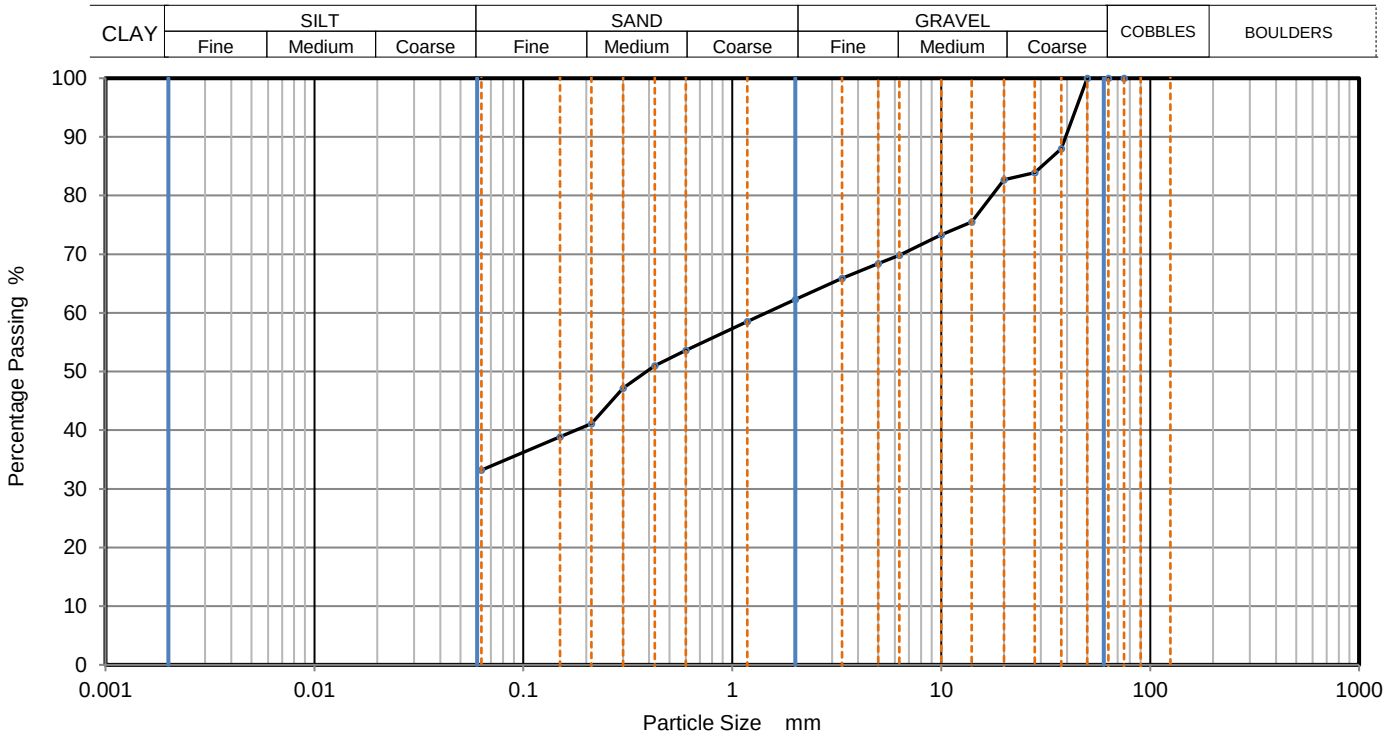
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51305
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102134



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	88		
28	84		
20	83		
14	76		
10	73		
6.3	70		
5	68		
3.35	66		
2	62		
1.18	59		
0.6	54		
0.425	51		
0.3	47		
0.212	41		
0.15	39		
0.063	33		

Dry Mass of sample, g	1060

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	29
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	1.46
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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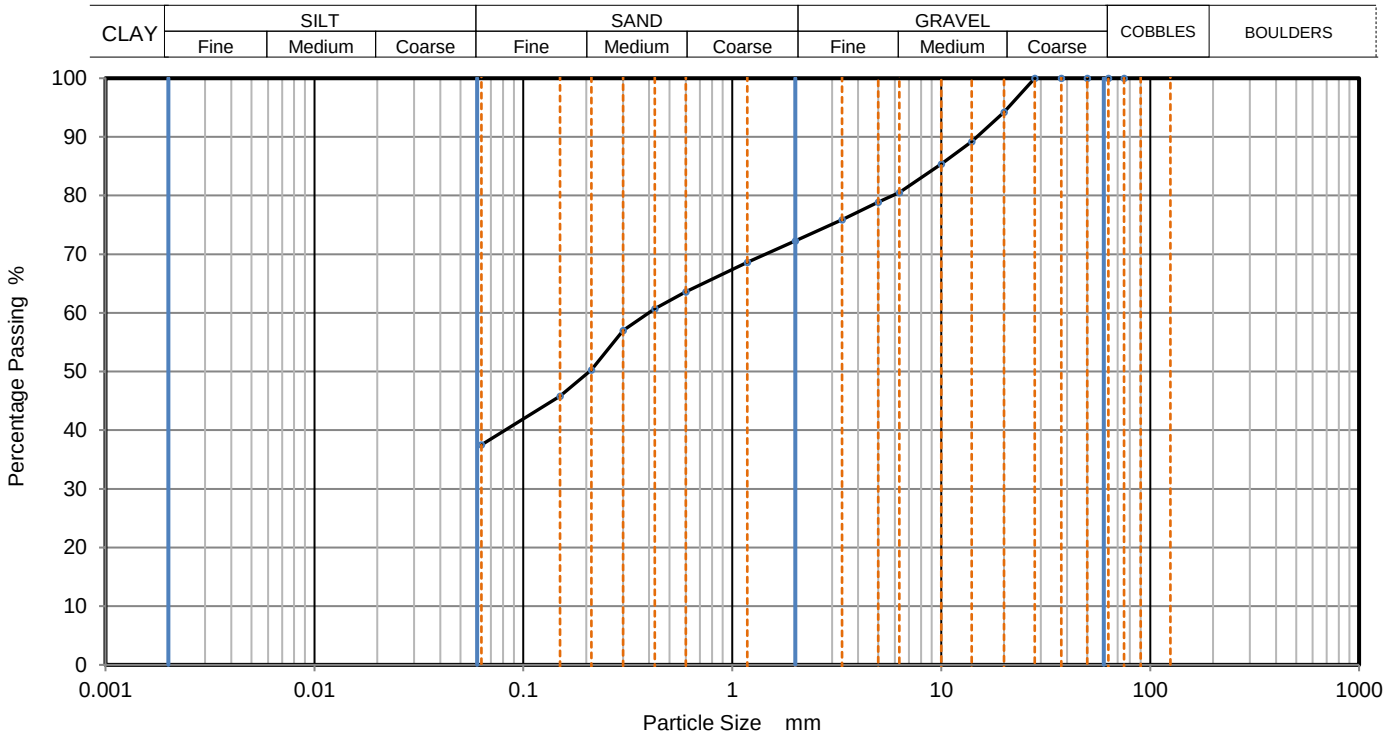
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51305
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Yellowish-brown slighlty gravelly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102136



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	89		
10	85		
6.3	81		
5	79		
3.35	76		
2	72		
1.18	69		
0.6	64		
0.425	61		
0.3	57		
0.212	50		
0.15	46		
0.063	38		

Dry Mass of sample, g	775

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	35
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	0.397
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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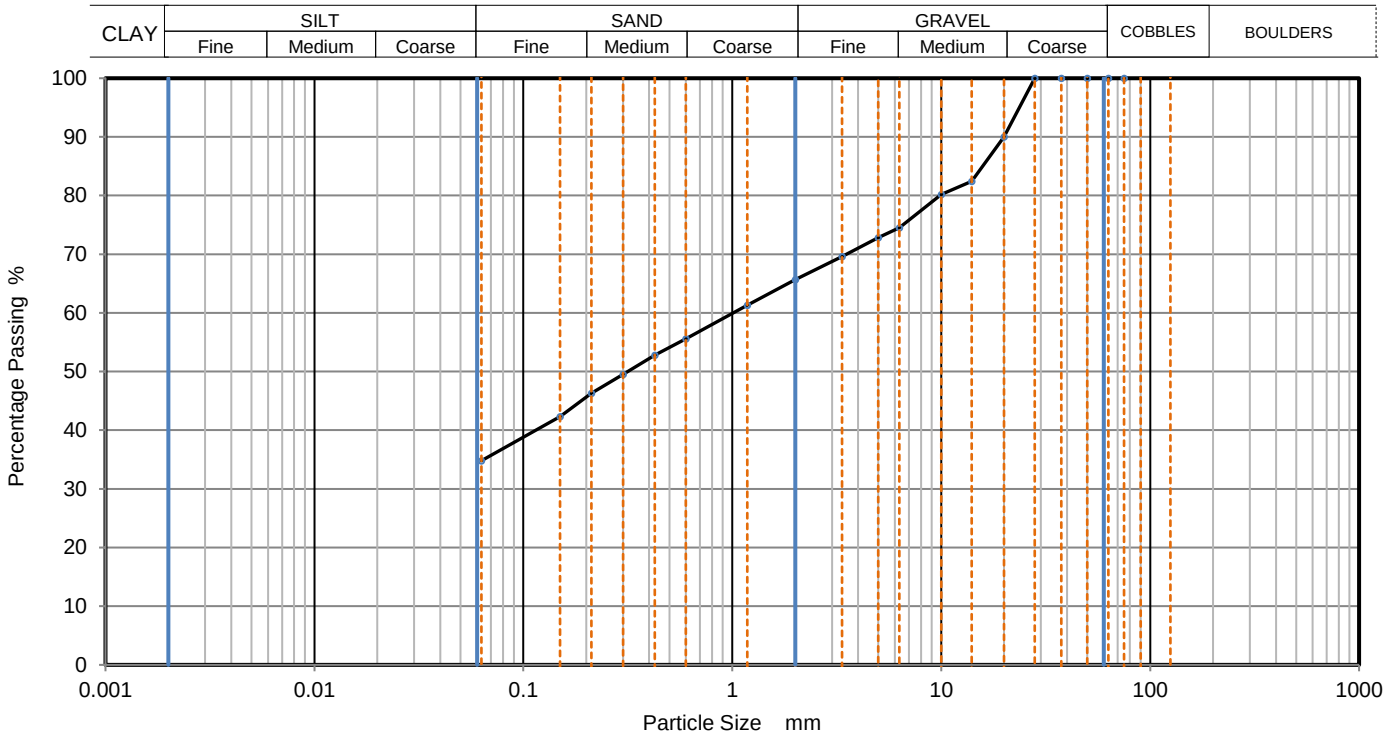
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51385
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy gravelly SILT. Gravel is medium.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102138



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	82		
10	80		
6.3	75		
5	73		
3.35	70		
2	66		
1.18	61		
0.6	56		
0.425	53		
0.3	50		
0.212	46		
0.15	42		
0.063	35		

Dry Mass of sample, g: 774

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	31
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	1.01
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 13:59	**1** QC From No:R2

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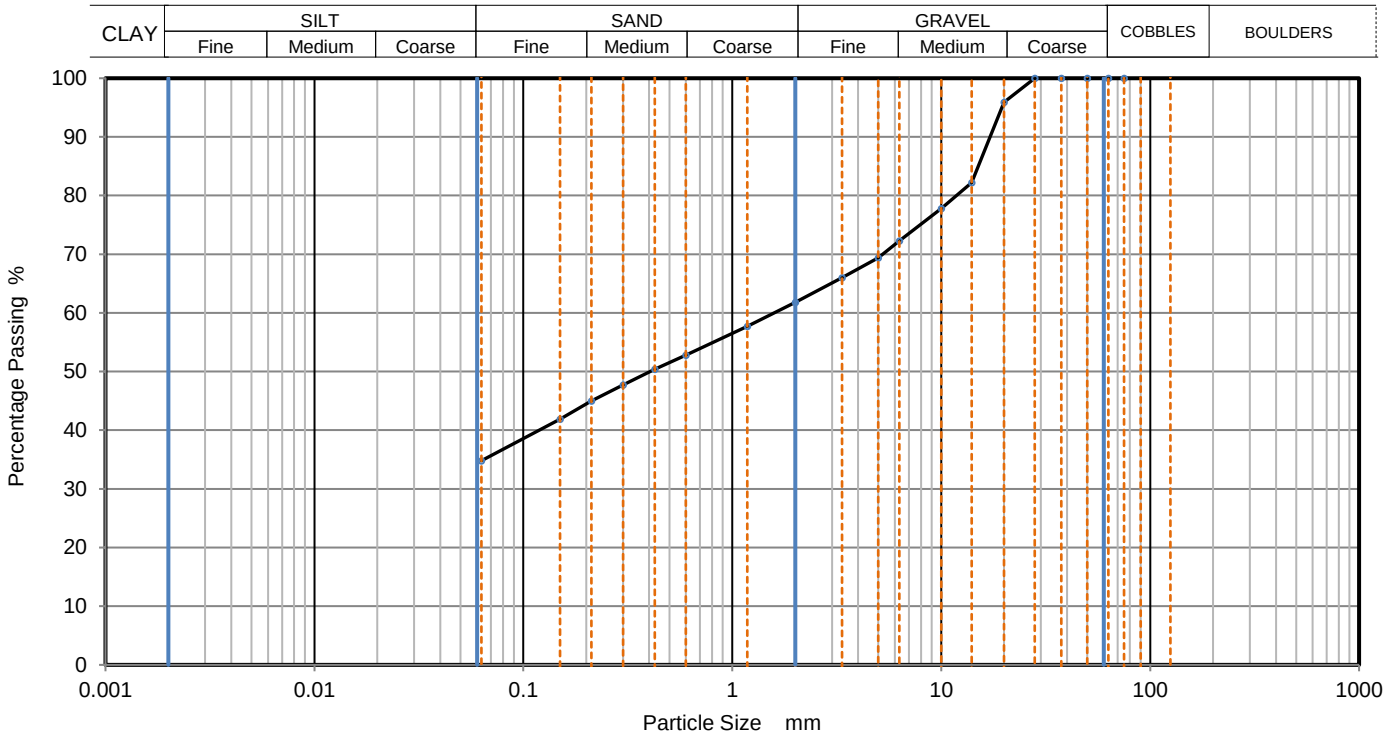
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51603
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light grey slighlty sandy gravelly SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102146



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	82		
10	78		
6.3	72		
5	69		
3.35	66		
2	62		
1.18	58		
0.6	53		
0.425	50		
0.3	48		
0.212	45		
0.15	42		
0.063	35		

Dry Mass of sample, g	933

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	27
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	1.58
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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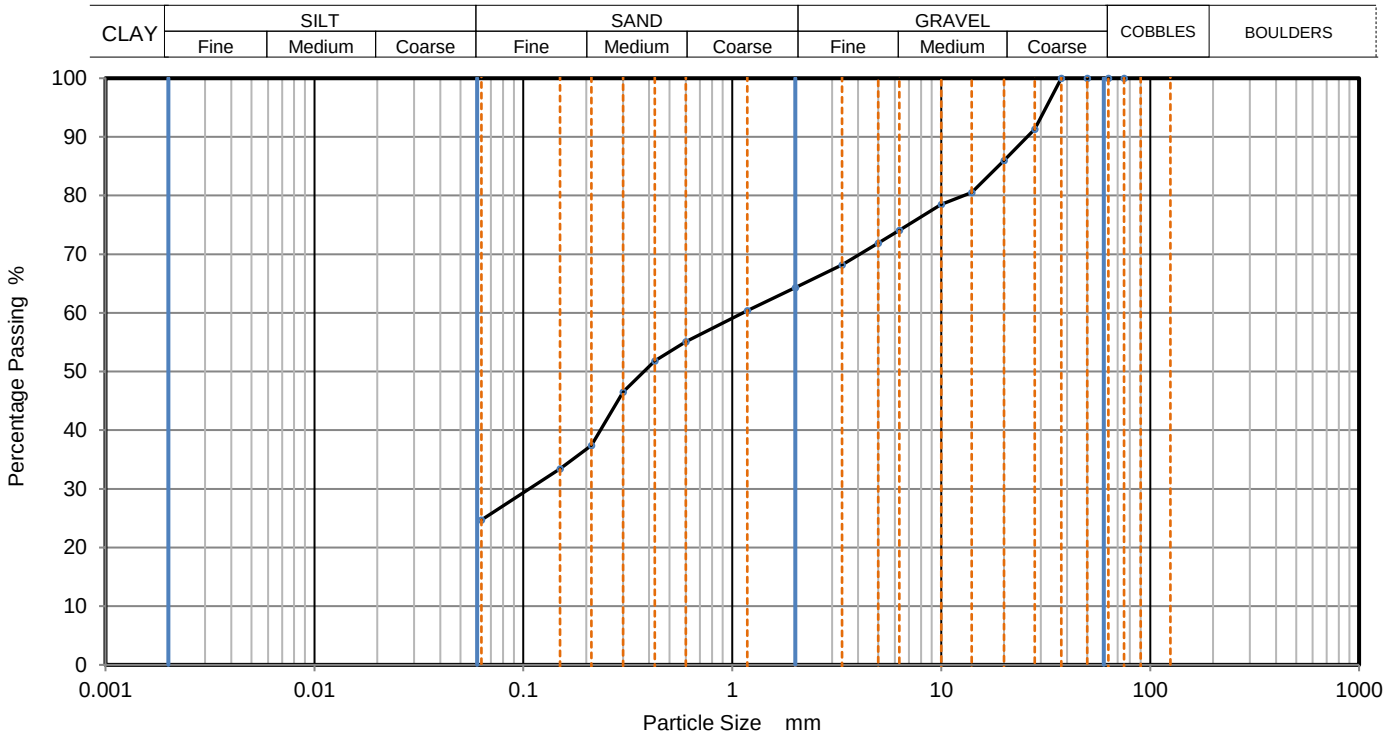
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51705
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey very silty GRAVEL and SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102148



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	86		
14	81		
10	79		
6.3	74		
5	72		
3.35	68		
2	64		
1.18	60		
0.6	55		
0.425	52		
0.3	47		
0.212	37		
0.15	33		
0.063	25		

Dry Mass of sample, g	697

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	40
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	1.12
D30	mm	0.107
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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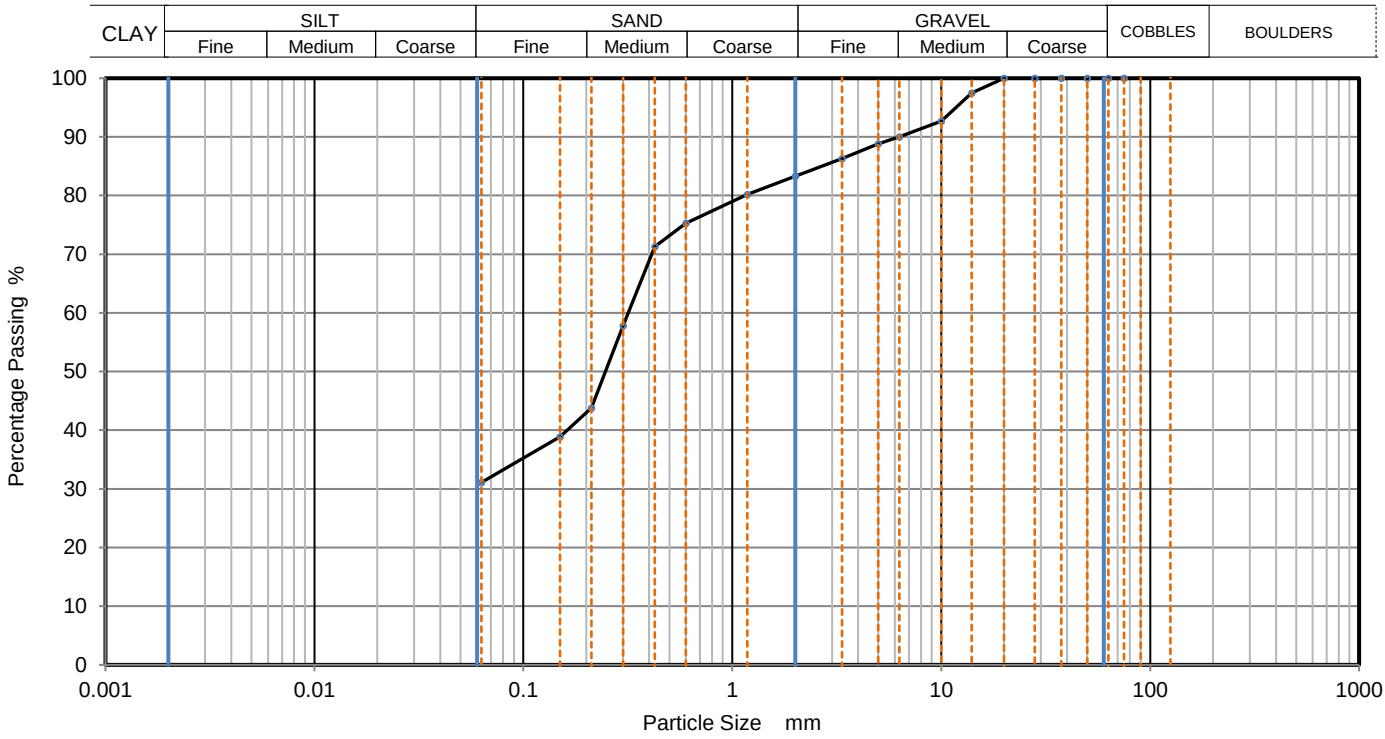
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51705
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey gravelly very silty medium SAND.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102152



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	93		
6.3	90		
5	89		
3.35	86		
2	83		
1.18	80		
0.6	75		
0.425	71		
0.3	58		
0.212	44		
0.15	39		
0.063	31		

Dry Mass of sample, g	1003

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	52
Fines <0.063mm	31

Grading Analysis		
D100	mm	
D60	mm	0.318
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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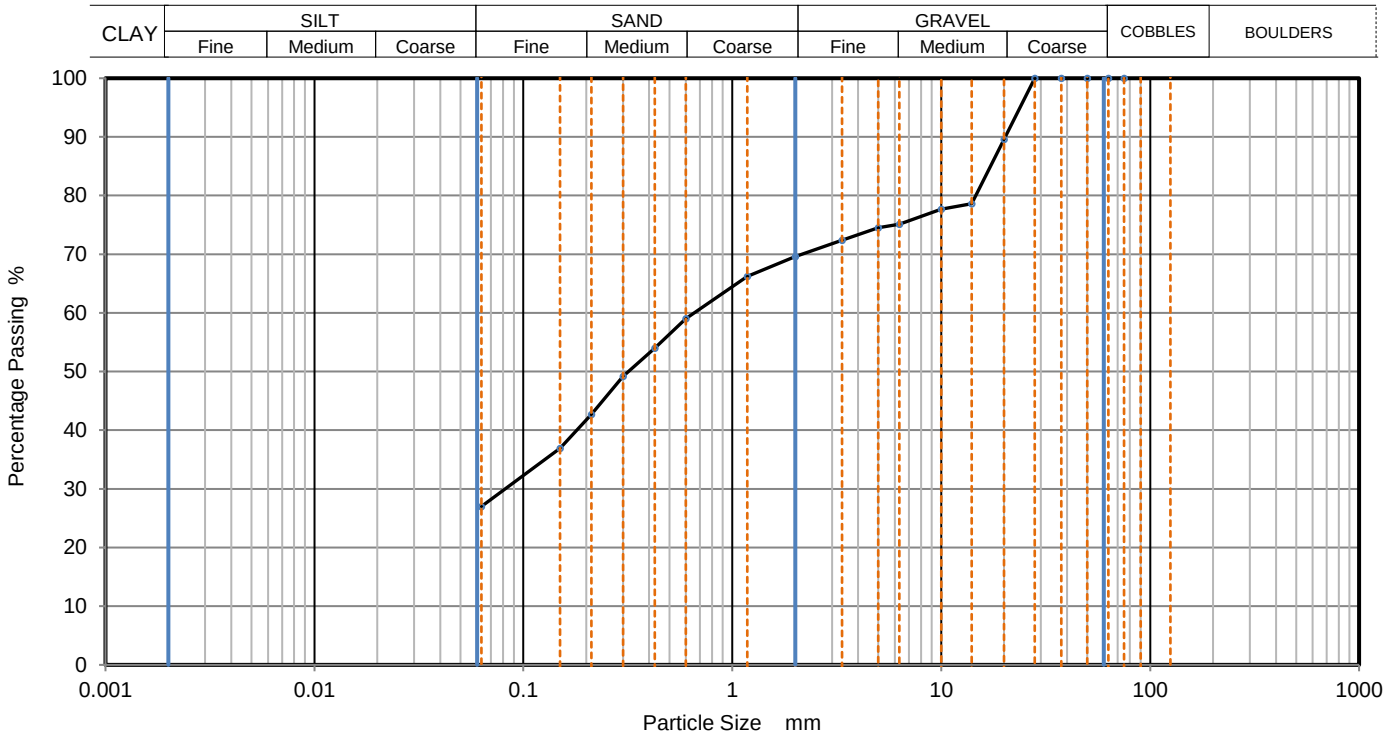
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51801
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very gravelly SAND.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102156



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	79		
10	78		
6.3	75		
5	75		
3.35	72		
2	70		
1.18	66		
0.6	59		
0.425	54		
0.3	49		
0.212	43		
0.15	37		
0.063	27		

Dry Mass of sample, g	572

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	43
Fines <0.063mm	27

Grading Analysis		
D100	mm	
D60	mm	0.66
D30	mm	0.0821
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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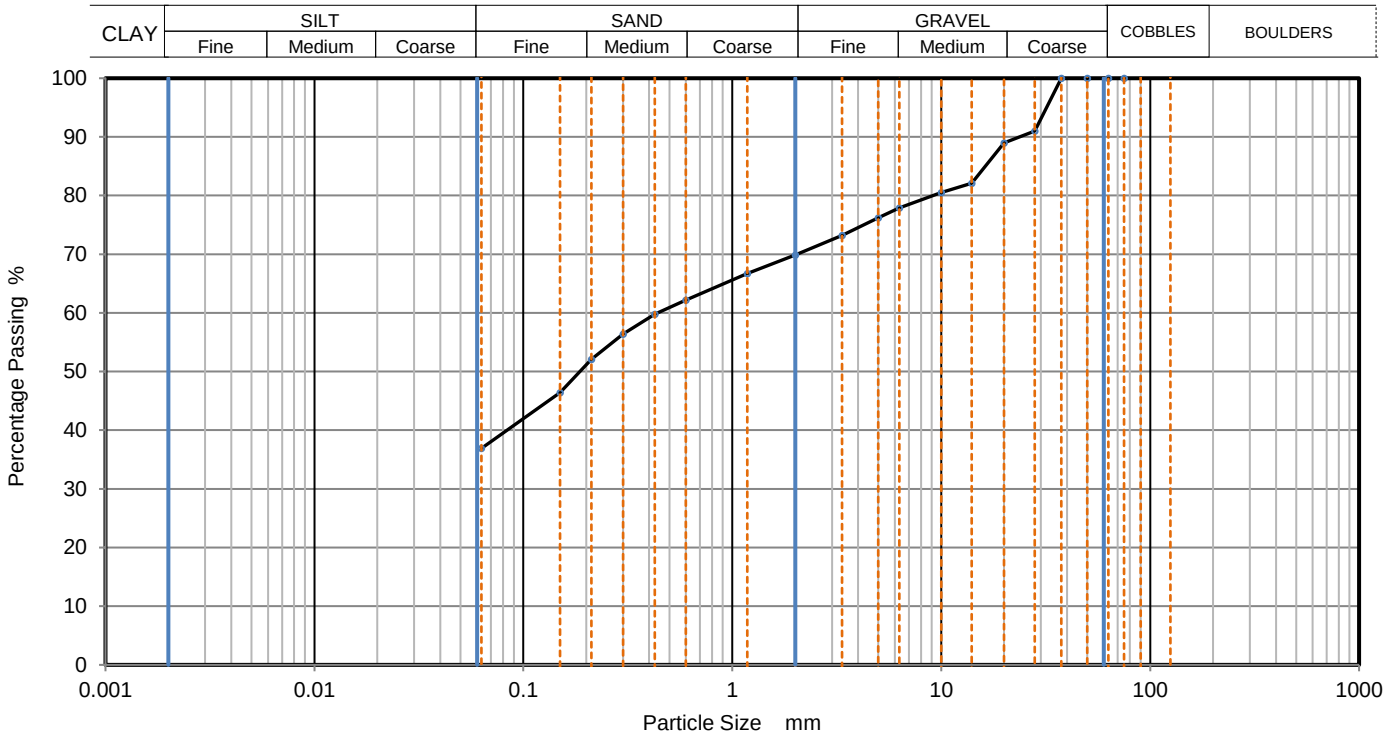
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51801
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102158



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	89		
14	82		
10	81		
6.3	78		
5	76		
3.35	73		
2	70		
1.18	67		
0.6	62		
0.425	60		
0.3	56		
0.212	52		
0.15	46		
0.063	37		

Dry Mass of sample, g	606

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	33
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	0.437
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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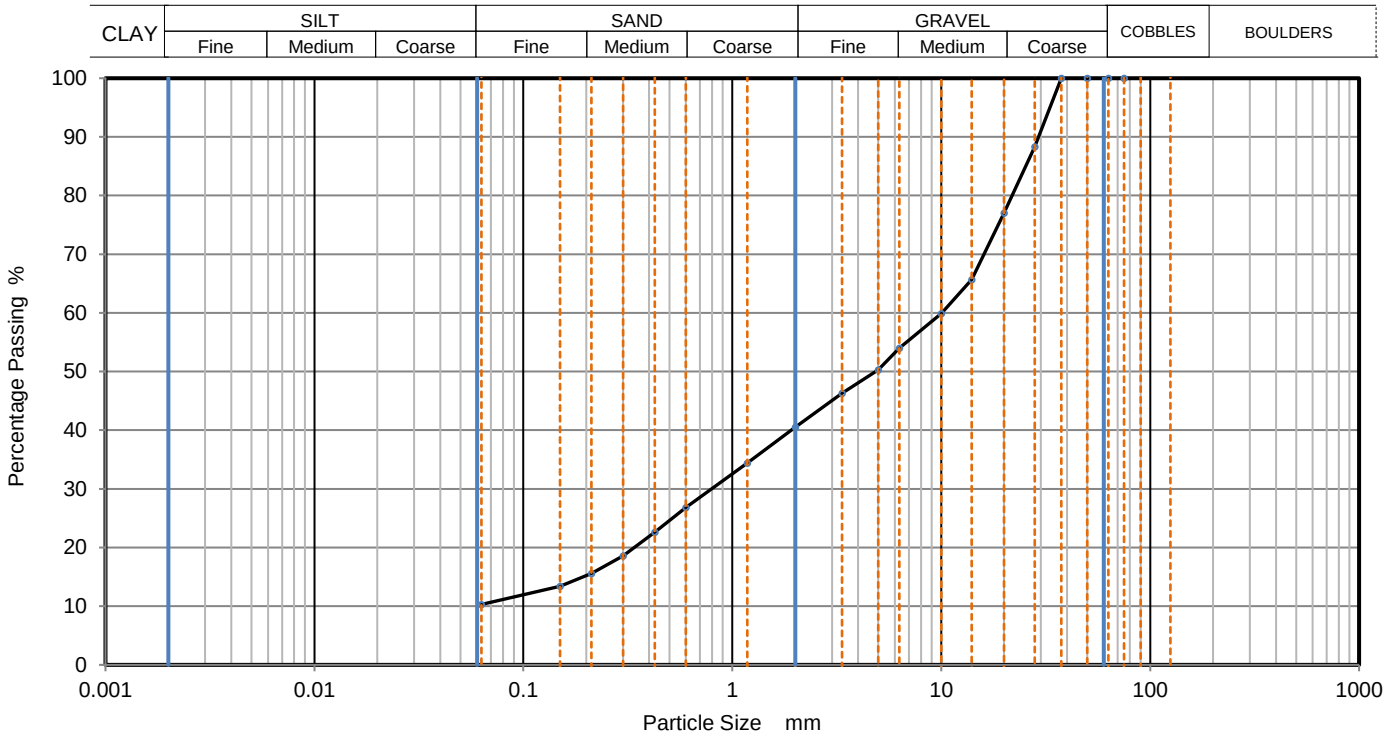
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51906
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Greyish-brown slighlty gravelly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102162



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	88		
20	77		
14	66		
10	60		
6.3	54		
5	50		
3.35	46		
2	41		
1.18	34		
0.6	27		
0.425	23		
0.3	19		
0.212	16		
0.15	13		
0.063	10		

Dry Mass of sample, g	1192

Sample Proportions	% dry mass
Very coarse	0
Gravel	60
Sand	30
Fines <0.063mm	10

Grading Analysis		
D100	mm	
D60	mm	10.1
D30	mm	0.797
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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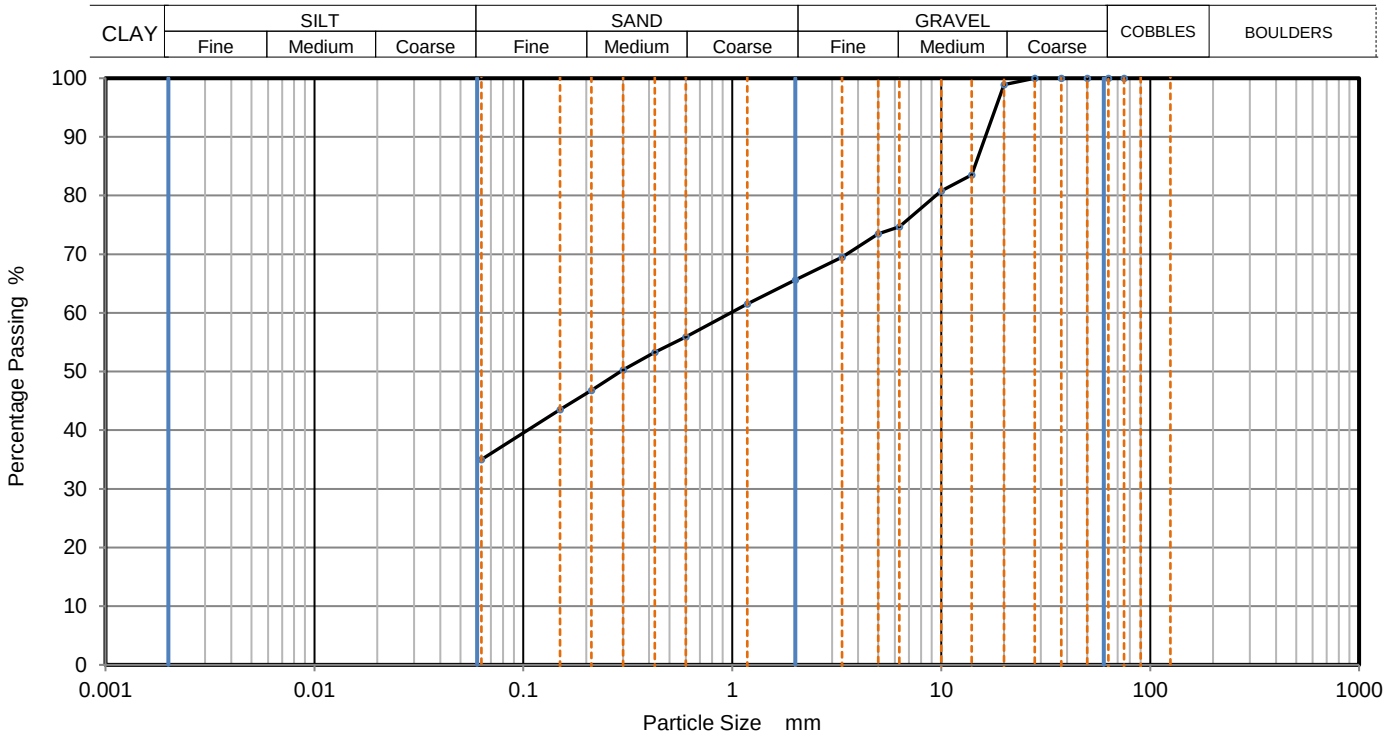
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-51906
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light grey slightly sandy slightly gravelly SILT.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102164



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	84		
10	81		
6.3	75		
5	74		
3.35	70		
2	66		
1.18	62		
0.6	56		
0.425	53		
0.3	50		
0.212	47		
0.15	44		
0.063	35		

Dry Mass of sample, g	972

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	31
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	0.986
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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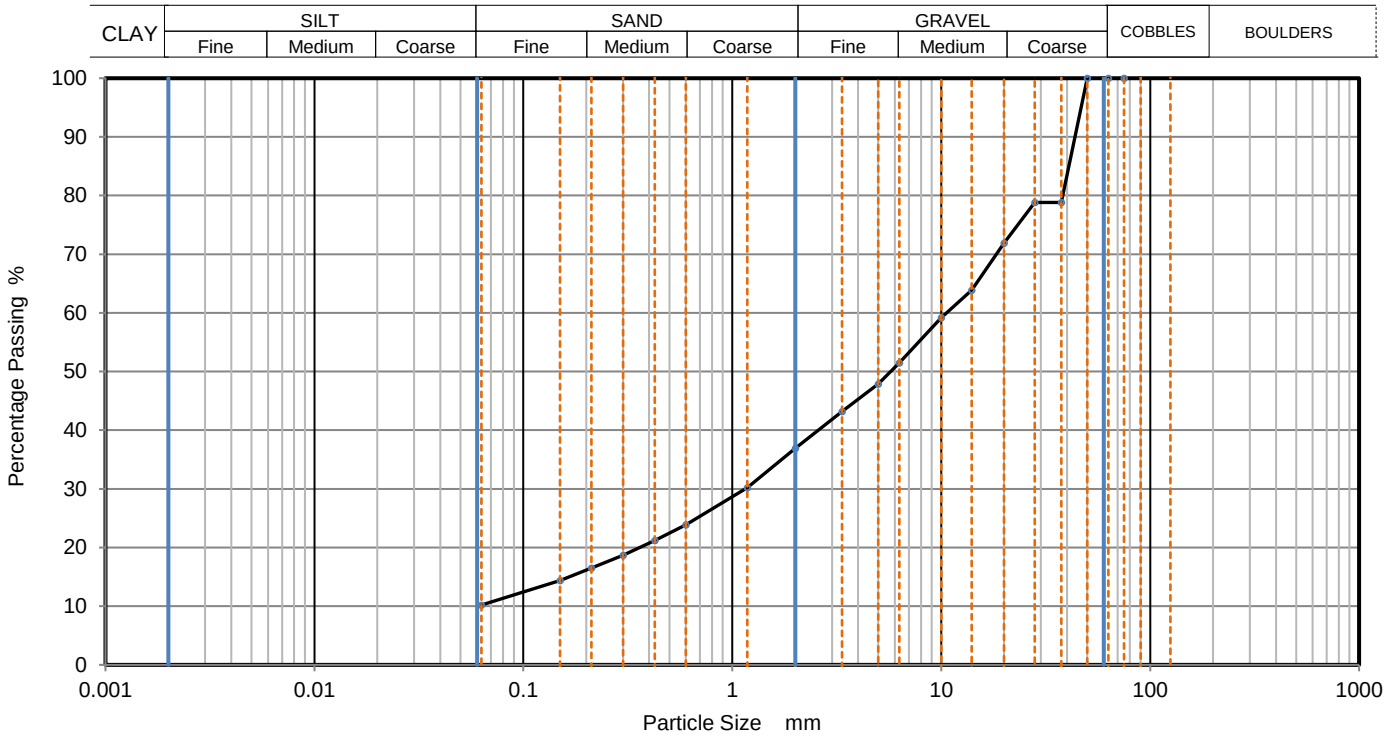
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52050
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey silty very sandy medium and coarse GRAVEL.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102168



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	79		
28	79		
20	72		
14	64		
10	59		
6.3	52		
5	48		
3.35	43		
2	37		
1.18	30		
0.6	24		
0.425	21		
0.3	19		
0.212	17		
0.15	14		
0.063	10		

Dry Mass of sample, g	1089

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	27
Fines <0.063mm	10

Grading Analysis		
D100	mm	
D60	mm	10.6
D30	mm	1.15
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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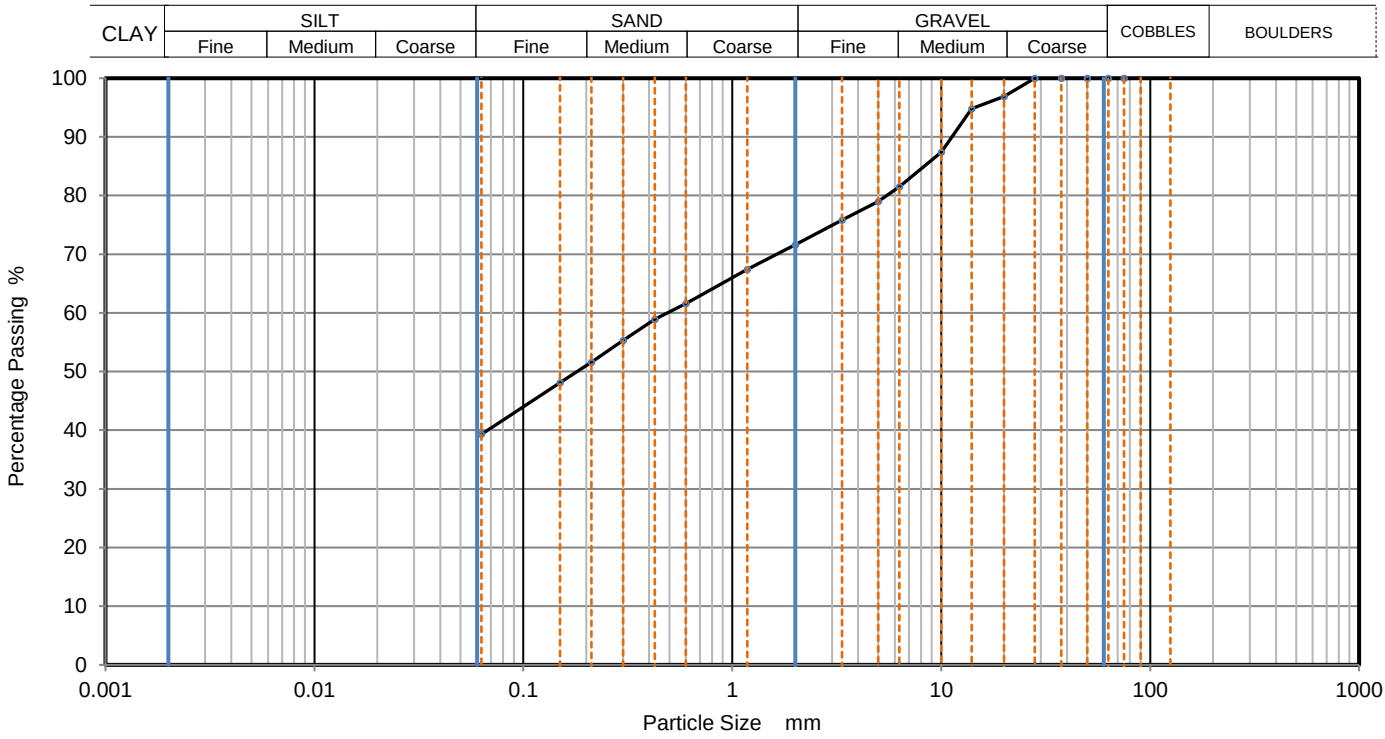
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52050
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102170



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	95		
10	87		
6.3	82		
5	79		
3.35	76		
2	72		
1.18	67		
0.6	62		
0.425	59		
0.3	55		
0.212	52		
0.15	48		
0.063	39		

Dry Mass of sample, g	457

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	32
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.492
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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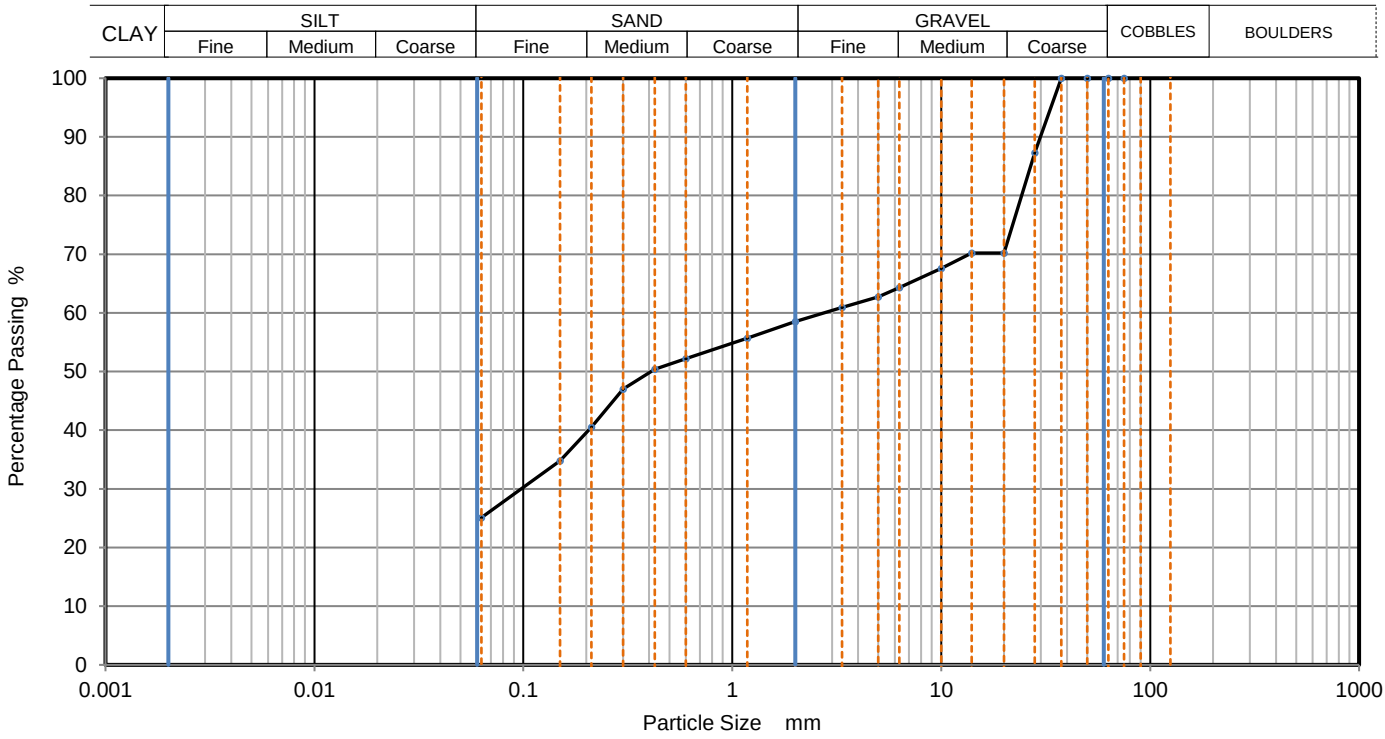
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52108
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Black very silty very sandy coarse GRAVEL. Silt is peaty.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102172



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	87		
20	70		
14	70		
10	68		
6.3	64		
5	63		
3.35	61		
2	59		
1.18	56		
0.6	52		
0.425	50		
0.3	47		
0.212	41		
0.15	35		
0.063	25		

Dry Mass of sample, g	249

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	33
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	2.79
D30	mm	0.0977
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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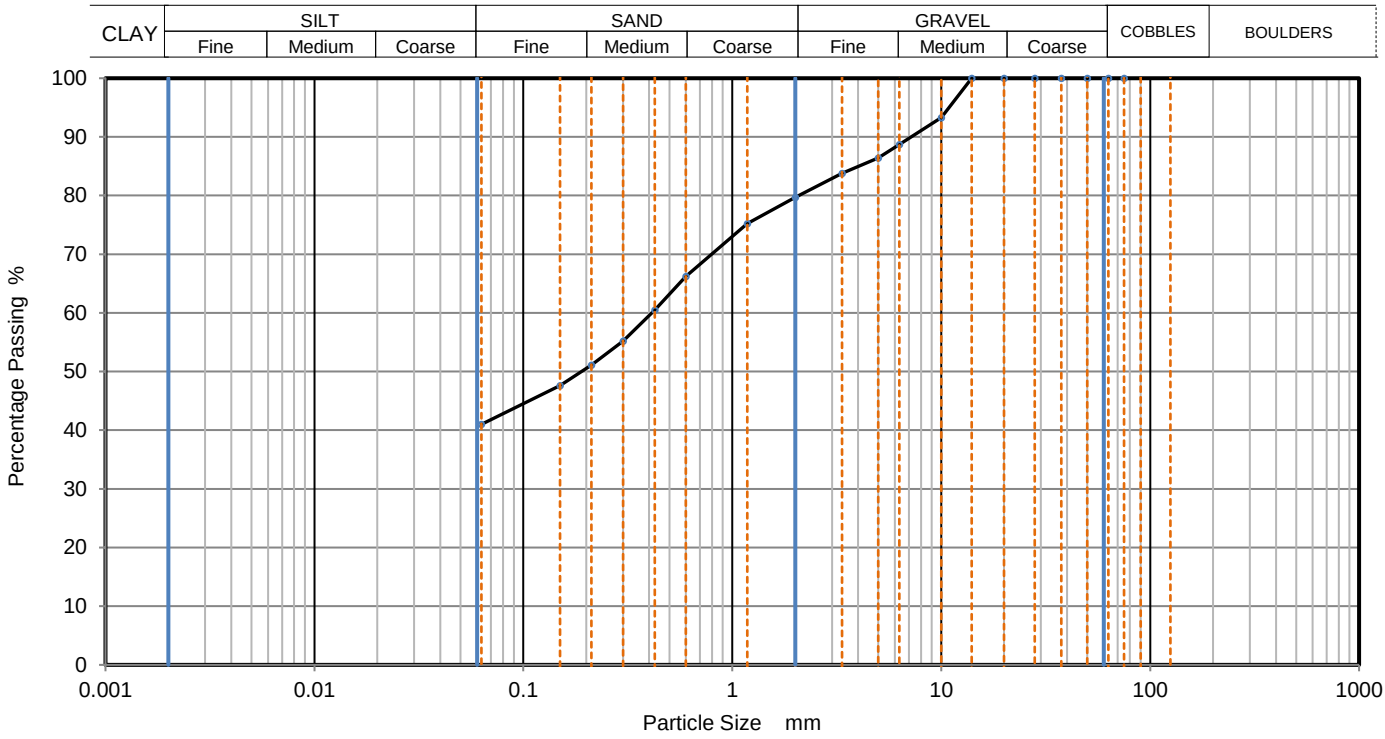
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52108
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey slighlty gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211102175



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	93		
6.3	89		
5	86		
3.35	84		
2	80		
1.18	75		
0.6	66		
0.425	61		
0.3	55		
0.212	51		
0.15	48		
0.063	41		

Dry Mass of sample, g	562

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	39
Fines <0.063mm	41

Grading Analysis		
D100	mm	
D60	mm	0.412
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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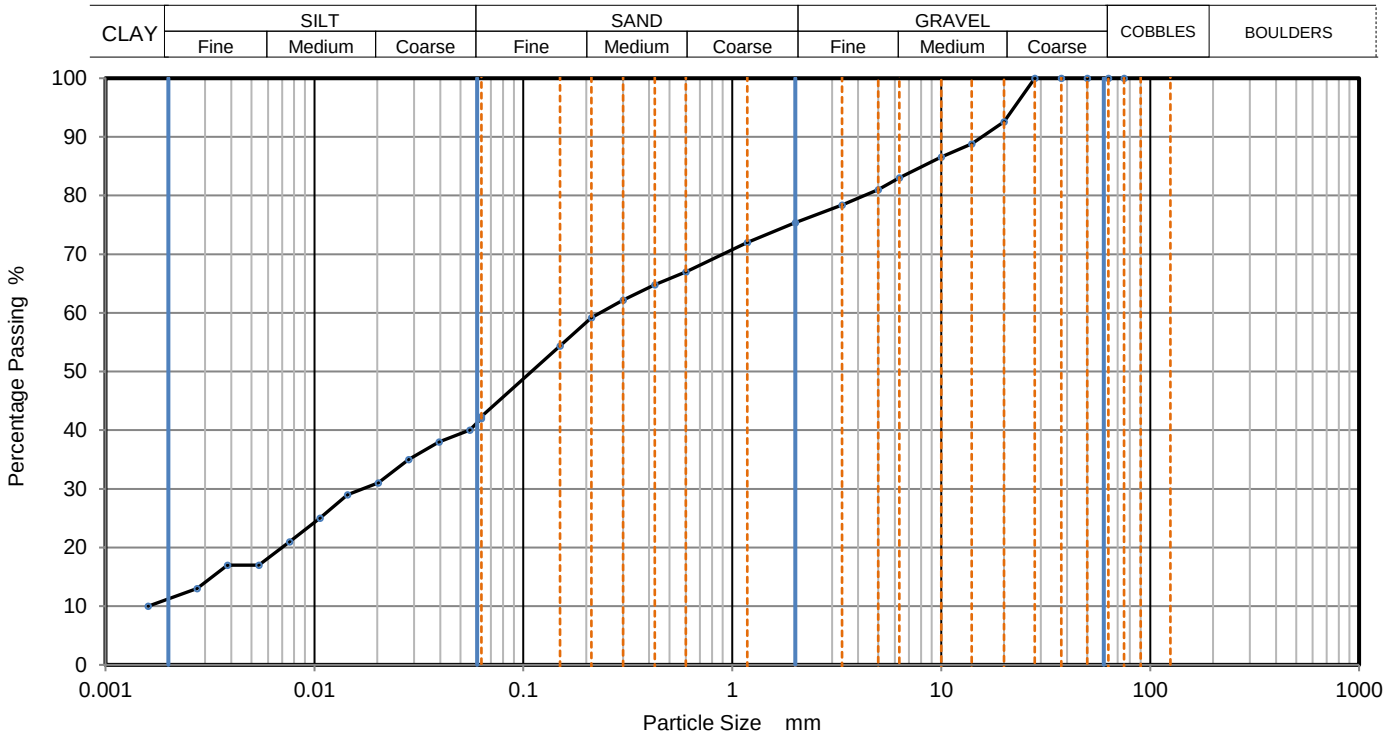
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52207
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111100



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0555	40
75	100	0.0395	38
63	100	0.0283	35
50	100	0.0202	31
37.5	100	0.0144	29
28	100	0.0106	25
20	93	0.0076	21
14	89	0.0054	17
10	87	0.0038	17
6.3	83	0.0027	13
5	81	0.0016	10
3.35	78		
2	75		
1.18	72		
0.6	67	Particle density (assumed)	
0.425	65	2.65 Mg/m3	
0.3	62		
0.212	59		
0.15	54		
0.063	42		

Dry Mass of sample, g	494

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	33
Silt	31
Clay	11

Grading Analysis		
D100	mm	
D60	mm	0.233
D30	mm	0.0177
D10	mm	0.00169
Uniformity Coefficient		140
Curvature Coefficient		0.79

Remarks

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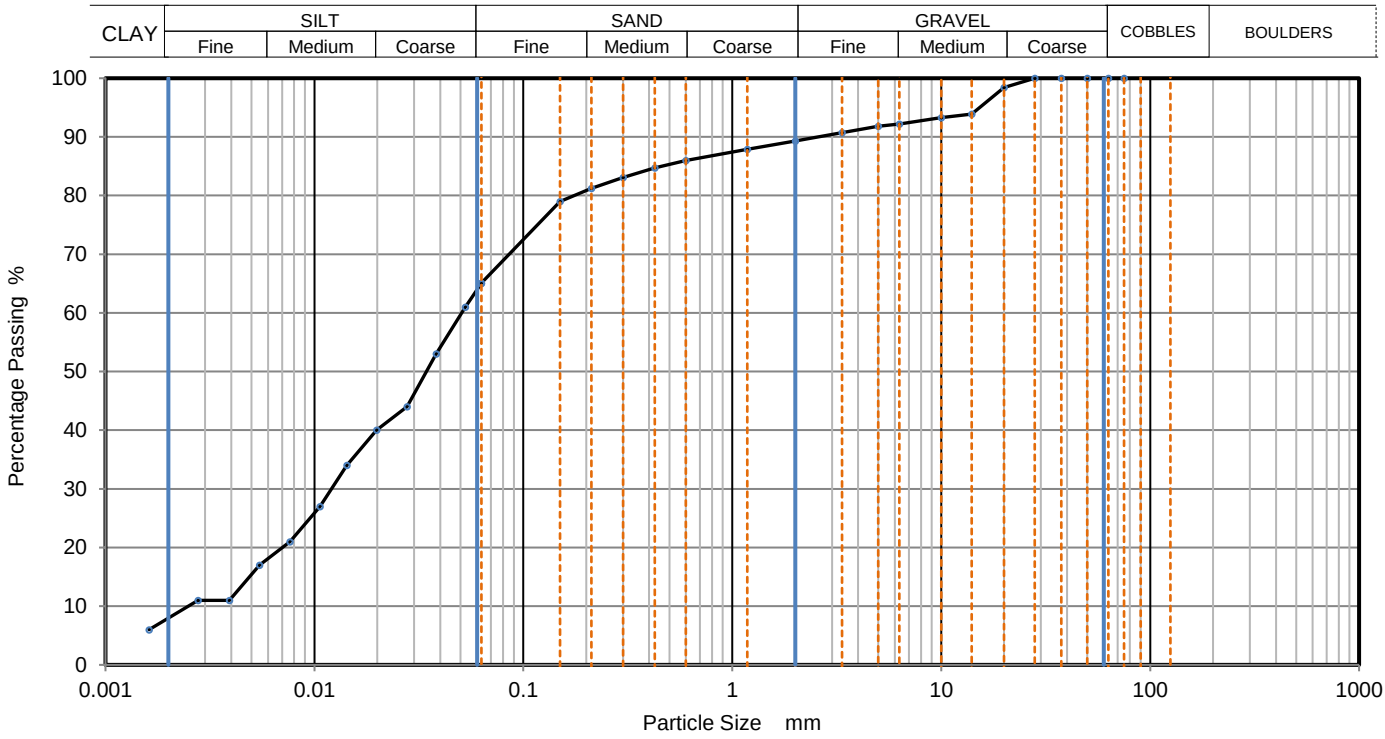
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52207
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	65
		0.0527	61
75	100	0.0383	53
63	100	0.0278	44
50	100	0.0199	40
37.5	100	0.0143	34
28	100	0.0106	27
20	98	0.0076	21
14	94	0.0055	17
10	93	0.0039	11
6.3	92	0.0028	11
5	92	0.0016	6
3.35	91		
2	89		
1.18	88		
0.6	86	Particle density (assumed)	
0.425	85	2.65 Mg/m3	
0.3	83		
0.212	81		
0.15	79		
0.063	65		

Dry Mass of sample, g	912

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	24
Silt	57
Clay	8

Grading Analysis		
D100	mm	
D60	mm	0.0509
D30	mm	0.0121
D10	mm	0.0026
Uniformity Coefficient		20
Curvature Coefficient		1.1

Remarks

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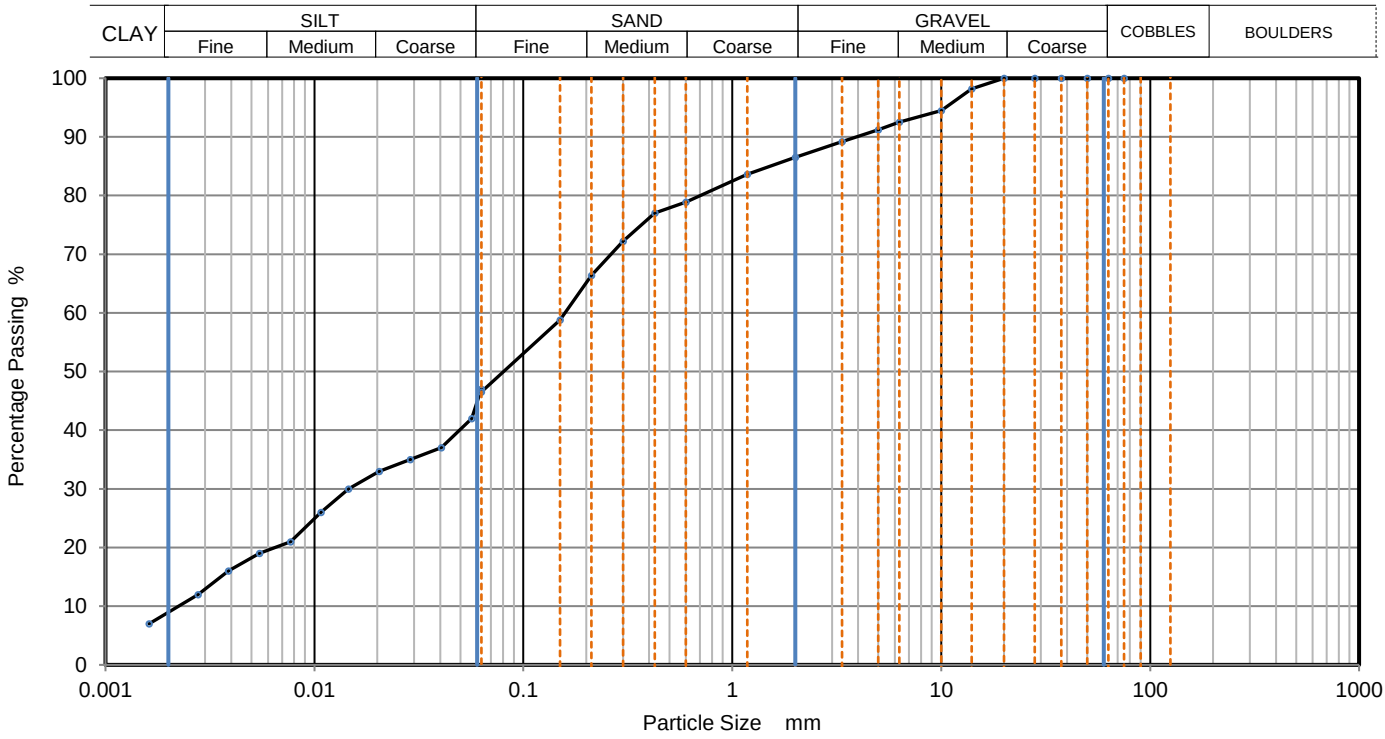
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52308
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark brown slightly gravelly Sandy SILT. Sand is fine.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111106



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0565	42
75	100	0.0404	37
63	100	0.0288	35
50	100	0.0205	33
37.5	100	0.0145	30
28	100	0.0107	26
20	100	0.0077	21
14	98	0.0055	19
10	95	0.0039	16
6.3	93	0.0028	12
5	91	0.0016	7
3.35	89		
2	87		
1.18	84		
0.6	79	Particle density (assumed)	
0.425	77	2.65	Mg/m3
0.3	72		
0.212	66		
0.15	59		
0.063	47		

Dry Mass of sample, g: 856

Sample Proportions	% dry mass
Very coarse	0
Gravel	14
Sand	40
Silt	38
Clay	9

Grading Analysis		
D100	mm	
D60	mm	0.158
D30	mm	0.0143
D10	mm	0.0023
Uniformity Coefficient		69
Curvature Coefficient		0.56

Remarks

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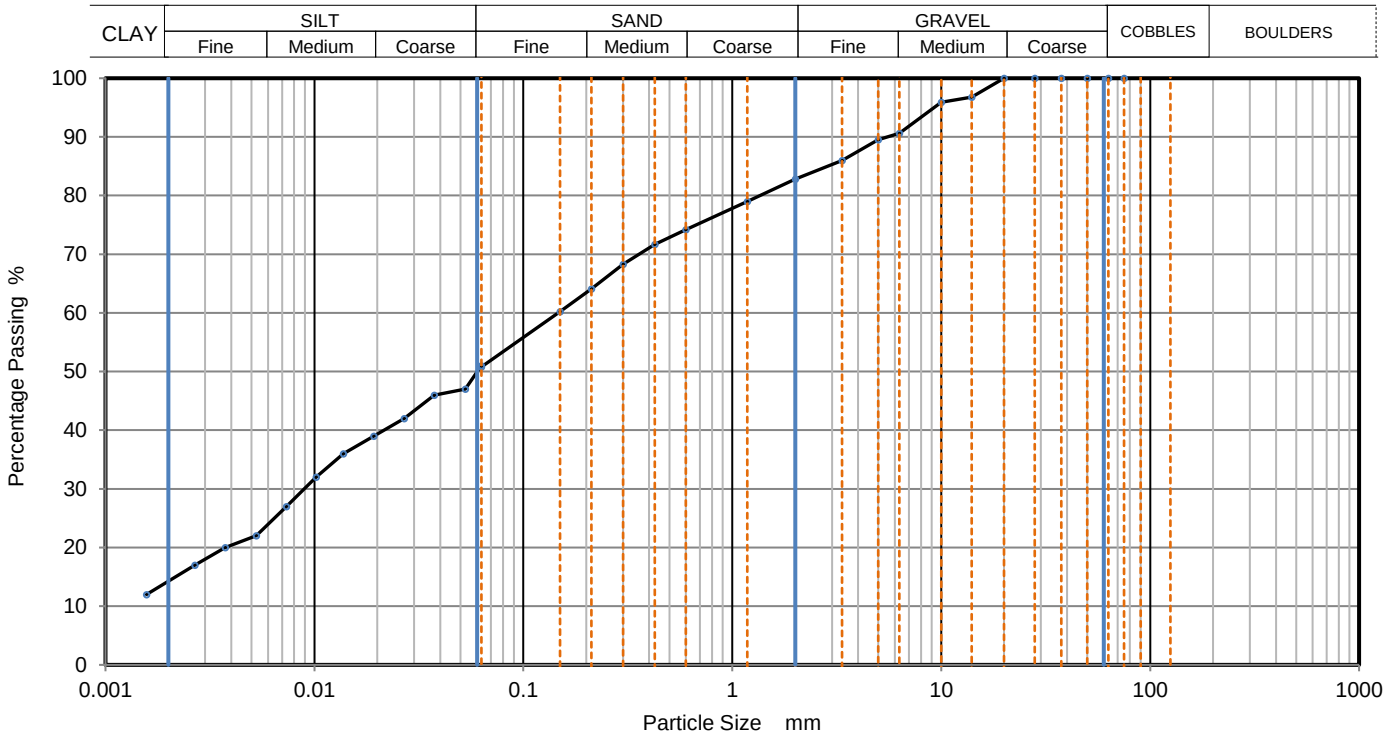
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52308
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111011



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	51
		0.0527	47
75	100	0.0375	46
63	100	0.0269	42
50	100	0.0192	39
37.5	100	0.0138	36
28	100	0.0102	32
20	100	0.0073	27
14	97	0.0053	22
10	96	0.0037	20
6.3	91	0.0027	17
5	90	0.0016	12
3.35	86		
2	83		
1.18	79		
0.6	74	Particle density (assumed)	
0.425	72	2.65	Mg/m3
0.3	68		
0.212	64		
0.15	60		
0.063	51		

Dry Mass of sample, g: 374

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	32
Silt	37
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.148
D30	mm	0.00885
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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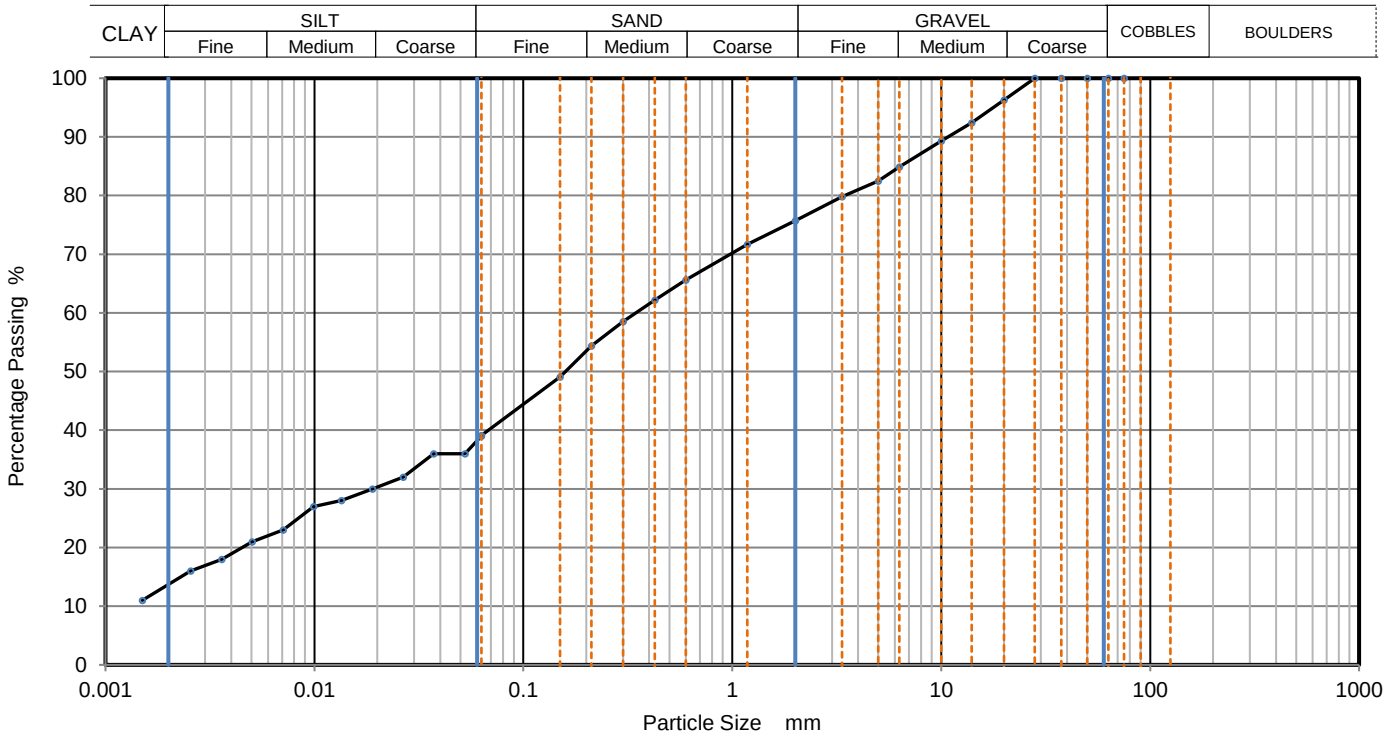
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52400
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light grey slightly gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111015



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0526	36
75	100	0.0372	36
63	100	0.0266	32
50	100	0.0189	30
37.5	100	0.0135	28
28	100	0.0099	27
20	96	0.0071	23
14	92	0.0050	21
10	89	0.0036	18
6.3	85	0.0026	16
5	83	0.0015	11
3.35	80		
2	76		
1.18	72		
0.6	66	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	59		
0.212	54		
0.15	49		
0.063	39		

Dry Mass of sample, g	809

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	37
Silt	26
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.345
D30	mm	0.0182
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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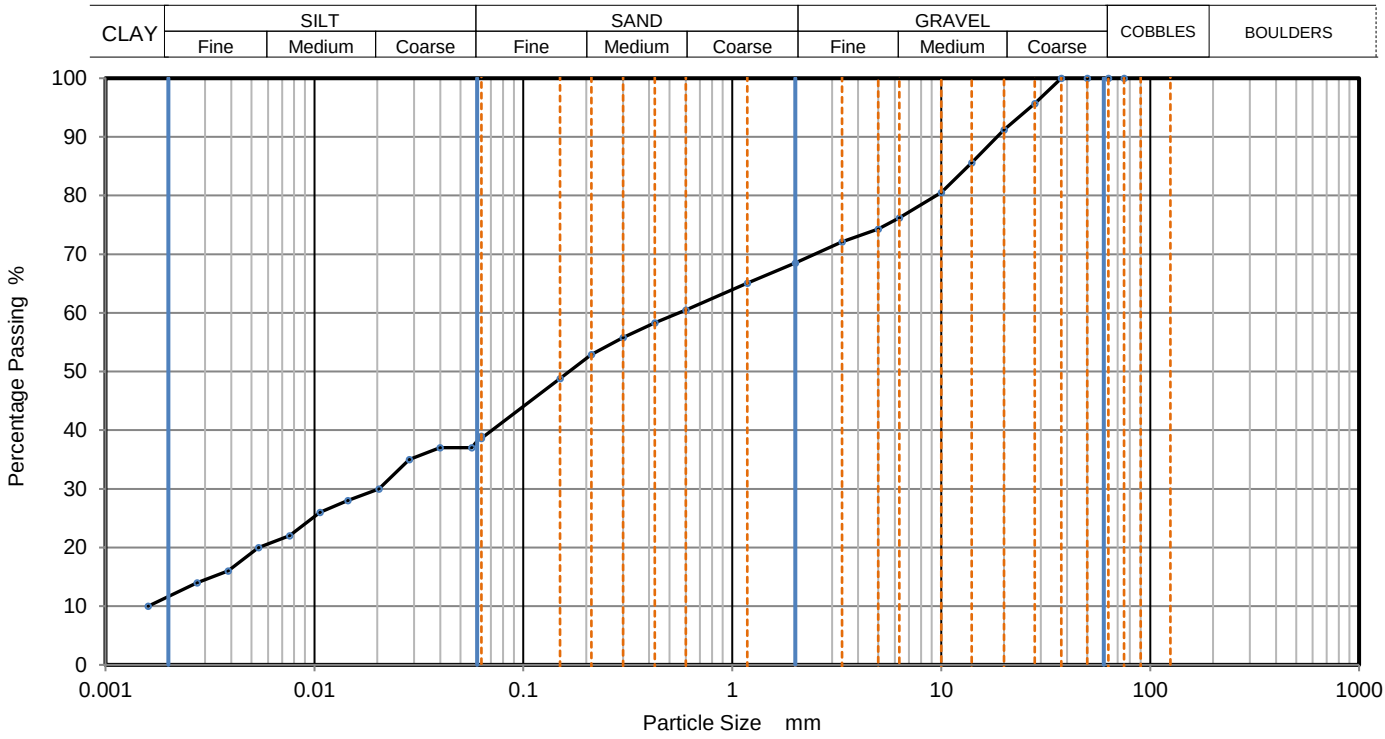
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52507
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111017



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0565	37
75	100	0.0400	37
63	100	0.0284	35
50	100	0.0203	30
37.5	100	0.0145	28
28	96	0.0106	26
20	91	0.0076	22
14	86	0.0054	20
10	81	0.0039	16
6.3	76	0.0027	14
5	74	0.0016	10
3.35	72		
2	69		
1.18	65		
0.6	61	Particle density (assumed)	
0.425	58	2.65	Mg/m3
0.3	56		
0.212	53		
0.15	49		
0.063	39		

Dry Mass of sample, g: 801

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	30
Silt	27
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.556
D30	mm	0.0188
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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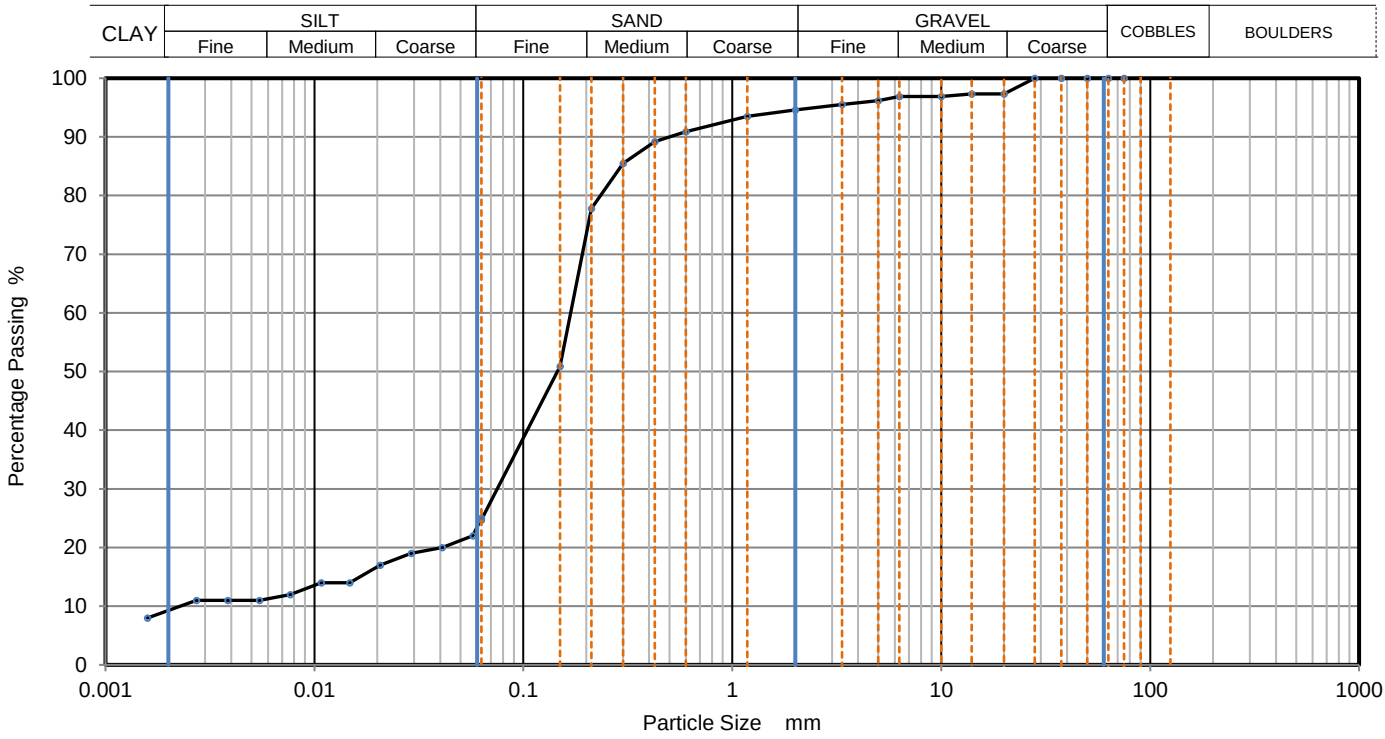
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52507
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown gravelly very silty fine SAND.			Depth, m	3.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111021



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0575	22
75	100	0.0409	20
63	100	0.0291	19
50	100	0.0207	17
37.5	100	0.0148	14
28	100	0.0108	14
20	97	0.0077	12
14	97	0.0055	11
10	97	0.0039	11
6.3	97	0.0027	11
5	96	0.0016	8
3.35	96		
2	95		
1.18	94		
0.6	91	Particle density (assumed)	
0.425	89	2.65 Mg/m3	
0.3	86		
0.212	78		
0.15	51		
0.063	25		

Dry Mass of sample, g	584

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	70
Silt	16
Clay	9

Grading Analysis		
D100	mm	
D60	mm	0.169
D30	mm	0.0751
D10	mm	0.00237
Uniformity Coefficient		71
Curvature Coefficient		14

Remarks

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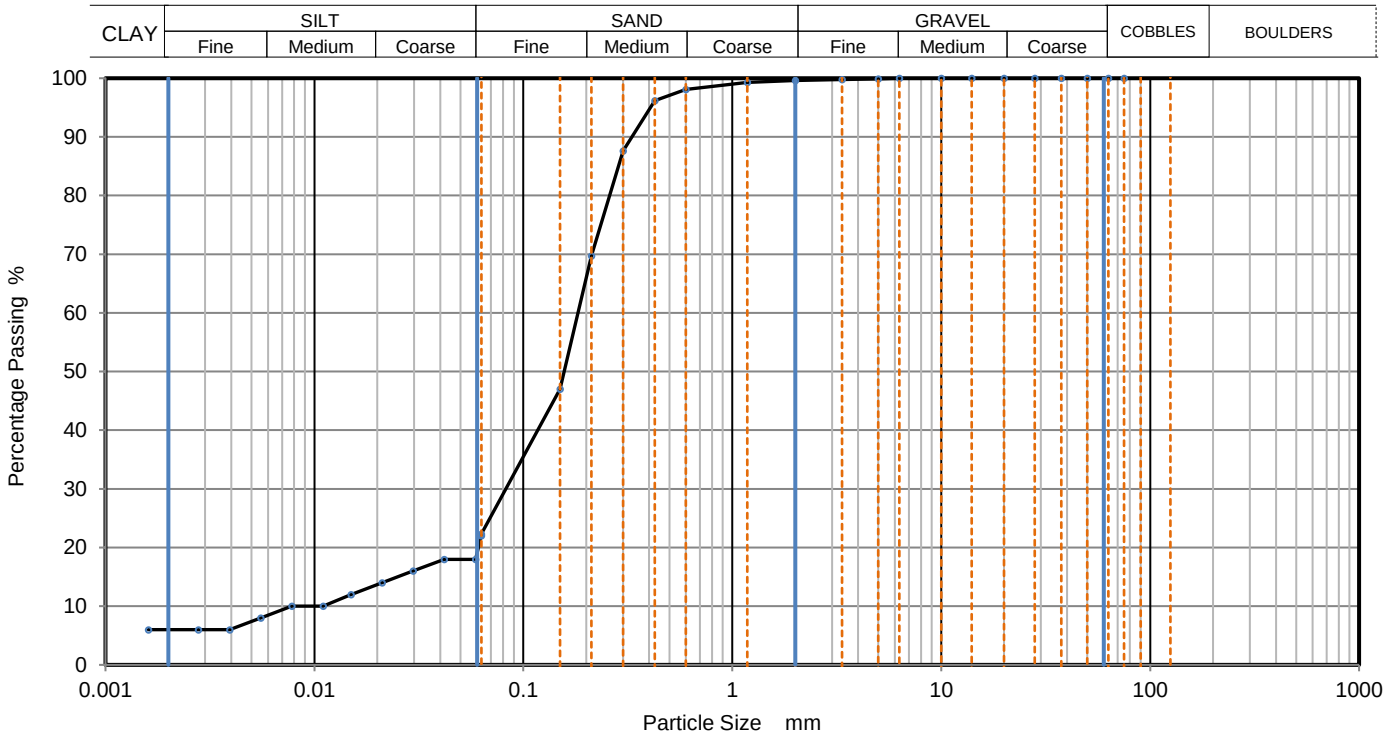
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52609
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty fine SAND.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111025



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0590	18
75	100	0.0417	18
63	100	0.0297	16
50	100	0.0211	14
37.5	100	0.0150	12
28	100	0.0110	10
20	100	0.0078	10
14	100	0.0055	8
10	100	0.0039	6
6.3	100	0.0028	6
5	100	0.0016	6
3.35	100		
2	100		
1.18	99		
0.6	98	Particle density (assumed)	
0.425	96	2.65 Mg/m3	
0.3	88		
0.212	70		
0.15	47		
0.063	22		

Dry Mass of sample, g	326

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	77
Silt	16
Clay	6

Grading Analysis		
D100	mm	
D60	mm	0.183
D30	mm	0.0826
D10	mm	0.00761
Uniformity Coefficient		24
Curvature Coefficient		4.9

Remarks

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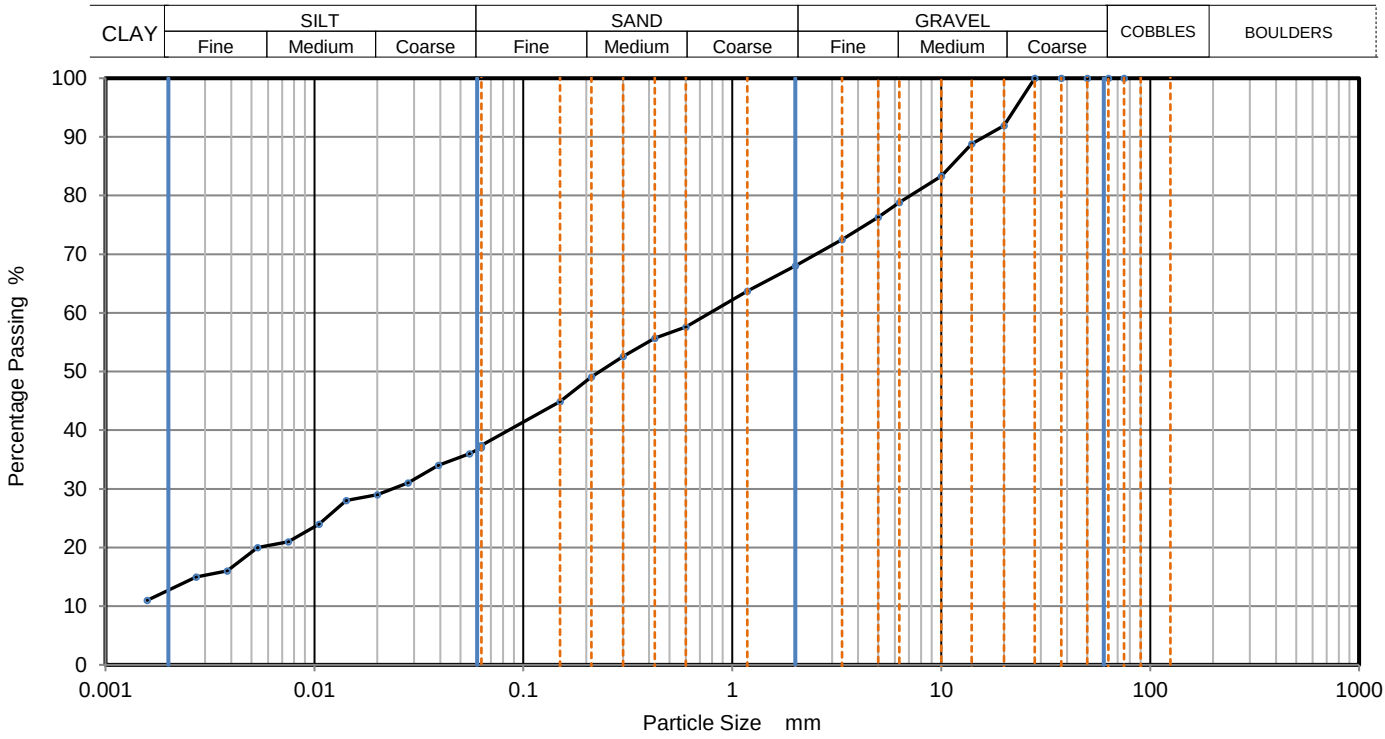
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52709
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111034



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0552	36
75	100	0.0392	34
63	100	0.0281	31
50	100	0.0200	29
37.5	100	0.0142	28
28	100	0.0105	24
20	92	0.0075	21
14	89	0.0053	20
10	83	0.0038	16
6.3	79	0.0027	15
5	76	0.0016	11
3.35	73		
2	68		
1.18	64		
0.6	58	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	53		
0.212	49		
0.15	45		
0.063	37		

Dry Mass of sample, g	751

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	31
Silt	25
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.781
D30	mm	0.0233
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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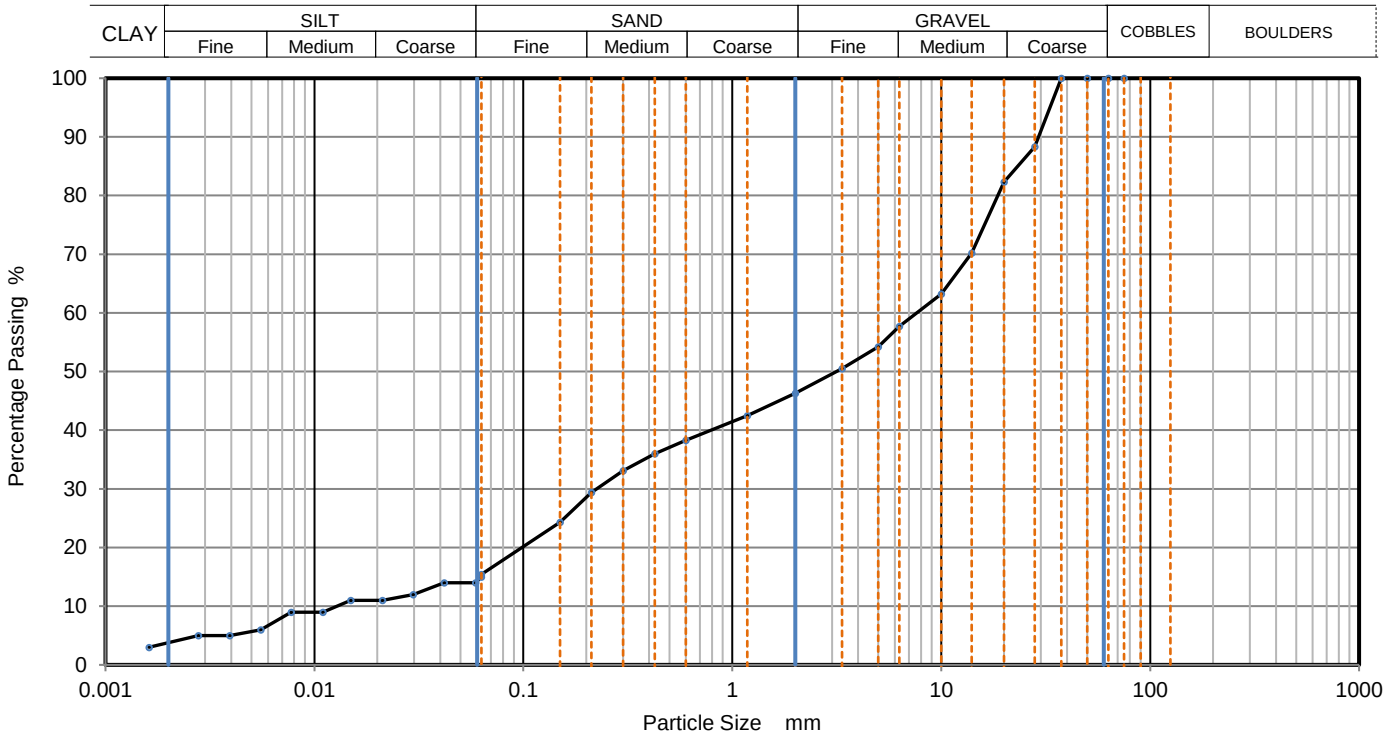
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52709
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111036



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	15
		0.0591	14
75	100	0.0418	14
63	100	0.0297	12
50	100	0.0211	11
37.5	100	0.0149	11
28	88	0.0110	9
20	82	0.0078	9
14	70	0.0055	6
10	63	0.0039	5
6.3	58	0.0028	5
5	54	0.0016	3
3.35	51		
2	46		
1.18	43		
0.6	38	Particle density (assumed)	
0.425	36	2.65	Mg/m3
0.3	33		
0.212	29		
0.15	24		
0.063	15		

Dry Mass of sample, g	354

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	31
Silt	12
Clay	4

Grading Analysis		
D100	mm	
D60	mm	7.65
D30	mm	0.224
D10	mm	0.0128
Uniformity Coefficient		600
Curvature Coefficient		0.51

Remarks

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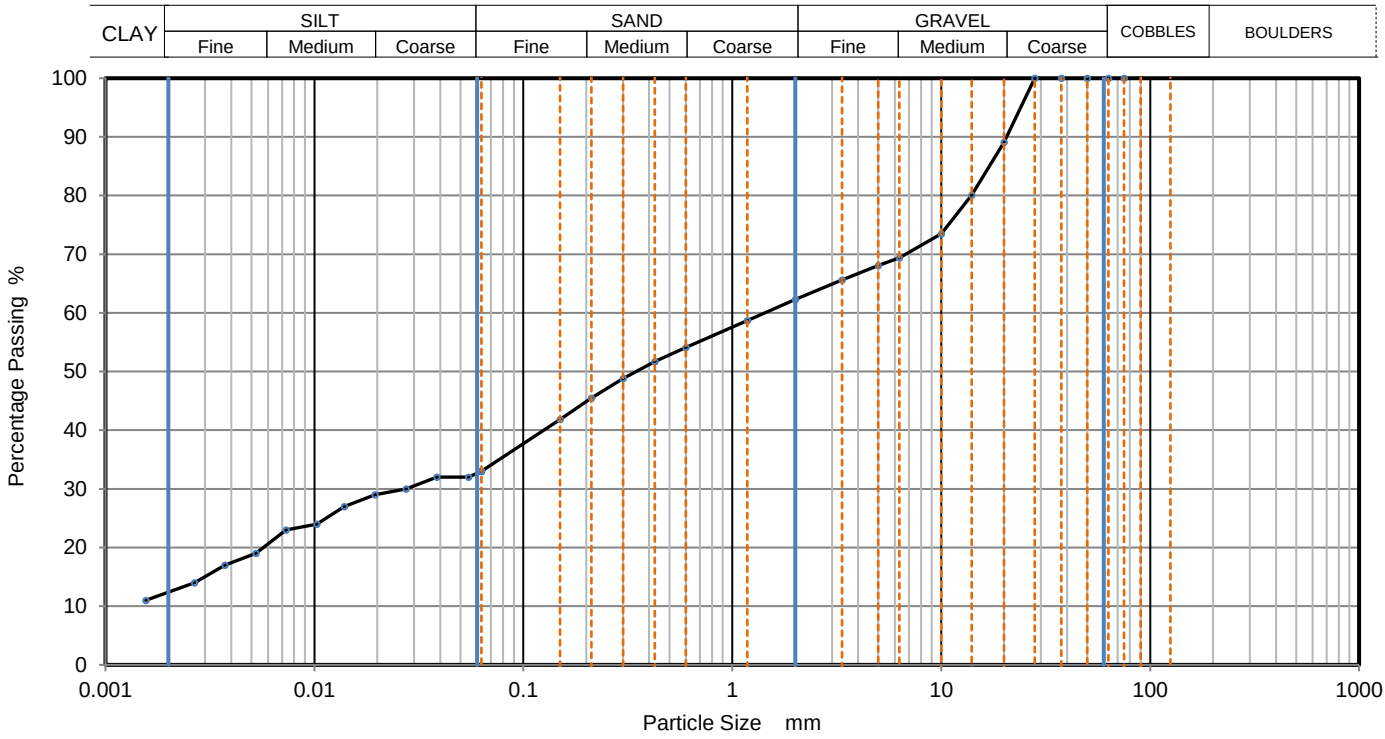
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52910
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey very sandy very silty medium GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111038



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0546	32
75	100	0.0386	32
63	100	0.0275	30
50	100	0.0195	29
37.5	100	0.0139	27
28	100	0.0103	24
20	89	0.0073	23
14	80	0.0053	19
10	74	0.0037	17
6.3	69	0.0027	14
5	68	0.0016	11
3.35	66		
2	62		
1.18	59		
0.6	54	Particle density (assumed)	
0.425	52	2.65	Mg/m3
0.3	49		
0.212	46		
0.15	42		
0.063	33		

Dry Mass of sample, g	449

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	29
Silt	20
Clay	13

Grading Analysis		
D100	mm	
D60	mm	1.43
D30	mm	0.0266
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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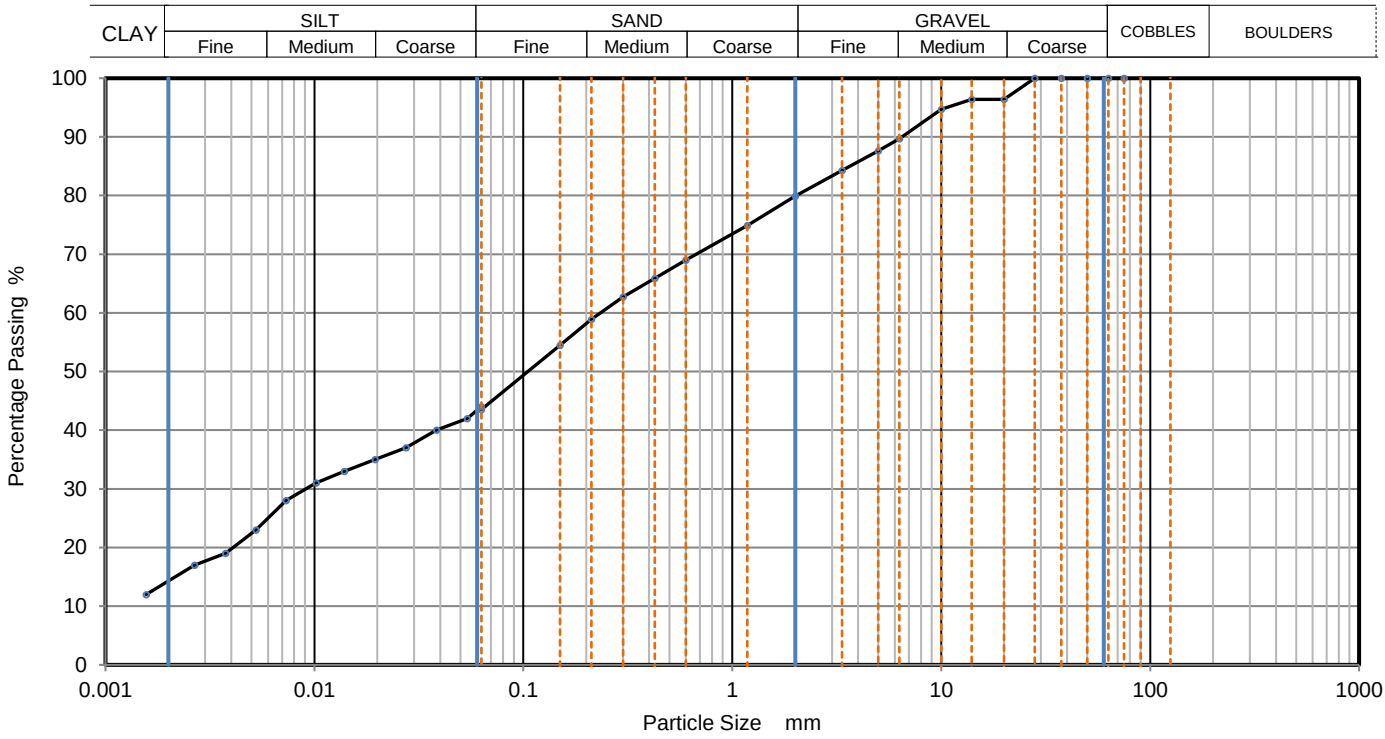
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-52910
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111040



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0539	42
75	100	0.0383	40
63	100	0.0275	37
50	100	0.0195	35
37.5	100	0.0139	33
28	100	0.0102	31
20	96	0.0073	28
14	96	0.0053	23
10	95	0.0038	19
6.3	90	0.0027	17
5	88	0.0016	12
3.35	84		
2	80		
1.18	75		
0.6	69	Particle density (assumed)	
0.425	66	2.65 Mg/m3	
0.3	63		
0.212	59		
0.15	55		
0.063	44		

Dry Mass of sample, g	537

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	36
Silt	29
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.234
D30	mm	0.00899
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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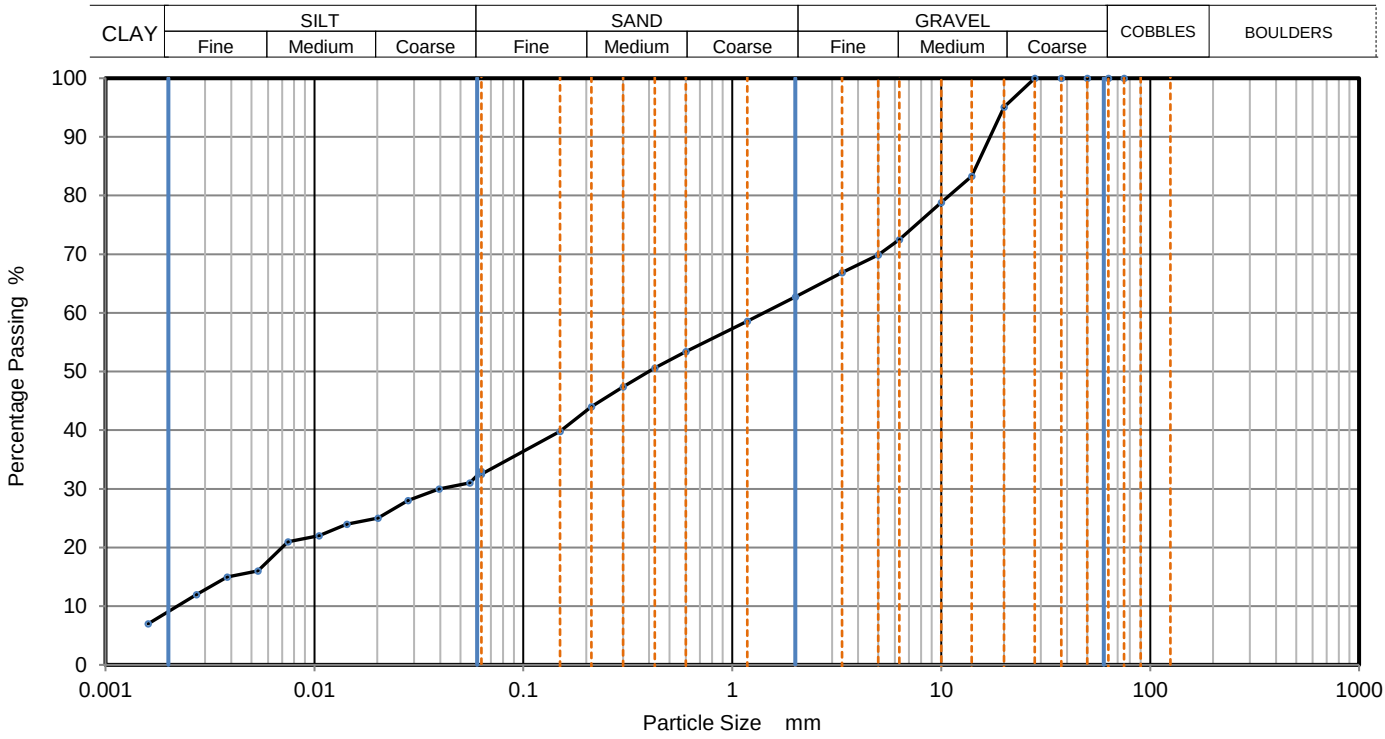
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53110
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty medium GRAVEL.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111047



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0555	31
75	100	0.0395	30
63	100	0.0281	28
50	100	0.0201	25
37.5	100	0.0143	24
28	100	0.0105	22
20	95	0.0075	21
14	83	0.0054	16
10	79	0.0038	15
6.3	73	0.0027	12
5	70	0.0016	7
3.35	67		
2	63		
1.18	59		
0.6	53	Particle density (assumed)	
0.425	51	2.65 Mg/m3	
0.3	47		
0.212	44		
0.15	40		
0.063	33		

Dry Mass of sample, g	932

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	30
Silt	23
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.42
D30	mm	0.0438
D10	mm	0.00219
Uniformity Coefficient		650
Curvature Coefficient		0.62

Remarks

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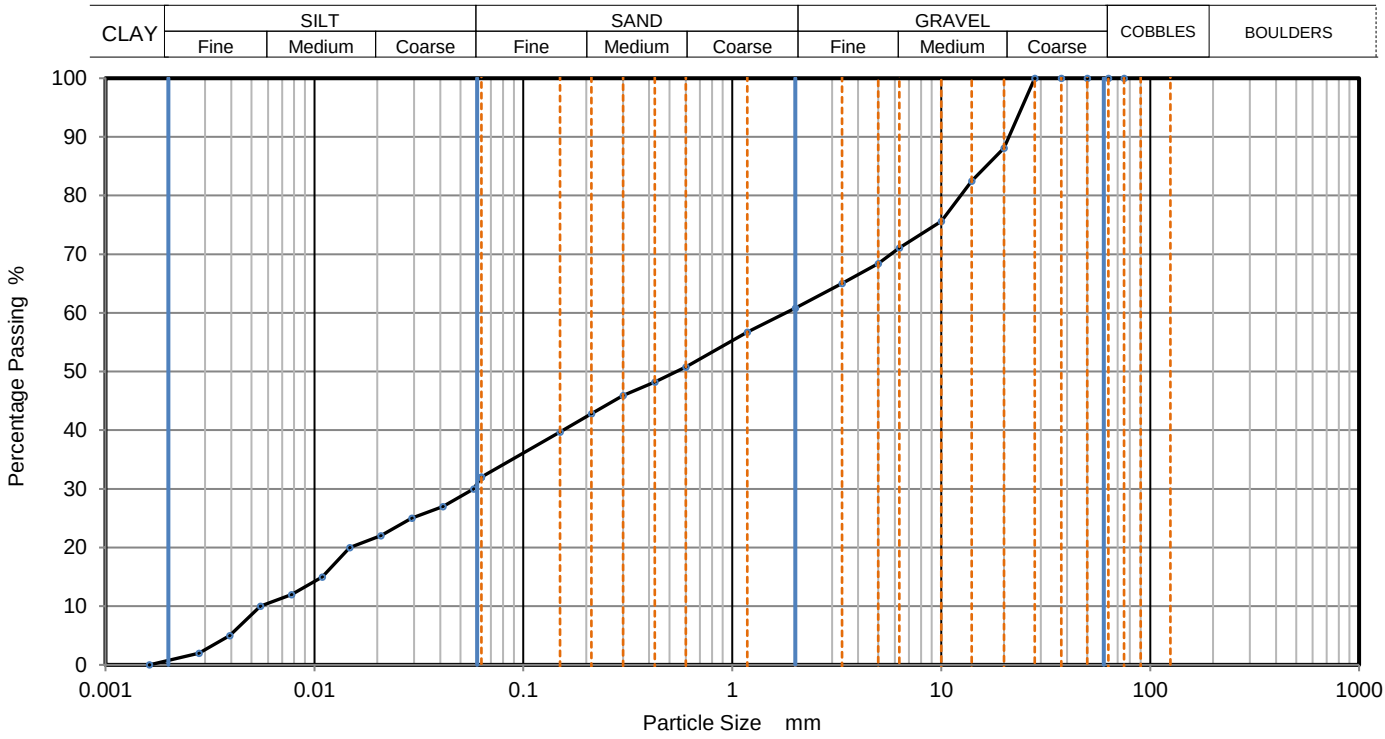
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53211
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty medium GRAVEL.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111053



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0579	30
75	100	0.0411	27
63	100	0.0292	25
50	100	0.0208	22
37.5	100	0.0148	20
28	100	0.0109	15
20	88	0.0078	12
14	83	0.0055	10
10	76	0.0039	5
6.3	71	0.0028	2
5	68	0.0016	0
3.35	65		
2	61		
1.18	57		
0.6	51	Particle density	(assumed)
0.425	48	2.65	Mg/m3
0.3	46		
0.212	43		
0.15	40		
0.063	32		

Dry Mass of sample, g	793

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	29
Silt	31
Clay	1

Grading Analysis		
D100	mm	
D60	mm	1.8
D30	mm	0.0588
D10	mm	0.00563
Uniformity Coefficient		320
Curvature Coefficient		0.34

Remarks

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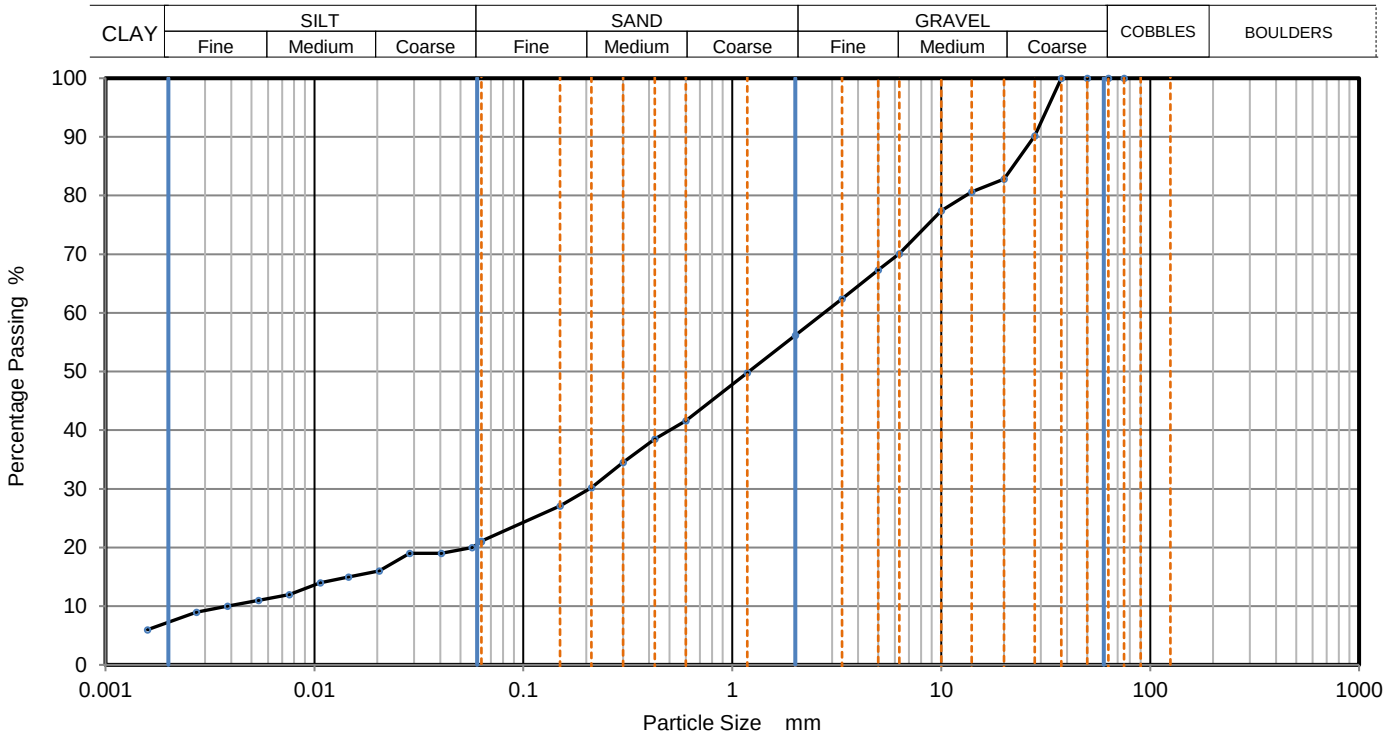
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53310
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111057



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0568	20
75	100	0.0404	19
63	100	0.0286	19
50	100	0.0204	16
37.5	100	0.0145	15
28	90	0.0107	14
20	83	0.0076	12
14	81	0.0054	11
10	77	0.0038	10
6.3	70	0.0027	9
5	67	0.0016	6
3.35	62		
2	56		
1.18	50		
0.6	42	Particle density (assumed)	
0.425	39	2.65 Mg/m3	
0.3	35		
0.212	30		
0.15	27		
0.063	21		

Dry Mass of sample, g	491

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	35
Silt	14
Clay	7

Grading Analysis		
D100	mm	
D60	mm	2.74
D30	mm	0.207
D10	mm	0.00391
Uniformity Coefficient		700
Curvature Coefficient		4

Remarks

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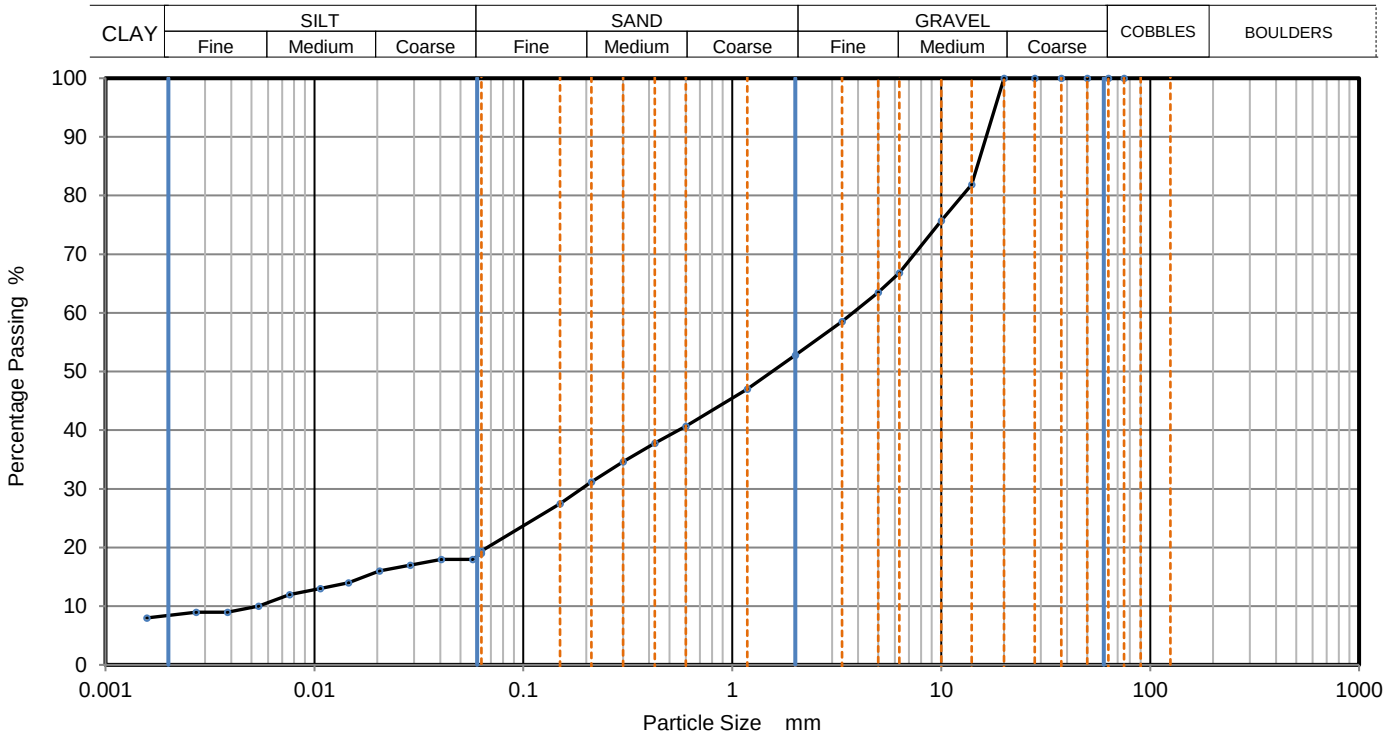
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53371
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111061



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	19
		0.0572	18
75	100	0.0405	18
63	100	0.0288	17
50	100	0.0205	16
37.5	100	0.0145	14
28	100	0.0107	13
20	100	0.0076	12
14	82	0.0054	10
10	76	0.0038	9
6.3	67	0.0027	9
5	64	0.0016	8
3.35	59		
2	53		
1.18	47		
0.6	41	Particle density (assumed)	
0.425	38	2.65 Mg/m3	
0.3	35		
0.212	31		
0.15	28		
0.063	19		

Dry Mass of sample, g	467

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	33
Silt	11
Clay	8

Grading Analysis		
D100	mm	
D60	mm	3.79
D30	mm	0.189
D10	mm	0.00493
Uniformity Coefficient		770
Curvature Coefficient		1.9

Remarks

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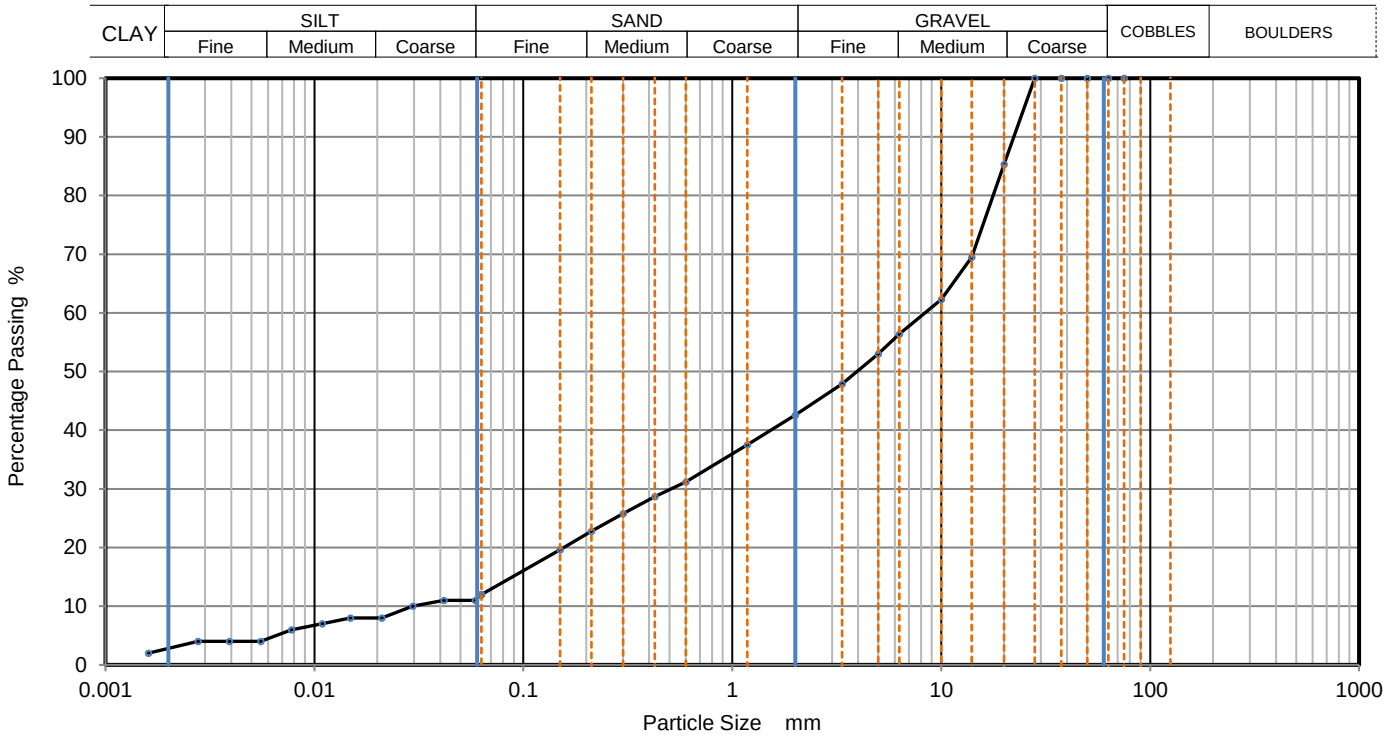
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53371
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111063



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	12
		0.0588	11
75	100	0.0416	11
63	100	0.0296	10
50	100	0.0210	8
37.5	100	0.0149	8
28	100	0.0109	7
20	85	0.0078	6
14	70	0.0055	4
10	62	0.0039	4
6.3	56	0.0028	4
5	53	0.0016	2
3.35	48		
2	43		
1.18	38		
0.6	31	Particle density (assumed)	
0.425	29	2.65 Mg/m3	
0.3	26		
0.212	23		
0.15	20		
0.063	12		

Dry Mass of sample, g	442

Sample Proportions	% dry mass
Very coarse	0
Gravel	57
Sand	31
Silt	9
Clay	3

Grading Analysis		
D100	mm	
D60	mm	8.37
D30	mm	0.509
D10	mm	0.0331
Uniformity Coefficient		250
Curvature Coefficient		0.93

Remarks

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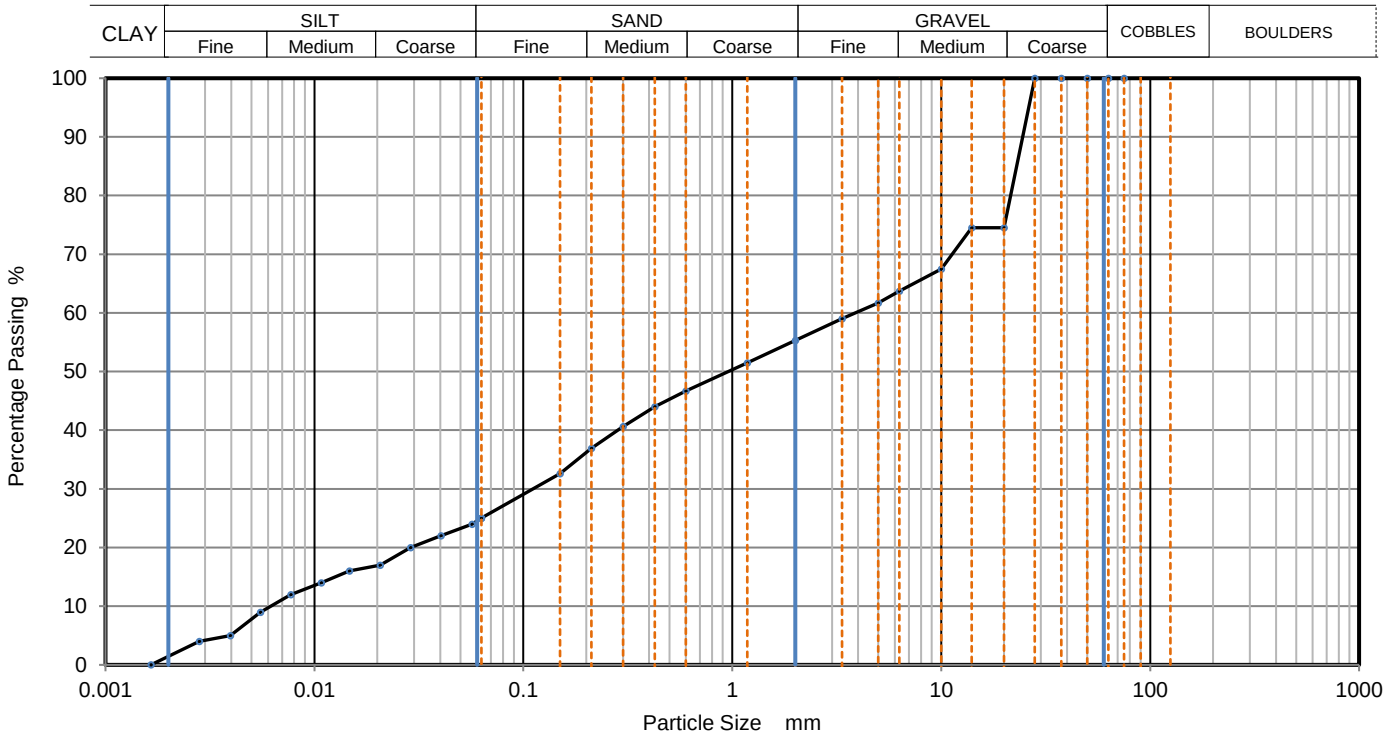
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53510
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty very sandy coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111065



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0568	24
75	100	0.0404	22
63	100	0.0289	20
50	100	0.0207	17
37.5	100	0.0147	16
28	100	0.0108	14
20	75	0.0077	12
14	75	0.0055	9
10	68	0.0040	5
6.3	64	0.0028	4
5	62	0.0016	0
3.35	59		
2	55		
1.18	52		
0.6	47	Particle density (assumed)	
0.425	44	2.65	Mg/m3
0.3	41		
0.212	37		
0.15	33		
0.063	25		

Dry Mass of sample, g	358

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	30
Silt	24
Clay	1

Grading Analysis		
D100	mm	
D60	mm	3.88
D30	mm	0.112
D10	mm	0.0061
Uniformity Coefficient		640
Curvature Coefficient		0.53

Remarks

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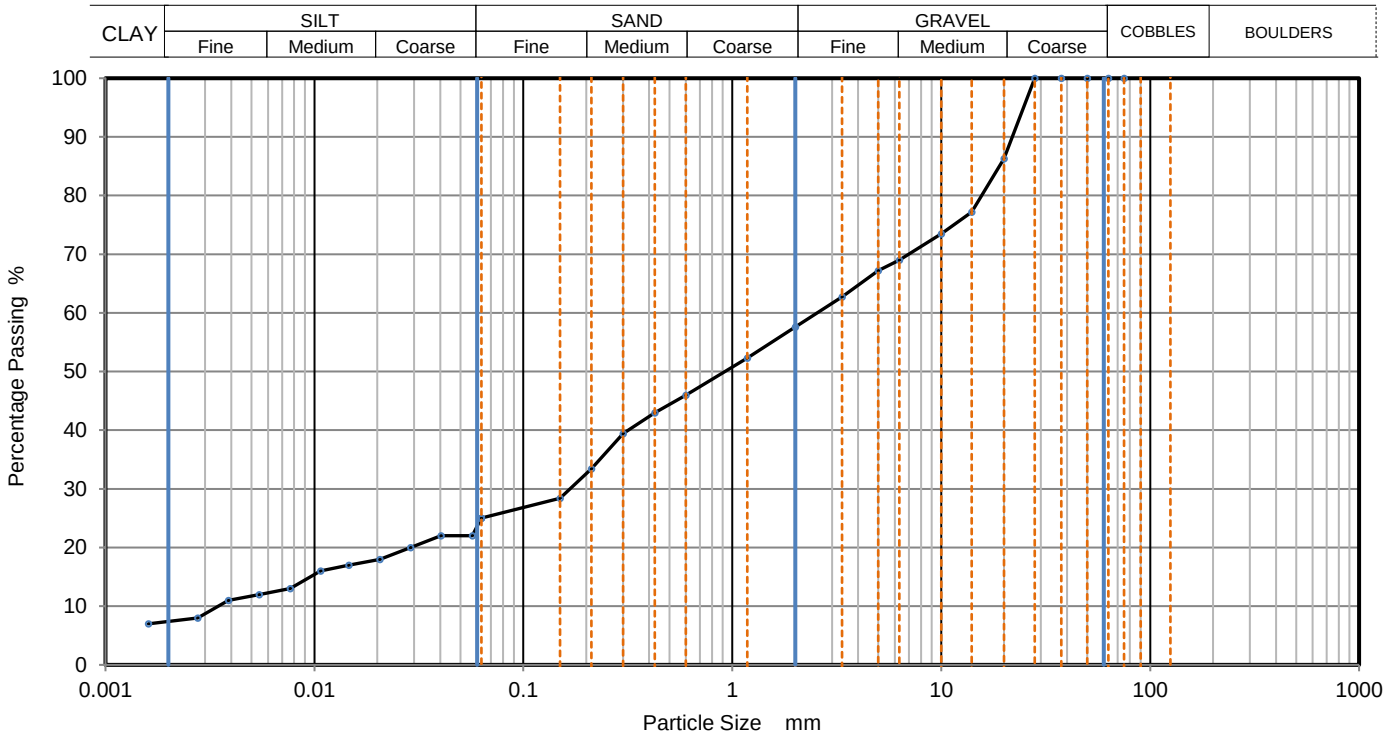
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53510
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey very silty very sandy GRAVEL.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111067



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0571	22
75	100	0.0403	22
63	100	0.0289	20
50	100	0.0205	18
37.5	100	0.0146	17
28	100	0.0107	16
20	86	0.0077	13
14	77	0.0054	12
10	74	0.0039	11
6.3	69	0.0028	8
5	67	0.0016	7
3.35	63		
2	58		
1.18	52		
0.6	46	Particle density (assumed)	
0.425	43	2.65 Mg/m3	
0.3	39		
0.212	33		
0.15	28		
0.063	25		

Dry Mass of sample, g	421

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	33
Silt	18
Clay	7

Grading Analysis		
D100	mm	
D60	mm	2.55
D30	mm	0.168
D10	mm	0.00362
Uniformity Coefficient		710
Curvature Coefficient		3

Remarks

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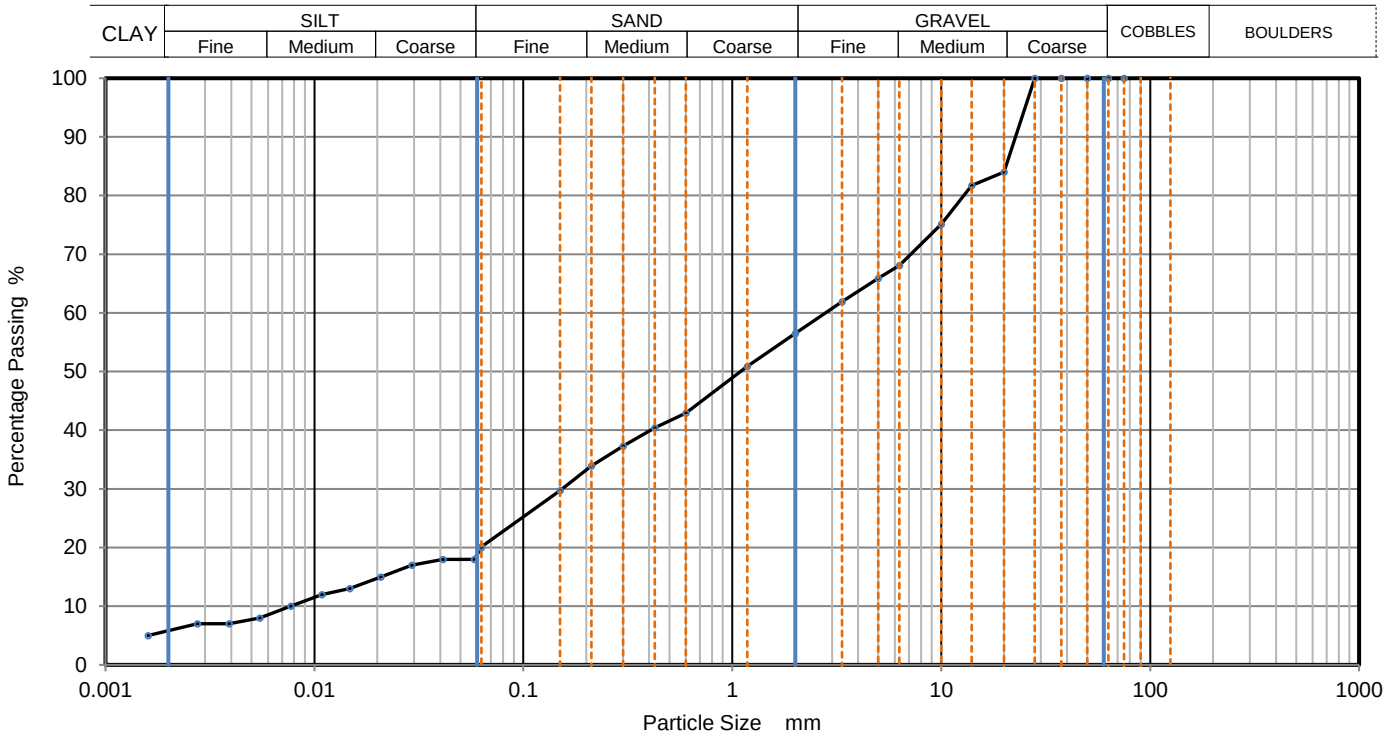
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-53609
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Grey very silty very sandy GRAVEL.	Depth, m	1.10
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021111073



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	20
		0.0582	18
75	100	0.0411	18
63	100	0.0292	17
50	100	0.0208	15
37.5	100	0.0148	13
28	100	0.0109	12
20	84	0.0077	10
14	82	0.0055	8
10	75	0.0039	7
6.3	68	0.0028	7
5	66	0.0016	5
3.35	62		
2	57		
1.18	51		
0.6	43	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	37		
0.212	34		
0.15	30		
0.063	20		

Dry Mass of sample, g	336

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	36
Silt	15
Clay	6

Grading Analysis		
D100	mm	
D60	mm	2.8
D30	mm	0.154
D10	mm	0.00764
Uniformity Coefficient		370
Curvature Coefficient		1.1

Remarks

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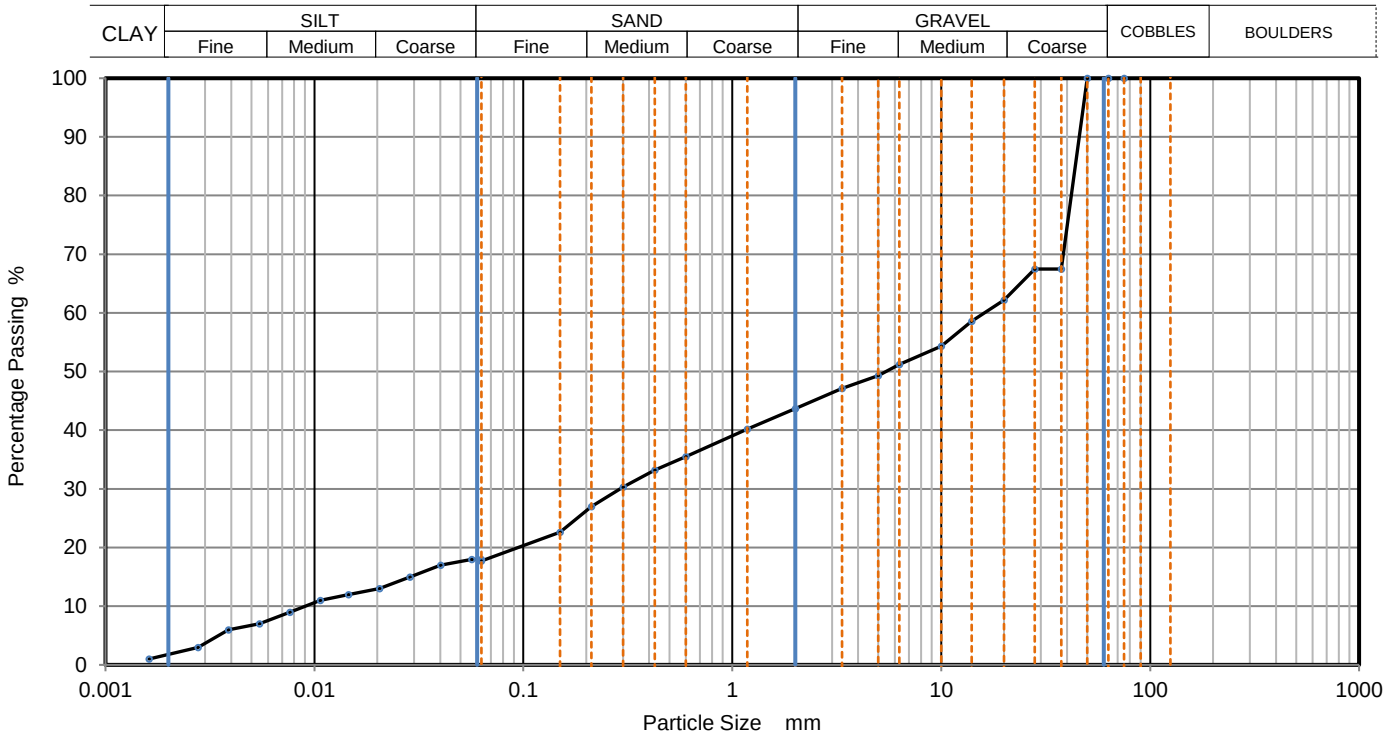
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53692
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111162



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0566	18
75	100	0.0402	17
63	100	0.0286	15
50	100	0.0205	13
37.5	68	0.0145	12
28	68	0.0107	11
20	62	0.0076	9
14	59	0.0055	7
10	54	0.0039	6
6.3	51	0.0028	3
5	49	0.0016	1
3.35	47		
2	44		
1.18	40		
0.6	36	Particle density	(assumed)
0.425	33	2.65	Mg/m3
0.3	30		
0.212	27		
0.15	23		
0.063	18		

Dry Mass of sample, g	651

Sample Proportions	% dry mass
Very coarse	0
Gravel	56
Sand	26
Silt	16
Clay	2

Grading Analysis		
D100	mm	
D60	mm	16.1
D30	mm	0.291
D10	mm	0.00909
Uniformity Coefficient		1800
Curvature Coefficient		0.58

Remarks

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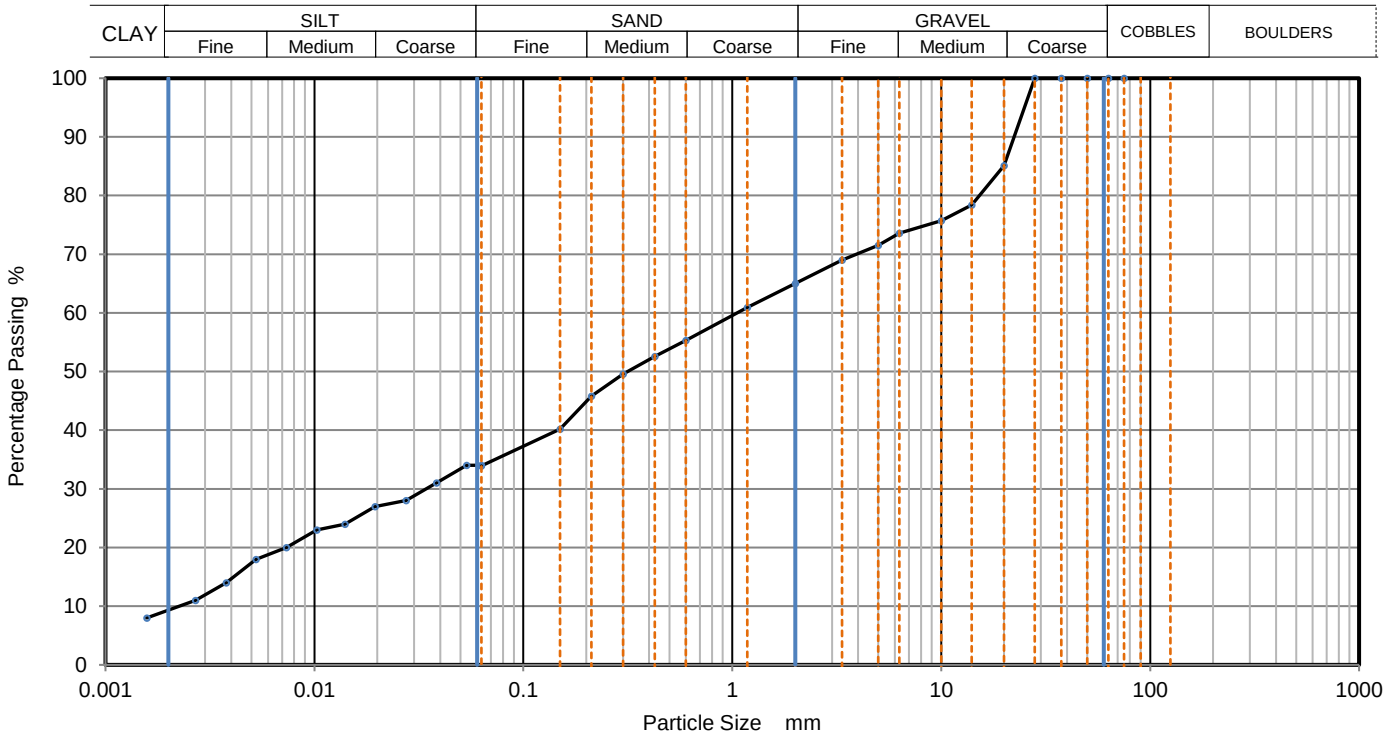
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53810
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111165



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0535	34
75	100	0.0383	31
63	100	0.0275	28
50	100	0.0195	27
37.5	100	0.0140	24
28	100	0.0103	23
20	85	0.0073	20
14	78	0.0053	18
10	76	0.0038	14
6.3	74	0.0027	11
5	72	0.0016	8
3.35	69		
2	65		
1.18	61		
0.6	55	Particle density (assumed)	
0.425	53	2.65	Mg/m3
0.3	50		
0.212	46		
0.15	40		
0.063	34		

Dry Mass of sample, g	773

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	31
Silt	25
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.06
D30	mm	0.0331
D10	mm	0.00228
Uniformity Coefficient		470
Curvature Coefficient		0.45

Remarks

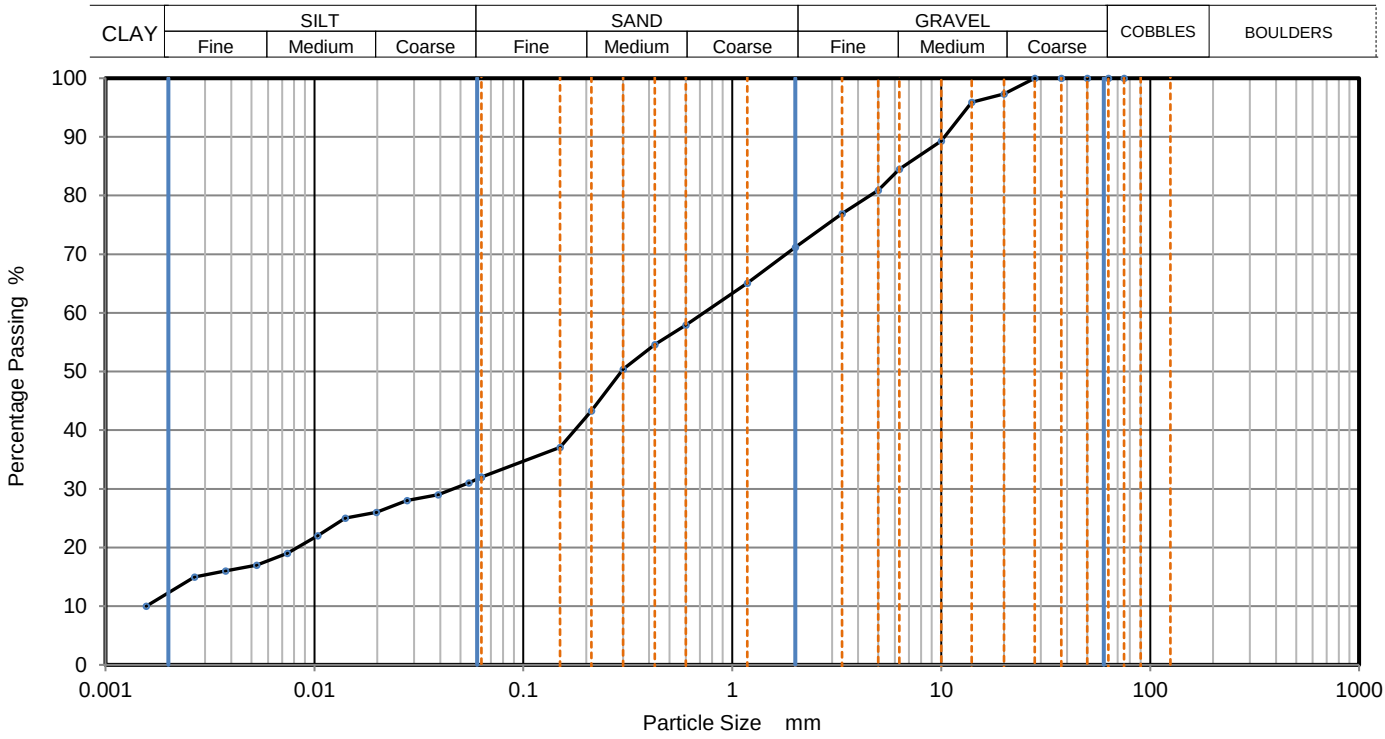
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	27/09/2022 17:20	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-53810
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light grey very gravelly very silty SAND.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111168



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0549	31
75	100	0.0391	29
63	100	0.0278	28
50	100	0.0198	26
37.5	100	0.0141	25
28	100	0.0104	22
20	97	0.0074	19
14	96	0.0053	17
10	89	0.0038	16
6.3	85	0.0027	15
5	81	0.0016	10
3.35	77		
2	71		
1.18	65		
0.6	58	Particle density (assumed)	
0.425	55	2.65	Mg/m3
0.3	50		
0.212	43		
0.15	37		
0.063	32		

Dry Mass of sample, g	610

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	39
Silt	20
Clay	12

Grading Analysis		
D100	mm	
D60	mm	0.733
D30	mm	0.0483
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	27/09/2022 17:21	**1** QC From No:R2

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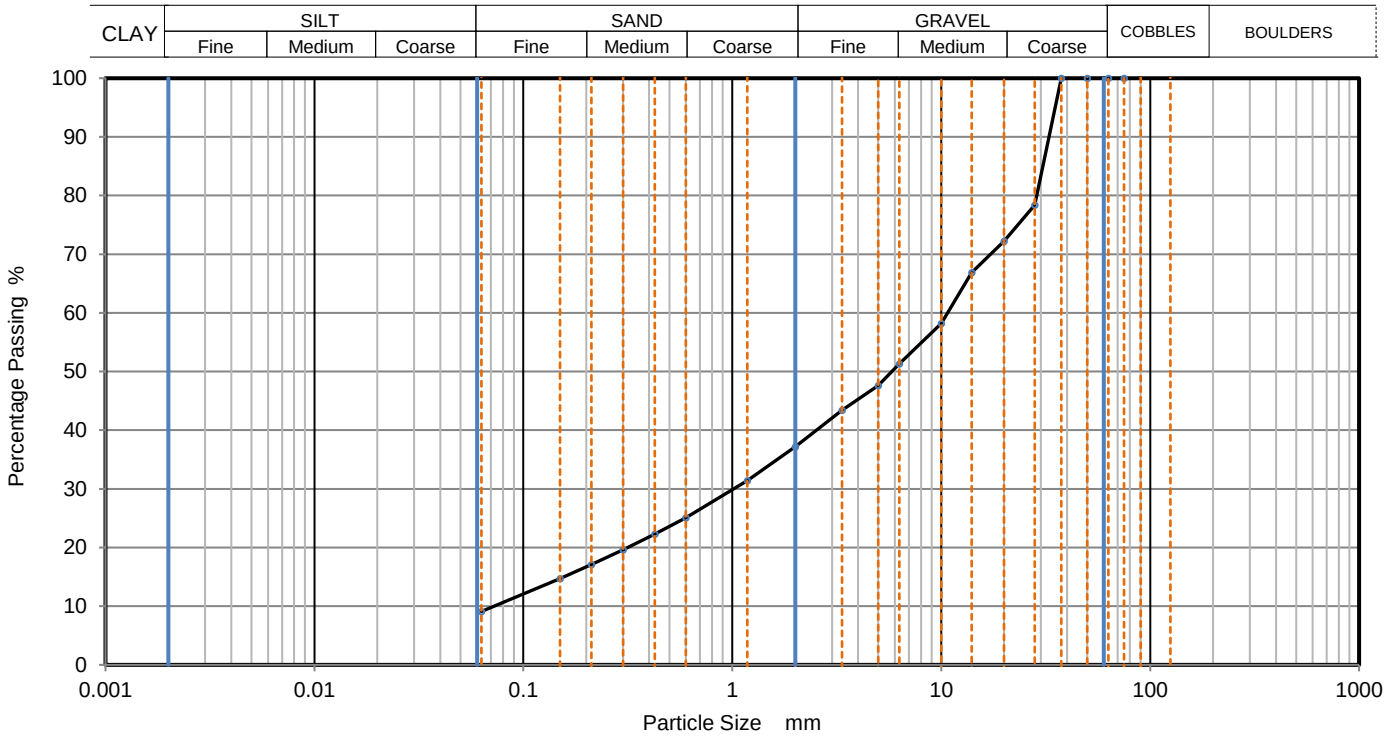
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54012
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy medium and coarse GRAVEL.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021111612



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	78		
20	72		
14	67		
10	58		
6.3	51		
5	48		
3.35	43		
2	37		
1.18	31		
0.6	25		
0.425	22		
0.3	20		
0.212	17		
0.15	15		
0.063	9		

Dry Mass of sample, g	613

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	28
Fines <0.063mm	9

Grading Analysis		
D100	mm	
D60	mm	10.7
D30	mm	1.02
D10	mm	0.0726
Uniformity Coefficient		150
Curvature Coefficient		1.3

Remarks

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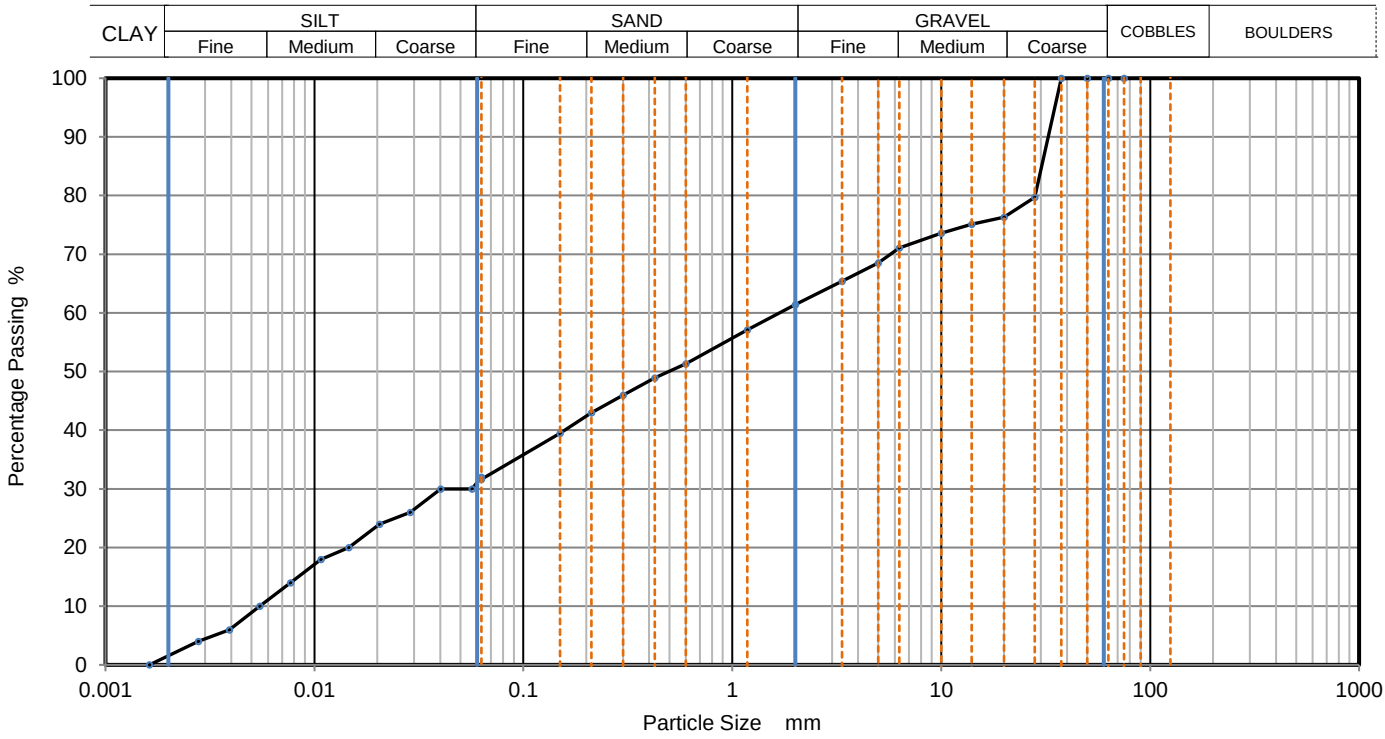
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54109
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very sandy very silty coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111614



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0569	30
75	100	0.0402	30
63	100	0.0288	26
50	100	0.0205	24
37.5	100	0.0146	20
28	80	0.0107	18
20	76	0.0077	14
14	75	0.0055	10
10	74	0.0039	6
6.3	71	0.0028	4
5	69	0.0016	0
3.35	65		
2	61		
1.18	57		
0.6	51	Particle density (assumed)	
0.425	49	2.65	Mg/m3
0.3	46		
0.212	43		
0.15	40		
0.063	32		

Dry Mass of sample, g	592

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	30
Silt	30
Clay	2

Grading Analysis		
D100	mm	
D60	mm	1.69
D30	mm	0.058
D10	mm	0.00554
Uniformity Coefficient		300
Curvature Coefficient		0.36

Remarks

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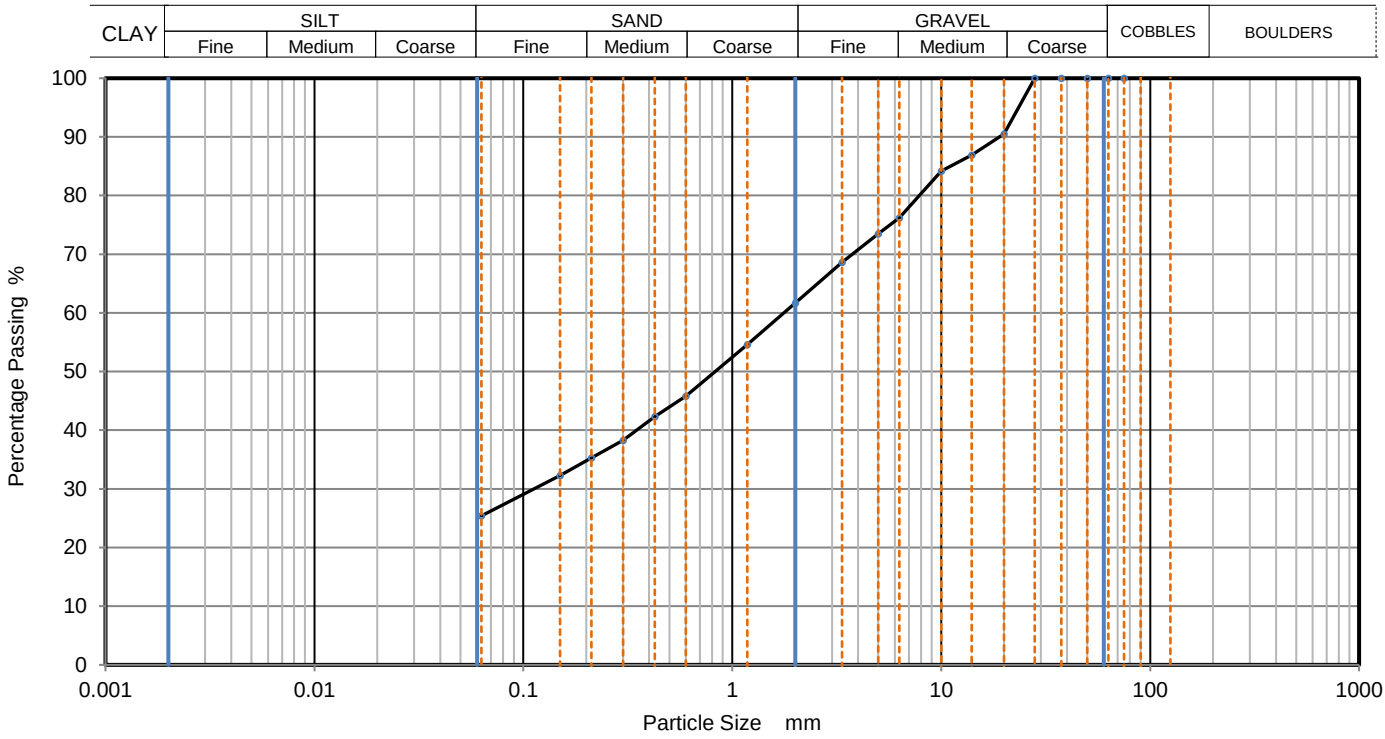
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54309
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light grey very silty SAND and GRAVEL.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021111620



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	87		
10	84		
6.3	76		
5	74		
3.35	69		
2	62		
1.18	55		
0.6	46		
0.425	42		
0.3	38		
0.212	35		
0.15	32		
0.063	25		

Dry Mass of sample, g	618

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	36
Fines <0.063mm	25

Grading Analysis		
D100	mm	
D60	mm	1.76
D30	mm	0.113
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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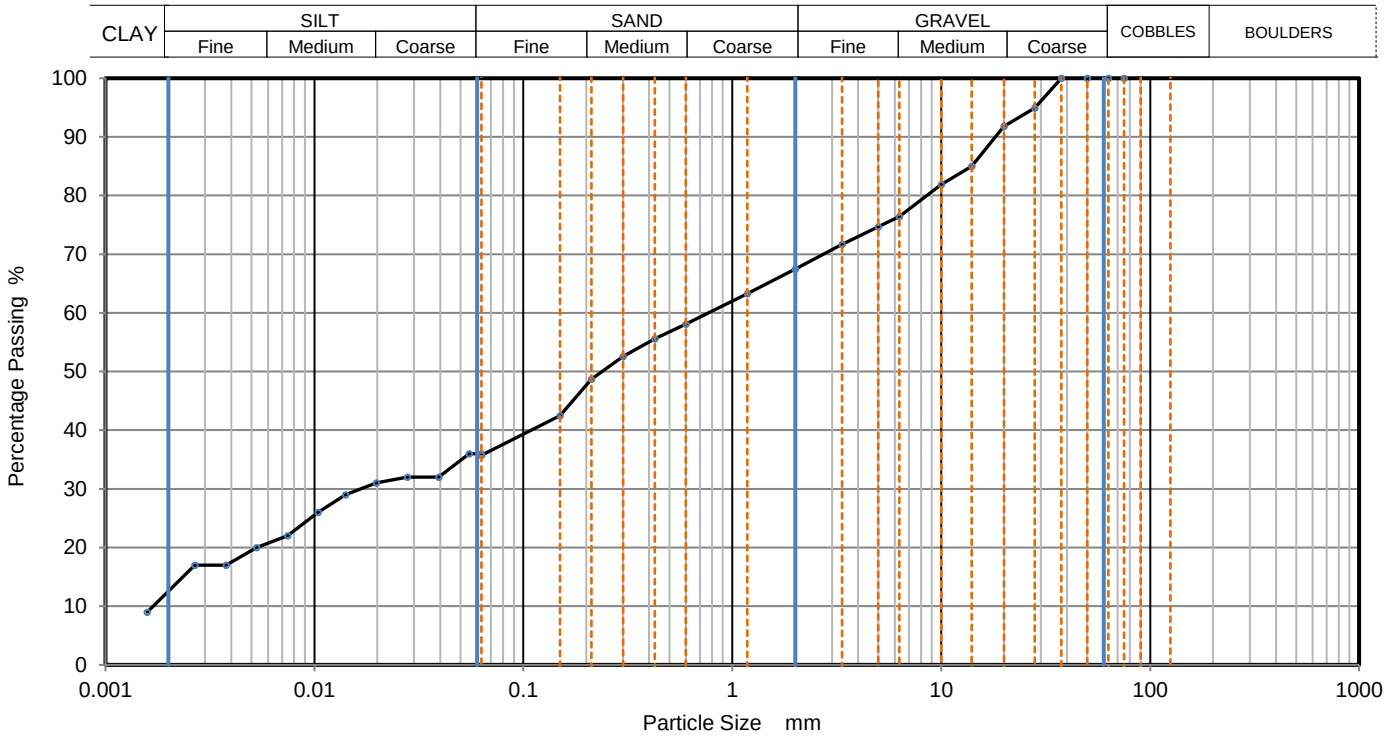
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54411
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111622



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0550	36
75	100	0.0393	32
63	100	0.0278	32
50	100	0.0198	31
37.5	100	0.0141	29
28	95	0.0104	26
20	92	0.0074	22
14	85	0.0053	20
10	82	0.0038	17
6.3	76	0.0027	17
5	75	0.0016	9
3.35	72		
2	68		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	53		
0.212	49		
0.15	43		
0.063	36		

Dry Mass of sample, g	996

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	32
Silt	23
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.77
D_{30}	mm	0.0175
D_{10}	mm	0.00174
Uniformity Coefficient		440
Curvature Coefficient		0.23

Remarks

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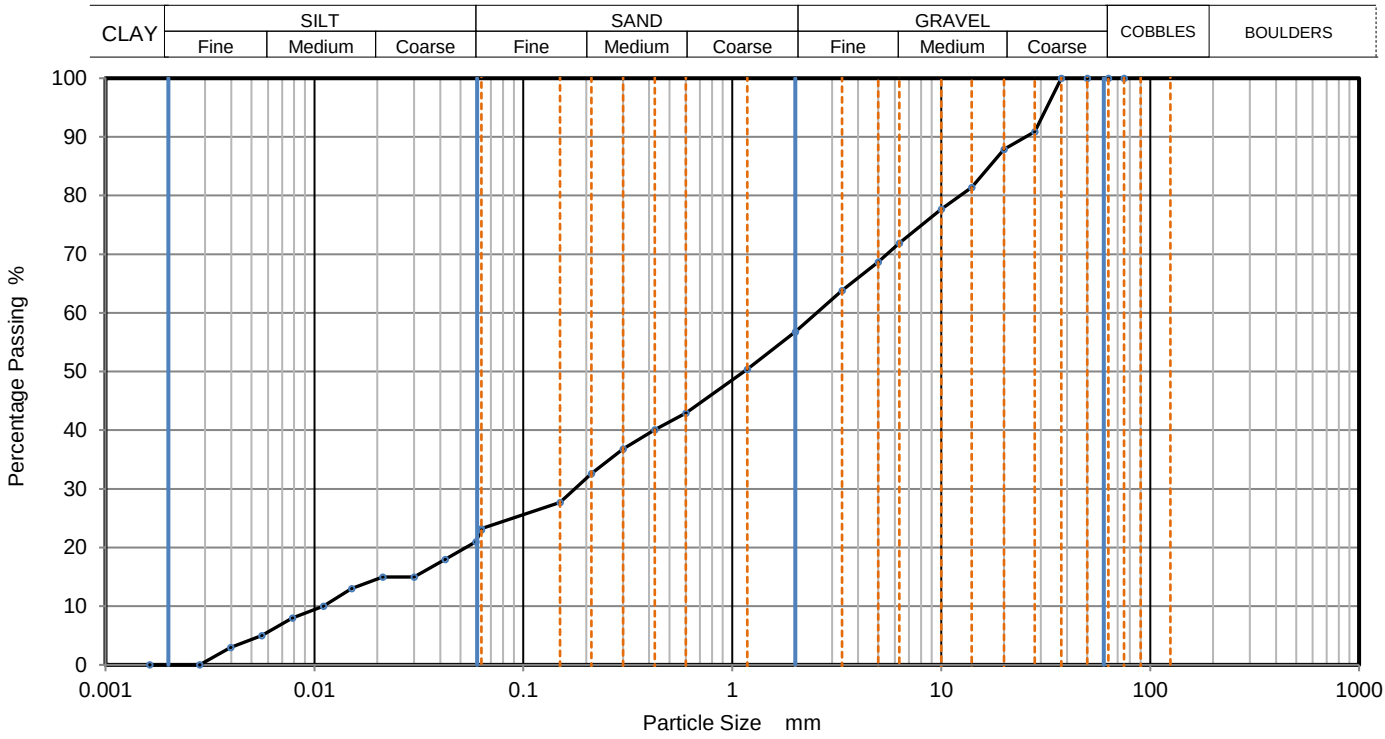
		Dympna Darcy B.Sc.	24/10/2022 15:23	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54411
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light creamish-grey very silty very sandy GRAVEL.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111624



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	23
		0.0593	21
75	100	0.0422	18
63	100	0.0300	15
50	100	0.0212	15
37.5	100	0.0151	13
28	91	0.0111	10
20	88	0.0079	8
14	81	0.0056	5
10	78	0.0040	3
6.3	72	0.0028	0
5	69	0.0016	0
3.35	64		
2	57		
1.18	50		
0.6	43	Particle density (assumed)	
0.425	40	2.65	Mg/m3
0.3	37		
0.212	33		
0.15	28		
0.063	23		

Dry Mass of sample, g	924

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	34
Silt	23
Clay	0

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.53
D_{30}	mm	0.176
D_{10}	mm	0.0106
Uniformity Coefficient		240
Curvature Coefficient		1.2

Remarks

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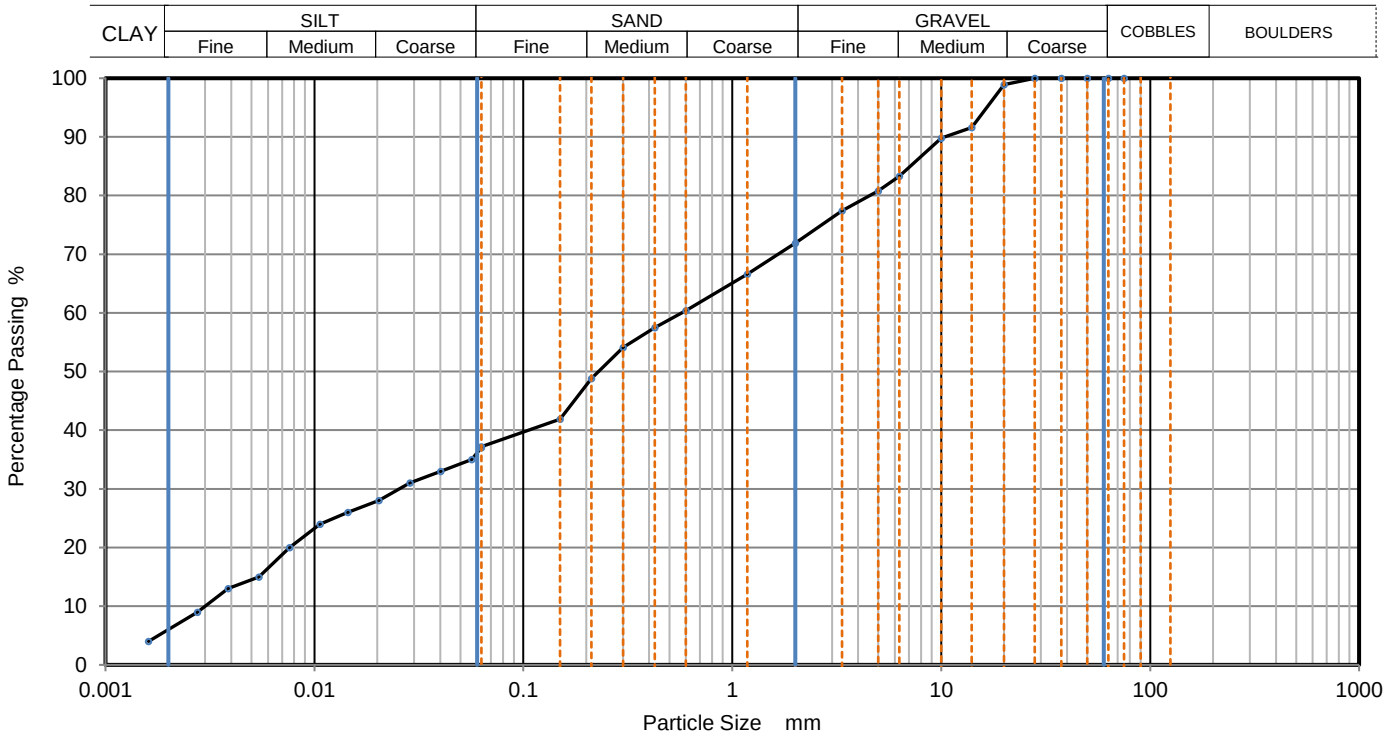
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/10/2022 15:23	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54511
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light creamish-grey slightly gravelly sandy SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111628



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0566	35
75	100	0.0402	33
63	100	0.0286	31
50	100	0.0203	28
37.5	100	0.0145	26
28	100	0.0106	24
20	99	0.0076	20
14	92	0.0054	15
10	90	0.0039	13
6.3	83	0.0028	9
5	81	0.0016	4
3.35	77		
2	72		
1.18	67		
0.6	60	Particle density (assumed)	
0.425	58	2.65 Mg/m3	
0.3	54		
0.212	49		
0.15	42		
0.063	37		

Dry Mass of sample, g	870

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	35
Silt	31
Clay	6

Grading Analysis		
D100	mm	
D60	mm	0.575
D30	mm	0.0259
D10	mm	0.00303
Uniformity Coefficient		190
Curvature Coefficient		0.39

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	27/09/2022 17:21	**1** QC From No:R2

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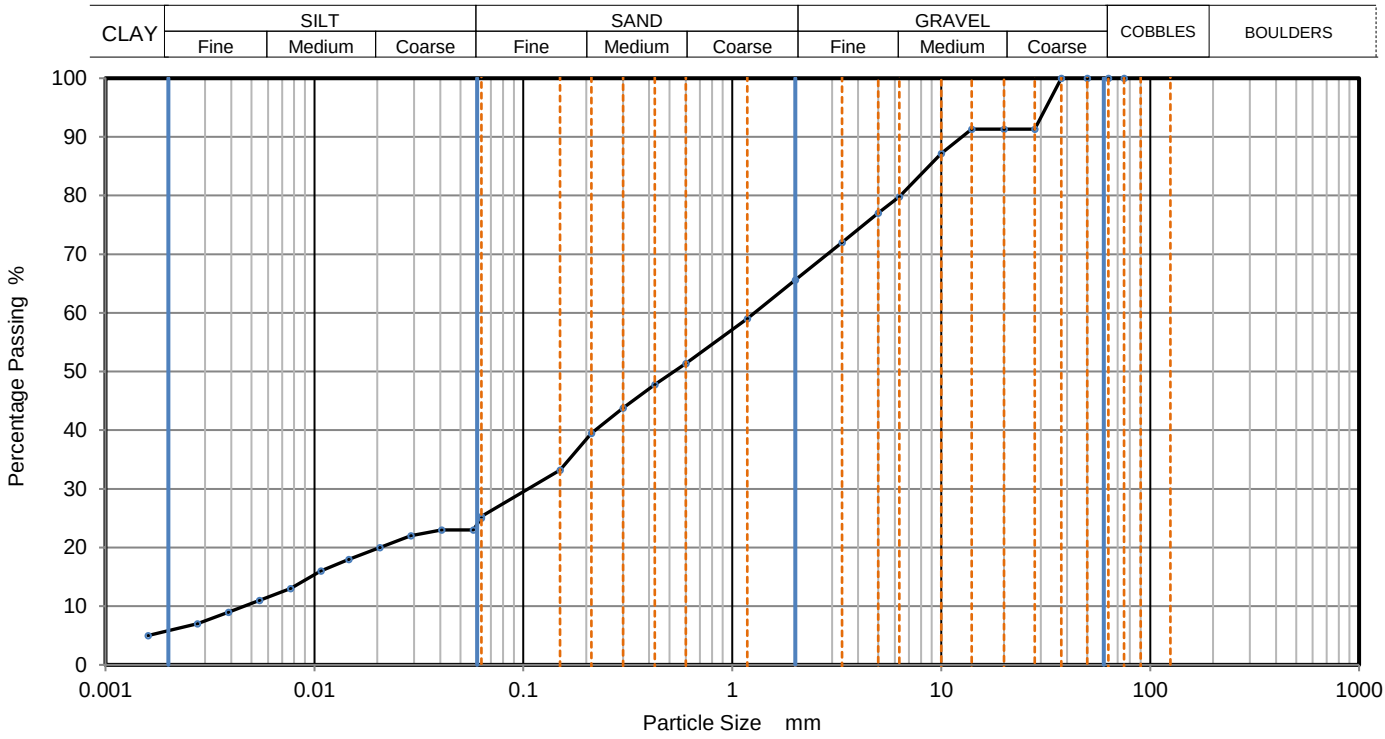
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54611
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very gravelly SAND.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111632



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0575	23
75	100	0.0407	23
63	100	0.0289	22
50	100	0.0206	20
37.5	100	0.0146	18
28	91	0.0107	16
20	91	0.0077	13
14	91	0.0055	11
10	87	0.0039	9
6.3	80	0.0028	7
5	77	0.0016	5
3.35	72		
2	66		
1.18	59		
0.6	51	Particle density (assumed)	
0.425	48	2.65 Mg/m3	
0.3	44		
0.212	40		
0.15	33		
0.063	25		

Dry Mass of sample, g	545

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	40
Silt	19
Clay	6

Grading Analysis		
D100	mm	
D60	mm	1.28
D30	mm	0.105
D10	mm	0.00465
Uniformity Coefficient		270
Curvature Coefficient		1.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:44	**1** QC From No:R2

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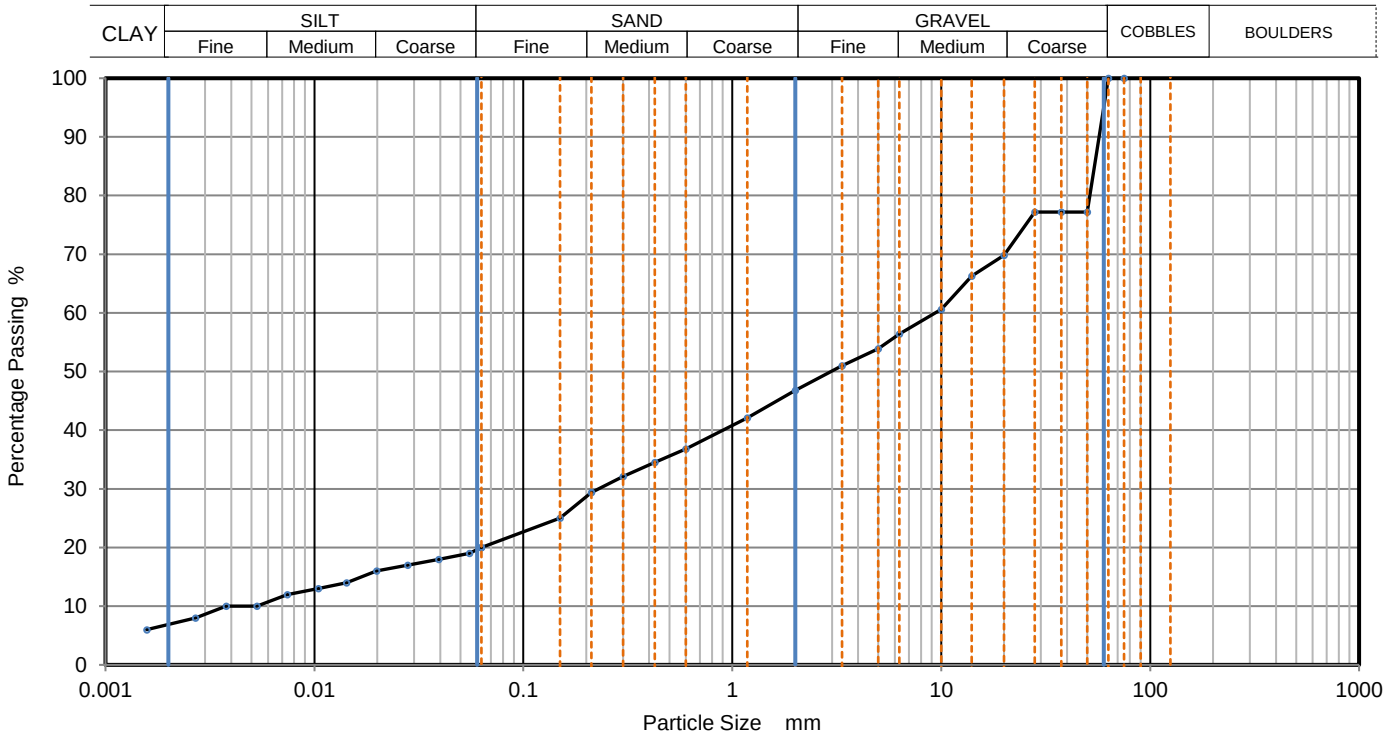
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54611
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very silty very sandy coarse GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111634



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	20
		0.0552	19
75	100	0.0393	18
63	100	0.0280	17
50	77	0.0199	16
37.5	77	0.0142	14
28	77	0.0104	13
20	70	0.0074	12
14	66	0.0053	10
10	61	0.0038	10
6.3	56	0.0027	8
5	54	0.0016	6
3.35	51		
2	47		
1.18	42		
0.6	37	Particle density	(assumed)
0.425	35	2.65	Mg/m3
0.3	32		
0.212	29		
0.15	25		
0.063	20		

Dry Mass of sample, g	791

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	27
Silt	13
Clay	7

Grading Analysis		
D100	mm	
D60	mm	9.36
D30	mm	0.23
D10	mm	0.00448
Uniformity Coefficient		2100
Curvature Coefficient		1.3

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	27/09/2022 17:21	**1** QC From No:R2

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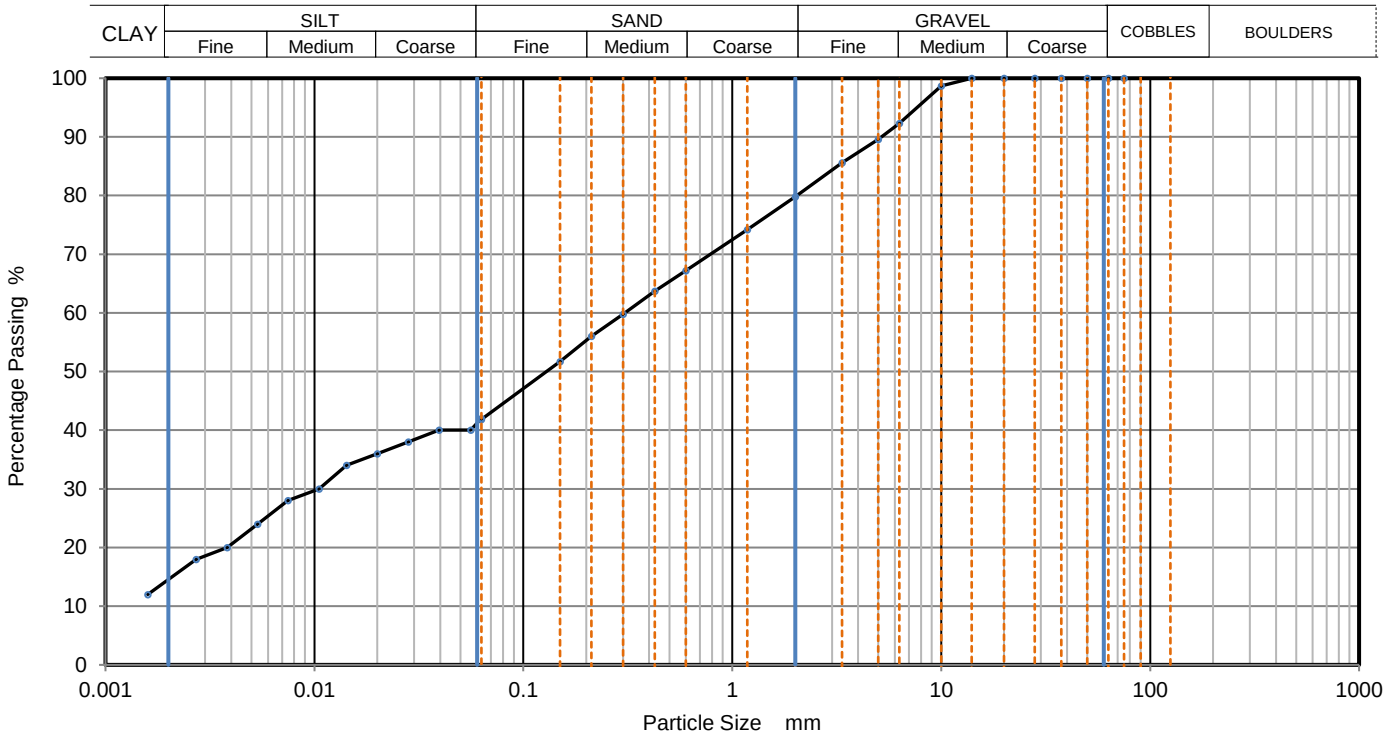
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54710
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111636



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0559	40
75	100	0.0395	40
63	100	0.0281	38
50	100	0.0200	36
37.5	100	0.0142	34
28	100	0.0105	30
20	100	0.0075	28
14	100	0.0053	24
10	99	0.0038	20
6.3	92	0.0027	18
5	90	0.0016	12
3.35	86		
2	80		
1.18	74		
0.6	67	Particle density (assumed)	
0.425	64	2.65 Mg/m3	
0.3	60		
0.212	56		
0.15	52		
0.063	42		

Dry Mass of sample, g	240

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	38
Silt	27
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.305
D30	mm	0.0106
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

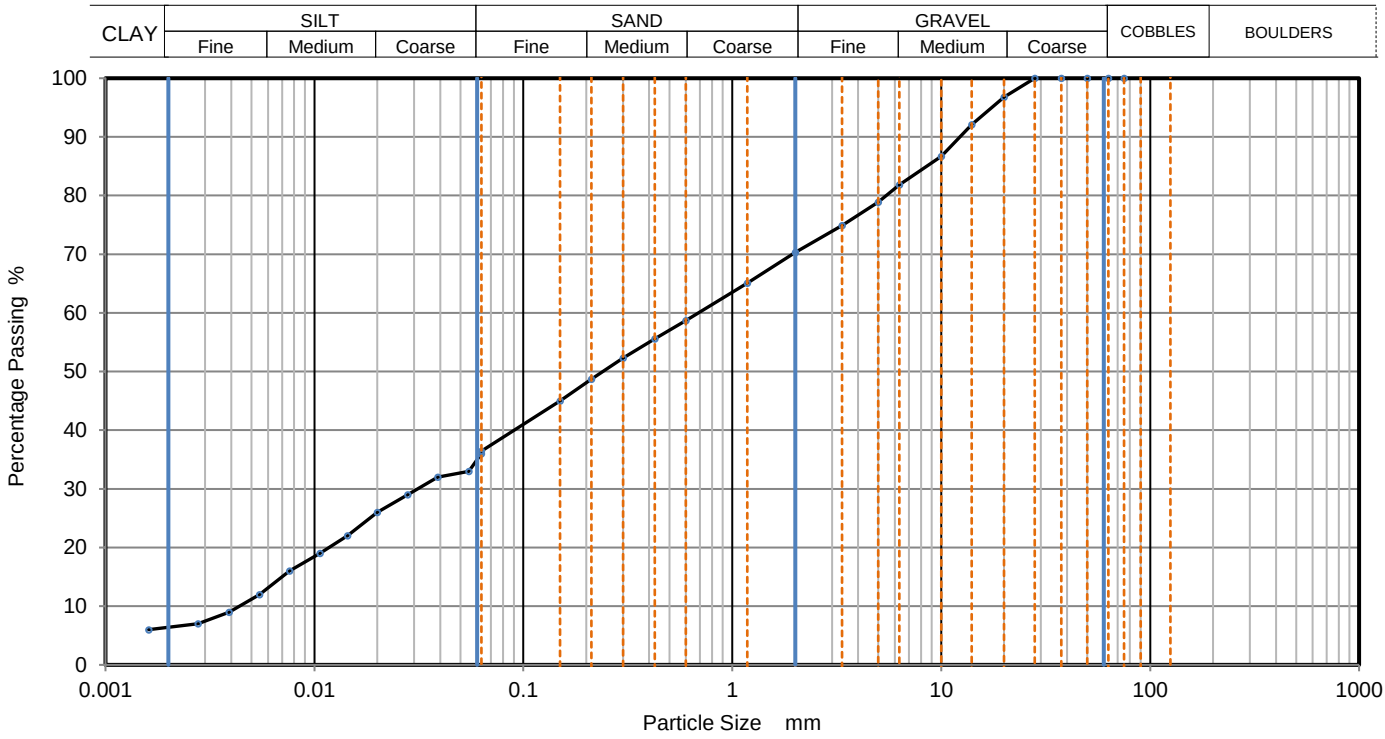
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:44	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54809
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111638



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0548	33
75	100	0.0390	32
63	100	0.0279	29
50	100	0.0200	26
37.5	100	0.0144	22
28	100	0.0106	19
20	97	0.0076	16
14	92	0.0055	12
10	87	0.0039	9
6.3	82	0.0028	7
5	79	0.0016	6
3.35	75		
2	70		
1.18	65		
0.6	59	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	52		
0.212	49		
0.15	45		
0.063	36		

Dry Mass of sample, g	255

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	34
Silt	30
Clay	6

Grading Analysis		
D100	mm	
D60	mm	0.689
D30	mm	0.0309
D10	mm	0.00451
Uniformity Coefficient		150
Curvature Coefficient		0.31

Remarks

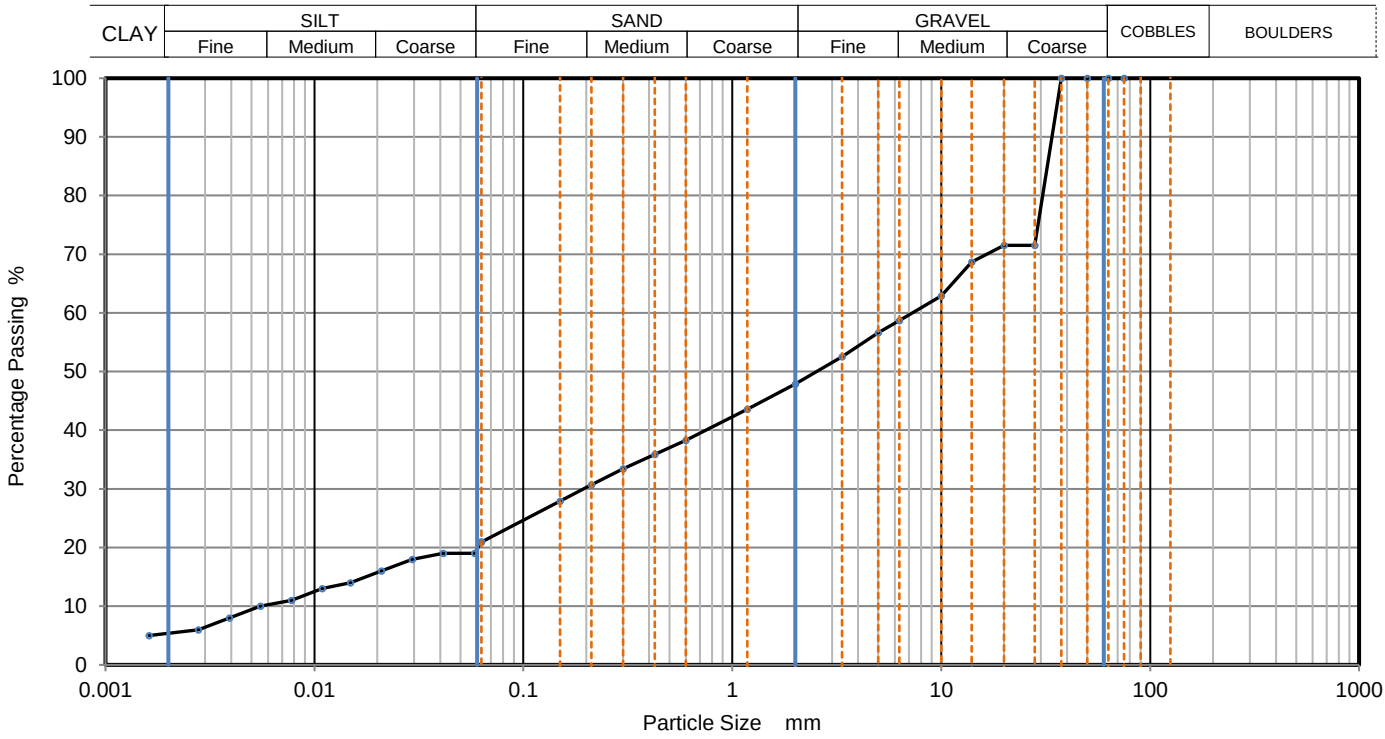
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:44	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-54922
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy coarse GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111644



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0585	19
75	100	0.0414	19
63	100	0.0294	18
50	100	0.0209	16
37.5	100	0.0149	14
28	72	0.0109	13
20	72	0.0078	11
14	69	0.0055	10
10	63	0.0039	8
6.3	59	0.0028	6
5	57	0.0016	5
3.35	53		
2	48		
1.18	44		
0.6	38	Particle density (assumed)	
0.425	36	2.65 Mg/m3	
0.3	33		
0.212	31		
0.15	28		
0.063	21		

Dry Mass of sample, g	264

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	27
Silt	15
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.27
D_{30}	mm	0.195
D_{10}	mm	0.00594
Uniformity Coefficient		1200
Curvature Coefficient		0.88

Remarks

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		Dympna Darcy B.Sc.	20/10/2022 16:47	**1** QC From No:R2

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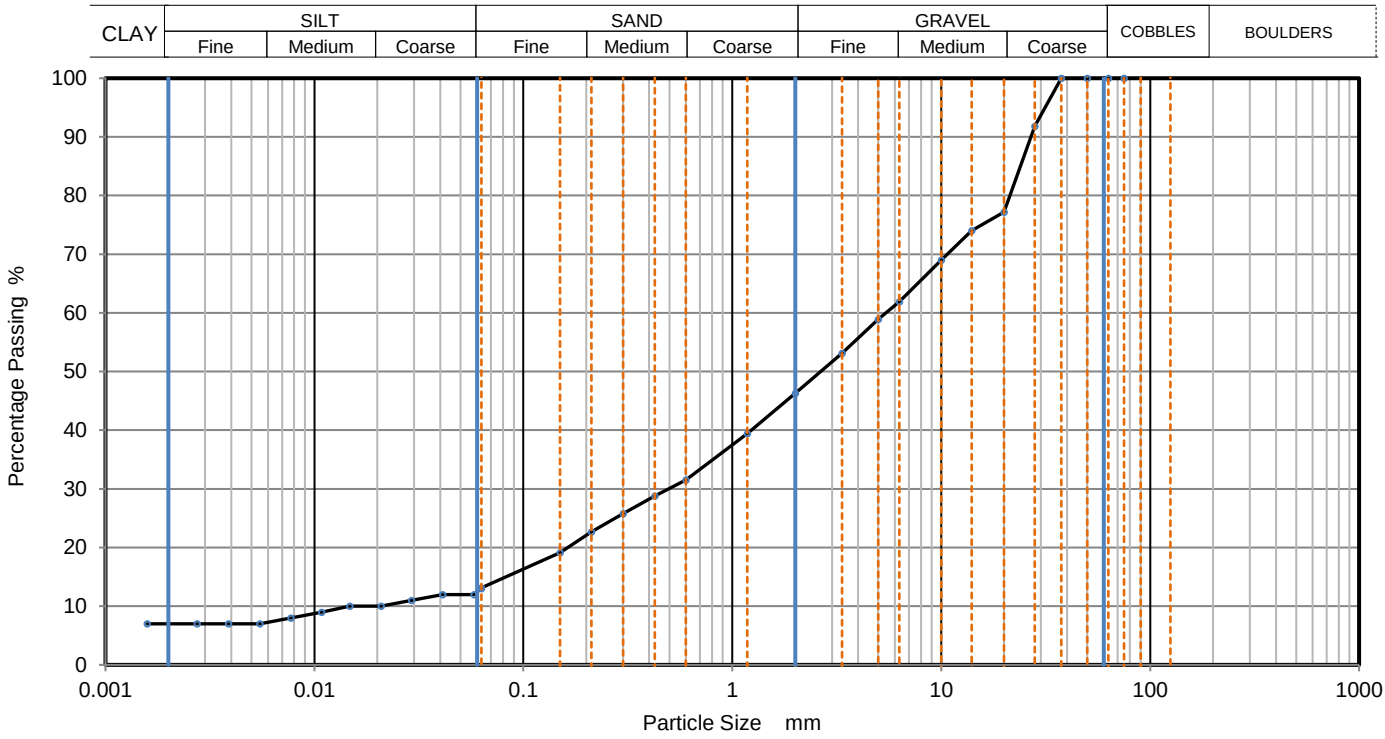
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55008
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light grey silty very sandy coarse GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111648



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0581	12
75	100	0.0411	12
63	100	0.0292	11
50	100	0.0209	10
37.5	100	0.0148	10
28	92	0.0108	9
20	77	0.0077	8
14	74	0.0055	7
10	69	0.0039	7
6.3	62	0.0027	7
5	59	0.0016	7
3.35	53		
2	46		
1.18	39		
0.6	32	Particle density (assumed)	
0.425	29	2.65 Mg/m3	
0.3	26		
0.212	23		
0.15	19		
0.063	13		

Dry Mass of sample, g	865

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	33
Silt	6
Clay	7

Grading Analysis		
D100	mm	
D60	mm	5.43
D30	mm	0.496
D10	mm	0.0225
Uniformity Coefficient		240
Curvature Coefficient		2

Remarks

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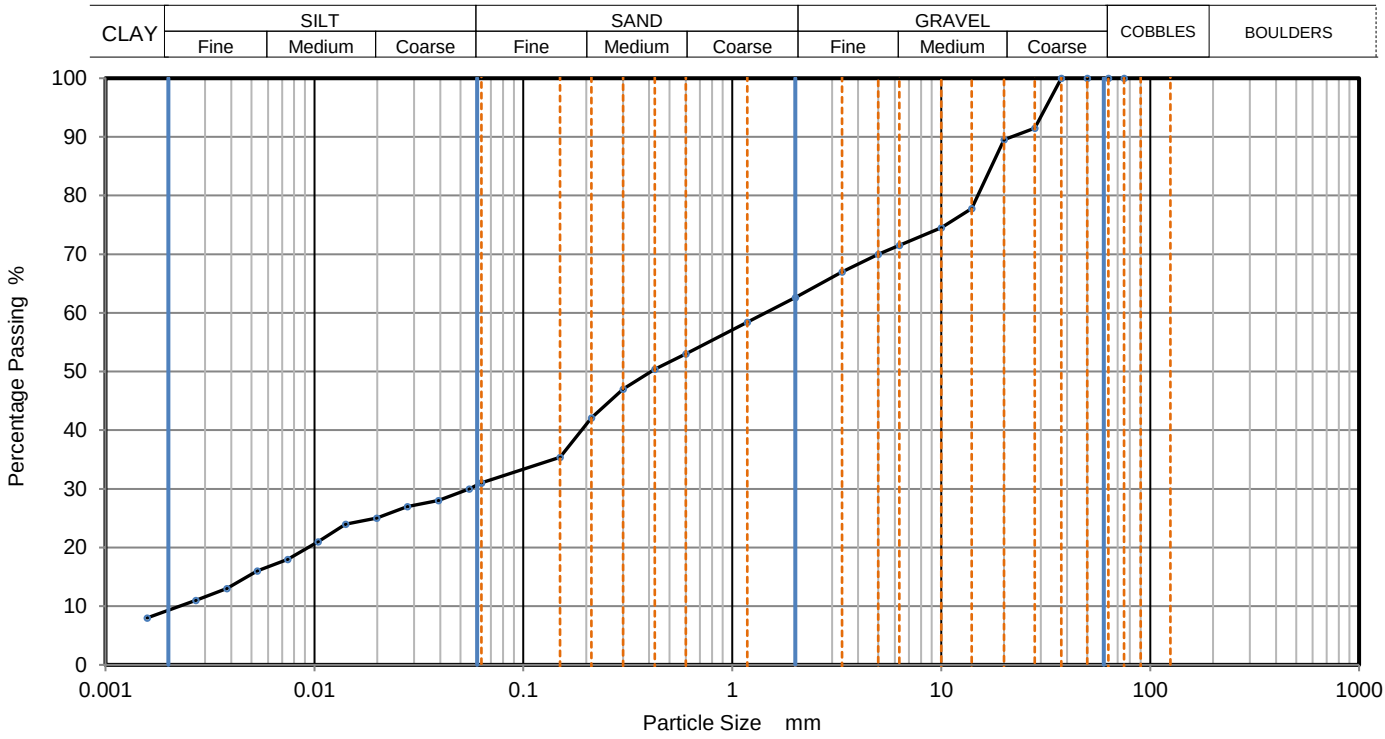
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:44	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55109
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Cream very silty SAND and GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111653



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0551	30
75	100	0.0392	28
63	100	0.0279	27
50	100	0.0198	25
37.5	100	0.0141	24
28	92	0.0104	21
20	90	0.0075	18
14	78	0.0053	16
10	75	0.0038	13
6.3	72	0.0027	11
5	70	0.0016	8
3.35	67		
2	63		
1.18	58		
0.6	53	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	47		
0.212	42		
0.15	35		
0.063	31		

Dry Mass of sample, g	537

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	32
Silt	21
Clay	10

Grading Analysis		
D100	mm	
D60	mm	1.44
D30	mm	0.0573
D10	mm	0.00212
Uniformity Coefficient		680
Curvature Coefficient		1.1

Remarks

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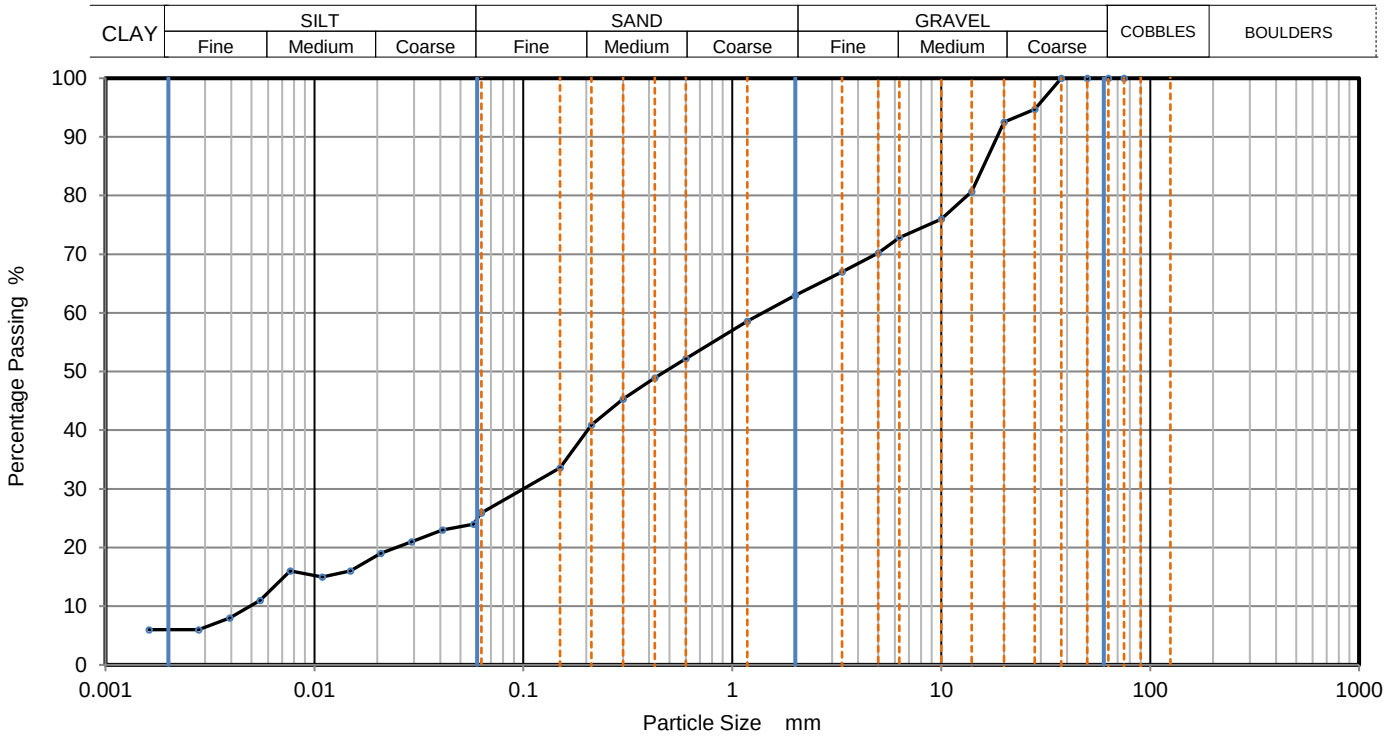
		Dympna Darcy B.Sc.	25/11/2022 14:45	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55109
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark brown very silty SAND and GRAVEL. Gravel is predominantly medium.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111655



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0577	24
75	100	0.0411	23
63	100	0.0292	21
50	100	0.0208	19
37.5	100	0.0148	16
28	95	0.0109	15
20	93	0.0077	16
14	81	0.0055	11
10	76	0.0039	8
6.3	73	0.0028	6
5	70	0.0016	6
3.35	67		
2	63		
1.18	59		
0.6	52	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	45		
0.212	41		
0.15	34		
0.063	26		

Dry Mass of sample, g	622

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	37
Silt	19
Clay	7

Grading Analysis		
D100	mm	
D60	mm	1.4
D30	mm	0.0999
D10	mm	0.00479
Uniformity Coefficient		290
Curvature Coefficient		1.5

Remarks

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		Dympna Darcy B.Sc.	25/11/2022 14:45	**1** QC From No:R2

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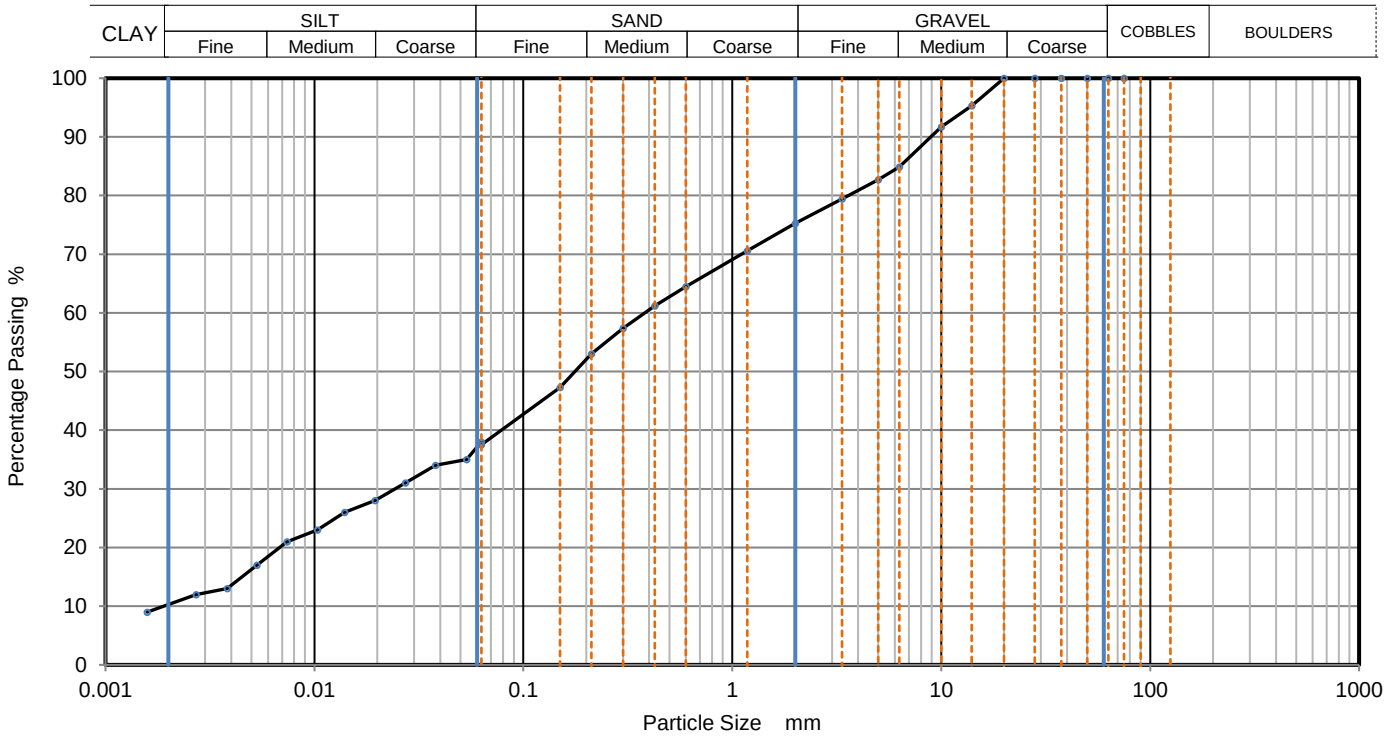
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55207
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111657



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0534	35
75	100	0.0380	34
63	100	0.0272	31
50	100	0.0195	28
37.5	100	0.0140	26
28	100	0.0103	23
20	100	0.0074	21
14	95	0.0053	17
10	92	0.0038	13
6.3	85	0.0027	12
5	83	0.0016	9
3.35	79		
2	75		
1.18	71		
0.6	65	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	57		
0.212	53		
0.15	47		
0.063	38		

Dry Mass of sample, g	644

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	38
Silt	27
Clay	10

Grading Analysis		
D100	mm	
D60	mm	0.38
D30	mm	0.0238
D10	mm	0.00193
Uniformity Coefficient		200
Curvature Coefficient		0.77

Remarks

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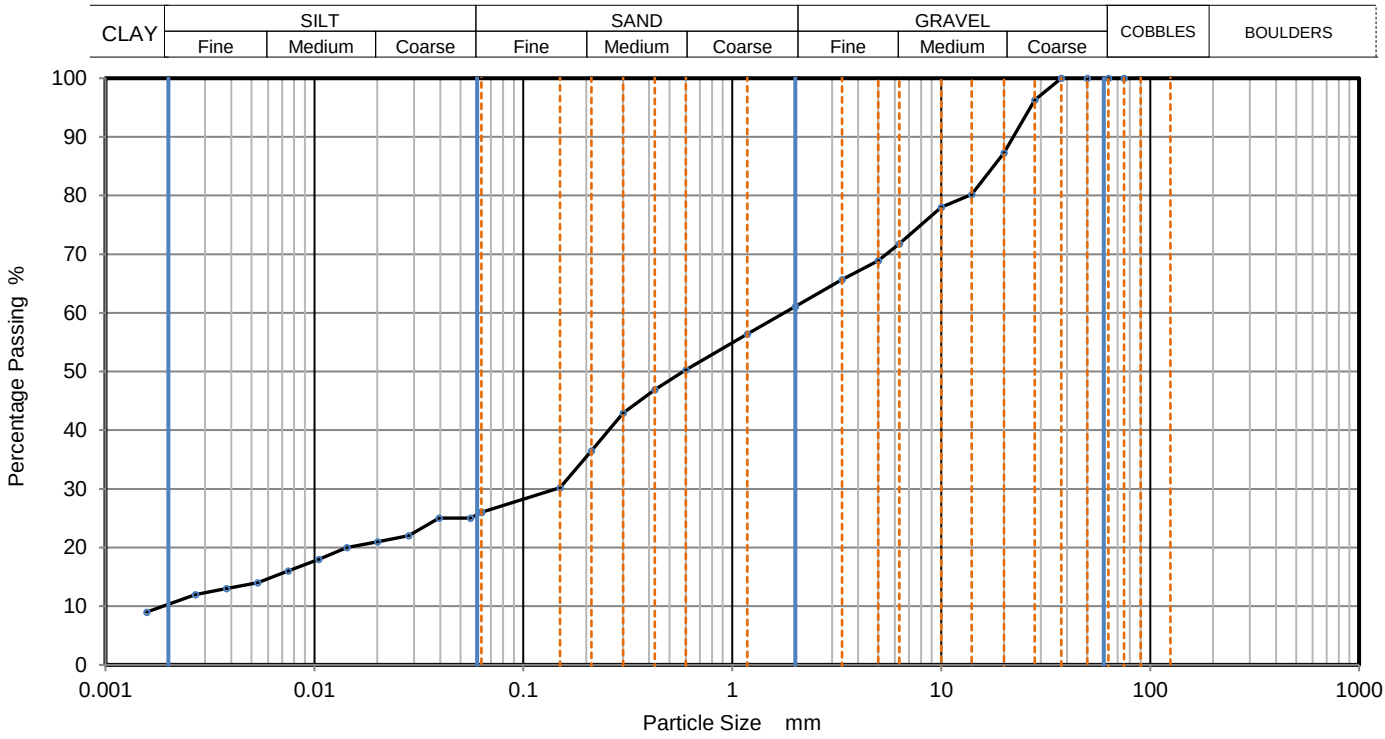
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55207
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111661



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0558	25
75	100	0.0395	25
63	100	0.0283	22
50	100	0.0201	21
37.5	100	0.0143	20
28	96	0.0105	18
20	87	0.0075	16
14	80	0.0053	14
10	78	0.0038	13
6.3	72	0.0027	12
5	69	0.0016	9
3.35	66		
2	61		
1.18	56		
0.6	50	Particle density (assumed)	
0.425	47	2.65	Mg/m3
0.3	43		
0.212	37		
0.15	30		
0.063	26		

Dry Mass of sample, g	803

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	35
Silt	16
Clay	10

Grading Analysis		
D100	mm	
D60	mm	1.77
D30	mm	0.143
D10	mm	0.0019
Uniformity Coefficient		930
Curvature Coefficient		6.1

Remarks

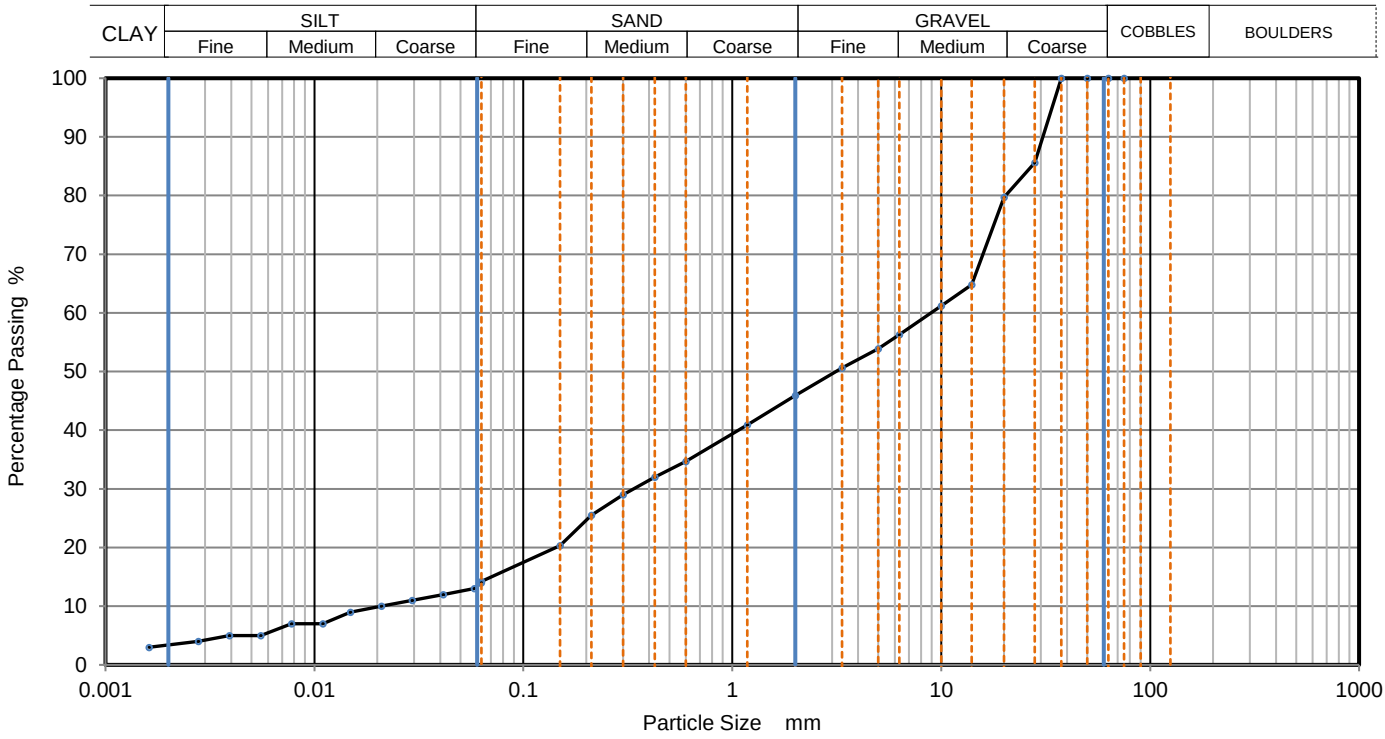
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:45	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55310
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown silty very sandy medium and coarse GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111664



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	14
		0.0582	13
75	100	0.0414	12
63	100	0.0294	11
50	100	0.0209	10
37.5	100	0.0149	9
28	86	0.0110	7
20	80	0.0078	7
14	65	0.0055	5
10	61	0.0039	5
6.3	56	0.0028	4
5	54	0.0016	3
3.35	51		
2	46		
1.18	41		
0.6	35	Particle density (assumed)	
0.425	32	2.65 Mg/m3	
0.3	29		
0.212	26		
0.15	20		
0.063	14		

Dry Mass of sample, g	896

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	32
Silt	11
Clay	3

Grading Analysis		
D100	mm	
D60	mm	8.93
D30	mm	0.338
D10	mm	0.0199
Uniformity Coefficient		450
Curvature Coefficient		0.64

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:45	**1** QC From No:R2

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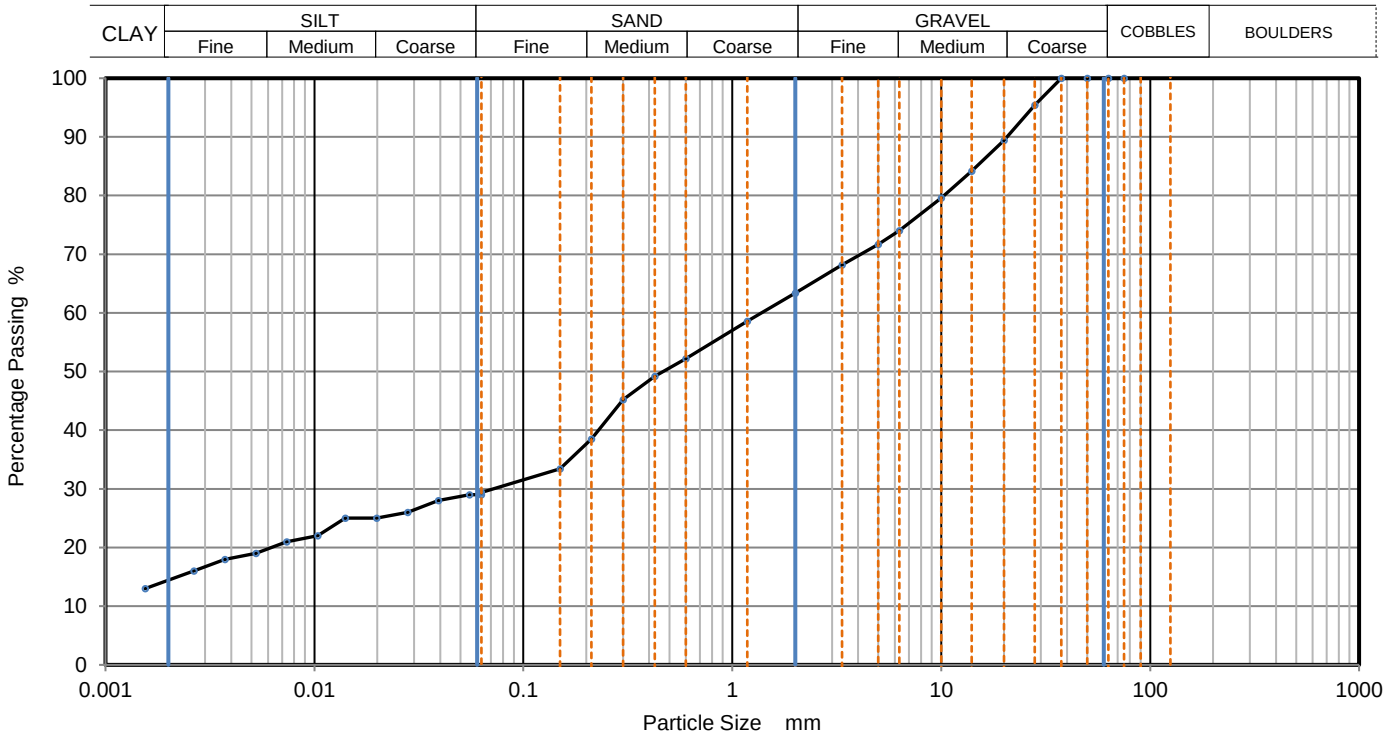
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55310
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Cream very silty SAND and GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111666



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0552	29
75	100	0.0392	28
63	100	0.0279	26
50	100	0.0199	25
37.5	100	0.0140	25
28	95	0.0104	22
20	89	0.0074	21
14	84	0.0052	19
10	80	0.0037	18
6.3	74	0.0027	16
5	72	0.0015	13
3.35	68		
2	63		
1.18	59		
0.6	52	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	45		
0.212	39		
0.15	33		
0.063	29		

Dry Mass of sample, g	1074

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	34
Silt	15
Clay	15

Grading Analysis		
D100	mm	
D60	mm	1.37
D30	mm	0.0721
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:45	**1** QC From No:R2

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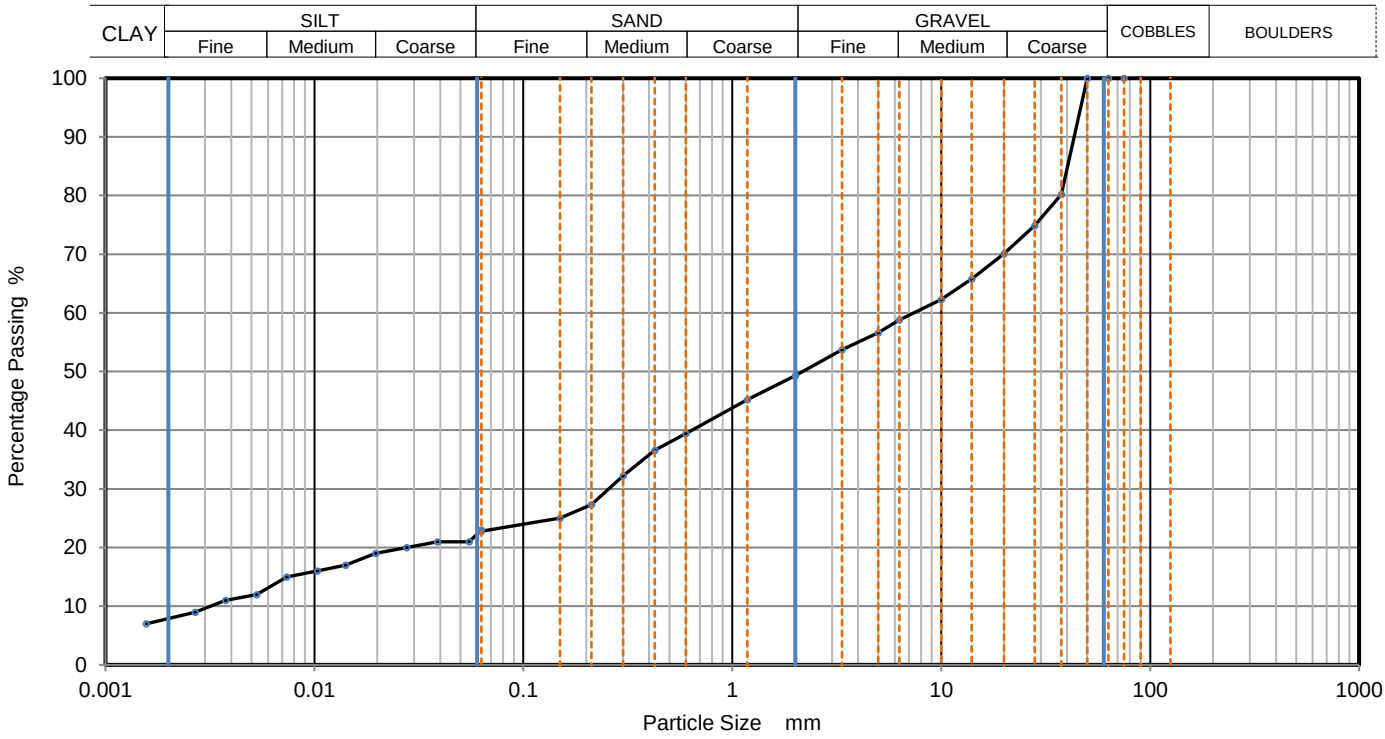
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55409
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty very sandy coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111668



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	23
		0.0550	21
75	100	0.0389	21
63	100	0.0277	20
50	100	0.0197	19
37.5	80	0.0141	17
28	75	0.0103	16
20	70	0.0074	15
14	66	0.0053	12
10	62	0.0038	11
6.3	59	0.0027	9
5	57	0.0016	7
3.35	54		
2	49		
1.18	45		
0.6	39	Particle density (assumed)	
0.425	37	2.65 Mg/m3	
0.3	32		
0.212	27		
0.15	25		
0.063	23		

Dry Mass of sample, g	803

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	27
Silt	15
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.34
D_{30}	mm	0.257
D_{10}	mm	0.00323
Uniformity Coefficient		2300
Curvature Coefficient		2.8

Remarks

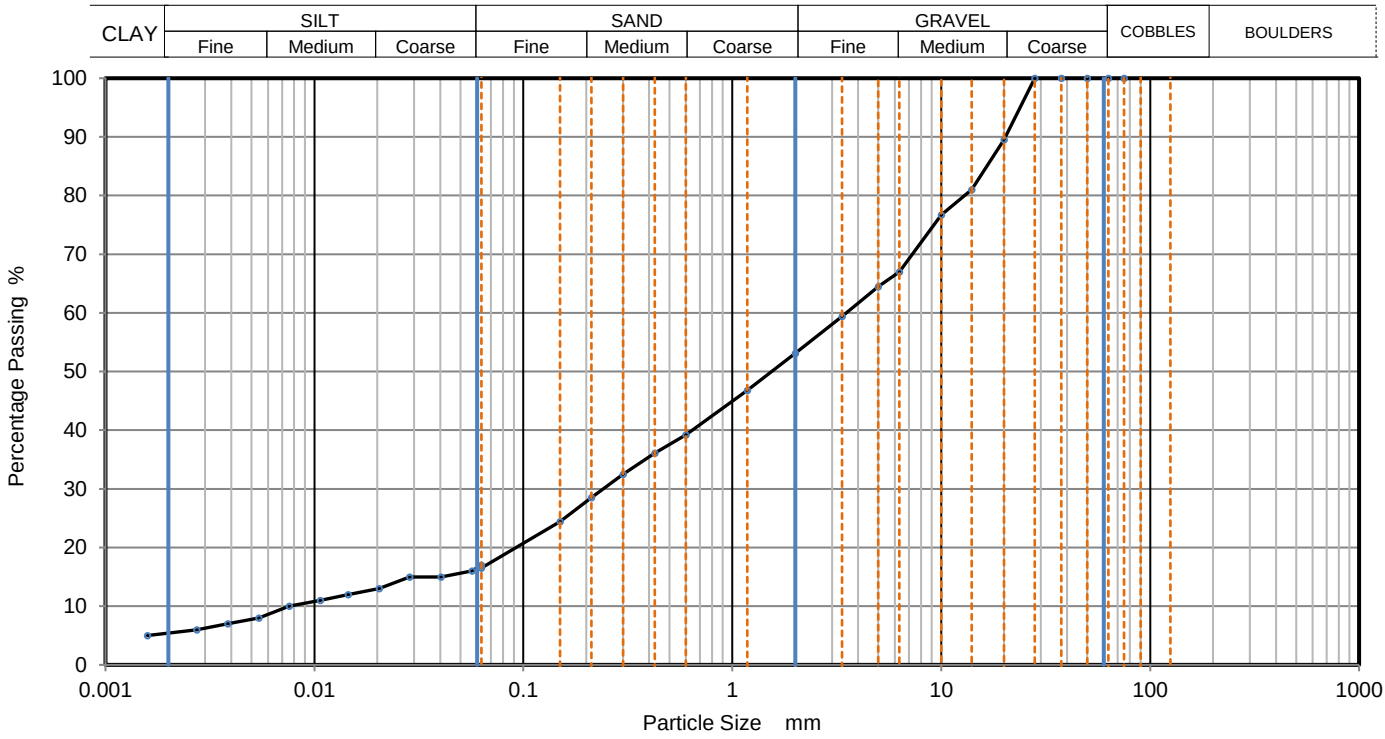
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/10/2022 15:24	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55409
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy medium GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111670



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	17
		0.0568	16
75	100	0.0404	15
63	100	0.0285	15
50	100	0.0204	13
37.5	100	0.0145	12
28	100	0.0107	11
20	90	0.0076	10
14	81	0.0054	8
10	77	0.0039	7
6.3	67	0.0027	6
5	65	0.0016	5
3.35	59		
2	53		
1.18	47		
0.6	39	Particle density (assumed)	
0.425	36	2.65 Mg/m3	
0.3	33		
0.212	29		
0.15	24		
0.063	17		

Dry Mass of sample, g	650

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	37
Silt	11
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.52
D_{30}	mm	0.241
D_{10}	mm	0.0084
Uniformity Coefficient		420
Curvature Coefficient		2

Remarks

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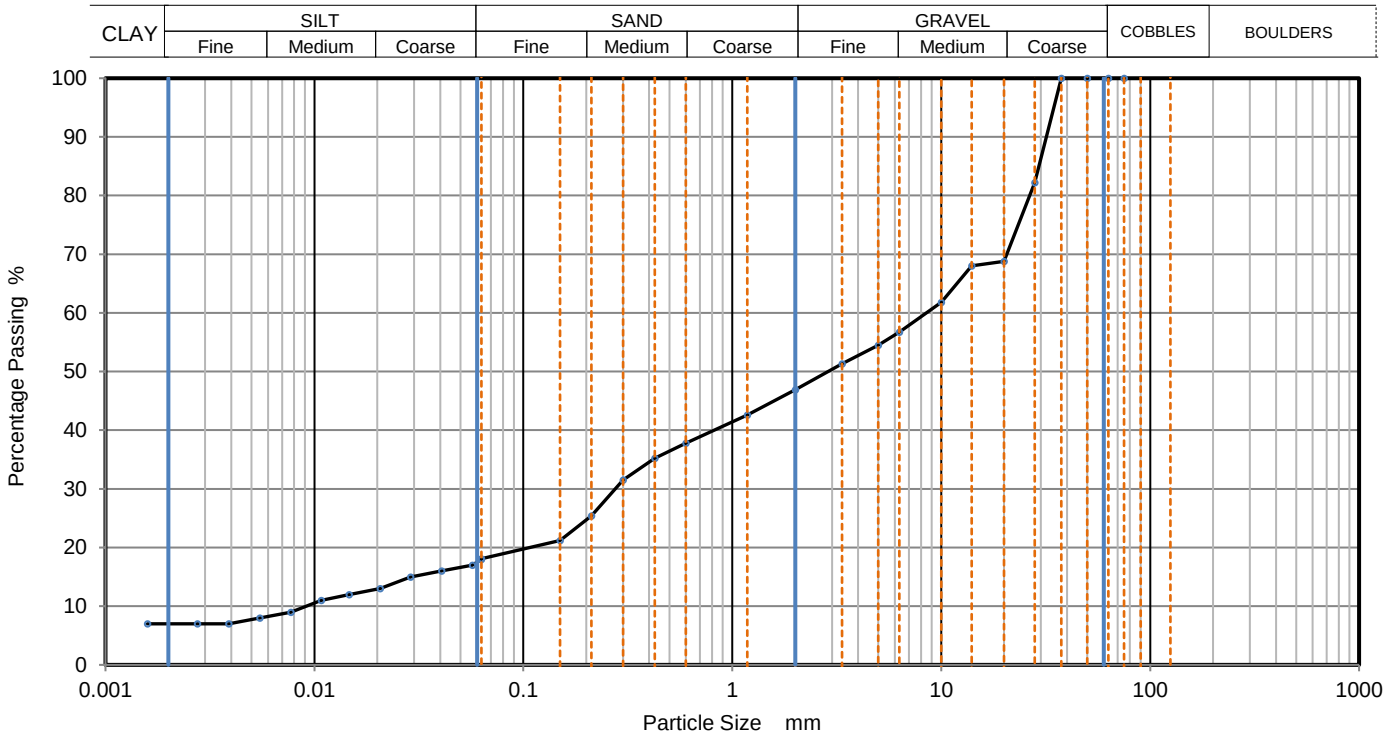
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55510
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111672



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0571	17
75	100	0.0406	16
63	100	0.0289	15
50	100	0.0206	13
37.5	100	0.0147	12
28	82	0.0108	11
20	69	0.0077	9
14	68	0.0055	8
10	62	0.0039	7
6.3	57	0.0028	7
5	55	0.0016	7
3.35	51		
2	47		
1.18	43		
0.6	38	Particle density (assumed)	
0.425	35	2.65	Mg/m3
0.3	32		
0.212	25		
0.15	21		
0.063	18		

Dry Mass of sample, g	695

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	29
Silt	11
Clay	7

Grading Analysis		
D100	mm	
D60	mm	8.46
D30	mm	0.276
D10	mm	0.00903
Uniformity Coefficient		940
Curvature Coefficient		1

Remarks

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		Dympna Darcy B.Sc.	25/11/2022 14:45	**1** QC From No:R2

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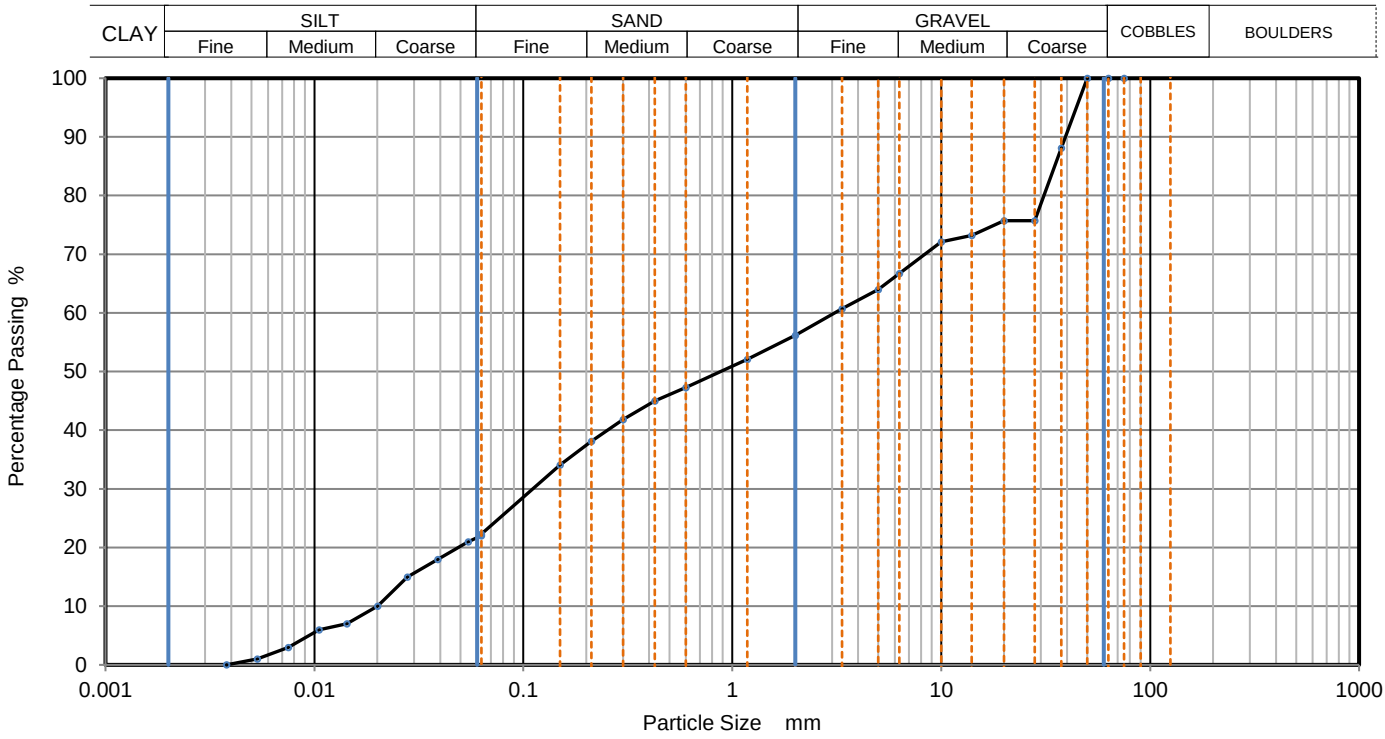
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55612
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light cream very silty very sandy coarse GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111676



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0545	21
75	100	0.0390	18
63	100	0.0279	15
50	100	0.0200	10
37.5	88	0.0143	7
28	76	0.0105	6
20	76	0.0075	3
14	73	0.0053	1
10	72	0.0038	0
6.3	67		
5	64		
3.35	61		
2	56		
1.18	52		
0.6	47	Particle density (assumed)	
0.425	45	2.65	Mg/m3
0.3	42		
0.212	38		
0.15	34		
0.063	22		

Dry Mass of sample, g	756

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	34
Fines <0.063mm	22

Grading Analysis		
D100	mm	
D60	mm	3.09
D30	mm	0.111
D10	mm	0.0191
Uniformity Coefficient		160
Curvature Coefficient		0.21

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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		Dympna Darcy B.Sc.	25/11/2022 14:45	**1** QC From No:R2

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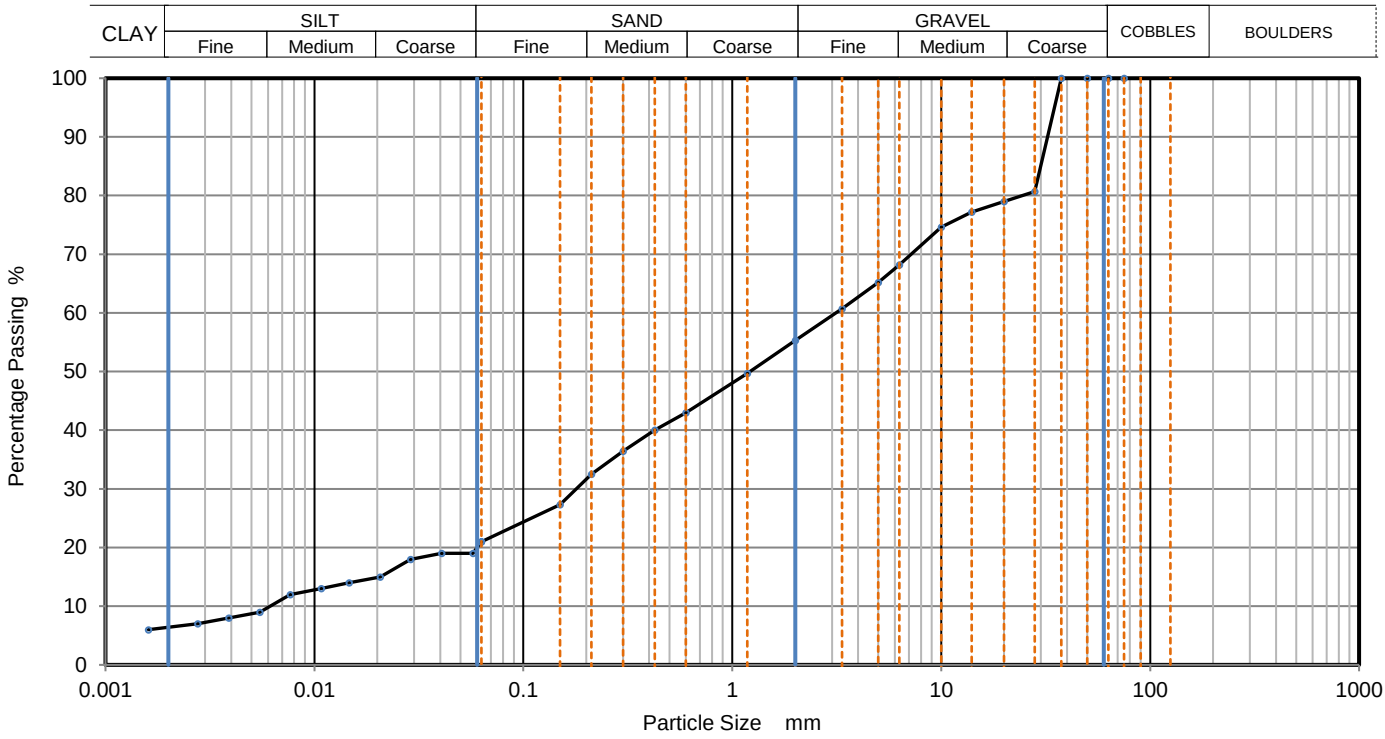
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55711
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark grey very silty very sandy coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111678



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0574	19
75	100	0.0406	19
63	100	0.0289	18
50	100	0.0206	15
37.5	100	0.0147	14
28	81	0.0108	13
20	79	0.0077	12
14	77	0.0055	9
10	75	0.0039	8
6.3	68	0.0028	7
5	65	0.0016	6
3.35	61		
2	55		
1.18	50		
0.6	43	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	36		
0.212	33		
0.15	27		
0.063	21		

Dry Mass of sample, g	685

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	34
Silt	15
Clay	6

Grading Analysis		
D100	mm	
D60	mm	3.14
D30	mm	0.179
D10	mm	0.00603
Uniformity Coefficient		520
Curvature Coefficient		1.7

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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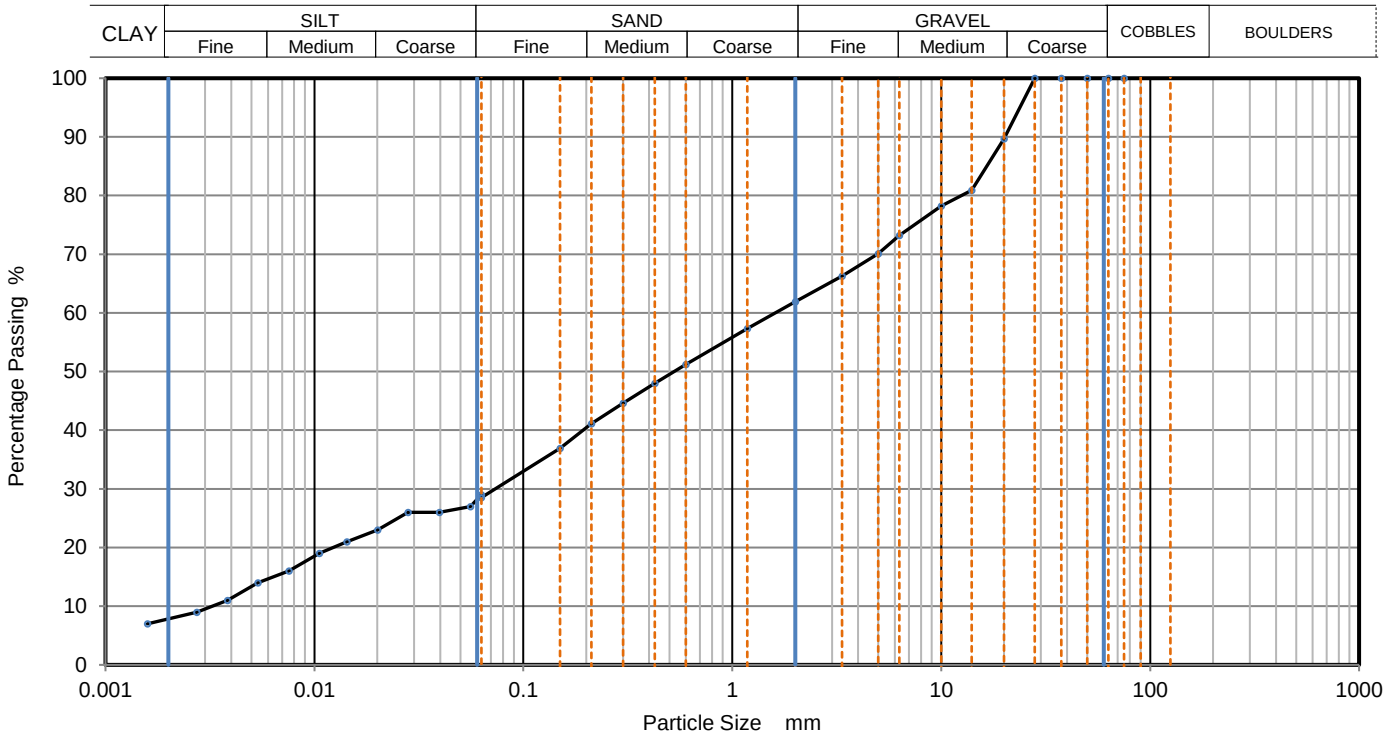
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55711
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light grey very silty sandy GRAVEL.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111680



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0558	27
75	100	0.0397	26
63	100	0.0281	26
50	100	0.0201	23
37.5	100	0.0143	21
28	100	0.0105	19
20	90	0.0075	16
14	81	0.0054	14
10	78	0.0038	11
6.3	73	0.0027	9
5	70	0.0016	7
3.35	66		
2	62		
1.18	57		
0.6	51	Particle density (assumed)	
0.425	48	2.65	Mg/m3
0.3	45		
0.212	41		
0.15	37		
0.063	29		

Dry Mass of sample, g	818

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	33
Silt	21
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.61
D_{30}	mm	0.0733
D_{10}	mm	0.00325
Uniformity Coefficient		490
Curvature Coefficient		1

Remarks

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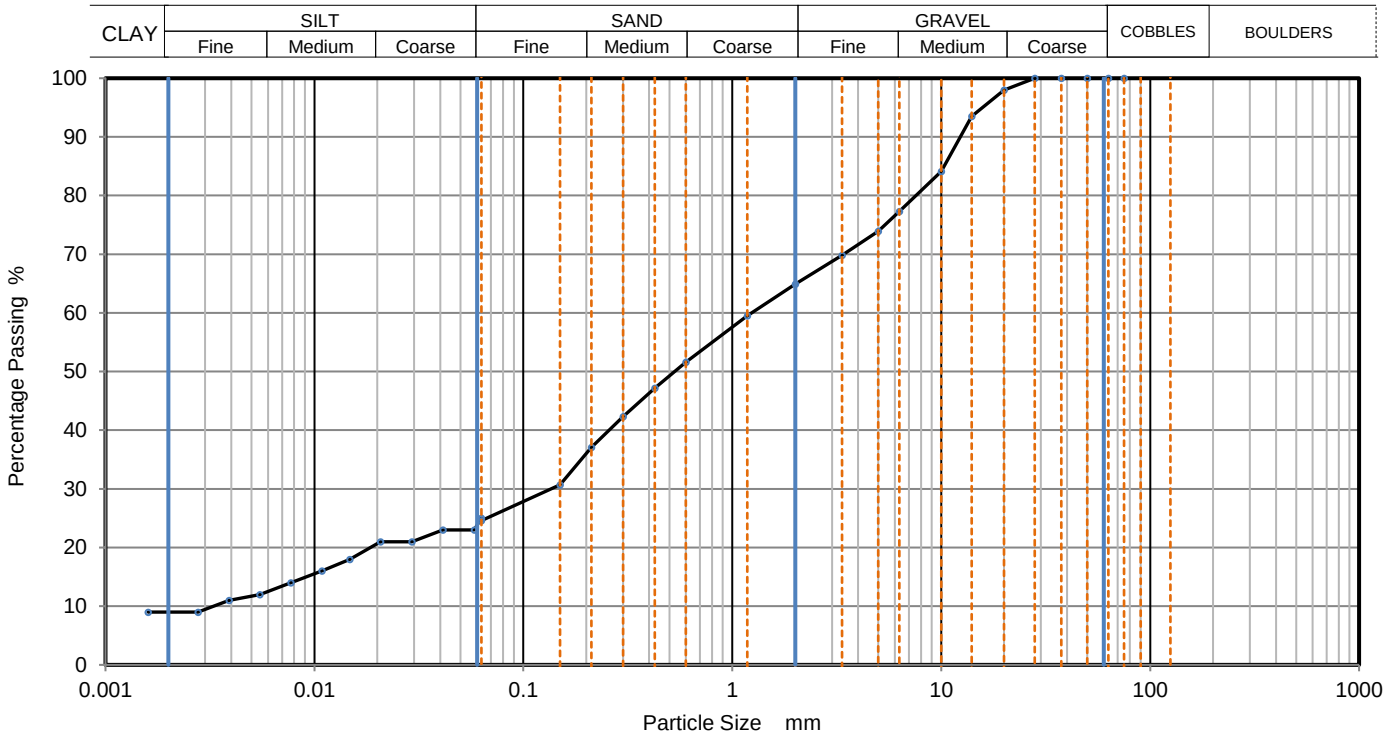
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55806
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey very silty SAND and GRAVEL. Gravel is medium.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111685



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0582	23
75	100	0.0411	23
63	100	0.0292	21
50	100	0.0207	21
37.5	100	0.0148	18
28	100	0.0109	16
20	98	0.0077	14
14	94	0.0055	12
10	84	0.0039	11
6.3	77	0.0028	9
5	74	0.0016	9
3.35	70		
2	65		
1.18	60		
0.6	52	Particle density (assumed)	
0.425	47	2.65 Mg/m3	
0.3	42		
0.212	37		
0.15	31		
0.063	25		

Dry Mass of sample, g	537

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	40
Silt	16
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.24
D_{30}	mm	0.135
D_{10}	mm	0.00351
Uniformity Coefficient		350
Curvature Coefficient		4.2

Remarks

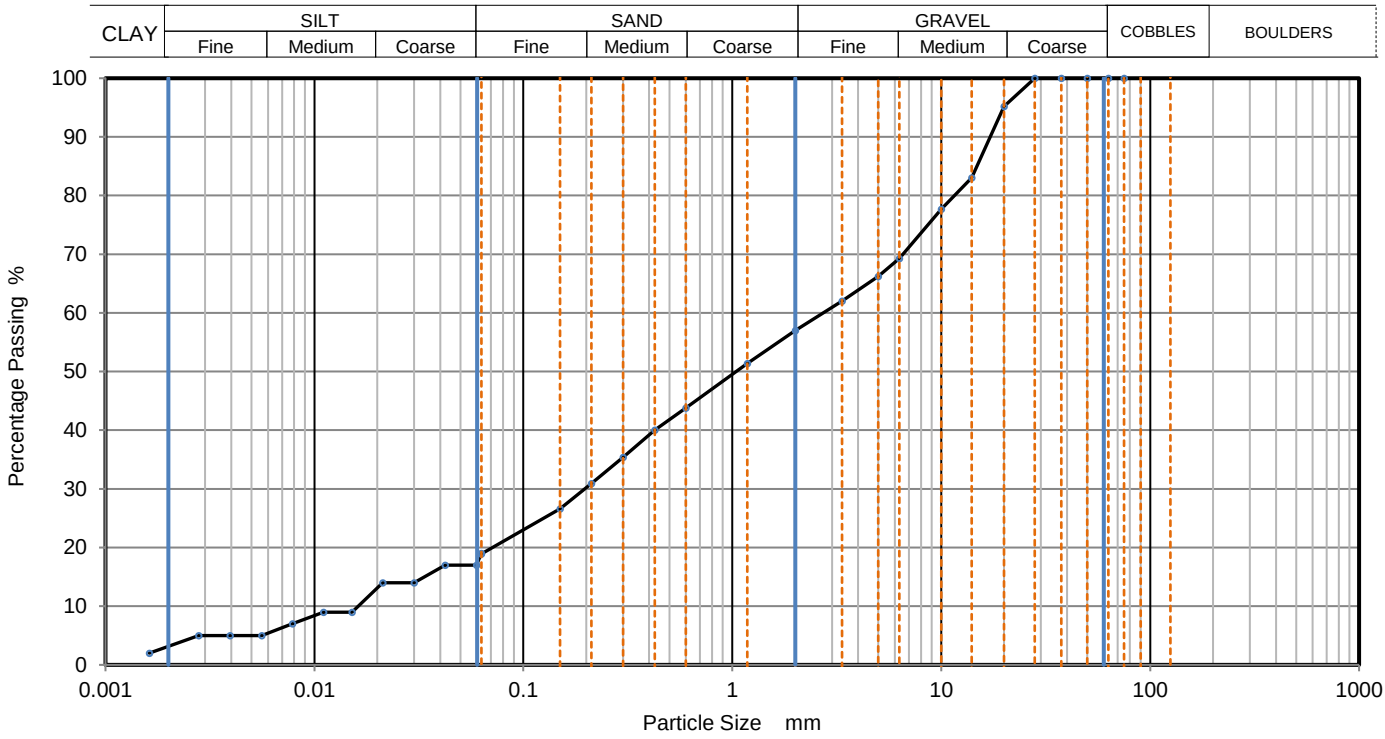
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/10/2022 15:24	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-55806
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Dark grey silty very sandy medium GRAVEL.	Depth, m	1.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021111687



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	19
		0.0597	17
75	100	0.0422	17
63	100	0.0300	14
50	100	0.0212	14
37.5	100	0.0151	9
28	100	0.0111	9
20	95	0.0079	7
14	83	0.0056	5
10	78	0.0040	5
6.3	69	0.0028	5
5	66	0.0016	2
3.35	62		
2	57		
1.18	51		
0.6	44	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	35		
0.212	31		
0.15	27		
0.063	19		

Dry Mass of sample, g	473

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	38
Silt	16
Clay	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.74
D_{30}	mm	0.197
D_{10}	mm	0.0158
Uniformity Coefficient		170
Curvature Coefficient		0.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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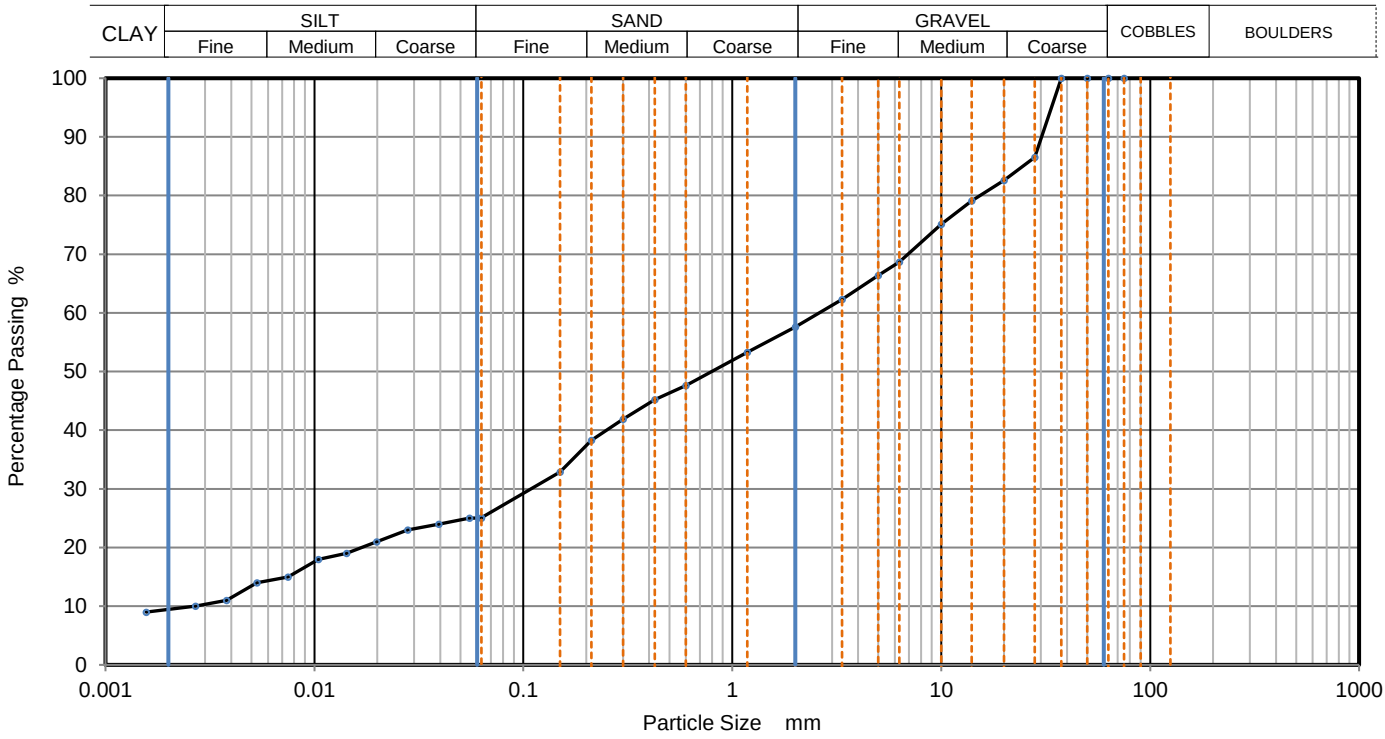
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55897
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey very silty very sandy GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111692



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0552	25
75	100	0.0393	24
63	100	0.0280	23
50	100	0.0199	21
37.5	100	0.0142	19
28	87	0.0104	18
20	83	0.0075	15
14	79	0.0053	14
10	75	0.0038	11
6.3	69	0.0027	10
5	66	0.0016	9
3.35	62		
2	58		
1.18	53		
0.6	48	Particle density (assumed)	
0.425	45	2.65 Mg/m3	
0.3	42		
0.212	38		
0.15	33		
0.063	25		

Dry Mass of sample, g	796

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	33
Silt	16
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.61
D_{30}	mm	0.109
D_{10}	mm	0.00265
Uniformity Coefficient		980
Curvature Coefficient		1.7

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/10/2022 15:24	**1** QC From No:R2

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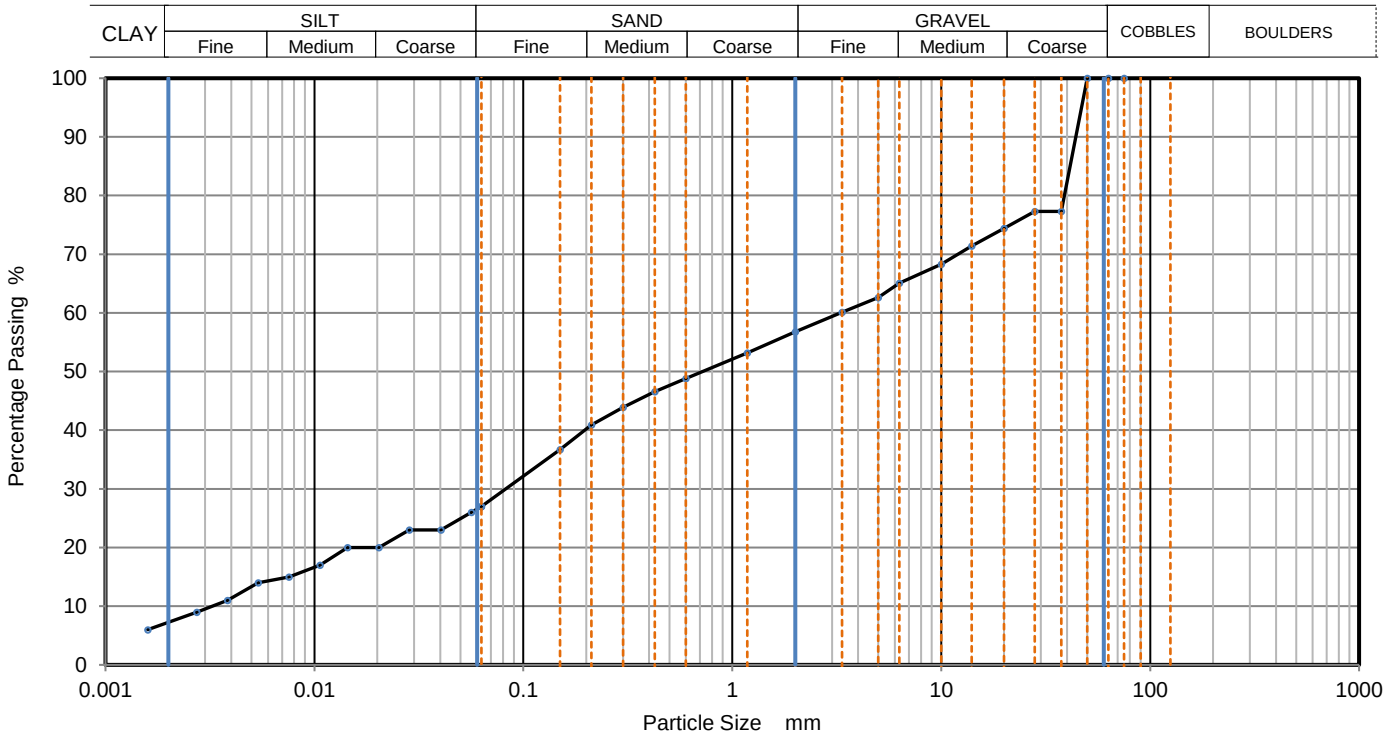
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-55897
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark grey very silty very sandy coarse GRAVEL.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021111694



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0563	26
75	100	0.0403	23
63	100	0.0285	23
50	100	0.0204	20
37.5	77	0.0144	20
28	77	0.0106	17
20	74	0.0076	15
14	71	0.0054	14
10	68	0.0038	11
6.3	65	0.0027	9
5	63	0.0016	6
3.35	60		
2	57		
1.18	53		
0.6	49	Particle density (assumed)	
0.425	47	2.65 Mg/m3	
0.3	44		
0.212	41		
0.15	37		
0.063	27		

Dry Mass of sample, g	828

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	30
Silt	20
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.3
D_{30}	mm	0.0823
D_{10}	mm	0.00343
Uniformity Coefficient		960
Curvature Coefficient		0.6

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/10/2022 15:24	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

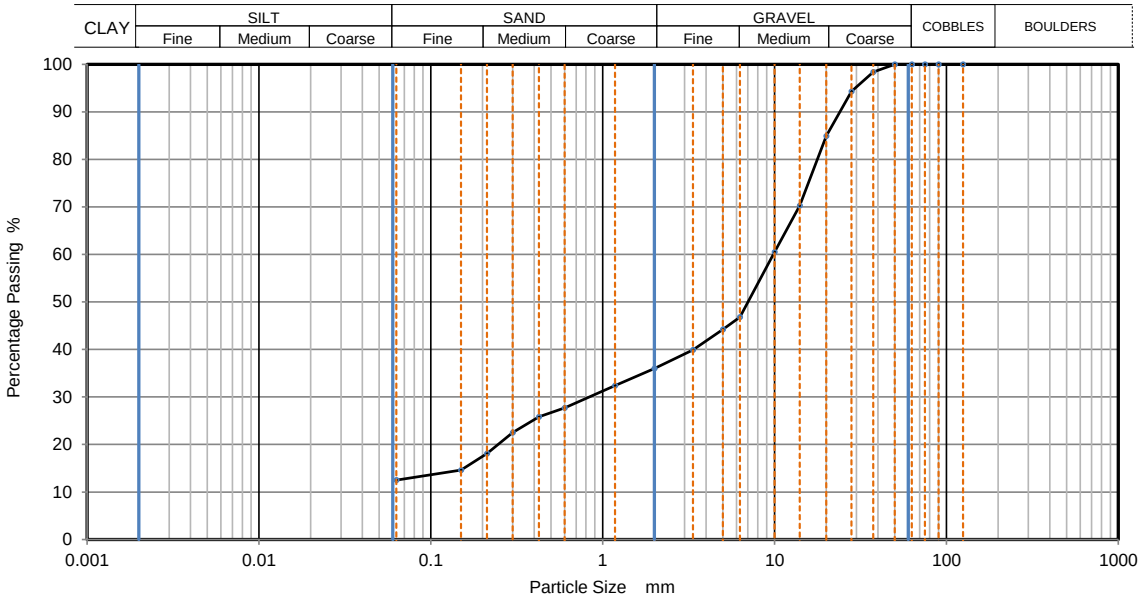
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Dark grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	01/11/2022

Job Ref: 32282

Borehole/Pit No.: TP-56114

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	94		
20	85		
14	70		
10	61		
6.3	47		
5	44		
3.35	40		
2	36		
1.18	32		
0.6	28		
0.425	26		
0.3	23		
0.212	18		
0.15	15		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	64.0
Sand	23.5
Fines <0.063mm	12.5

Grading Analysis		
D100	mm	
D60	mm	9.84
D30	mm	0.836
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

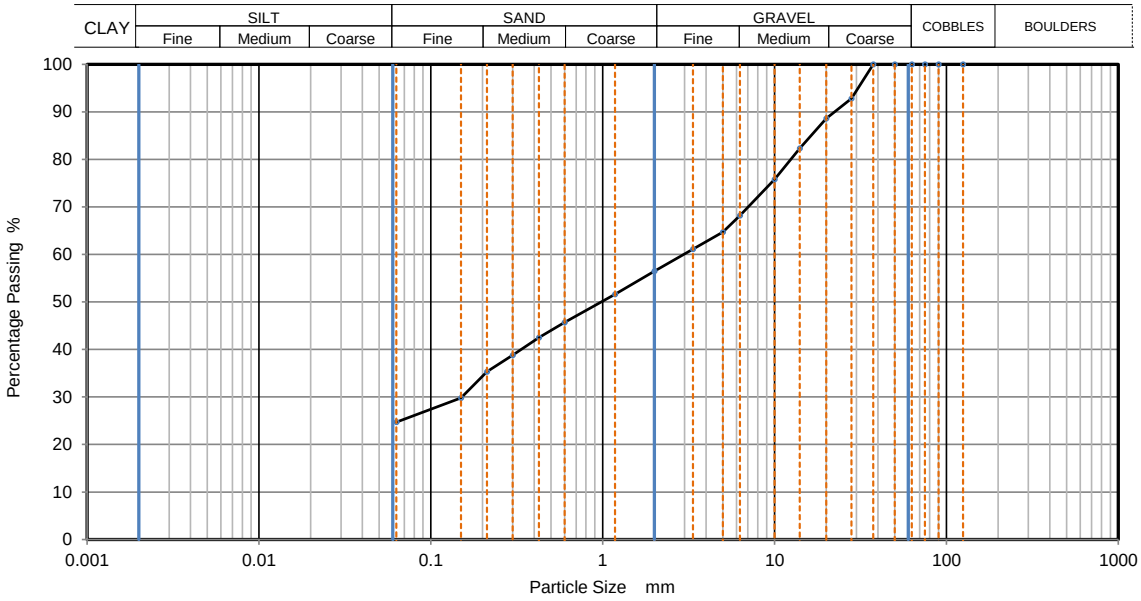
Initials: J.P

Date: 15/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-56114
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	01/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	89		
14	82		
10	76		
6.3	68		
5	65		
3.35	61		
2	57		
1.18	52		
0.6	46		
0.425	43		
0.3	39		
0.212	35		
0.15	30		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	43.5
Sand	31.9
Fines <0.063mm	24.7

Grading Analysis		
D100	mm	
D60	mm	2.95
D30	mm	0.152
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 15/11/2022

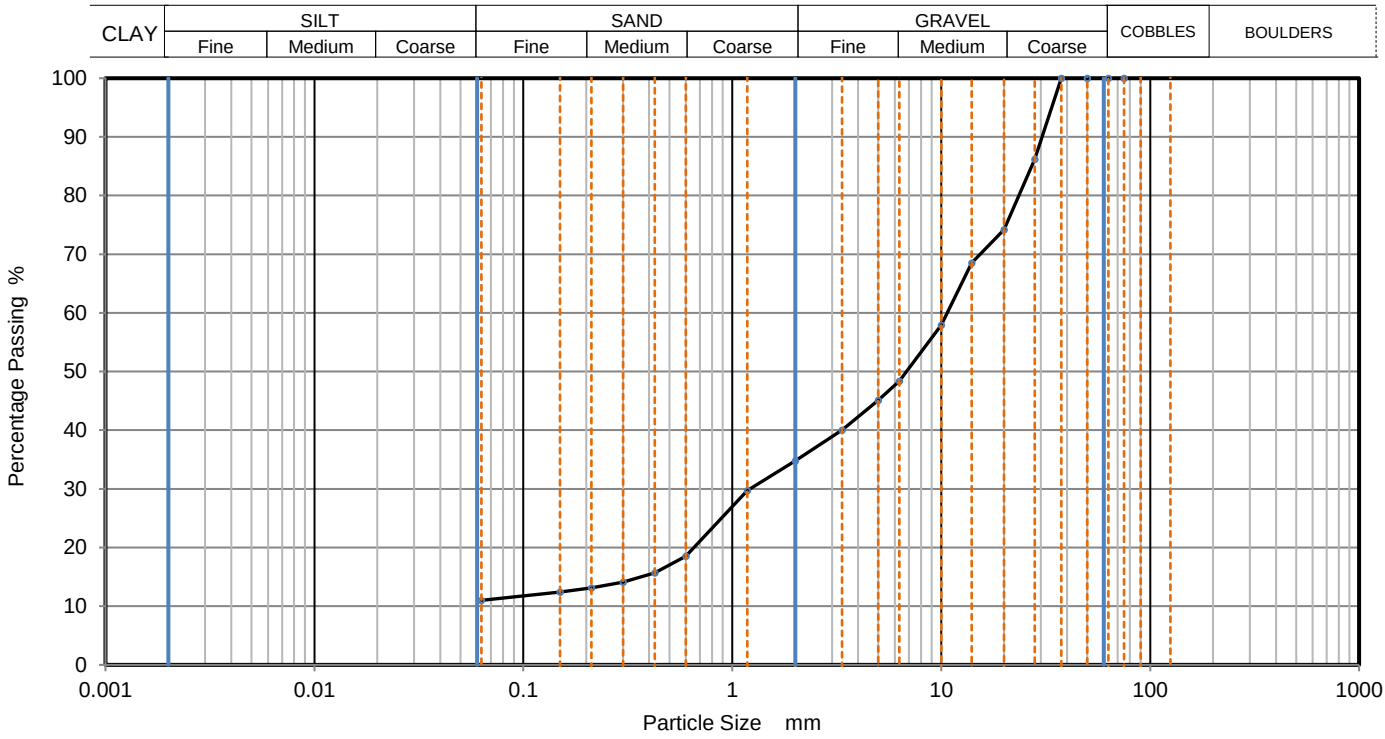
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-56308
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey silty very sandy medium and coarse GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021111698



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	86		
20	74		
14	69		
10	58		
6.3	48		
5	45		
3.35	40		
2	35		
1.18	30		
0.6	19		
0.425	16		
0.3	14		
0.212	13		
0.15	12		
0.063	11		

Dry Mass of sample, g	343

Sample Proportions	% dry mass
Very coarse	0
Gravel	65
Sand	24
Fines <0.063mm	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	10.7
D_{30}	mm	1.22
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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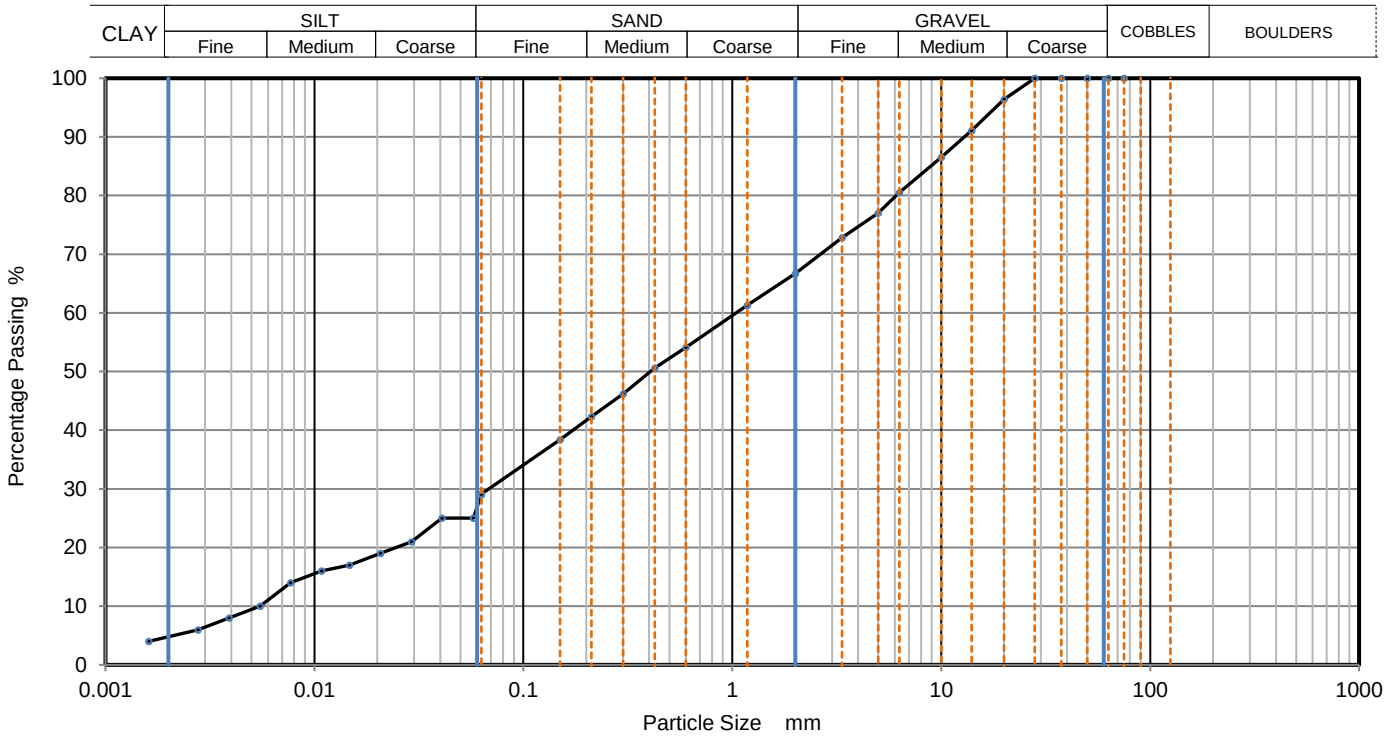
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-56408
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty SAND and GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116100



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0576	25
75	100	0.0407	25
63	100	0.0291	21
50	100	0.0207	19
37.5	100	0.0147	17
28	100	0.0108	16
20	96	0.0077	14
14	91	0.0055	10
10	87	0.0039	8
6.3	81	0.0028	6
5	77	0.0016	4
3.35	73		
2	67		
1.18	61		
0.6	54	Particle density (assumed)	
0.425	51	2.65 Mg/m3	
0.3	46		
0.212	42		
0.15	38		
0.063	29		

Dry Mass of sample, g	309

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	38
Silt	24
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.05
D_{30}	mm	0.0687
D_{10}	mm	0.00563
Uniformity Coefficient		190
Curvature Coefficient		0.8

Remarks

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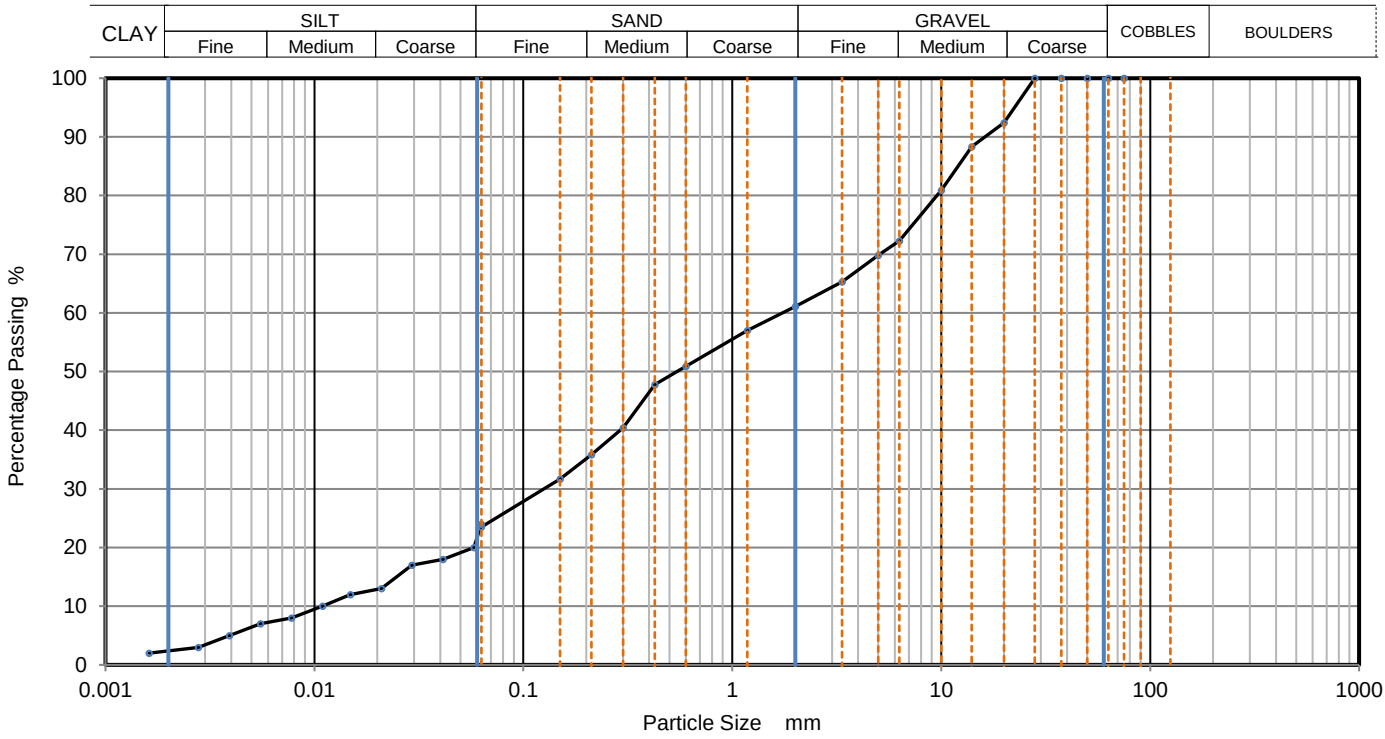
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-56408
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Brown very silty SAND and GRAVEL.	Depth, m	2.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211116104



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0579	20
75	100	0.0412	18
63	100	0.0293	17
50	100	0.0209	13
37.5	100	0.0149	12
28	100	0.0109	10
20	92	0.0078	8
14	88	0.0055	7
10	81	0.0039	5
6.3	72	0.0028	3
5	70	0.0016	2
3.35	65		
2	61		
1.18	57		
0.6	51	Particle density (assumed)	
0.425	48	2.65 Mg/m3	
0.3	40		
0.212	36		
0.15	32		
0.063	24		

Dry Mass of sample, g	389

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	38
Silt	21
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.73
D_{30}	mm	0.125
D_{10}	mm	0.0108
Uniformity Coefficient		160
Curvature Coefficient		0.84

Remarks

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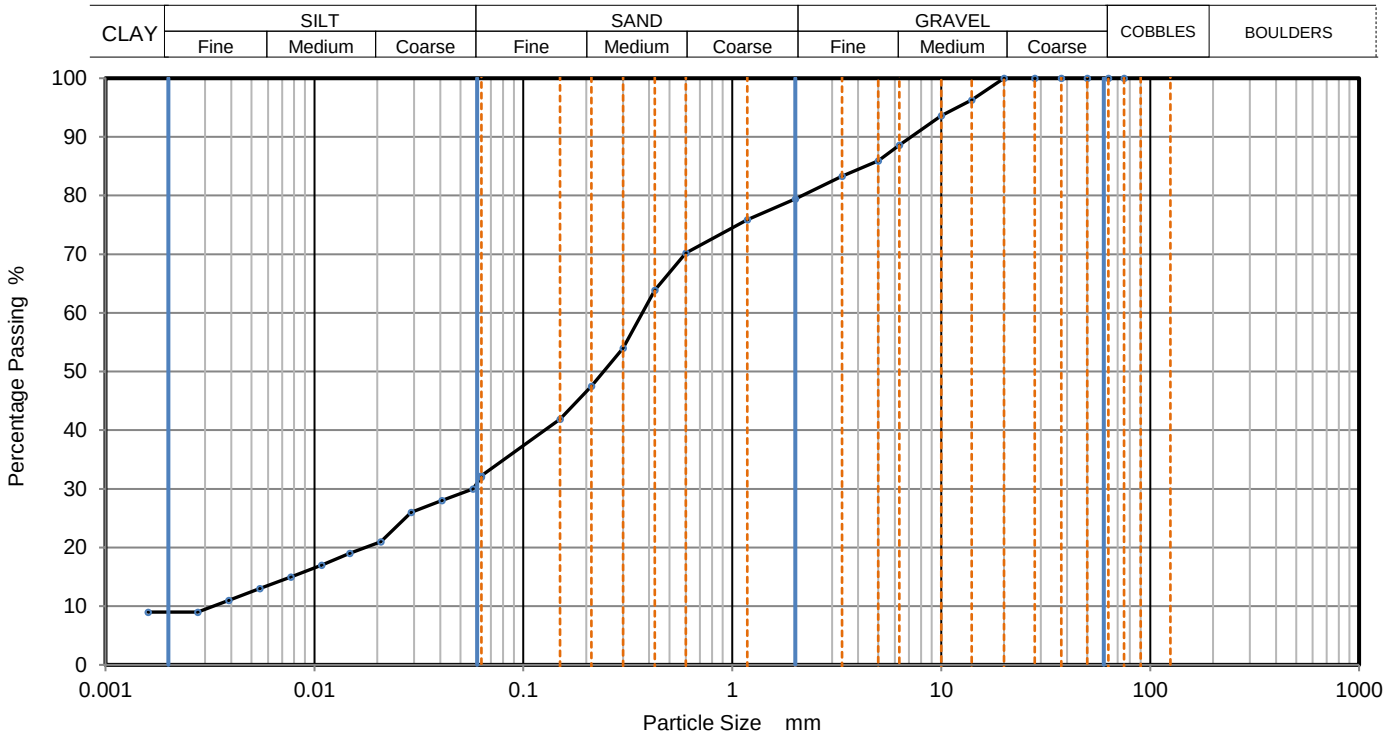
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-56485
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown very gravelly very silty medium SAND.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211116106



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0574	30
75	100	0.0408	28
63	100	0.0290	26
50	100	0.0208	21
37.5	100	0.0148	19
28	100	0.0108	17
20	100	0.0077	15
14	96	0.0055	13
10	94	0.0039	11
6.3	89	0.0028	9
5	86	0.0016	9
3.35	83		
2	79		
1.18	76		
0.6	70	Particle density (assumed)	
0.425	64	2.65 Mg/m3	
0.3	54		
0.212	48		
0.15	42		
0.063	32		

Dry Mass of sample, g	383

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	47
Silt	24
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.371
D_{30}	mm	0.0569
D_{10}	mm	0.00346
Uniformity Coefficient		110
Curvature Coefficient		2.5

Remarks

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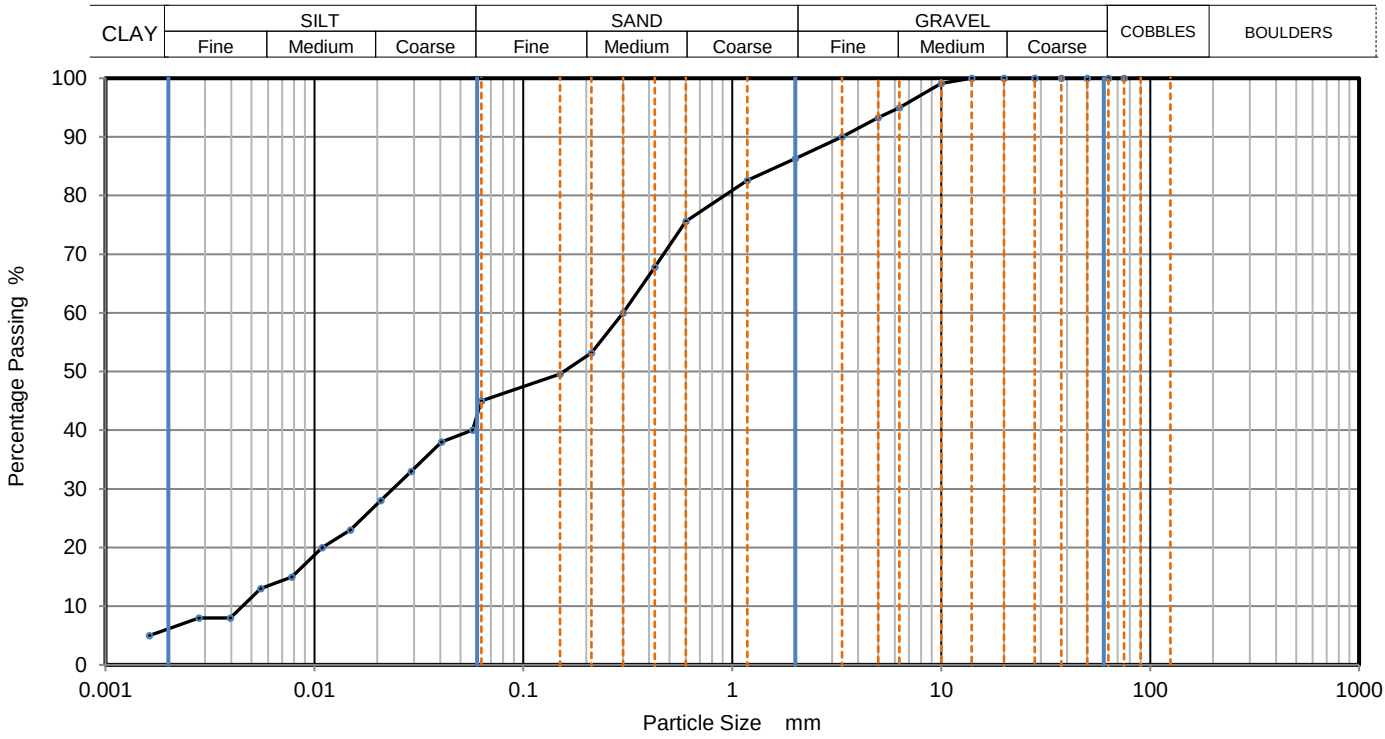
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-56485
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116108



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0572	40
75	100	0.0407	38
63	100	0.0291	33
50	100	0.0208	28
37.5	100	0.0149	23
28	100	0.0109	20
20	100	0.0078	15
14	100	0.0055	13
10	99	0.0040	8
6.3	95	0.0028	8
5	93	0.0016	5
3.35	90		
2	86		
1.18	83		
0.6	76	Particle density	(assumed)
0.425	68	2.65	Mg/m3
0.3	60		
0.212	53		
0.15	50		
0.063	45		

Dry Mass of sample, g	179

Sample Proportions	% dry mass
Very coarse	0
Gravel	14
Sand	41
Silt	39
Clay	6

Grading Analysis		
D100	mm	
D60	mm	0.3
D30	mm	0.0246
D10	mm	0.00468
Uniformity Coefficient		64
Curvature Coefficient		0.43

Remarks

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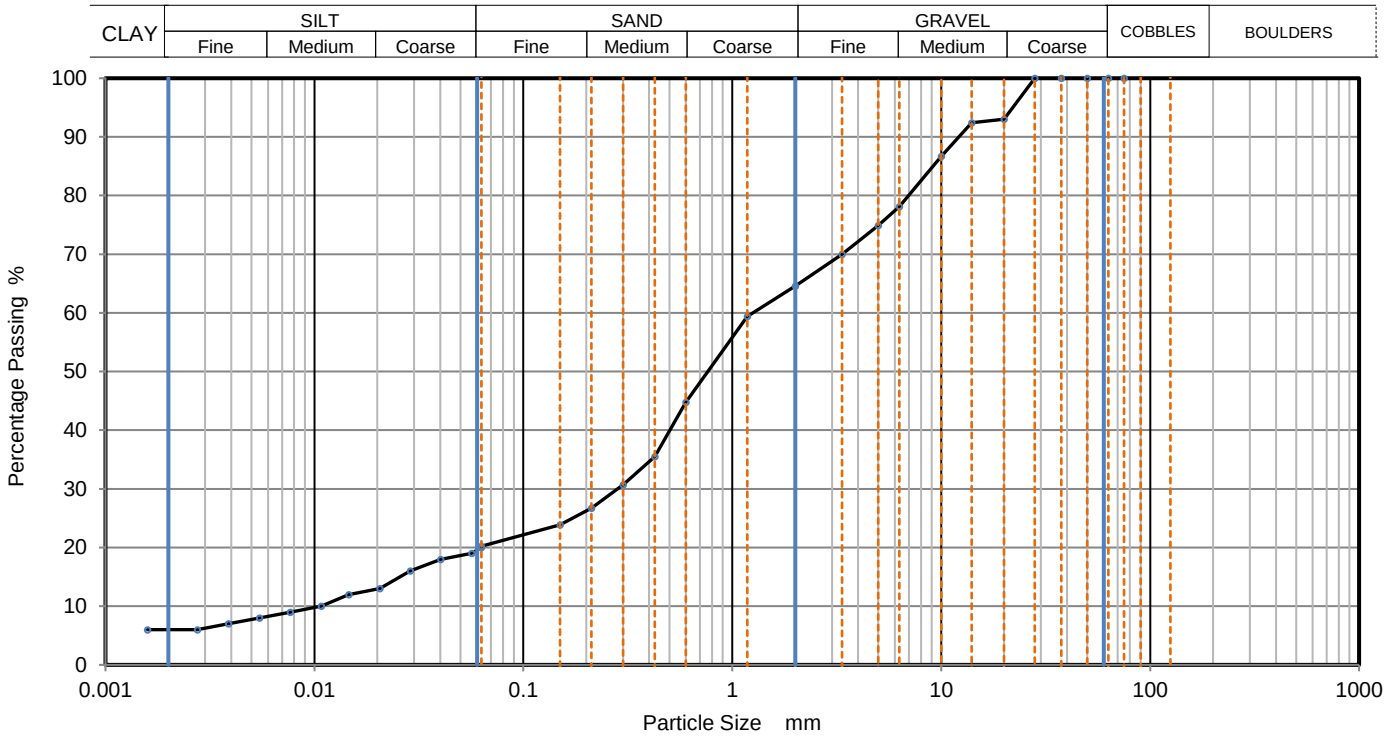
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-56627
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Brown very silty very gravelly coarse SAND.	Depth, m	0.90
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211116114



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	20
		0.0565	19
75	100	0.0402	18
63	100	0.0287	16
50	100	0.0206	13
37.5	100	0.0146	12
28	100	0.0108	10
20	93	0.0077	9
14	92	0.0055	8
10	87	0.0039	7
6.3	78	0.0028	6
5	75	0.0016	6
3.35	70		
2	65		
1.18	59		
0.6	45	Particle density (assumed)	
0.425	36	2.65 Mg/m3	
0.3	31		
0.212	27		
0.15	24		
0.063	20		

Dry Mass of sample, g	285

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	44
Silt	15
Clay	6

Grading Analysis		
D100	mm	
D60	mm	1.26
D30	mm	0.282
D10	mm	0.0105
Uniformity Coefficient		120
Curvature Coefficient		6

Remarks

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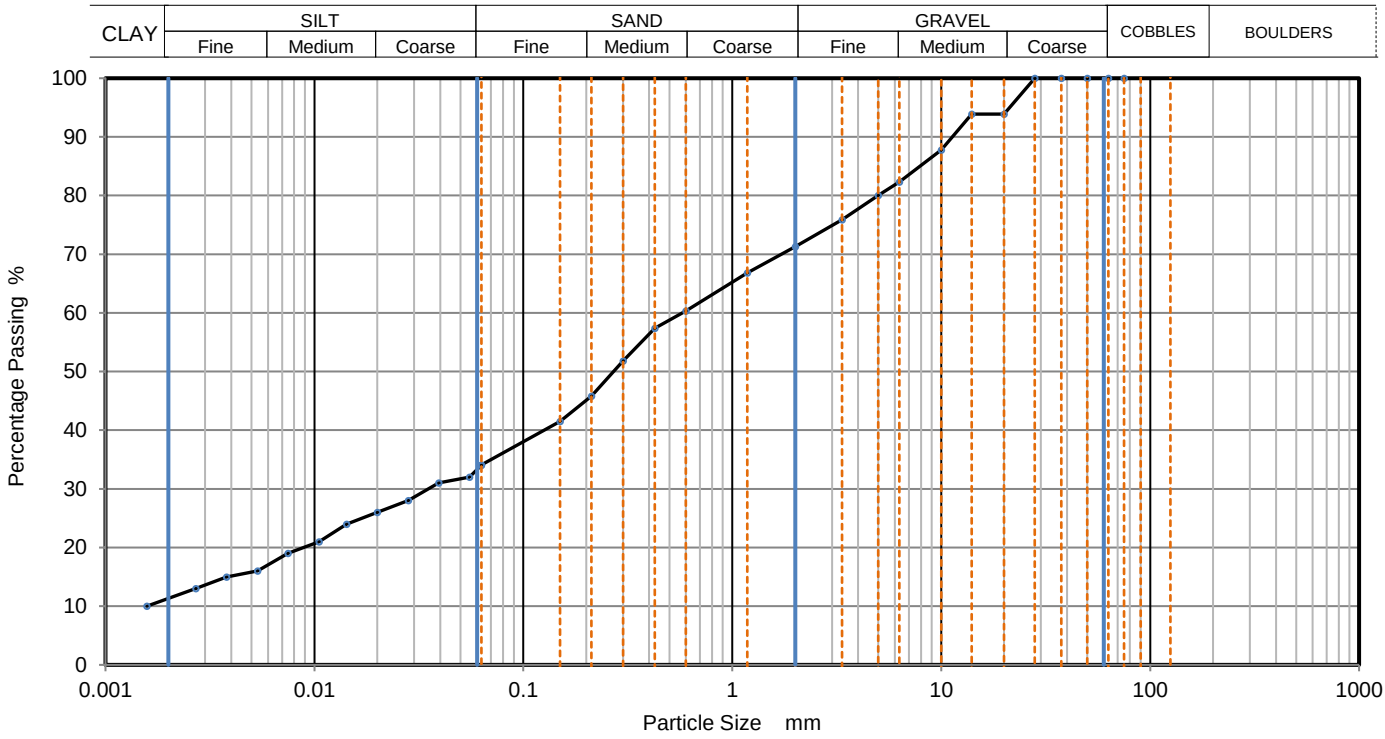
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-56627
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.	Depth, m	2.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211116116



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0553	32
75	100	0.0393	31
63	100	0.0282	28
50	100	0.0200	26
37.5	100	0.0142	24
28	100	0.0105	21
20	94	0.0075	19
14	94	0.0053	16
10	88	0.0038	15
6.3	82	0.0027	13
5	80	0.0016	10
3.35	76		
2	71		
1.18	67		
0.6	60	Particle density (assumed)	
0.425	57	2.65 Mg/m3	
0.3	52		
0.212	46		
0.15	42		
0.063	34		

Dry Mass of sample, g: 409

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	37
Silt	23
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.578
D_{30}	mm	0.036
D_{10}	mm	0.00165
Uniformity Coefficient		350
Curvature Coefficient		1.4

Remarks

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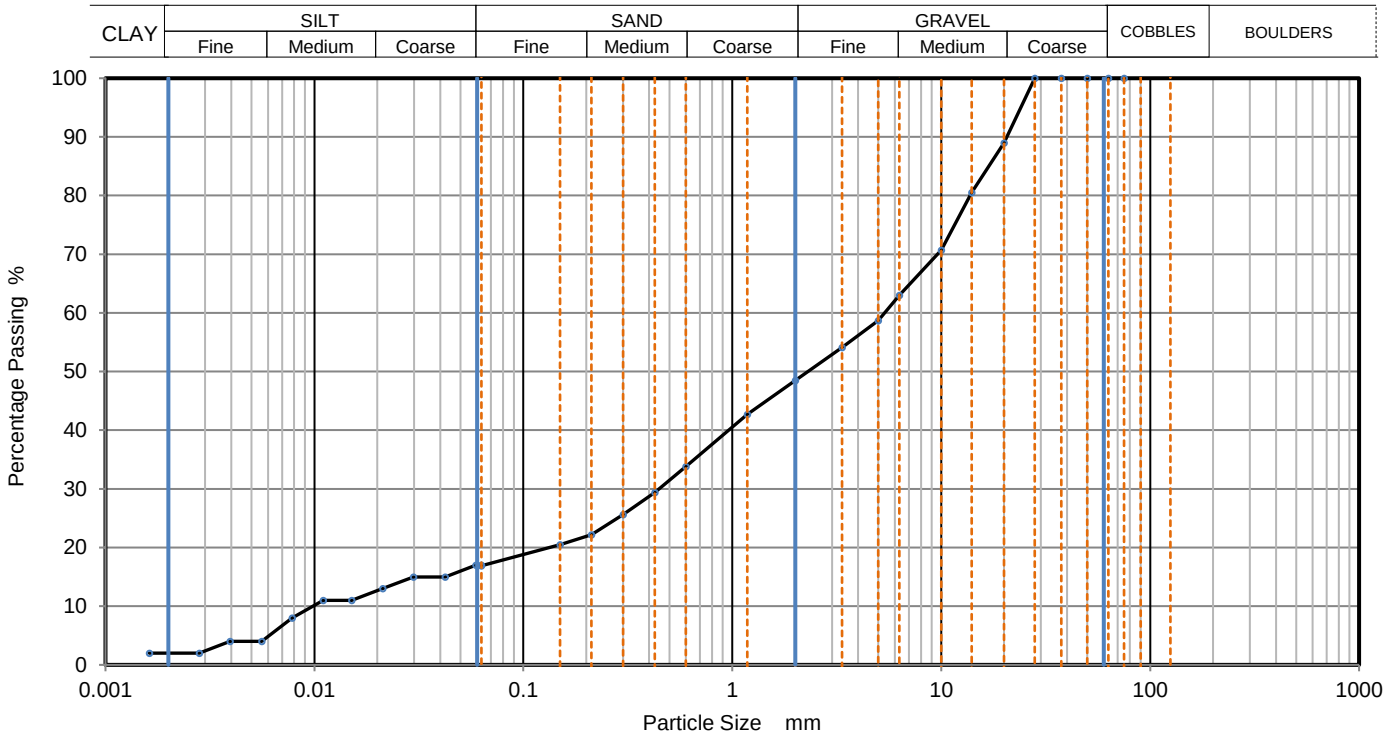
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-56709
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown silty very sandy medium GRAVEL.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211116118



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	17
		0.0593	17
75	100	0.0422	15
63	100	0.0298	15
50	100	0.0212	13
37.5	100	0.0151	11
28	100	0.0110	11
20	89	0.0078	8
14	81	0.0056	4
10	71	0.0040	4
6.3	63	0.0028	2
5	59	0.0016	2
3.35	54		
2	49		
1.18	43		
0.6	34	Particle density (assumed)	
0.425	29	2.65 Mg/m3	
0.3	26		
0.212	22		
0.15	21		
0.063	17		

Dry Mass of sample, g	350

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	32
Silt	15
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.36
D_{30}	mm	0.446
D_{10}	mm	0.01
Uniformity Coefficient		530
Curvature Coefficient		3.7

Remarks

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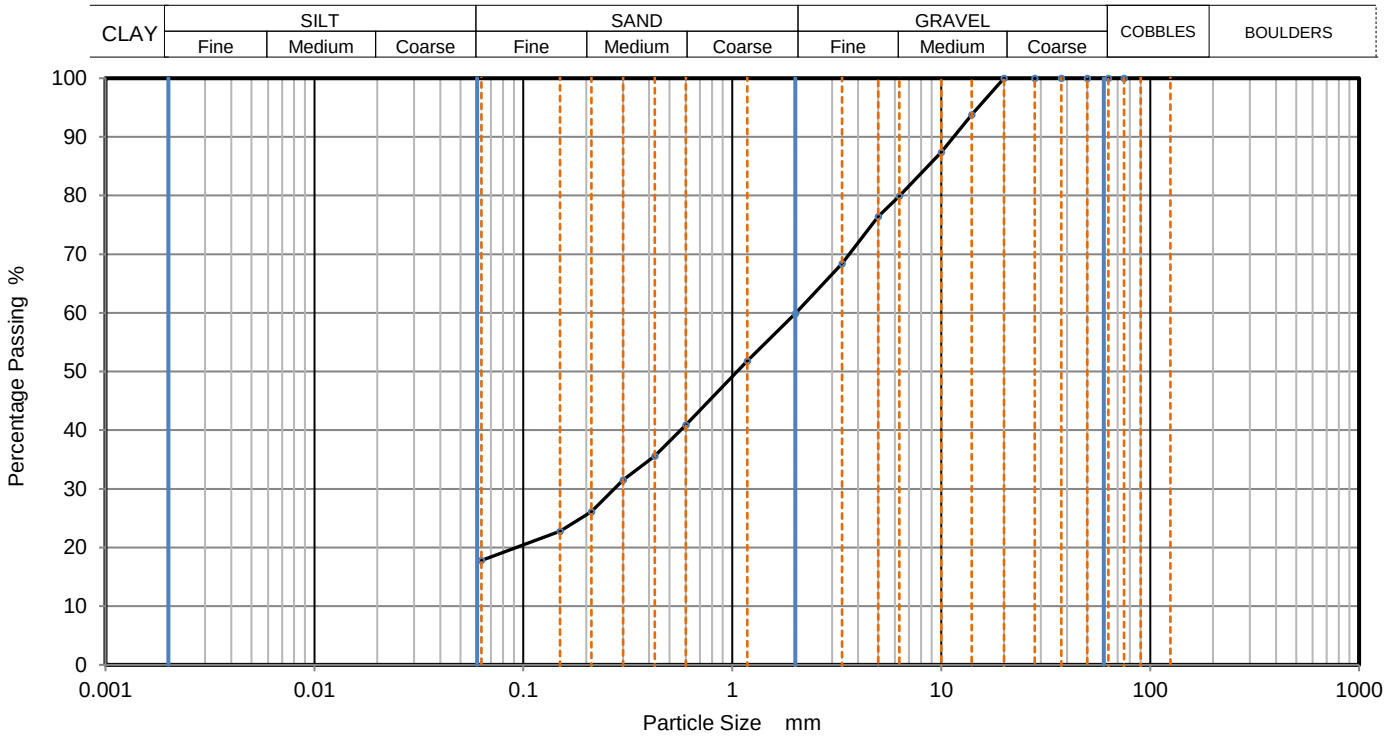
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-56709
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light brown silty SAND and GRAVEL. Sand is medium and coarse, gravel is fine and medium.	Depth, m	2.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL120211116122



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	87		
6.3	80		
5	76		
3.35	68		
2	60		
1.18	52		
0.6	41		
0.425	36		
0.3	32		
0.212	26		
0.15	23		
0.063	18		

Dry Mass of sample, g	340

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	42
Fines <0.063mm	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.01
D_{30}	mm	0.272
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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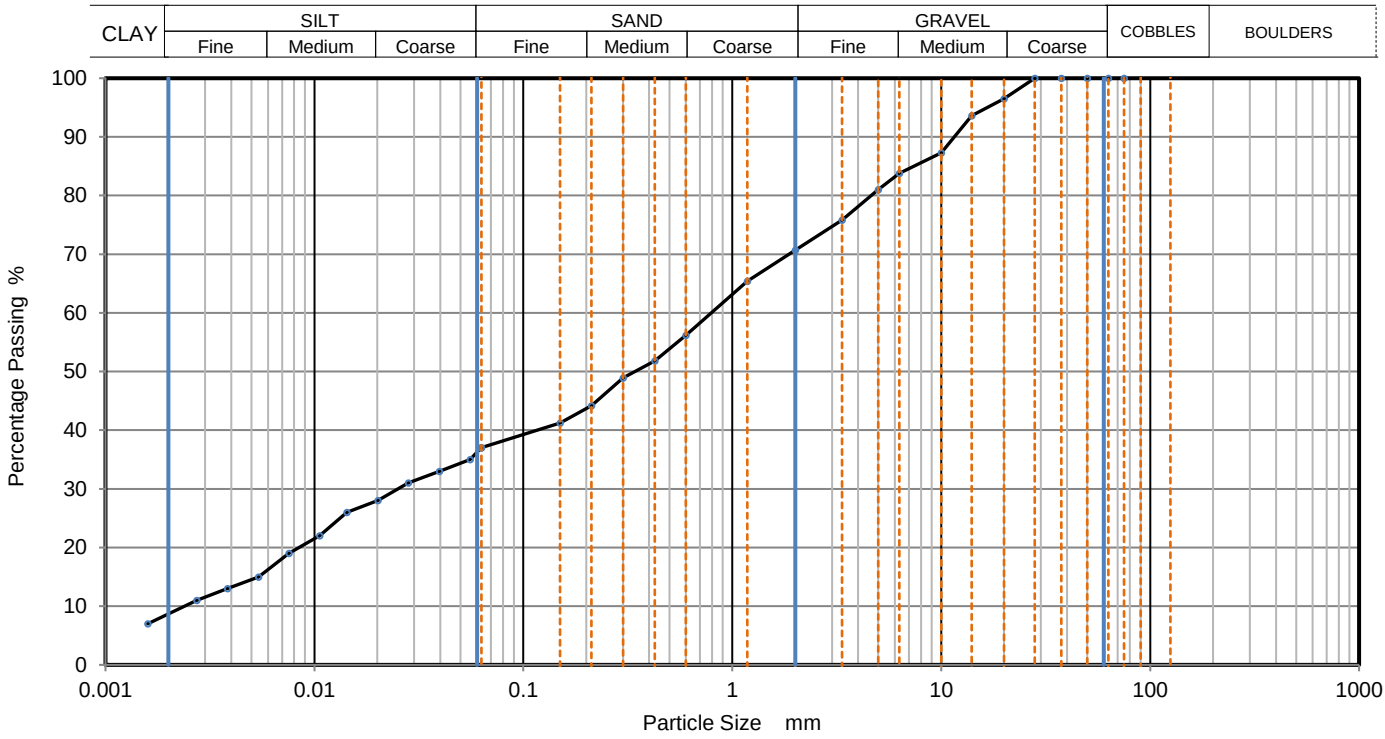
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57107
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116124



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0556	35
75	100	0.0396	33
63	100	0.0282	31
50	100	0.0201	28
37.5	100	0.0143	26
28	100	0.0106	22
20	97	0.0076	19
14	94	0.0054	15
10	87	0.0038	13
6.3	84	0.0027	11
5	81	0.0016	7
3.35	76		
2	71		
1.18	65		
0.6	56	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	49		
0.212	44		
0.15	41		
0.063	37		

Dry Mass of sample, g	261

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	34
Silt	28
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.793
D_{30}	mm	0.0247
D_{10}	mm	0.00233
Uniformity Coefficient		340
Curvature Coefficient		0.33

Remarks

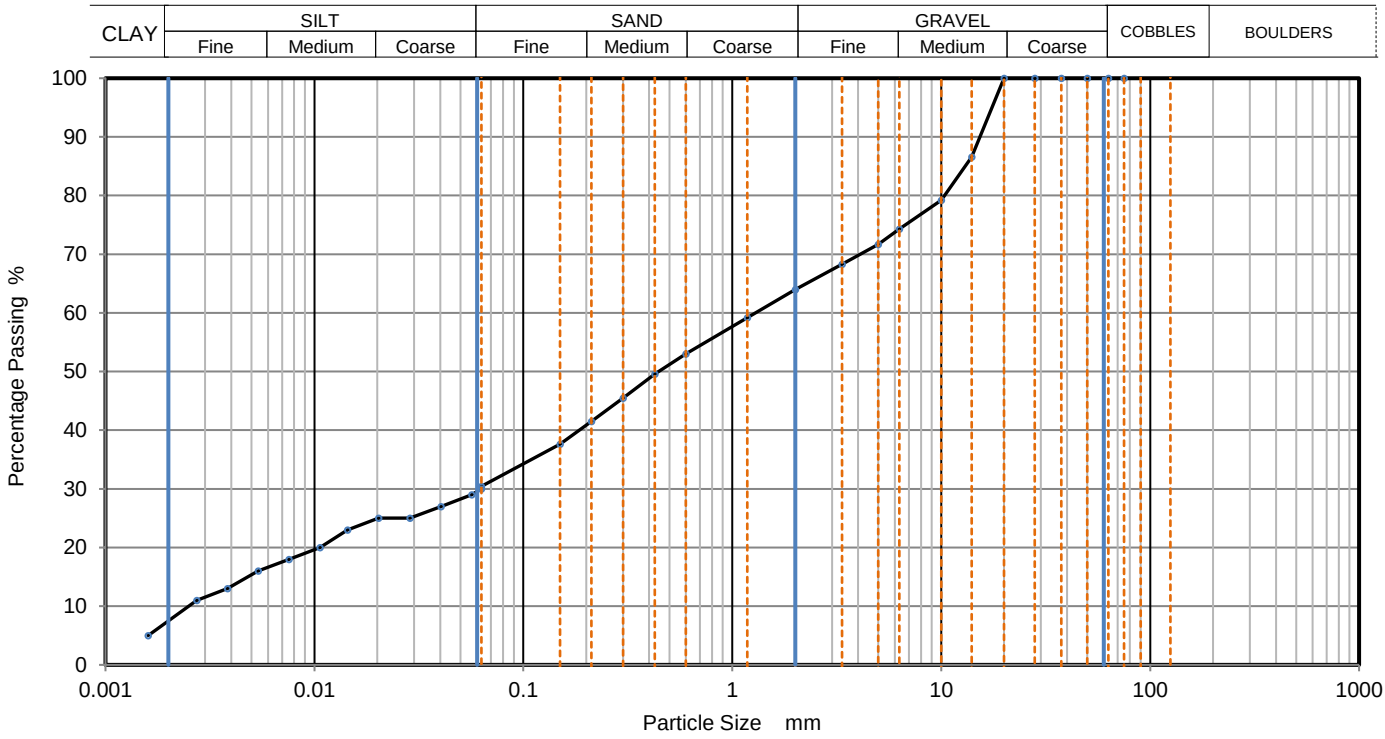
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/10/2022 15:24	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-57107
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Brownish-grey very silty very sandy medium GRAVEL.	Depth, m	1.50
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211116126



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0566	29
75	100	0.0403	27
63	100	0.0286	25
50	100	0.0203	25
37.5	100	0.0144	23
28	100	0.0106	20
20	100	0.0076	18
14	87	0.0054	16
10	79	0.0038	13
6.3	74	0.0027	11
5	72	0.0016	5
3.35	68		
2	64		
1.18	59		
0.6	53	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	46		
0.212	42		
0.15	38		
0.063	30		

Dry Mass of sample, g	258

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	34
Silt	23
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.29
D_{30}	mm	0.0617
D_{10}	mm	0.00254
Uniformity Coefficient		510
Curvature Coefficient		1.2

Remarks

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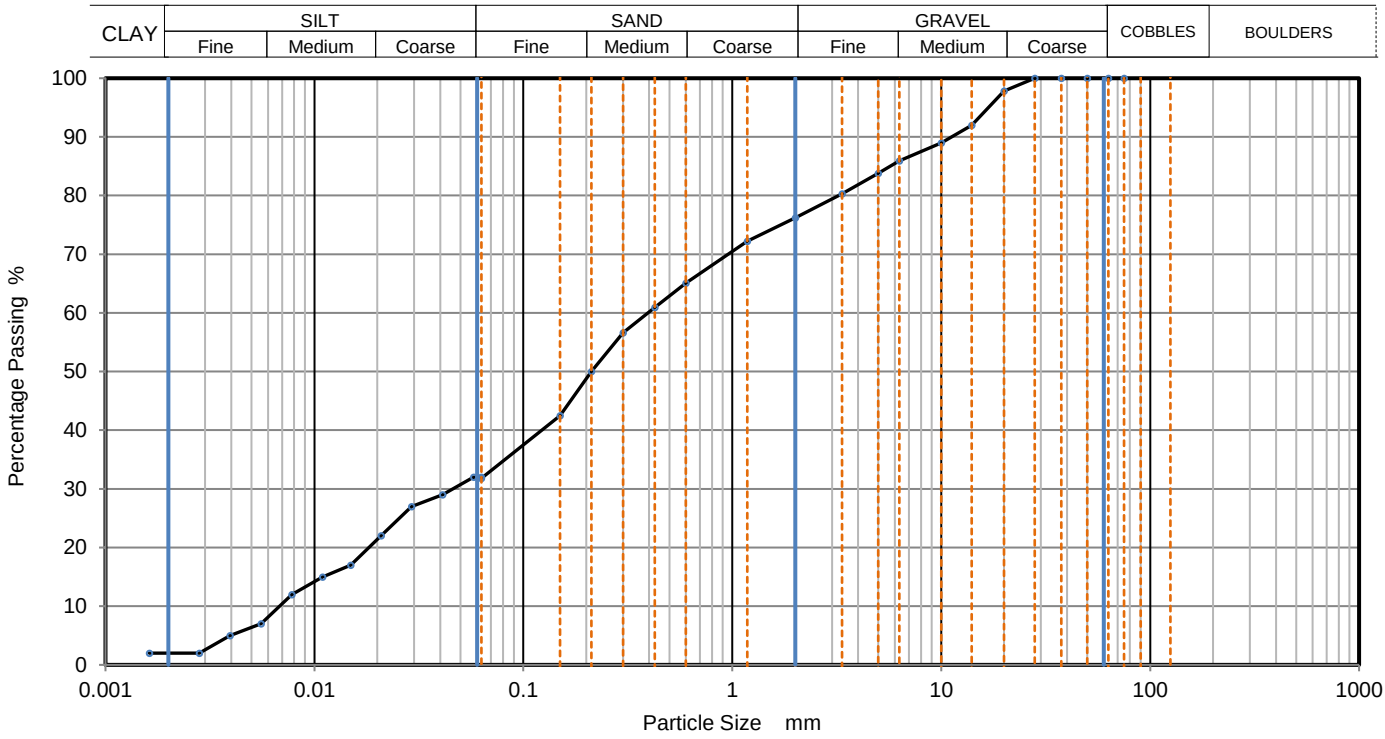
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57203
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very gravelly very silty SAND.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116130



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0577	32
75	100	0.0411	29
63	100	0.0292	27
50	100	0.0209	22
37.5	100	0.0149	17
28	100	0.0109	15
20	98	0.0078	12
14	92	0.0056	7
10	89	0.0040	5
6.3	86	0.0028	2
5	84	0.0016	2
3.35	80		
2	76		
1.18	72		
0.6	65	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	57		
0.212	50		
0.15	43		
0.063	32		

Dry Mass of sample, g	289

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	44
Silt	29
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.396
D_{30}	mm	0.0449
D_{10}	mm	0.00668
Uniformity Coefficient		59
Curvature Coefficient		0.76

Remarks

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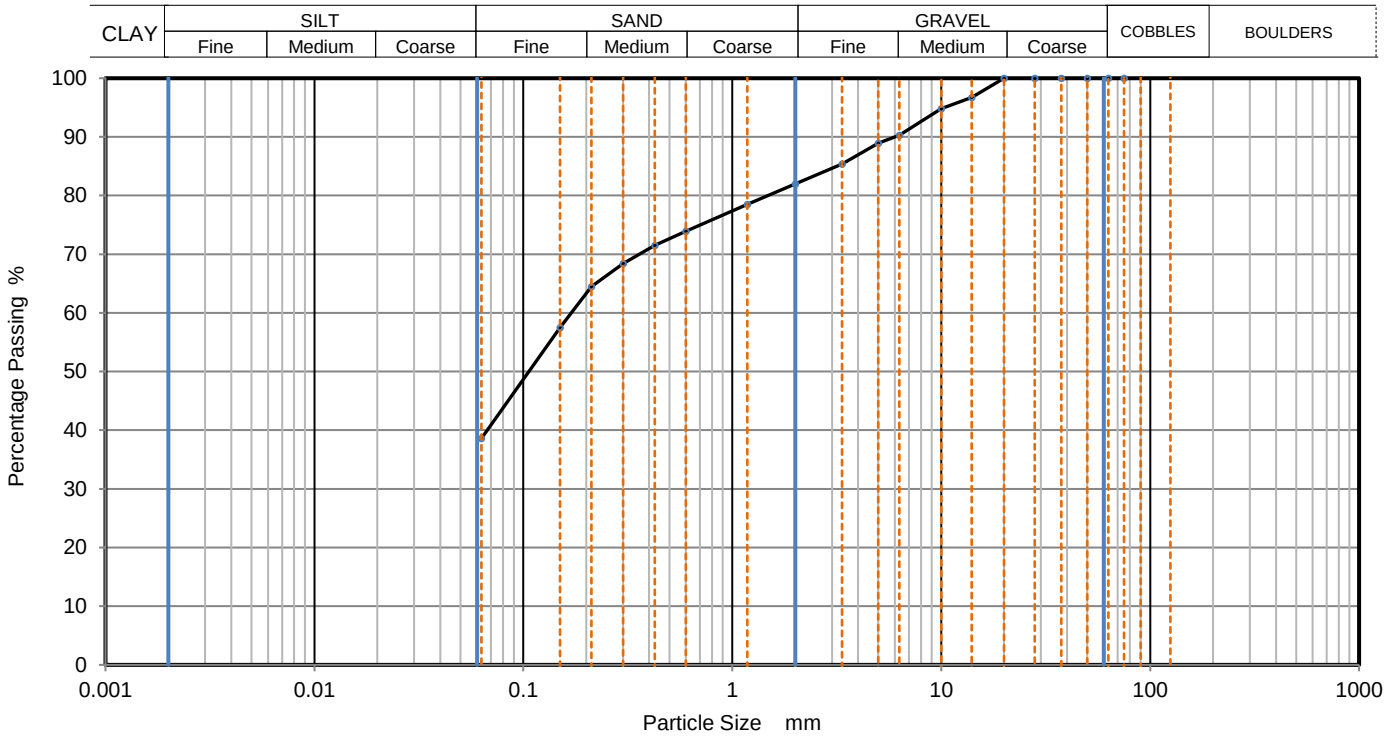
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57203
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	3.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211116132



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	95		
6.3	90		
5	89		
3.35	85		
2	82		
1.18	79		
0.6	74		
0.425	72		
0.3	68		
0.212	65		
0.15	58		
0.063	39		

Dry Mass of sample, g	318

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	43
Fines <0.063mm	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.17
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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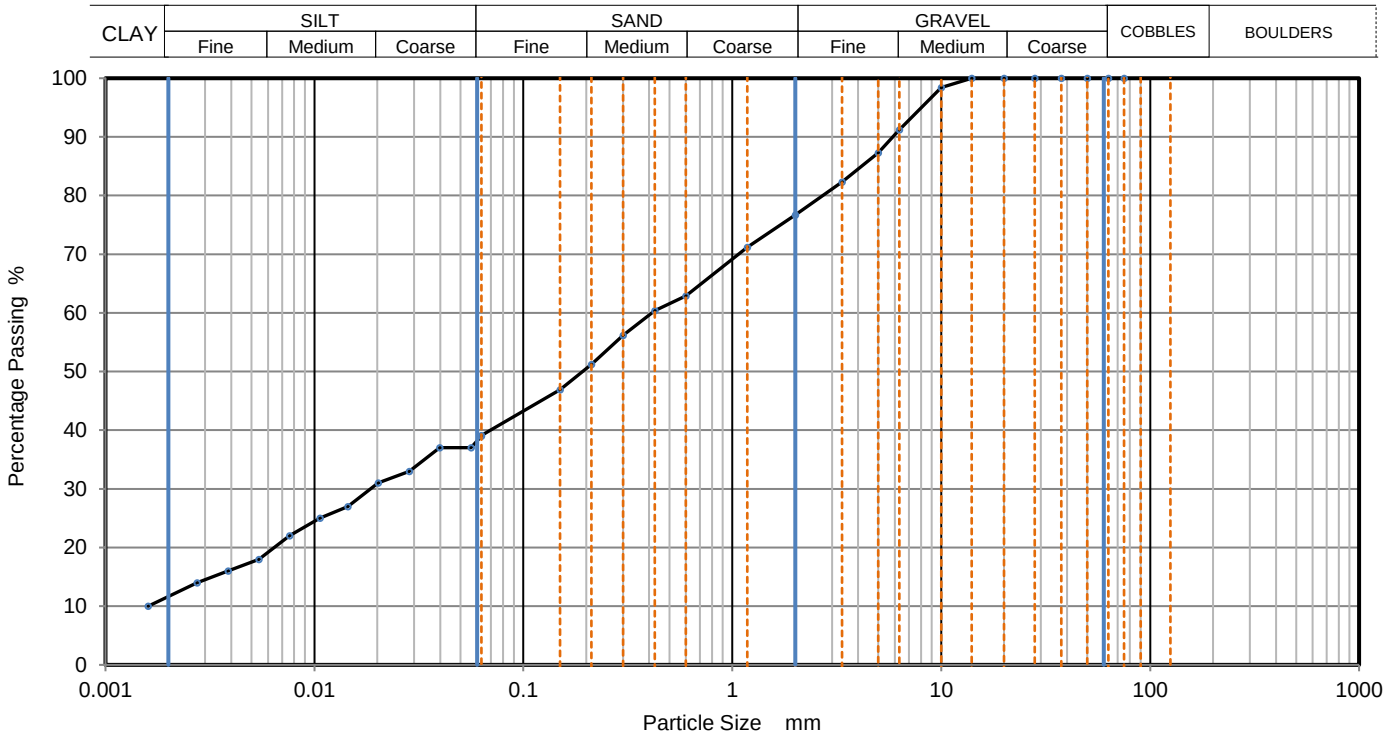
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57307
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116136



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0562	37
75	100	0.0397	37
63	100	0.0284	33
50	100	0.0202	31
37.5	100	0.0145	27
28	100	0.0106	25
20	100	0.0076	22
14	100	0.0054	18
10	98	0.0039	16
6.3	91	0.0027	14
5	87	0.0016	10
3.35	82		
2	77		
1.18	71		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	56		
0.212	51		
0.15	47		
0.063	39		

Dry Mass of sample, g	253

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	38
Silt	28
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.412
D_{30}	mm	0.0181
D_{10}	mm	0.00165
Uniformity Coefficient		250
Curvature Coefficient		0.48

Remarks

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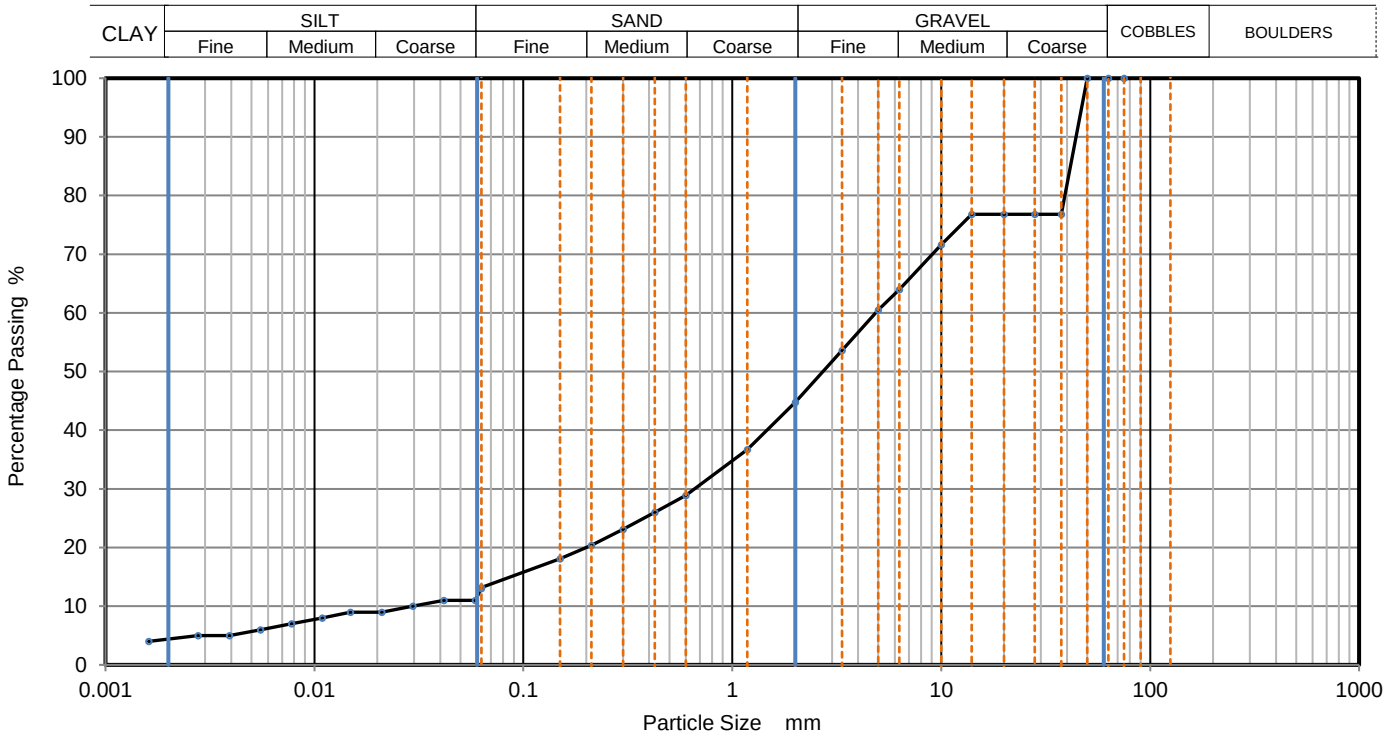
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57417
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116140



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0588	11
75	100	0.0416	11
63	100	0.0296	10
50	100	0.0210	9
37.5	77	0.0149	9
28	77	0.0109	8
20	77	0.0078	7
14	77	0.0055	6
10	72	0.0039	5
6.3	64	0.0028	5
5	61	0.0016	4
3.35	54		
2	45		
1.18	37		
0.6	29	Particle density (assumed)	
0.425	26	2.65 Mg/m3	
0.3	23		
0.212	20		
0.15	18		
0.063	13		

Dry Mass of sample, g	241

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	32
Silt	9
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.85
D_{30}	mm	0.661
D_{10}	mm	0.0281
Uniformity Coefficient		170
Curvature Coefficient		3.2

Remarks

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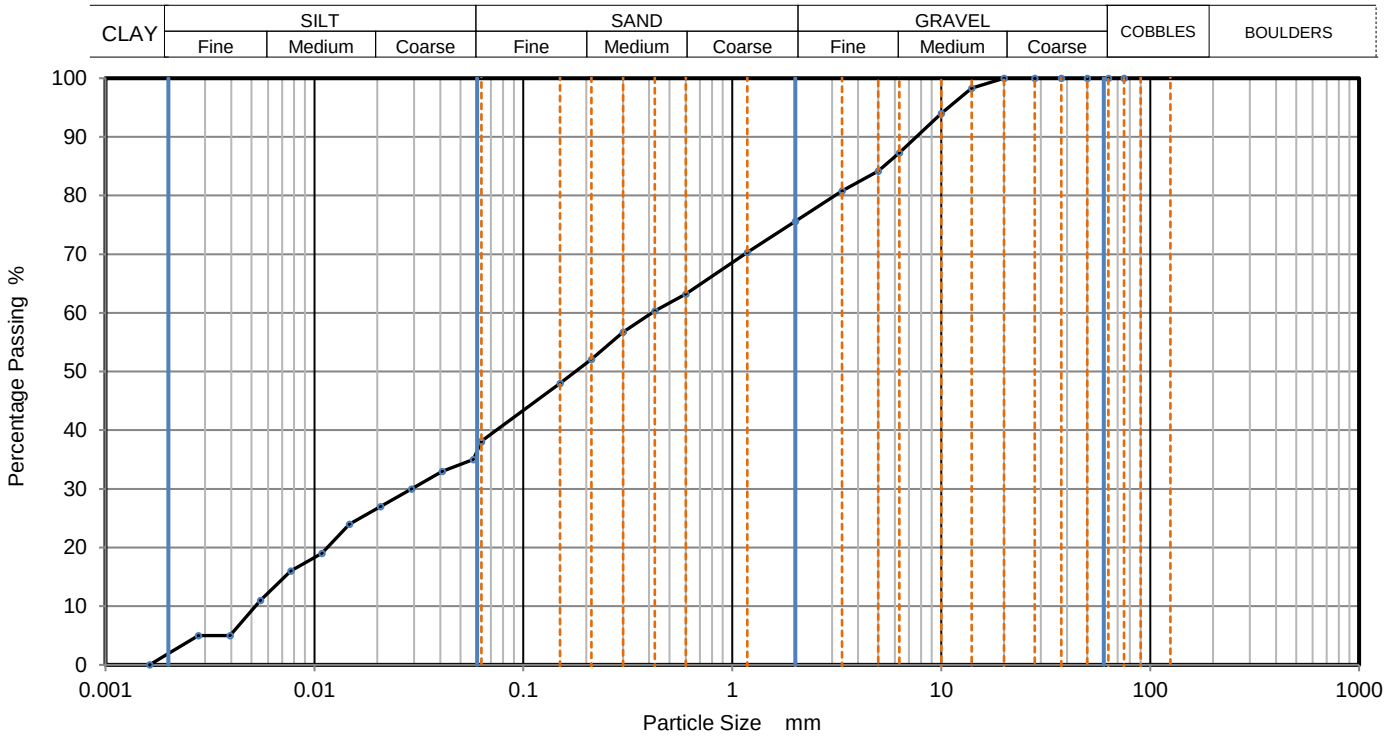
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57510
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116148



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0576	35
75	100	0.0410	33
63	100	0.0291	30
50	100	0.0207	27
37.5	100	0.0147	24
28	100	0.0109	19
20	100	0.0077	16
14	98	0.0055	11
10	94	0.0039	5
6.3	87	0.0028	5
5	84	0.0016	0
3.35	81		
2	76		
1.18	70		
0.6	63	Particle density (assumed)	
0.425	60	2.65	Mg/m3
0.3	57		
0.212	52		
0.15	48		
0.063	38		

Dry Mass of sample, g	358

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	38
Silt	36
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.414
D_{30}	mm	0.0294
D_{10}	mm	0.00522
Uniformity Coefficient		79
Curvature Coefficient		0.4

Remarks

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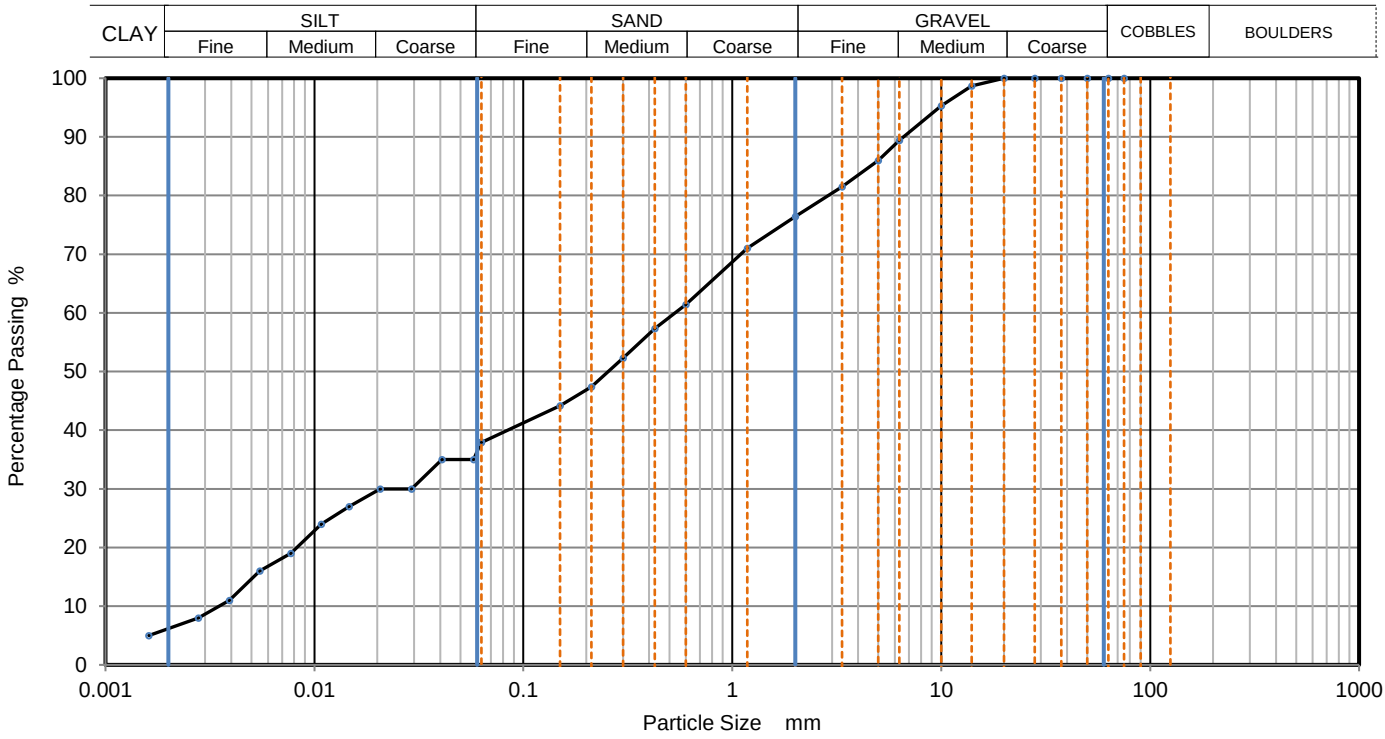
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57602
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light grey slightly gravelly sandy SILT.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116154



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0577	35
75	100	0.0408	35
63	100	0.0292	30
50	100	0.0206	30
37.5	100	0.0147	27
28	100	0.0108	24
20	100	0.0077	19
14	99	0.0055	16
10	95	0.0039	11
6.3	89	0.0028	8
5	86	0.0016	5
3.35	82		
2	76		
1.18	71		
0.6	61	Particle density (assumed)	
0.425	57	2.65 Mg/m3	
0.3	52		
0.212	47		
0.15	44		
0.063	38		

Dry Mass of sample, g	275

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	39
Silt	31
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.533
D_{30}	mm	0.0296
D_{10}	mm	0.00352
Uniformity Coefficient		150
Curvature Coefficient		0.47

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	24/10/2022 15:24	**1** QC From No:R2

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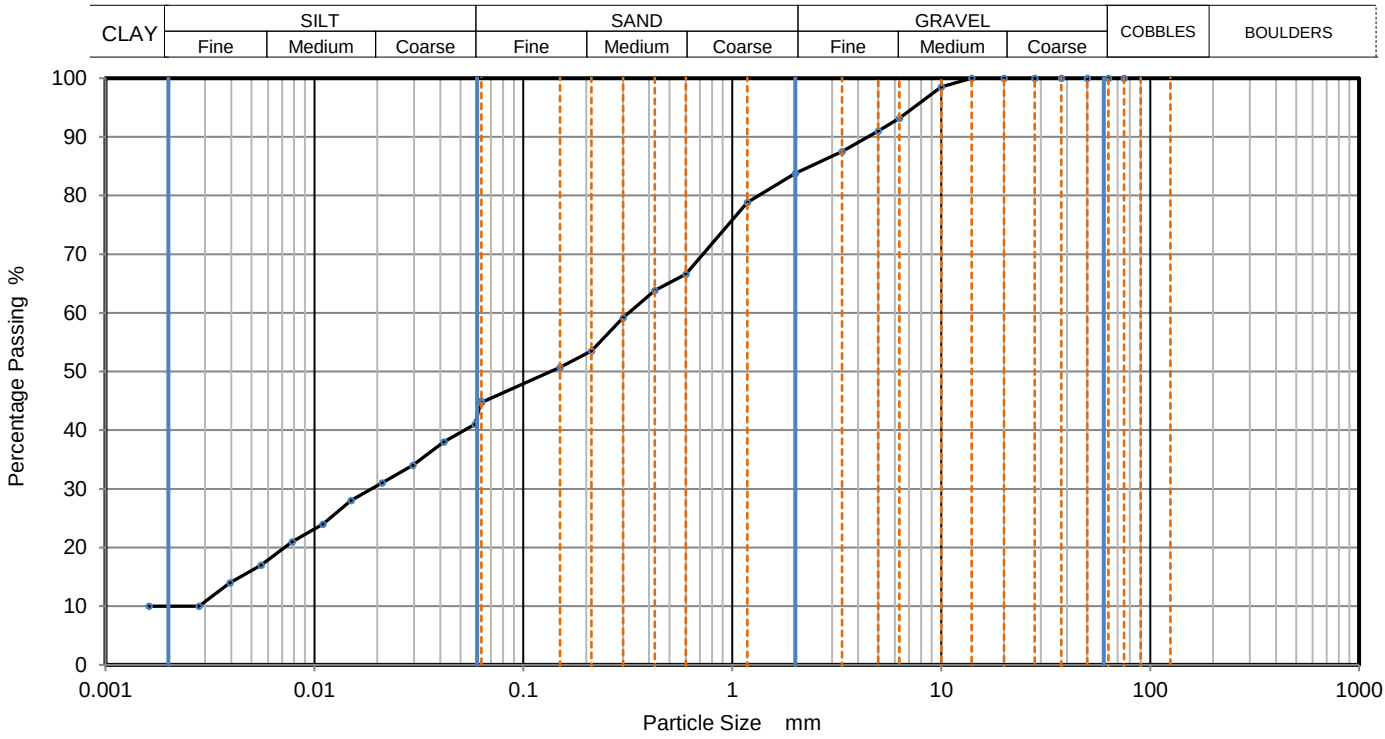
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57708
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Dark brown slightly gravelly sandy SILT.			Depth, m	0.10
Specimen Reference		Specimen Depth	m	Sample Type	D
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116157



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0586	41
75	100	0.0416	38
63	100	0.0296	34
50	100	0.0210	31
37.5	100	0.0150	28
28	100	0.0110	24
20	100	0.0078	21
14	100	0.0055	17
10	99	0.0039	14
6.3	93	0.0028	10
5	91	0.0016	10
3.35	88		
2	84		
1.18	79		
0.6	67	Particle density (assumed)	
0.425	64	2.65 Mg/m3	
0.3	59		
0.212	54		
0.15	51		
0.063	45		

Dry Mass of sample, g	277

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	39
Silt	34
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.319
D_{30}	mm	0.0192
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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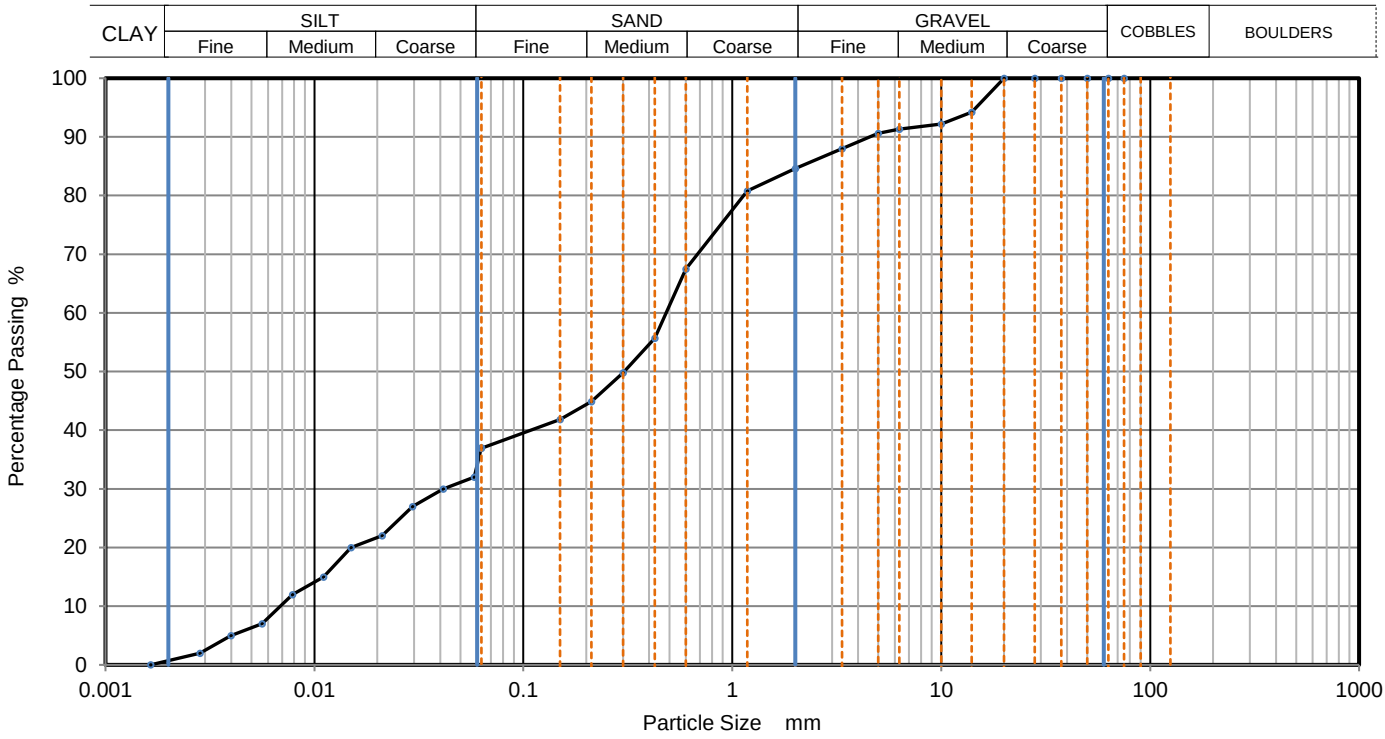
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-57708
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown silty gravelly medium SAND.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	D
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116159



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0582	32
75	100	0.0414	30
63	100	0.0294	27
50	100	0.0210	22
37.5	100	0.0150	20
28	100	0.0110	15
20	100	0.0078	12
14	94	0.0056	7
10	92	0.0040	5
6.3	91	0.0028	2
5	91	0.0016	0
3.35	88		
2	85		
1.18	81		
0.6	68	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	50		
0.212	45		
0.15	42		
0.063	37		

Dry Mass of sample, g: 272

Sample Proportions	% dry mass
Very coarse	0
Gravel	15
Sand	48
Silt	36
Clay	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.482
D_{30}	mm	0.0443
D_{10}	mm	0.00671
Uniformity Coefficient		72
Curvature Coefficient		0.61

Remarks

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		Dympna Darcy B.Sc.	04/01/2023 11:53	**1** QC From No:R2

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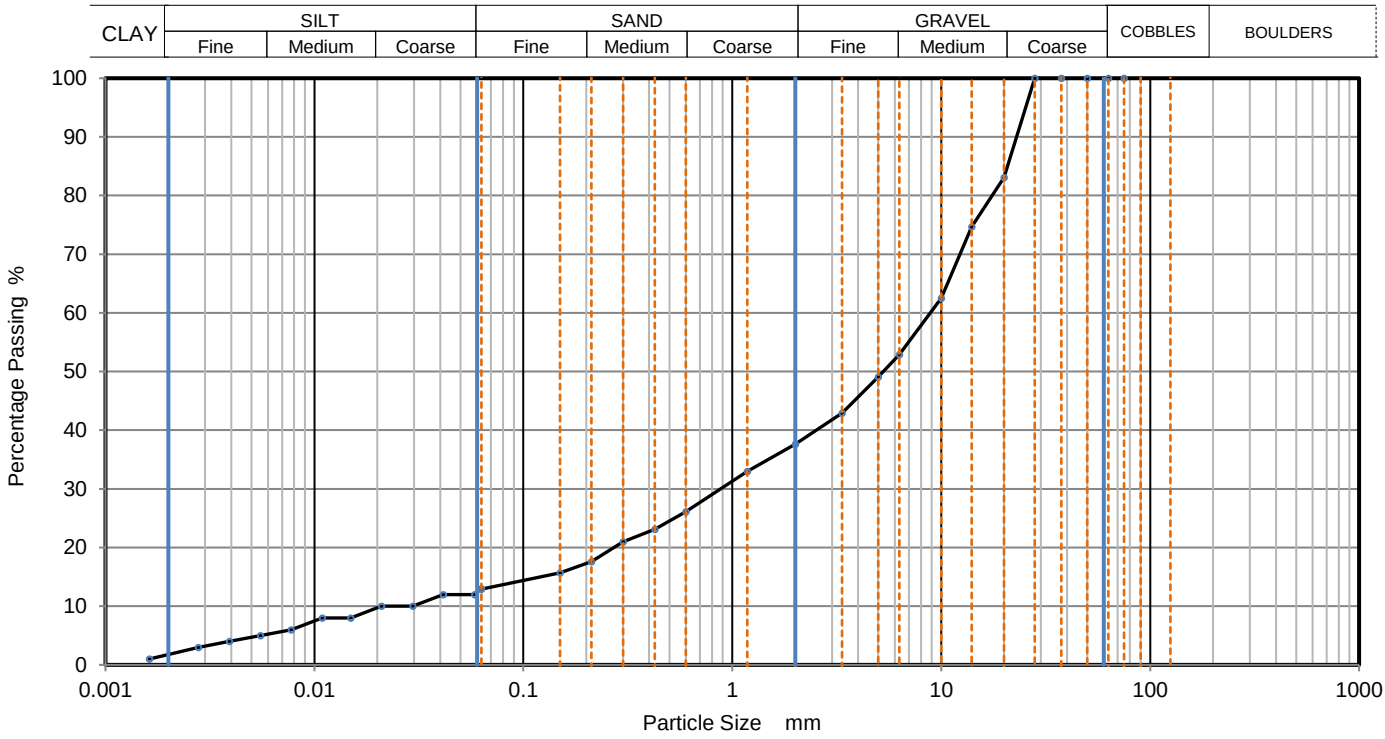
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-58419
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116162



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0585	12
75	100	0.0413	12
63	100	0.0295	10
50	100	0.0209	10
37.5	100	0.0149	8
28	100	0.0109	8
20	83	0.0078	6
14	75	0.0055	5
10	63	0.0039	4
6.3	53	0.0028	3
5	49	0.0016	1
3.35	43		
2	38		
1.18	33		
0.6	26	Particle density (assumed)	
0.425	23	2.65	Mg/m3
0.3	21		
0.212	18		
0.15	16		
0.063	13		

Dry Mass of sample, g	231

Sample Proportions	% dry mass
Very coarse	0
Gravel	62
Sand	25
Silt	11
Clay	2

Grading Analysis		
D100	mm	
D60	mm	8.87
D30	mm	0.881
D10	mm	0.0311
Uniformity Coefficient		290
Curvature Coefficient		2.8

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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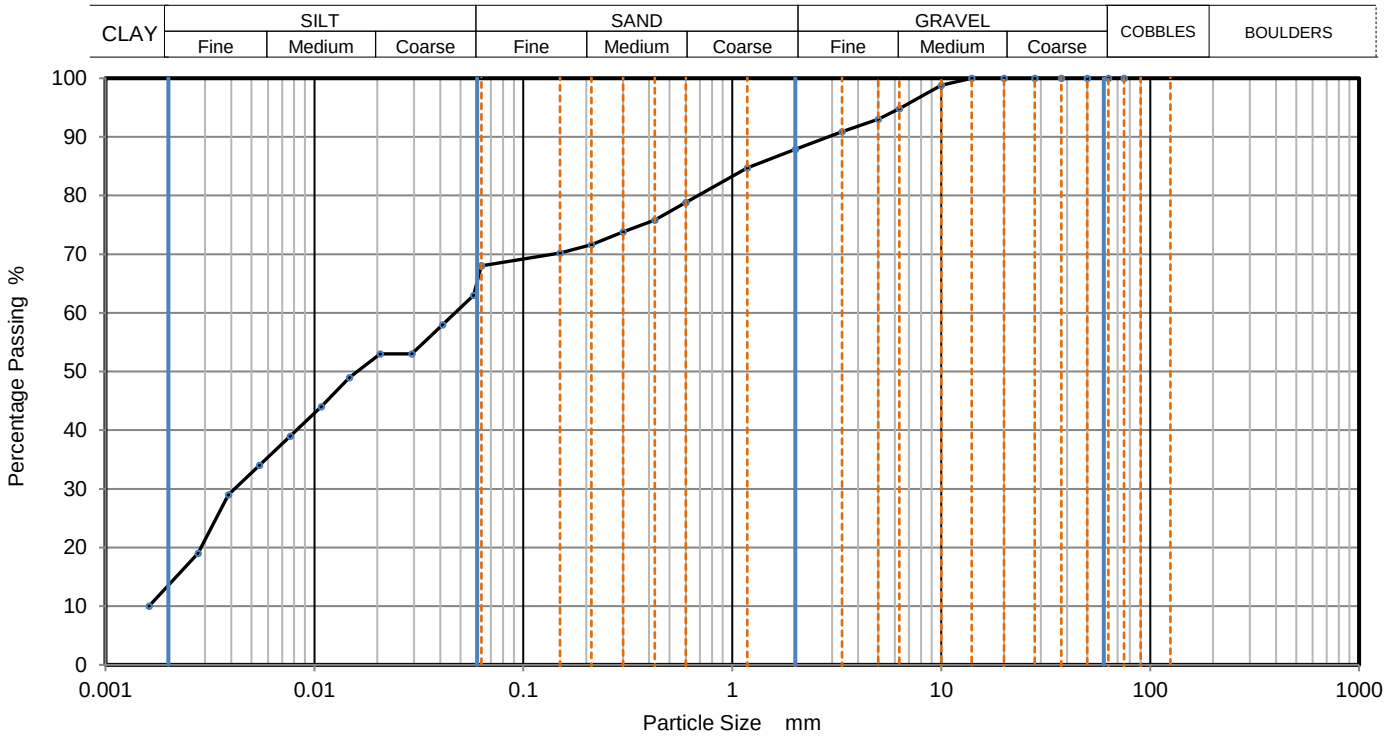
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-58505
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116163



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	68
		0.0578	63
75	100	0.0411	58
63	100	0.0292	53
50	100	0.0207	53
37.5	100	0.0147	49
28	100	0.0108	44
20	100	0.0077	39
14	100	0.0055	34
10	99	0.0039	29
6.3	95	0.0028	19
5	93	0.0016	10
3.35	91		
2	88		
1.18	85		
0.6	79	Particle density (assumed)	
0.425	76	2.65	Mg/m3
0.3	74		
0.212	72		
0.15	70		
0.063	68		

Dry Mass of sample, g	269

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	20
Silt	54
Clay	14

Grading Analysis		
D100	mm	
D60	mm	0.0464
D30	mm	0.00412
D10	mm	0.00164
Uniformity Coefficient		28
Curvature Coefficient		0.22

Remarks

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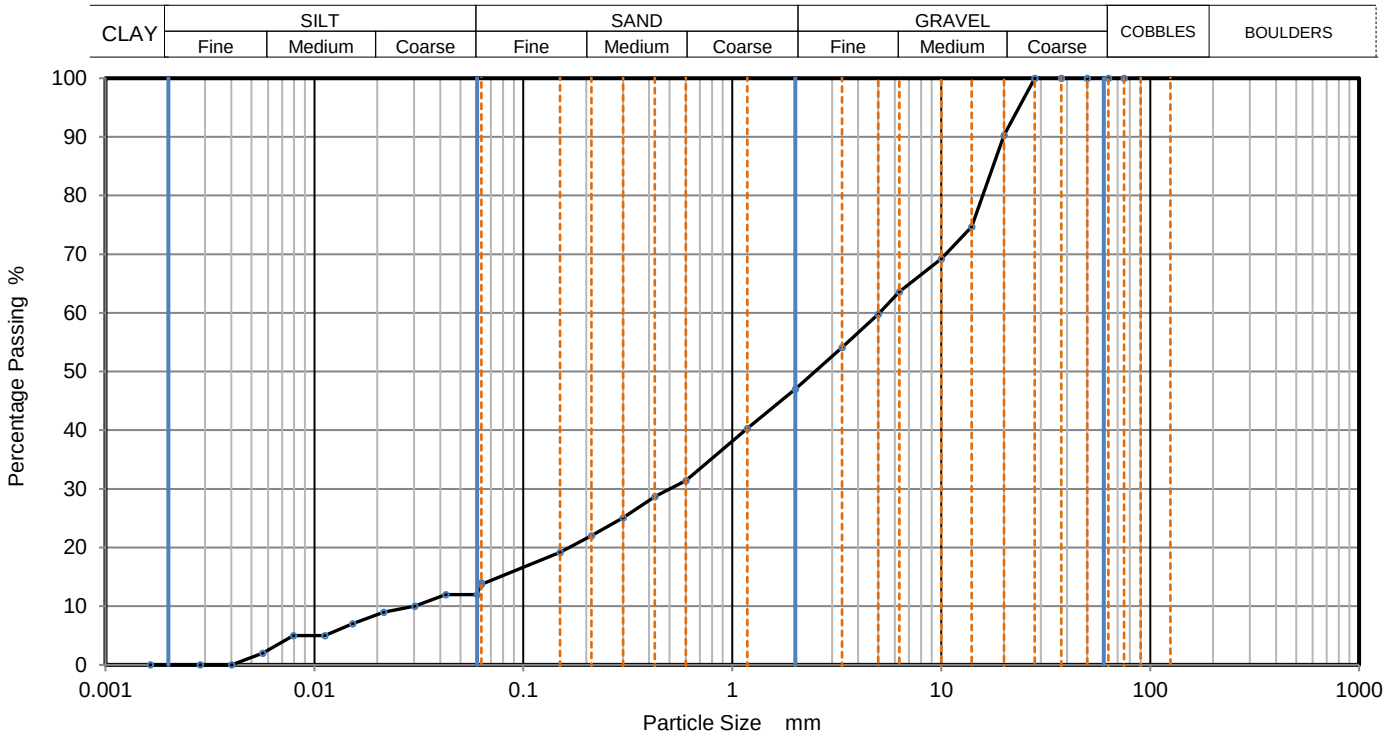
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-58505
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey silty very sandy medium GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211116165



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	14
		0.0601	12
75	100	0.0425	12
63	100	0.0302	10
50	100	0.0215	9
37.5	100	0.0153	7
28	100	0.0112	5
20	90	0.0079	5
14	75	0.0057	2
10	69	0.0040	0
6.3	64	0.0028	0
5	60	0.0016	0
3.35	54		
2	47		
1.18	40		
0.6	31	Particle density (assumed)	
0.425	29	2.65	Mg/m3
0.3	25		
0.212	22		
0.15	19		
0.063	14		

Dry Mass of sample, g: 265

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	33
Silt	14
Clay	0

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.06
D_{30}	mm	0.502
D_{10}	mm	0.0286
Uniformity Coefficient		180
Curvature Coefficient		1.7

Remarks

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		Dympna Darcy B.Sc.	04/01/2023 11:53	**1** QC From No:R2

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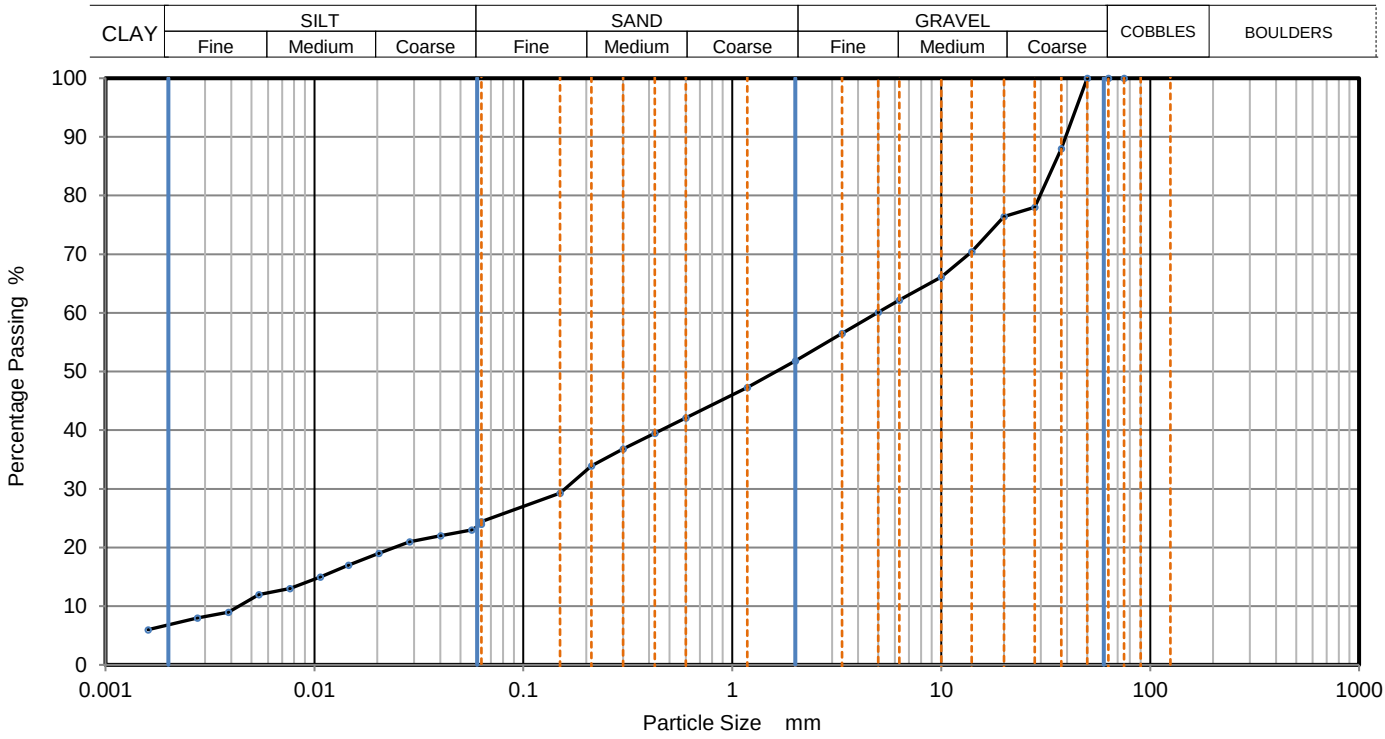
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

Job Ref	**2021OY102**		
Borehole/Pit No.	TP-58606		
Site Name	WSP Eastern & Midlands Region	Sample No.	2
Soil Description	Brownsih-grey very silty very sandy coarse GRAVEL.	Depth, m	0.70
Specimen Reference		Specimen Depth: m	Sample Type: B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL1202111222



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0565	23
75	100	0.0402	22
63	100	0.0286	21
50	100	0.0203	19
37.5	88	0.0145	17
28	78	0.0107	15
20	76	0.0076	13
14	70	0.0054	12
10	66	0.0039	9
6.3	62	0.0028	8
5	60	0.0016	6
3.35	57		
2	52		
1.18	47		
0.6	42	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	37		
0.212	34		
0.15	29		
0.063	24		

Dry Mass of sample, g: 967

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	27
Silt	18
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.97
D_{30}	mm	0.158
D_{10}	mm	0.00443
Uniformity Coefficient		1100
Curvature Coefficient		1.1

Remarks

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				QC From No:R2

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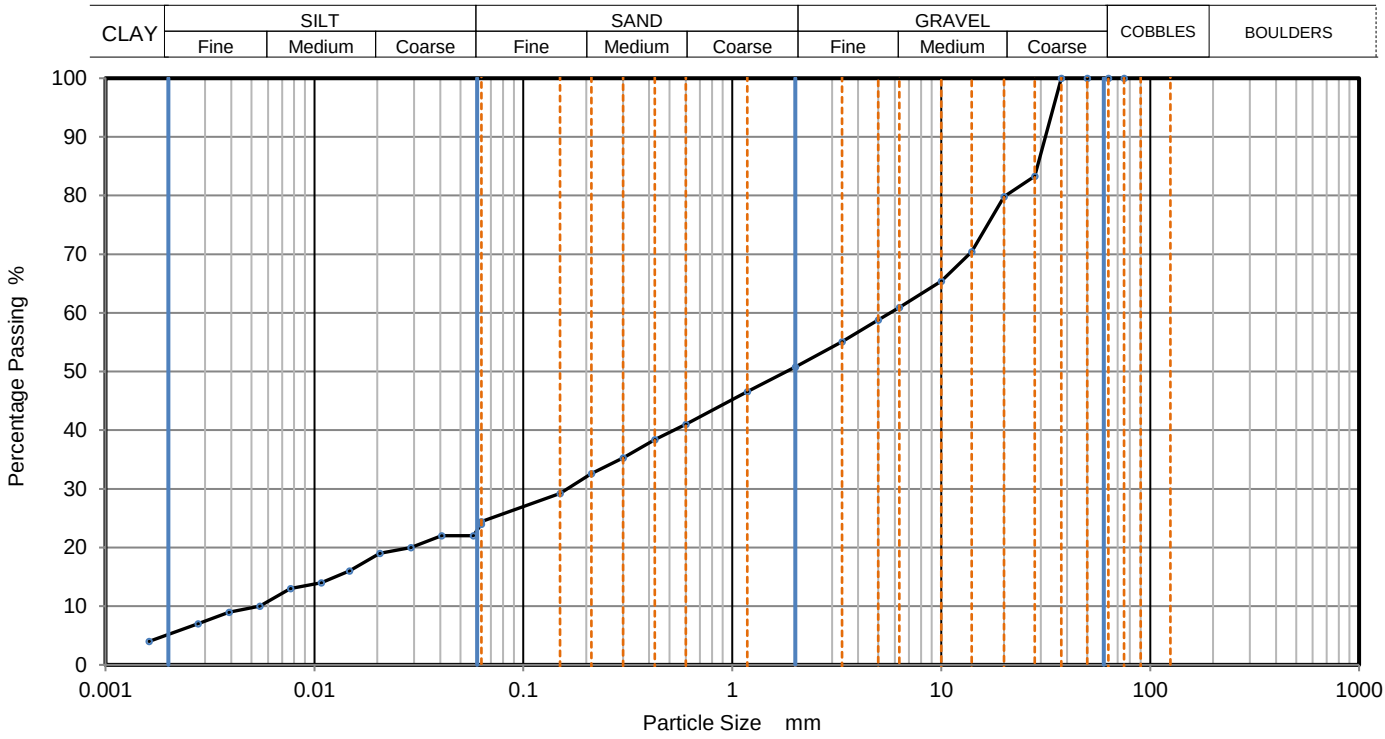
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

Job Ref	**2021OY102**		
Borehole/Pit No.	TP-58702		
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brownish-grey very silty very sandy medium and coarse GRAVEL.	Depth, m	0.30
Specimen Reference		Specimen Depth / m	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	Sample Type	B
		KeyLAB ID	IDL1202111224



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0575	22
75	100	0.0407	22
63	100	0.0289	20
50	100	0.0206	19
37.5	100	0.0147	16
28	83	0.0108	14
20	80	0.0077	13
14	70	0.0055	10
10	65	0.0039	9
6.3	61	0.0028	7
5	59	0.0016	4
3.35	55		
2	51		
1.18	47		
0.6	41	Particle density (assumed)	
0.425	38	2.65 Mg/m3	
0.3	35		
0.212	33		
0.15	29		
0.063	24		

Dry Mass of sample, g: 831

Sample Proportions	% dry mass
Very coarse	0
Gravel	49
Sand	27
Silt	19
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.7
D_{30}	mm	0.163
D_{10}	mm	0.00542
Uniformity Coefficient		1100
Curvature Coefficient		0.86

Remarks

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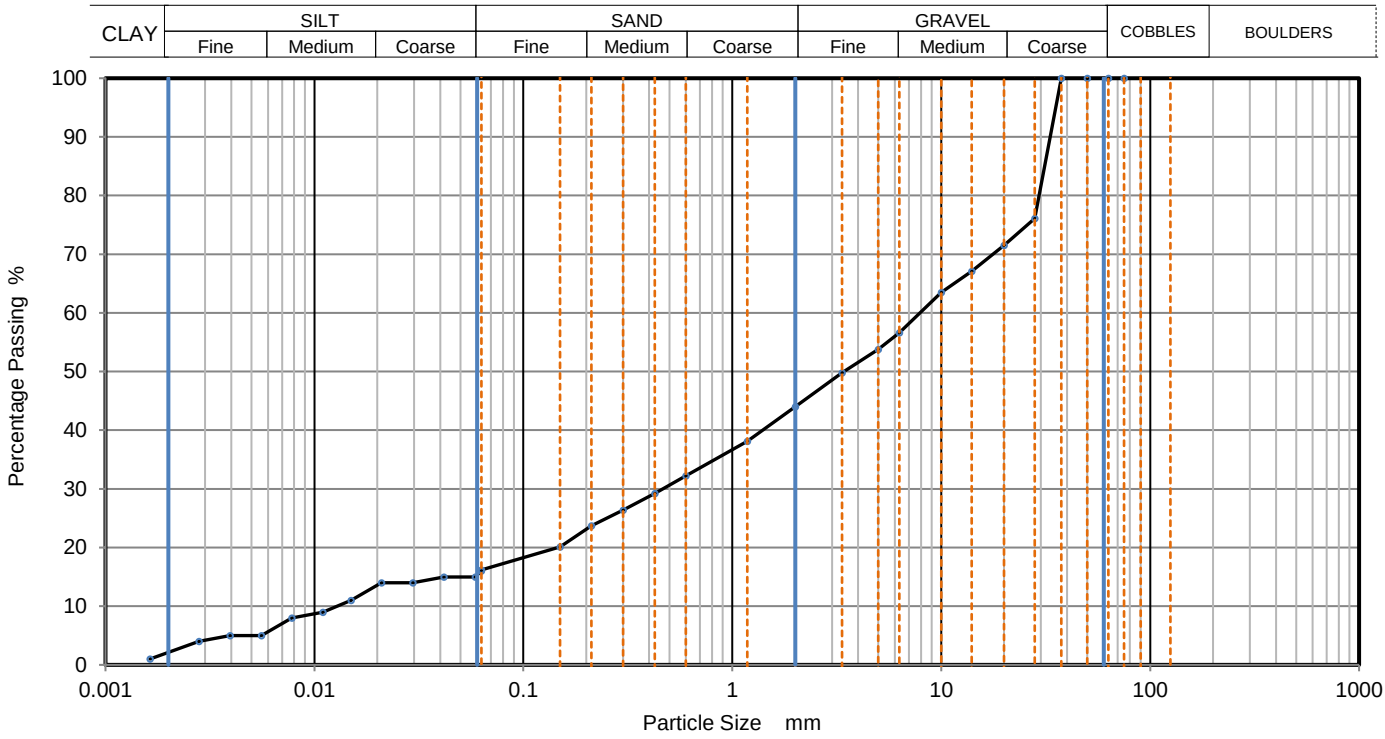
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-58702
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Brownish-grey silty very sandy coarse GRAVEL.	Depth, m	1.50
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL1202111226



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	16
		0.0588	15
75	100	0.0416	15
63	100	0.0296	14
50	100	0.0209	14
37.5	100	0.0149	11
28	76	0.0110	9
20	72	0.0078	8
14	67	0.0056	5
10	64	0.0039	5
6.3	57	0.0028	4
5	54	0.0016	1
3.35	50		
2	44		
1.18	38		
0.6	32	Particle density (assumed)	
0.425	29	2.65 Mg/m3	
0.3	26		
0.212	24		
0.15	20		
0.063	16		

Dry Mass of sample, g	726

Sample Proportions	% dry mass
Very coarse	0
Gravel	56
Sand	28
Silt	14
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.91
D_{30}	mm	0.467
D_{10}	mm	0.0124
Uniformity Coefficient		640
Curvature Coefficient		2.2

Remarks

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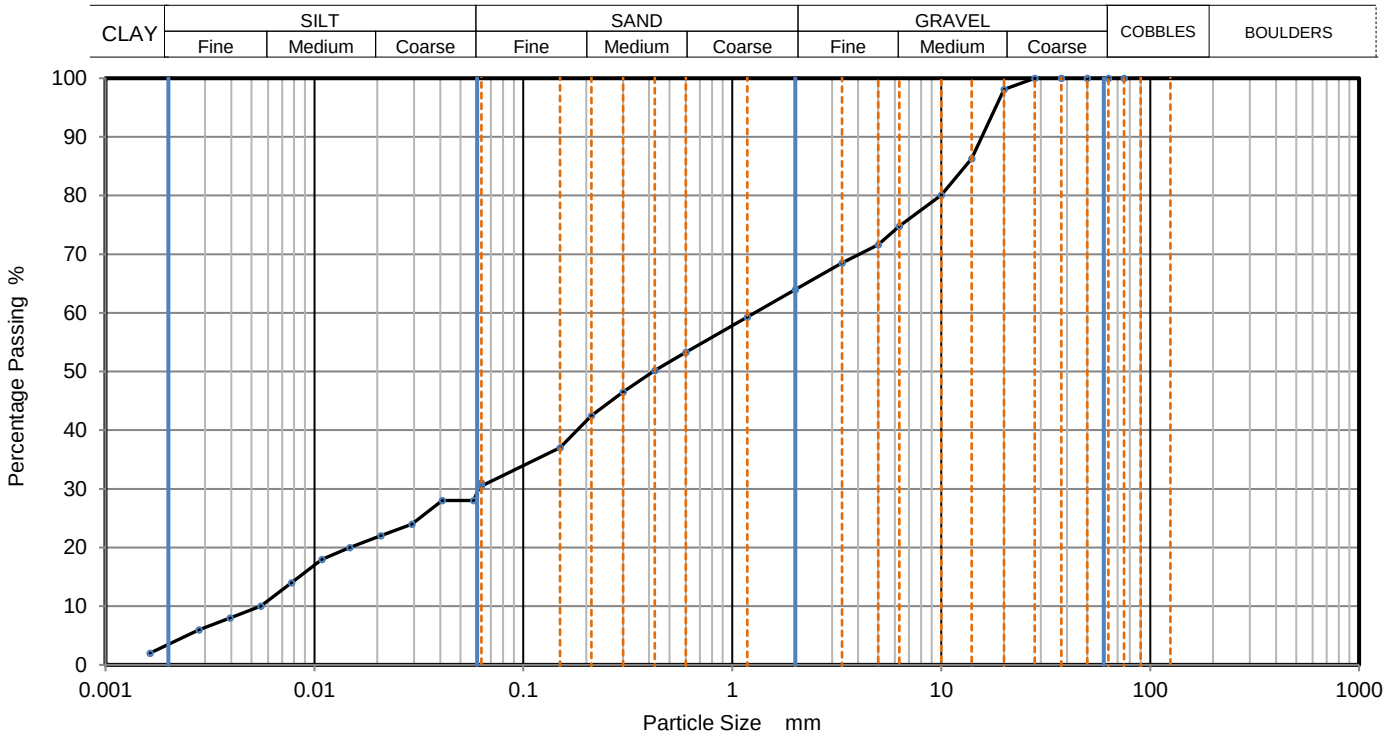
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-58814
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Greenish-brown very silty SAND and GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202111228



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0578	28
75	100	0.0409	28
63	100	0.0292	24
50	100	0.0208	22
37.5	100	0.0148	20
28	100	0.0109	18
20	98	0.0078	14
14	86	0.0055	10
10	80	0.0039	8
6.3	75	0.0028	6
5	72	0.0016	2
3.35	69		
2	64		
1.18	59		
0.6	53	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	47		
0.212	43		
0.15	37		
0.063	31		

Dry Mass of sample, g	907

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	34
Silt	27
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.27
D_{30}	mm	0.0616
D_{10}	mm	0.00539
Uniformity Coefficient		240
Curvature Coefficient		0.55

Remarks

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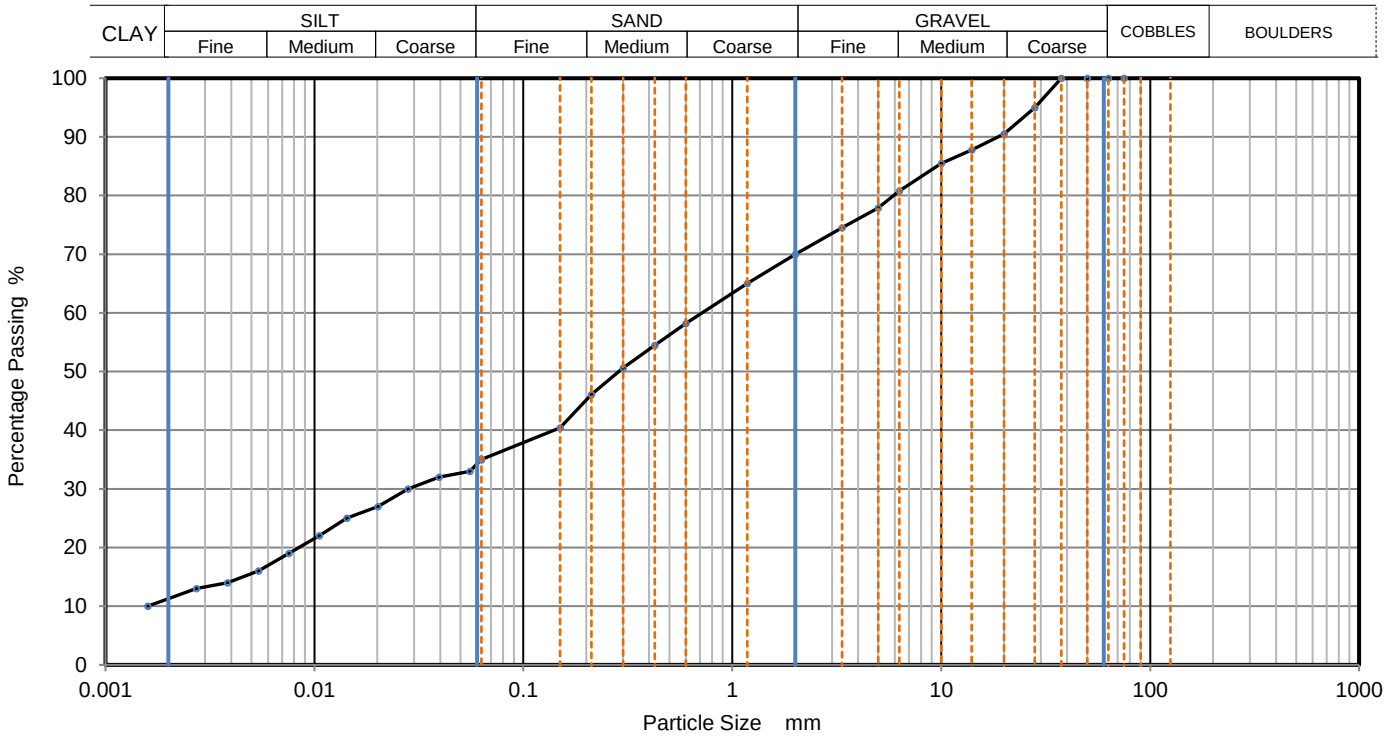
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-58814
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112210



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0555	33
75	100	0.0395	32
63	100	0.0281	30
50	100	0.0201	27
37.5	100	0.0143	25
28	95	0.0106	22
20	91	0.0076	19
14	88	0.0054	16
10	86	0.0038	14
6.3	81	0.0027	13
5	78	0.0016	10
3.35	75		
2	70		
1.18	65		
0.6	58	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	51		
0.212	46		
0.15	40		
0.063	35		

Dry Mass of sample, g	943

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	35
Silt	24
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.718
D_{30}	mm	0.0274
D_{10}	mm	0.00172
Uniformity Coefficient		420
Curvature Coefficient		0.61

Remarks

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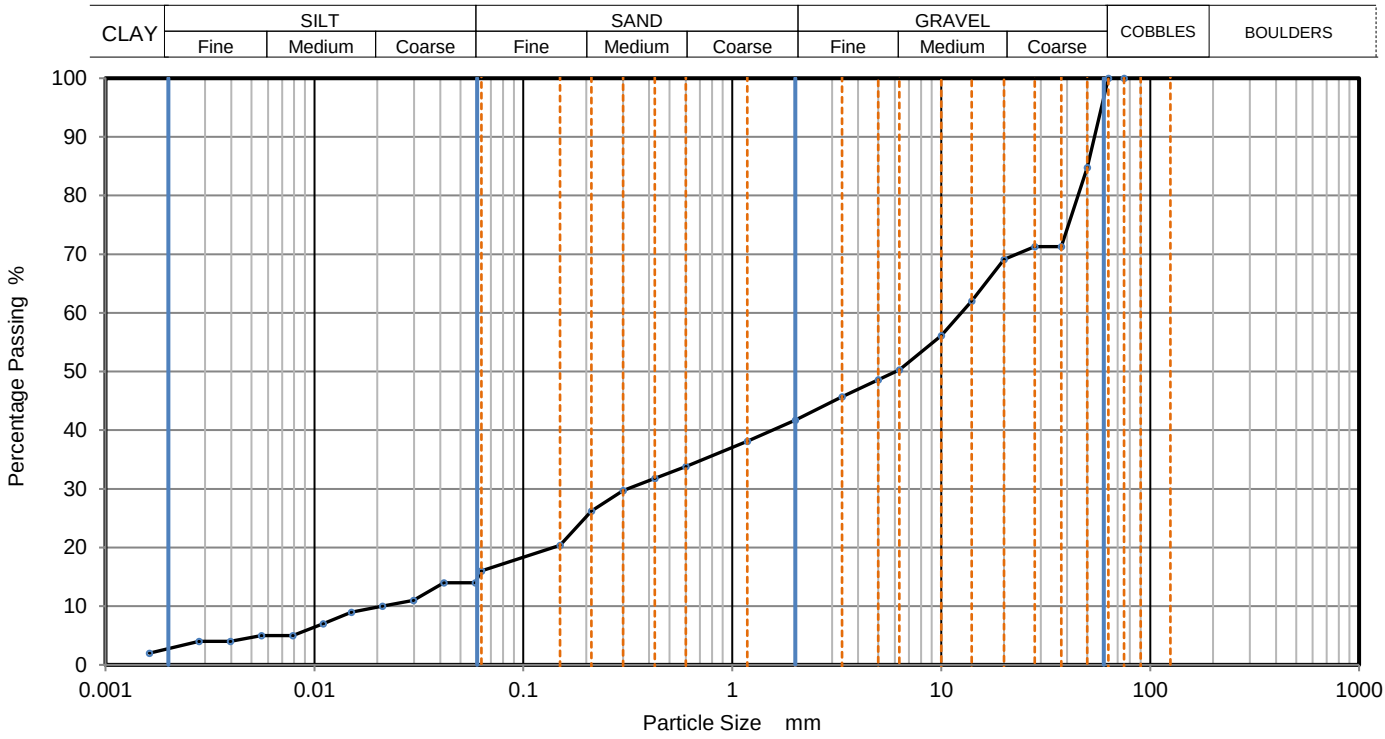
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-58904
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark grey silty very sandy coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112212



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	16
		0.0588	14
75	100	0.0416	14
63	100	0.0297	11
50	85	0.0211	10
37.5	71	0.0150	9
28	71	0.0110	7
20	69	0.0079	5
14	62	0.0056	5
10	56	0.0040	4
6.3	50	0.0028	4
5	49	0.0016	2
3.35	46		
2	42		
1.18	38		
0.6	34	Particle density (assumed)	
0.425	32	2.65	Mg/m3
0.3	30		
0.212	26		
0.15	20		
0.063	16		

Dry Mass of sample, g	1035

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	26
Silt	13
Clay	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	12.5
D_{30}	mm	0.316
D_{10}	mm	0.0221
Uniformity Coefficient		570
Curvature Coefficient		0.36

Remarks

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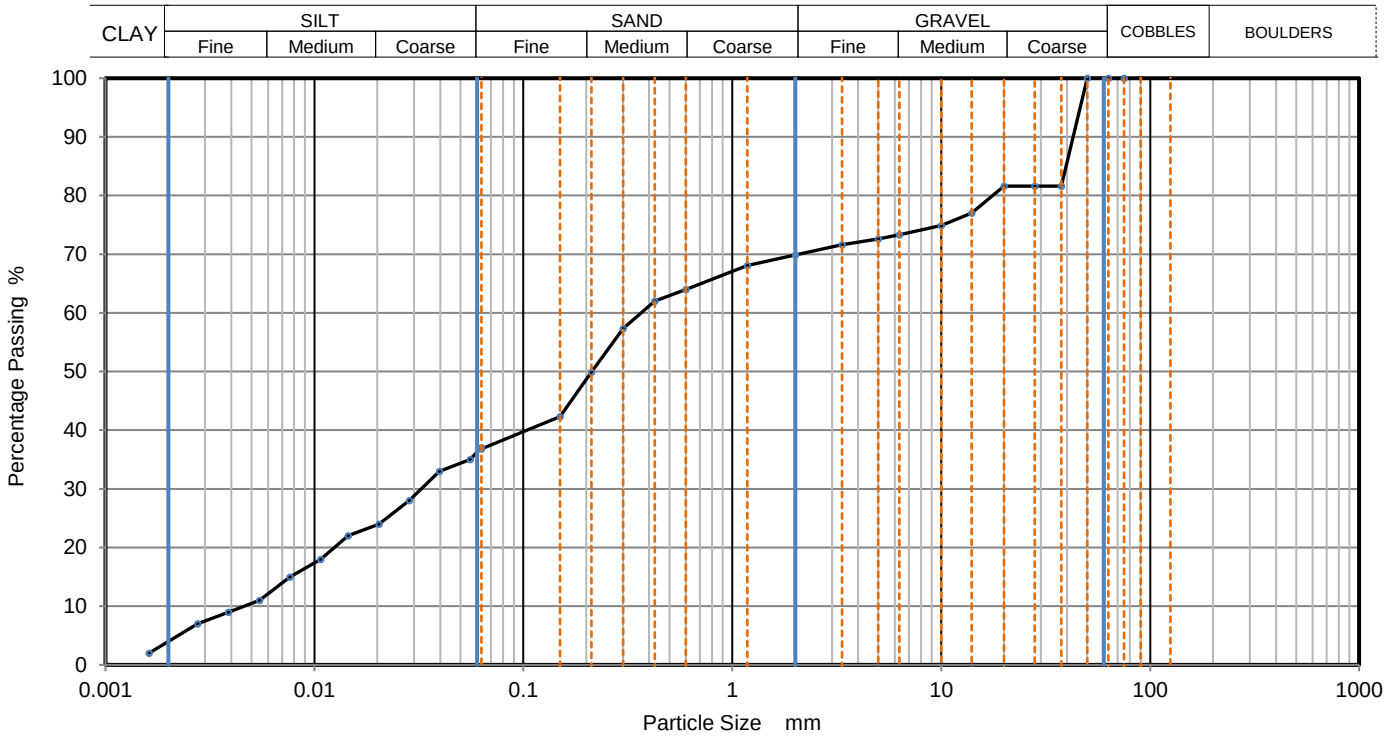
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-59203
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Orangish-brown slightly gravelly slightly sandy SILT.			Depth, m	0.25
Specimen Reference		Specimen Depth	m	Sample Type	D
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112216



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0556	35
75	100	0.0396	33
63	100	0.0285	28
50	100	0.0204	24
37.5	82	0.0145	22
28	82	0.0107	18
20	82	0.0076	15
14	77	0.0055	11
10	75	0.0039	9
6.3	73	0.0028	7
5	73	0.0016	2
3.35	72		
2	70		
1.18	68		
0.6	64	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	57		
0.212	50		
0.15	42		
0.063	37		

Dry Mass of sample, g	664

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	33
Silt	33
Clay	4

Grading Analysis		
D100	mm	
D60	mm	0.366
D30	mm	0.0329
D10	mm	0.0045
Uniformity Coefficient		81
Curvature Coefficient		0.66

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 14:04	**1** QC From No:R2

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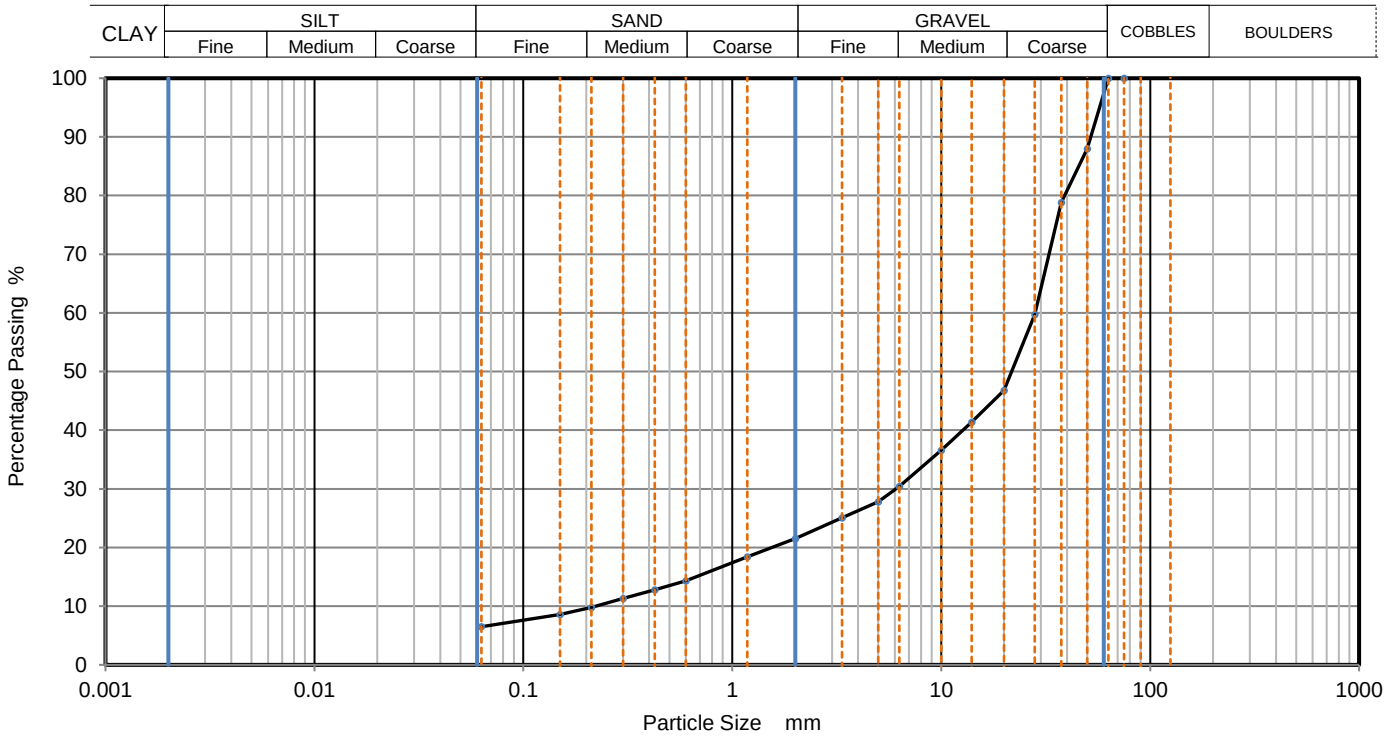
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-59203
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown silty sandy coarse GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021112219



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	88		
37.5	79		
28	60		
20	47		
14	41		
10	37		
6.3	30		
5	28		
3.35	25		
2	22		
1.18	18		
0.6	14	Particle density (assumed)	
0.425	13	2.65	Mg/m3
0.3	11		
0.212	10		
0.15	9		
0.063	7		

Dry Mass of sample, g	981

Sample Proportions	% dry mass
Very coarse	0
Gravel	79
Sand	15
Fines <0.063mm	6

Grading Analysis		
D100	mm	
D60	mm	28.1
D30	mm	6.07
D10	mm	0.221
Uniformity Coefficient		130
Curvature Coefficient		5.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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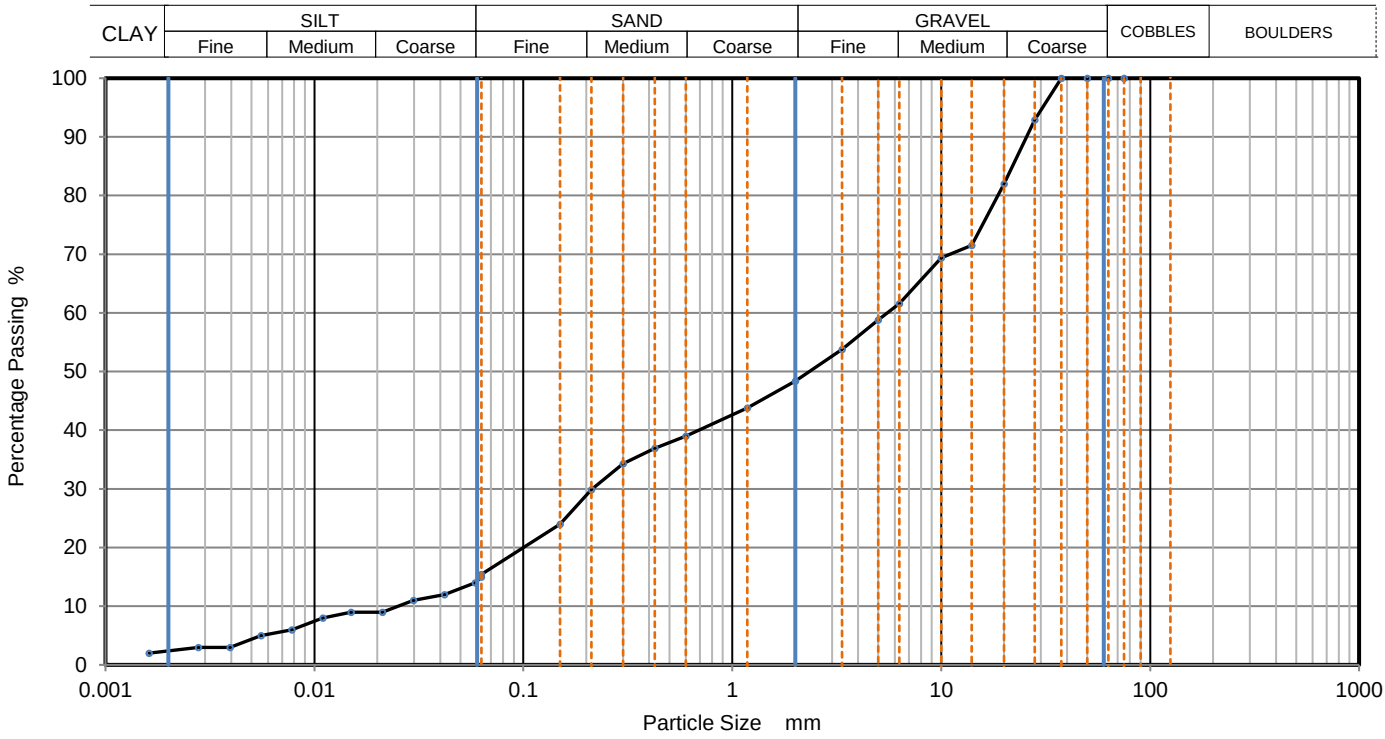
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-59305
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown silty very sandy medium and coarse GRAVEL.	Depth, m	0.50
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021112220



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	15
		0.0589	14
75	100	0.0419	12
63	100	0.0298	11
50	100	0.0212	9
37.5	100	0.0150	9
28	93	0.0110	8
20	82	0.0078	6
14	72	0.0055	5
10	69	0.0039	3
6.3	62	0.0028	3
5	59	0.0016	2
3.35	54		
2	48		
1.18	44		
0.6	39	Particle density (assumed)	
0.425	37	2.65 Mg/m3	
0.3	34		
0.212	30		
0.15	24		
0.063	15		

Dry Mass of sample, g	768

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	33
Silt	13
Clay	2

Grading Analysis		
D100	mm	
D60	mm	5.53
D30	mm	0.213
D10	mm	0.025
Uniformity Coefficient		220
Curvature Coefficient		0.33

Remarks

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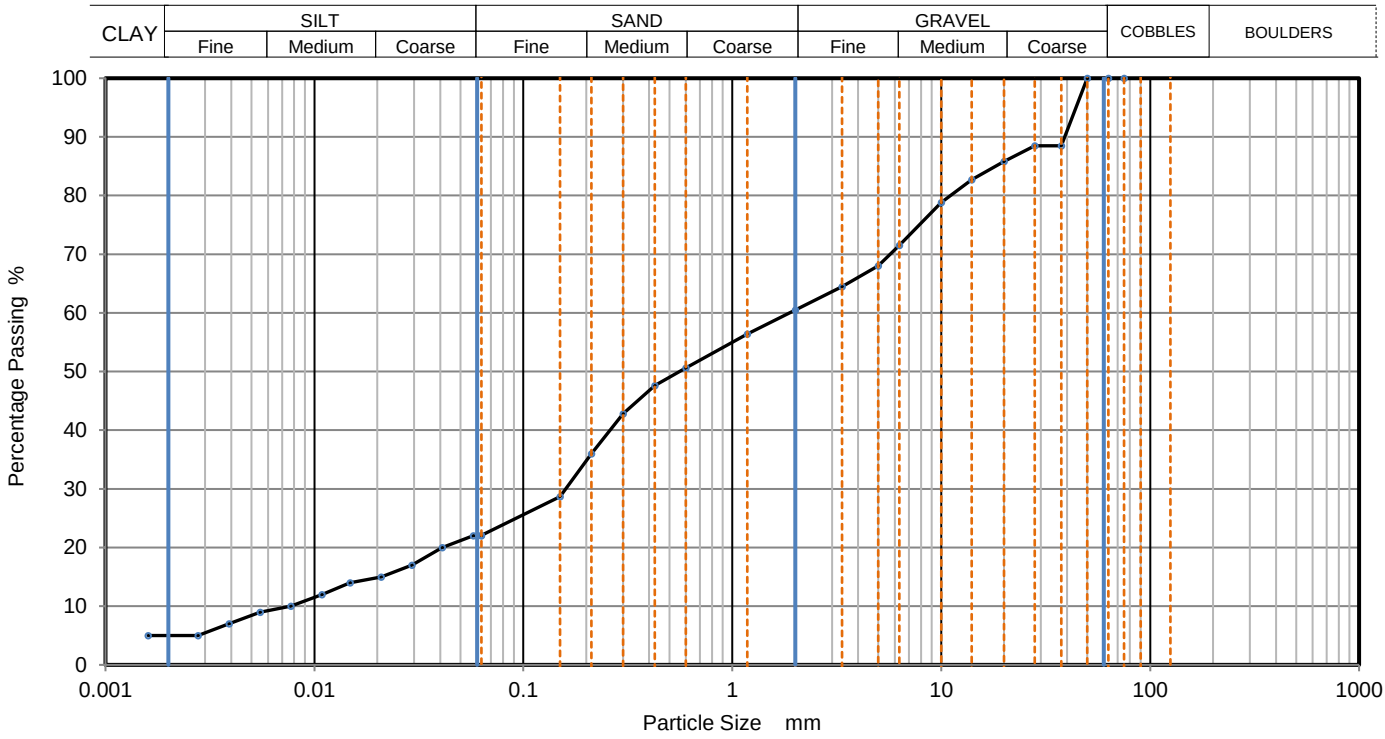
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-59305
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty SAND and GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112222



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0576	22
75	100	0.0410	20
63	100	0.0293	17
50	100	0.0208	15
37.5	89	0.0148	14
28	89	0.0109	12
20	86	0.0077	10
14	83	0.0055	9
10	79	0.0039	7
6.3	72	0.0028	5
5	68	0.0016	5
3.35	65		
2	61		
1.18	56		
0.6	51	Particle density (assumed)	
0.425	48	2.65	Mg/m3
0.3	43		
0.212	36		
0.15	29		
0.063	22		

Dry Mass of sample, g	933

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	38
Silt	17
Clay	5

Grading Analysis		
D100	mm	
D60	mm	1.87
D30	mm	0.159
D10	mm	0.00742
Uniformity Coefficient		250
Curvature Coefficient		1.8

Remarks

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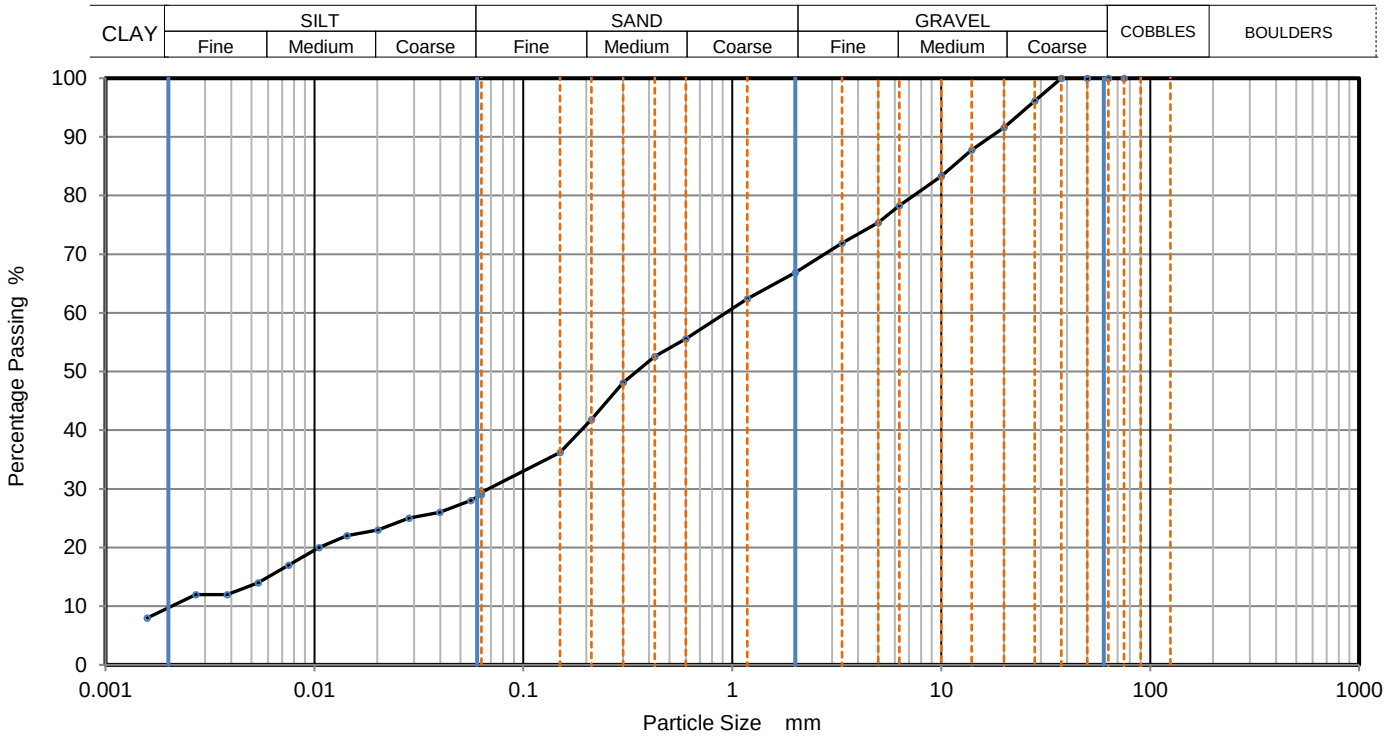
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-59407
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112226



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0560	28
75	100	0.0398	26
63	100	0.0283	25
50	100	0.0201	23
37.5	100	0.0143	22
28	96	0.0105	20
20	92	0.0075	17
14	88	0.0054	14
10	83	0.0038	12
6.3	78	0.0027	12
5	75	0.0016	8
3.35	72		
2	67		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	48		
0.212	42		
0.15	36		
0.063	29		

Dry Mass of sample, g	896

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	38
Silt	20
Clay	10

Grading Analysis		
D100	mm	
D60	mm	0.931
D30	mm	0.0676
D10	mm	0.00206
Uniformity Coefficient		450
Curvature Coefficient		2.4

Remarks

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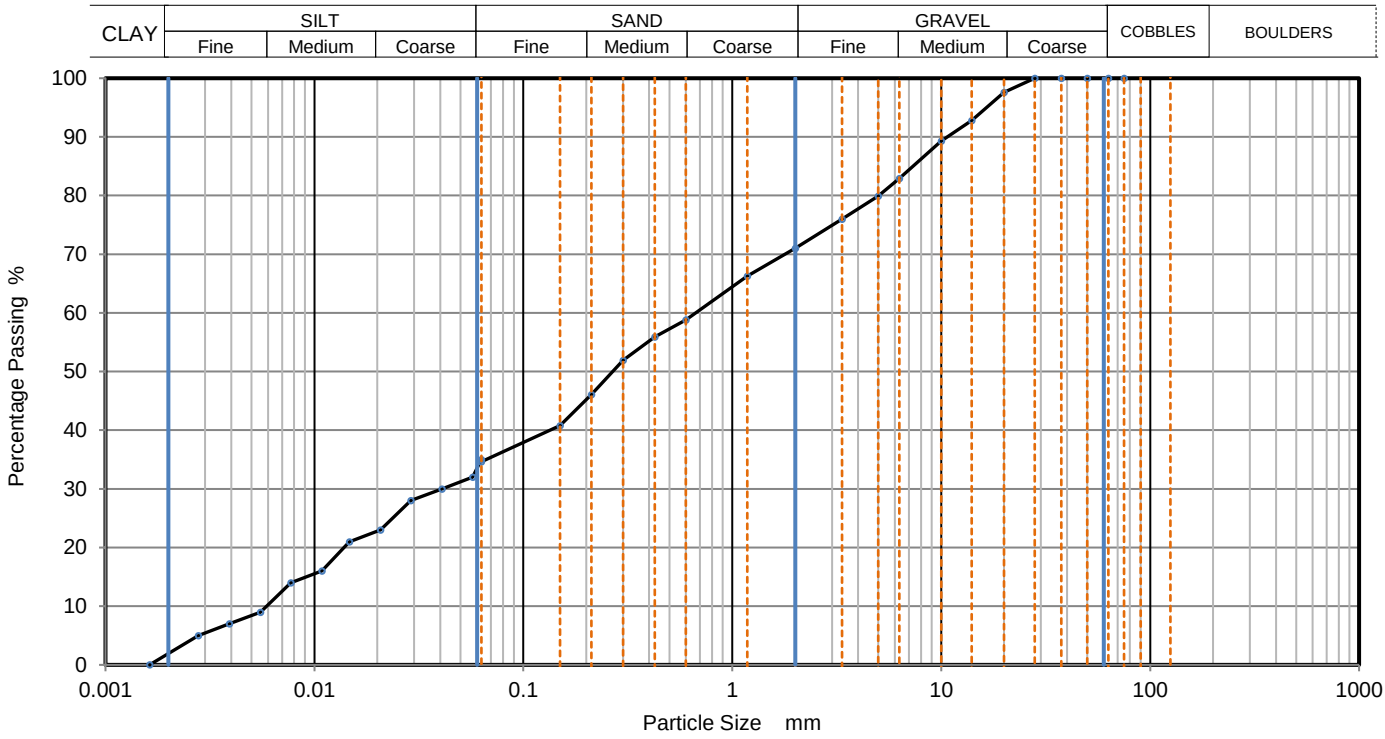
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-59407
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112228



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0573	32
75	100	0.0407	30
63	100	0.0290	28
50	100	0.0207	23
37.5	100	0.0147	21
28	100	0.0109	16
20	98	0.0077	14
14	93	0.0055	9
10	89	0.0039	7
6.3	83	0.0028	5
5	80	0.0016	0
3.35	76		
2	71		
1.18	66		
0.6	59	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	52		
0.212	46		
0.15	41		
0.063	35		

Dry Mass of sample, g	1141

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	36
Silt	33
Clay	2

Grading Analysis		
D100	mm	
D60	mm	0.67
D30	mm	0.0408
D10	mm	0.00584
Uniformity Coefficient		110
Curvature Coefficient		0.43

Remarks

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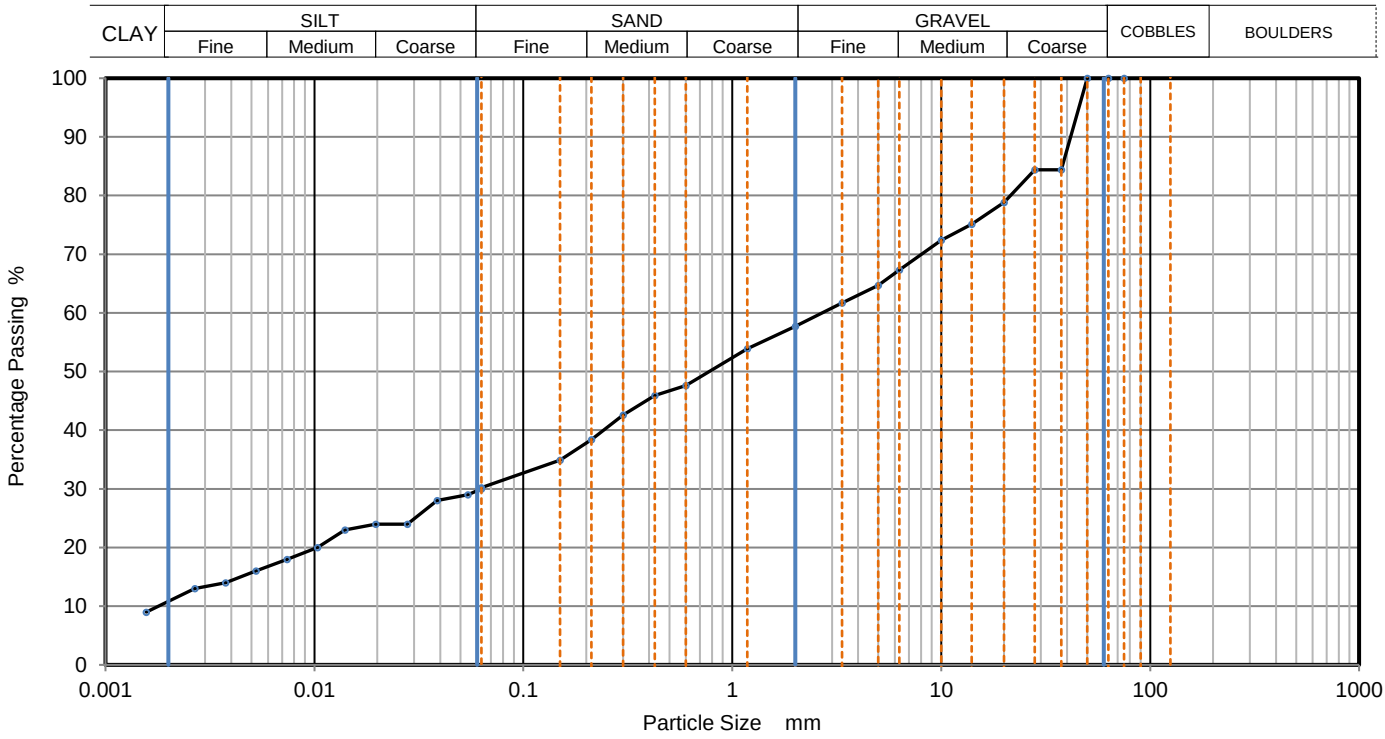
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-59504
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very sandy very silty coarse GRAVEL.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112232



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0543	29
75	100	0.0386	28
63	100	0.0278	24
50	100	0.0197	24
37.5	84	0.0140	23
28	84	0.0103	20
20	79	0.0074	18
14	75	0.0053	16
10	72	0.0038	14
6.3	67	0.0027	13
5	65	0.0016	9
3.35	62		
2	58		
1.18	54		
0.6	48	Particle density (assumed)	
0.425	46	2.65	Mg/m3
0.3	43		
0.212	38		
0.15	35		
0.063	30		

Dry Mass of sample, g	1261

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	28
Silt	20
Clay	11

Grading Analysis		
D100	mm	
D60	mm	2.68
D30	mm	0.0614
D10	mm	0.00186
Uniformity Coefficient		1400
Curvature Coefficient		0.76

Remarks

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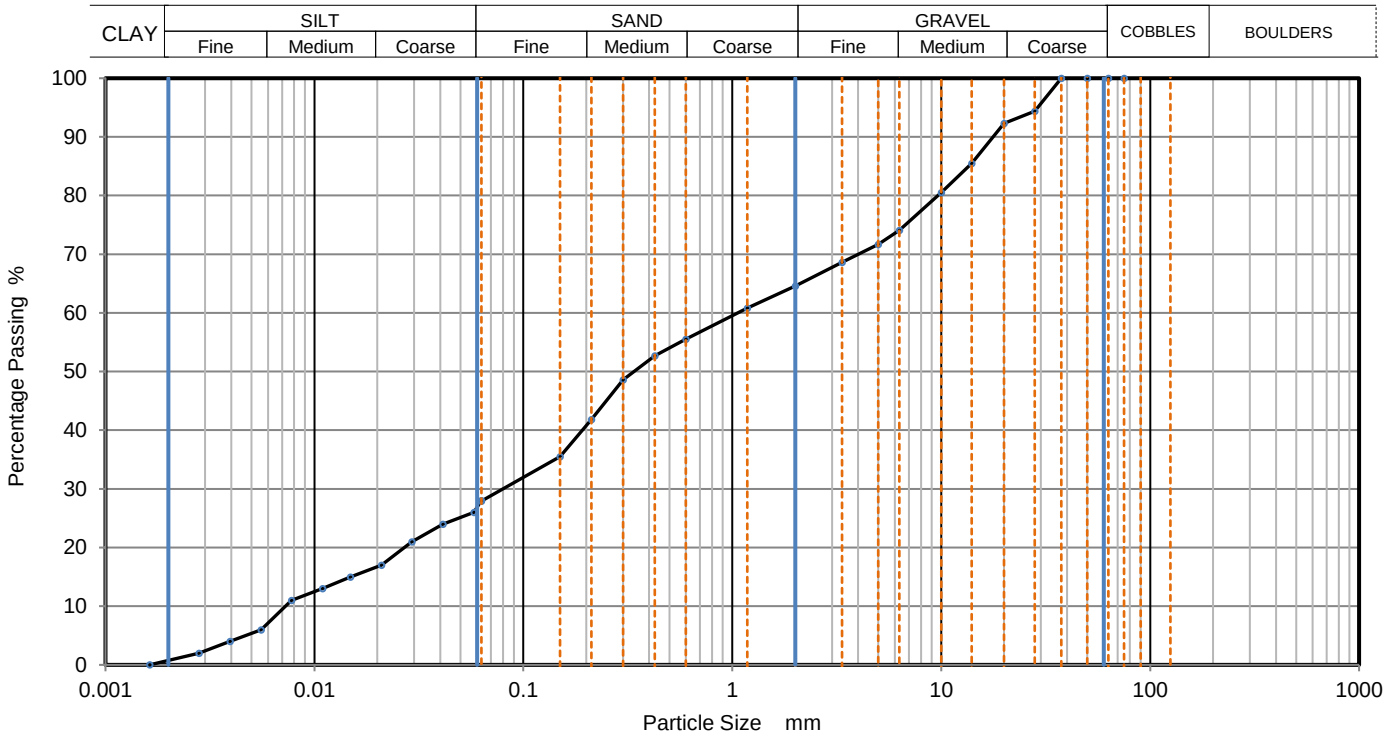
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-59504
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021112234



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0579	26
75	100	0.0412	24
63	100	0.0293	21
50	100	0.0209	17
37.5	100	0.0149	15
28	94	0.0109	13
20	92	0.0078	11
14	86	0.0055	6
10	81	0.0039	4
6.3	74	0.0028	2
5	72	0.0016	0
3.35	69		
2	65		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	53	2.65	Mg/m3
0.3	49		
0.212	42		
0.15	36		
0.063	28		

Dry Mass of sample, g	970

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	37
Silt	27
Clay	1

Grading Analysis		
D100	mm	
D60	mm	1.06
D30	mm	0.08
D10	mm	0.00733
Uniformity Coefficient		140
Curvature Coefficient		0.82

Remarks

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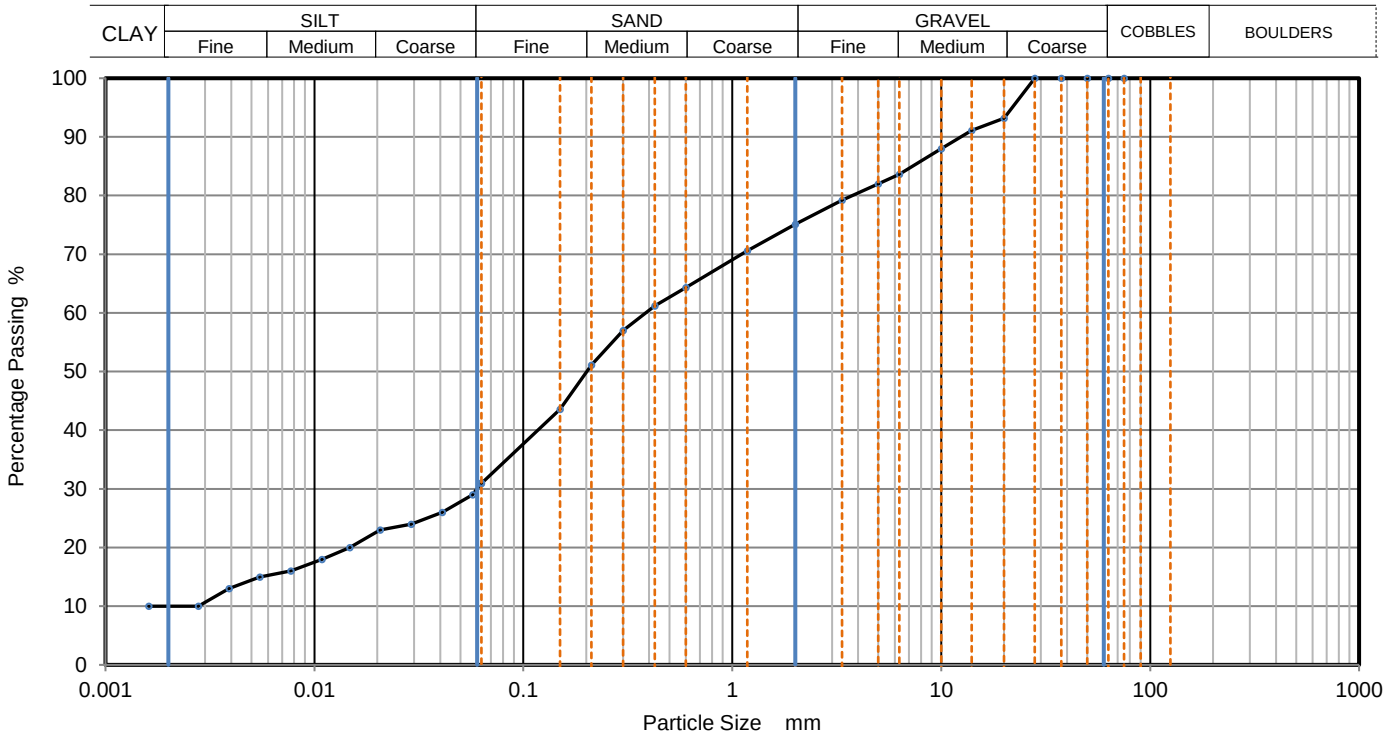
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60003
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very gravelly very silty fine SAND.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113024



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0571	29
75	100	0.0409	26
63	100	0.0291	24
50	100	0.0207	23
37.5	100	0.0148	20
28	100	0.0108	18
20	93	0.0077	16
14	91	0.0055	15
10	88	0.0039	13
6.3	84	0.0028	10
5	82	0.0016	10
3.35	79		
2	75		
1.18	71		
0.6	64	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	57		
0.212	51		
0.15	44		
0.063	31		

Dry Mass of sample, g	943

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	44
Silt	21
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.384
D_{30}	mm	0.0597
D_{10}	mm	0.00286
Uniformity Coefficient		130
Curvature Coefficient		3.3

Remarks

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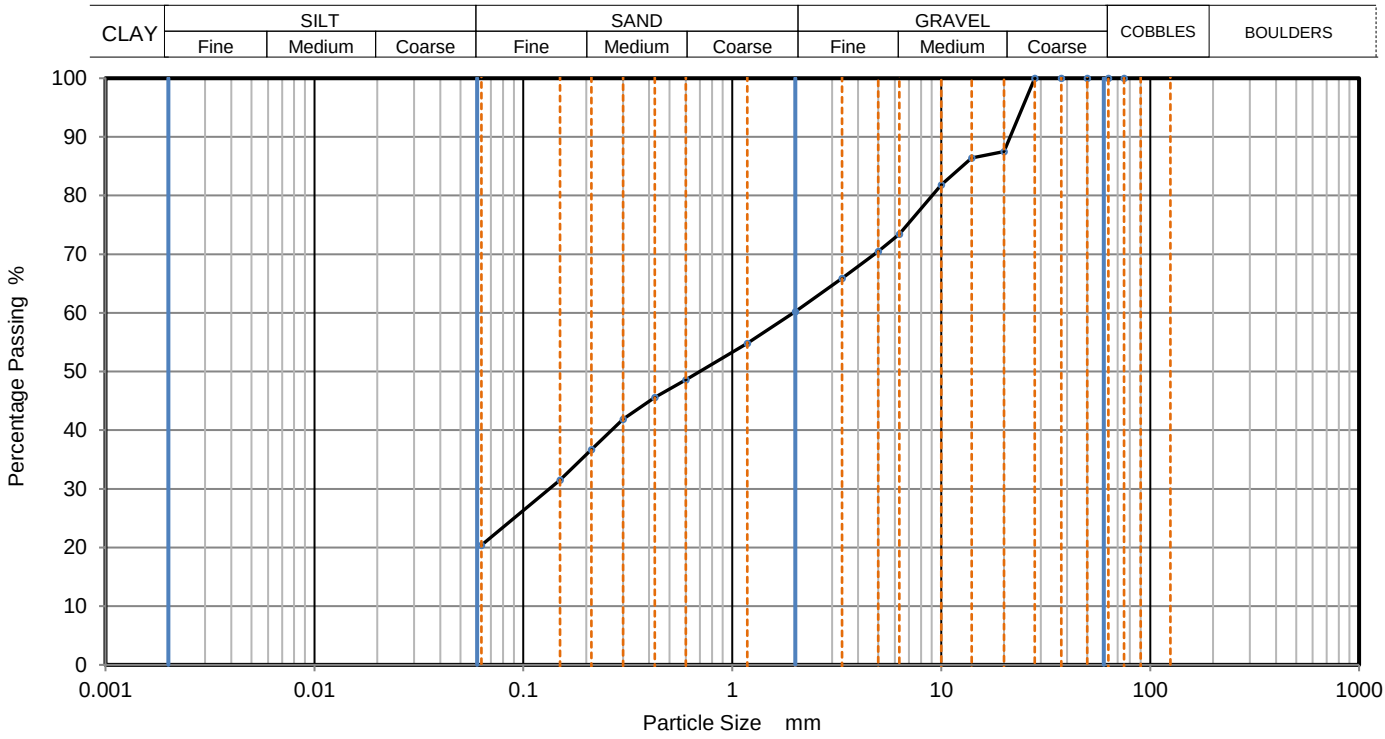
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60003
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brownish-grey very silty SAND and GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021113026



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	88		
14	86		
10	82		
6.3	73		
5	71		
3.35	66		
2	60		
1.18	55		
0.6	49		
0.425	46		
0.3	42		
0.212	37		
0.15	32		
0.063	20		

Dry Mass of sample, g	993

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	40
Fines <0.063mm	20

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.95
D_{30}	mm	0.133
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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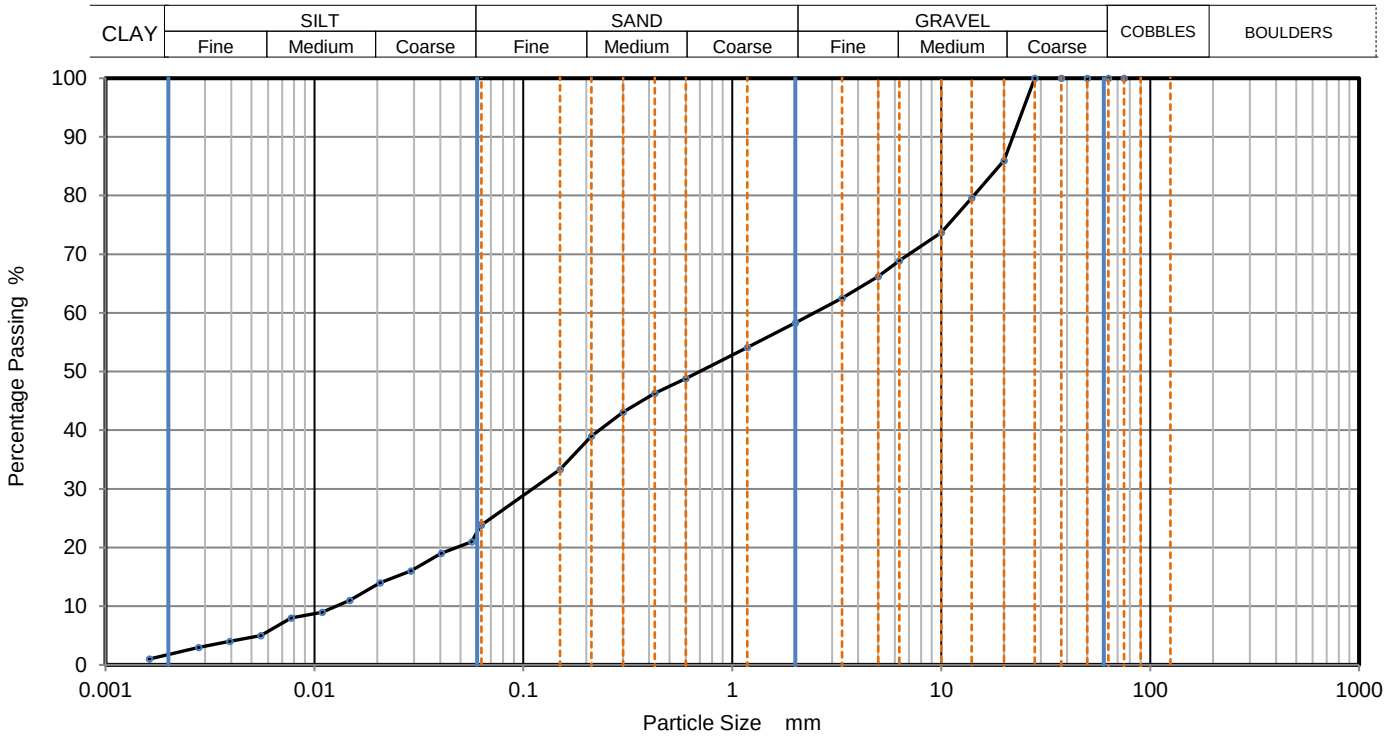
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-60003
Site Name	WSP Eastern & Midlands Region	Sample No.	6
Soil Description	Light grey very silty SAND and GRAVEL.	Depth, m	2.90
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021113029



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0565	21
75	100	0.0404	19
63	100	0.0289	16
50	100	0.0207	14
37.5	100	0.0148	11
28	100	0.0109	9
20	86	0.0078	8
14	80	0.0055	5
10	74	0.0039	4
6.3	69	0.0028	3
5	66	0.0016	1
3.35	63		
2	58		
1.18	54		
0.6	49	Particle density (assumed)	
0.425	46	2.65 Mg/m3	
0.3	43		
0.212	39		
0.15	33		
0.063	24		

Dry Mass of sample, g	1280

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	35
Silt	22
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.46
D_{30}	mm	0.111
D_{10}	mm	0.0127
Uniformity Coefficient		190
Curvature Coefficient		0.39

Remarks

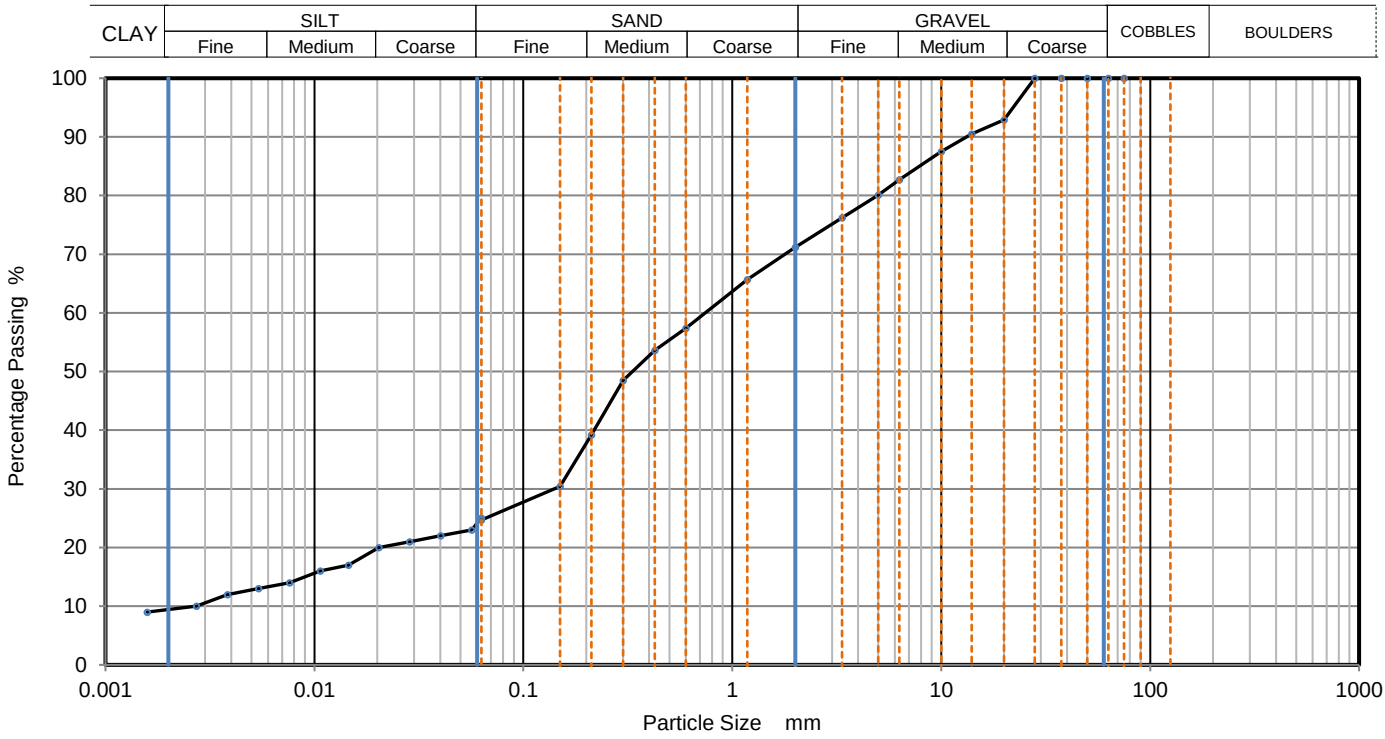
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	10/10/2022 15:04	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60106
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brownish-grey very silty very gravelly SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113030



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0565	23
75	100	0.0402	22
63	100	0.0286	21
50	100	0.0203	20
37.5	100	0.0145	17
28	100	0.0107	16
20	93	0.0076	14
14	91	0.0054	13
10	88	0.0038	12
6.3	83	0.0027	10
5	80	0.0016	9
3.35	76		
2	71		
1.18	66		
0.6	57	Particle density (assumed)	
0.425	54	2.65 Mg/m3	
0.3	49		
0.212	39		
0.15	30		
0.063	25		

Dry Mass of sample, g	1120

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	47
Silt	15
Clay	10

Grading Analysis		
D100	mm	
D60	mm	0.744
D30	mm	0.141
D10	mm	0.00231
Uniformity Coefficient		320
Curvature Coefficient		12

Remarks

Preparation and testing in accordance with BS1377 unless noted below

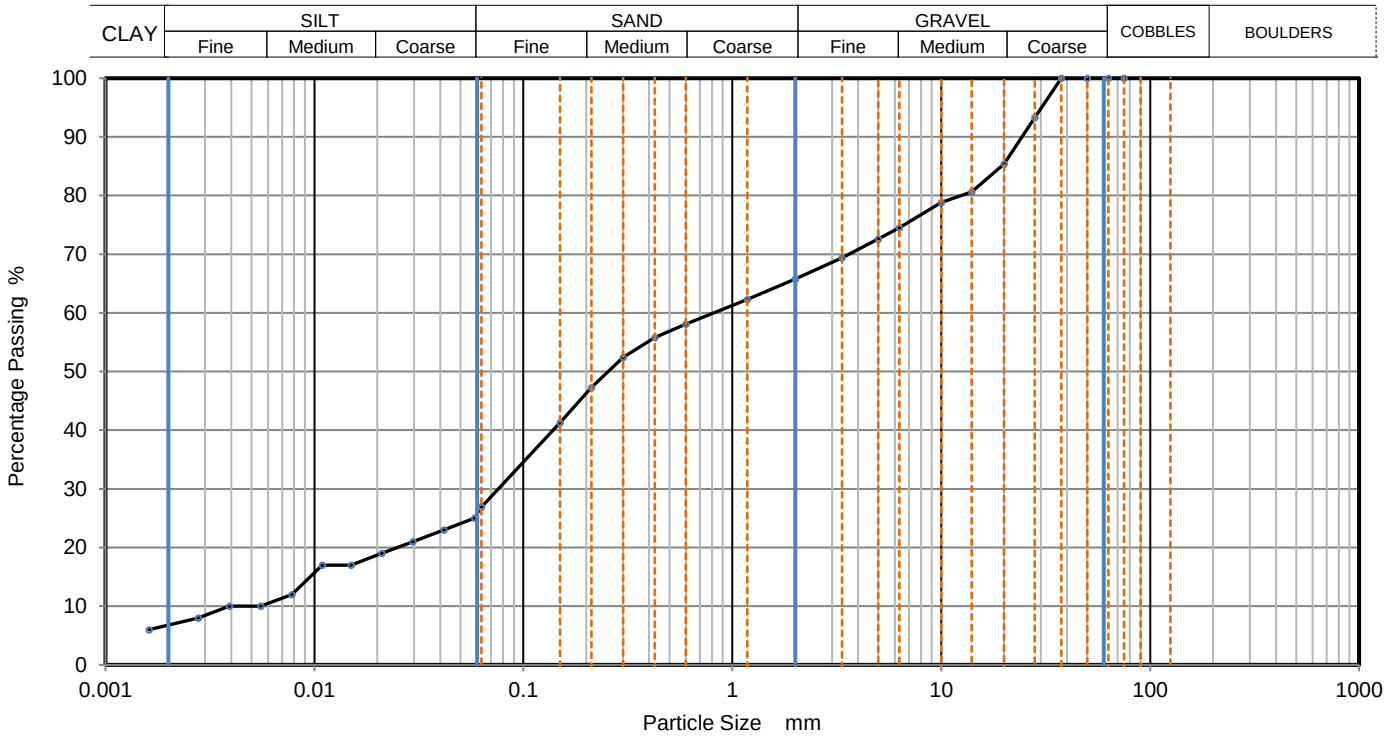
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:46	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60106
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark grey very silty GRAVEL and SAND. Sand is fine.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113034



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	27
		0.0585	25
75	100	0.0416	23
63	100	0.0296	21
50	100	0.0210	19
37.5	100	0.0149	17
28	93	0.0109	17
20	85	0.0078	12
14	81	0.0055	10
10	79	0.0039	10
6.3	75	0.0028	8
5	73	0.0016	6
3.35	69		
2	66		
1.18	62		
0.6	58	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	52		
0.212	47		
0.15	41		
0.063	27		

Dry Mass of sample, g	973

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	39
Silt	20
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.812
D_{30}	mm	0.0759
D_{10}	mm	0.0037
Uniformity Coefficient		220
Curvature Coefficient		1.9

Remarks

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		Dympna Darcy B.Sc.	10/10/2022 15:04	**1** QC From No:R2

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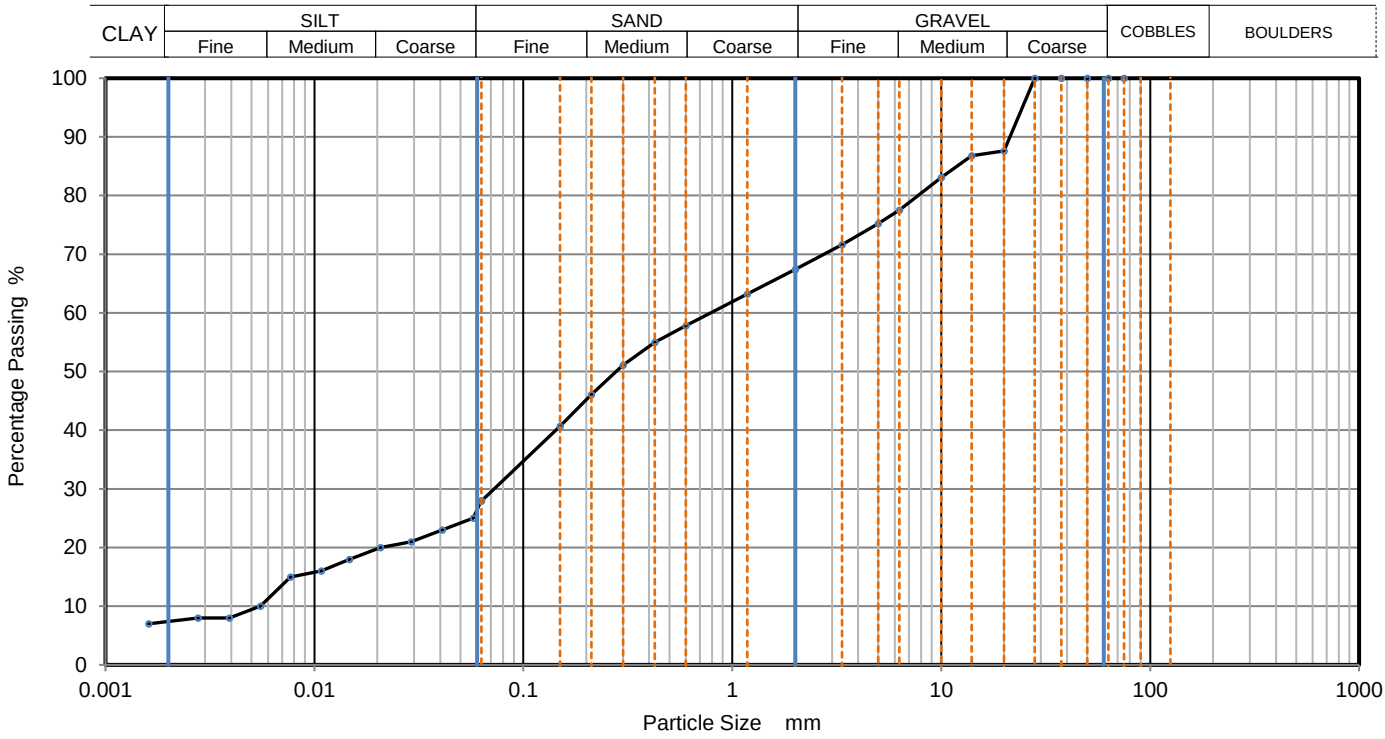
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60212
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty very gravelly SAND.			Depth, m	0.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113036



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0575	25
75	100	0.0409	23
63	100	0.0291	21
50	100	0.0207	20
37.5	100	0.0147	18
28	100	0.0108	16
20	88	0.0077	15
14	87	0.0055	10
10	83	0.0039	8
6.3	78	0.0028	8
5	75	0.0016	7
3.35	72		
2	67		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	51		
0.212	46		
0.15	41		
0.063	28		

Dry Mass of sample, g	1022

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	40
Silt	21
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.787
D_{30}	mm	0.0726
D_{10}	mm	0.00557
Uniformity Coefficient		140
Curvature Coefficient		1.2

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	10/10/2022 15:04	**1** QC From No:R2

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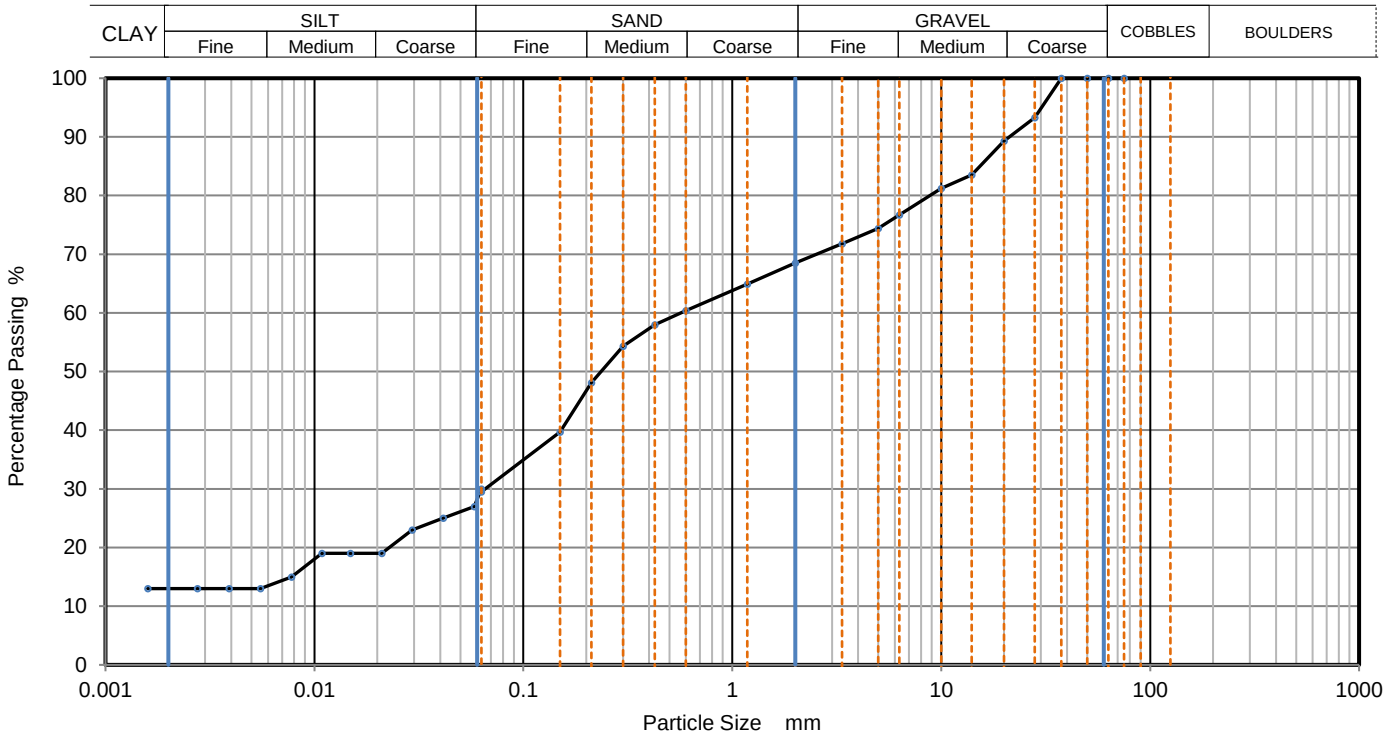
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60212
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light golden brown very silty SAND and GRAVEL..			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113038



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0582	27
75	100	0.0414	25
63	100	0.0294	23
50	100	0.0210	19
37.5	100	0.0149	19
28	93	0.0109	19
20	89	0.0078	15
14	84	0.0055	13
10	81	0.0039	13
6.3	77	0.0028	13
5	74	0.0016	13
3.35	72		
2	69		
1.18	65		
0.6	60	Particle density (assumed)	
0.425	58	2.65	Mg/m3
0.3	54		
0.212	48		
0.15	40		
0.063	30		

Dry Mass of sample, g	938

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	39
Silt	17
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.564
D_{30}	mm	0.0656
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	10/10/2022 15:05	**1**
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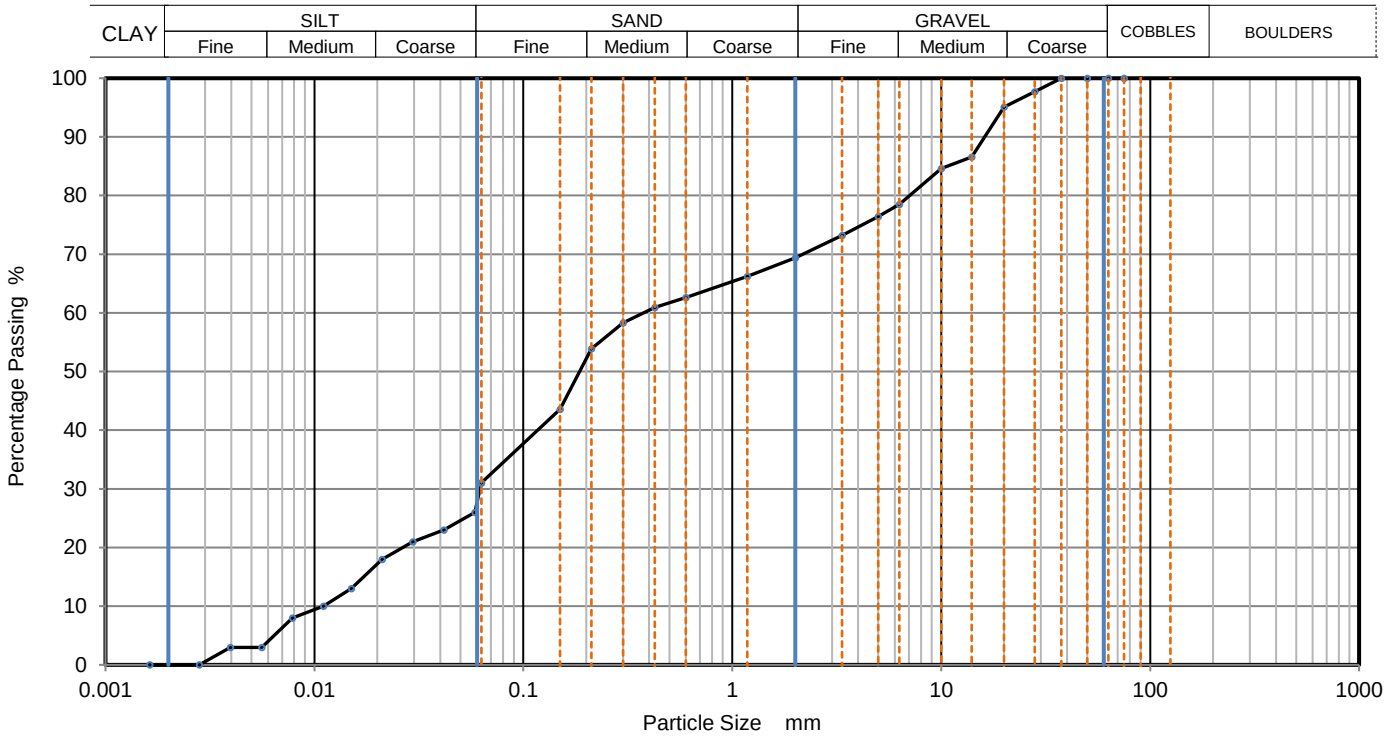
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60212
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey very silty very gravelly fine SAND.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113040



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0586	26
75	100	0.0416	23
63	100	0.0296	21
50	100	0.0210	18
37.5	100	0.0150	13
28	98	0.0110	10
20	95	0.0078	8
14	87	0.0056	3
10	85	0.0040	3
6.3	79	0.0028	0
5	76	0.0016	0
3.35	73		
2	69		
1.18	66		
0.6	63	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	58		
0.212	54		
0.15	44		
0.063	31		

Dry Mass of sample, g: 1178

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	38
Silt	31
Clay	0

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.375
D_{30}	mm	0.0621
D_{10}	mm	0.0106
Uniformity Coefficient		36
Curvature Coefficient		0.97

Remarks

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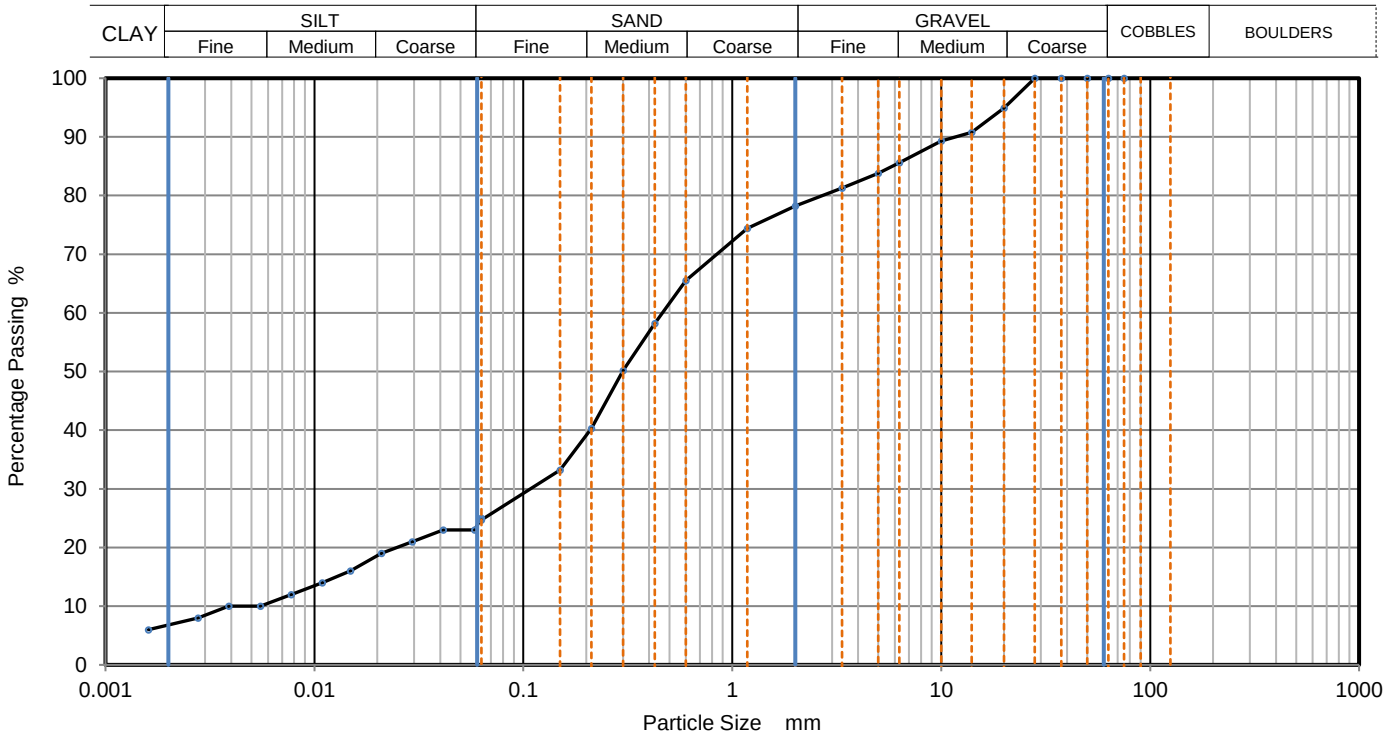
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60269
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light grey very gravelly very silty medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113042



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0585	23
75	100	0.0413	23
63	100	0.0294	21
50	100	0.0209	19
37.5	100	0.0149	16
28	100	0.0109	14
20	95	0.0078	12
14	91	0.0055	10
10	89	0.0039	10
6.3	86	0.0028	8
5	84	0.0016	6
3.35	81		
2	78		
1.18	74		
0.6	66	Particle density (assumed)	
0.425	58	2.65 Mg/m3	
0.3	50		
0.212	40		
0.15	33		
0.063	25		

Dry Mass of sample, g	1047

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	54
Silt	18
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.462
D_{30}	mm	0.108
D_{10}	mm	0.00371
Uniformity Coefficient		120
Curvature Coefficient		6.8

Remarks

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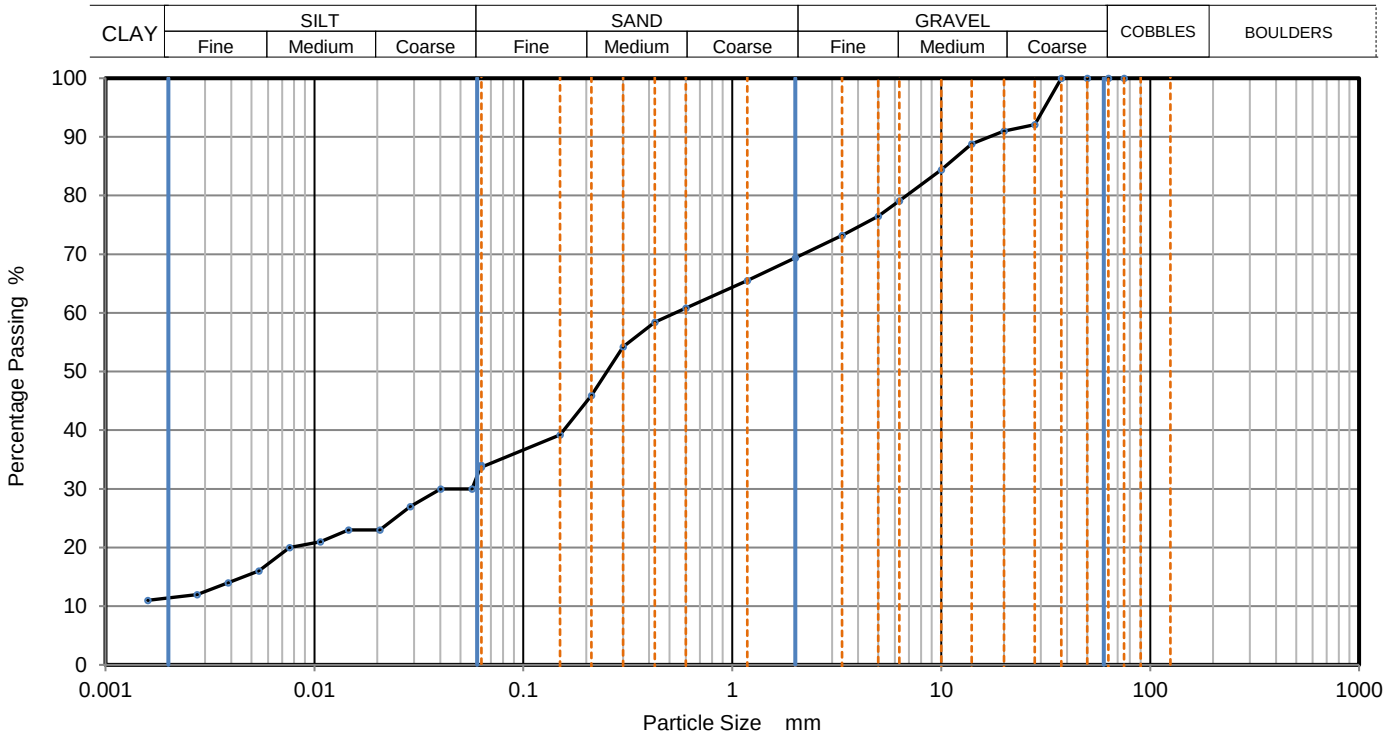
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60269
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113044



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0569	30
75	100	0.0402	30
63	100	0.0288	27
50	100	0.0206	23
37.5	100	0.0145	23
28	92	0.0107	21
20	91	0.0076	20
14	89	0.0054	16
10	84	0.0039	14
6.3	79	0.0027	12
5	77	0.0016	11
3.35	73		
2	69		
1.18	66		
0.6	61	Particle density (assumed)	
0.425	58	2.65 Mg/m3	
0.3	54		
0.212	46		
0.15	39		
0.063	34		

Dry Mass of sample, g	864

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	36
Silt	22
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.535
D_{30}	mm	0.0396
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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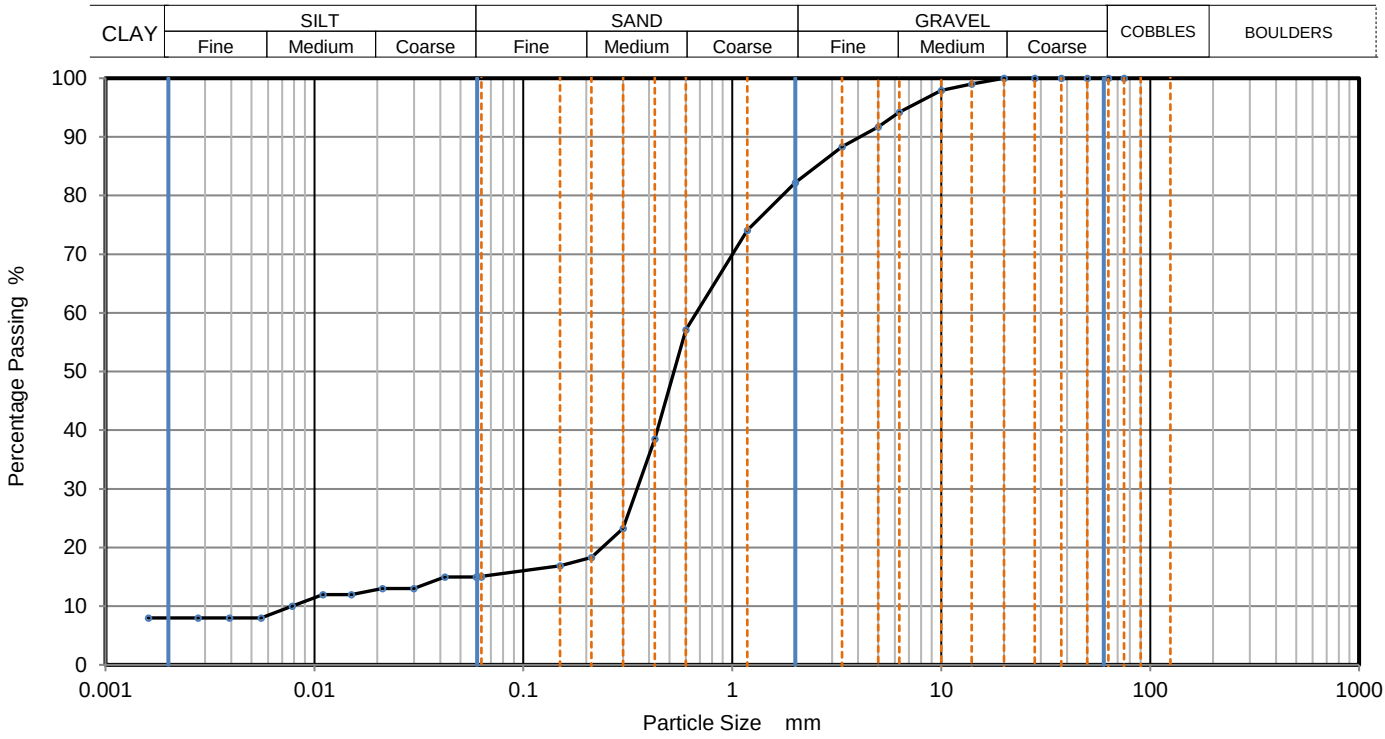
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60312
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light grey silty gravelly coarse and medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113046



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	15
		0.0595	15
75	100	0.0421	15
63	100	0.0299	13
50	100	0.0212	13
37.5	100	0.0150	12
28	100	0.0110	12
20	100	0.0078	10
14	99	0.0055	8
10	98	0.0039	8
6.3	94	0.0028	8
5	92	0.0016	8
3.35	88		
2	82		
1.18	74		
0.6	57	Particle density (assumed)	
0.425	39	2.65	Mg/m3
0.3	23		
0.212	18		
0.15	17		
0.063	15		

Dry Mass of sample, g: 987

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	67
Silt	7
Clay	8

Grading Analysis		
D100	mm	
D60	mm	0.674
D30	mm	0.35
D10	mm	0.0077
Uniformity Coefficient		87
Curvature Coefficient		24

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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		Dympna Darcy B.Sc.	25/11/2022 14:46	**1** QC From No:R2

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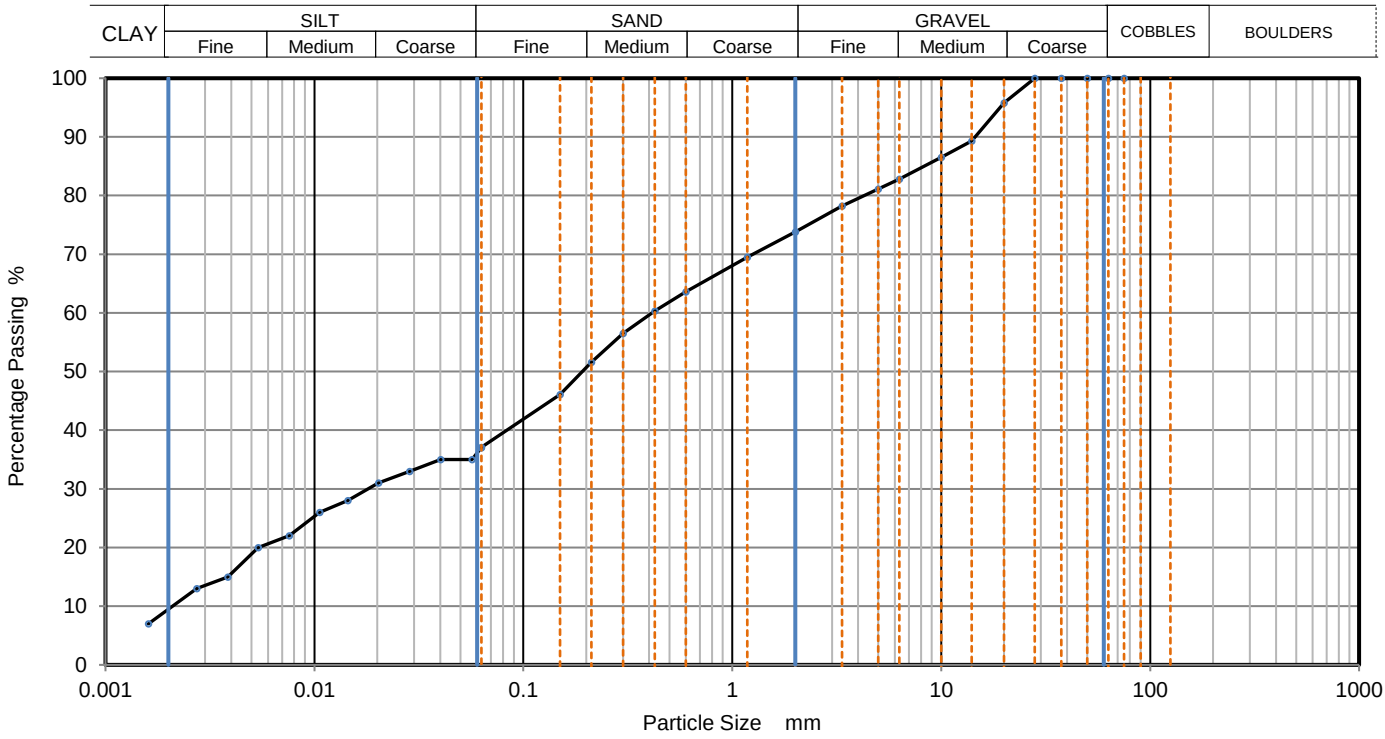
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60312
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113048



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0568	35
75	100	0.0401	35
63	100	0.0285	33
50	100	0.0203	31
37.5	100	0.0144	28
28	100	0.0106	26
20	96	0.0076	22
14	89	0.0054	20
10	87	0.0039	15
6.3	83	0.0027	13
5	81	0.0016	7
3.35	78		
2	74		
1.18	70		
0.6	64	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	57		
0.212	52		
0.15	46		
0.063	37		

Dry Mass of sample, g	1169

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	37
Silt	28
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.414
D_{30}	mm	0.0186
D_{10}	mm	0.00213
Uniformity Coefficient		190
Curvature Coefficient		0.39

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	10/10/2022 15:05	**1** QC From No:R2

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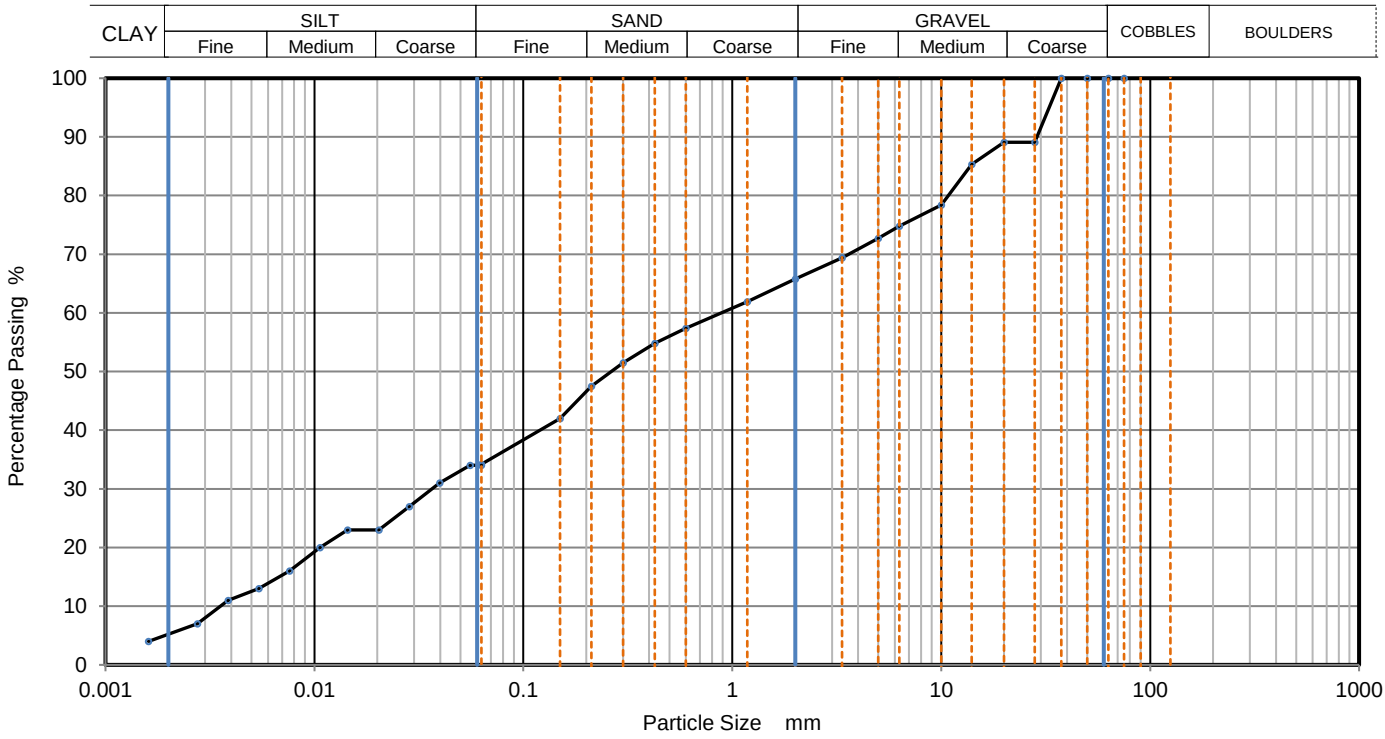
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60709
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey very silty SAND and GRAVEL.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113052



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0556	34
75	100	0.0398	31
63	100	0.0284	27
50	100	0.0203	23
37.5	100	0.0144	23
28	89	0.0106	20
20	89	0.0076	16
14	85	0.0054	13
10	78	0.0039	11
6.3	75	0.0028	7
5	73	0.0016	4
3.35	69		
2	66		
1.18	62		
0.6	57	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	52		
0.212	48		
0.15	42		
0.063	34		

Dry Mass of sample, g	876

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	32
Silt	29
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.884
D_{30}	mm	0.0376
D_{10}	mm	0.00358
Uniformity Coefficient		250
Curvature Coefficient		0.45

Remarks

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Operator	Checked	Approved	Sheet printed	
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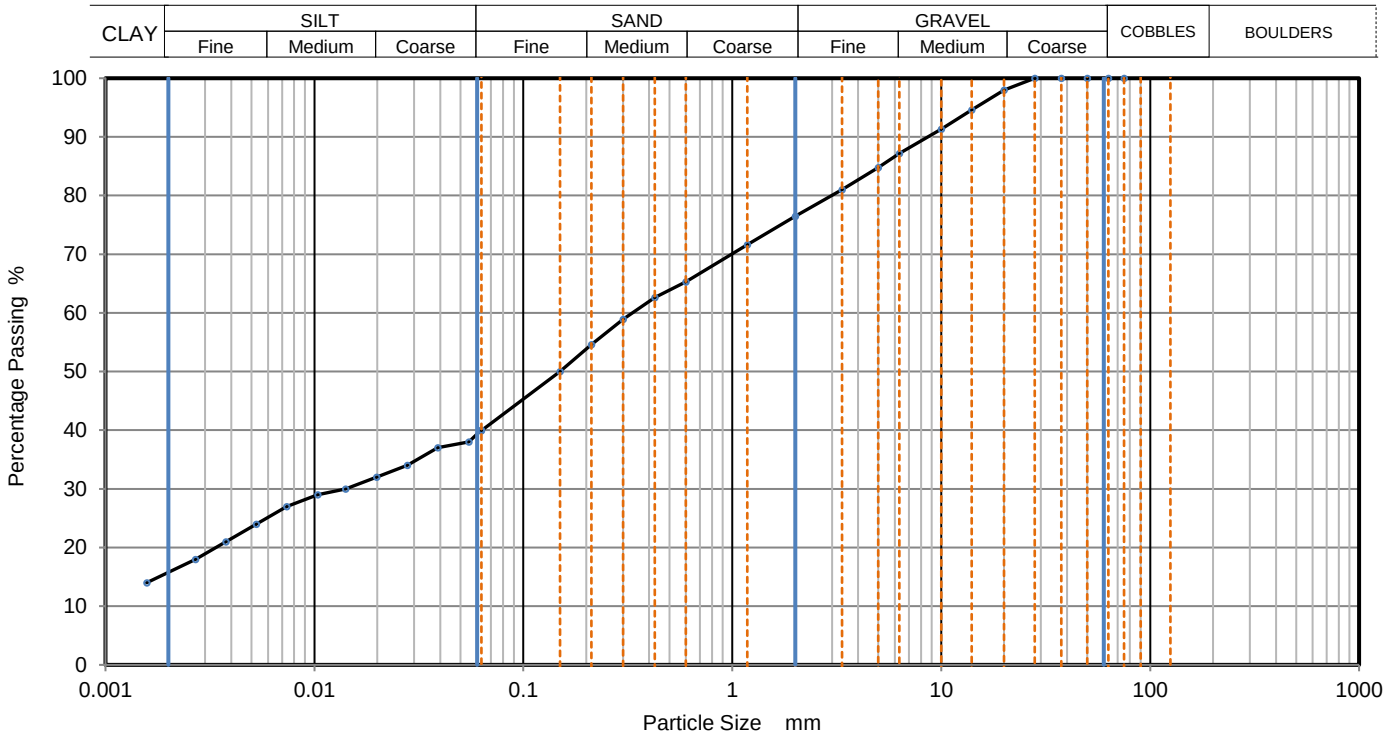
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-60805
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Dark brownish-grey slightly gravelly sandy SILT.	Depth, m	0.60
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021113056



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0547	38
75	100	0.0390	37
63	100	0.0279	34
50	100	0.0198	32
37.5	100	0.0141	30
28	100	0.0104	29
20	98	0.0074	27
14	95	0.0053	24
10	91	0.0038	21
6.3	87	0.0027	18
5	85	0.0016	14
3.35	81		
2	77		
1.18	72		
0.6	65	Particle density (assumed)	
0.425	63	2.65 Mg/m3	
0.3	59		
0.212	55		
0.15	50		
0.063	40		

Dry Mass of sample, g	905

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	37
Silt	24
Clay	16

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.332
D_{30}	mm	0.0133
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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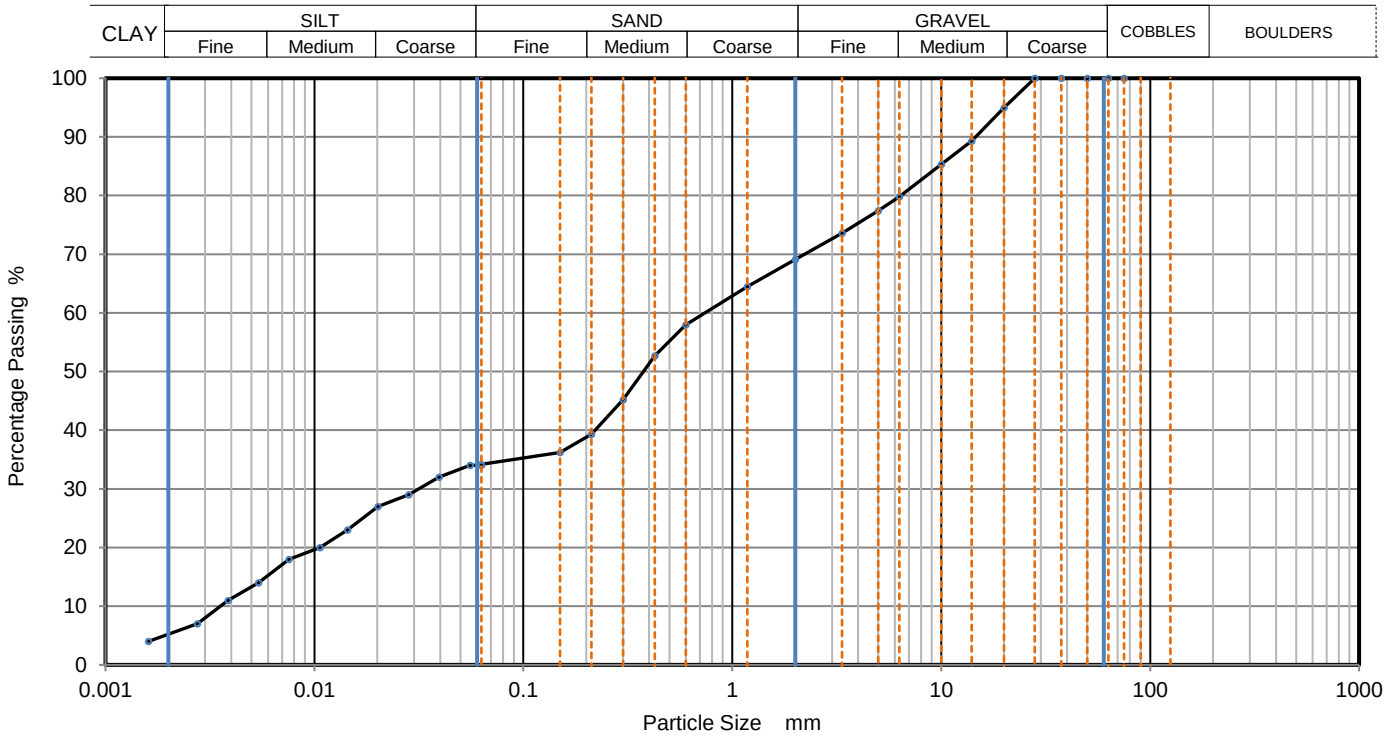
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-60805
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light greyish-brown very gravelly very silty medium SAND.	Depth, m	1.50
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021113058



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0556	34
75	100	0.0395	32
63	100	0.0283	29
50	100	0.0201	27
37.5	100	0.0144	23
28	100	0.0106	20
20	95	0.0076	18
14	89	0.0054	14
10	85	0.0039	11
6.3	80	0.0028	7
5	77	0.0016	4
3.35	74		
2	69		
1.18	65		
0.6	58	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	45		
0.212	39		
0.15	36		
0.063	34		

Dry Mass of sample, g: 1094

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	35
Silt	29
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.741
D_{30}	mm	0.0316
D_{10}	mm	0.00358
Uniformity Coefficient		210
Curvature Coefficient		0.38

Remarks

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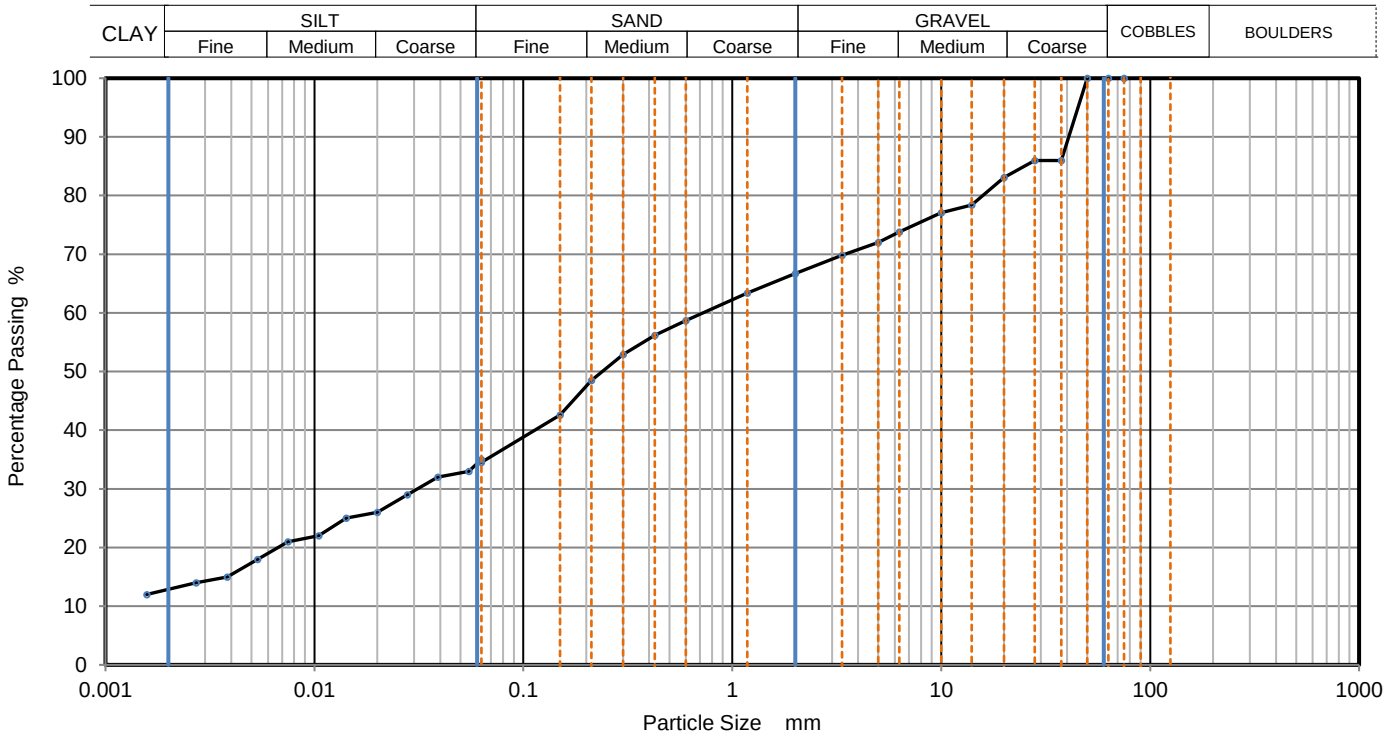
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy slightly gravelly SILT. Gravel is coarse.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113063



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0547	33
75	100	0.0390	32
63	100	0.0279	29
50	100	0.0200	26
37.5	86	0.0142	25
28	86	0.0105	22
20	83	0.0075	21
14	78	0.0053	18
10	77	0.0038	15
6.3	74	0.0027	14
5	72	0.0016	12
3.35	70		
2	67		
1.18	63		
0.6	59	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	53		
0.212	49		
0.15	43		
0.063	35		

Dry Mass of sample, g	1034

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	32
Silt	22
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.725
D_{30}	mm	0.0316
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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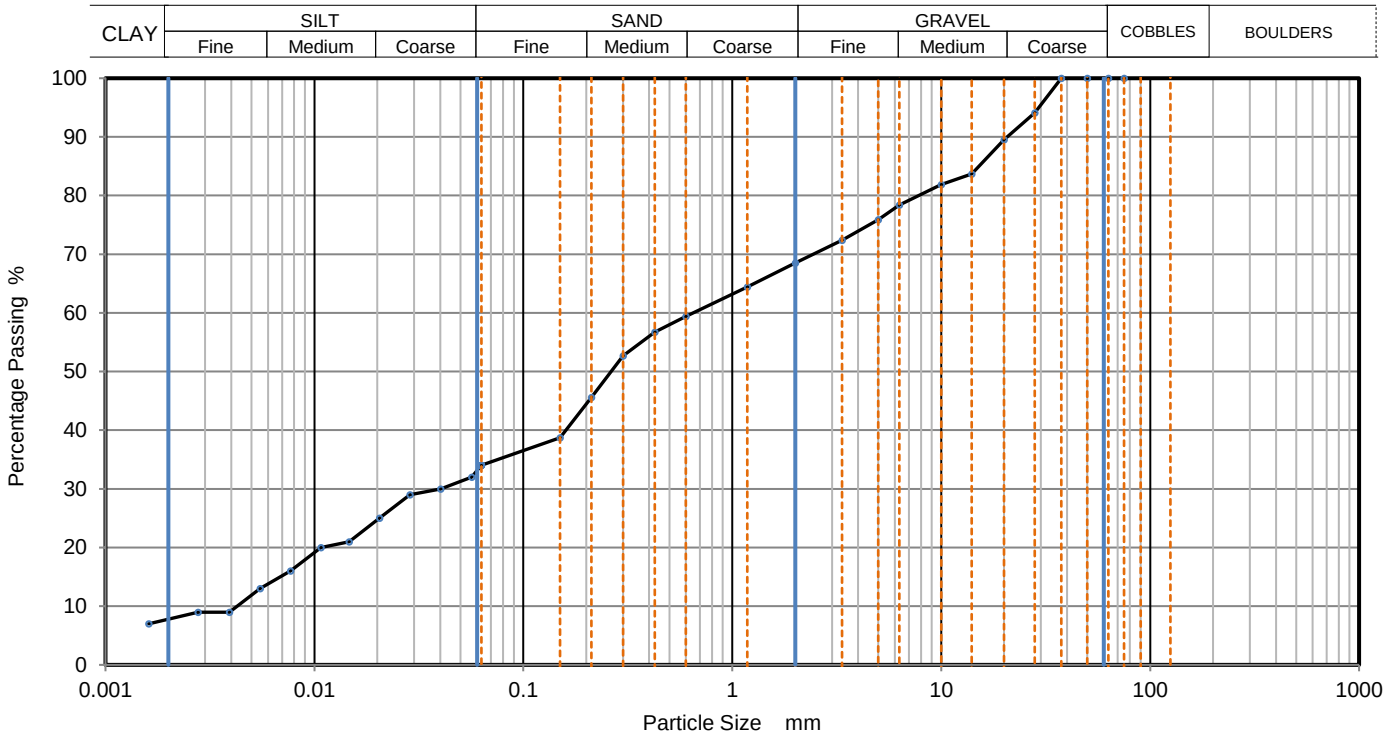
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-60905
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Soil Description	Light grey slightly gravelly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	D
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113066



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0566	32
75	100	0.0402	30
63	100	0.0286	29
50	100	0.0205	25
37.5	100	0.0146	21
28	94	0.0108	20
20	90	0.0077	16
14	84	0.0055	13
10	82	0.0039	9
6.3	78	0.0028	9
5	76	0.0016	7
3.35	72		
2	69		
1.18	64		
0.6	59	Particle density (assumed)	
0.425	57	2.65 Mg/m3	
0.3	53		
0.212	46		
0.15	39		
0.063	34		

Dry Mass of sample, g	1102

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	35
Silt	26
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.652
D_{30}	mm	0.0371
D_{10}	mm	0.00433
Uniformity Coefficient		150
Curvature Coefficient		0.49

Remarks

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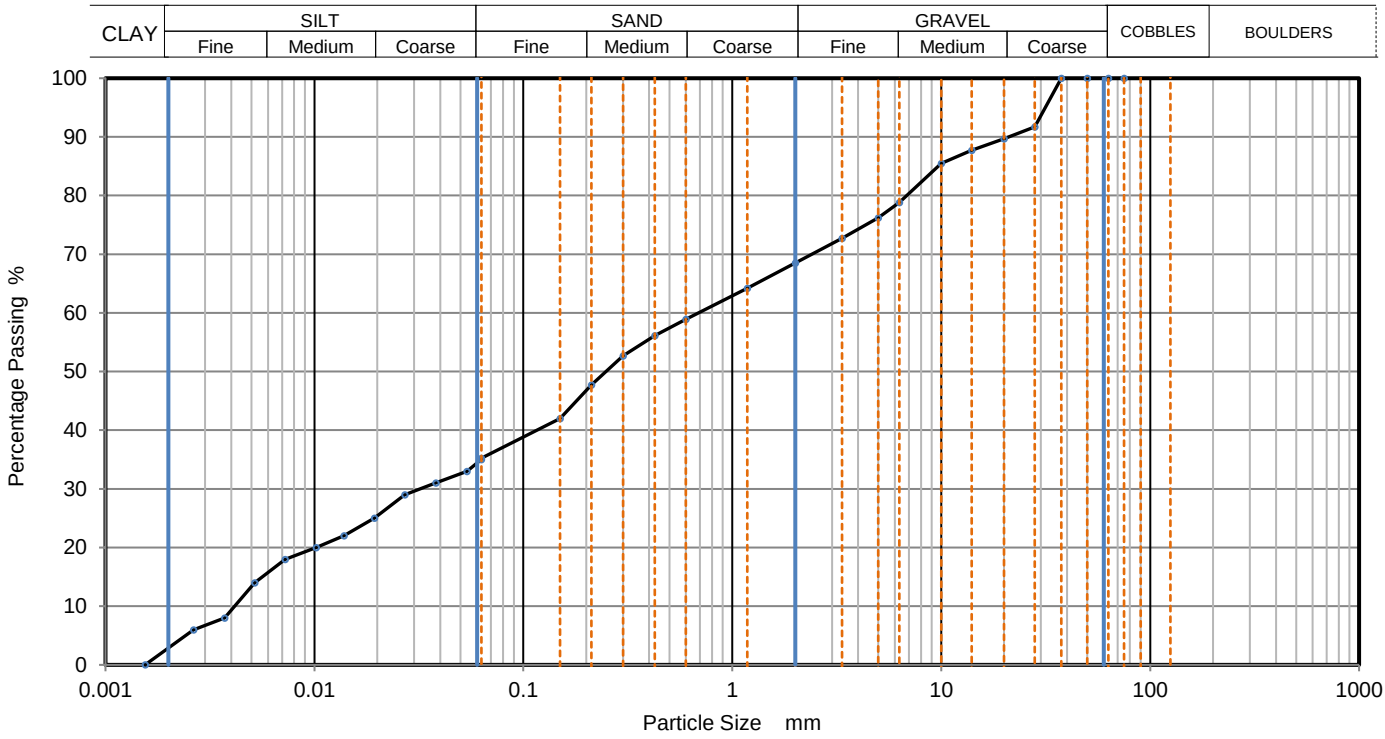
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61007
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113071



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0536	33
75	100	0.0381	31
63	100	0.0271	29
50	100	0.0194	25
37.5	100	0.0139	22
28	92	0.0102	20
20	90	0.0072	18
14	88	0.0052	14
10	86	0.0037	8
6.3	79	0.0026	6
5	76	0.0015	0
3.35	73		
2	69		
1.18	64		
0.6	59	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	53		
0.212	48		
0.15	42		
0.063	35		

Dry Mass of sample, g	1046

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	33
Silt	32
Clay	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.692
D_{30}	mm	0.0304
D_{10}	mm	0.0042
Uniformity Coefficient		160
Curvature Coefficient		0.32

Remarks

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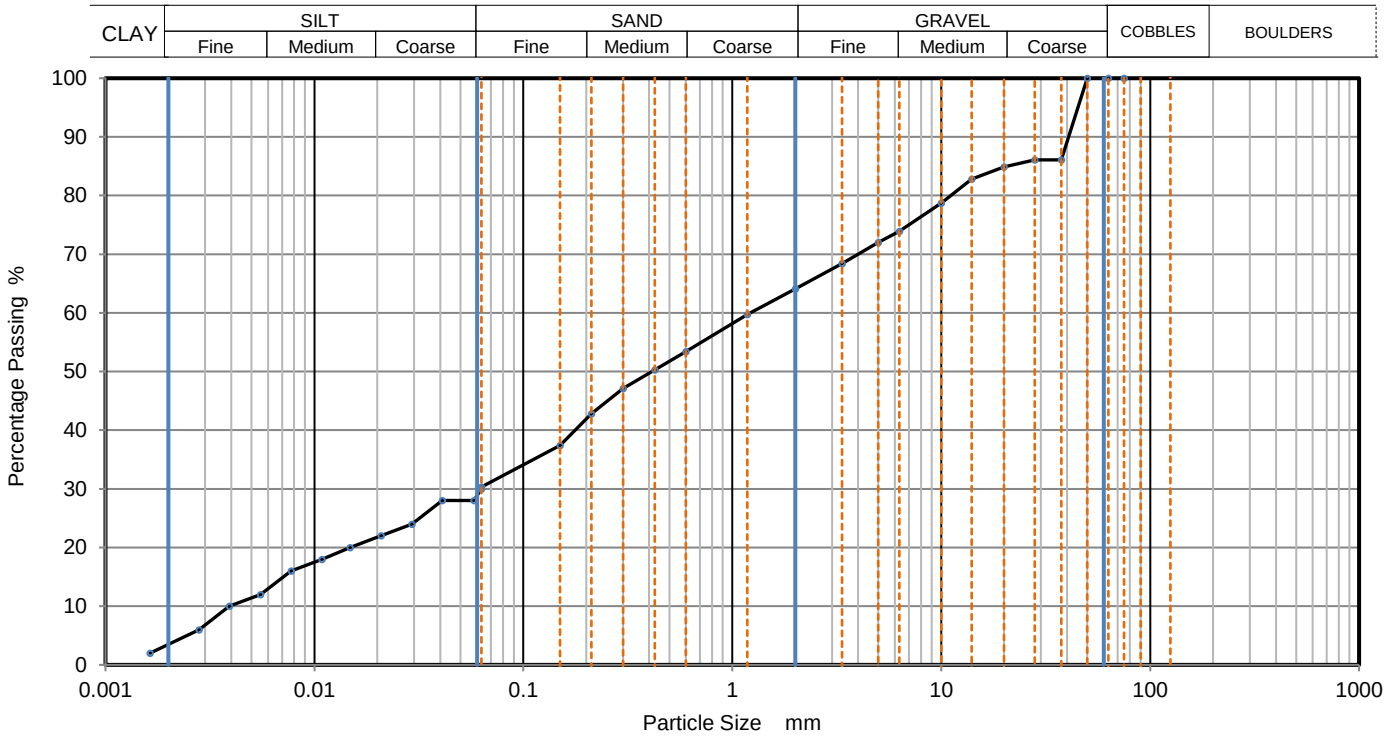
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61007
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113073



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0579	28
75	100	0.0410	28
63	100	0.0293	24
50	100	0.0208	22
37.5	86	0.0148	20
28	86	0.0109	18
20	85	0.0077	16
14	83	0.0055	12
10	79	0.0039	10
6.3	74	0.0028	6
5	72	0.0016	2
3.35	68		
2	64		
1.18	60		
0.6	53	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	47		
0.212	43		
0.15	37		
0.063	30		

Dry Mass of sample, g	1237

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	34
Silt	27
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.22
D_{30}	mm	0.0622
D_{10}	mm	0.00389
Uniformity Coefficient		310
Curvature Coefficient		0.82

Remarks

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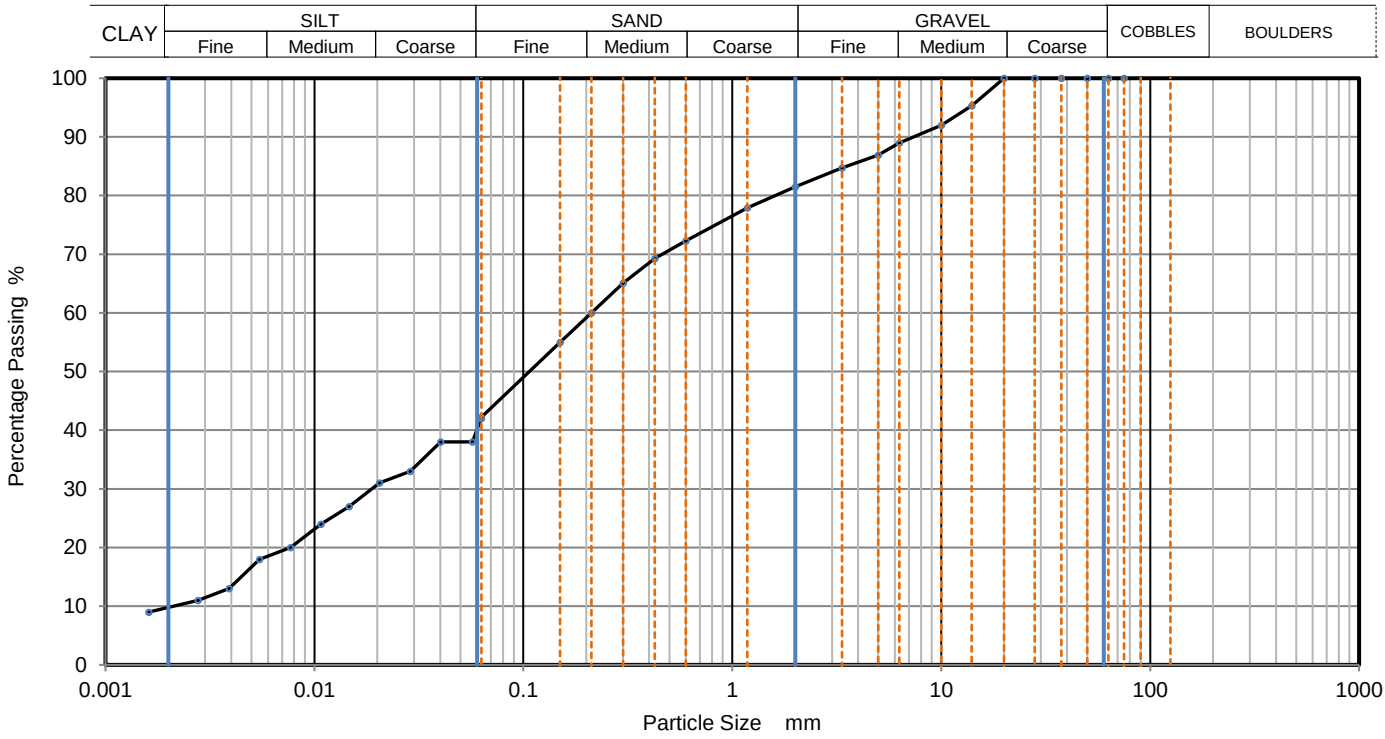
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61133
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113075



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0569	38
75	100	0.0402	38
63	100	0.0288	33
50	100	0.0205	31
37.5	100	0.0146	27
28	100	0.0108	24
20	100	0.0077	20
14	95	0.0055	18
10	92	0.0039	13
6.3	89	0.0028	11
5	87	0.0016	9
3.35	85		
2	82		
1.18	78		
0.6	72	Particle density (assumed)	
0.425	69	2.65	Mg/m3
0.3	65		
0.212	60		
0.15	55		
0.063	42		

Dry Mass of sample, g	749

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	39
Silt	32
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.213
D_{30}	mm	0.0189
D_{10}	mm	0.00212
Uniformity Coefficient		100
Curvature Coefficient		0.79

Remarks

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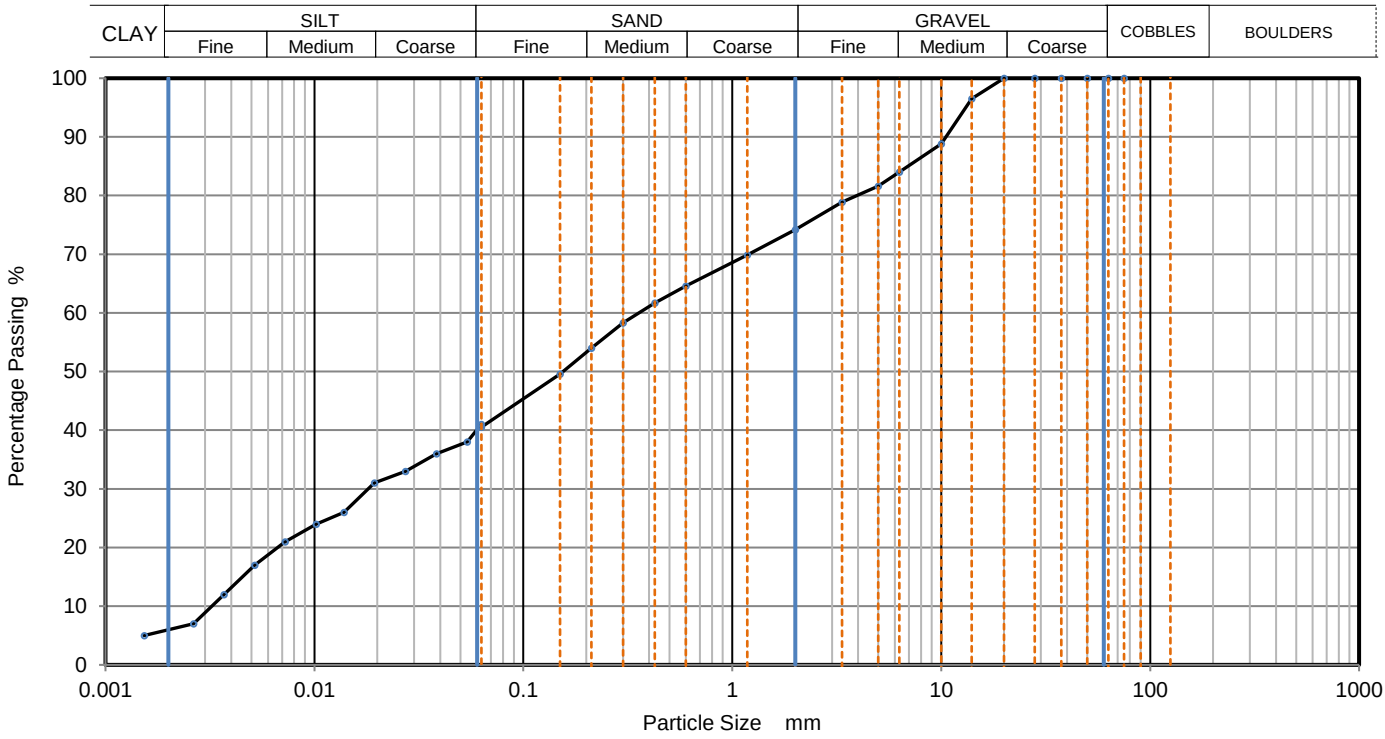
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61133
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113079



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0539	38
75	100	0.0383	36
63	100	0.0273	33
50	100	0.0194	31
37.5	100	0.0139	26
28	100	0.0102	24
20	100	0.0072	21
14	97	0.0052	17
10	89	0.0037	12
6.3	84	0.0026	7
5	82	0.0015	5
3.35	79		
2	74		
1.18	70		
0.6	65	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	58		
0.212	54		
0.15	50		
0.063	41		

Dry Mass of sample, g	898

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	34
Silt	35
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.358
D_{30}	mm	0.0181
D_{10}	mm	0.00323
Uniformity Coefficient		110
Curvature Coefficient		0.28

Remarks

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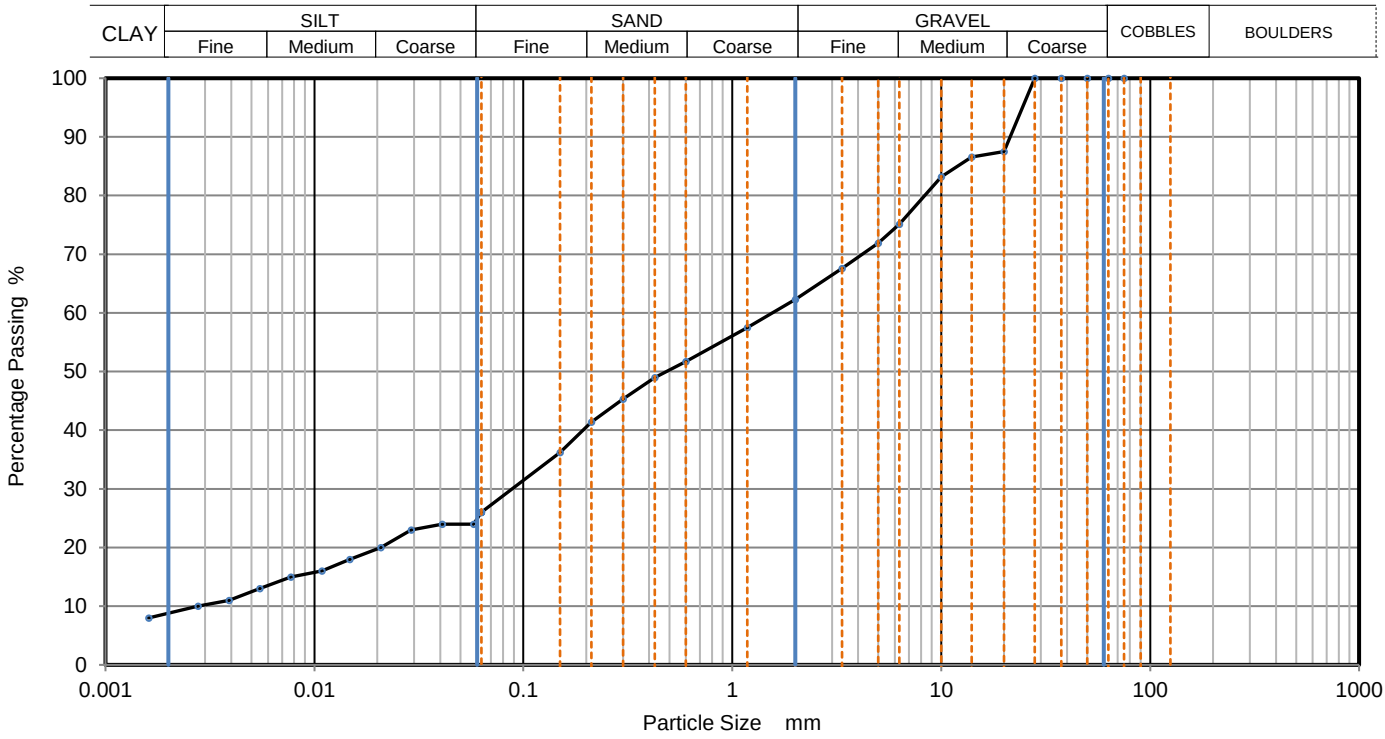
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61201
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark brown very silty SAND and GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113081



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0578	24
75	100	0.0409	24
63	100	0.0291	23
50	100	0.0208	20
37.5	100	0.0148	18
28	100	0.0108	16
20	88	0.0077	15
14	87	0.0055	13
10	83	0.0039	11
6.3	75	0.0028	10
5	72	0.0016	8
3.35	68		
2	62		
1.18	58		
0.6	52	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	45		
0.212	41		
0.15	36		
0.063	26		

Dry Mass of sample, g	665

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	36
Silt	17
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.55
D_{30}	mm	0.0883
D_{10}	mm	0.00292
Uniformity Coefficient		530
Curvature Coefficient		1.7

Remarks

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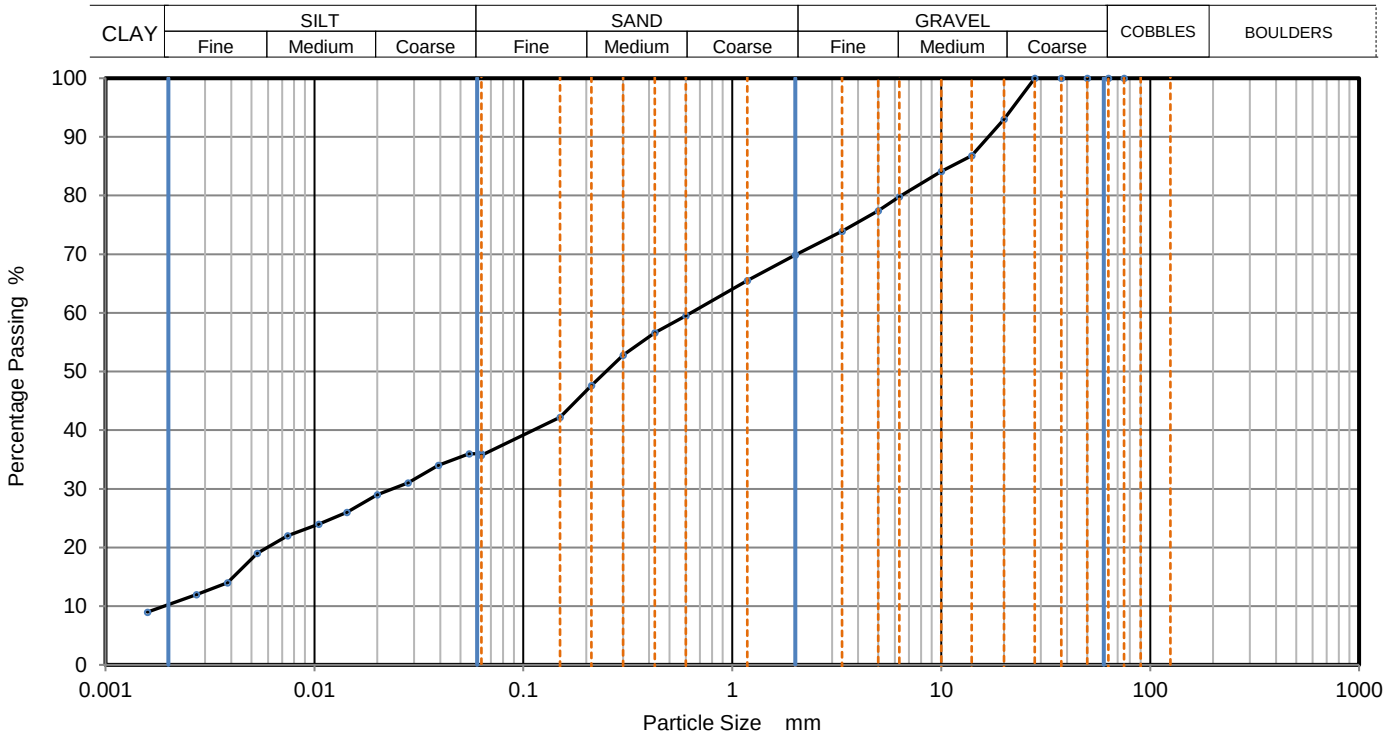
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61201
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113085



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0551	36
75	100	0.0392	34
63	100	0.0281	31
50	100	0.0200	29
37.5	100	0.0143	26
28	100	0.0105	24
20	93	0.0075	22
14	87	0.0053	19
10	84	0.0038	14
6.3	80	0.0027	12
5	77	0.0016	9
3.35	74		
2	70		
1.18	66		
0.6	60	Particle density (assumed)	
0.425	57	2.65	Mg/m3
0.3	53		
0.212	48		
0.15	42		
0.063	36		

Dry Mass of sample, g	964

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	34
Silt	26
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.635
D_{30}	mm	0.0249
D_{10}	mm	0.00201
Uniformity Coefficient		320
Curvature Coefficient		0.48

Remarks

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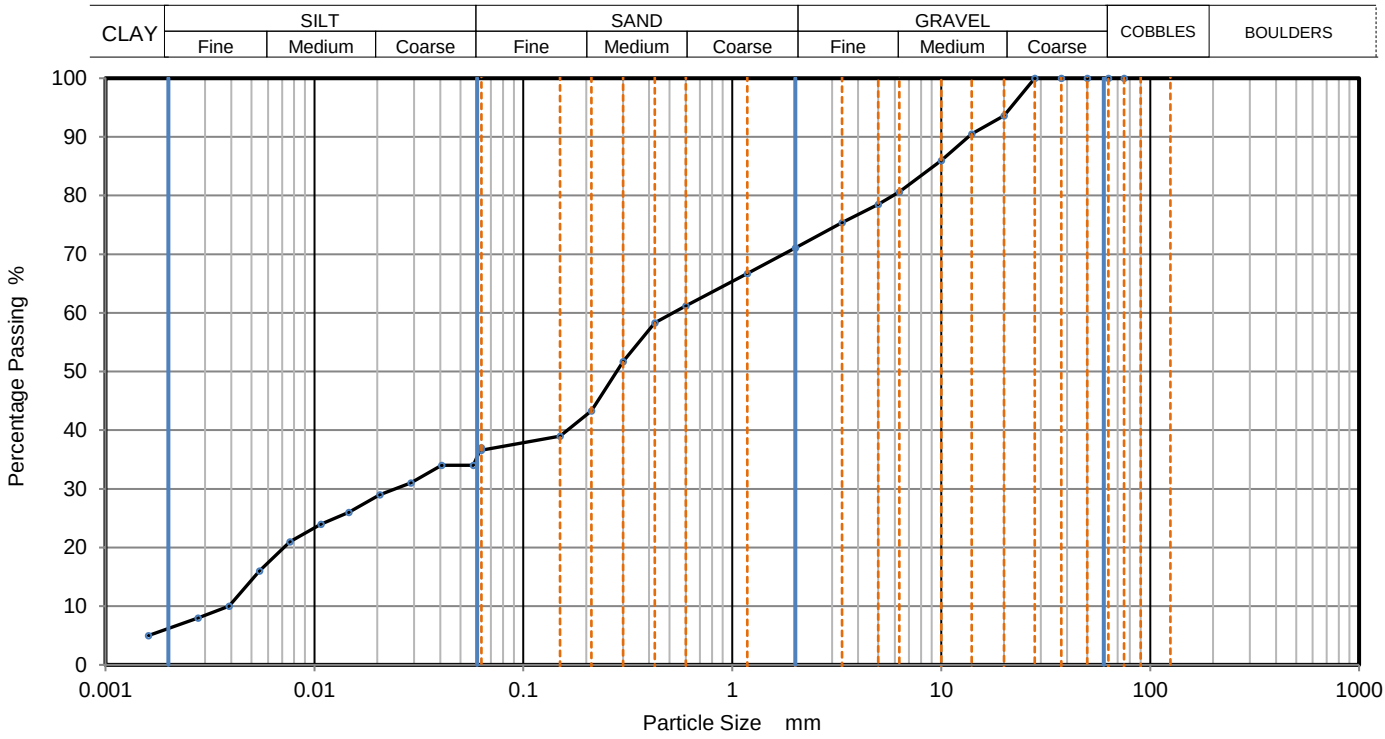
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61521
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark brownish-grey slightly gravelly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021113089



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0575	34
75	100	0.0407	34
63	100	0.0289	31
50	100	0.0206	29
37.5	100	0.0146	26
28	100	0.0107	24
20	94	0.0076	21
14	91	0.0055	16
10	86	0.0039	10
6.3	81	0.0028	8
5	79	0.0016	5
3.35	75		
2	71		
1.18	67		
0.6	61	Particle density (assumed)	
0.425	58	2.65 Mg/m3	
0.3	52		
0.212	43		
0.15	39		
0.063	37		

Dry Mass of sample, g	1093

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	35
Silt	30
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.52
D_{30}	mm	0.0242
D_{10}	mm	0.00367
Uniformity Coefficient		140
Curvature Coefficient		0.31

Remarks

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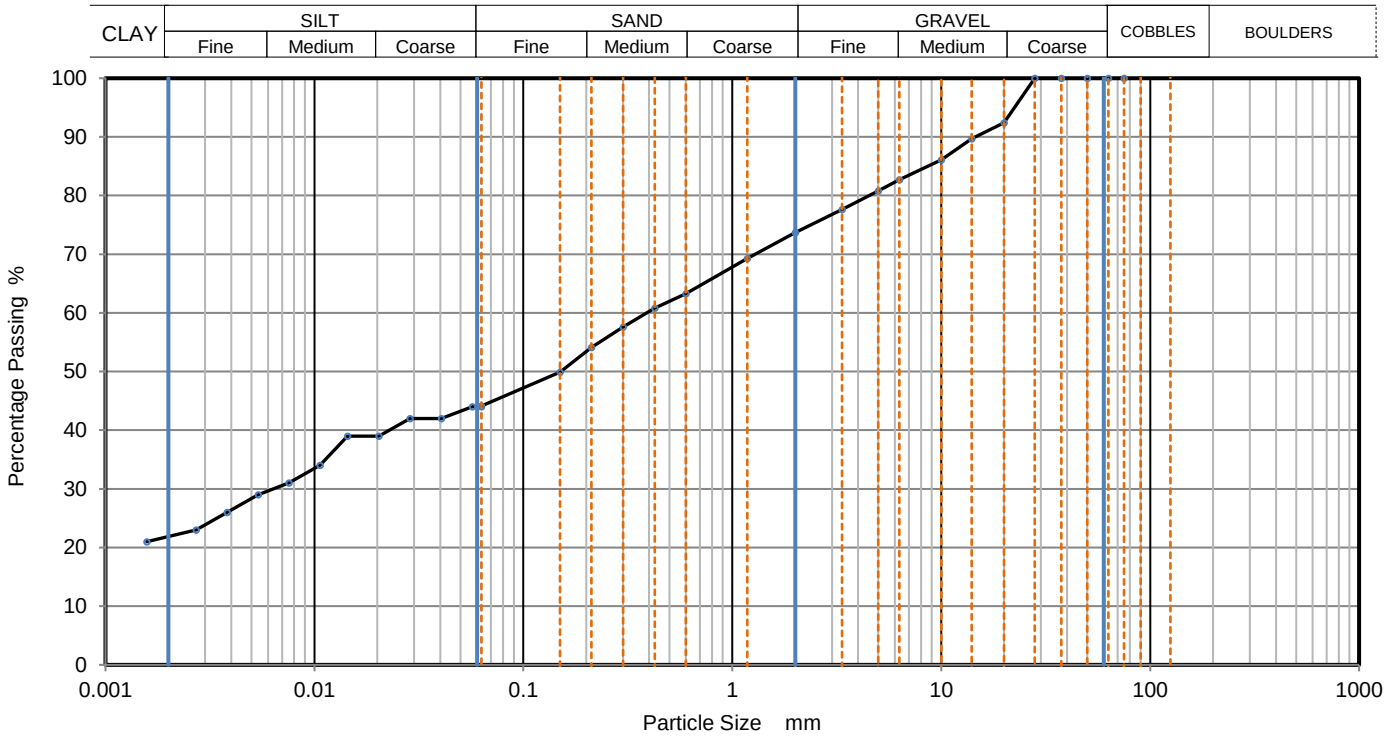
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-61706
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Grey slightly gravelly slightly sandy SILT.	Depth, m	0.70
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021113093



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0569	44
75	100	0.0405	42
63	100	0.0286	42
50	100	0.0204	39
37.5	100	0.0144	39
28	100	0.0106	34
20	92	0.0076	31
14	90	0.0054	29
10	86	0.0038	26
6.3	83	0.0027	23
5	81	0.0016	21
3.35	78		
2	74		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	58		
0.212	54		
0.15	50		
0.063	44		

Dry Mass of sample, g	1190

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	30
Silt	22
Clay	22

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.391
D_{30}	mm	0.00652
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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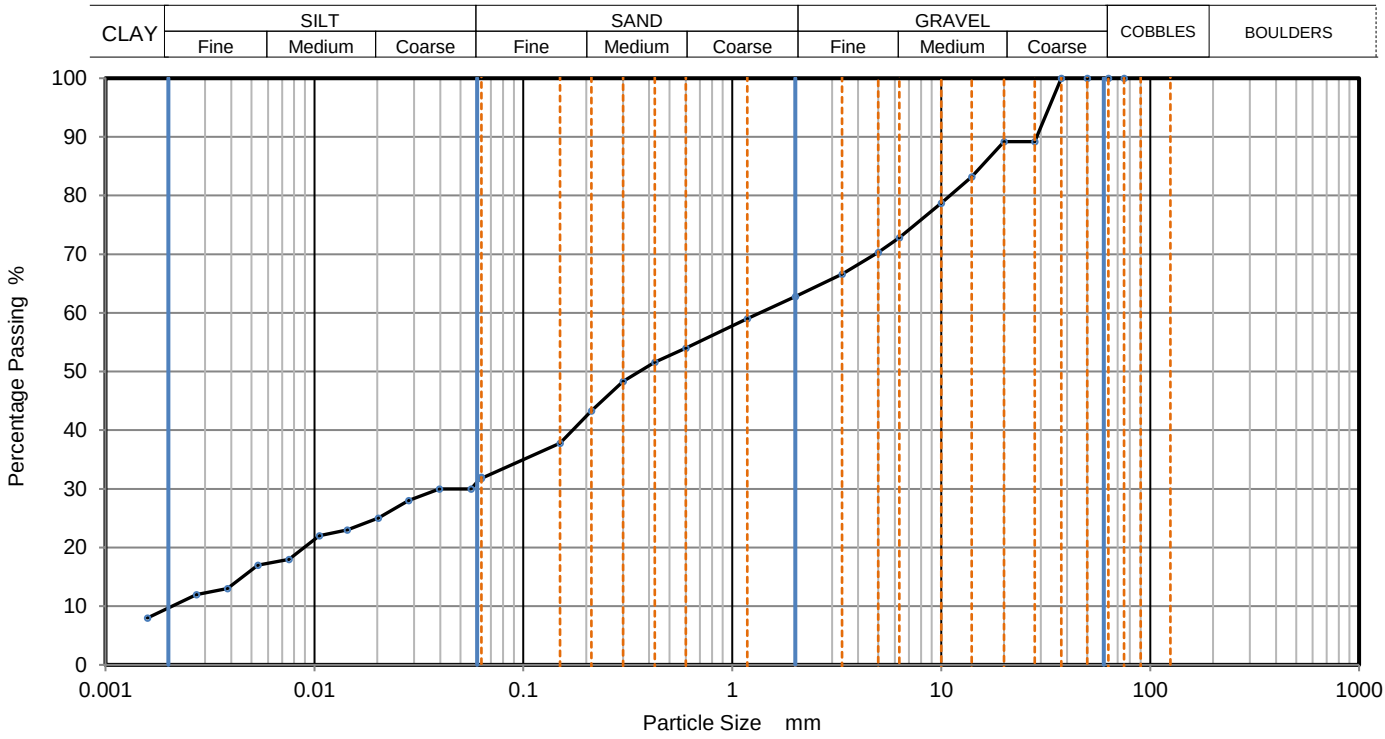
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-61706
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Dark grey very sandy very silty GRAVEL.	Depth, m	2.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021113095



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0561	30
75	100	0.0397	30
63	100	0.0282	28
50	100	0.0202	25
37.5	100	0.0144	23
28	89	0.0105	22
20	89	0.0075	18
14	83	0.0054	17
10	79	0.0038	13
6.3	73	0.0027	12
5	70	0.0016	8
3.35	67		
2	63		
1.18	59		
0.6	54	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	48		
0.212	43		
0.15	38		
0.063	32		

Dry Mass of sample, g	1048

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	31
Silt	22
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.35
D_{30}	mm	0.0387
D_{10}	mm	0.00207
Uniformity Coefficient		650
Curvature Coefficient		0.54

Remarks

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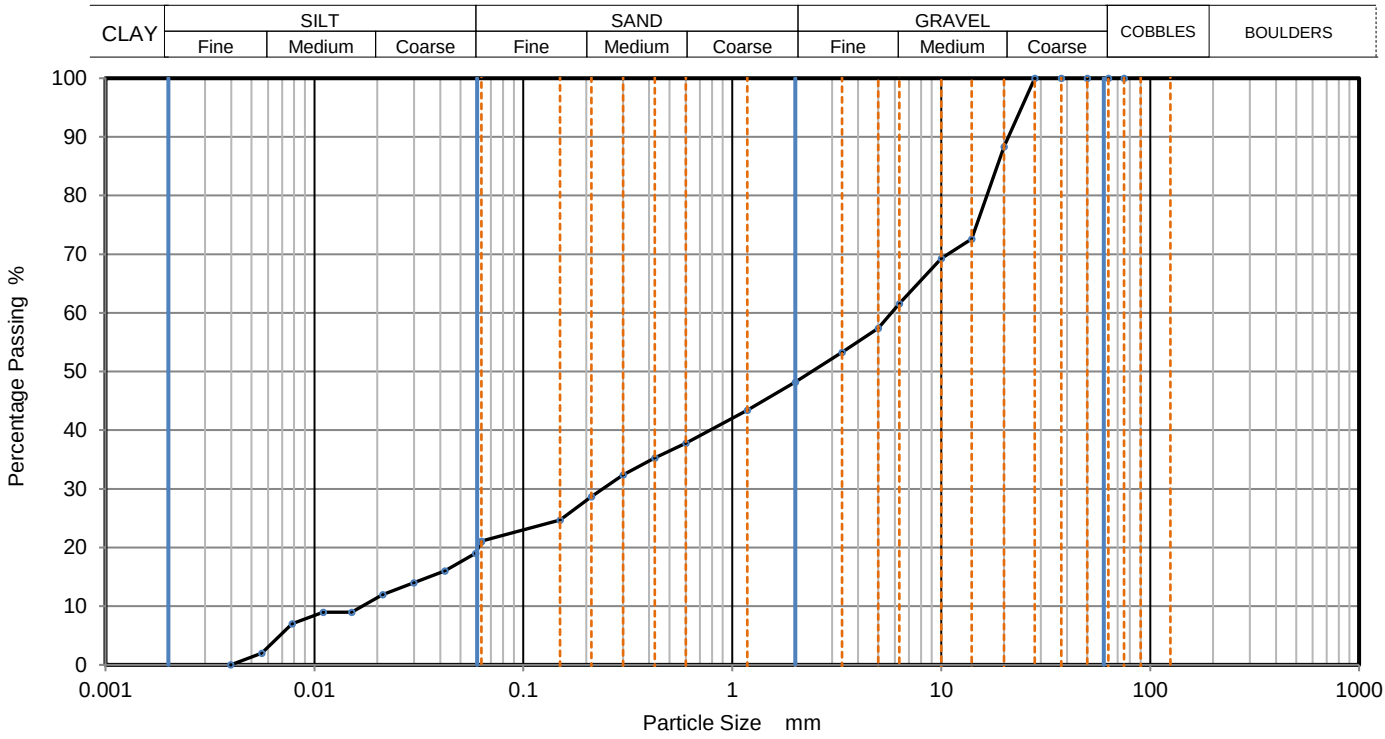
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-61904
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very silty very sandy medium GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0591	19
75	100	0.0420	16
63	100	0.0299	14
50	100	0.0212	12
37.5	100	0.0151	9
28	100	0.0110	9
20	88	0.0078	7
14	73	0.0056	2
10	69	0.0040	0
6.3	62		
5	57		
3.35	53		
2	48		
1.18	43		
0.6	38	Particle density (assumed)	
0.425	35	2.65	Mg/m3
0.3	32		
0.212	29		
0.15	25		
0.063	21		

Dry Mass of sample, g	877

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	27
Fines <0.063mm	21

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.76
D_{30}	mm	0.24
D_{10}	mm	0.0165
Uniformity Coefficient		350
Curvature Coefficient		0.6

Remarks

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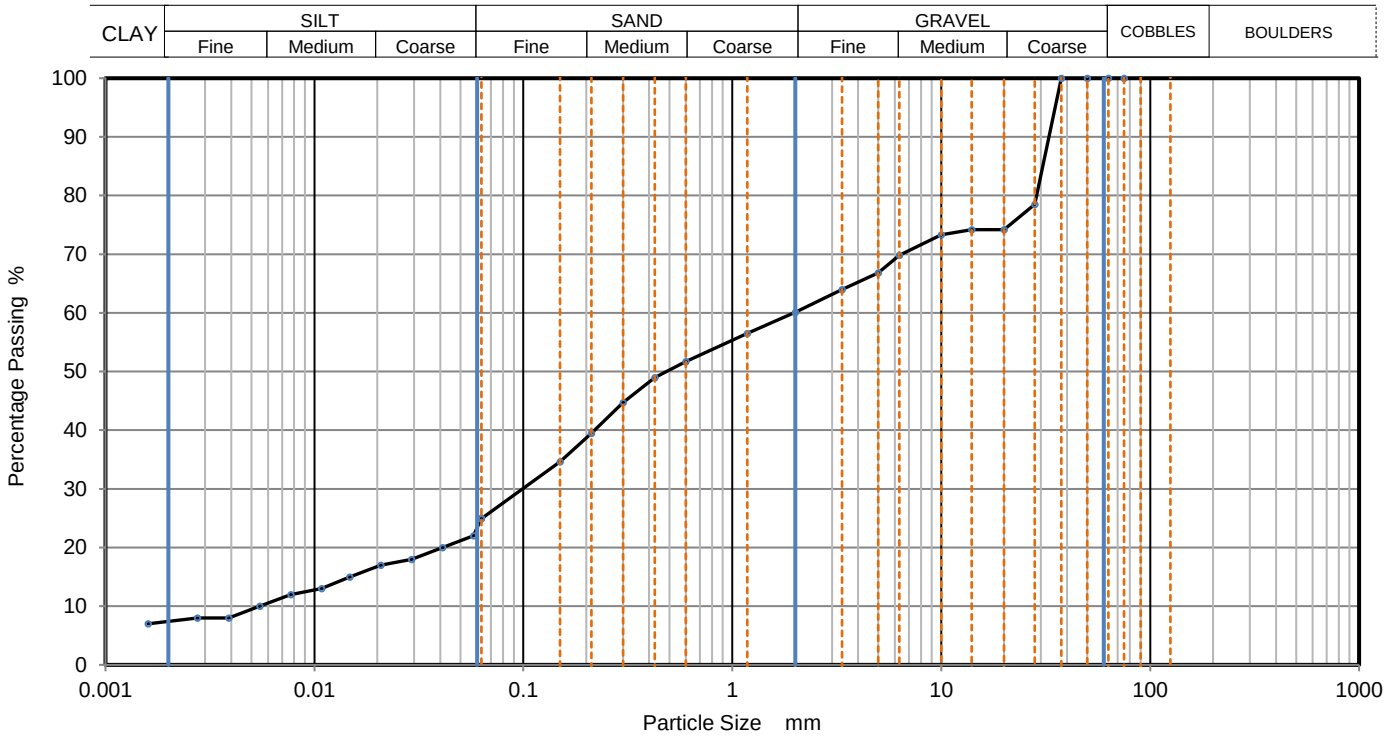
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62004
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty SAND and GRAVEL. Gravel is coarse.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130104



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0577	22
75	100	0.0411	20
63	100	0.0292	18
50	100	0.0208	17
37.5	100	0.0148	15
28	79	0.0108	13
20	74	0.0077	12
14	74	0.0055	10
10	73	0.0039	8
6.3	70	0.0028	8
5	67	0.0016	7
3.35	64		
2	60		
1.18	57		
0.6	52	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	45		
0.212	40		
0.15	35		
0.063	25		

Dry Mass of sample, g	763

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	35
Silt	18
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.96
D_{30}	mm	0.0991
D_{10}	mm	0.00552
Uniformity Coefficient		360
Curvature Coefficient		0.91

Remarks

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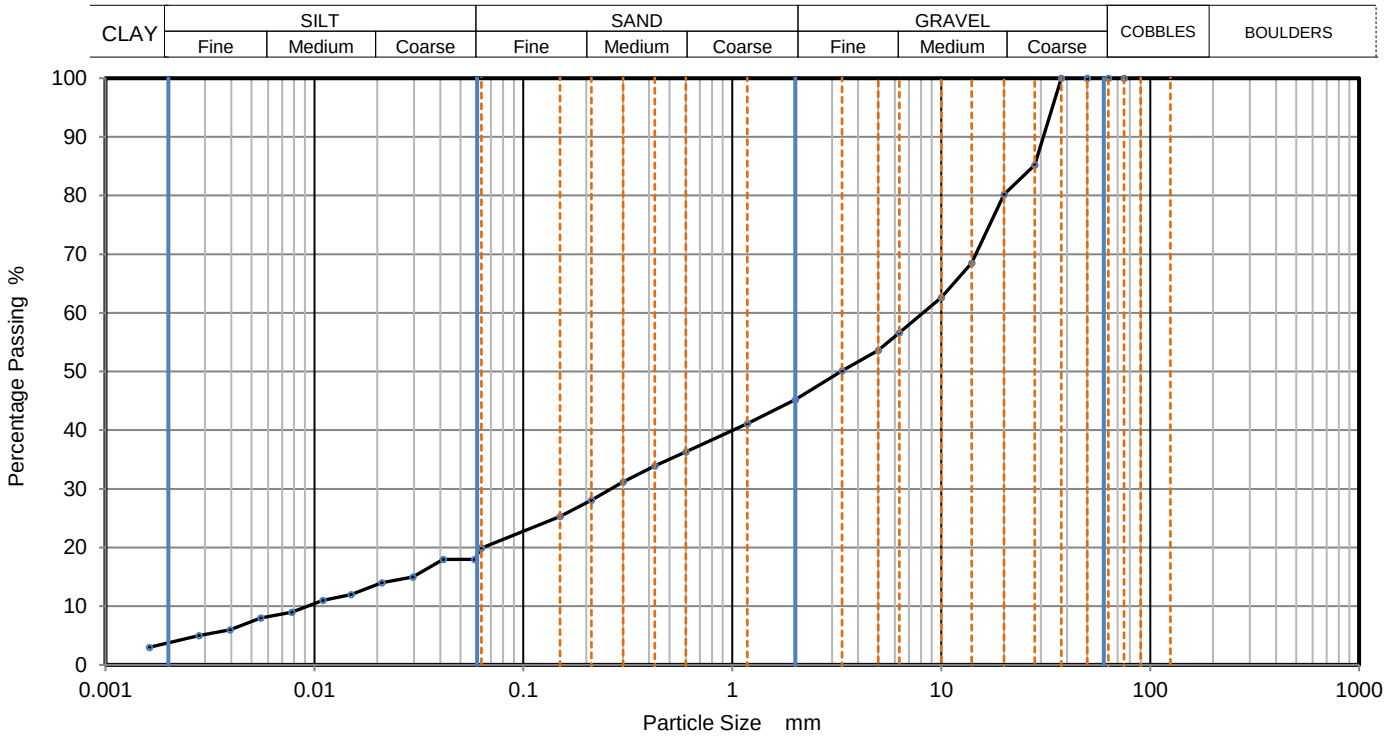
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62004
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy medium and coarse GRAVEL.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130106



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	20
		0.0585	18
75	100	0.0414	18
63	100	0.0296	15
50	100	0.0210	14
37.5	100	0.0149	12
28	85	0.0110	11
20	80	0.0078	9
14	69	0.0055	8
10	63	0.0039	6
6.3	57	0.0028	5
5	54	0.0016	3
3.35	50		
2	45		
1.18	41		
0.6	36	Particle density (assumed)	
0.425	34	2.65	Mg/m3
0.3	31		
0.212	28		
0.15	25		
0.063	20		

Dry Mass of sample, g	984

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	25
Silt	16
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	8.18
D_{30}	mm	0.262
D_{10}	mm	0.00935
Uniformity Coefficient		870
Curvature Coefficient		0.89

Remarks

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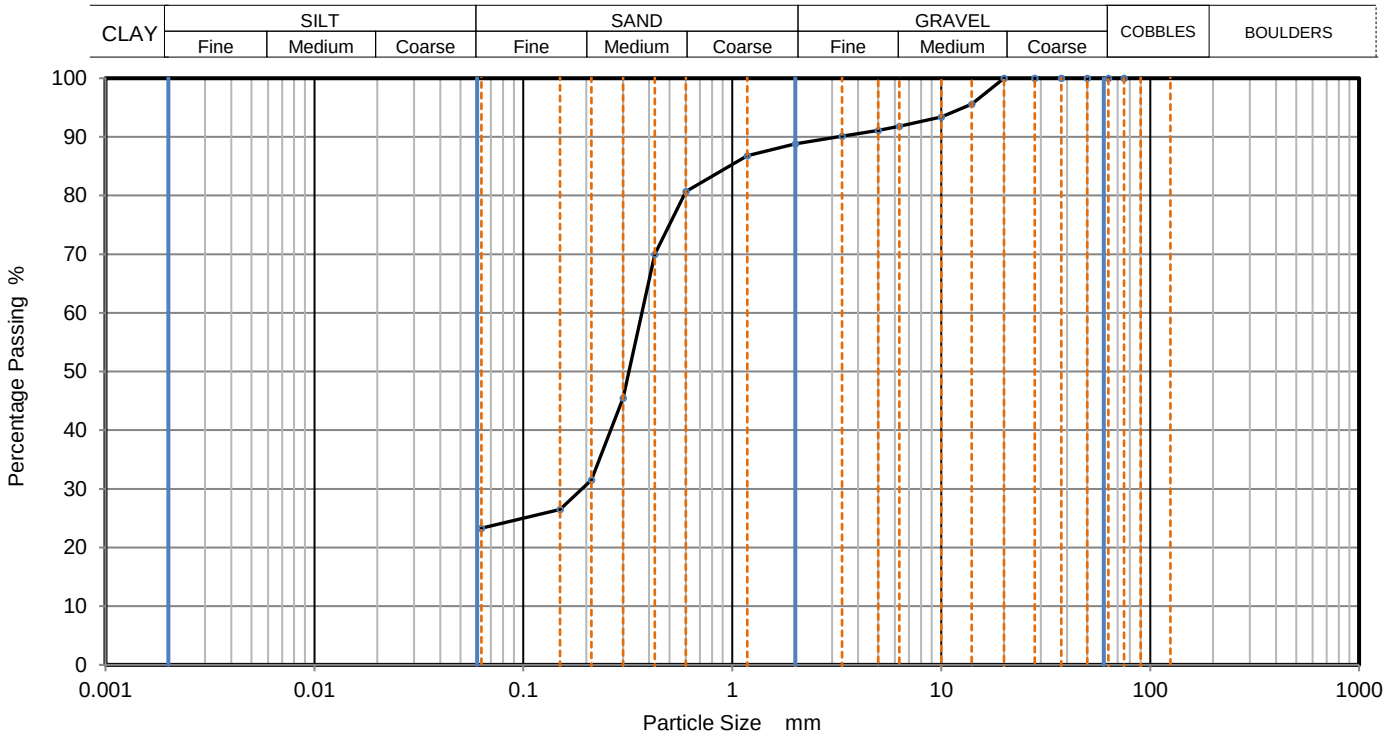
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62205
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown gravelly very silty medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211130108



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	93		
6.3	92		
5	91		
3.35	90		
2	89		
1.18	87		
0.6	81		
0.425	70		
0.3	46		
0.212	32		
0.15	27		
0.063	23		

Dry Mass of sample, g	956

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	66
Fines <0.063mm	23

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.369
D_{30}	mm	0.191
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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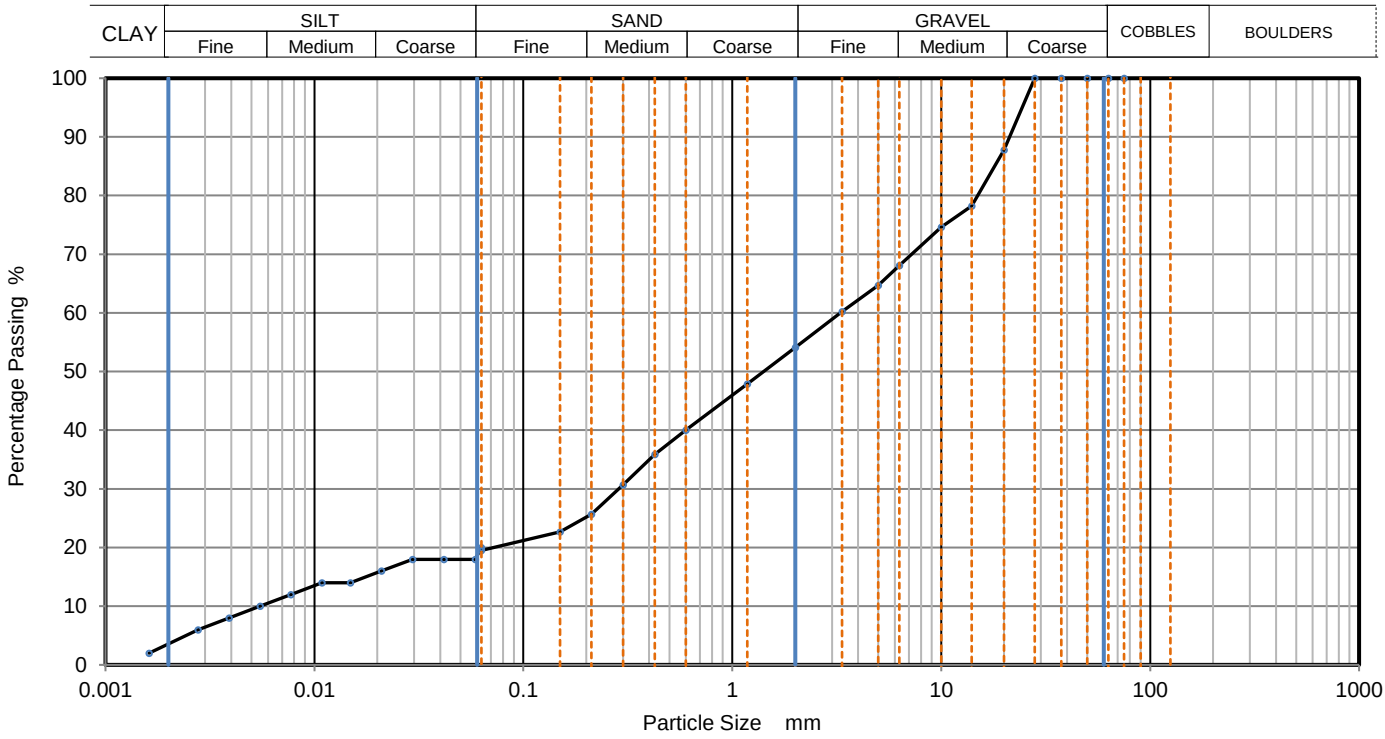
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62205
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy medium GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	20
		0.0589	18
75	100	0.0416	18
63	100	0.0294	18
50	100	0.0209	16
37.5	100	0.0149	14
28	100	0.0109	14
20	88	0.0077	12
14	78	0.0055	10
10	75	0.0039	8
6.3	68	0.0028	6
5	65	0.0016	2
3.35	60		
2	54		
1.18	48		
0.6	40	Particle density (assumed)	
0.425	36	2.65	Mg/m3
0.3	31		
0.212	26		
0.15	23		
0.063	20		

Dry Mass of sample, g	1248

Sample Proportions	% dry mass
Very coarse	0
Gravel	46
Sand	35
Silt	16
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.28
D_{30}	mm	0.286
D_{10}	mm	0.00573
Uniformity Coefficient		570
Curvature Coefficient		4.3

Remarks

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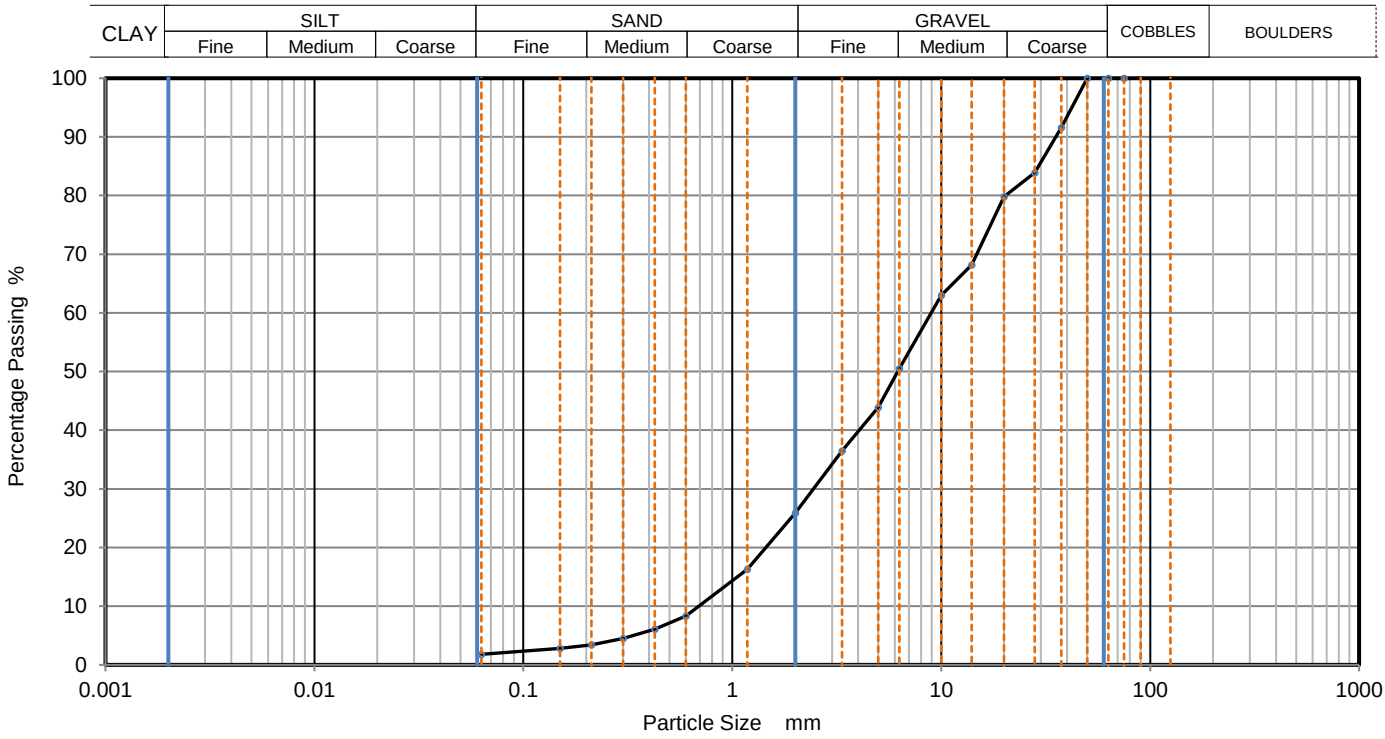
PARTICLE SIZE DISTRIBUTION

Job Ref	**2021OY102**		
Borehole/Pit No.	TP-62305		
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Dark brown slightly silty very sandy GRAVEL.	Depth, m	0.40
Specimen Reference		Specimen Depth / m	
Test Method	BS1377:Part 2:1990, clause 9.2	Sample Type	B
		KeyLAB ID	IDL120211130114



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	92		
28	84		
20	80		
14	68		
10	63		
6.3	51		
5	44		
3.35	37		
2	26		
1.18	16		
0.6	8		
0.425	6		
0.3	5		
0.212	3		
0.15	3		
0.063	2		

Dry Mass of sample, g: 1030

Sample Proportions	% dry mass
Very coarse	0
Gravel	74
Sand	24
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	8.95
D_{30}	mm	2.44
D_{10}	mm	0.694
Uniformity Coefficient		13
Curvature Coefficient		0.96

Remarks

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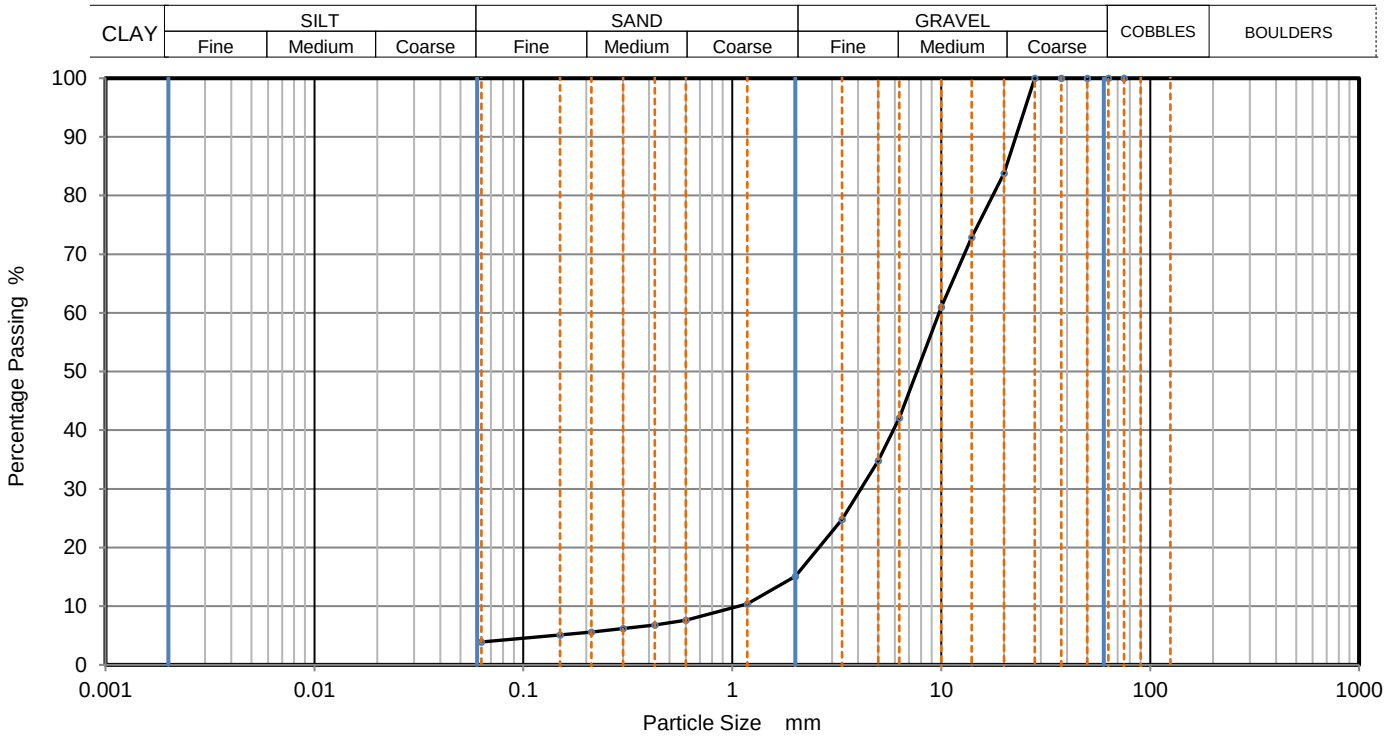
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62305
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark brown slightly silty sandy medium GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211130116



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	84		
14	73		
10	61		
6.3	42		
5	35		
3.35	25		
2	15		
1.18	10		
0.6	8		
0.425	7		
0.3	6		
0.212	6		
0.15	5		
0.063	4		

Dry Mass of sample, g	935

Sample Proportions	% dry mass
Very coarse	0
Gravel	85
Sand	11
Fines <0.063mm	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	9.76
D_{30}	mm	4.12
D_{10}	mm	1.08
Uniformity Coefficient		9
Curvature Coefficient		1.6

Remarks

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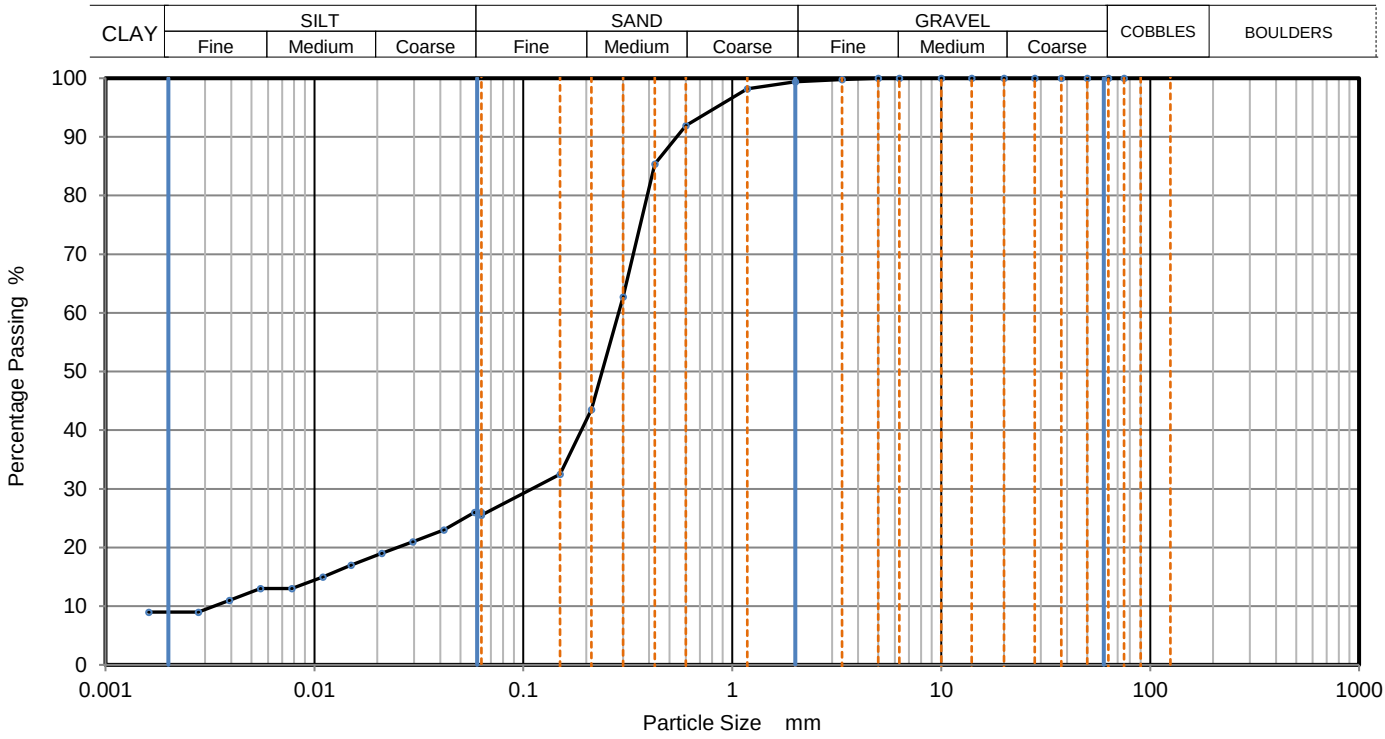
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-62417
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Yellowish-brown very silty medium SAND.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211130118



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0585	26
75	100	0.0416	23
63	100	0.0296	21
50	100	0.0210	19
37.5	100	0.0149	17
28	100	0.0110	15
20	100	0.0078	13
14	100	0.0055	13
10	100	0.0039	11
6.3	100	0.0028	9
5	100	0.0016	9
3.35	100		
2	99		
1.18	98		
0.6	92	Particle density (assumed)	
0.425	85	2.65 Mg/m3	
0.3	63		
0.212	44		
0.15	33		
0.063	26		

Dry Mass of sample, g	568

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	74
Silt	17
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.286
D_{30}	mm	0.11
D_{10}	mm	0.00354
Uniformity Coefficient		81
Curvature Coefficient		12

Remarks

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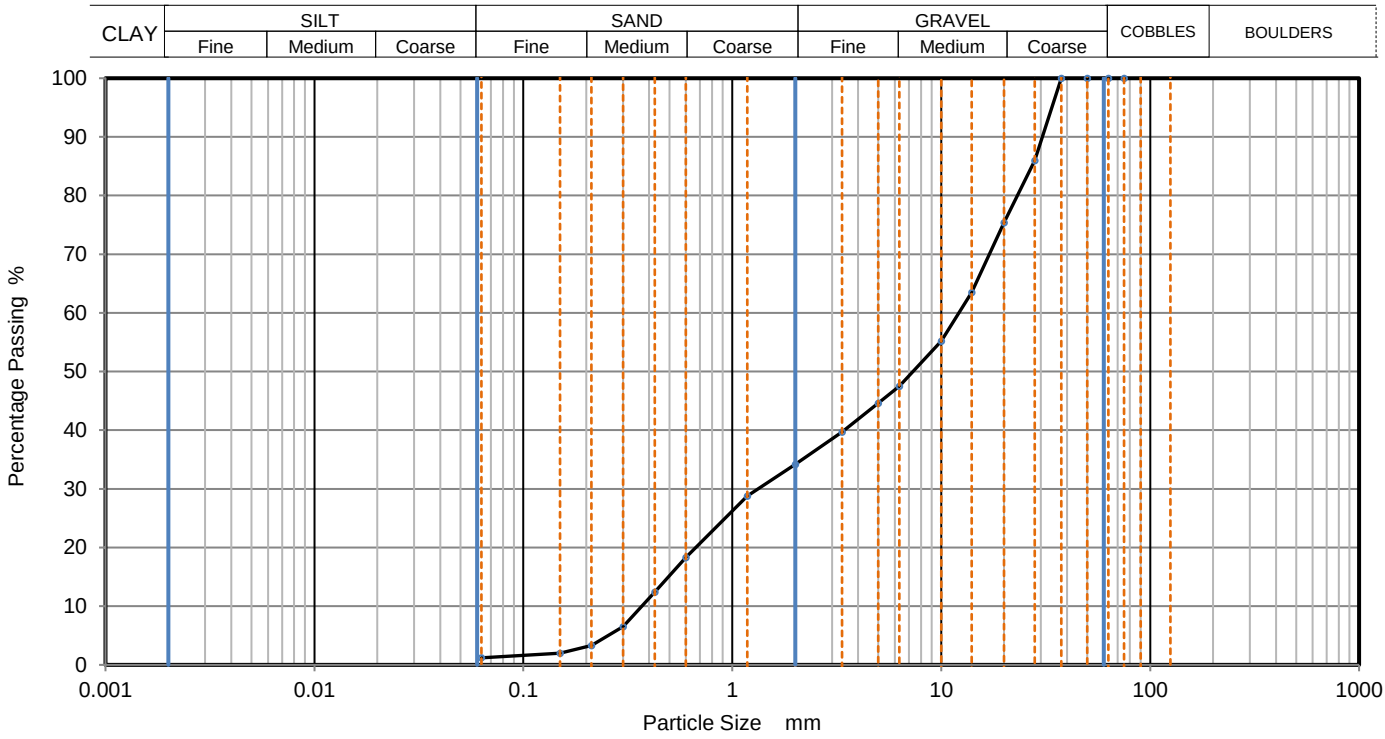
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62417
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy medium and coarse GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211130120



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	86		
20	75		
14	64		
10	55		
6.3	48		
5	45		
3.35	40		
2	34		
1.18	29		
0.6	18		
0.425	12		
0.3	7		
0.212	3		
0.15	2		
0.063	1		

Dry Mass of sample, g	943

Sample Proportions	% dry mass
Very coarse	0
Gravel	66
Sand	33
Fines <0.063mm	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	12.2
D_{30}	mm	1.32
D_{10}	mm	0.369
Uniformity Coefficient		33
Curvature Coefficient		0.39

Remarks

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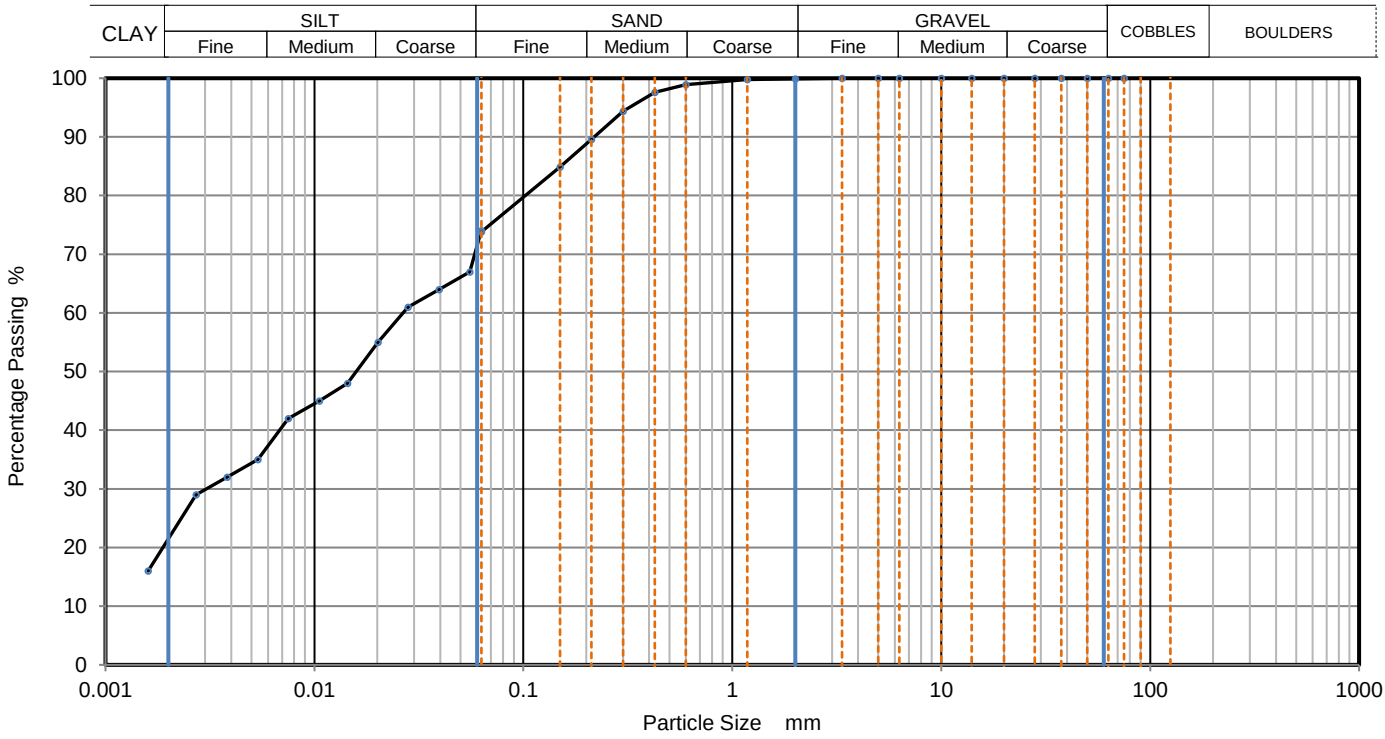
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62506
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light orangish-brown slighlty sandy silty CLAY.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130125



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	74
		0.0555	67
75	100	0.0395	64
63	100	0.0281	61
50	100	0.0201	55
37.5	100	0.0144	48
28	100	0.0106	45
20	100	0.0075	42
14	100	0.0054	35
10	100	0.0038	32
6.3	100	0.0027	29
5	100	0.0016	16
3.35	100		
2	100		
1.18	100		
0.6	99	Particle density	(assumed)
0.425	98	2.65	Mg/m3
0.3	94		
0.212	90		
0.15	85		
0.063	74		

Dry Mass of sample, g	413

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	26
Silt	52
Clay	22

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.0267
D_{30}	mm	0.00306
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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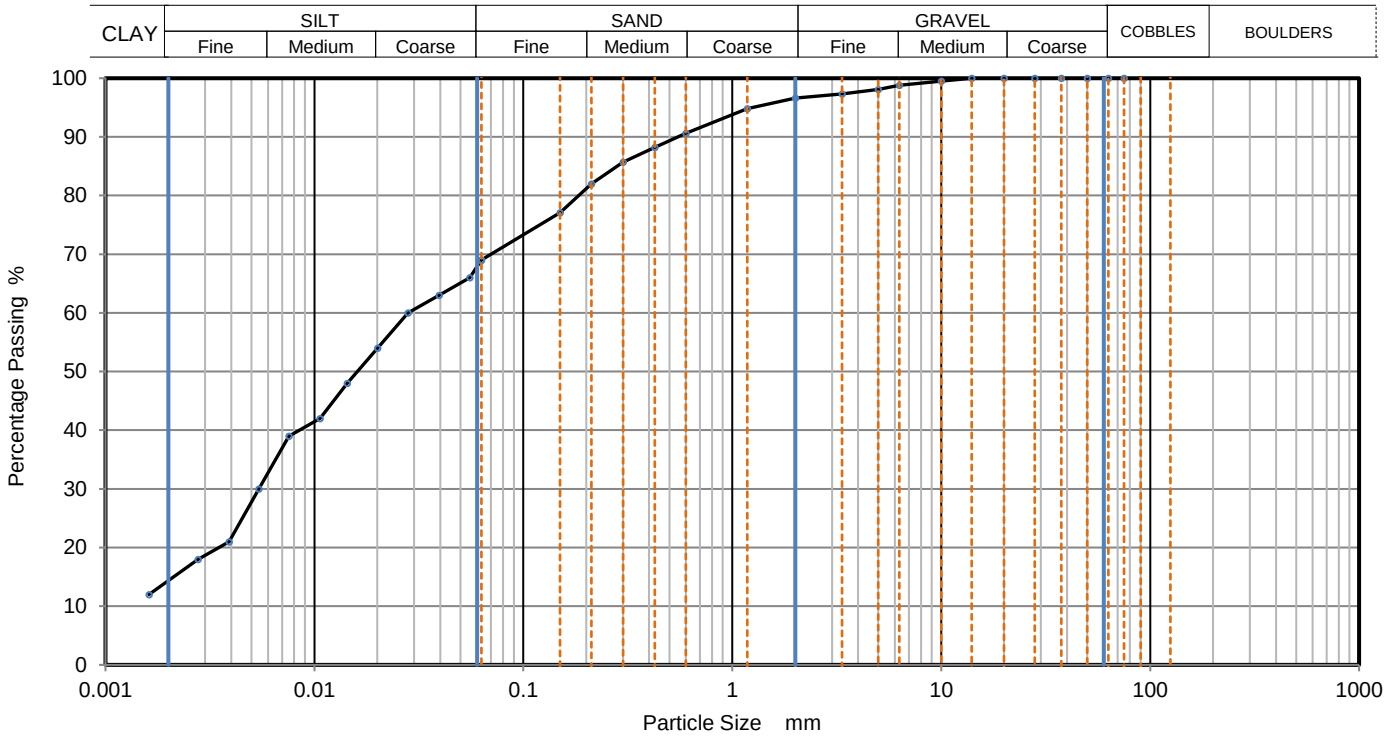
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62608
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light orangish-brown slighlty gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130130



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	69
		0.0554	66
75	100	0.0394	63
63	100	0.0281	60
50	100	0.0201	54
37.5	100	0.0144	48
28	100	0.0106	42
20	100	0.0075	39
14	100	0.0054	30
10	100	0.0039	21
6.3	99	0.0028	18
5	98	0.0016	12
3.35	97		
2	97		
1.18	95		
0.6	91	Particle density (assumed)	
0.425	88	2.65 Mg/m3	
0.3	86		
0.212	82		
0.15	77		
0.063	69		

Dry Mass of sample, g	715

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	28
Silt	55
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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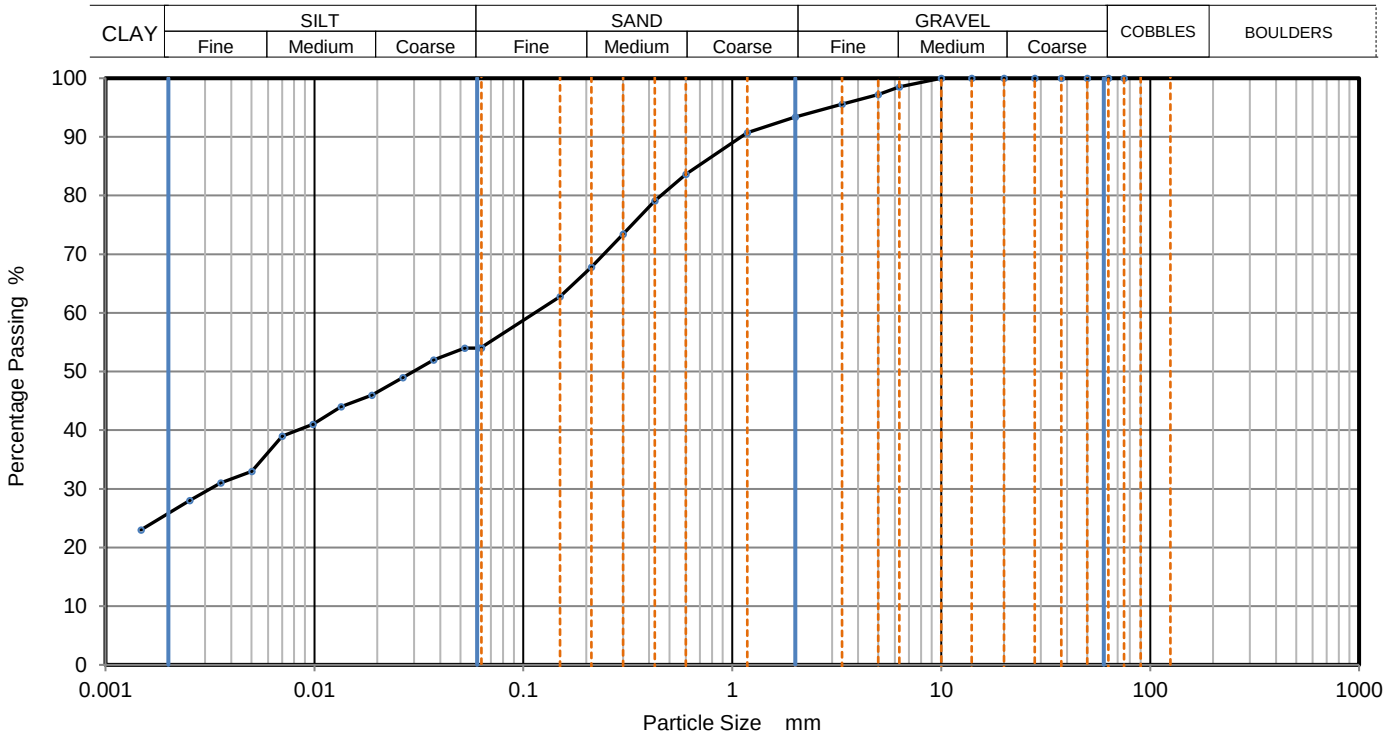
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62608
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light grey slightly gravelly sandy SILT.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130135



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	54
		0.0523	54
75	100	0.0372	52
63	100	0.0265	49
50	100	0.0188	46
37.5	100	0.0134	44
28	100	0.0098	41
20	100	0.0070	39
14	100	0.0050	33
10	100	0.0036	31
6.3	99	0.0025	28
5	97	0.0015	23
3.35	96		
2	93		
1.18	91		
0.6	84	Particle density (assumed)	
0.425	79	2.65	Mg/m3
0.3	73		
0.212	68		
0.15	63		
0.063	54		

Dry Mass of sample, g	659

Sample Proportions	% dry mass
Very coarse	0
Gravel	7
Sand	39
Silt	28
Clay	26

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.113
D_{30}	mm	0.00315
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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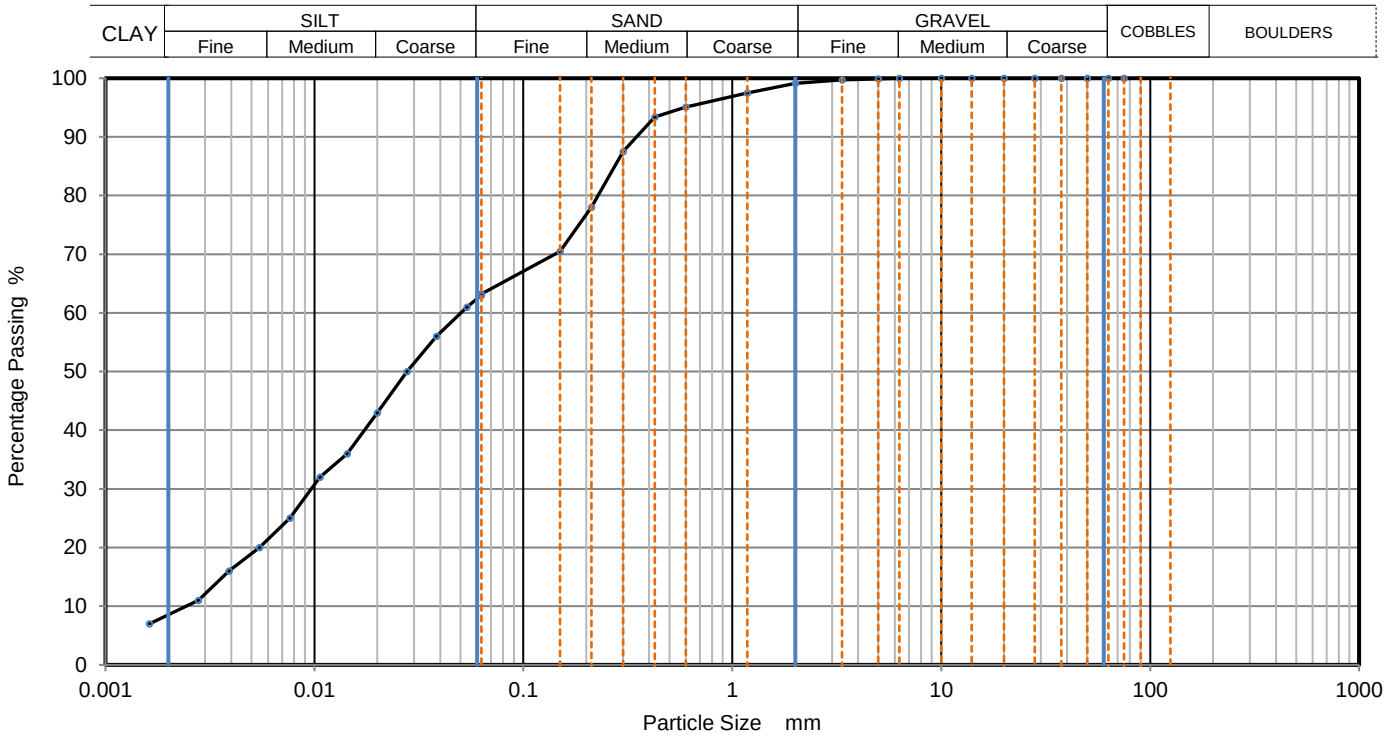
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62706
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown sandy SILT. Sand is fine and medium.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130137



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	63
		0.0537	61
75	100	0.0385	56
63	100	0.0277	50
50	100	0.0200	43
37.5	100	0.0144	36
28	100	0.0106	32
20	100	0.0076	25
14	100	0.0055	20
10	100	0.0039	16
6.3	100	0.0028	11
5	100	0.0016	7
3.35	100		
2	99		
1.18	98		
0.6	95	Particle density (assumed)	
0.425	93	2.65 Mg/m3	
0.3	88		
0.212	78		
0.15	71		
0.063	63		

Dry Mass of sample, g	589

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	36
Silt	55
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.0501
D_{30}	mm	0.00982
D_{10}	mm	0.00239
Uniformity Coefficient		21
Curvature Coefficient		0.81

Remarks

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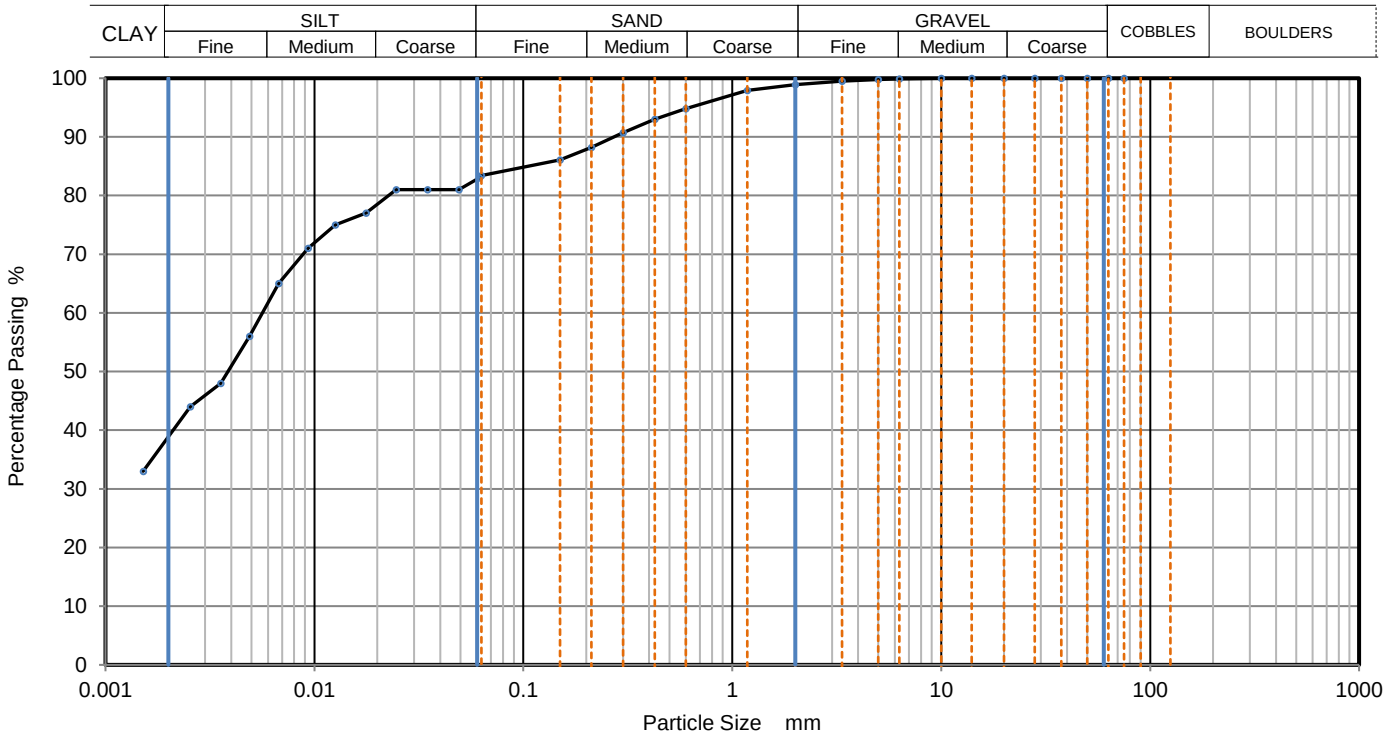
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62706
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130140



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0616	83
		0.0492	81
75	100	0.0348	81
63	100	0.0246	81
50	100	0.0177	77
37.5	100	0.0126	75
28	100	0.0093	71
20	100	0.0067	65
14	100	0.0049	56
10	100	0.0036	48
6.3	100	0.0025	44
5	100	0.0015	33
3.35	100		
2	99		
1.18	98		
0.6	95	Particle density (assumed)	
0.425	93	2.65 Mg/m3	
0.3	91		
0.212	88		
0.15	86		
0.063	83		

Dry Mass of sample, g	523

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	16
Silt	45
Clay	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.00565
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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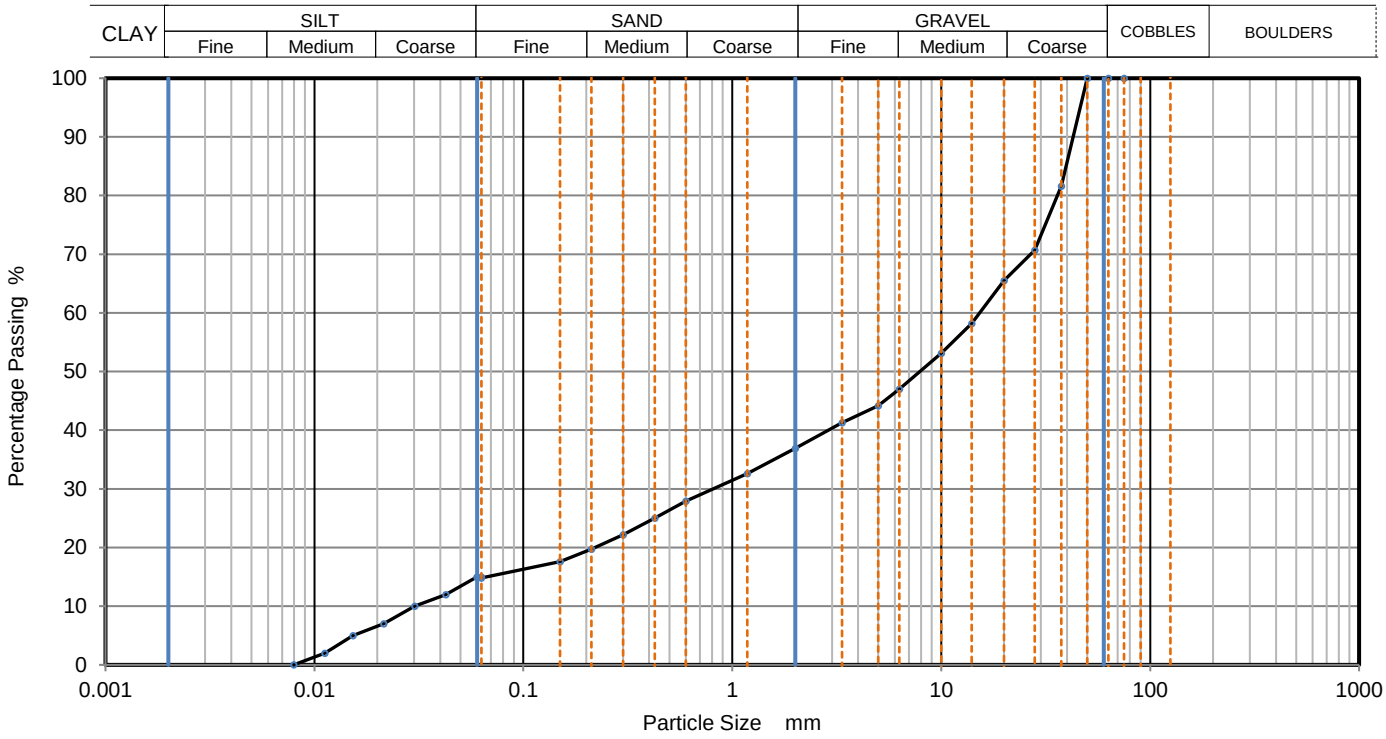
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62706
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark grey silty very sandy coarse GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130142



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	15
		0.0598	15
75	100	0.0425	12
63	100	0.0302	10
50	100	0.0215	7
37.5	82	0.0153	5
28	71	0.0112	2
20	66	0.0080	0
14	58		
10	53		
6.3	47		
5	44		
3.35	41		
2	37		
1.18	33		
0.6	28	Particle density (assumed)	
0.425	25	2.65	Mg/m3
0.3	22		
0.212	20		
0.15	18		
0.063	15		

Dry Mass of sample, g	1017

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	22
Fines <0.063mm	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	15.3
D_{30}	mm	0.814
D_{10}	mm	0.0308
Uniformity Coefficient		500
Curvature Coefficient		1.4

Remarks

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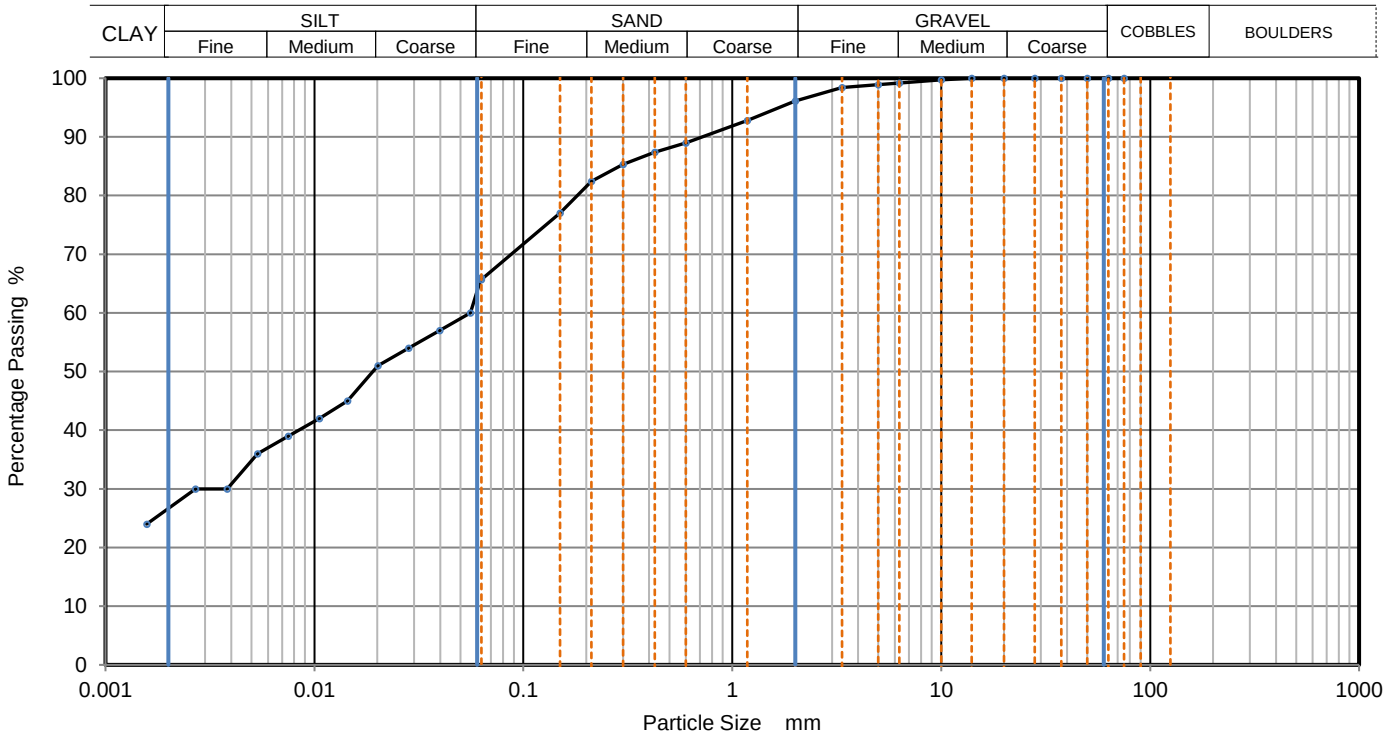
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62907
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	66
		0.0558	60
75	100	0.0397	57
63	100	0.0283	54
50	100	0.0201	51
37.5	100	0.0144	45
28	100	0.0106	42
20	100	0.0075	39
14	100	0.0053	36
10	100	0.0038	30
6.3	99	0.0027	30
5	99	0.0016	24
3.35	98		
2	96		
1.18	93		
0.6	89	Particle density (assumed)	
0.425	87	2.65 Mg/m3	
0.3	85		
0.212	82		
0.15	77		
0.063	66		

Dry Mass of sample, g	673

Sample Proportions	% dry mass
Very coarse	0
Gravel	4
Sand	31
Silt	39
Clay	27

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.0562
D_{30}	mm	0.00385
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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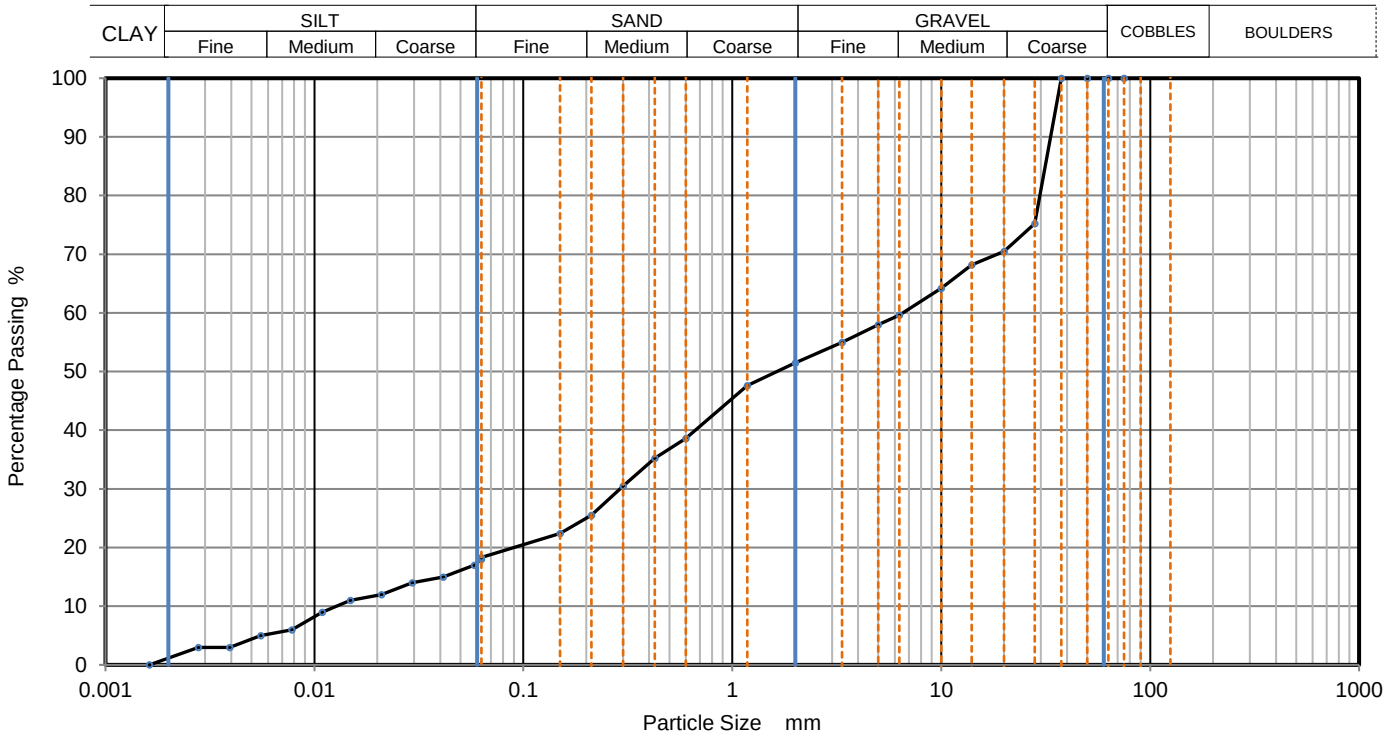
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-62907
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown silty very sandy coarse GRAVEL.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130149



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0582	17
75	100	0.0414	15
63	100	0.0294	14
50	100	0.0209	12
37.5	100	0.0149	11
28	75	0.0109	9
20	71	0.0078	6
14	68	0.0055	5
10	64	0.0039	3
6.3	60	0.0028	3
5	58	0.0016	0
3.35	55		
2	52		
1.18	48		
0.6	39	Particle density (assumed)	
0.425	35	2.65 Mg/m3	
0.3	31		
0.212	26		
0.15	22		
0.063	18		

Dry Mass of sample, g	1018

Sample Proportions	% dry mass
Very coarse	0
Gravel	49
Sand	33
Silt	17
Clay	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	6.58
D_{30}	mm	0.29
D_{10}	mm	0.013
Uniformity Coefficient		510
Curvature Coefficient		0.99

Remarks

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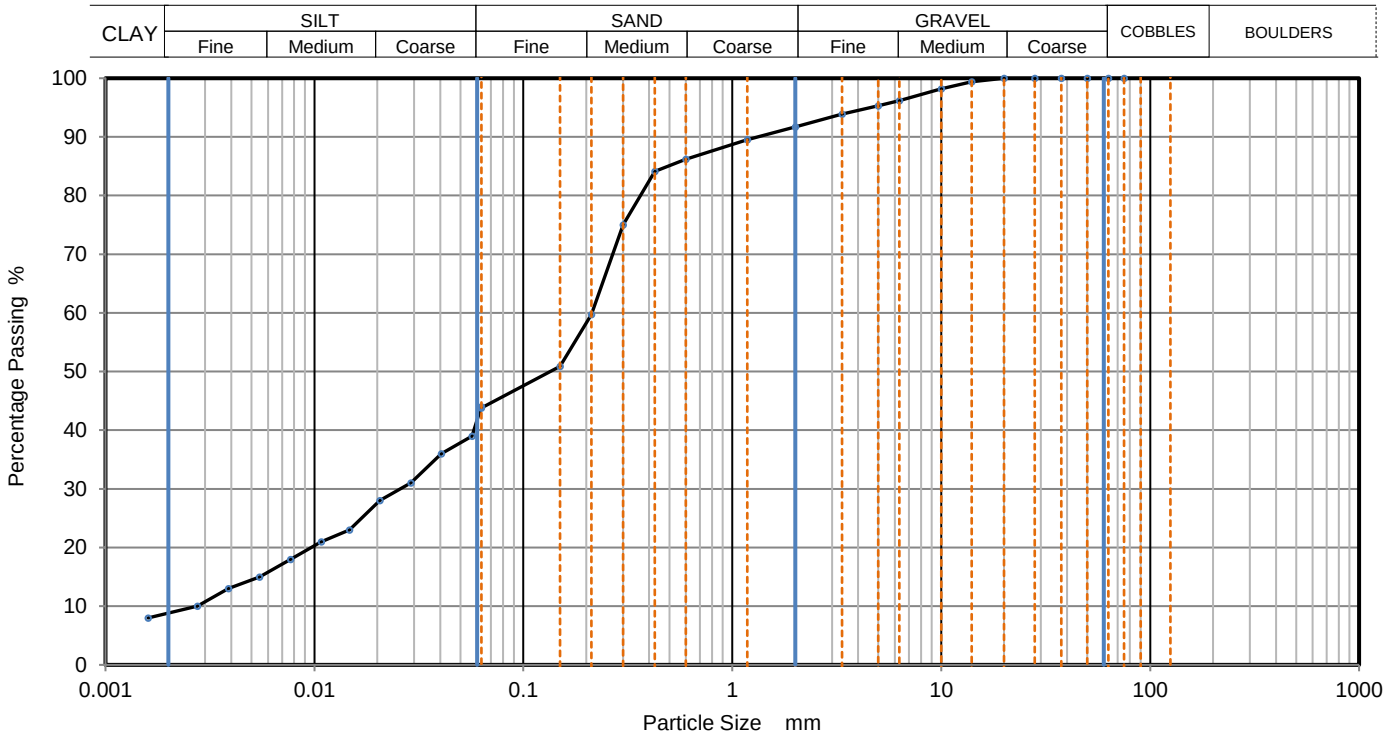
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63205
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light orange-brown slightly gravelly sandy SILT. Sand is medium and fine.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130151



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0569	39
75	100	0.0405	36
63	100	0.0289	31
50	100	0.0206	28
37.5	100	0.0147	23
28	100	0.0108	21
20	100	0.0077	18
14	99	0.0055	15
10	98	0.0039	13
6.3	96	0.0028	10
5	95	0.0016	8
3.35	94		
2	92		
1.18	90		
0.6	86	Particle density (assumed)	
0.425	84	2.65	Mg/m3
0.3	75		
0.212	60		
0.15	51		
0.063	44		

Dry Mass of sample, g	1109

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	48
Silt	35
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.214
D_{30}	mm	0.0256
D_{10}	mm	0.00258
Uniformity Coefficient		83
Curvature Coefficient		1.2

Remarks

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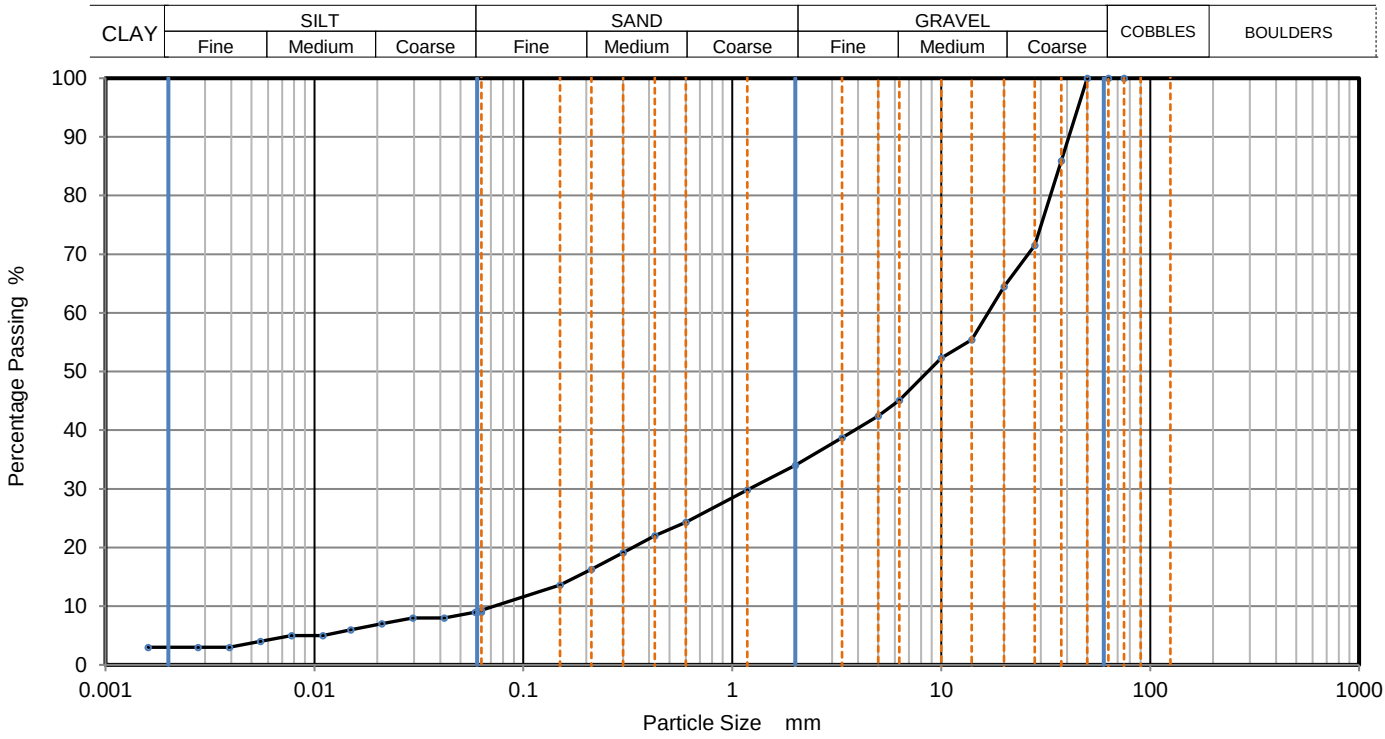
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63205
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey silty very sandy coarse GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130154



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	9
		0.0588	9
75	100	0.0418	8
63	100	0.0296	8
50	100	0.0210	7
37.5	86	0.0149	6
28	72	0.0110	5
20	65	0.0078	5
14	55	0.0055	4
10	52	0.0039	3
6.3	45	0.0028	3
5	42	0.0016	3
3.35	39		
2	34		
1.18	30		
0.6	24	Particle density (assumed)	
0.425	22	2.65	Mg/m3
0.3	19		
0.212	16		
0.15	14		
0.063	9		

Dry Mass of sample, g	1121

Sample Proportions	% dry mass
Very coarse	0
Gravel	66
Sand	25
Silt	6
Clay	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	16.7
D_{30}	mm	1.2
D_{10}	mm	0.0721
Uniformity Coefficient		230
Curvature Coefficient		1.2

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	10/10/2022 15:05	**1** QC From No:R2

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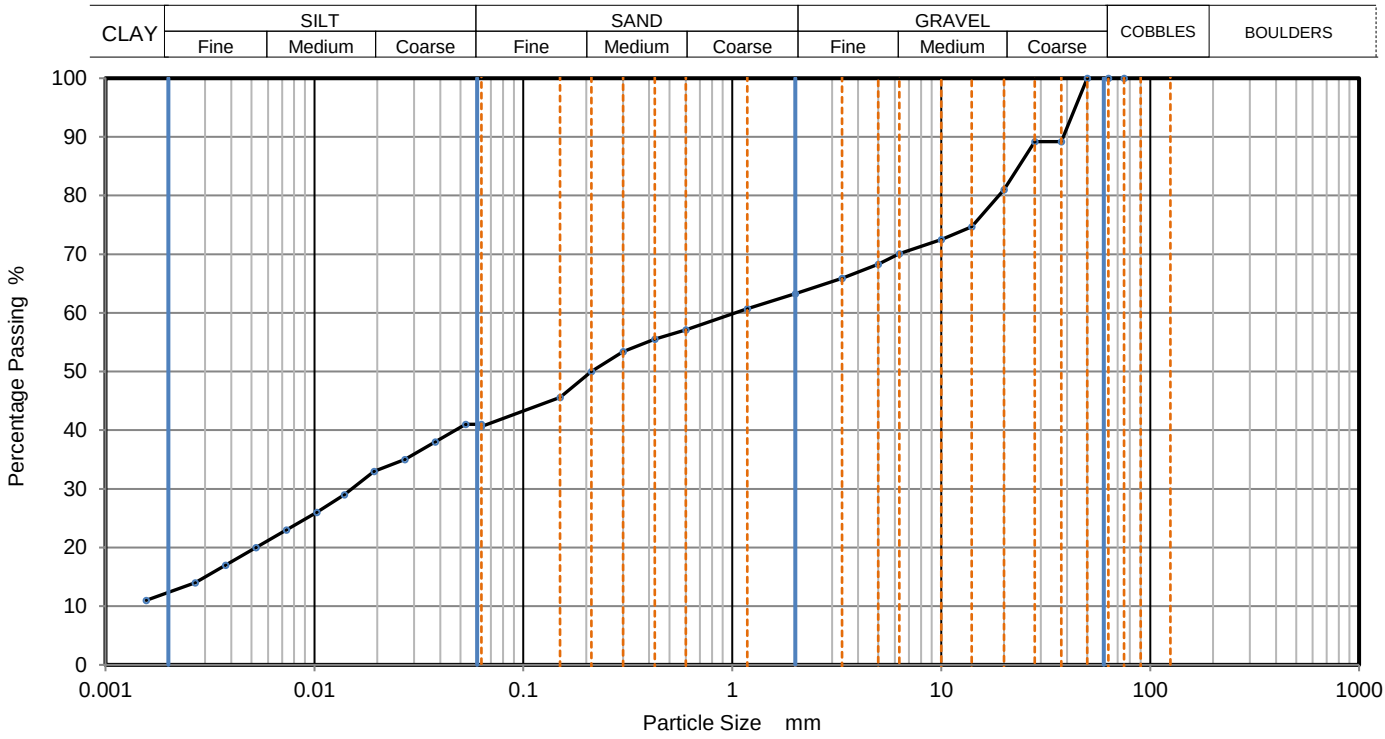
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63205
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130156



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0528	41
75	100	0.0379	38
63	100	0.0271	35
50	100	0.0193	33
37.5	89	0.0139	29
28	89	0.0103	26
20	81	0.0073	23
14	75	0.0053	20
10	73	0.0038	17
6.3	70	0.0027	14
5	68	0.0016	11
3.35	66		
2	63		
1.18	61		
0.6	57	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	53		
0.212	50		
0.15	46		
0.063	41		

Dry Mass of sample, g	1143

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	23
Silt	29
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.04
D_{30}	mm	0.0154
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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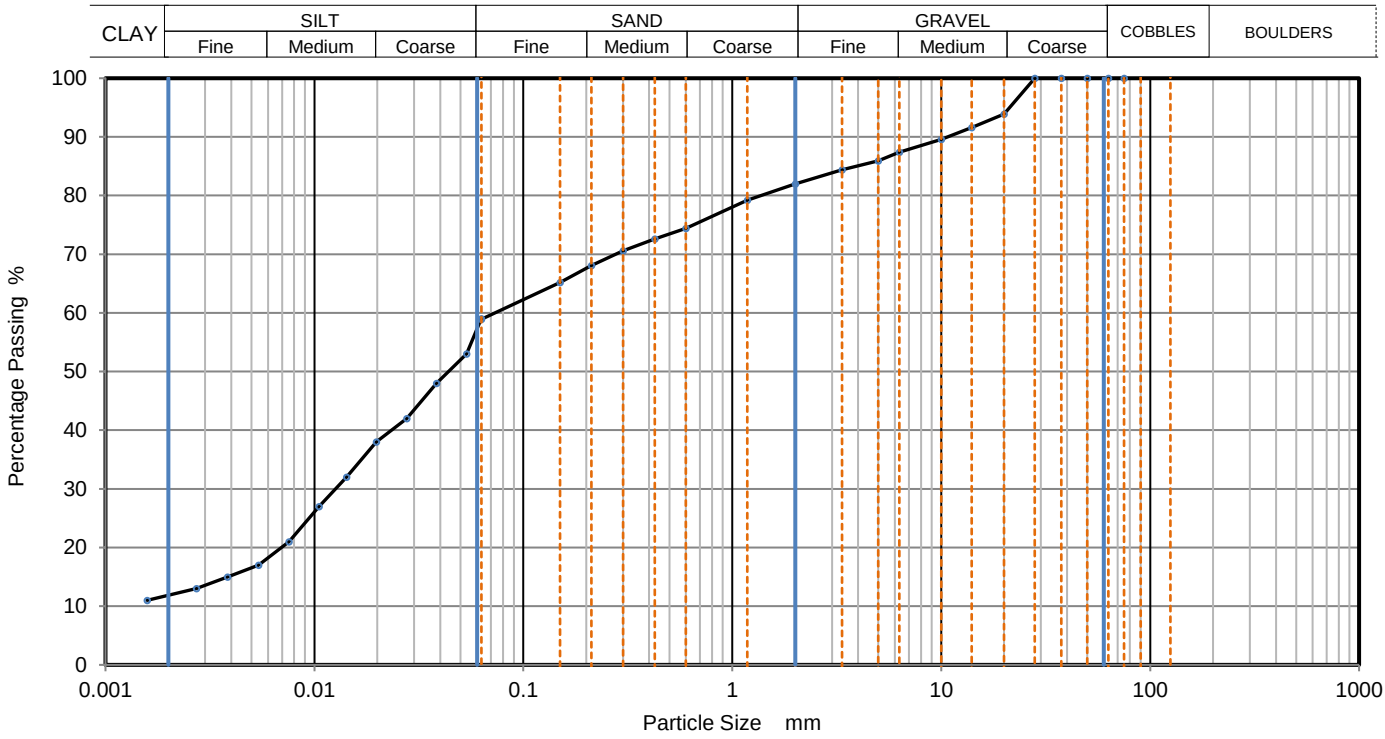
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63510
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slighlty gravelly slightly sandy SILT.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130160



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	59
		0.0535	53
75	100	0.0383	48
63	100	0.0276	42
50	100	0.0198	38
37.5	100	0.0142	32
28	100	0.0105	27
20	94	0.0076	21
14	92	0.0054	17
10	90	0.0038	15
6.3	87	0.0027	13
5	86	0.0016	11
3.35	84		
2	82		
1.18	79		
0.6	74	Particle density (assumed)	
0.425	73	2.65 Mg/m3	
0.3	71		
0.212	68		
0.15	65		
0.063	59		

Dry Mass of sample, g	994

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	23
Silt	48
Clay	11

Grading Analysis		
D100	mm	
D60	mm	0.0735
D30	mm	0.0127
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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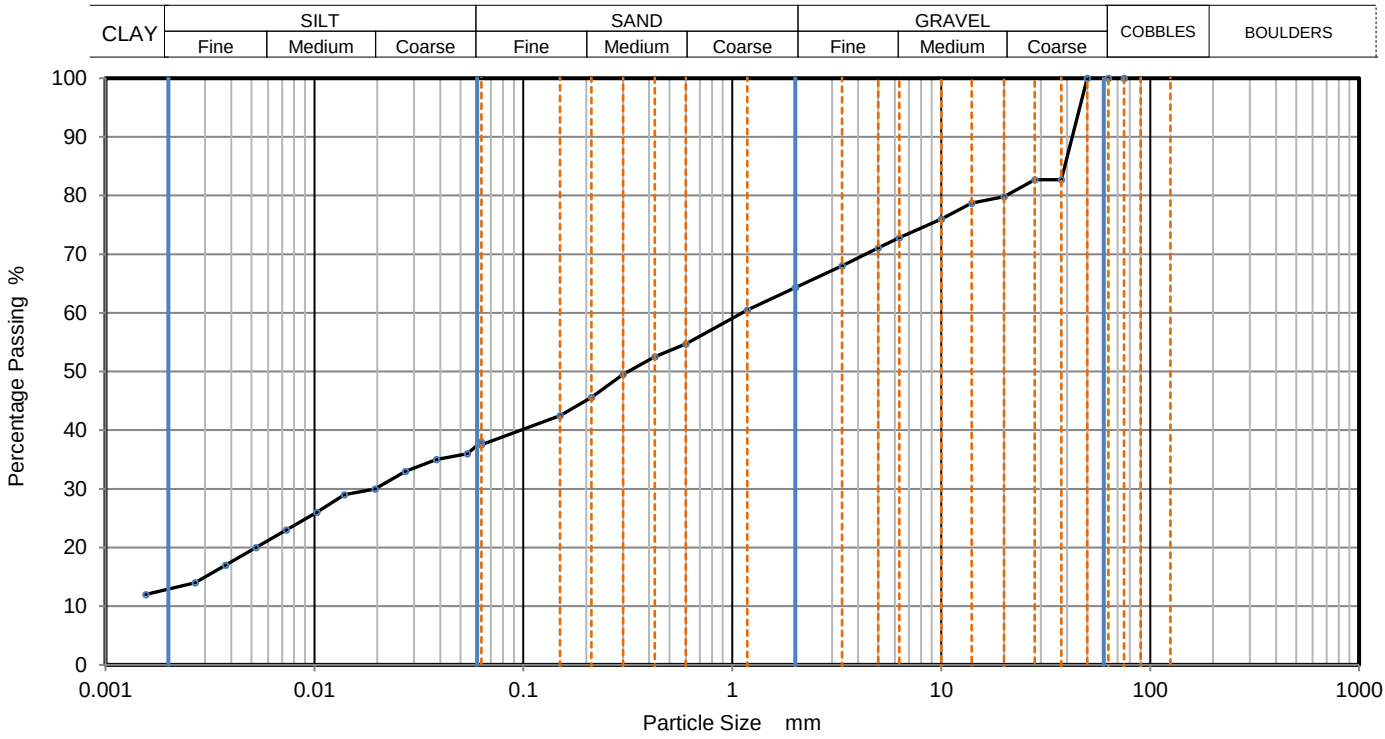
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63510
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Yelllowish-brown slightly sandy gravelly SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130162



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0539	36
75	100	0.0383	35
63	100	0.0273	33
50	100	0.0195	30
37.5	83	0.0139	29
28	83	0.0103	26
20	80	0.0073	23
14	79	0.0053	20
10	76	0.0038	17
6.3	73	0.0027	14
5	71	0.0016	12
3.35	68		
2	64		
1.18	61		
0.6	55	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	46		
0.15	43		
0.063	38		

Dry Mass of sample, g	1191

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	27
Silt	25
Clay	13

Grading Analysis		
D100	mm	
D60	mm	1.12
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	23/08/2022 14:11	**1** QC From No:R2

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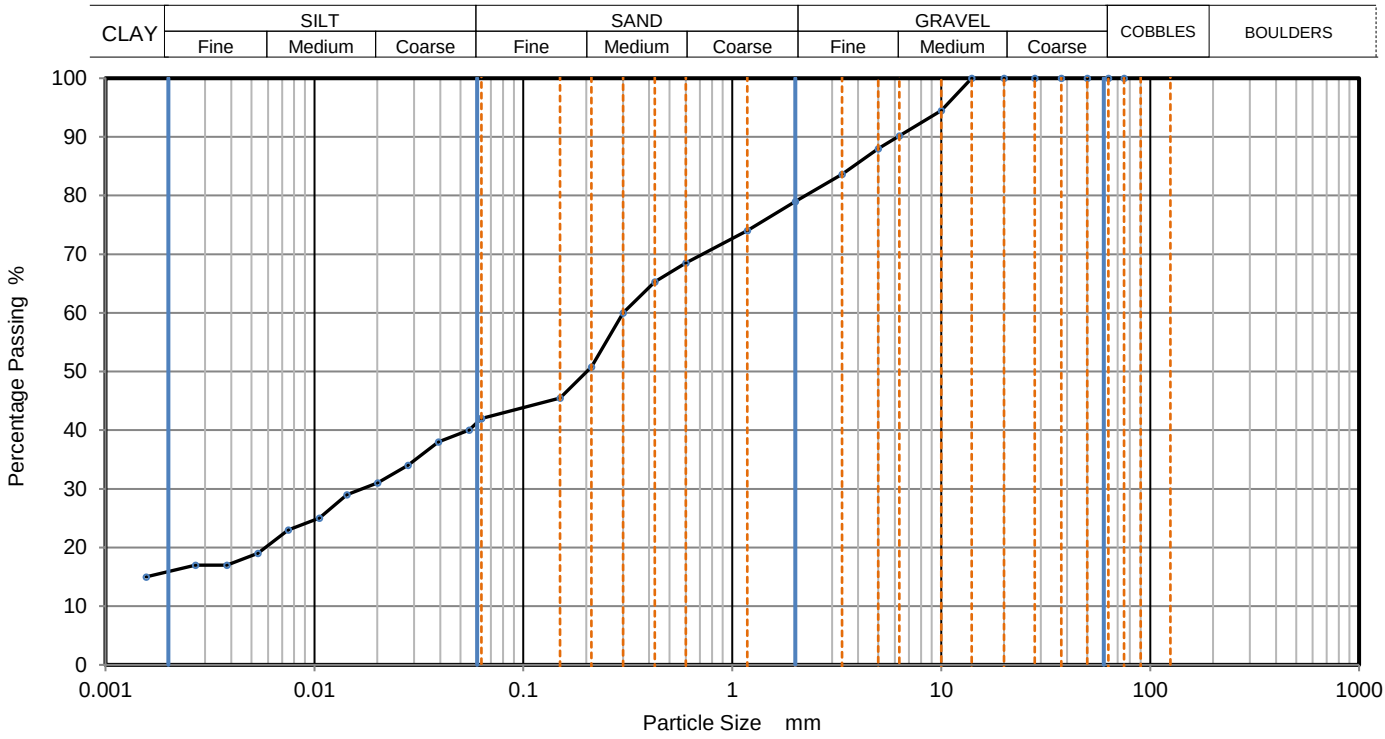
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63610
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Geryish-brown slightly gravelly sandy SILT.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130164



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0551	40
75	100	0.0392	38
63	100	0.0281	34
50	100	0.0201	31
37.5	100	0.0143	29
28	100	0.0105	25
20	100	0.0075	23
14	100	0.0054	19
10	95	0.0038	17
6.3	90	0.0027	17
5	88	0.0016	15
3.35	84		
2	79		
1.18	74		
0.6	69	Particle density (assumed)	
0.425	65	2.65 Mg/m3	
0.3	60		
0.212	51		
0.15	46		
0.063	42		

Dry Mass of sample, g	641

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	37
Silt	26
Clay	16

Grading Analysis		
D100	mm	
D60	mm	0.301
D30	mm	0.0182
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	25/11/2022 14:47	**1** QC From No:R2

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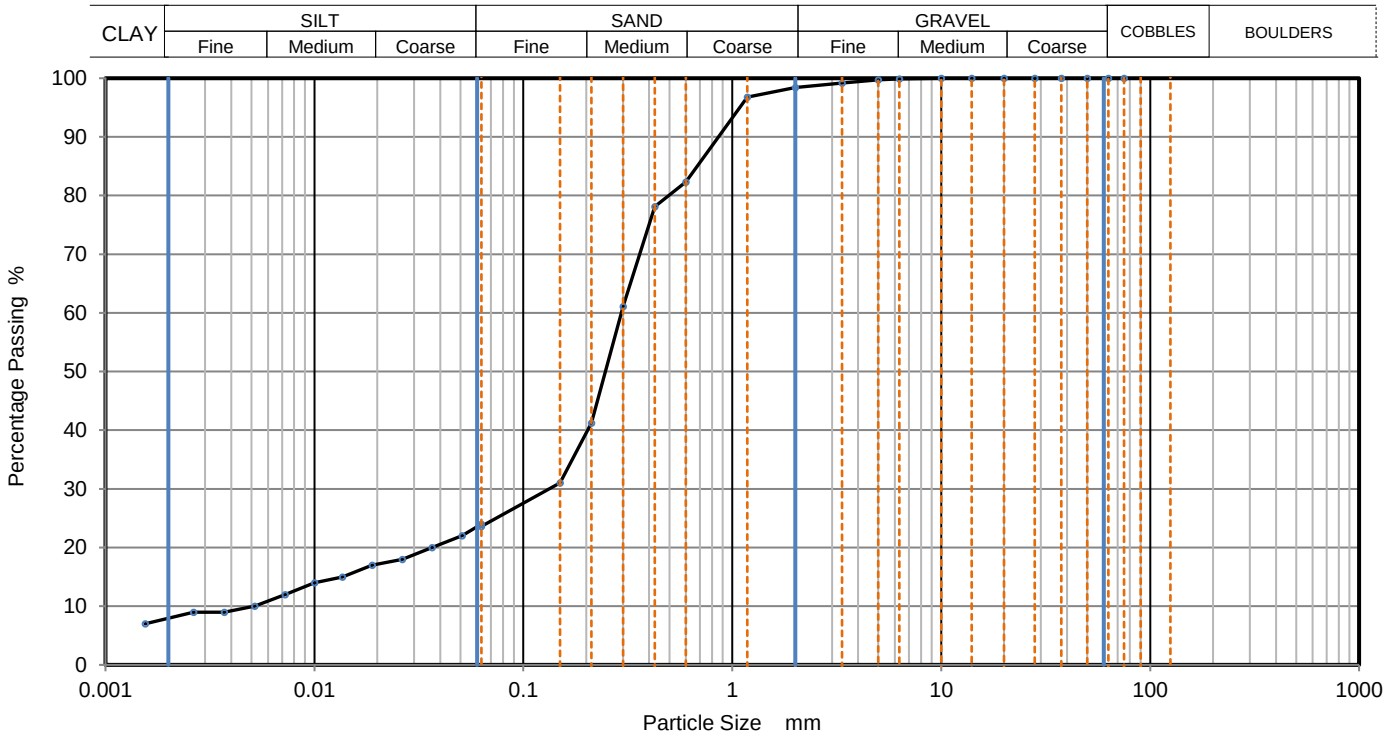
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-63711
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Yellowish-brown slightly gravelly very silty medium SAND.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211130170



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0509	22
75	100	0.0365	20
63	100	0.0263	18
50	100	0.0189	17
37.5	100	0.0136	15
28	100	0.0100	14
20	100	0.0072	12
14	100	0.0052	10
10	100	0.0037	9
6.3	100	0.0026	9
5	100	0.0015	7
3.35	99		
2	98		
1.18	97		
0.6	82	Particle density (assumed)	
0.425	78	2.65 Mg/m3	
0.3	61		
0.212	41		
0.15	31		
0.063	24		

Dry Mass of sample, g	627

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	75
Silt	16
Clay	8

Grading Analysis		
D100	mm	
D60	mm	0.294
D30	mm	0.134
D10	mm	0.00457
Uniformity Coefficient		64
Curvature Coefficient		13

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 14:11	**1** QC From No:R2

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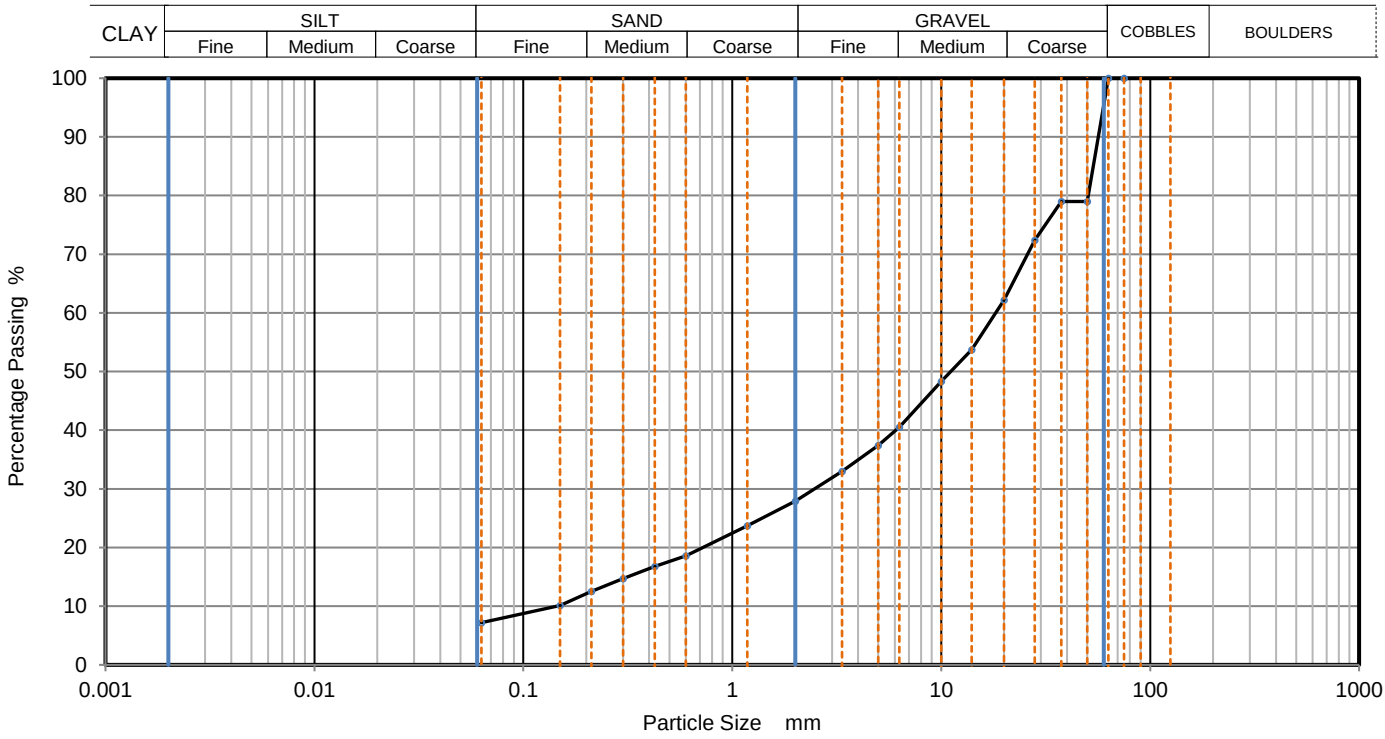
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63711
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Greyish-brown silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211130173



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	79		
37.5	79		
28	72		
20	62		
14	54		
10	48		
6.3	41		
5	37		
3.35	33		
2	28		
1.18	24		
0.6	19		
0.425	17		
0.3	15		
0.212	13		
0.15	10		
0.063	7		

Dry Mass of sample, g	1201

Sample Proportions	% dry mass
Very coarse	0
Gravel	72
Sand	21
Fines <0.063mm	7

Grading Analysis		
D100	mm	
D60	mm	18.3
D30	mm	2.47
D10	mm	0.144
Uniformity Coefficient		130
Curvature Coefficient		2.3

Remarks

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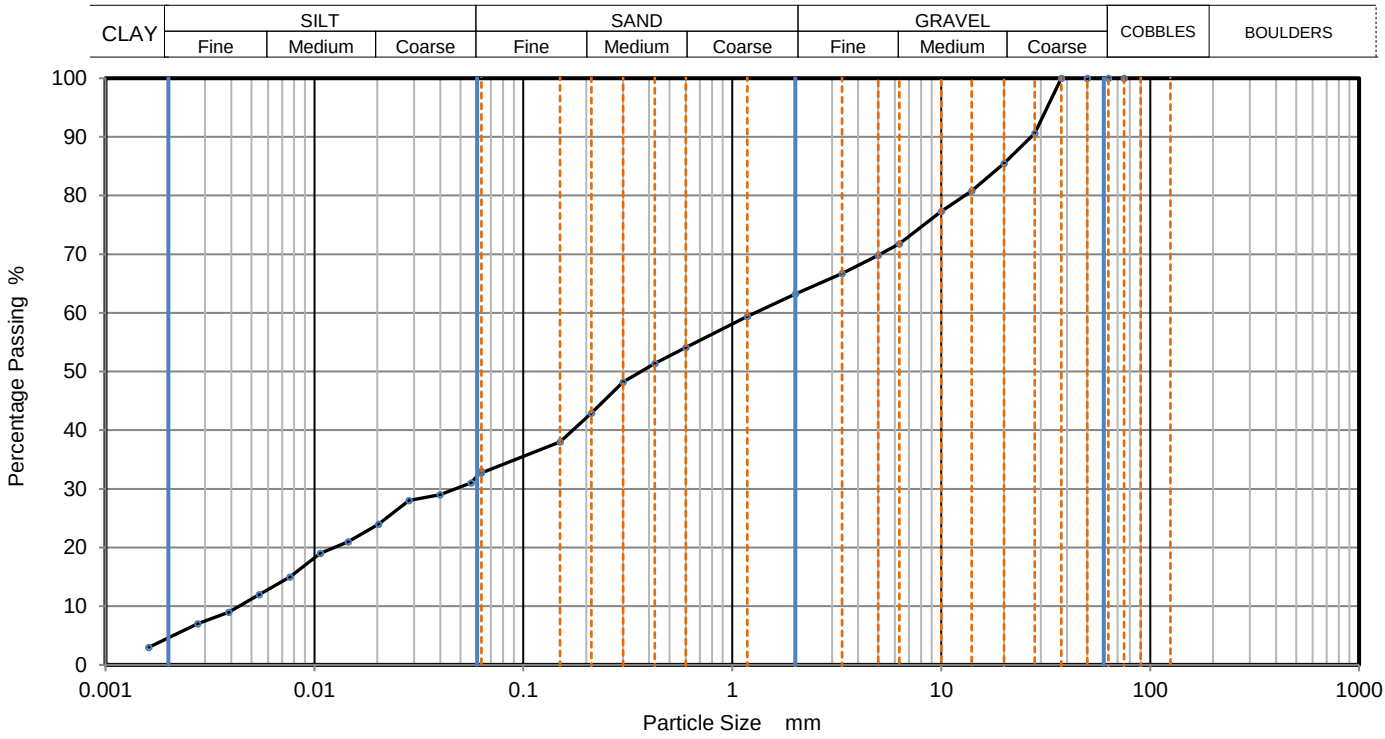
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63711
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brwonish-grey very silty SAND and GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130174



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0561	31
75	100	0.0399	29
63	100	0.0284	28
50	100	0.0203	24
37.5	100	0.0145	21
28	91	0.0107	19
20	86	0.0076	15
14	81	0.0054	12
10	77	0.0039	9
6.3	72	0.0028	7
5	70	0.0016	3
3.35	67		
2	63		
1.18	59		
0.6	54	Particle density (assumed)	
0.425	51	2.65 Mg/m3	
0.3	48		
0.212	43		
0.15	38		
0.063	33		

Dry Mass of sample, g	994

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	31
Silt	28
Clay	5

Grading Analysis		
D100	mm	
D60	mm	1.27
D30	mm	0.0462
D10	mm	0.00446
Uniformity Coefficient		290
Curvature Coefficient		0.38

Remarks

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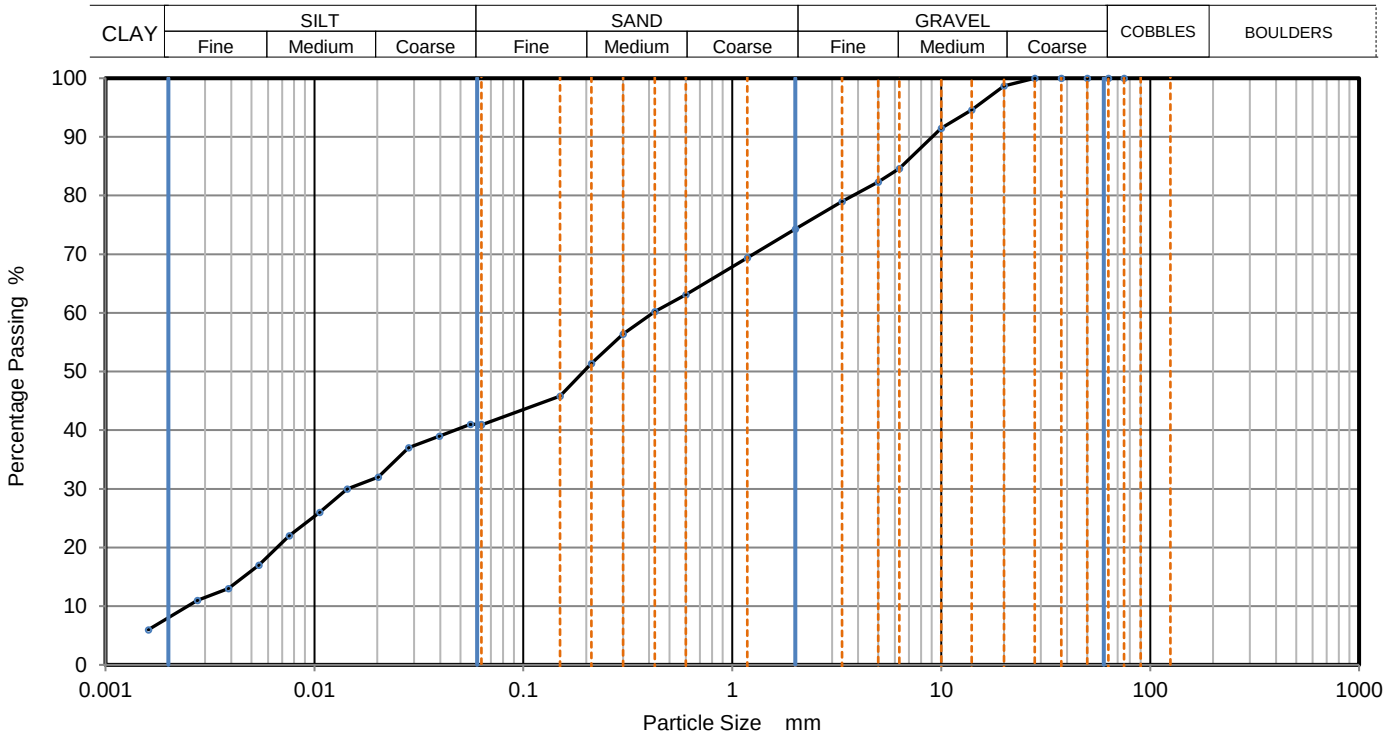
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63812
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130181



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0558	41
75	100	0.0397	39
63	100	0.0282	37
50	100	0.0202	32
37.5	100	0.0144	30
28	100	0.0106	26
20	99	0.0076	22
14	95	0.0054	17
10	92	0.0039	13
6.3	85	0.0028	11
5	82	0.0016	6
3.35	79		
2	74		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	60	2.65	Mg/m3
0.3	56		
0.212	51		
0.15	46		
0.063	41		

Dry Mass of sample, g	1209

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	33
Silt	33
Clay	8

Grading Analysis		
D100	mm	
D60	mm	0.416
D30	mm	0.0142
D10	mm	0.0025
Uniformity Coefficient		170
Curvature Coefficient		0.19

Remarks

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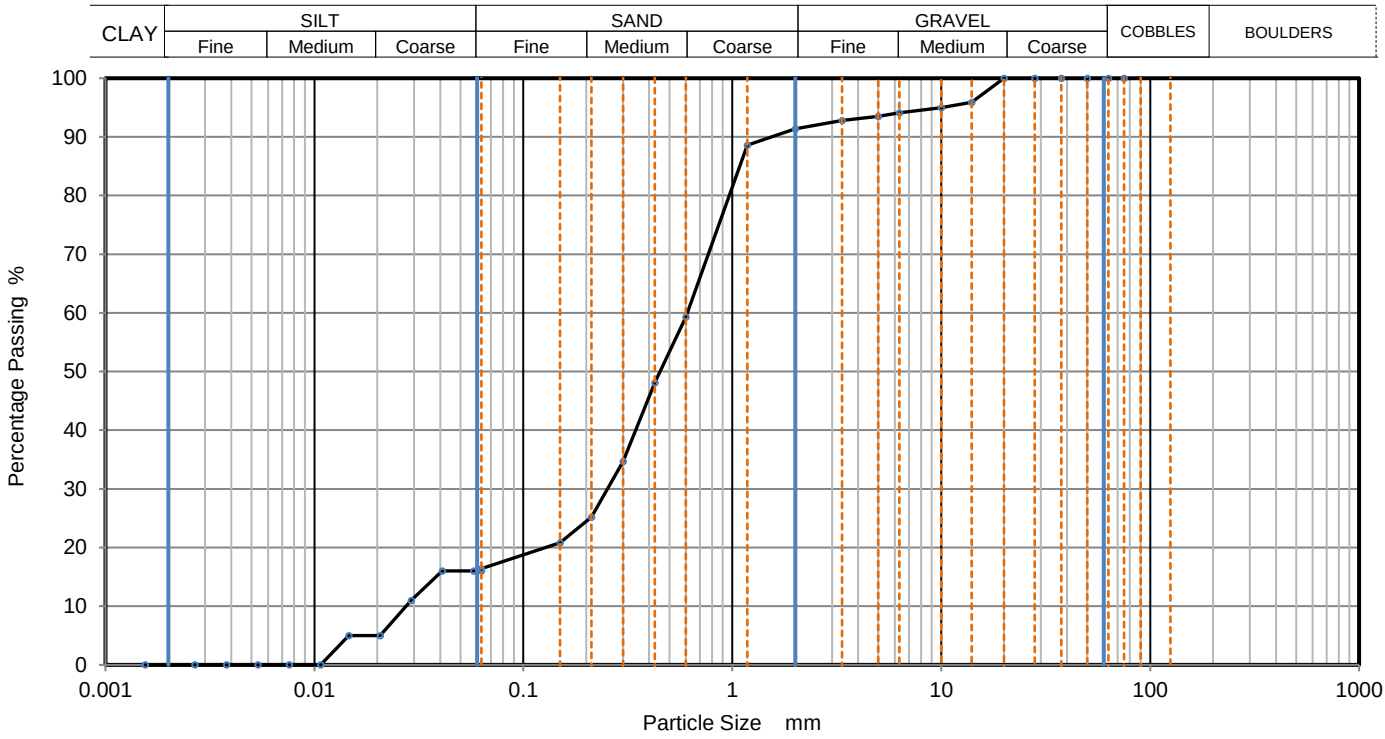
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-63911
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown gravelly silty medium and coarse SAND.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211130182



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	16
		0.0578	16
75	100	0.0409	16
63	100	0.0291	11
50	100	0.0206	5
37.5	100	0.0146	5
28	100	0.0107	0
20	100	0.0076	0
14	96	0.0054	0
10	95	0.0038	0
6.3	94	0.0027	0
5	94	0.0015	0
3.35	93		
2	91		
1.18	89		
0.6	59	Particle density (assumed)	
0.425	48	2.65	Mg/m3
0.3	35		
0.212	25		
0.15	21		
0.063	16		

Dry Mass of sample, g	662

Sample Proportions	% dry mass
Very coarse	0
Gravel	9
Sand	75
Silt	16
Clay	0

Grading Analysis		
D100	mm	
D60	mm	0.609
D30	mm	0.253
D10	mm	0.0274
Uniformity Coefficient		22
Curvature Coefficient		3.8

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	23/08/2022 14:11	**1** QC From No:R2

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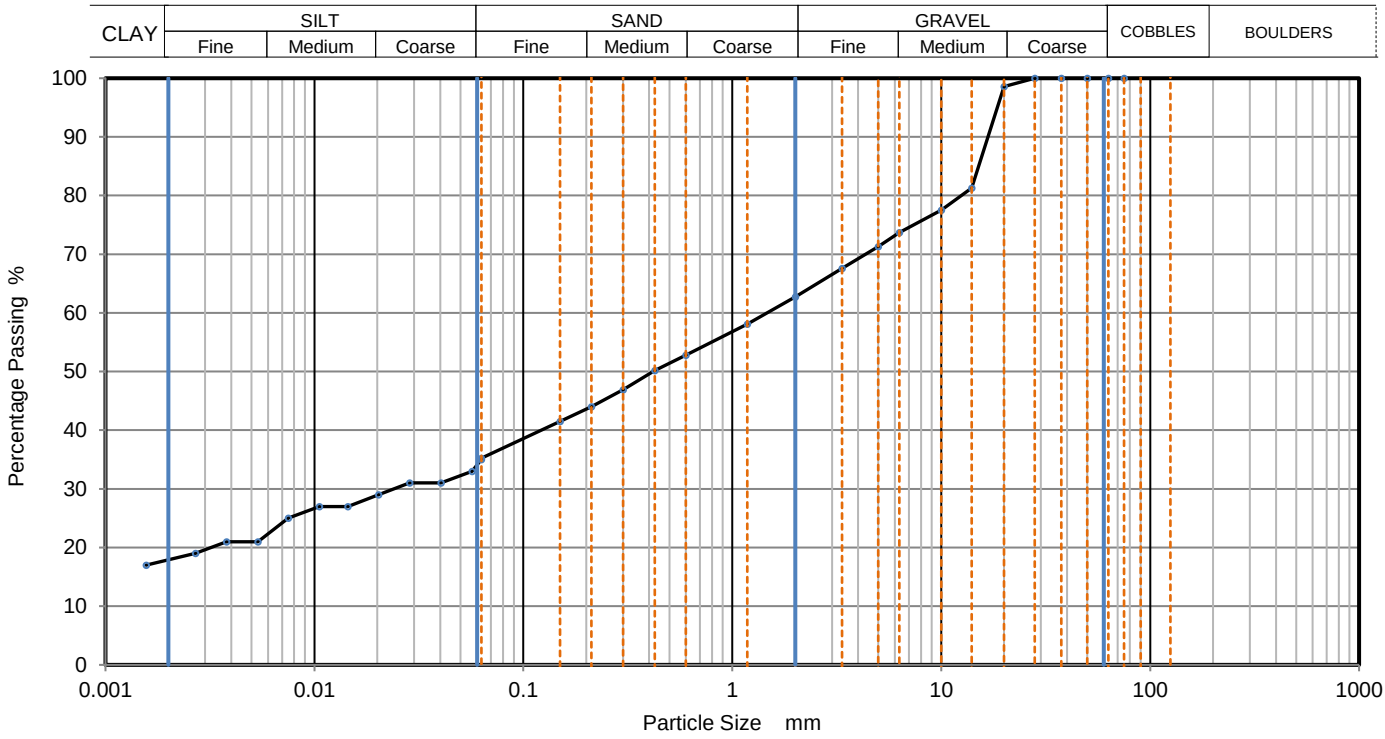
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67410
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT. Gravel is medium.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206228



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0568	33
75	100	0.0404	31
63	100	0.0285	31
50	100	0.0203	29
37.5	100	0.0144	27
28	100	0.0105	27
20	99	0.0075	25
14	81	0.0054	21
10	78	0.0038	21
6.3	74	0.0027	19
5	71	0.0016	17
3.35	68		
2	63		
1.18	58		
0.6	53	Particle density (assumed)	
0.425	50	2.65	Mg/m3
0.3	47		
0.212	44		
0.15	42		
0.063	35		

Dry Mass of sample, g	1033

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	27
Silt	18
Clay	18

Grading Analysis		
D100	mm	
D60	mm	1.46
D30	mm	0.024
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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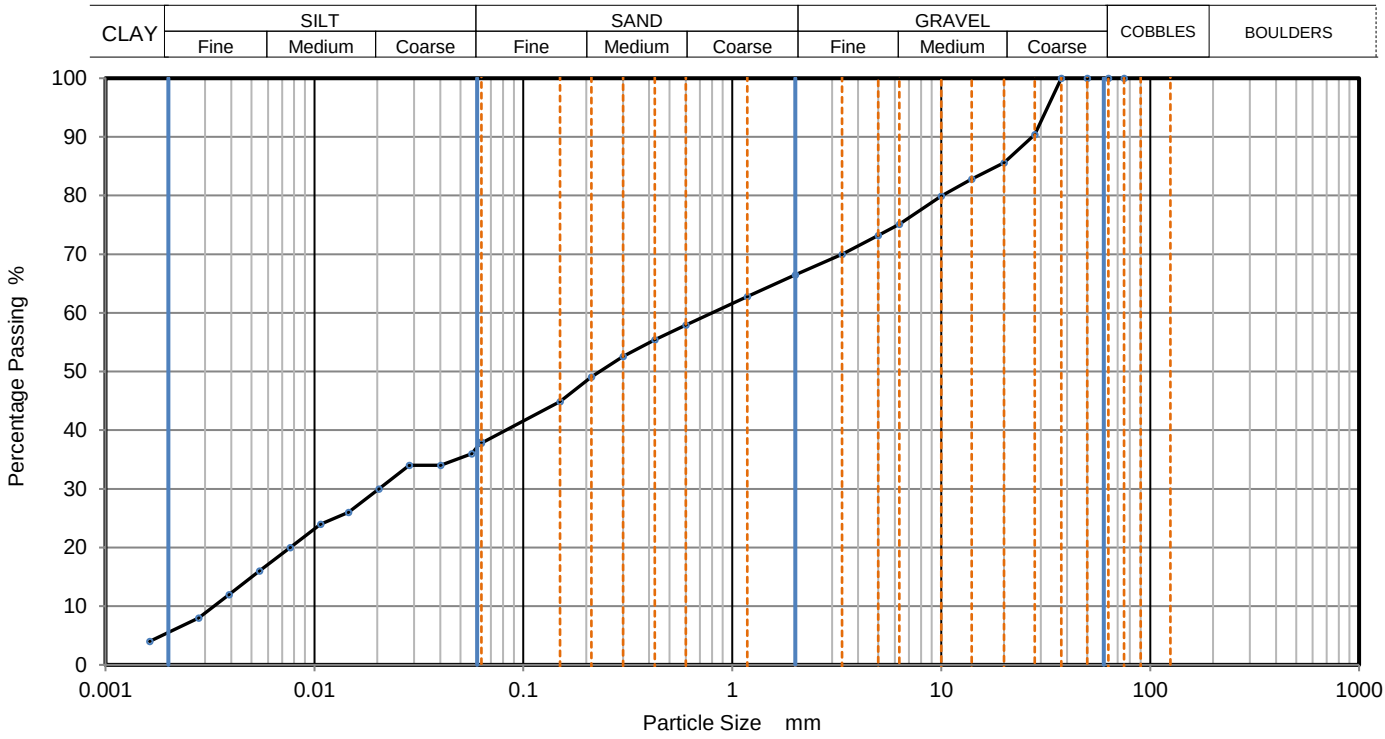
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67410
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206230



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0566	36
75	100	0.0402	34
63	100	0.0285	34
50	100	0.0204	30
37.5	100	0.0146	26
28	90	0.0107	24
20	86	0.0076	20
14	83	0.0055	16
10	80	0.0039	12
6.3	75	0.0028	8
5	73	0.0016	4
3.35	70		
2	67		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	53		
0.212	49		
0.15	45		
0.063	38		

Dry Mass of sample, g	875

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	29
Silt	32
Clay	6

Grading Analysis		
D100	mm	
D60	mm	0.798
D30	mm	0.0206
D10	mm	0.00331
Uniformity Coefficient		240
Curvature Coefficient		0.16

Remarks

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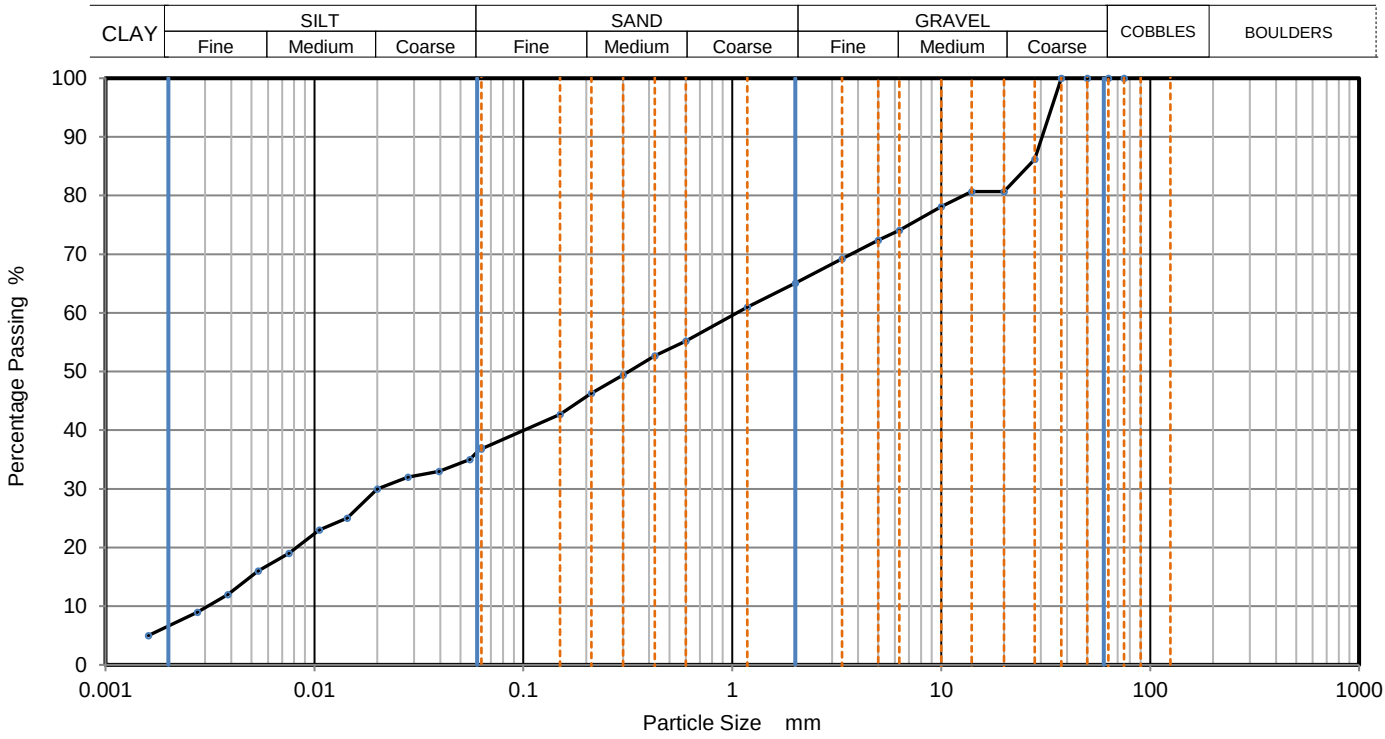
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67511
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206234



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0554	35
75	100	0.0394	33
63	100	0.0281	32
50	100	0.0200	30
37.5	100	0.0144	25
28	86	0.0105	23
20	81	0.0075	19
14	81	0.0054	16
10	78	0.0039	12
6.3	74	0.0028	9
5	72	0.0016	5
3.35	69		
2	65		
1.18	61		
0.6	55	Particle density	(assumed)
0.425	53	2.65	Mg/m3
0.3	49		
0.212	46		
0.15	43		
0.063	37		

Dry Mass of sample, g	848

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	28
Silt	30
Clay	7

Grading Analysis		
D100	mm	
D60	mm	1.05
D30	mm	0.0208
D10	mm	0.0031
Uniformity Coefficient		340
Curvature Coefficient		0.13

Remarks

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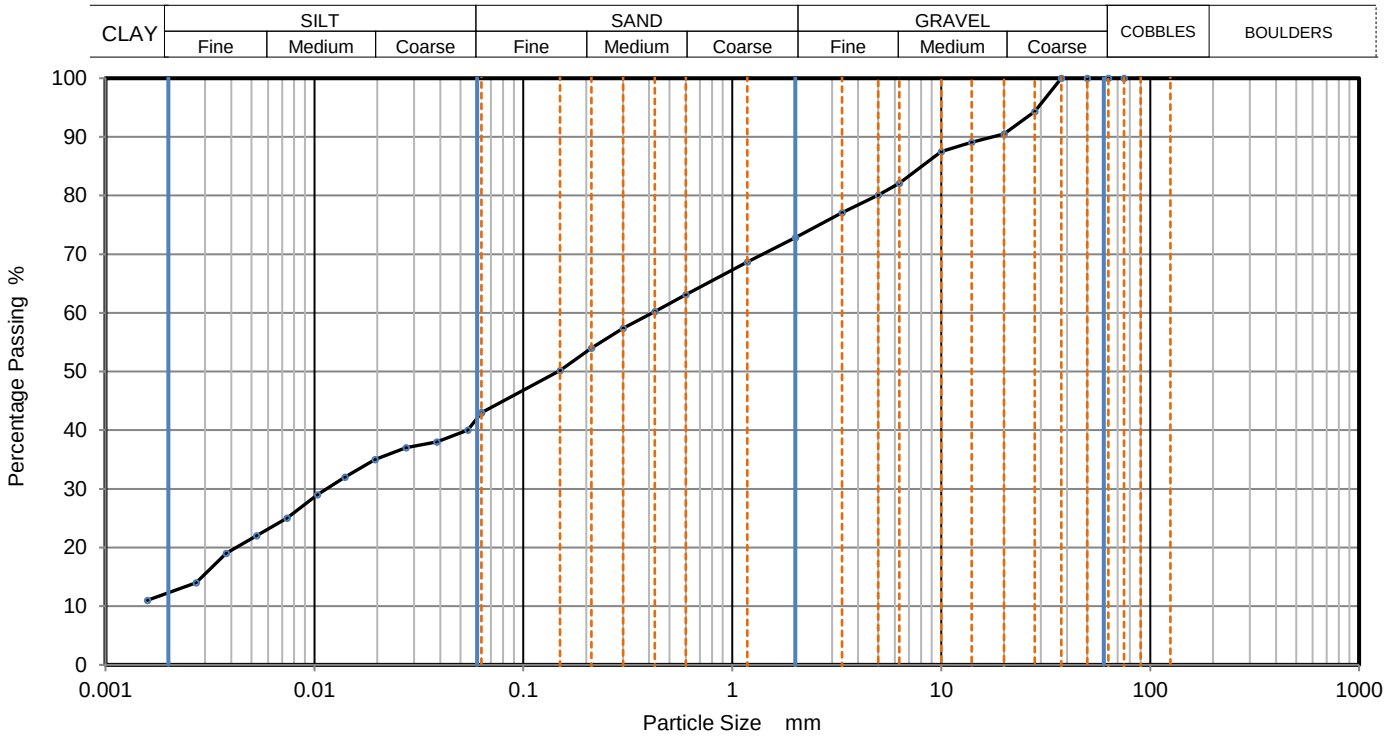
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67511
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206236



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0542	40
75	100	0.0386	38
63	100	0.0274	37
50	100	0.0195	35
37.5	100	0.0140	32
28	94	0.0103	29
20	91	0.0074	25
14	89	0.0053	22
10	88	0.0038	19
6.3	82	0.0027	14
5	80	0.0016	11
3.35	77		
2	73		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	57		
0.212	54		
0.15	50		
0.063	43		

Dry Mass of sample, g	818

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	30
Silt	31
Clay	13

Grading Analysis		
D100	mm	
D60	mm	0.414
D30	mm	0.0117
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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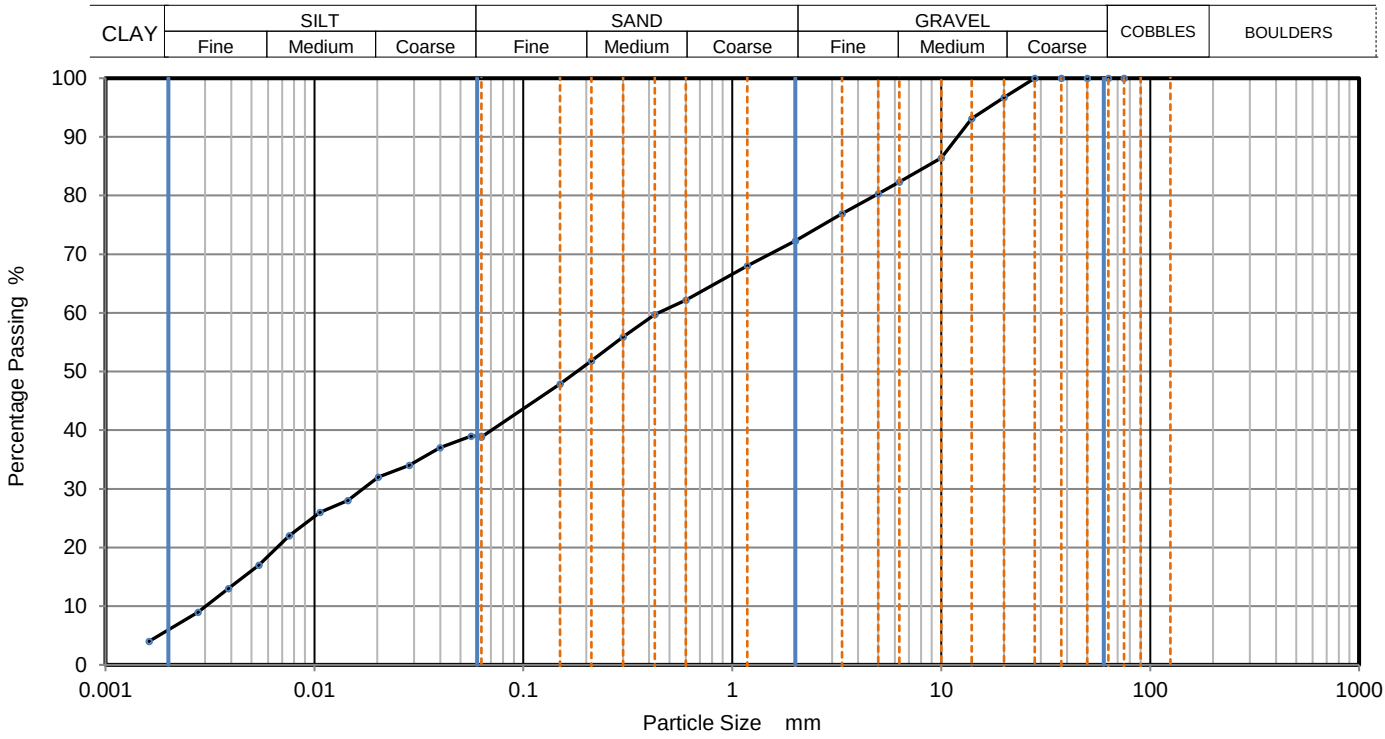
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206238



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0562	39
75	100	0.0400	37
63	100	0.0284	34
50	100	0.0202	32
37.5	100	0.0145	28
28	100	0.0106	26
20	97	0.0076	22
14	93	0.0054	17
10	86	0.0039	13
6.3	82	0.0028	9
5	80	0.0016	4
3.35	77		
2	72		
1.18	68		
0.6	62	Particle density (assumed)	
0.425	60	2.65	Mg/m3
0.3	56		
0.212	52		
0.15	48		
0.063	39		

Dry Mass of sample, g: 378

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	34
Silt	33
Clay	6

Grading Analysis		
D100	mm	
D60	mm	0.443
D30	mm	0.0169
D10	mm	0.00308
Uniformity Coefficient		140
Curvature Coefficient		0.21

Remarks

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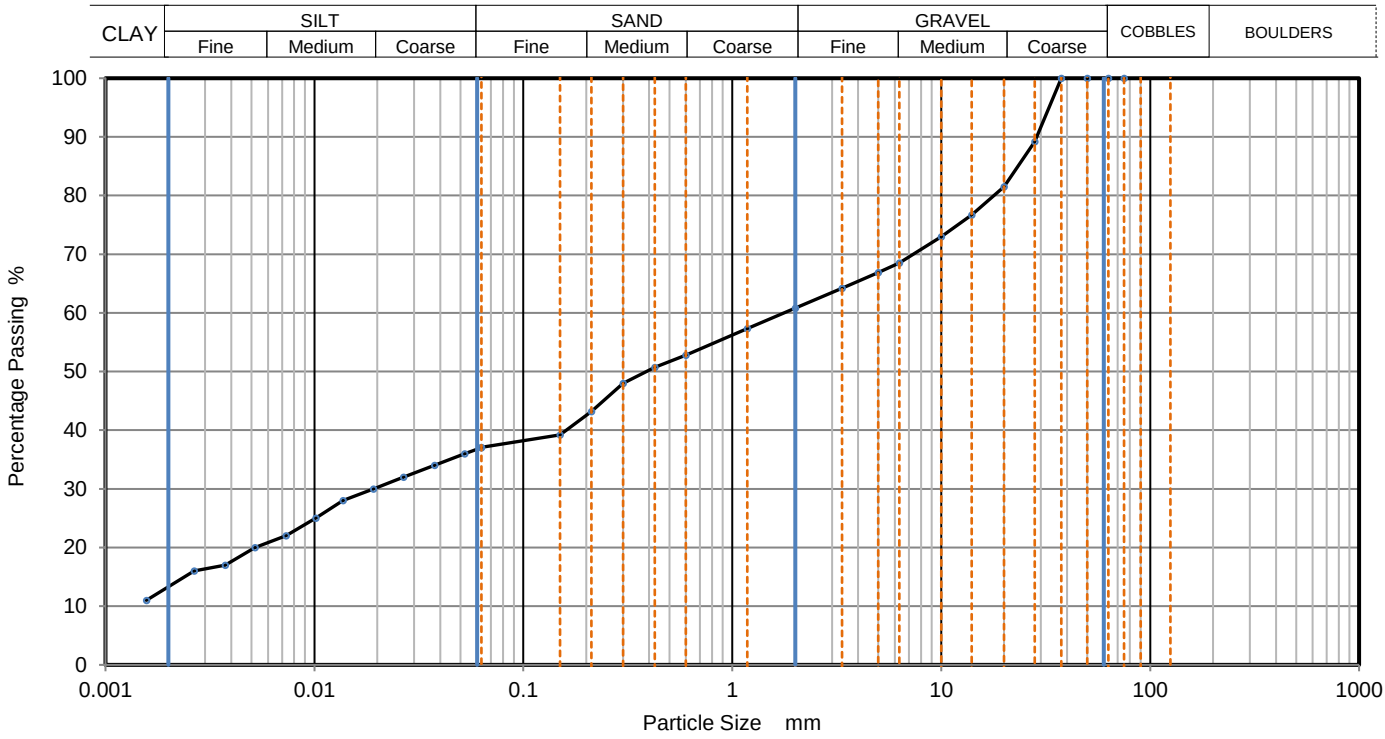
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67630
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206240



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0524	36
75	100	0.0376	34
63	100	0.0267	32
50	100	0.0192	30
37.5	100	0.0137	28
28	89	0.0101	25
20	82	0.0073	22
14	77	0.0052	20
10	73	0.0037	17
6.3	69	0.0027	16
5	67	0.0016	11
3.35	64		
2	61		
1.18	57		
0.6	53	Particle density (assumed)	
0.425	51	2.65	Mg/m3
0.3	48		
0.212	43		
0.15	39		
0.063	37		

Dry Mass of sample, g	860

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	24
Silt	24
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.78
D_{30}	mm	0.0194
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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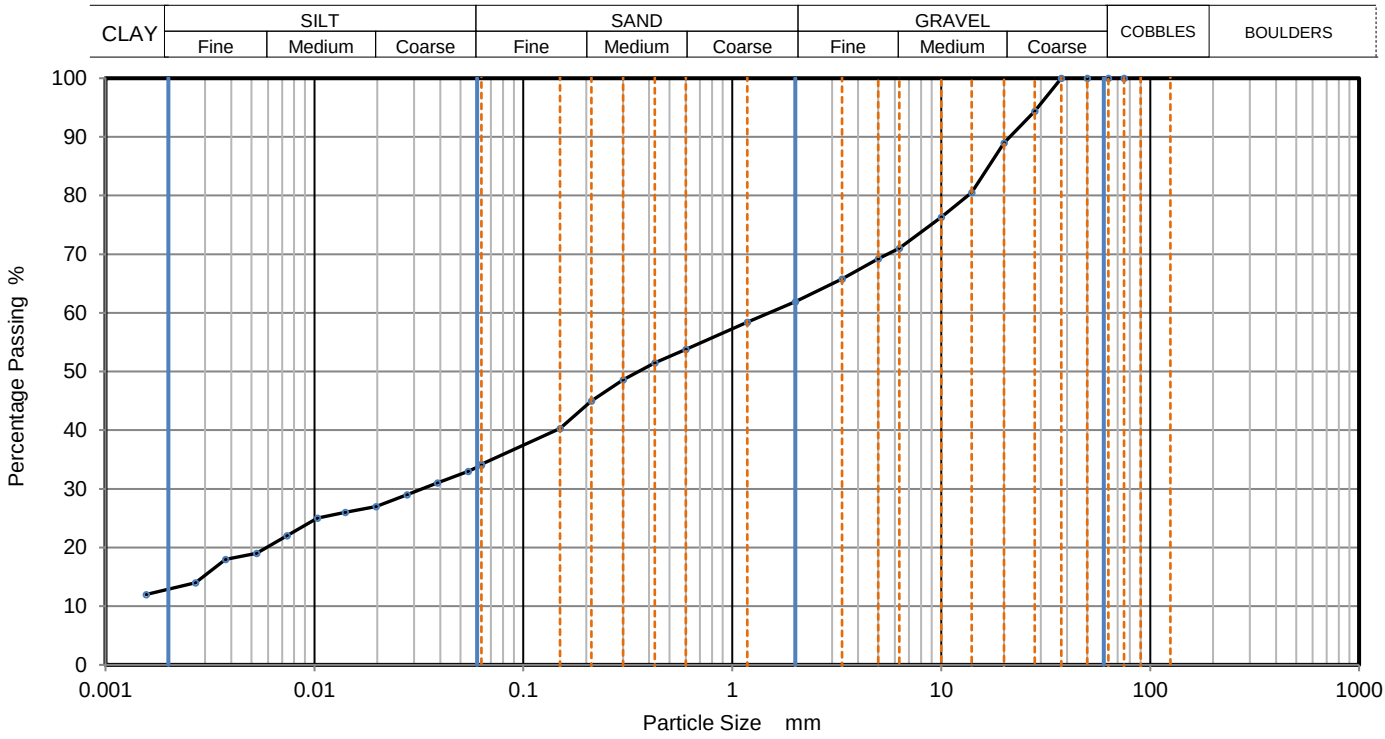
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-67708
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown slightly sandy gravelly SILT.	Depth, m	0.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211206242



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0545	33
75	100	0.0388	31
63	100	0.0278	29
50	100	0.0197	27
37.5	100	0.0140	26
28	94	0.0103	25
20	89	0.0074	22
14	81	0.0053	19
10	76	0.0038	18
6.3	71	0.0027	14
5	69	0.0016	12
3.35	66		
2	62		
1.18	58		
0.6	54	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	49		
0.212	45		
0.15	40		
0.063	34		

Dry Mass of sample, g	790

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	28
Silt	21
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.5
D_{30}	mm	0.0324
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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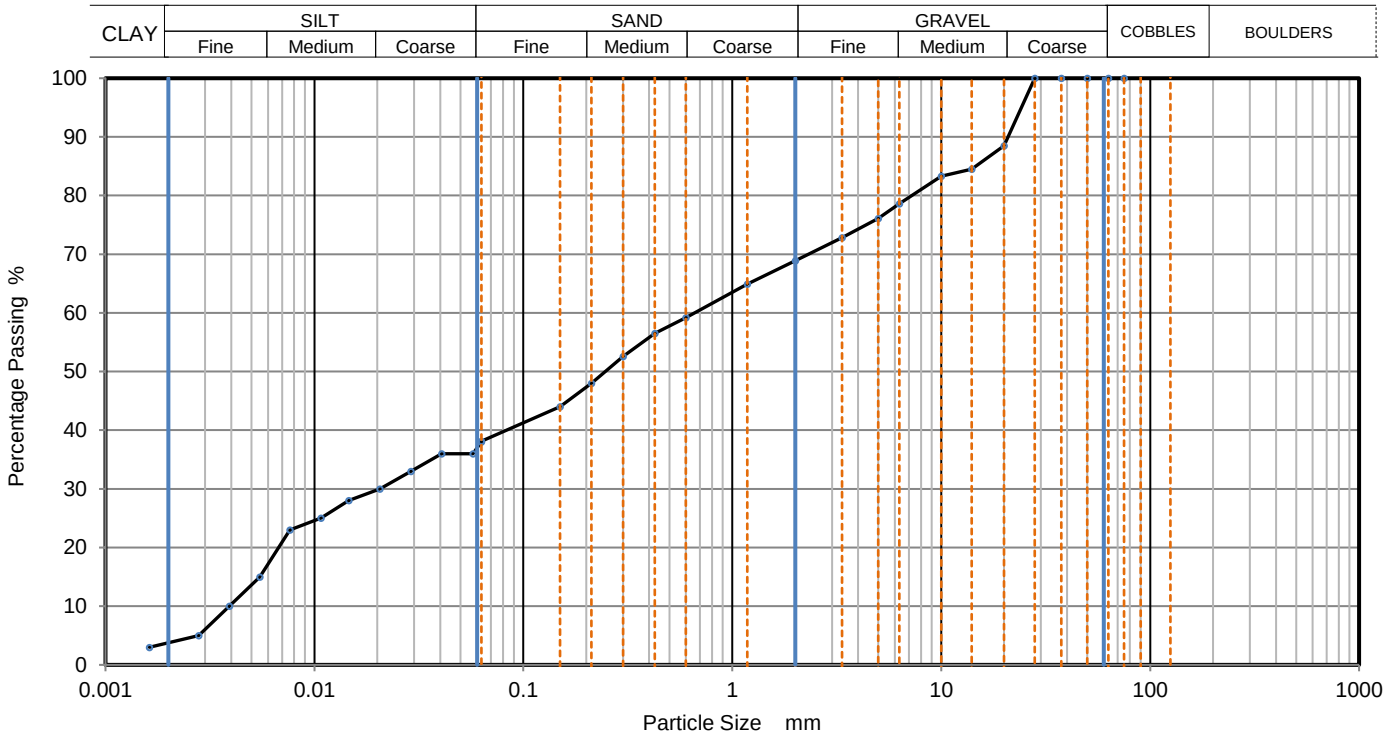
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67708
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206244



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0575	36
75	100	0.0407	36
63	100	0.0289	33
50	100	0.0206	30
37.5	100	0.0146	28
28	100	0.0107	25
20	89	0.0076	23
14	85	0.0055	15
10	83	0.0039	10
6.3	79	0.0028	5
5	76	0.0016	3
3.35	73		
2	69		
1.18	65		
0.6	59	Particle density (assumed)	
0.425	57	2.65 Mg/m3	
0.3	53		
0.212	48		
0.15	44		
0.063	38		

Dry Mass of sample, g	719

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	31
Silt	35
Clay	4

Grading Analysis		
D100	mm	
D60	mm	0.663
D30	mm	0.0193
D10	mm	0.00387
Uniformity Coefficient		170
Curvature Coefficient		0.14

Remarks

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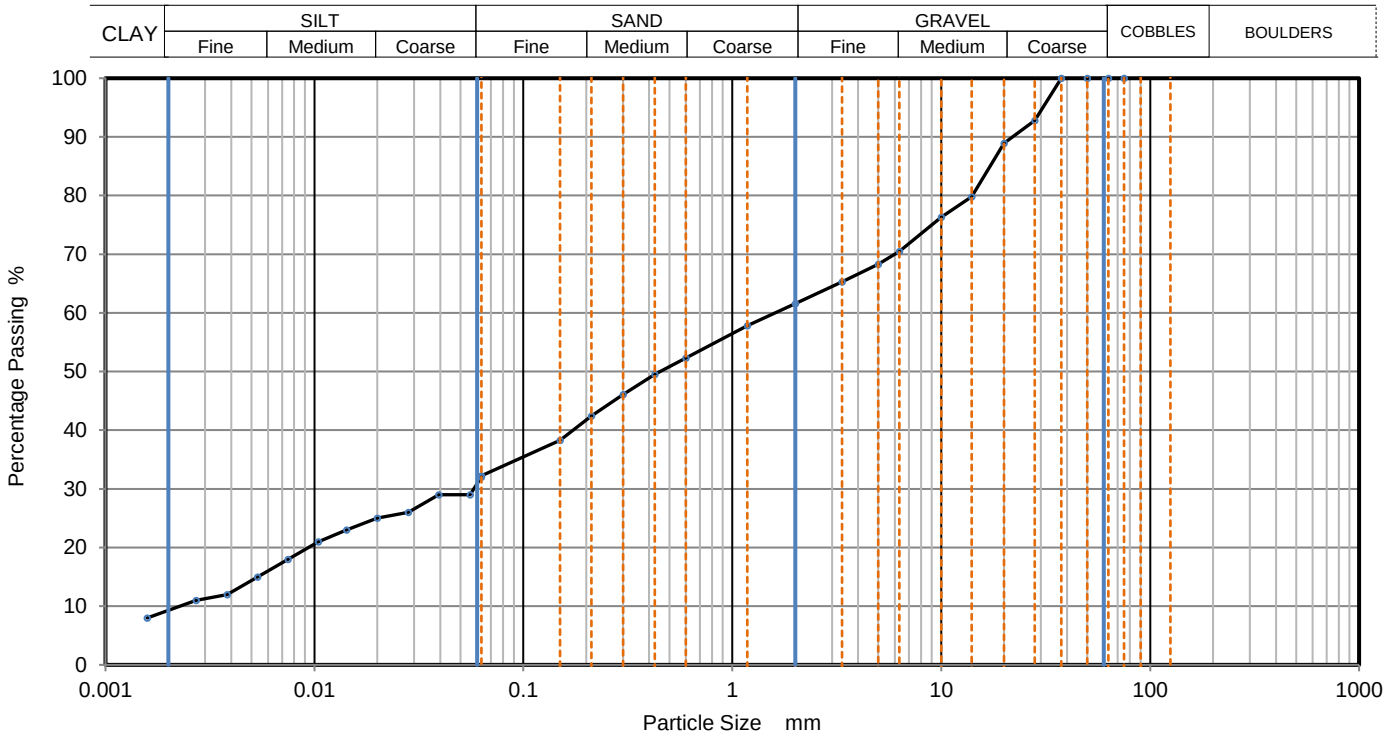
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67809
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very sandy very silty medium GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206246



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0556	29
75	100	0.0393	29
63	100	0.0282	26
50	100	0.0200	25
37.5	100	0.0142	23
28	93	0.0105	21
20	89	0.0075	18
14	80	0.0053	15
10	76	0.0038	12
6.3	71	0.0027	11
5	68	0.0016	8
3.35	65		
2	62		
1.18	58		
0.6	52	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	46		
0.212	42		
0.15	38		
0.063	32		

Dry Mass of sample, g	872

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	29
Silt	23
Clay	9

Grading Analysis		
D100	mm	
D60	mm	1.6
D30	mm	0.0576
D10	mm	0.00239
Uniformity Coefficient		670
Curvature Coefficient		0.87

Remarks

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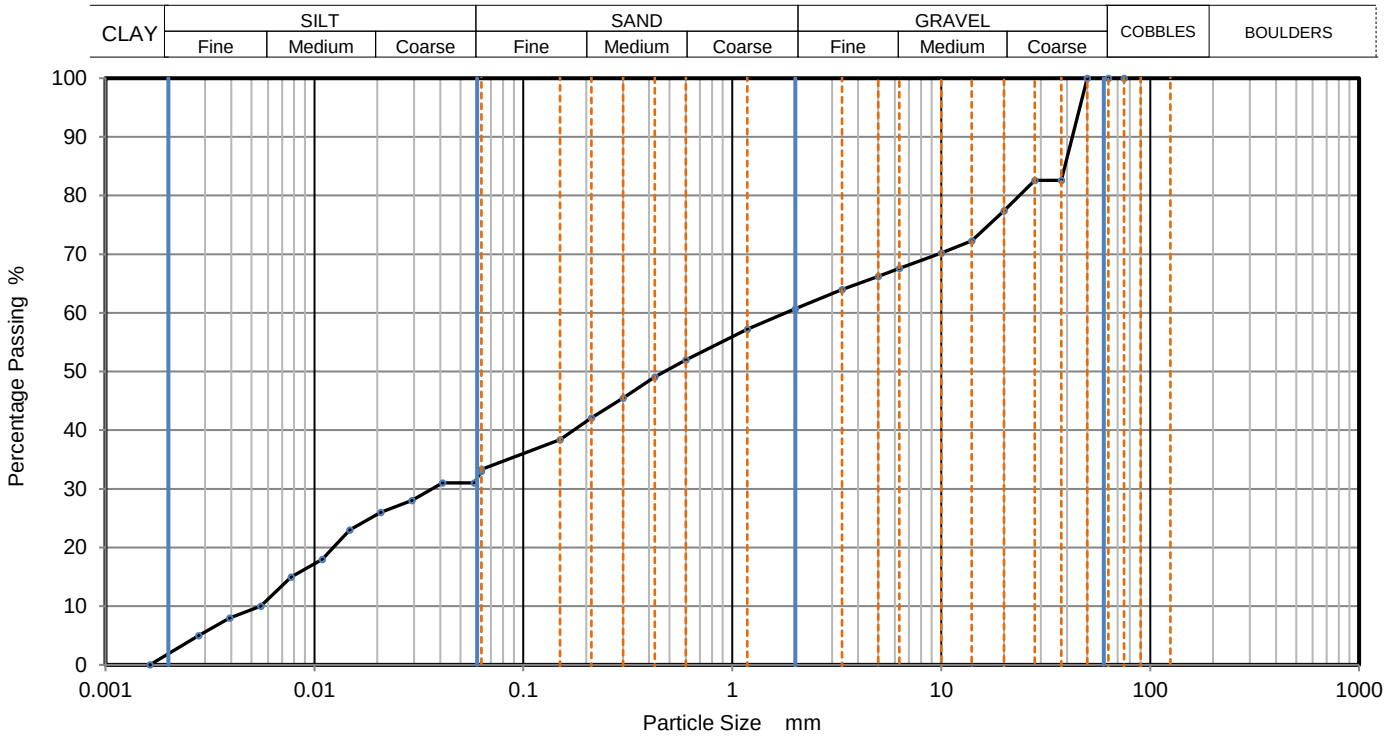
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67809
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty coarse GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206248



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0581	31
75	100	0.0411	31
63	100	0.0292	28
50	100	0.0208	26
37.5	83	0.0148	23
28	83	0.0109	18
20	77	0.0078	15
14	72	0.0055	10
10	70	0.0039	8
6.3	68	0.0028	5
5	66	0.0016	0
3.35	64		
2	61		
1.18	57		
0.6	52	Particle density	(assumed)
0.425	49	2.65	Mg/m3
0.3	46		
0.212	42		
0.15	38		
0.063	33		

Dry Mass of sample, g	907

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	27
Silt	31
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.8
D_{30}	mm	0.0373
D_{10}	mm	0.00536
Uniformity Coefficient		340
Curvature Coefficient		0.14

Remarks

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		Dympna Darcy B.Sc.	04/01/2023 12:09	**1** QC From No:R2

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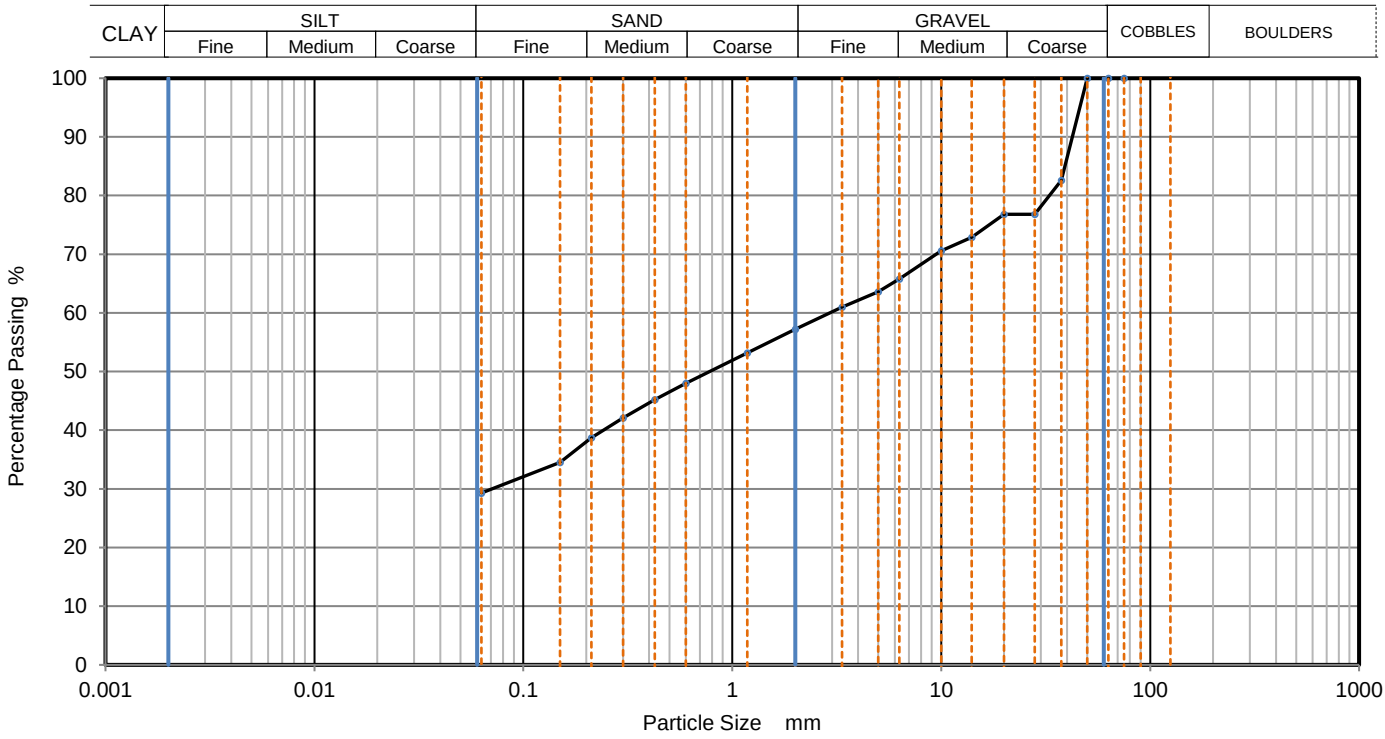
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67908
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very sandy very silty coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307242



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	83		
28	77		
20	77		
14	73		
10	71		
6.3	66		
5	64		
3.35	61		
2	57		
1.18	53		
0.6	48		
0.425	45		
0.3	42		
0.212	39		
0.15	35		
0.063	29		

Dry Mass of sample, g	534

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	28
Fines <0.063mm	29

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.93
D_{30}	mm	0.0714
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

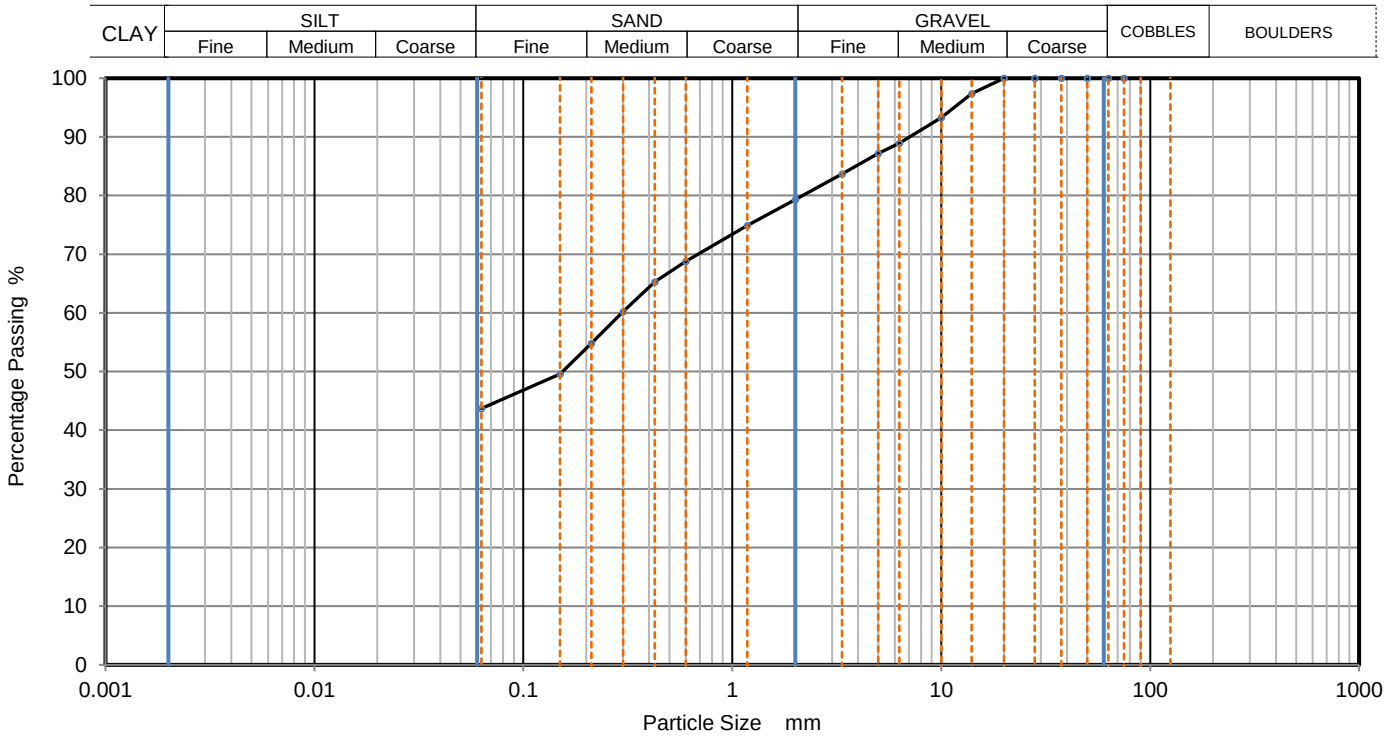
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	10/10/2022 15:06	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67908
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307245



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	93		
6.3	89		
5	87		
3.35	84		
2	79		
1.18	75		
0.6	69		
0.425	65		
0.3	60		
0.212	55		
0.15	50		
0.063	44		

Dry Mass of sample, g	553

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	36
Fines <0.063mm	44

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.296
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

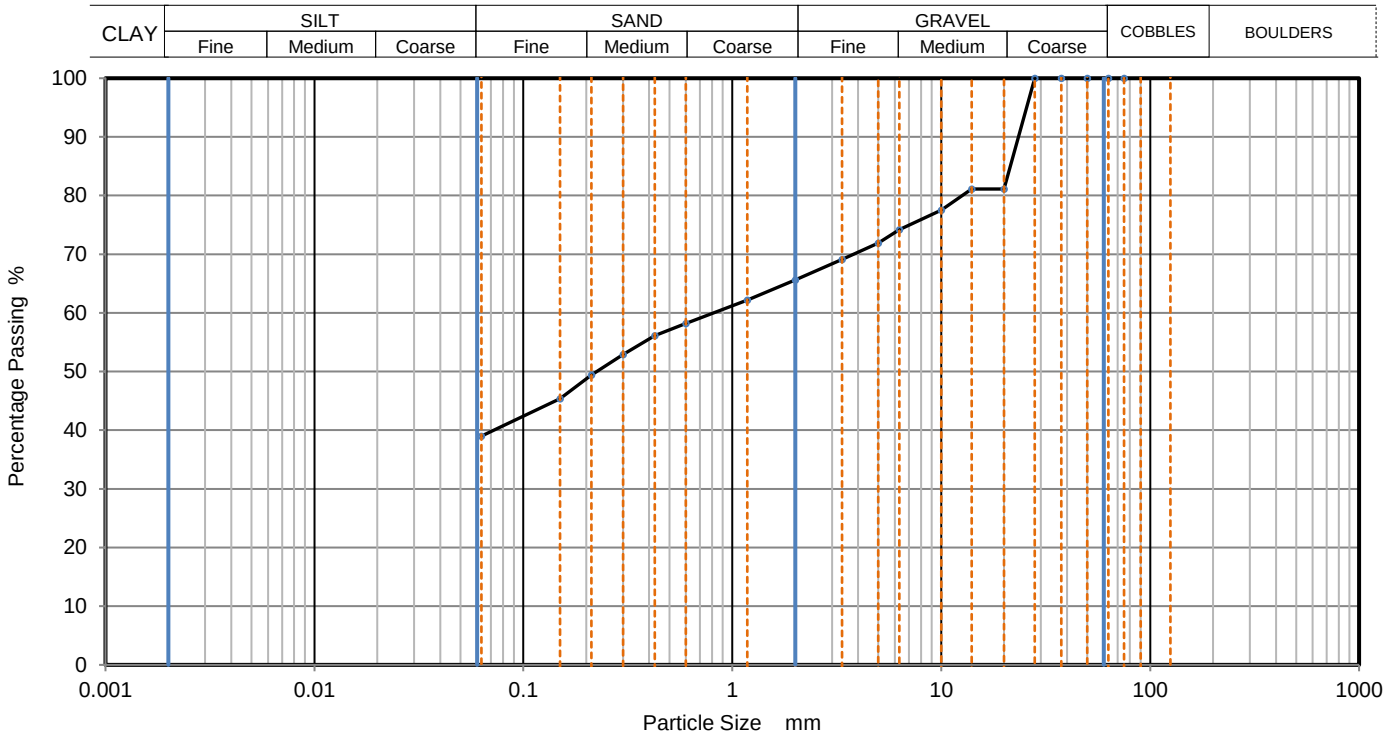
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:38	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-67908
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Brown slightly sandy gravelly SILT.			Depth, m	3.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307247



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	81		
14	81		
10	78		
6.3	74		
5	72		
3.35	69		
2	66		
1.18	62		
0.6	58		
0.425	56		
0.3	53		
0.212	49		
0.15	45		
0.063	39		

Dry Mass of sample, g	375

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	27
Fines <0.063mm	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.809
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

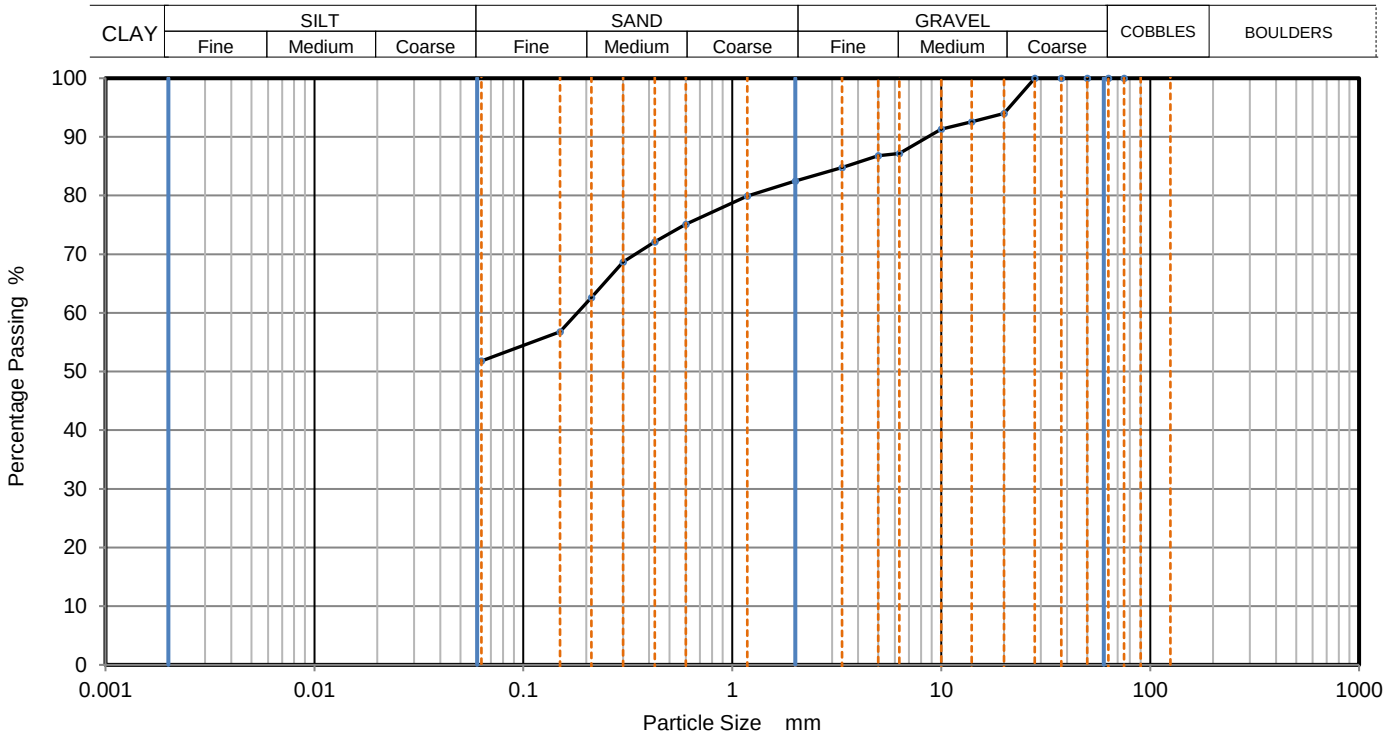
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:38	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68007
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011333



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	93		
10	91		
6.3	87		
5	87		
3.35	85		
2	83		
1.18	80		
0.6	75		
0.425	72		
0.3	69		
0.212	63		
0.15	57		
0.063	52		

Dry Mass of sample, g	939

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	31
Fines <0.063mm	52

Grading Analysis		
D100	mm	
D60	mm	0.182
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

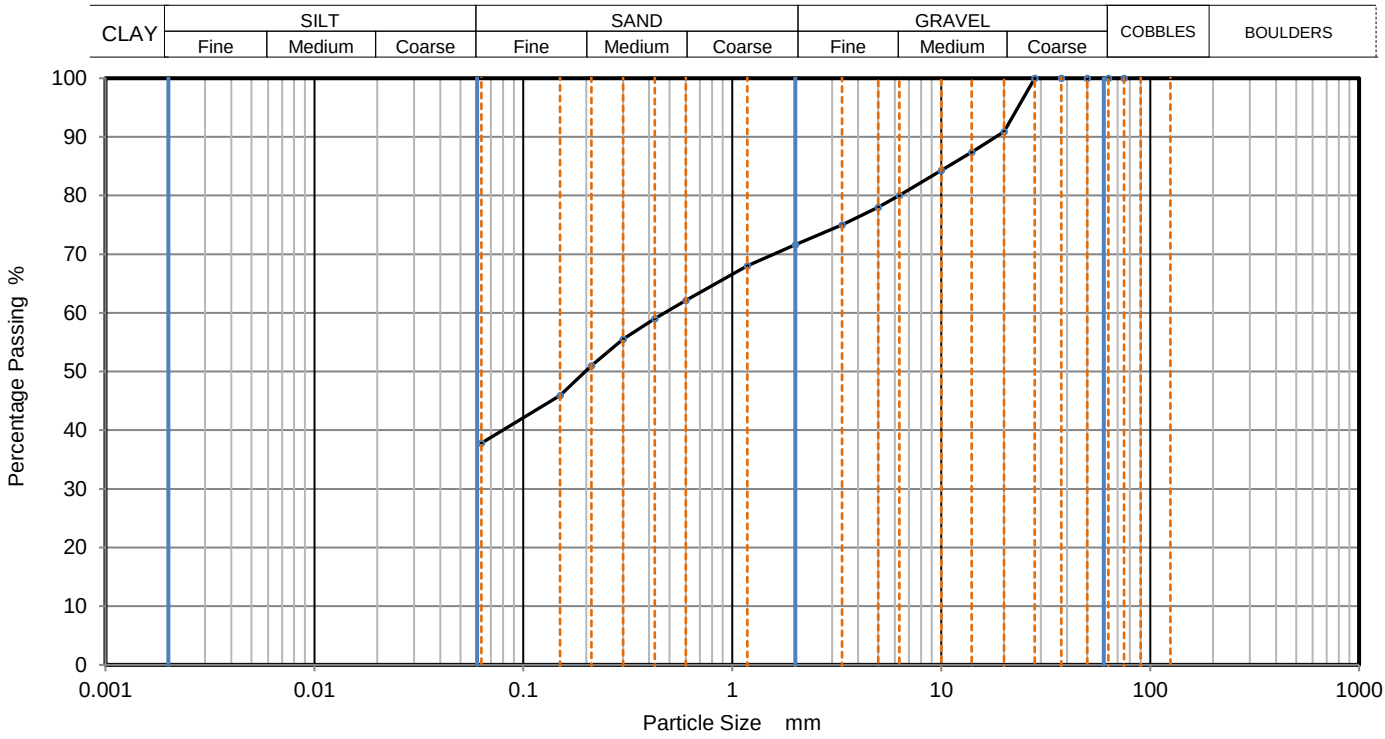
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68007
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011336



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	87		
10	84		
6.3	80		
5	78		
3.35	75		
2	72		
1.18	68		
0.6	62		
0.425	59		
0.3	56		
0.212	51		
0.15	46		
0.063	38		

Dry Mass of sample, g	688

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	34
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.475
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

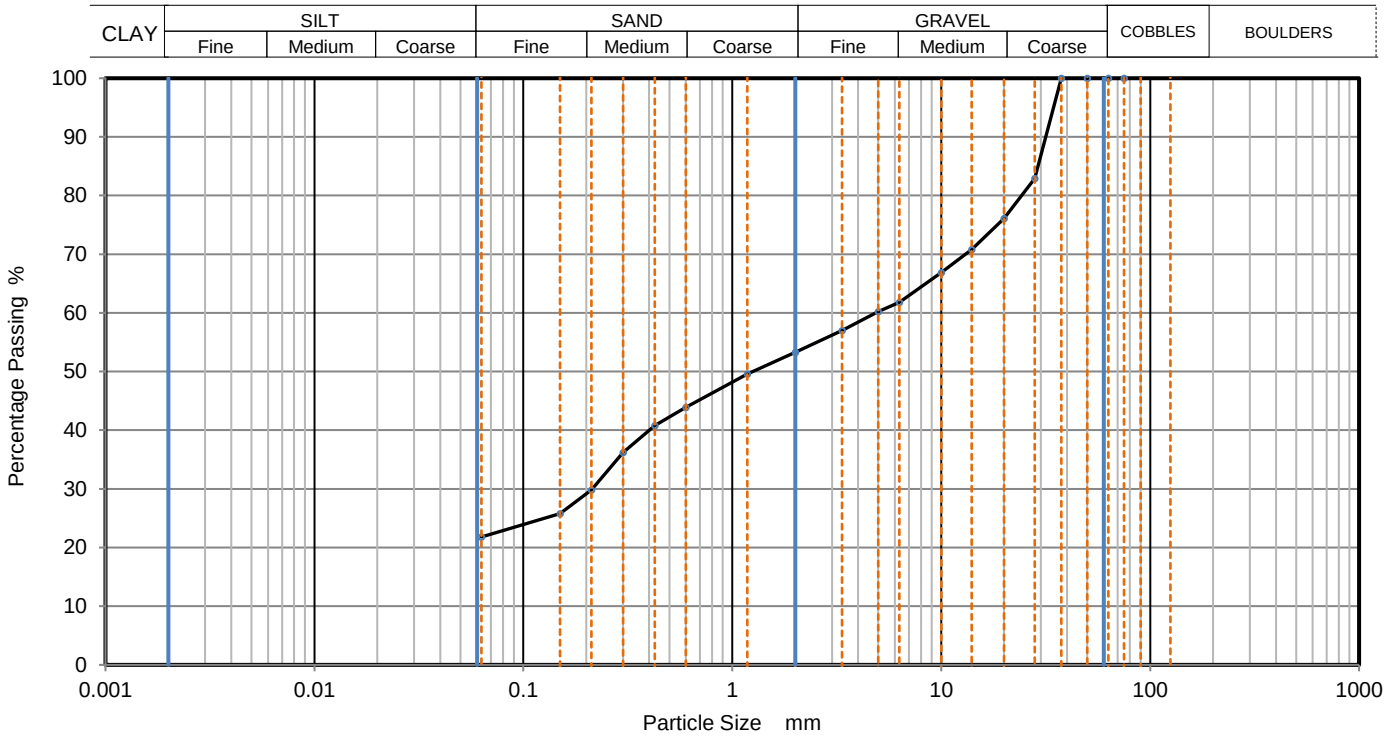
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68007
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown very silty very sandy coarse GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011338



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	83		
20	76		
14	71		
10	67		
6.3	62		
5	60		
3.35	57		
2	53		
1.18	50		
0.6	44		
0.425	41		
0.3	36		
0.212	30		
0.15	26		
0.063	22		

Dry Mass of sample, g	639

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	32
Fines <0.063mm	22

Grading Analysis		
D100	mm	
D60	mm	4.85
D30	mm	0.214
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

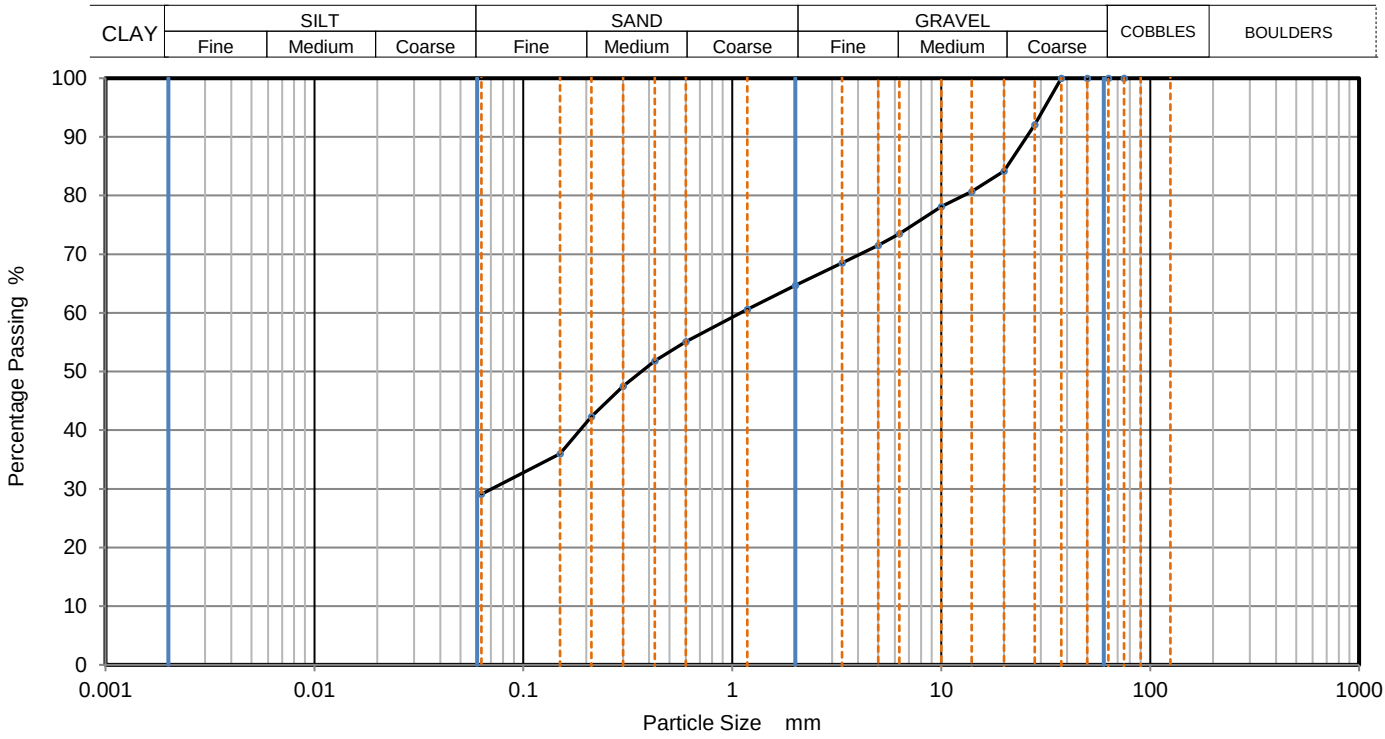
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68007
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Brown very silty SAND and GRAVEL.			Depth, m	3.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011340



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	84		
14	81		
10	78		
6.3	74		
5	72		
3.35	69		
2	65		
1.18	61		
0.6	55		
0.425	52		
0.3	48		
0.212	42		
0.15	36		
0.063	29		

Dry Mass of sample, g	636

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	36
Fines <0.063mm	29

Grading Analysis		
D100	mm	
D60	mm	1.1
D30	mm	0.0709
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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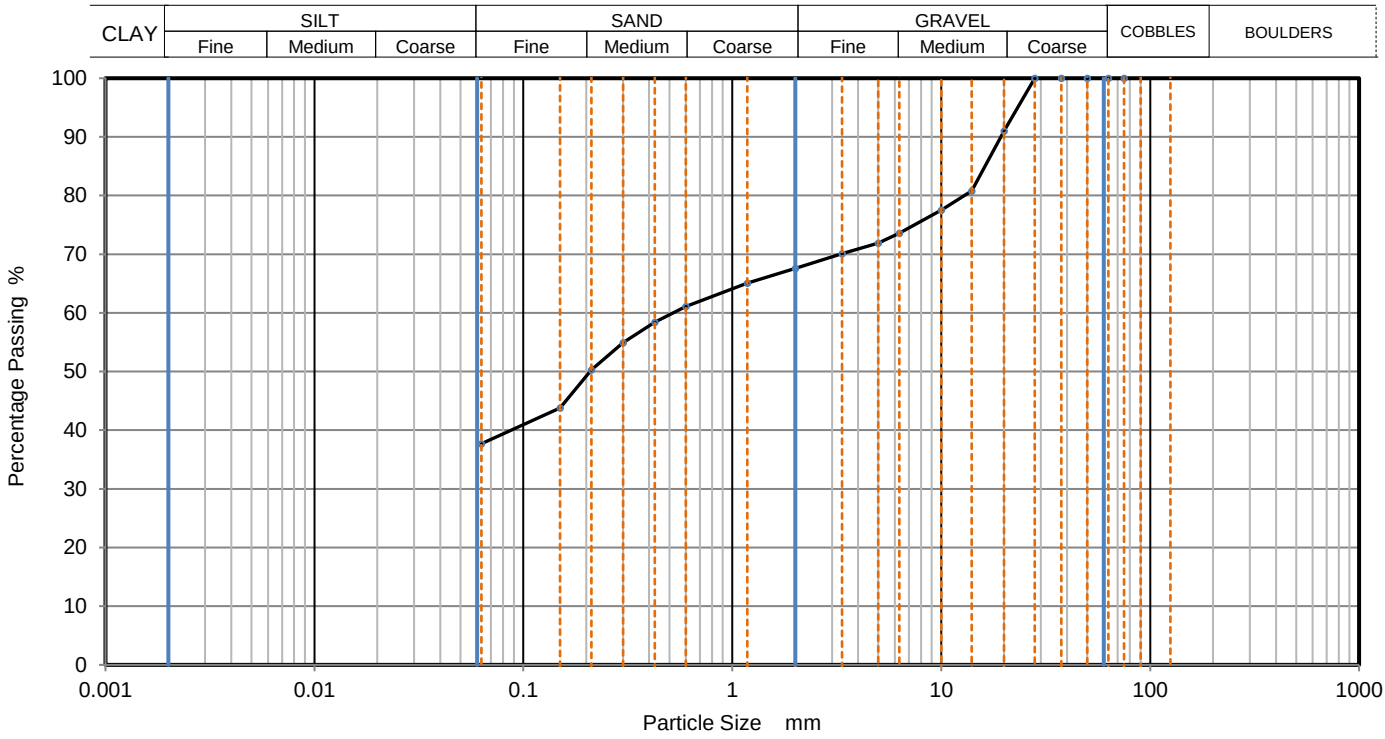
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68007
Site Name	WSP Eastern & Midlands Region			Sample No.	9
Soil Description	Light brown slighlty sandy slightly gravelly SILT.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011342



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	81		
10	78		
6.3	74		
5	72		
3.35	70		
2	68		
1.18	65		
0.6	61		
0.425	58		
0.3	55		
0.212	50		
0.15	44		
0.063	38		

Dry Mass of sample, g	738

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	30
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.522
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

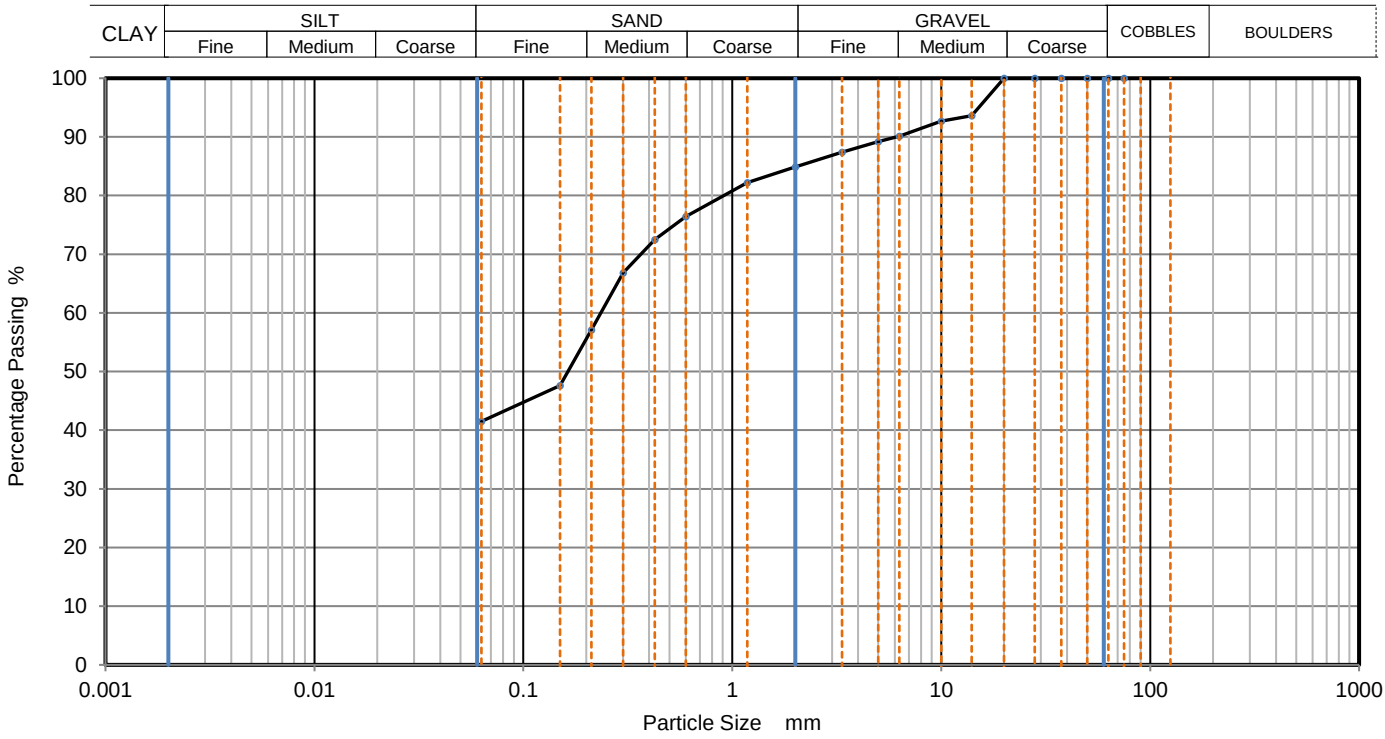
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68108
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slighlty gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011344



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	93		
6.3	90		
5	89		
3.35	87		
2	85		
1.18	82		
0.6	76		
0.425	73		
0.3	67		
0.212	57		
0.15	48		
0.063	42		

Dry Mass of sample, g	649

Sample Proportions	% dry mass
Very coarse	0
Gravel	15
Sand	43
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.235
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

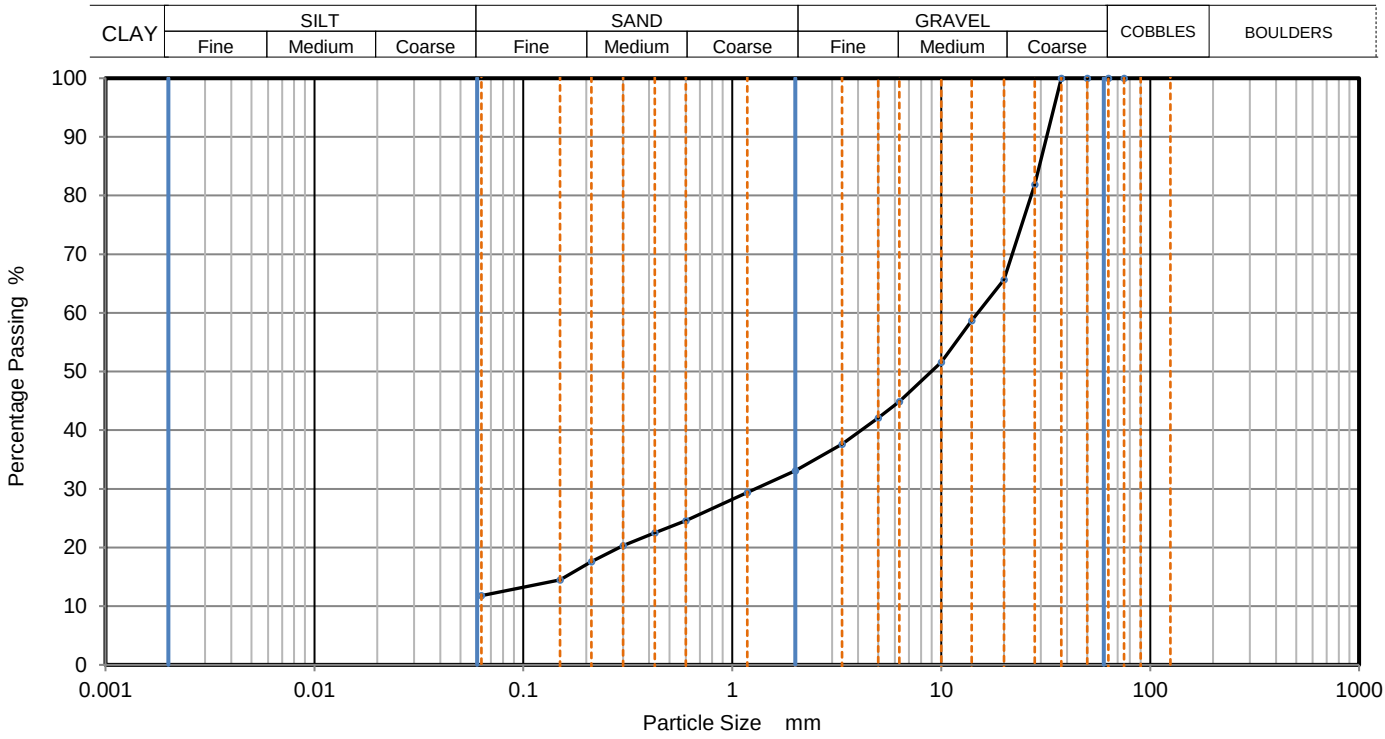
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68108
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011347



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	82		
20	66		
14	59		
10	52		
6.3	45		
5	42		
3.35	38		
2	33		
1.18	29		
0.6	25		
0.425	23		
0.3	20		
0.212	18		
0.15	15		
0.063	12		

Dry Mass of sample, g	786

Sample Proportions	% dry mass
Very coarse	0
Gravel	67
Sand	21
Fines <0.063mm	12

Grading Analysis		
D100	mm	
D60	mm	14.9
D30	mm	1.28
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

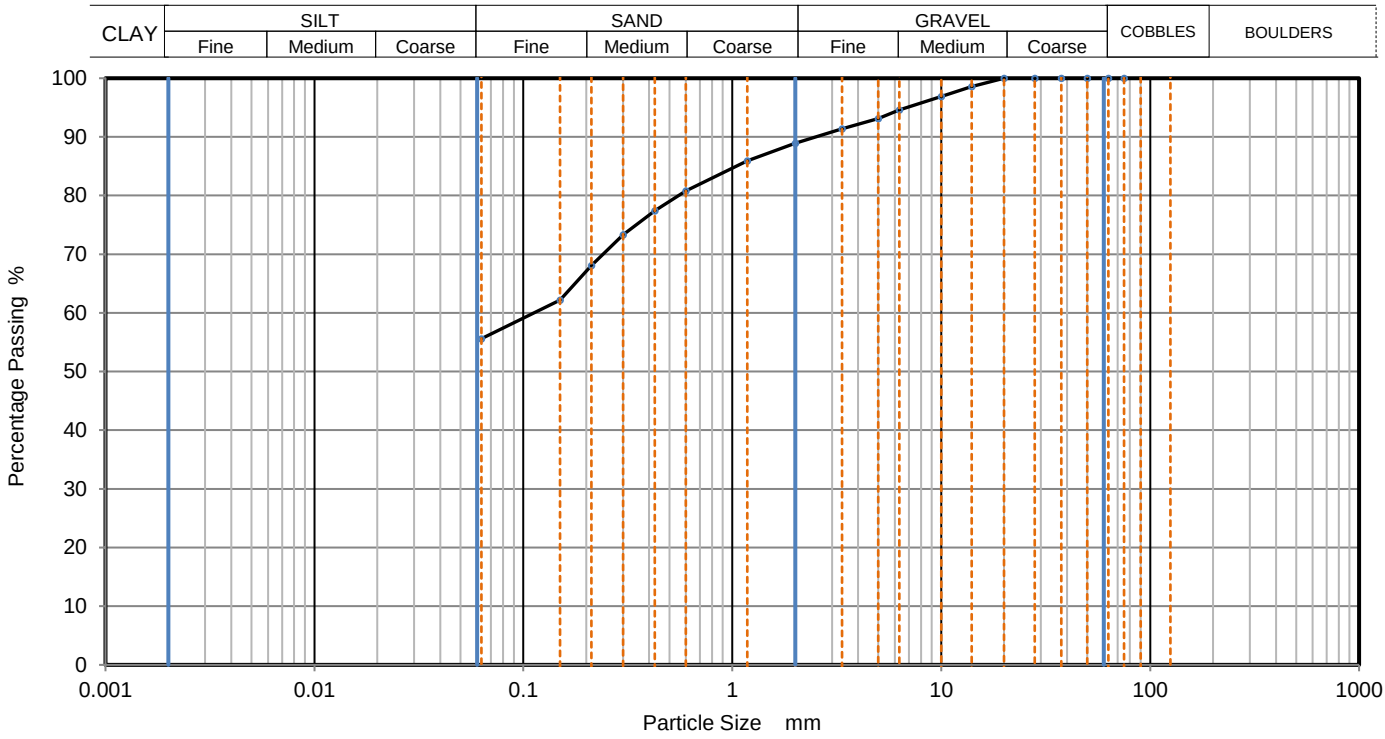
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68210
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly slightly sandy SILT.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011351



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	97		
6.3	95		
5	93		
3.35	91		
2	89		
1.18	86		
0.6	81		
0.425	77		
0.3	73		
0.212	68		
0.15	62		
0.063	56		

Dry Mass of sample, g	420

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	33
Fines <0.063mm	56

Grading Analysis		
D100	mm	
D60	mm	0.113
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

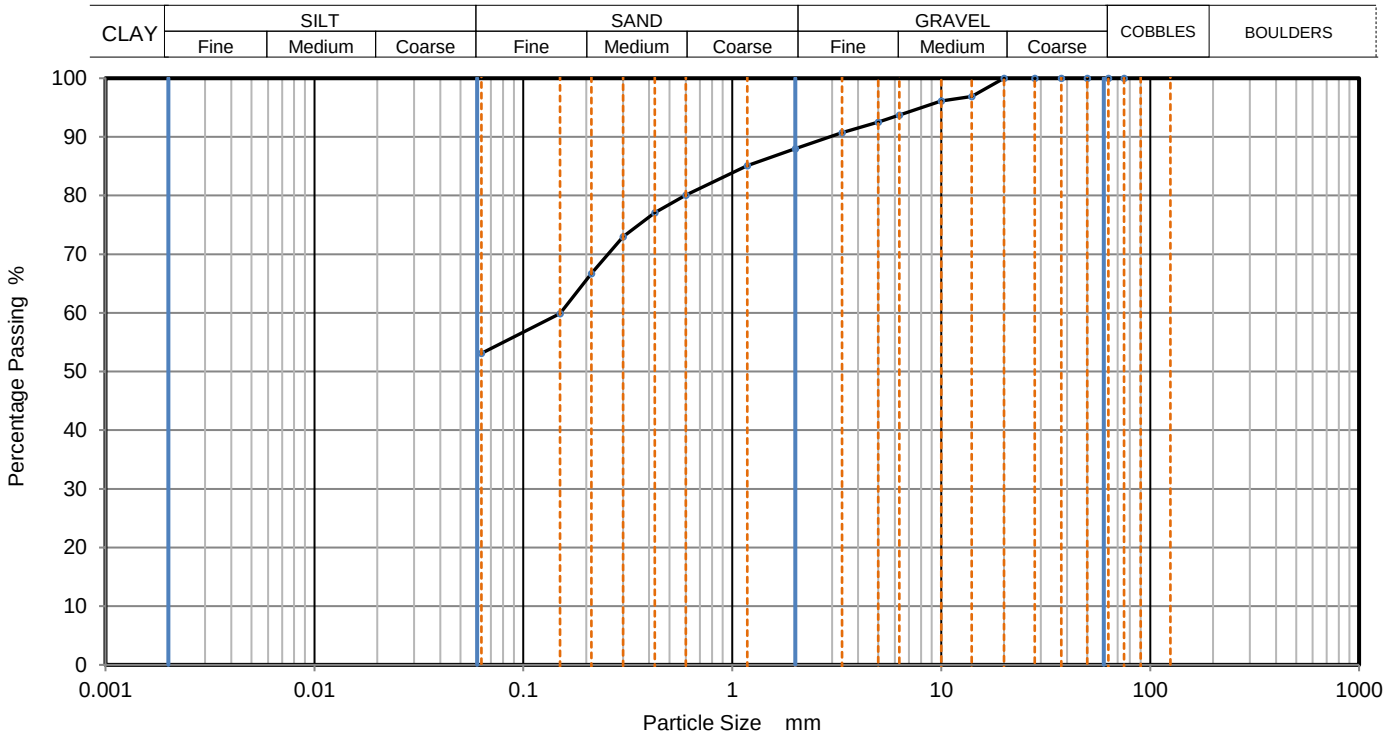
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	12/10/2022 16:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68405
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011353



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	96		
6.3	94		
5	93		
3.35	91		
2	88		
1.18	85		
0.6	80		
0.425	77		
0.3	73		
0.212	67		
0.15	60		
0.063	53		

Dry Mass of sample, g	547

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	35
Fines <0.063mm	53

Grading Analysis		
D100	mm	
D60	mm	0.151
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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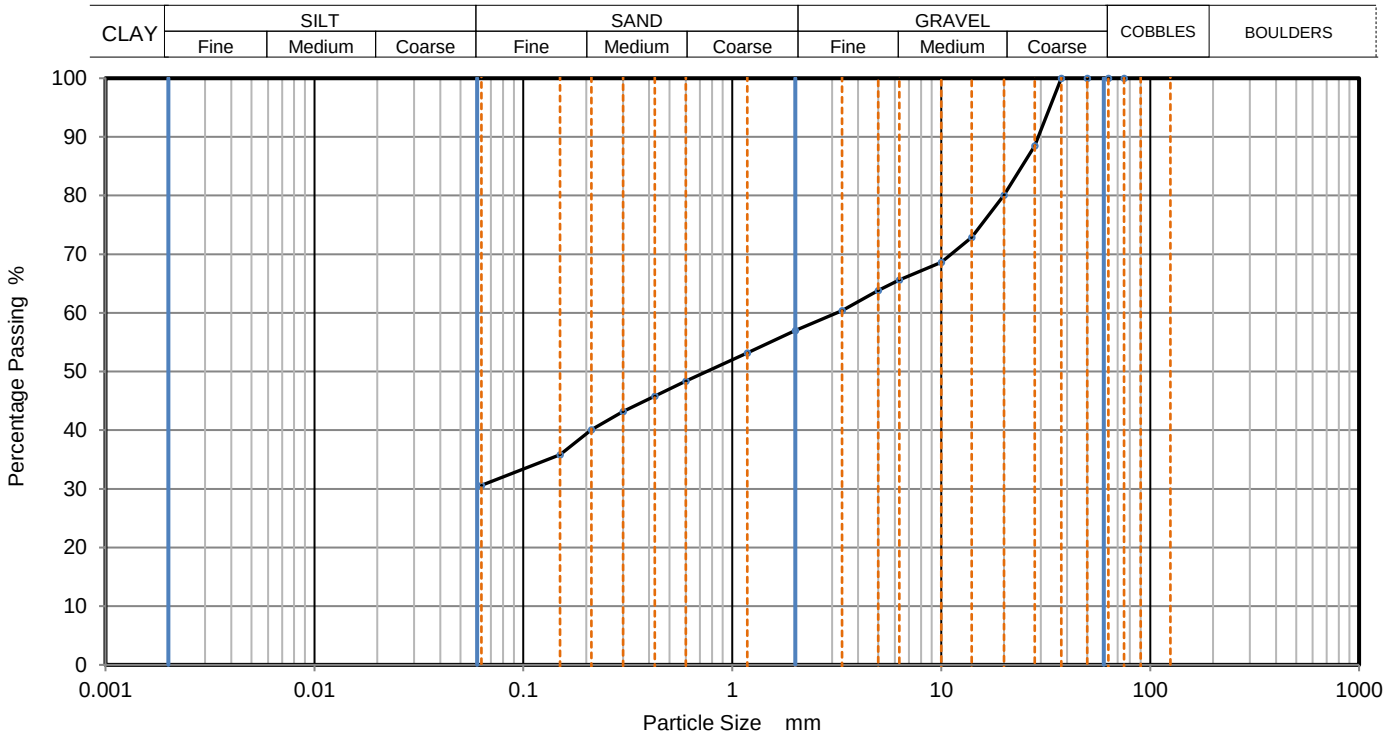
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68405
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty medium and coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011356



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	89		
20	80		
14	73		
10	69		
6.3	66		
5	64		
3.35	60		
2	57		
1.18	53		
0.6	48		
0.425	46		
0.3	43		
0.212	40		
0.15	36		
0.063	31		

Dry Mass of sample, g	869

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	26
Fines <0.063mm	31

Grading Analysis		
D100	mm	
D60	mm	3.16
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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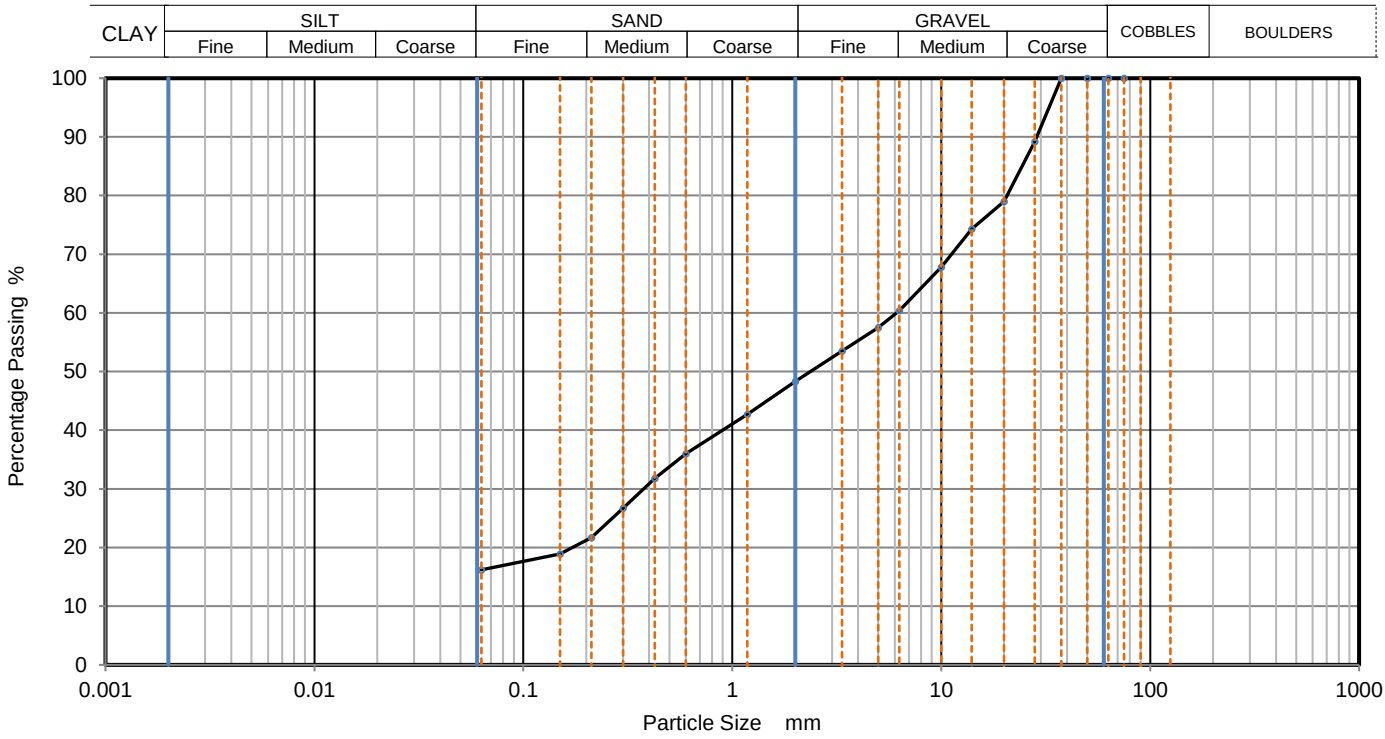
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68405
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown silty very sandy medium and coarse GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011358



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	89		
20	79		
14	74		
10	68		
6.3	60		
5	58		
3.35	54		
2	48		
1.18	43		
0.6	36		
0.425	32		
0.3	27		
0.212	22		
0.15	19		
0.063	16		

Dry Mass of sample, g	605

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	32
Fines <0.063mm	16

Grading Analysis		
D100	mm	
D60	mm	6.09
D30	mm	0.375
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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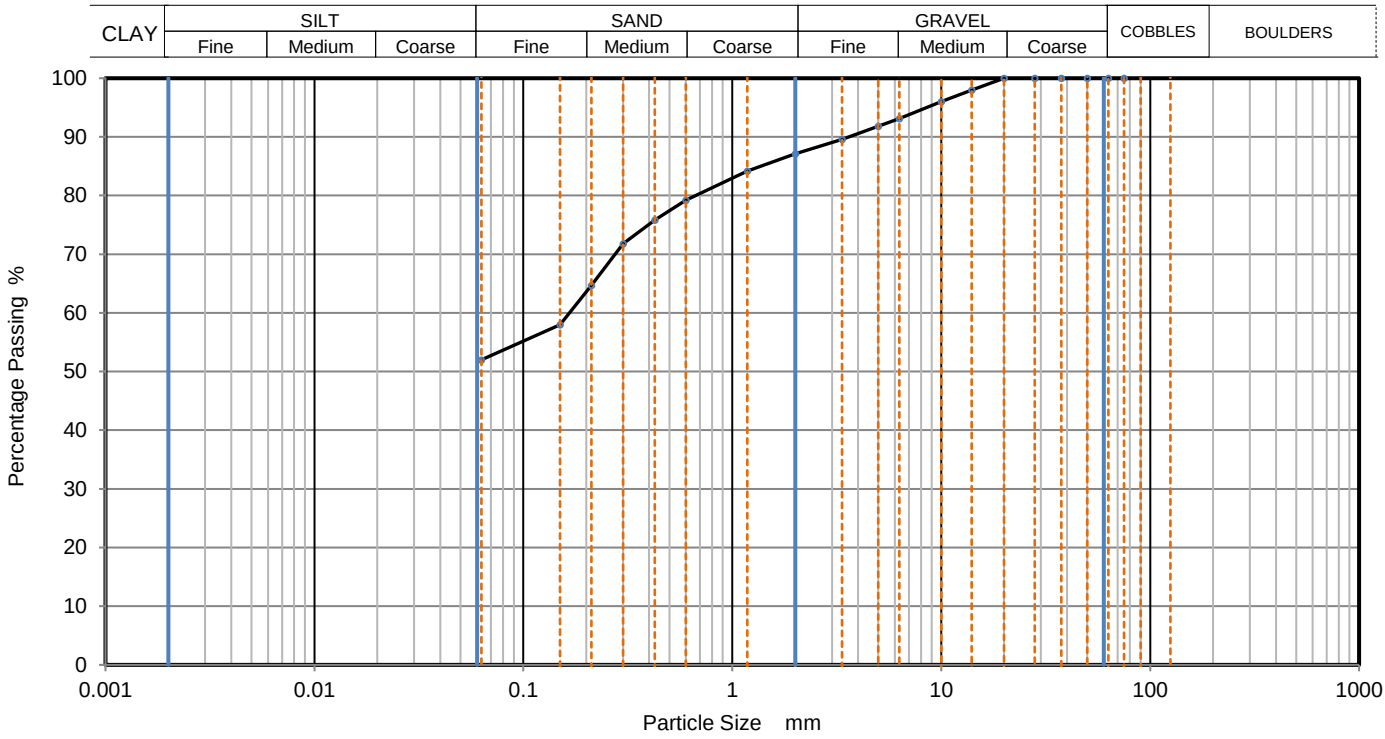
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68505
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011360



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	96		
6.3	93		
5	92		
3.35	90		
2	87		
1.18	84		
0.6	79		
0.425	76		
0.3	72		
0.212	65		
0.15	58		
0.063	52		

Dry Mass of sample, g	455

Sample Proportions	% dry mass
Very coarse	0
Gravel	13
Sand	35
Fines <0.063mm	52

Grading Analysis		
D100	mm	
D60	mm	0.166
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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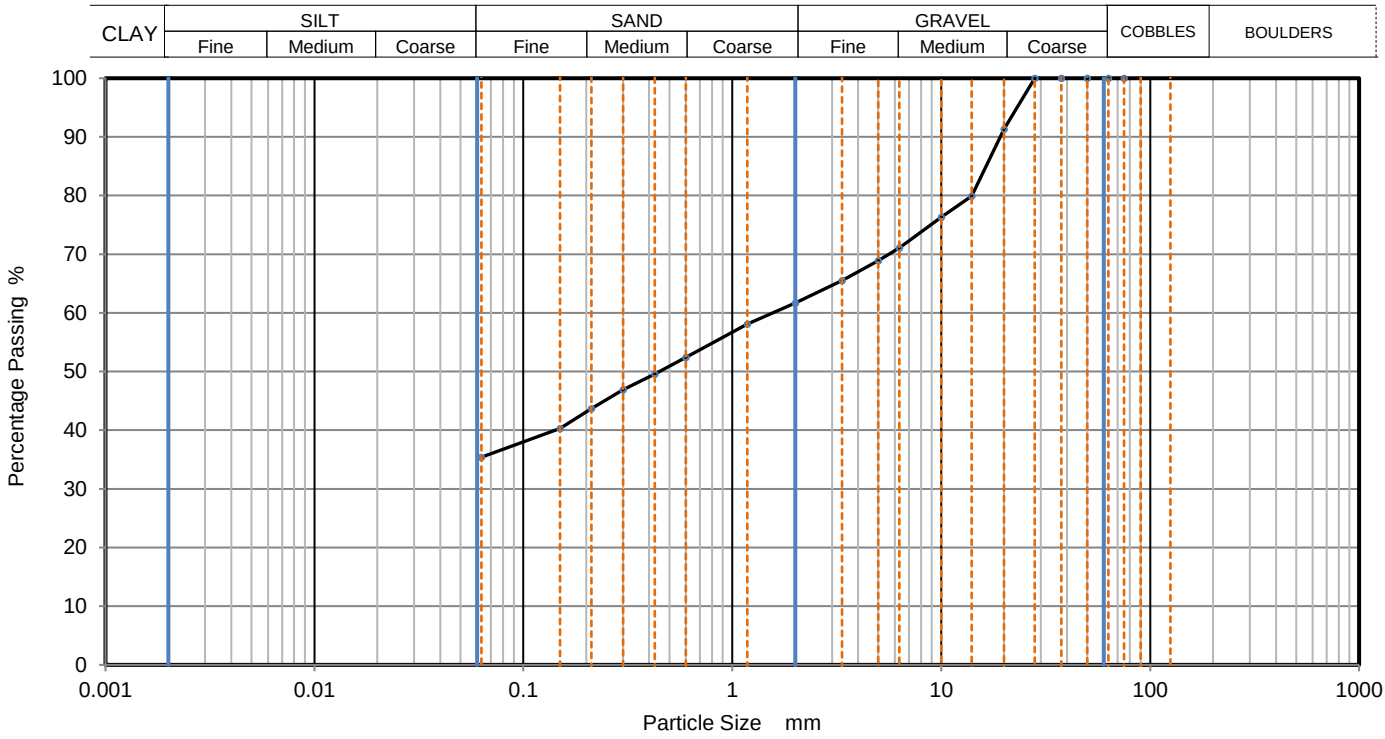
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68505
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown slightly sandy gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011365



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	80		
10	76		
6.3	71		
5	69		
3.35	66		
2	62		
1.18	58		
0.6	52		
0.425	50		
0.3	47		
0.212	44		
0.15	40		
0.063	35		

Dry Mass of sample, g	1105

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	26
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	1.55
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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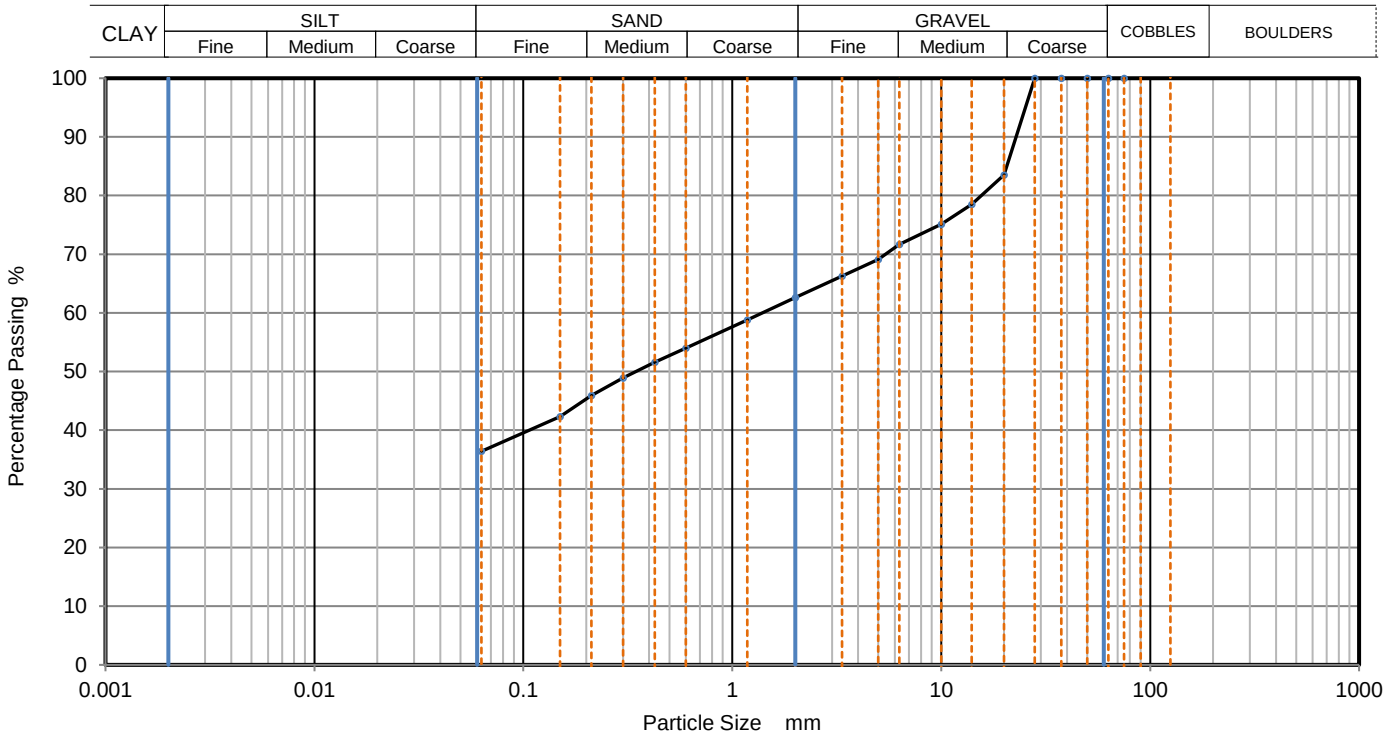
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68607
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly sandy gravelly SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011367



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	84		
14	79		
10	75		
6.3	72		
5	69		
3.35	66		
2	63		
1.18	59		
0.6	54		
0.425	52		
0.3	49		
0.212	46		
0.15	42		
0.063	36		

Dry Mass of sample, g	756

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	26
Fines <0.063mm	36

Grading Analysis		
D100	mm	
D60	mm	1.4
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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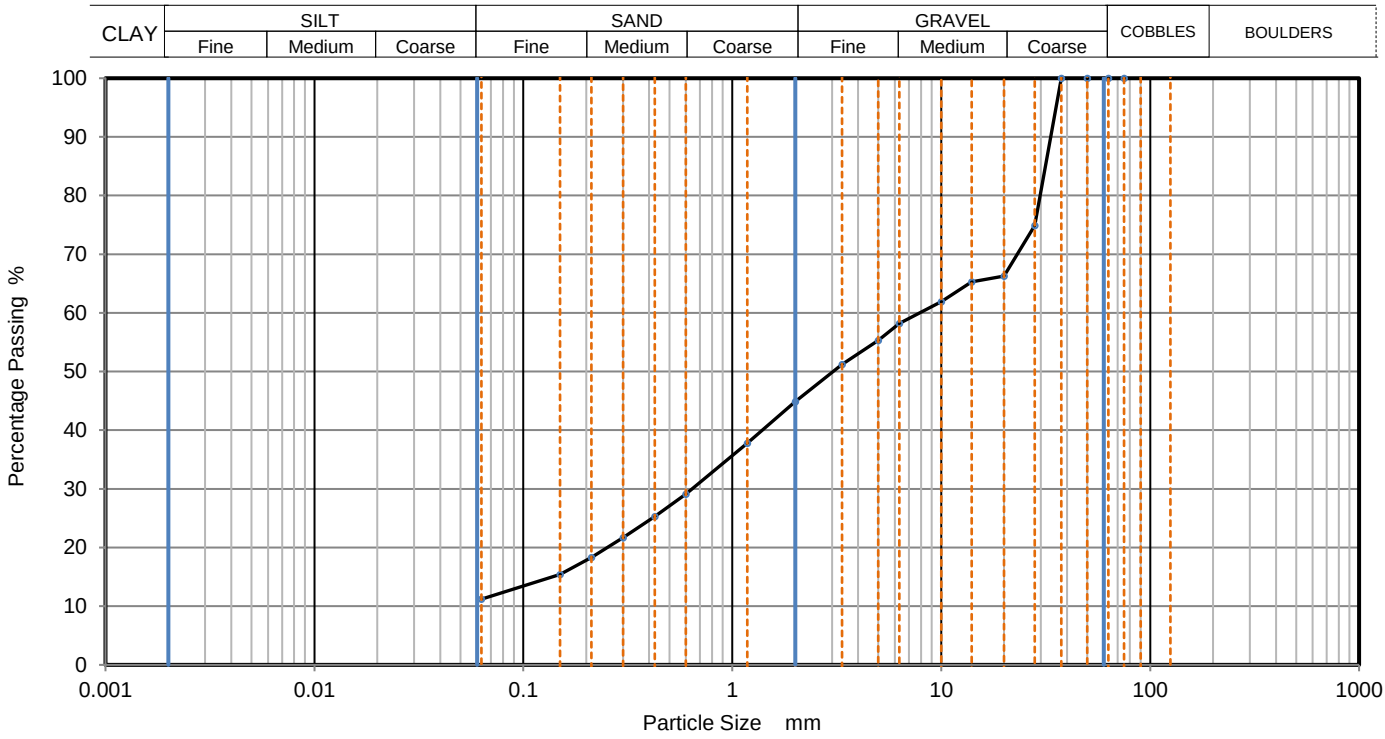
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68607
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011370



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	75		
20	66		
14	65		
10	62		
6.3	58		
5	55		
3.35	51		
2	45		
1.18	38		
0.6	29		
0.425	25		
0.3	22		
0.212	18		
0.15	15		
0.063	11		

Dry Mass of sample, g	726

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	34
Fines <0.063mm	11

Grading Analysis		
D100	mm	
D60	mm	7.89
D30	mm	0.645
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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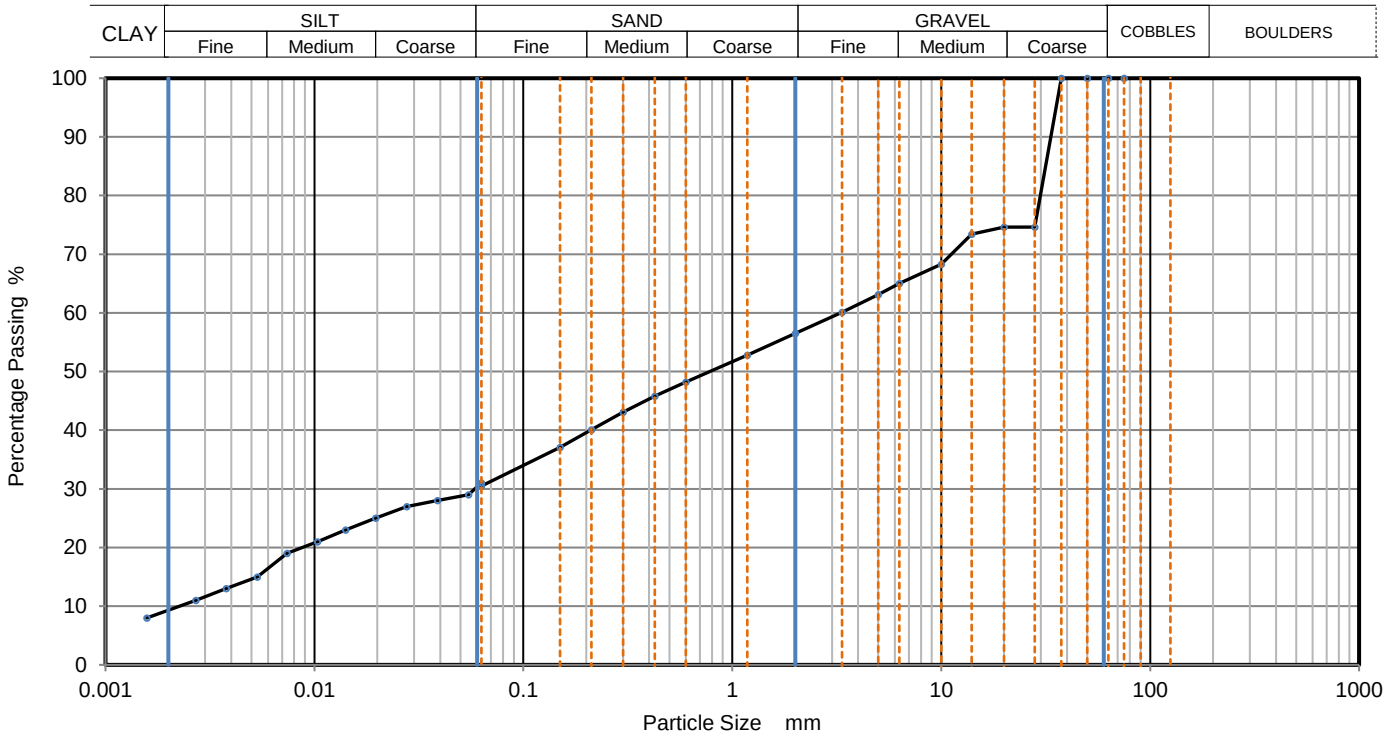
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68705
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very sandy very silty coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202112210



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0546	29
75	100	0.0389	28
63	100	0.0277	27
50	100	0.0197	25
37.5	100	0.0141	23
28	75	0.0103	21
20	75	0.0074	19
14	73	0.0053	15
10	68	0.0038	13
6.3	65	0.0027	11
5	63	0.0016	8
3.35	60		
2	57		
1.18	53		
0.6	48	Particle density (assumed)	
0.425	46	2.65 Mg/m3	
0.3	43		
0.212	40		
0.15	37		
0.063	31		

Dry Mass of sample, g	336

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	26
Silt	21
Clay	9

Grading Analysis		
D100	mm	
D60	mm	3.29
D30	mm	0.0599
D10	mm	0.00239
Uniformity Coefficient		1400
Curvature Coefficient		0.46

Remarks

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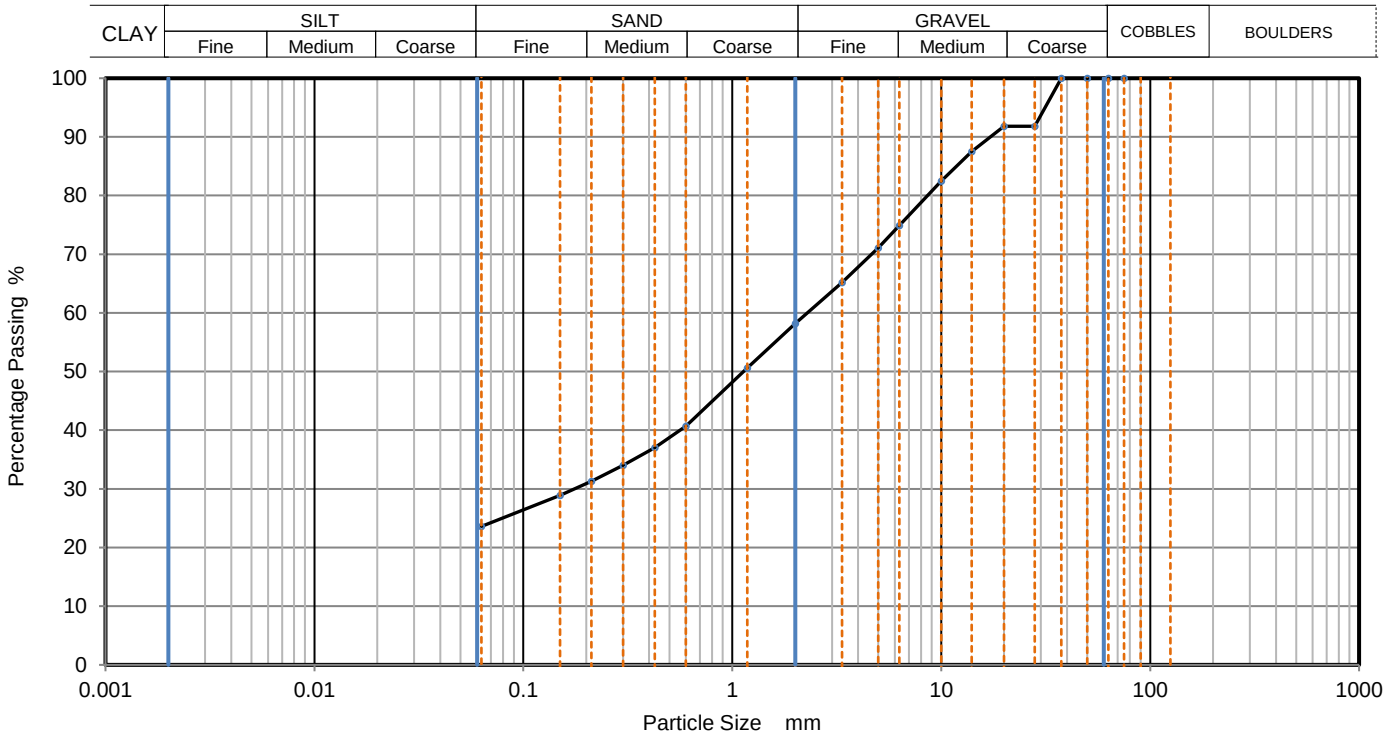
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68705
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very asndy fine and medium GRAVEL. Sand is coarse.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202112212



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	92		
14	88		
10	83		
6.3	75		
5	71		
3.35	65		
2	58		
1.18	51		
0.6	41		
0.425	37		
0.3	34		
0.212	31		
0.15	29		
0.063	24		

Dry Mass of sample, g	456

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	35
Fines <0.063mm	24

Grading Analysis		
D100	mm	
D60	mm	2.29
D30	mm	0.175
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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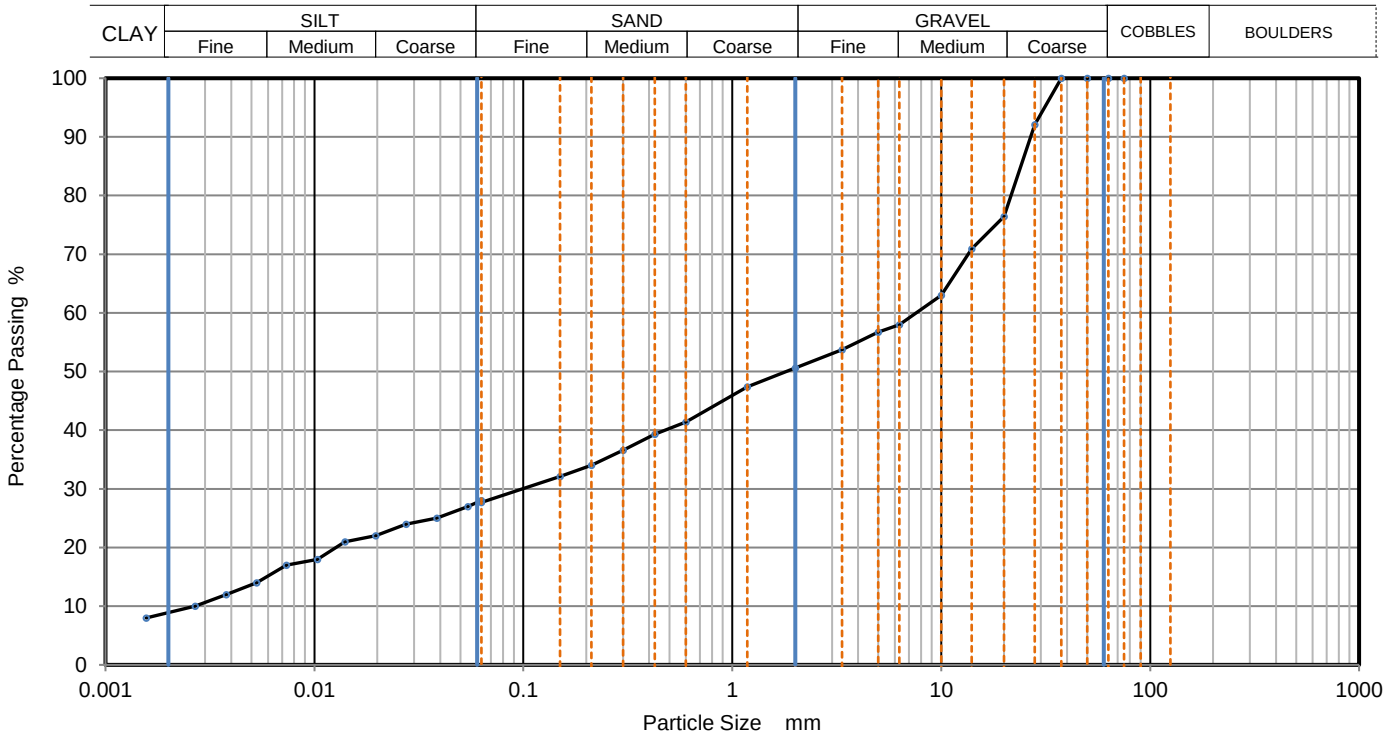
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68705
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brownvery sandy very silty medium and coarse GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202112213



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0542	27
75	100	0.0386	25
63	100	0.0275	24
50	100	0.0196	22
37.5	100	0.0140	21
28	92	0.0103	18
20	76	0.0073	17
14	71	0.0053	14
10	63	0.0038	12
6.3	58	0.0027	10
5	57	0.0016	8
3.35	54		
2	51		
1.18	47		
0.6	41	Particle density (assumed)	
0.425	39	2.65 Mg/m3	
0.3	37		
0.212	34		
0.15	32		
0.063	28		

Dry Mass of sample, g	637

Sample Proportions	% dry mass
Very coarse	0
Gravel	49
Sand	23
Silt	19
Clay	9

Grading Analysis		
D100	mm	
D60	mm	7.58
D30	mm	0.0987
D10	mm	0.00245
Uniformity Coefficient		3100
Curvature Coefficient		0.52

Remarks

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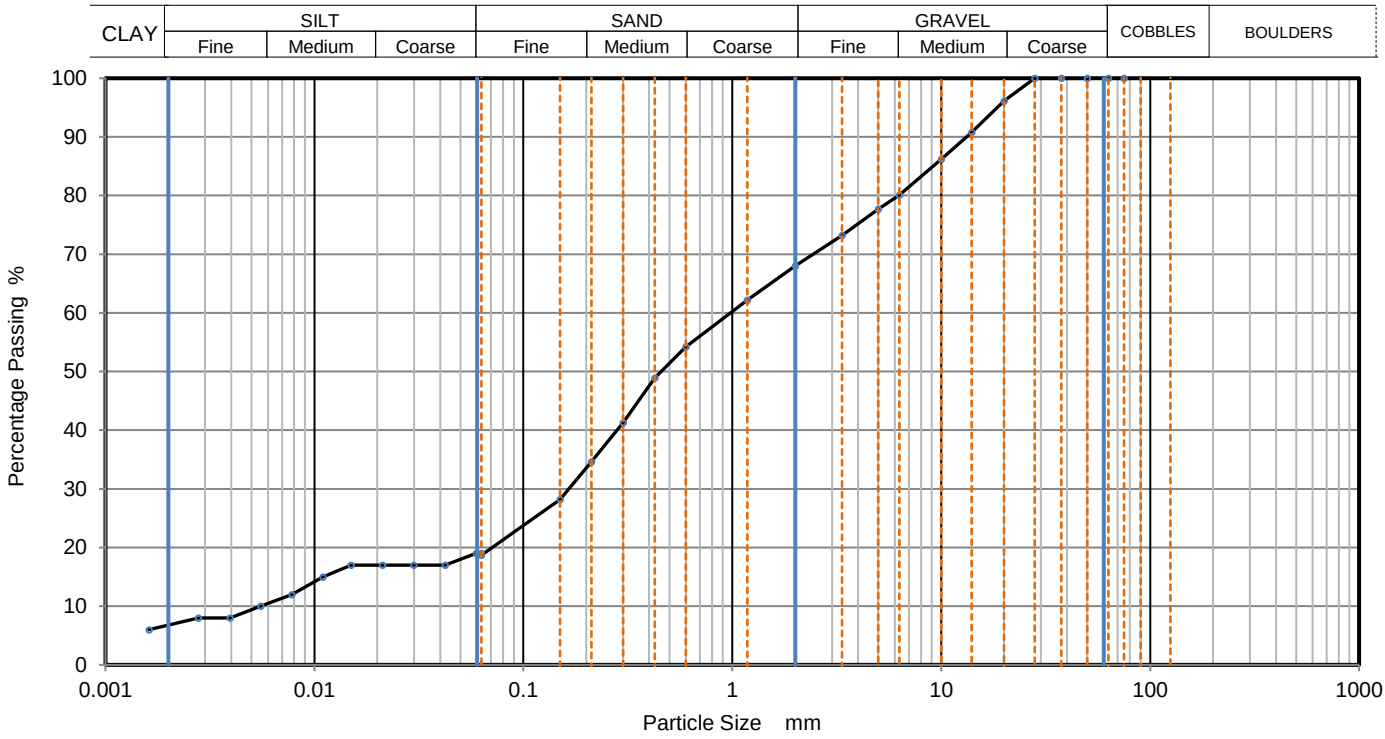
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68806
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Brown silty very gravelly medium SAND.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202112217



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	19
		0.0595	19
75	100	0.0423	17
63	100	0.0299	17
50	100	0.0211	17
37.5	100	0.0149	17
28	100	0.0110	15
20	96	0.0078	12
14	91	0.0055	10
10	86	0.0039	8
6.3	80	0.0028	8
5	78	0.0016	6
3.35	73		
2	68		
1.18	62		
0.6	54	Particle density (assumed)	
0.425	49	2.65	Mg/m3
0.3	41		
0.212	35		
0.15	28		
0.063	19		

Dry Mass of sample, g	385

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	49
Silt	12
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.977
D_{30}	mm	0.165
D_{10}	mm	0.0052
Uniformity Coefficient		190
Curvature Coefficient		5.4

Remarks

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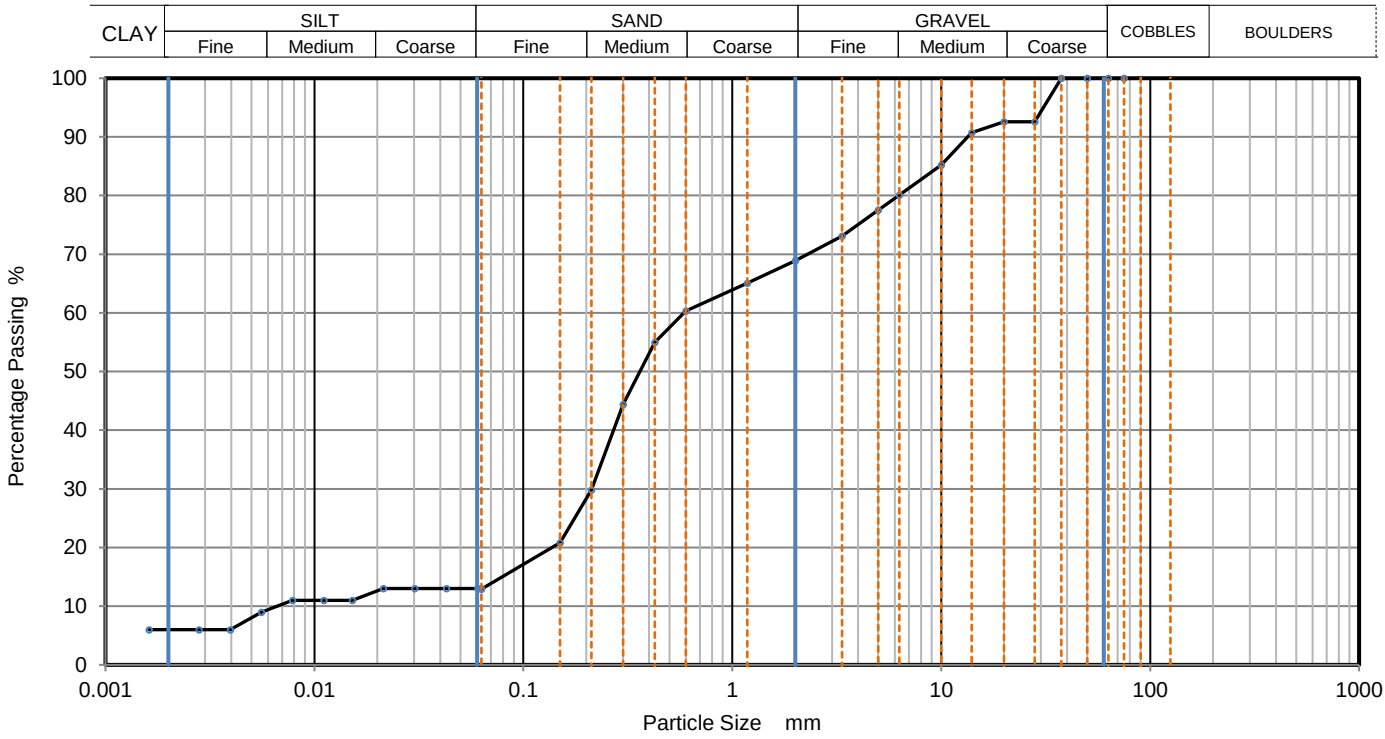
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-68806
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Brown silty very gravelly medium SAND.	Depth, m	1.10
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL1202112218



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0605	13
75	100	0.0428	13
63	100	0.0302	13
50	100	0.0214	13
37.5	100	0.0152	11
28	93	0.0111	11
20	93	0.0078	11
14	91	0.0056	9
10	85	0.0040	6
6.3	80	0.0028	6
5	78	0.0016	6
3.35	73		
2	69		
1.18	65		
0.6	60	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	44		
0.212	30		
0.15	21		
0.063	13		

Dry Mass of sample, g	356

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	56
Silt	7
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.589
D_{30}	mm	0.213
D_{10}	mm	0.00697
Uniformity Coefficient		84
Curvature Coefficient		11

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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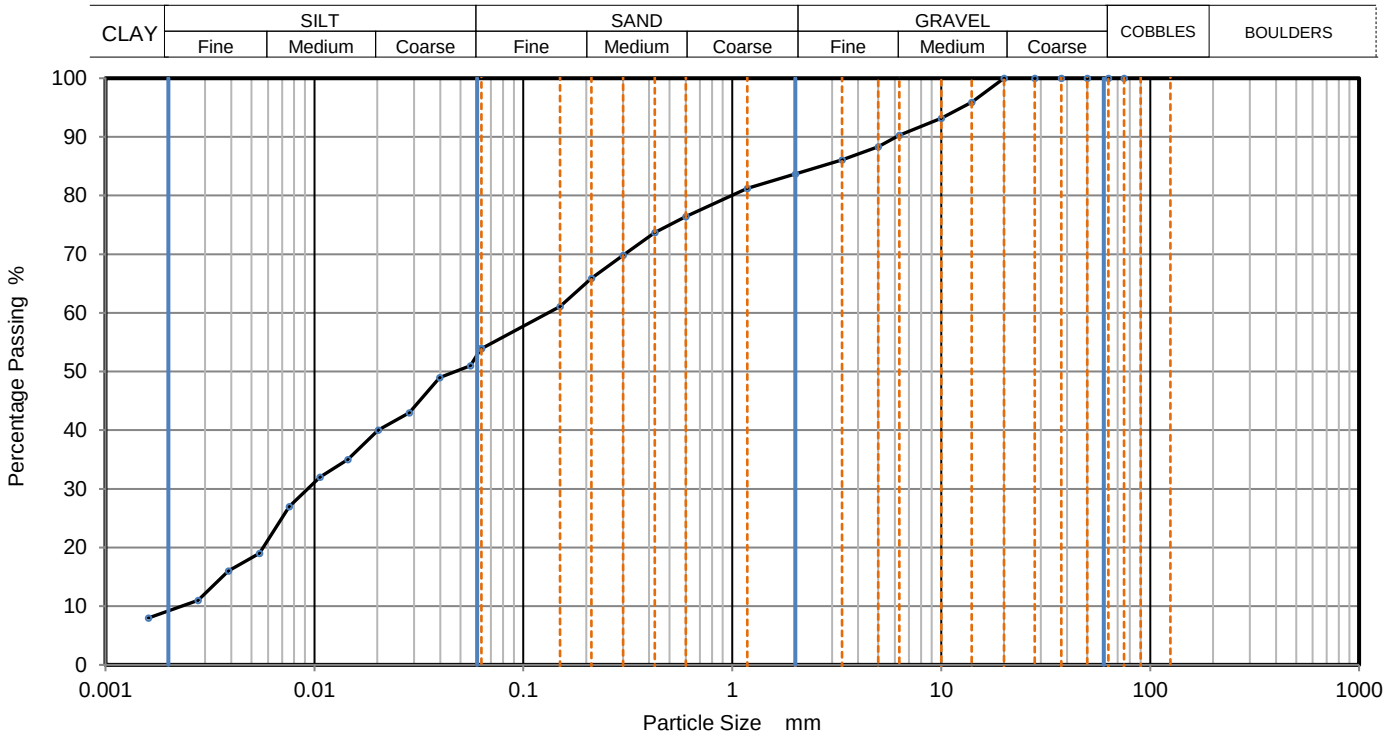
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68806
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122112



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	54
		0.0558	51
75	100	0.0397	49
63	100	0.0284	43
50	100	0.0202	40
37.5	100	0.0145	35
28	100	0.0106	32
20	100	0.0076	27
14	96	0.0055	19
10	93	0.0039	16
6.3	90	0.0028	11
5	88	0.0016	8
3.35	86		
2	84		
1.18	81		
0.6	76	Particle density (assumed)	
0.425	74	2.65 Mg/m3	
0.3	70		
0.212	66		
0.15	61		
0.063	54		

Dry Mass of sample, g	438

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	30
Silt	45
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.131
D_{30}	mm	0.00918
D_{10}	mm	0.00237
Uniformity Coefficient		55
Curvature Coefficient		0.27

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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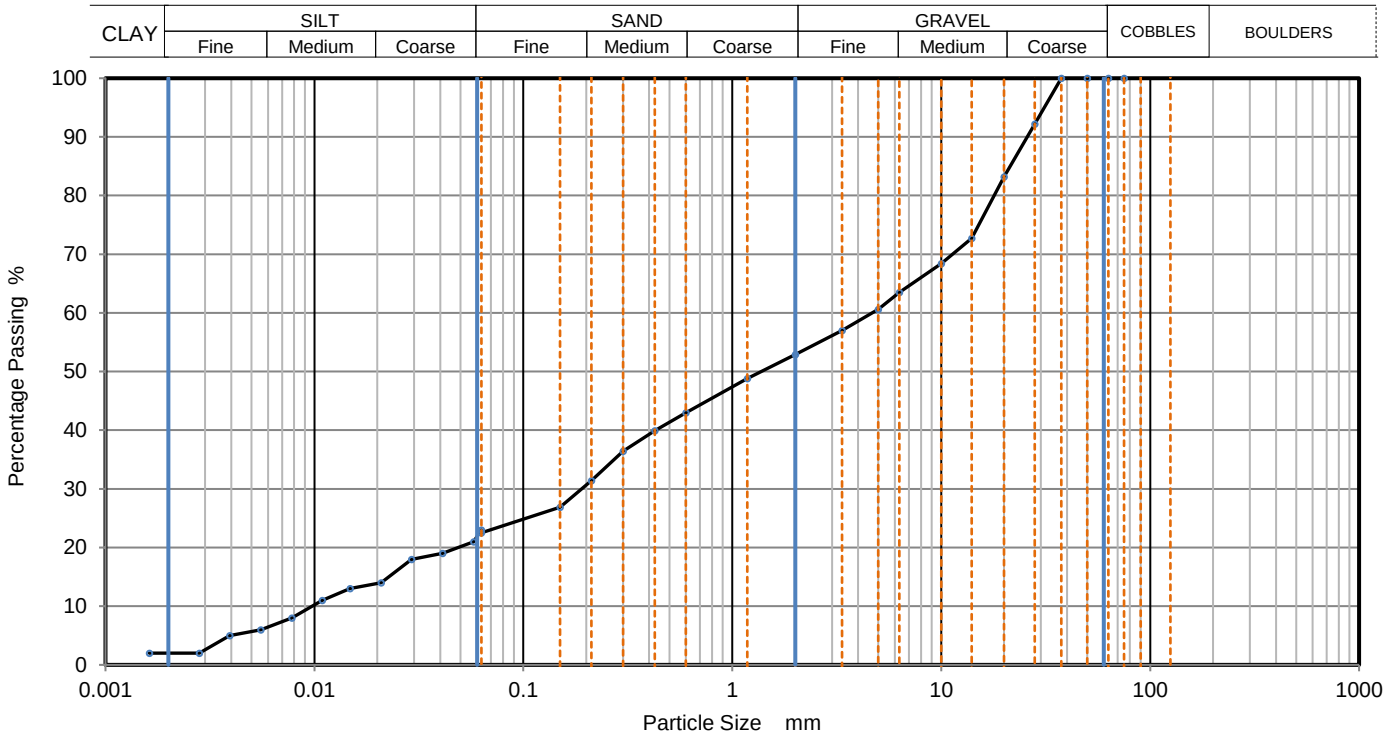
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-68905
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Light brown very silty very sandy medium and coarse GRAVEL.	Depth, m	0.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211206250



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	23
		0.0577	21
75	100	0.0411	19
63	100	0.0292	18
50	100	0.0209	14
37.5	100	0.0148	13
28	92	0.0109	11
20	83	0.0078	8
14	73	0.0055	6
10	68	0.0039	5
6.3	64	0.0028	2
5	61	0.0016	2
3.35	57		
2	53		
1.18	49		
0.6	43	Particle density (assumed)	
0.425	40	2.65 Mg/m3	
0.3	36		
0.212	31		
0.15	27		
0.063	23		

Dry Mass of sample, g	686

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	31
Silt	21
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.67
D_{30}	mm	0.191
D_{10}	mm	0.00956
Uniformity Coefficient		490
Curvature Coefficient		0.81

Remarks

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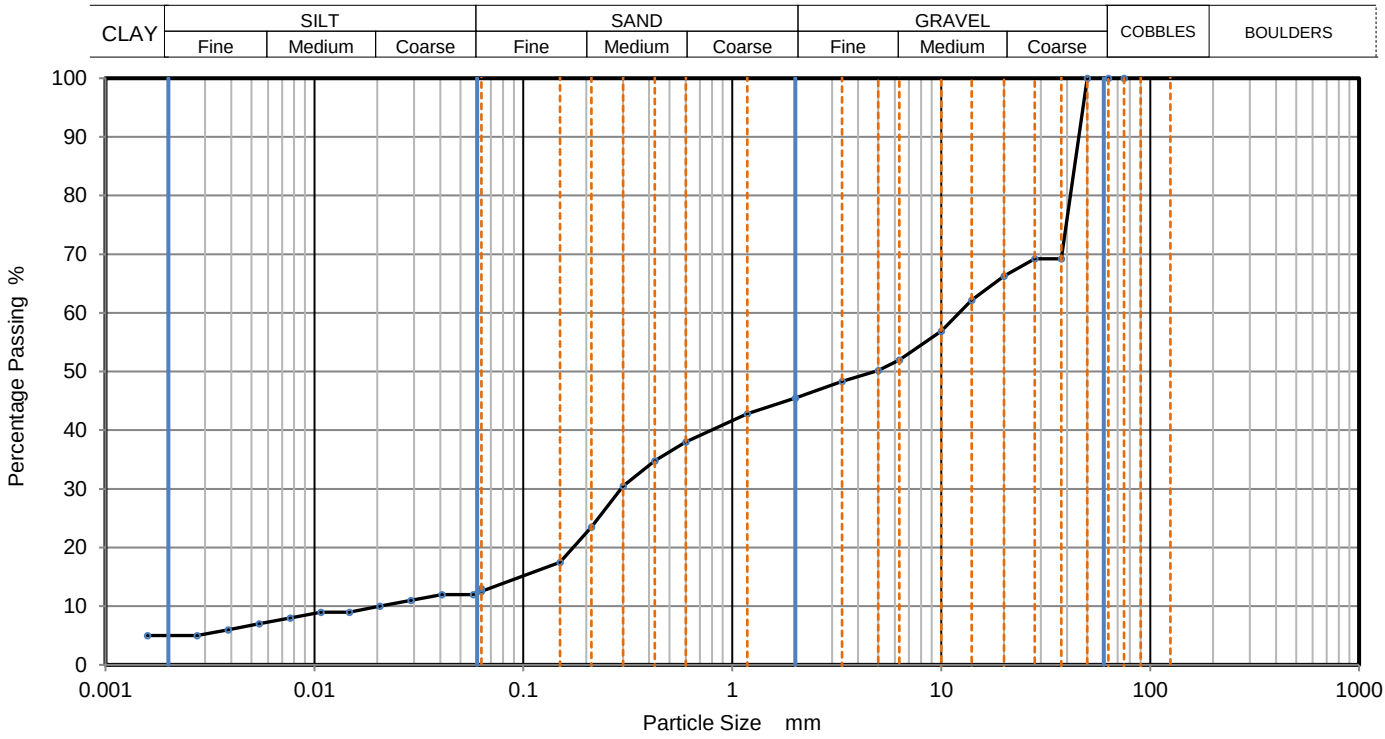
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown silty very sandy coarse GRAVEL.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206252



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0576	12
75	100	0.0407	12
63	100	0.0290	11
50	100	0.0206	10
37.5	69	0.0147	9
28	69	0.0108	9
20	66	0.0076	8
14	62	0.0054	7
10	57	0.0039	6
6.3	52	0.0027	5
5	50	0.0016	5
3.35	48		
2	46		
1.18	43		
0.6	38	Particle density (assumed)	
0.425	35	2.65 Mg/m3	
0.3	31		
0.212	24		
0.15	18		
0.063	13		

Dry Mass of sample, g	761

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	33
Silt	7
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	12.2
D_{30}	mm	0.293
D_{10}	mm	0.0199
Uniformity Coefficient		610
Curvature Coefficient		0.35

Remarks

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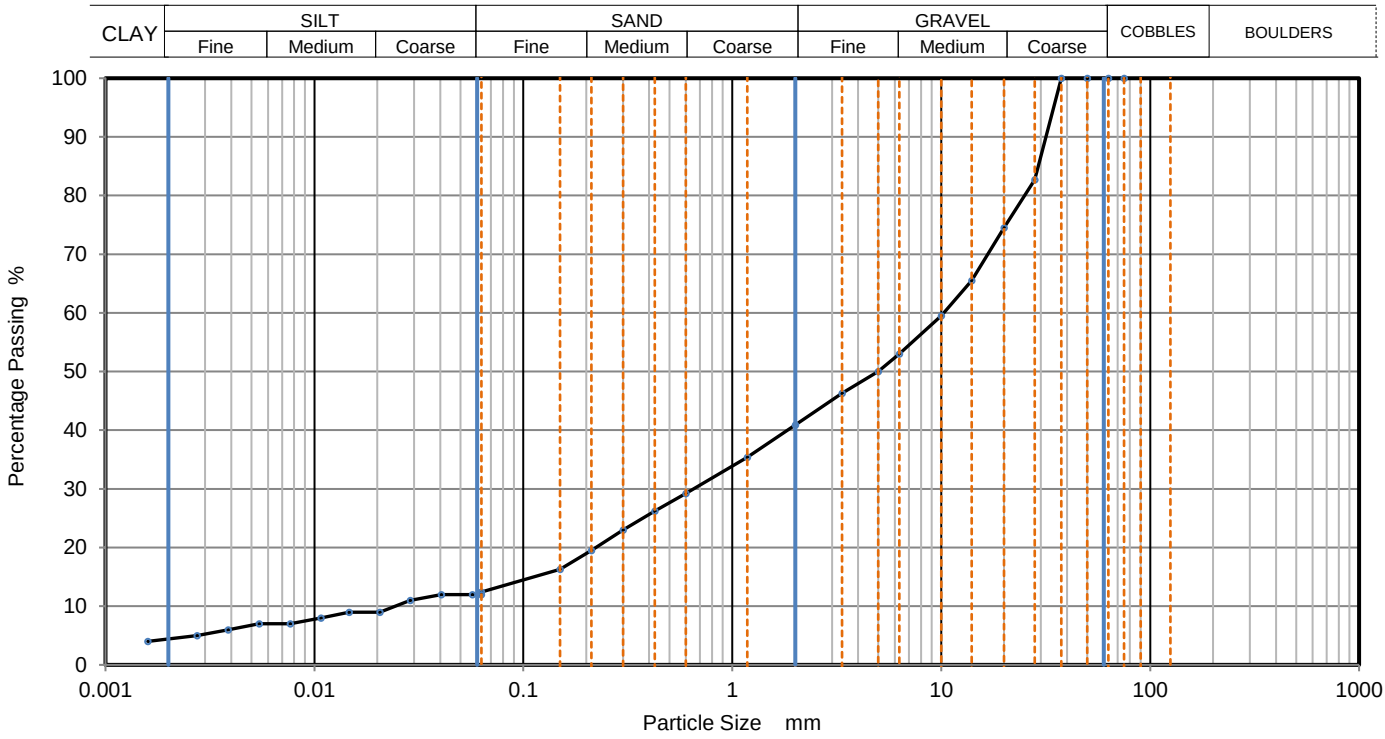
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-68905
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown silty very sandy medium and coarse GRAVEL.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206254



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	12
		0.0569	12
75	100	0.0405	12
63	100	0.0288	11
50	100	0.0206	9
37.5	100	0.0146	9
28	83	0.0108	8
20	75	0.0076	7
14	66	0.0054	7
10	60	0.0039	6
6.3	53	0.0027	5
5	50	0.0016	4
3.35	46		
2	41		
1.18	35		
0.6	29	Particle density (assumed)	
0.425	26	2.65	Mg/m3
0.3	23		
0.212	20		
0.15	16		
0.063	12		

Dry Mass of sample, g	739

Sample Proportions	% dry mass
Very coarse	0
Gravel	59
Sand	28
Silt	8
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	10.3
D_{30}	mm	0.654
D_{10}	mm	0.0232
Uniformity Coefficient		440
Curvature Coefficient		1.8

Remarks

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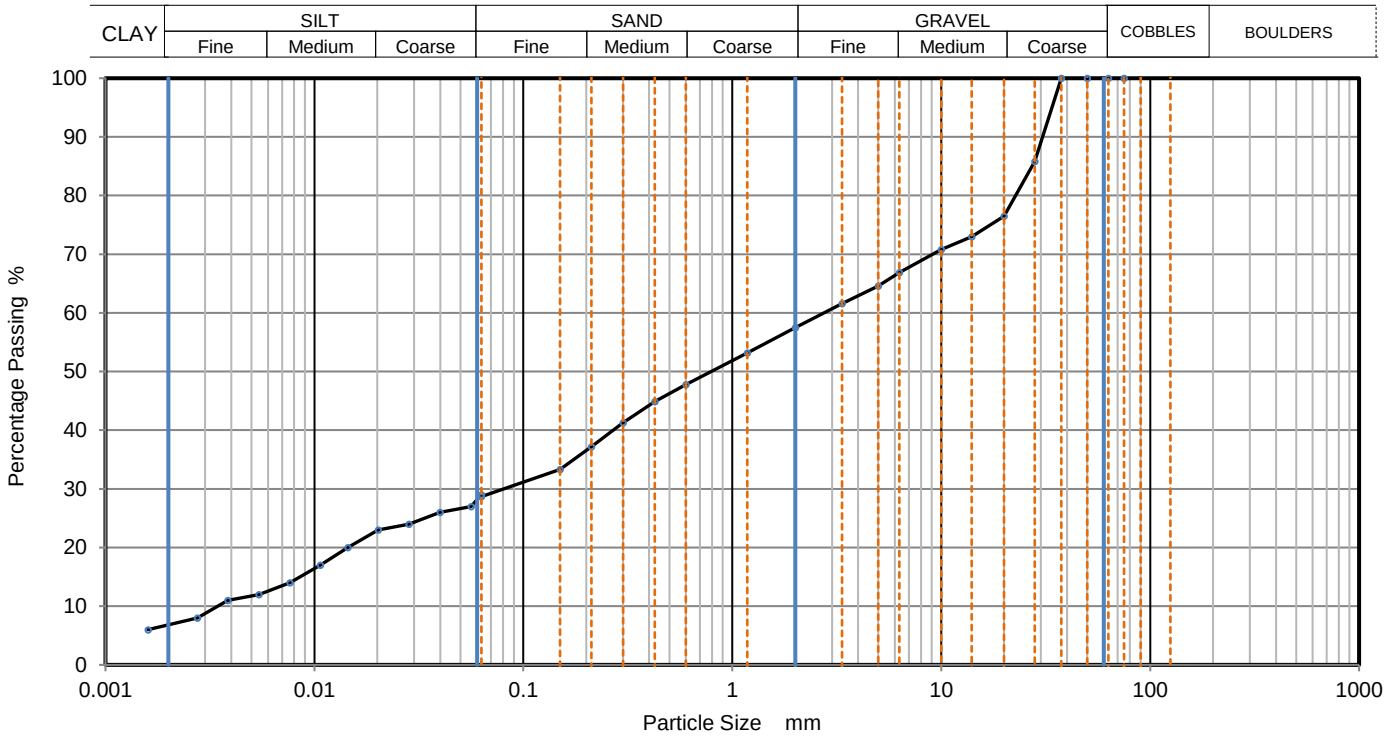
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69006
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206257



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0561	27
75	100	0.0399	26
63	100	0.0284	24
50	100	0.0202	23
37.5	100	0.0144	20
28	86	0.0107	17
20	77	0.0076	14
14	73	0.0054	12
10	71	0.0039	11
6.3	67	0.0028	8
5	65	0.0016	6
3.35	62		
2	58		
1.18	53		
0.6	48	Particle density (assumed)	
0.425	45	2.65 Mg/m3	
0.3	41		
0.212	37		
0.15	33		
0.063	29		

Dry Mass of sample, g	714

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	29
Silt	22
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.74
D_{30}	mm	0.0808
D_{10}	mm	0.00361
Uniformity Coefficient		760
Curvature Coefficient		0.66

Remarks

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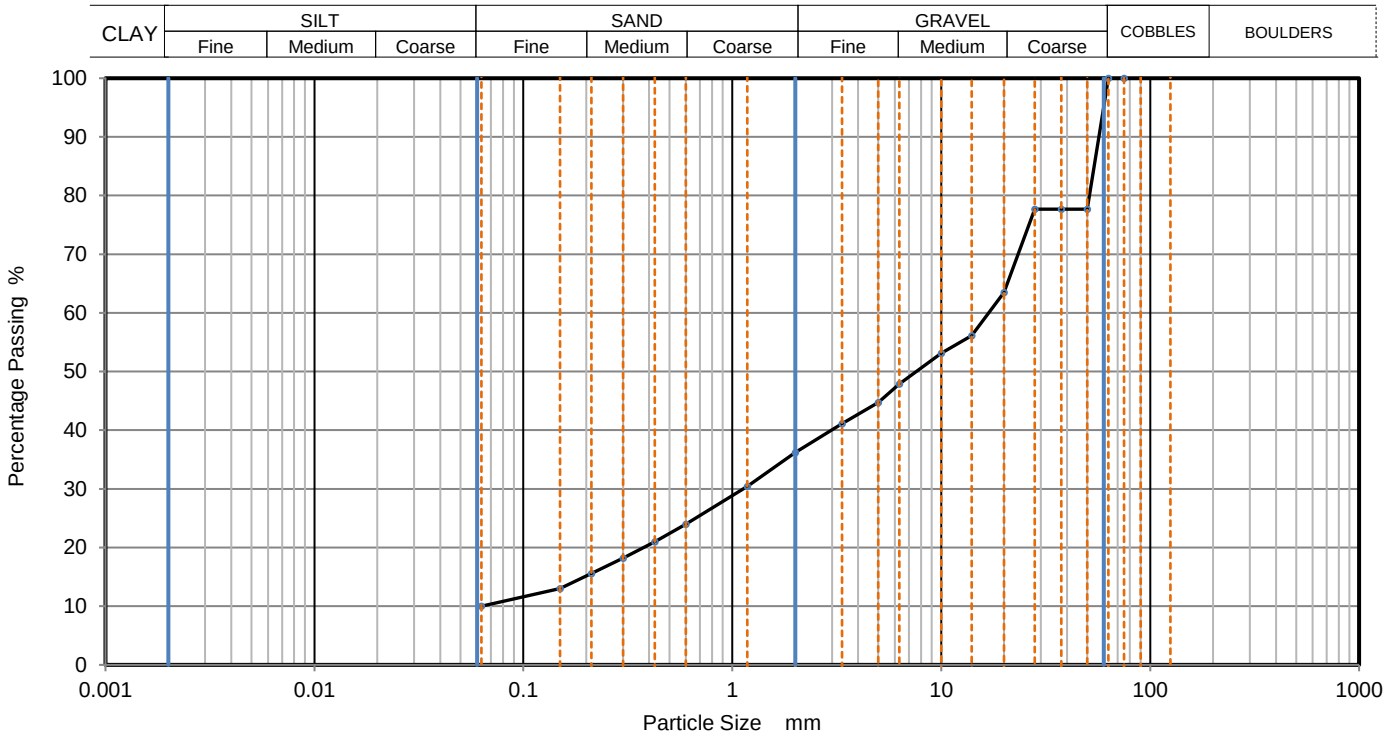
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69006
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown silty very sandy coares GRAVEL.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211206259



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	78		
37.5	78		
28	78		
20	64		
14	56		
10	53		
6.3	48		
5	45		
3.35	41		
2	36		
1.18	30		
0.6	24		
0.425	21		
0.3	18		
0.212	16		
0.15	13		
0.063	10		

Dry Mass of sample, g	729

Sample Proportions	% dry mass
Very coarse	0
Gravel	64
Sand	26
Fines <0.063mm	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	16.9
D_{30}	mm	1.13
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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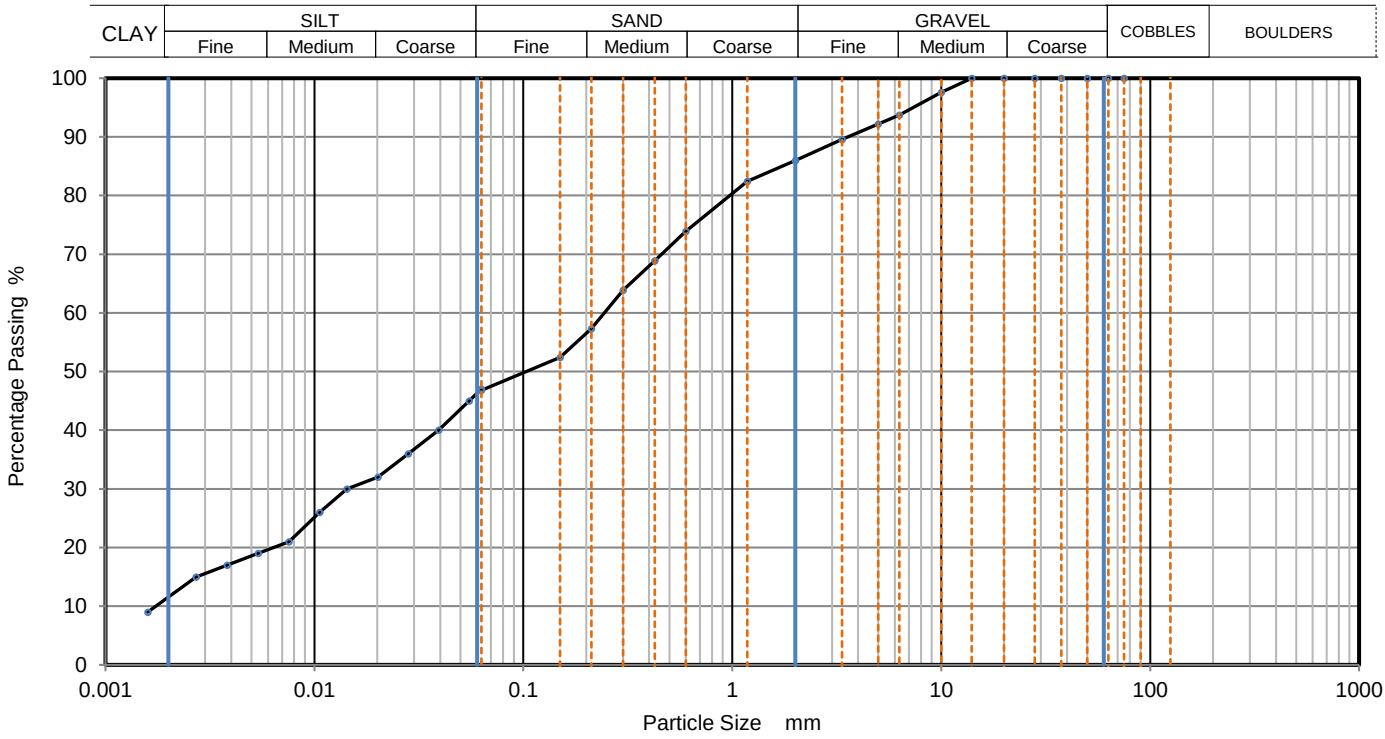
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-69106
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211206260



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0550	45
75	100	0.0393	40
63	100	0.0282	36
50	100	0.0201	32
37.5	100	0.0143	30
28	100	0.0106	26
20	100	0.0076	21
14	100	0.0054	19
10	98	0.0038	17
6.3	94	0.0027	15
5	92	0.0016	9
3.35	90		
2	86		
1.18	82		
0.6	74	Particle density (assumed)	
0.425	69	2.65 Mg/m3	
0.3	64		
0.212	57		
0.15	52		
0.063	47		

Dry Mass of sample, g	395

Sample Proportions	% dry mass
Very coarse	0
Gravel	14
Sand	39
Silt	36
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.244
D_{30}	mm	0.0148
D_{10}	mm	0.0018
Uniformity Coefficient		140
Curvature Coefficient		0.5

Remarks

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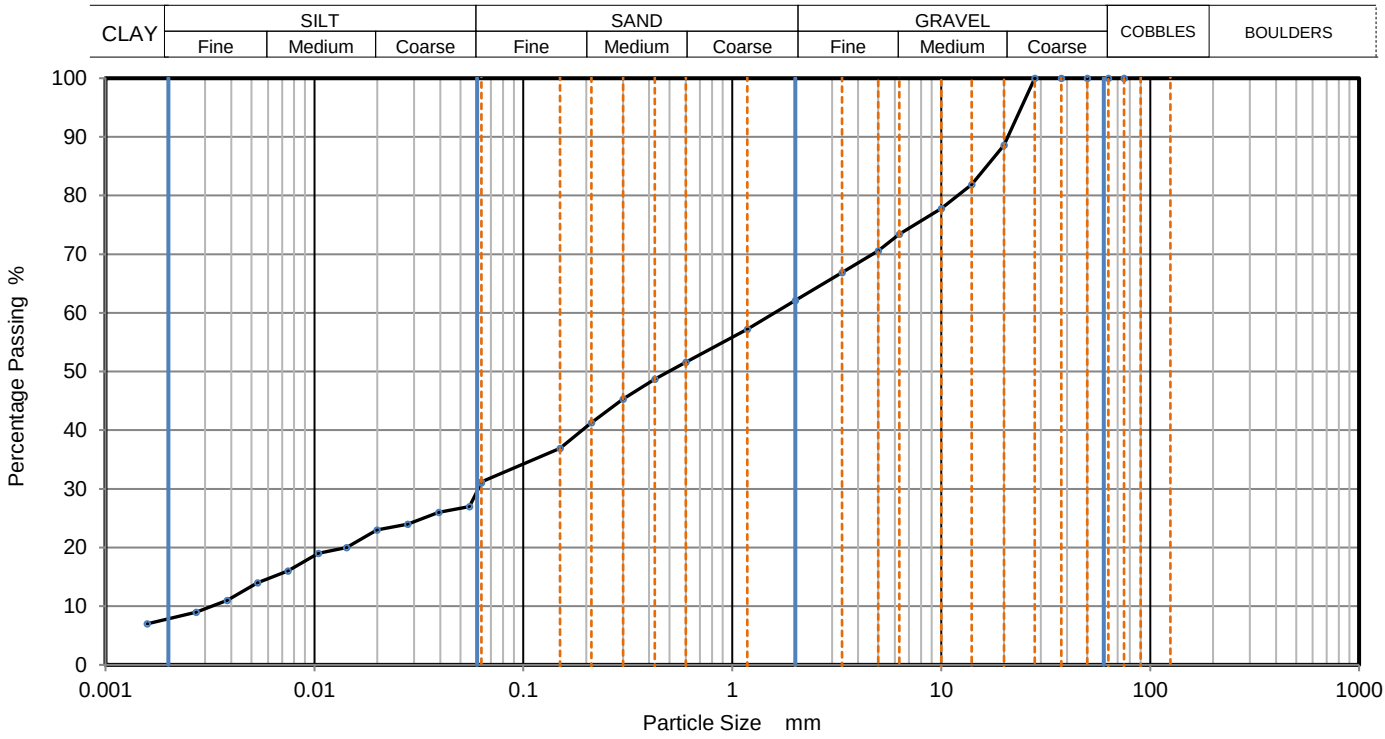
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69106
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206262



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0553	27
75	100	0.0393	26
63	100	0.0280	24
50	100	0.0199	23
37.5	100	0.0142	20
28	100	0.0105	19
20	89	0.0075	16
14	82	0.0053	14
10	78	0.0038	11
6.3	73	0.0027	9
5	71	0.0016	7
3.35	67		
2	62		
1.18	57		
0.6	52	Particle density (assumed)	
0.425	49	2.65	Mg/m3
0.3	45		
0.212	41		
0.15	37		
0.063	31		

Dry Mass of sample, g	484

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	31
Silt	23
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.6
D_{30}	mm	0.0606
D_{10}	mm	0.00308
Uniformity Coefficient		520
Curvature Coefficient		0.75

Remarks

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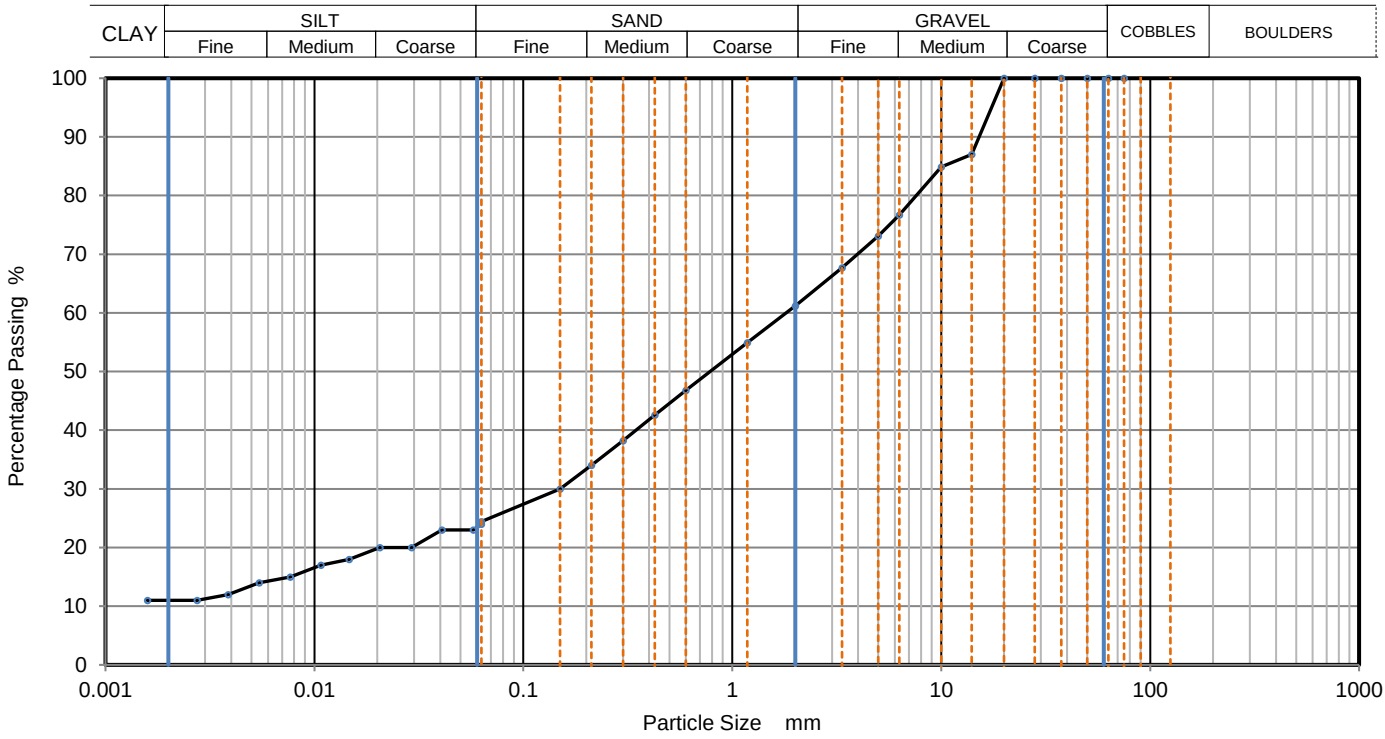
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69106
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206264



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	24
		0.0576	23
75	100	0.0407	23
63	100	0.0291	20
50	100	0.0206	20
37.5	100	0.0146	18
28	100	0.0108	17
20	100	0.0076	15
14	87	0.0054	14
10	85	0.0039	12
6.3	77	0.0027	11
5	73	0.0016	11
3.35	68		
2	61		
1.18	55		
0.6	47	Particle density (assumed)	
0.425	43	2.65 Mg/m3	
0.3	38		
0.212	34		
0.15	30		
0.063	24		

Dry Mass of sample, g	489

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	37
Silt	14
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.8
D_{30}	mm	0.15
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	04/01/2023 12:09	**1** QC From No:R2

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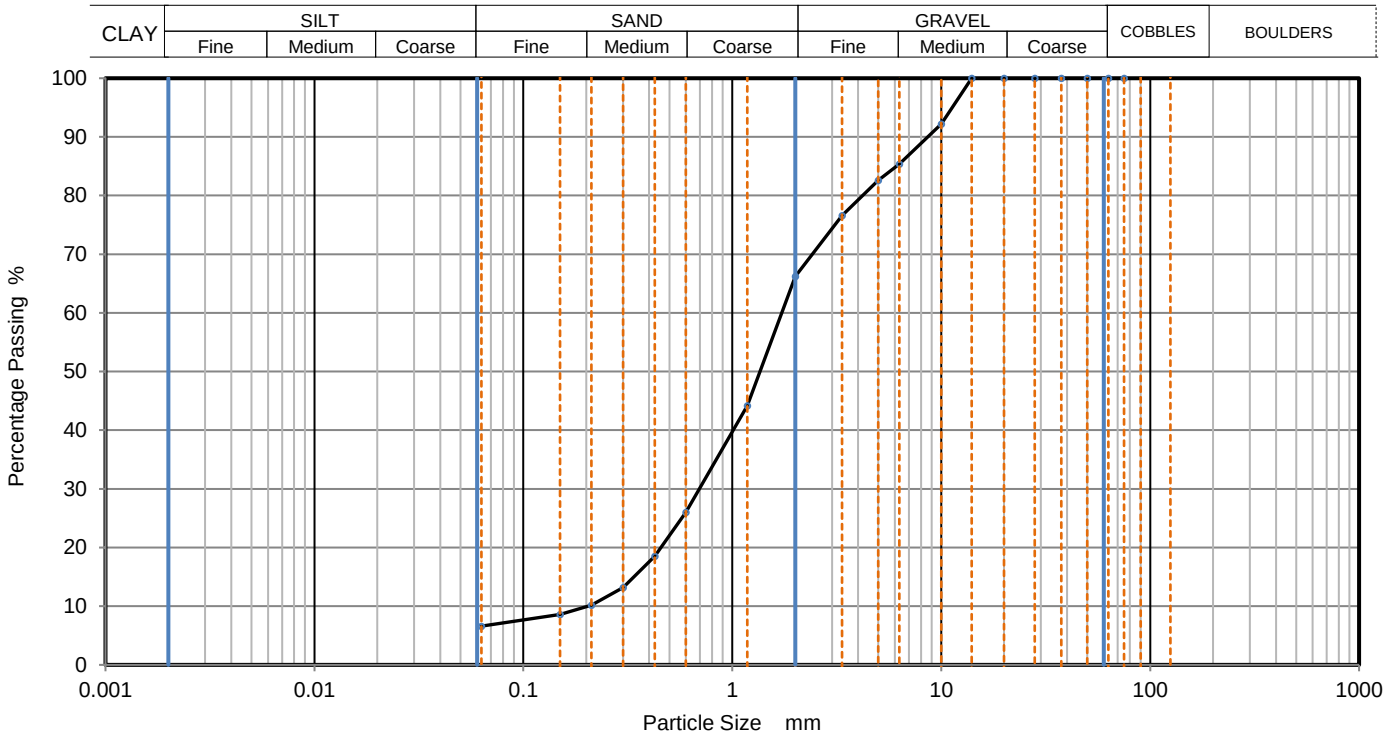
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69203
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very gravelly coarse SAND.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211206267



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	92		
6.3	85		
5	83		
3.35	77		
2	66		
1.18	44		
0.6	26		
0.425	19		
0.3	13		
0.212	10		
0.15	9		
0.063	7		

Dry Mass of sample, g	444

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	60
Fines <0.063mm	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.72
D_{30}	mm	0.696
D_{10}	mm	0.204
Uniformity Coefficient		8.4
Curvature Coefficient		1.4

Remarks

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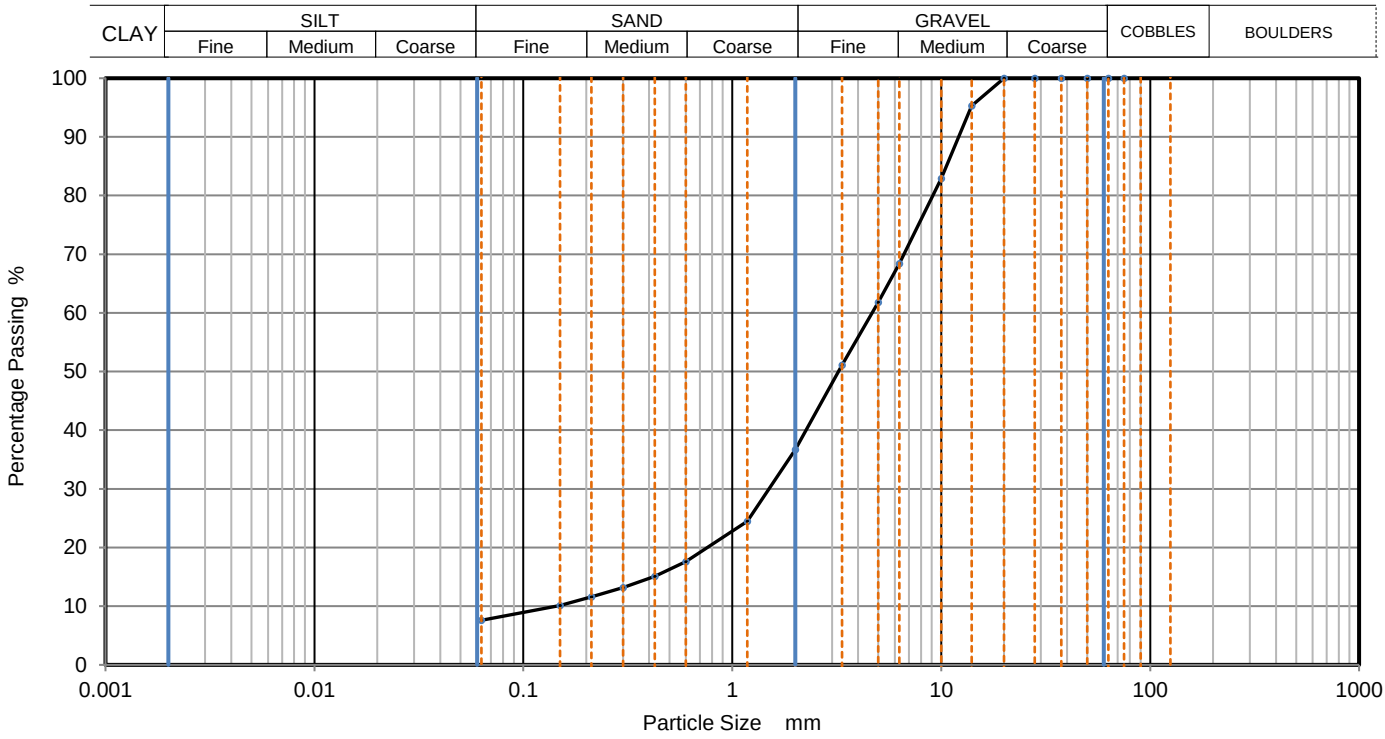
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69203
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Bluish-brown silty very sandy fine and medium GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211206268



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	83		
6.3	68		
5	62		
3.35	51		
2	37		
1.18	25		
0.6	18		
0.425	15		
0.3	13		
0.212	12		
0.15	10		
0.063	8		

Dry Mass of sample, g	442

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	29
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.67
D_{30}	mm	1.5
D_{10}	mm	0.143
Uniformity Coefficient		33
Curvature Coefficient		3.4

Remarks

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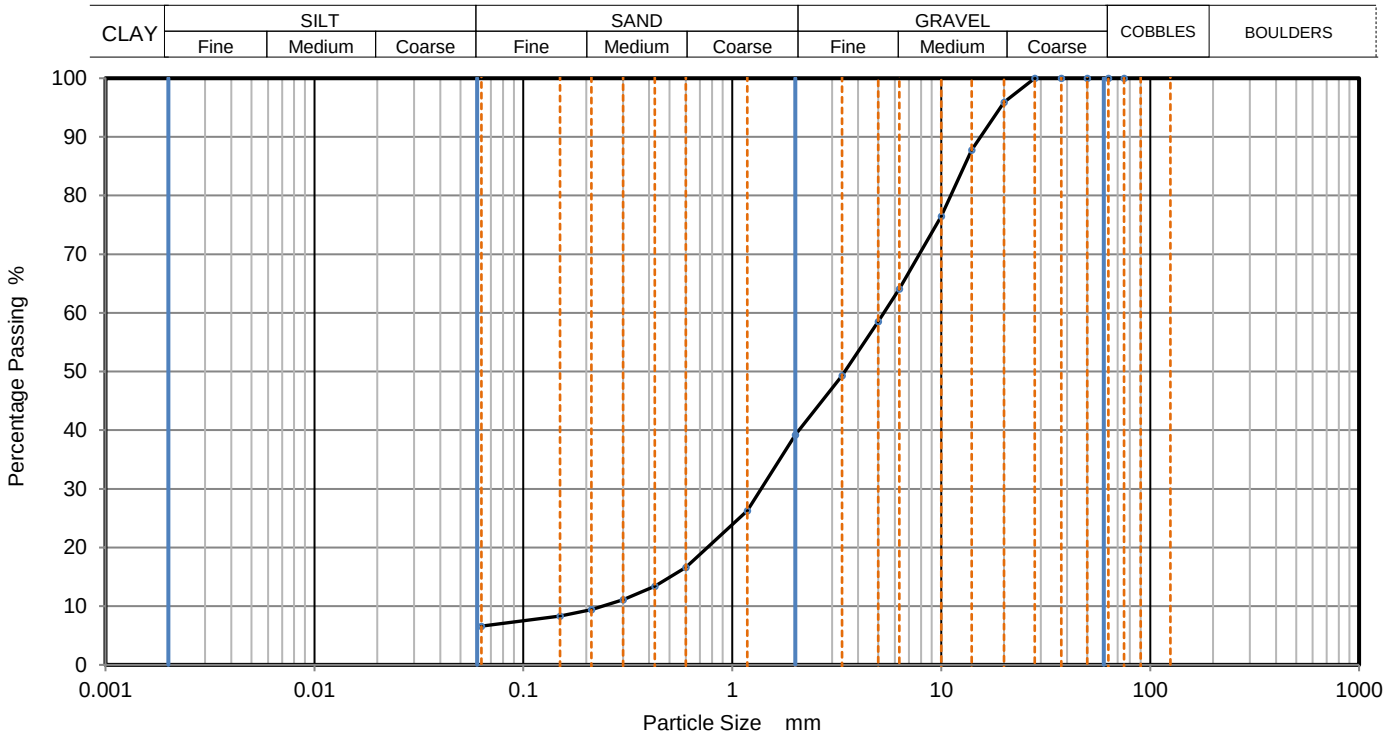
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69306
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Bluish-brown silty very sandy fine and medium GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120211206271



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	88		
10	77		
6.3	64		
5	59		
3.35	49		
2	39		
1.18	26		
0.6	17		
0.425	13		
0.3	11		
0.212	9		
0.15	8		
0.063	7		

Dry Mass of sample, g	495

Sample Proportions	% dry mass
Very coarse	0
Gravel	61
Sand	33
Fines <0.063mm	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.32
D_{30}	mm	1.38
D_{10}	mm	0.238
Uniformity Coefficient		22
Curvature Coefficient		1.5

Remarks

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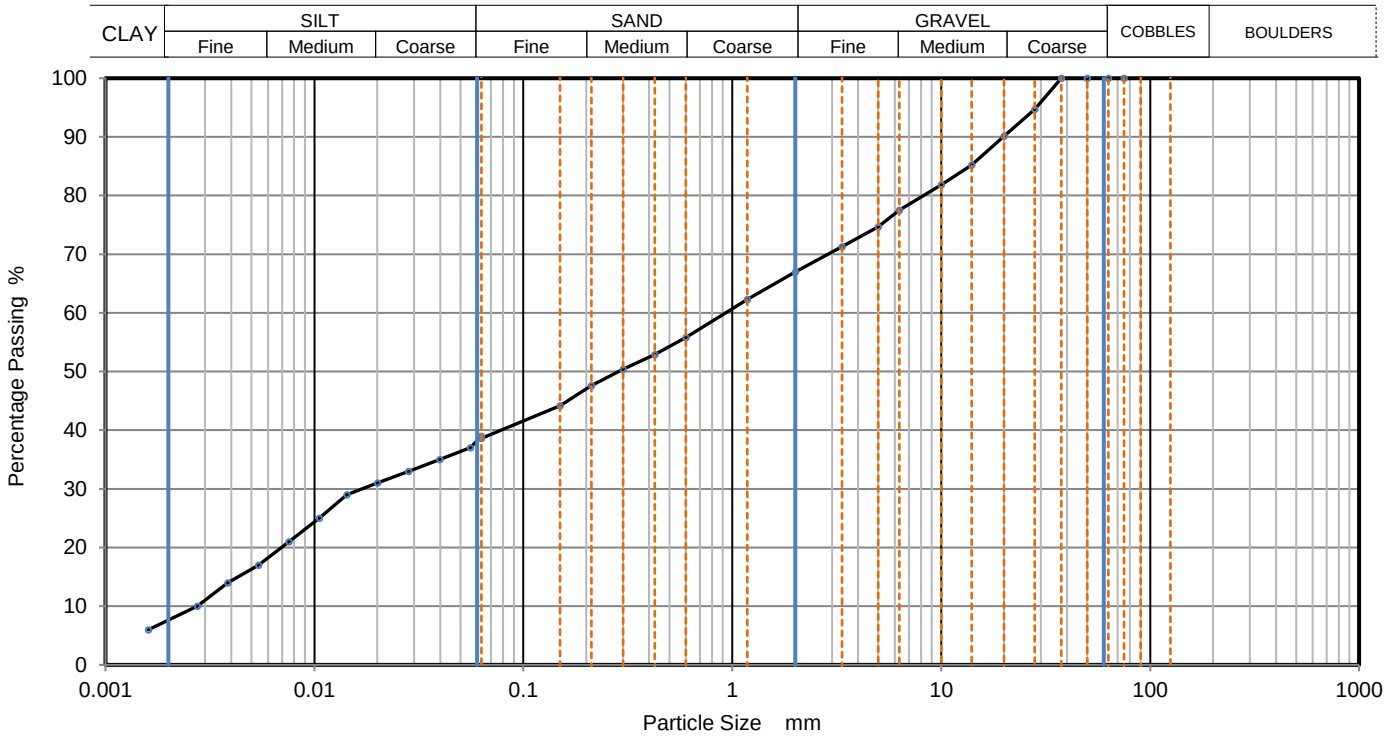
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69306
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey slightly sandy slightly gravelly SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206272



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0558	37
75	100	0.0397	35
63	100	0.0283	33
50	100	0.0201	31
37.5	100	0.0143	29
28	95	0.0106	25
20	90	0.0075	21
14	85	0.0054	17
10	82	0.0039	14
6.3	78	0.0028	10
5	75	0.0016	6
3.35	71		
2	67		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	48		
0.15	44		
0.063	39		

Dry Mass of sample, g	932

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	28
Silt	31
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.924
D_{30}	mm	0.0172
D_{10}	mm	0.00284
Uniformity Coefficient		330
Curvature Coefficient		0.11

Remarks

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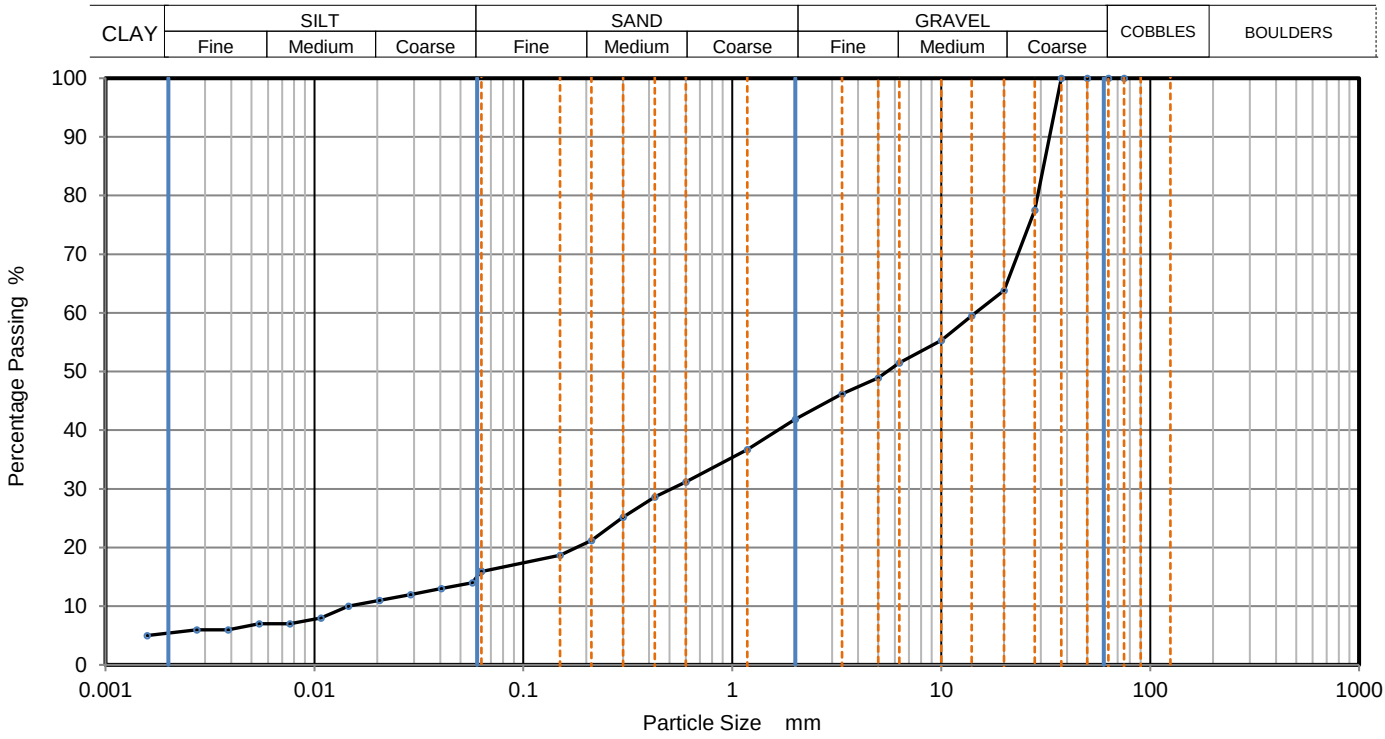
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69407
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown silty very sandy coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206274



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	16
		0.0570	14
75	100	0.0405	13
63	100	0.0288	12
50	100	0.0205	11
37.5	100	0.0146	10
28	78	0.0108	8
20	64	0.0076	7
14	60	0.0054	7
10	55	0.0039	6
6.3	52	0.0027	6
5	49	0.0016	5
3.35	46		
2	42		
1.18	37		
0.6	31	Particle density (assumed)	
0.425	29	2.65 Mg/m3	
0.3	25		
0.212	21		
0.15	19		
0.063	16		

Dry Mass of sample, g	520

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	26
Silt	11
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	14.6
D_{30}	mm	0.512
D_{10}	mm	0.0139
Uniformity Coefficient		1000
Curvature Coefficient		1.3

Remarks

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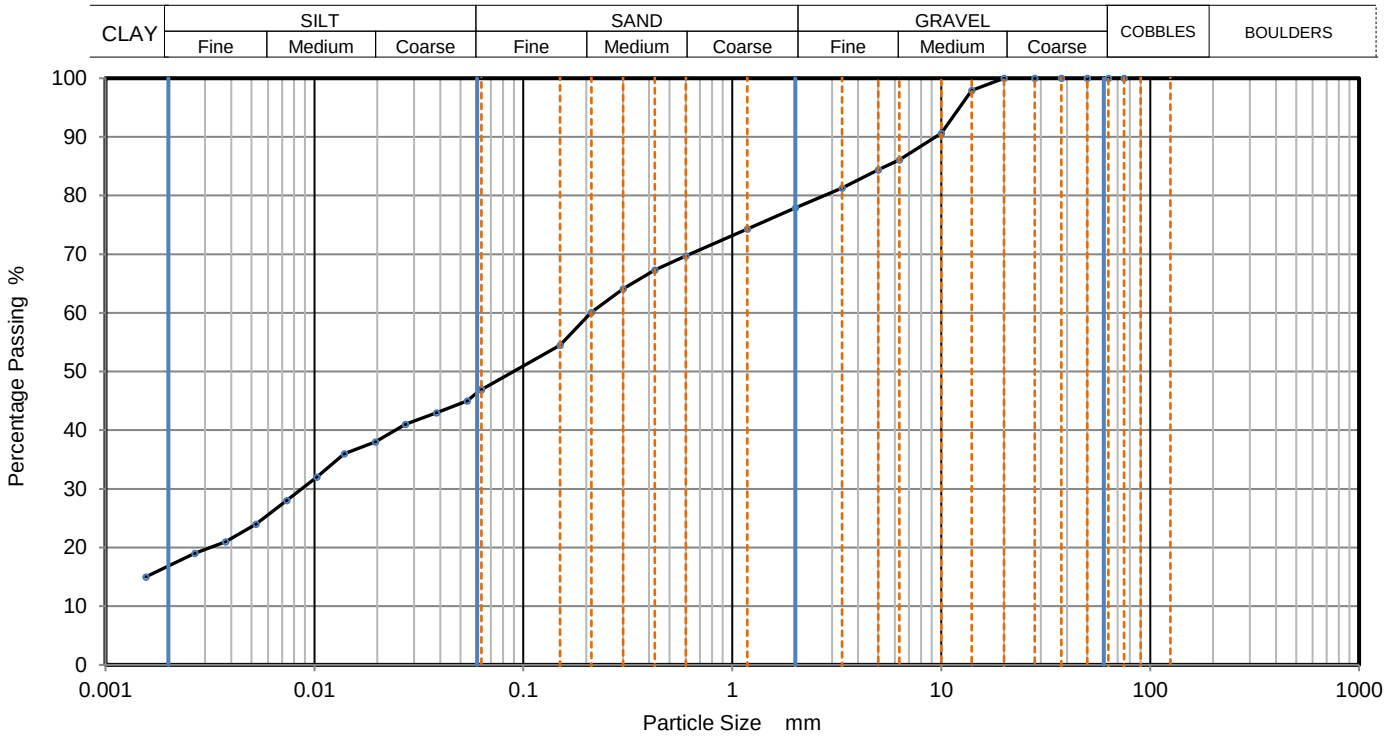
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69407
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211206276



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	47
		0.0539	45
75	100	0.0384	43
63	100	0.0273	41
50	100	0.0196	38
37.5	100	0.0139	36
28	100	0.0103	32
20	100	0.0074	28
14	98	0.0053	24
10	91	0.0038	21
6.3	86	0.0027	19
5	84	0.0016	15
3.35	81		
2	78		
1.18	74		
0.6	70	Particle density (assumed)	
0.425	67	2.65 Mg/m3	
0.3	64		
0.212	60		
0.15	55		
0.063	47		

Dry Mass of sample, g	669

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	31
Silt	30
Clay	17

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.21
D_{30}	mm	0.00868
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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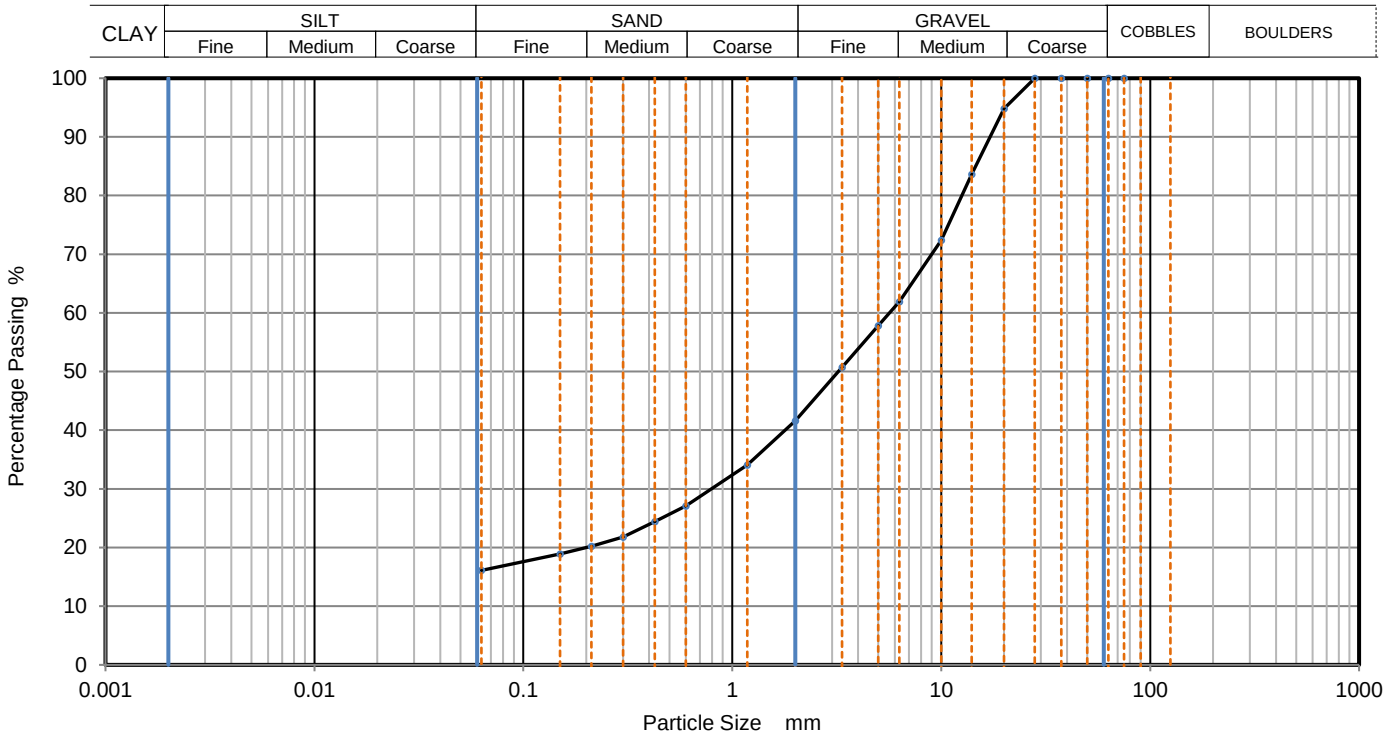
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69505
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey silty very sandy fine and medium GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307248



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	84		
10	72		
6.3	62		
5	58		
3.35	51		
2	42		
1.18	34		
0.6	27		
0.425	24		
0.3	22		
0.212	20		
0.15	19		
0.063	16		

Dry Mass of sample, g	493

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	26
Fines <0.063mm	16

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.67
D_{30}	mm	0.795
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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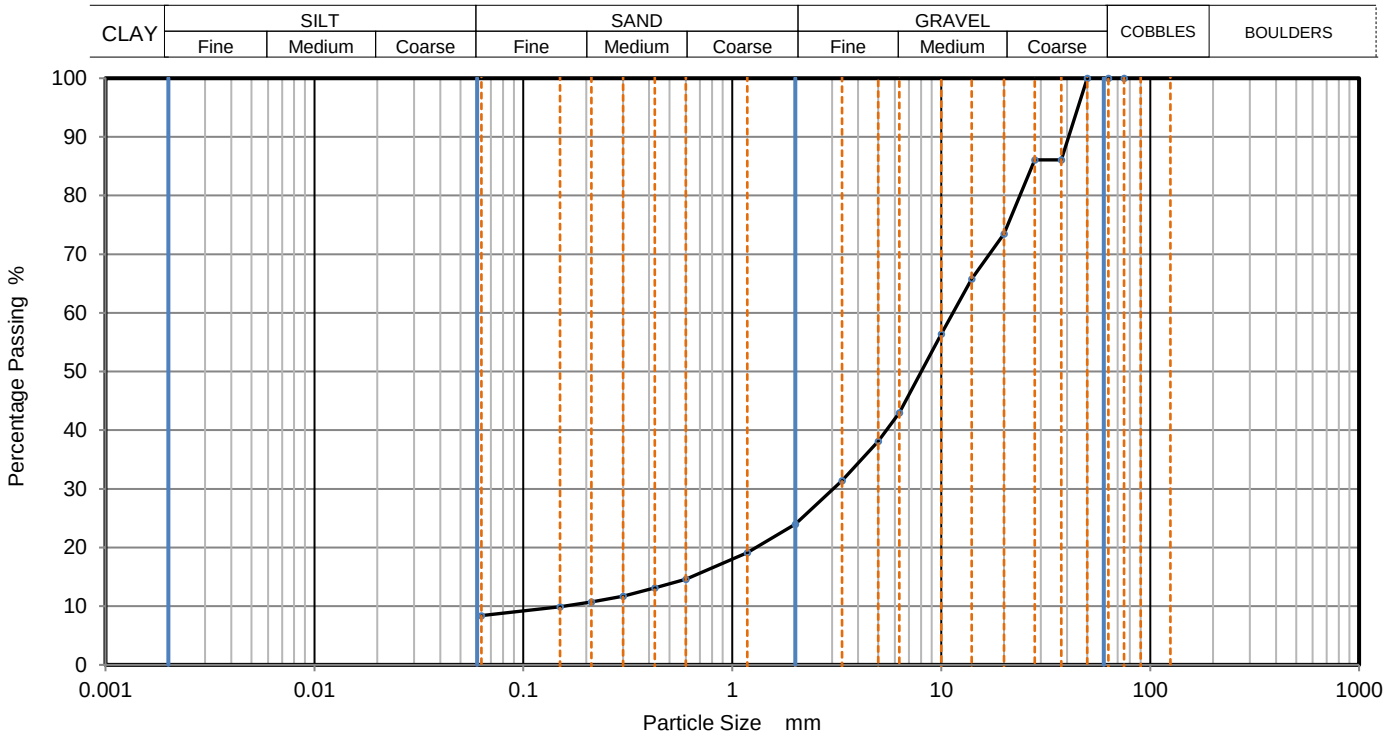
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69505
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Grey silty very sandy coarse and medium GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307249



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	86		
28	86		
20	74		
14	66		
10	56		
6.3	43		
5	38		
3.35	31		
2	24		
1.18	19		
0.6	15		
0.425	13		
0.3	12		
0.212	11		
0.15	10		
0.063	8		

Dry Mass of sample, g	572

Sample Proportions	% dry mass
Very coarse	0
Gravel	76
Sand	16
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	11.4
D_{30}	mm	3.05
D_{10}	mm	0.155
Uniformity Coefficient		74
Curvature Coefficient		5.3

Remarks

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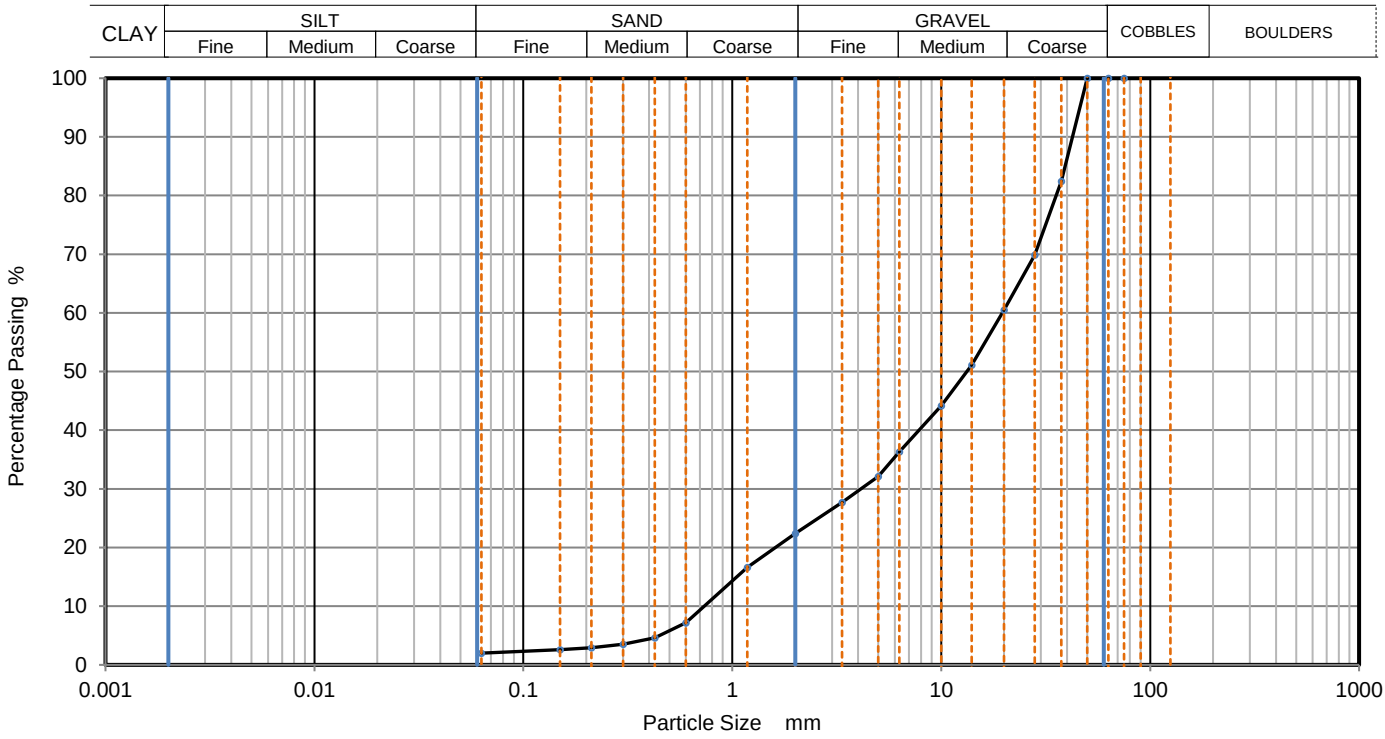
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69703
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey slightly silty very sandy coarse GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307251



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	82		
28	70		
20	61		
14	51		
10	44		
6.3	36		
5	32		
3.35	28		
2	22		
1.18	17		
0.6	7		
0.425	5		
0.3	4		
0.212	3		
0.15	3		
0.063	2		

Dry Mass of sample, g	684

Sample Proportions	% dry mass
Very coarse	0
Gravel	78
Sand	20
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	19.6
D_{30}	mm	4.13
D_{10}	mm	0.735
Uniformity Coefficient		27
Curvature Coefficient		1.2

Remarks

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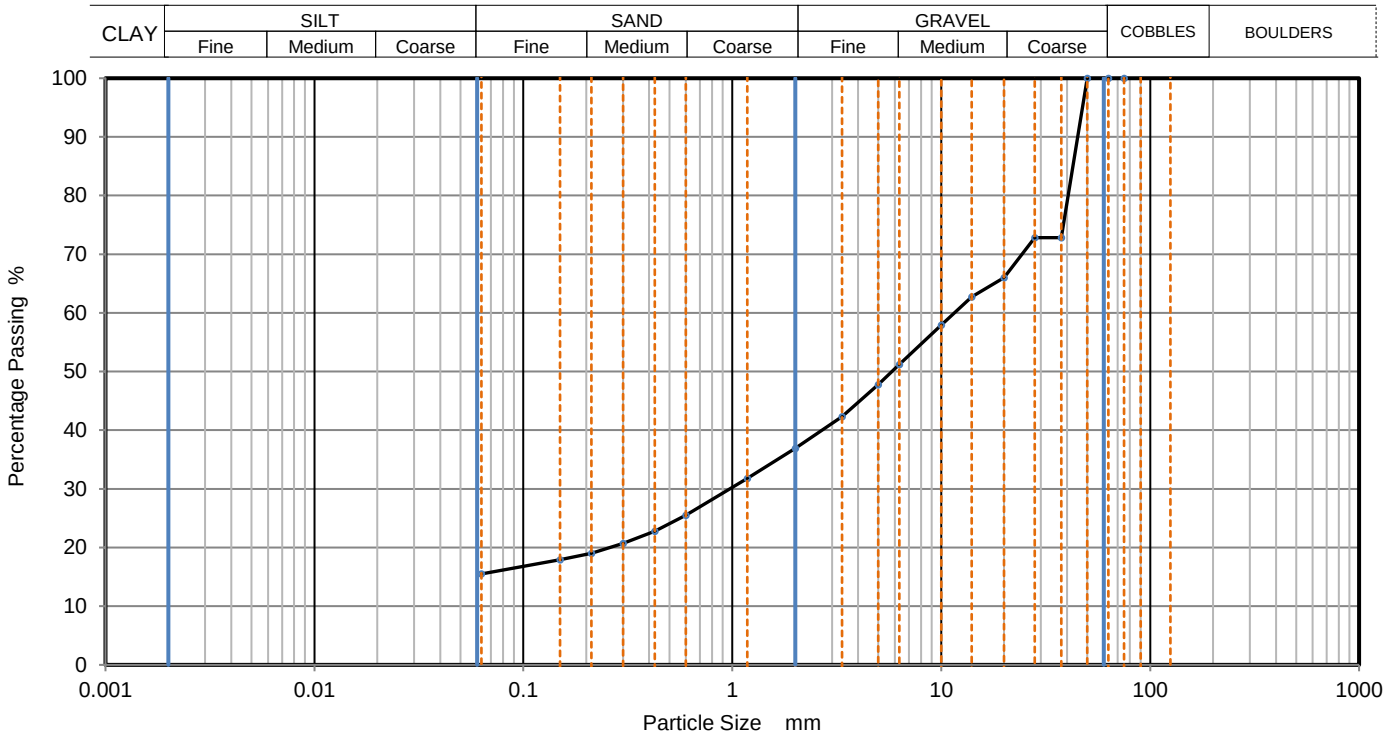
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69806
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey silty very sandy coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307252



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	73		
28	73		
20	66		
14	63		
10	58		
6.3	51		
5	48		
3.35	42		
2	37		
1.18	32		
0.6	26		
0.425	23		
0.3	21		
0.212	19		
0.15	18		
0.063	16		

Dry Mass of sample, g	352

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	21
Fines <0.063mm	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	11.6
D_{30}	mm	0.973
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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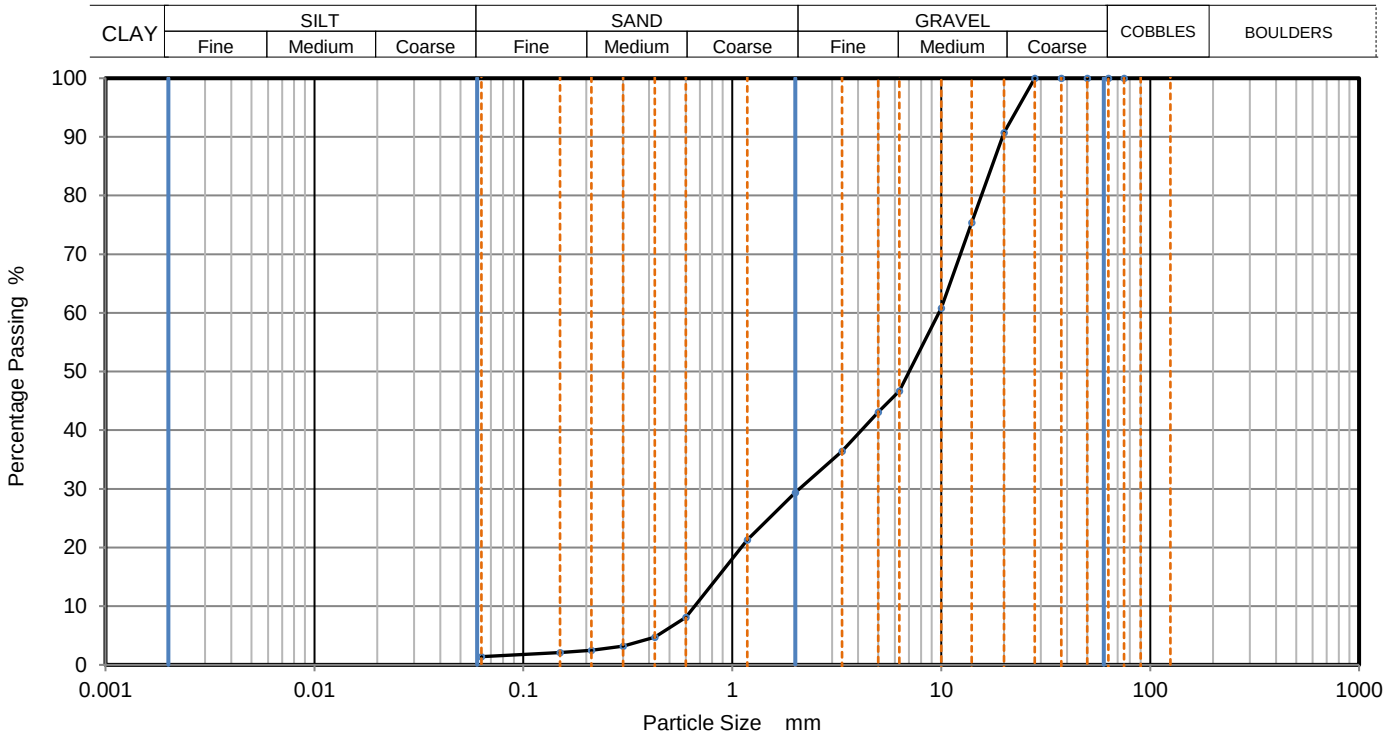
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69806
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey very sandy medium GRAVEL. Sand is coarse.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307254



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	75		
10	61		
6.3	47		
5	43		
3.35	36		
2	29		
1.18	21		
0.6	8		
0.425	5		
0.3	3		
0.212	3		
0.15	2		
0.063	1		

Dry Mass of sample, g	411

Sample Proportions	% dry mass
Very coarse	0
Gravel	71
Sand	28
Fines <0.063mm	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	9.74
D_{30}	mm	2.09
D_{10}	mm	0.66
Uniformity Coefficient		15
Curvature Coefficient		0.68

Remarks

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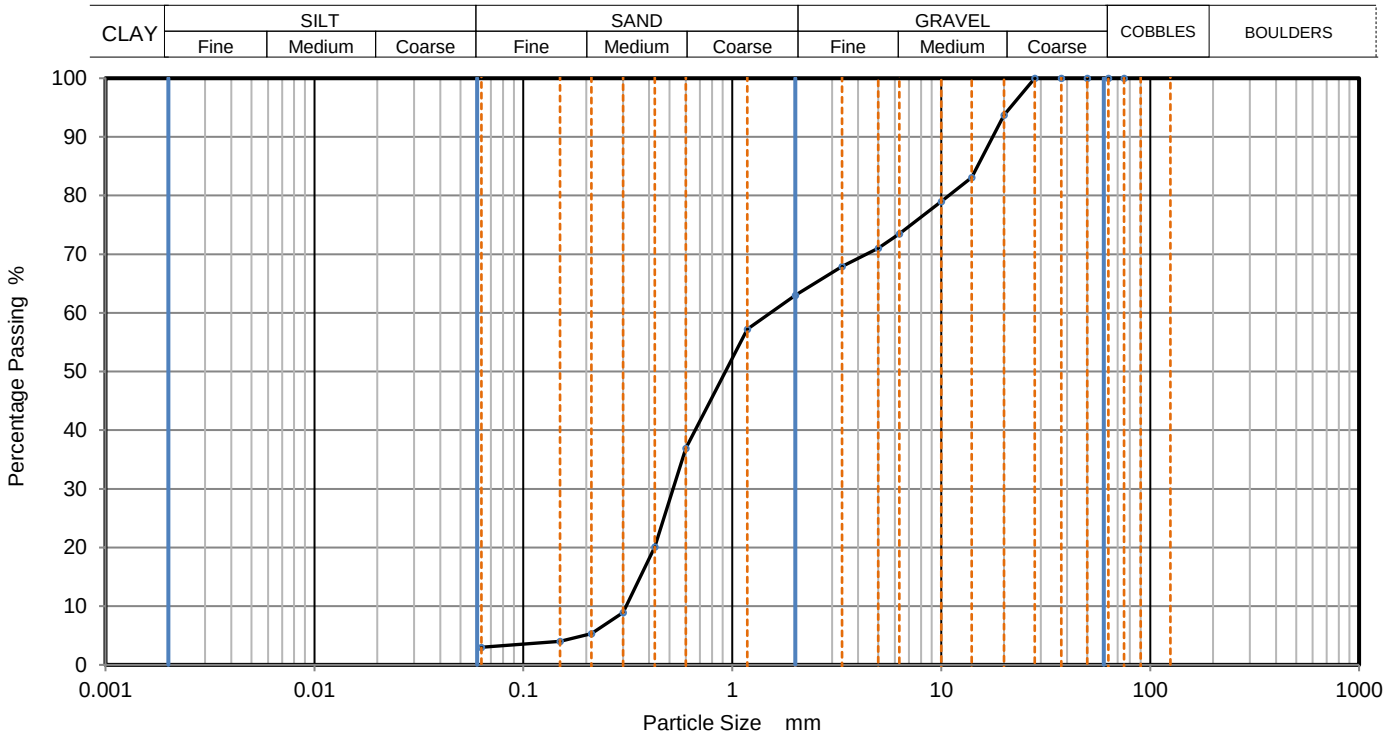
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69806
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Bluish-grey slightly silty very gravelly medium and coarse SAND. Gravel is medium.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307255



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	83		
10	79		
6.3	74		
5	71		
3.35	68		
2	63		
1.18	57		
0.6	37		
0.425	20		
0.3	9		
0.212	5		
0.15	4		
0.063	3		

Dry Mass of sample, g	377

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	60
Fines <0.063mm	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.52
D_{30}	mm	0.521
D_{10}	mm	0.31
Uniformity Coefficient		4.9
Curvature Coefficient		0.57

Remarks

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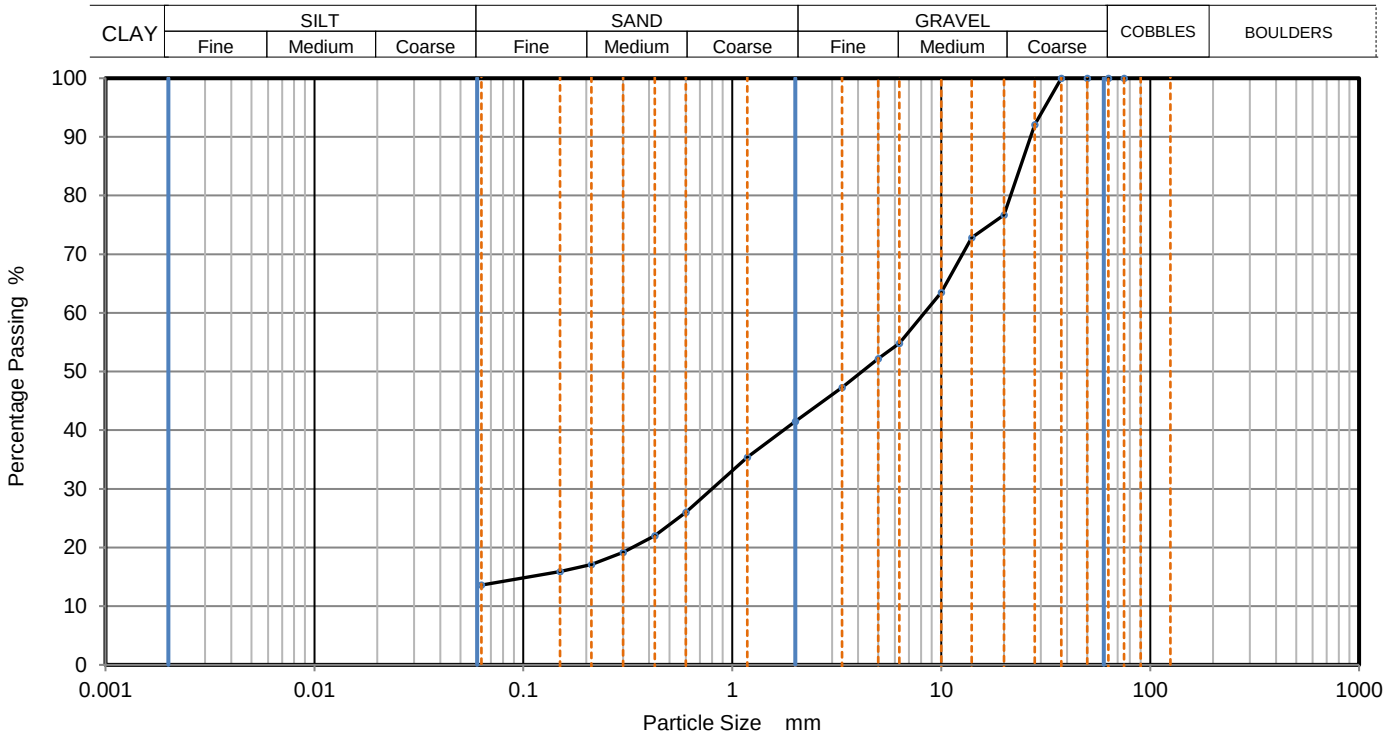
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69905
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey silty very sandy medium and coarse GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307256



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	77		
14	73		
10	64		
6.3	55		
5	52		
3.35	47		
2	42		
1.18	35		
0.6	26		
0.425	22		
0.3	19		
0.212	17		
0.15	16		
0.063	14		

Dry Mass of sample, g	551

Sample Proportions	% dry mass
Very coarse	0
Gravel	59
Sand	28
Fines <0.063mm	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	8.29
D_{30}	mm	0.799
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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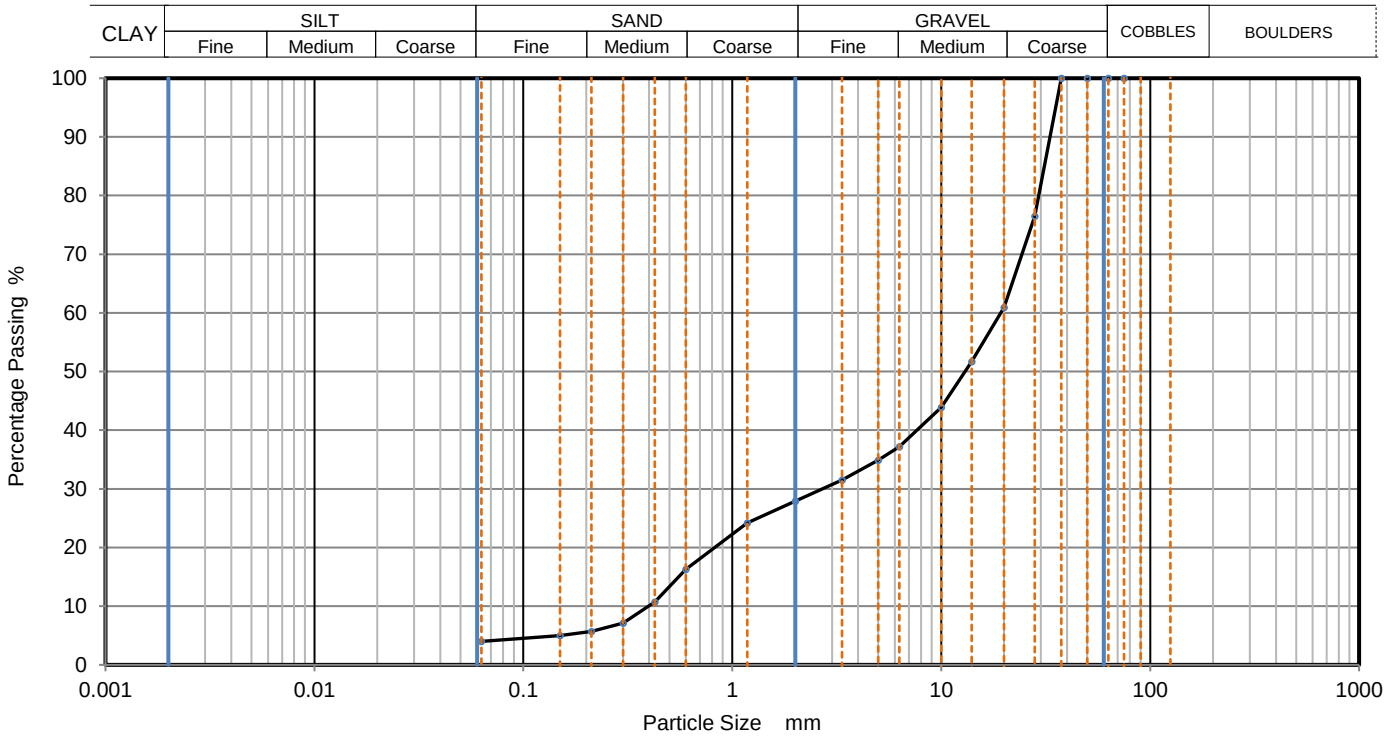
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-69905
Site Name	WSP Eastern & Midlands Region	Sample No.	2
Soil Description	Dark grey silty very sandy medium and coares GRAVEL.	Depth, m	1.50
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL120220307257



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	77		
20	61		
14	52		
10	44		
6.3	37		
5	35		
3.35	32		
2	28		
1.18	24		
0.6	16		
0.425	11		
0.3	7		
0.212	6		
0.15	5		
0.063	4		

Dry Mass of sample, g	628

Sample Proportions	% dry mass
Very coarse	0
Gravel	72
Sand	24
Fines <0.063mm	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	19.3
D_{30}	mm	2.69
D_{10}	mm	0.397
Uniformity Coefficient		49
Curvature Coefficient		0.94

Remarks

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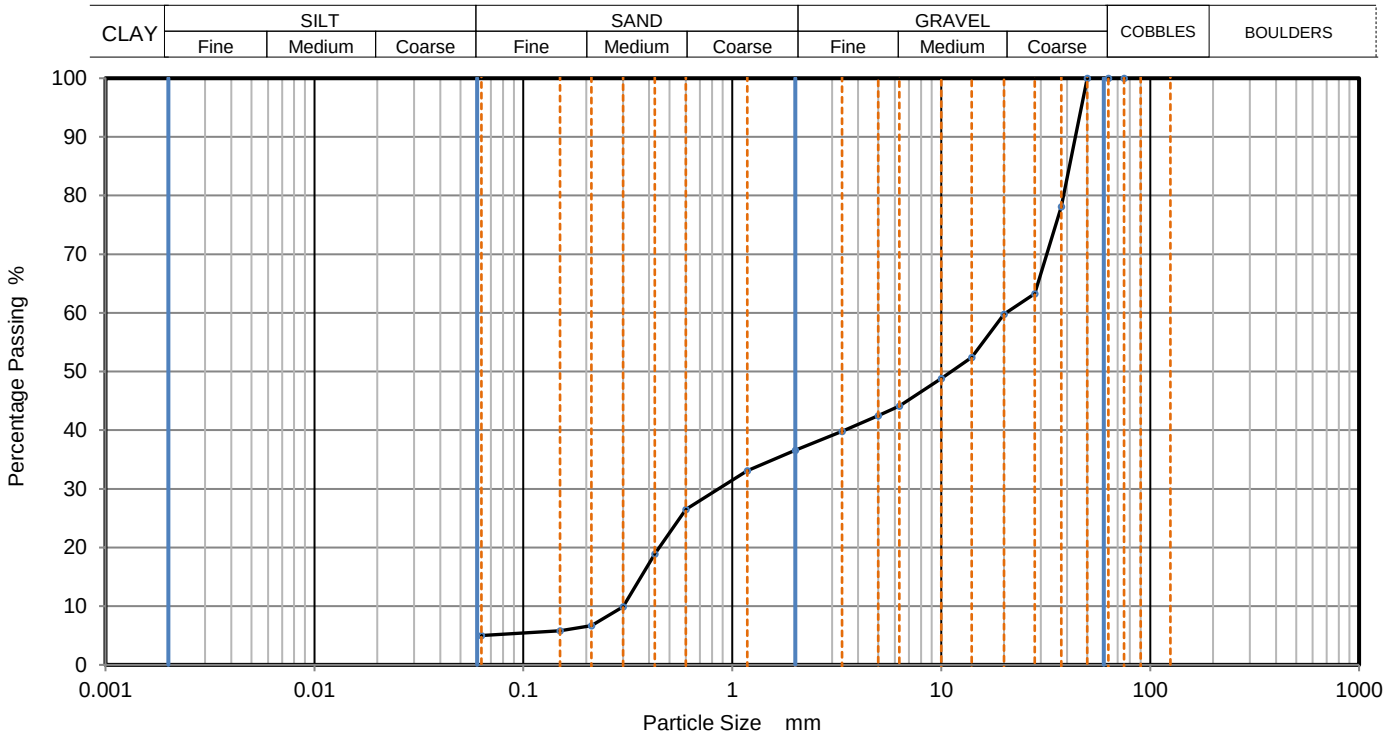
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-69905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Blackish-brown silty very sandy coarse GRAVEL.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220307258



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	78		
28	63		
20	60		
14	52		
10	49		
6.3	44		
5	43		
3.35	40		
2	37		
1.18	33		
0.6	27		
0.425	19		
0.3	10		
0.212	7		
0.15	6		
0.063	5		

Dry Mass of sample, g	830

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	32
Fines <0.063mm	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	20.3
D_{30}	mm	0.863
D_{10}	mm	0.301
Uniformity Coefficient		67
Curvature Coefficient		0.12

Remarks

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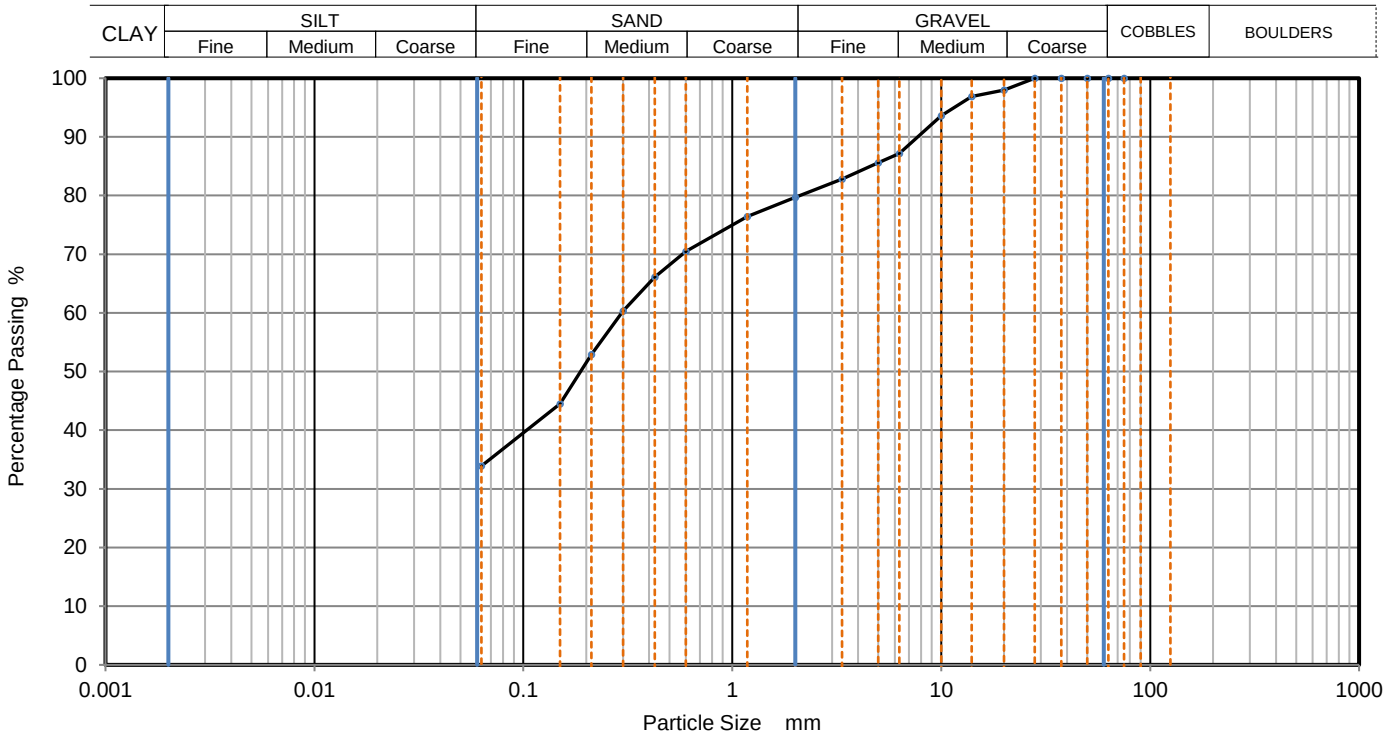
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70005
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very gravelly very silty fina and medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021122114



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	97		
10	94		
6.3	87		
5	86		
3.35	83		
2	80		
1.18	76		
0.6	71		
0.425	66		
0.3	60		
0.212	53		
0.15	45		
0.063	34		

Dry Mass of sample, g	608

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	46
Fines <0.063mm	34

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.296
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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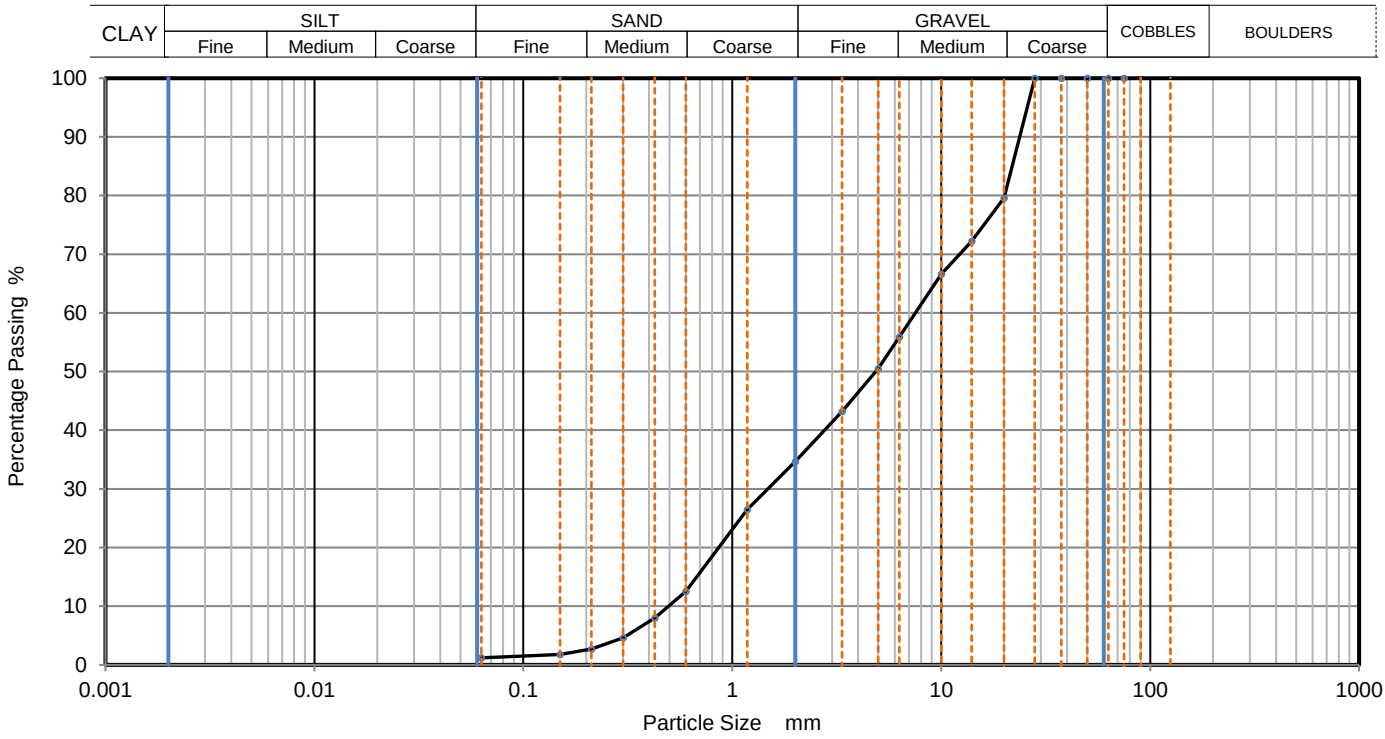
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70005
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark grey slightly silty very sandy GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021122117



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	80		
14	72		
10	67		
6.3	56		
5	51		
3.35	43		
2	35		
1.18	27		
0.6	13		
0.425	8		
0.3	5		
0.212	3		
0.15	2		
0.063	1		

Dry Mass of sample, g	539

Sample Proportions	% dry mass
Very coarse	0
Gravel	65
Sand	34
Fines <0.063mm	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	7.52
D_{30}	mm	1.48
D_{10}	mm	0.496
Uniformity Coefficient		15
Curvature Coefficient		0.58

Remarks

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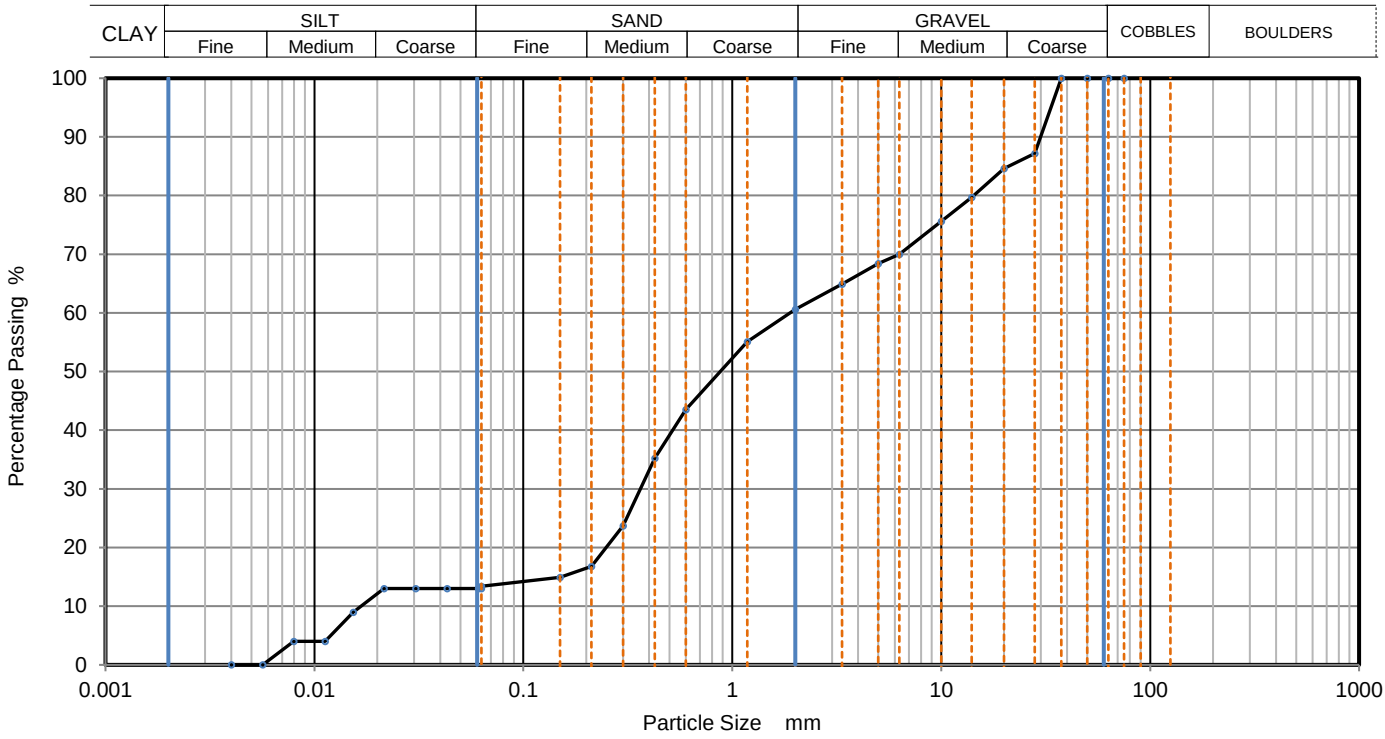
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70104
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark grey silty very gravelly medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122118



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	13
		0.0610	13
75	100	0.0431	13
63	100	0.0305	13
50	100	0.0216	13
37.5	100	0.0153	9
28	87	0.0112	4
20	85	0.0079	4
14	80	0.0056	0
10	76	0.0040	0
6.3	70		
5	68		
3.35	65		
2	61		
1.18	55		
0.6	44	Particle density (assumed)	
0.425	35	2.65	Mg/m3
0.3	24		
0.212	17		
0.15	15		
0.063	13		

Dry Mass of sample, g	644

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	47
Fines <0.063mm	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.89
D_{30}	mm	0.363
D_{10}	mm	0.0166
Uniformity Coefficient		110
Curvature Coefficient		4.2

Remarks

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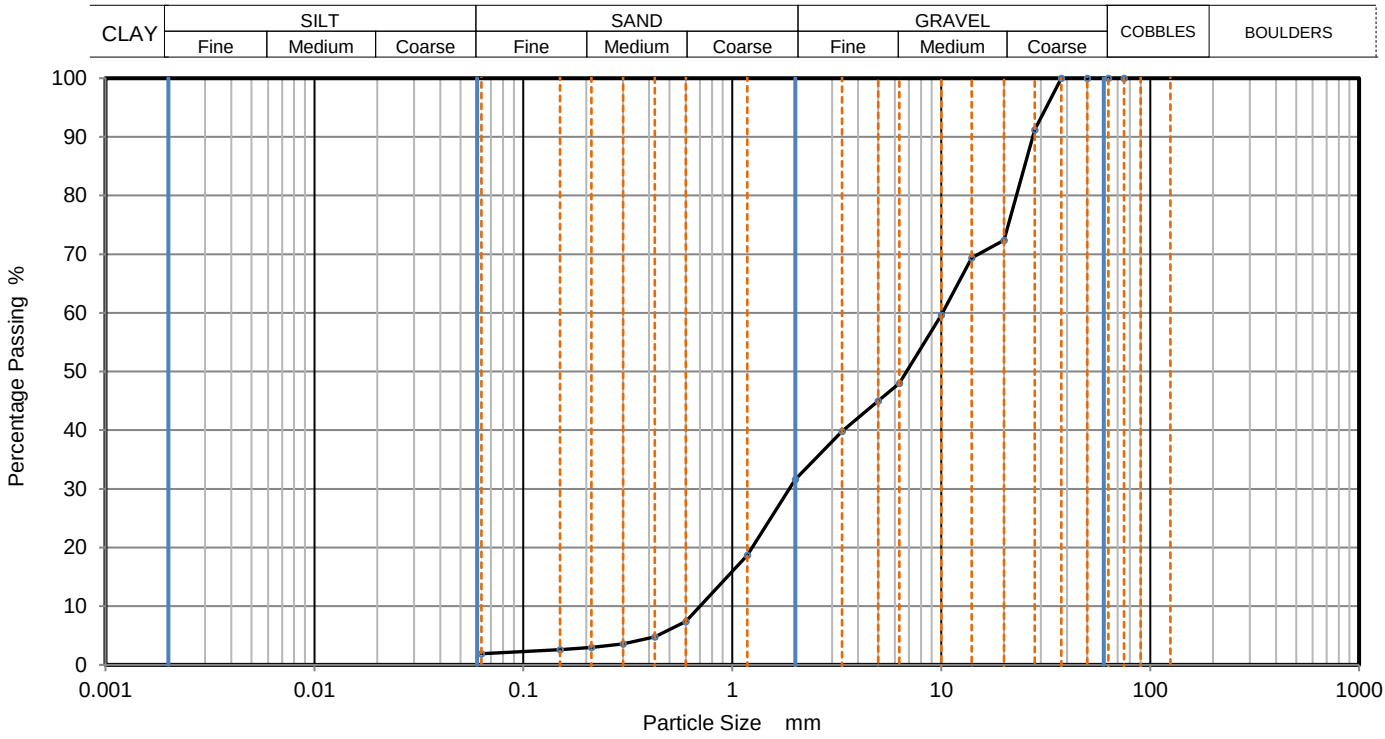
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70104
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Bluish-grey slighlty silty very sandy medium and coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021122119



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	72		
14	69		
10	60		
6.3	48		
5	45		
3.35	40		
2	32		
1.18	19		
0.6	7		
0.425	5		
0.3	4		
0.212	3		
0.15	3		
0.063	2		

Dry Mass of sample, g	643

Sample Proportions	% dry mass
Very coarse	0
Gravel	68
Sand	30
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	10.2
D_{30}	mm	1.88
D_{10}	mm	0.701
Uniformity Coefficient		14
Curvature Coefficient		0.49

Remarks

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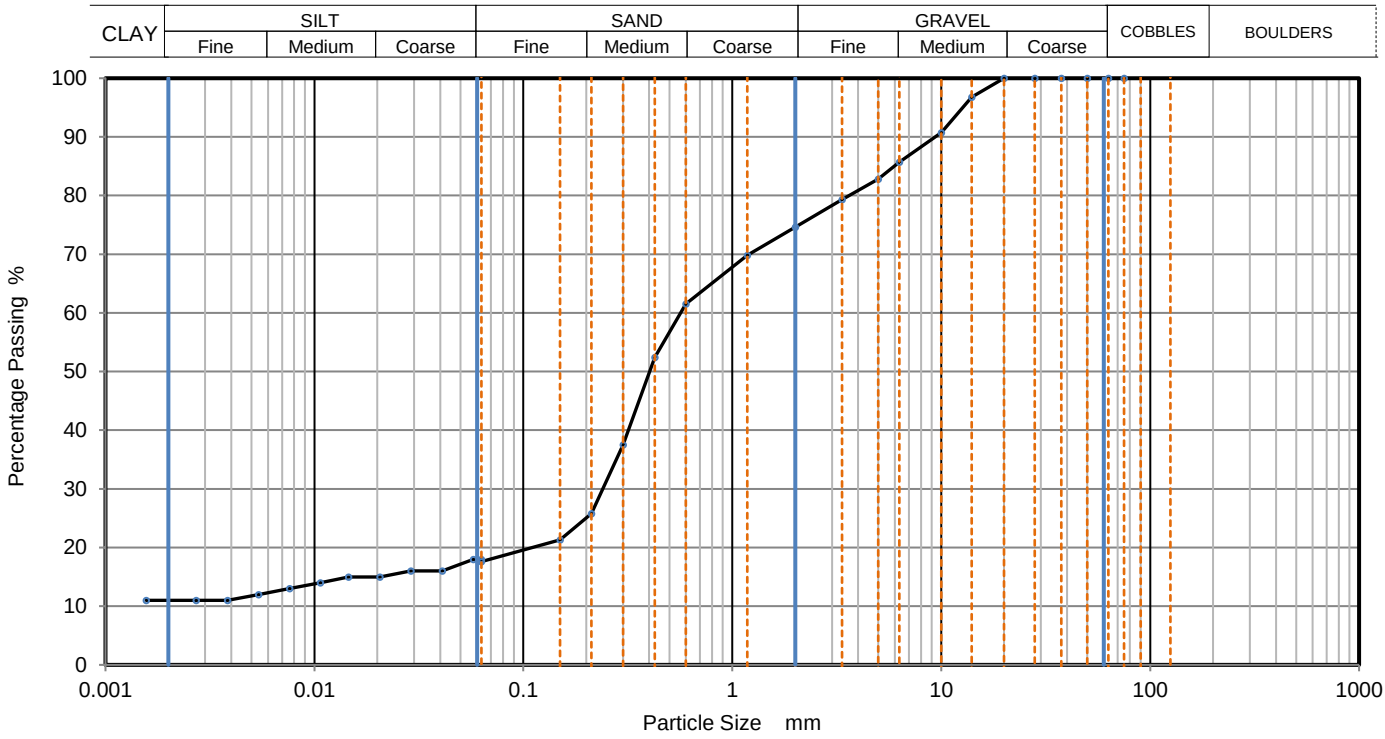
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70204
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Greyish-brown silty very gravelly medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122120



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0575	18
75	100	0.0409	16
63	100	0.0289	16
50	100	0.0206	15
37.5	100	0.0145	15
28	100	0.0107	14
20	100	0.0076	13
14	97	0.0054	12
10	91	0.0038	11
6.3	86	0.0027	11
5	83	0.0016	11
3.35	79		
2	75		
1.18	70		
0.6	62	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	38		
0.212	26		
0.15	21		
0.063	18		

Dry Mass of sample, g	704

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	57
Silt	7
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.567
D_{30}	mm	0.24
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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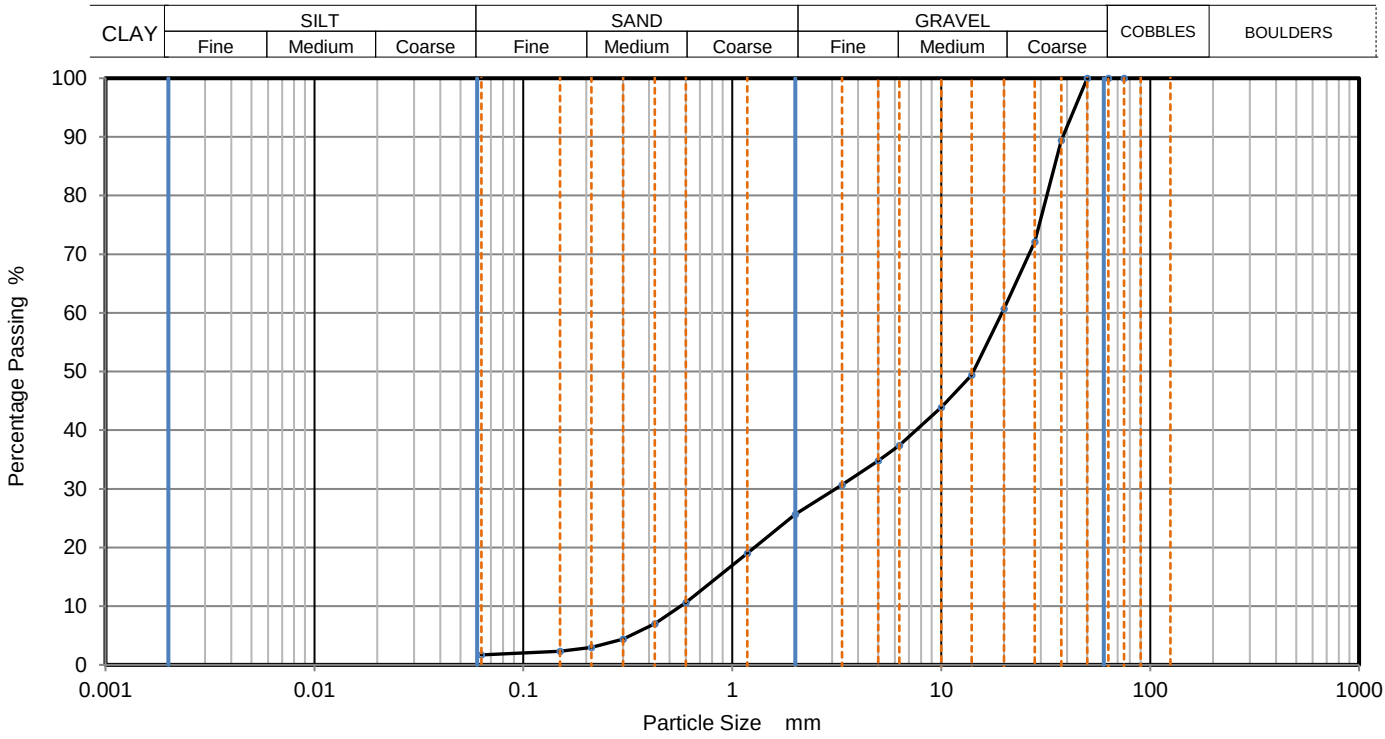
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70204
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Bluish-grey slightly silty very sandy coarse GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12021122121



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	89		
28	72		
20	61		
14	49		
10	44		
6.3	37		
5	35		
3.35	31		
2	26		
1.18	19		
0.6	11		
0.425	7		
0.3	4		
0.212	3		
0.15	2		
0.063	2		

Dry Mass of sample, g	814

Sample Proportions	% dry mass
Very coarse	0
Gravel	74
Sand	24
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	19.6
D_{30}	mm	3.12
D_{10}	mm	0.567
Uniformity Coefficient		35
Curvature Coefficient		0.88

Remarks

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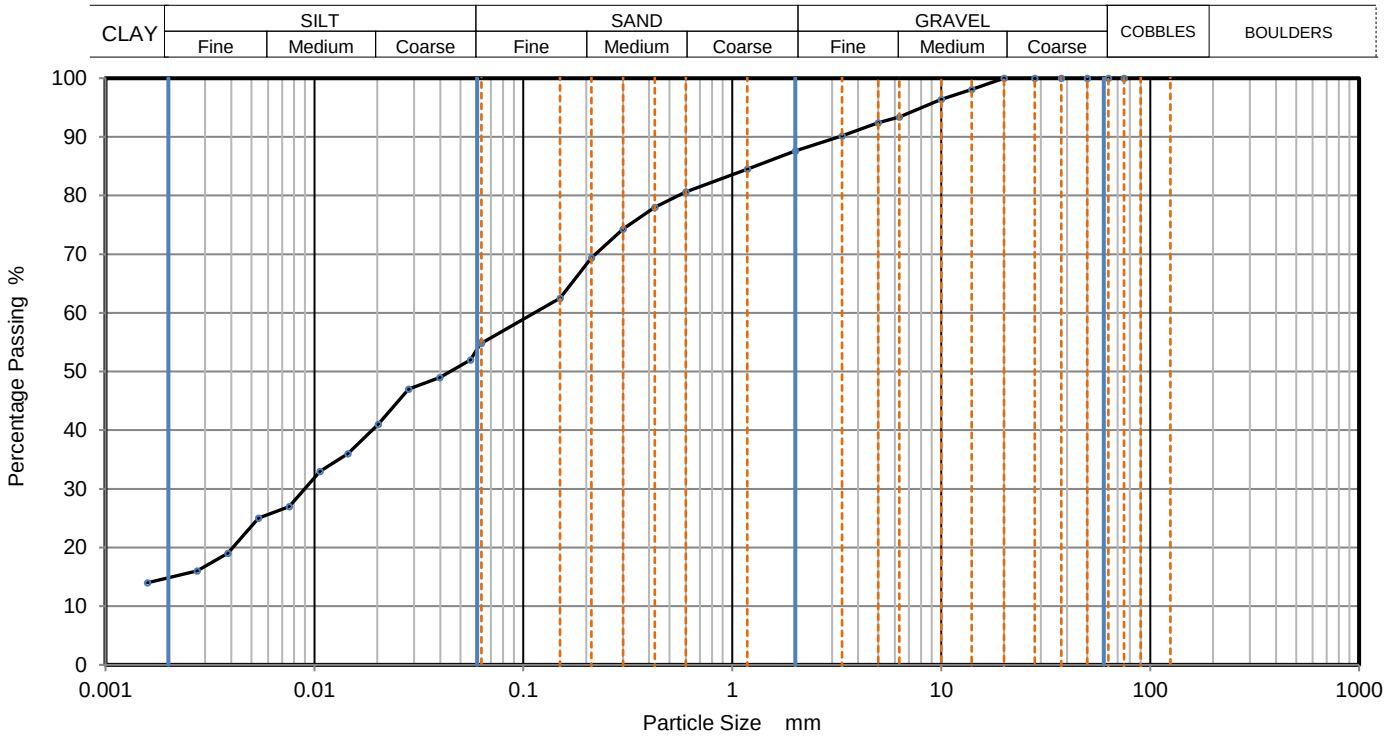
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70304
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122122



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	55
		0.0558	52
75	100	0.0397	49
63	100	0.0283	47
50	100	0.0202	41
37.5	100	0.0145	36
28	100	0.0106	33
20	100	0.0076	27
14	98	0.0054	25
10	96	0.0039	19
6.3	93	0.0027	16
5	92	0.0016	14
3.35	90		
2	88		
1.18	85		
0.6	81	Particle density (assumed)	
0.425	78	2.65	Mg/m3
0.3	74		
0.212	69		
0.15	63		
0.063	55		

Dry Mass of sample, g	585

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	33
Silt	40
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.113
D_{30}	mm	0.0089
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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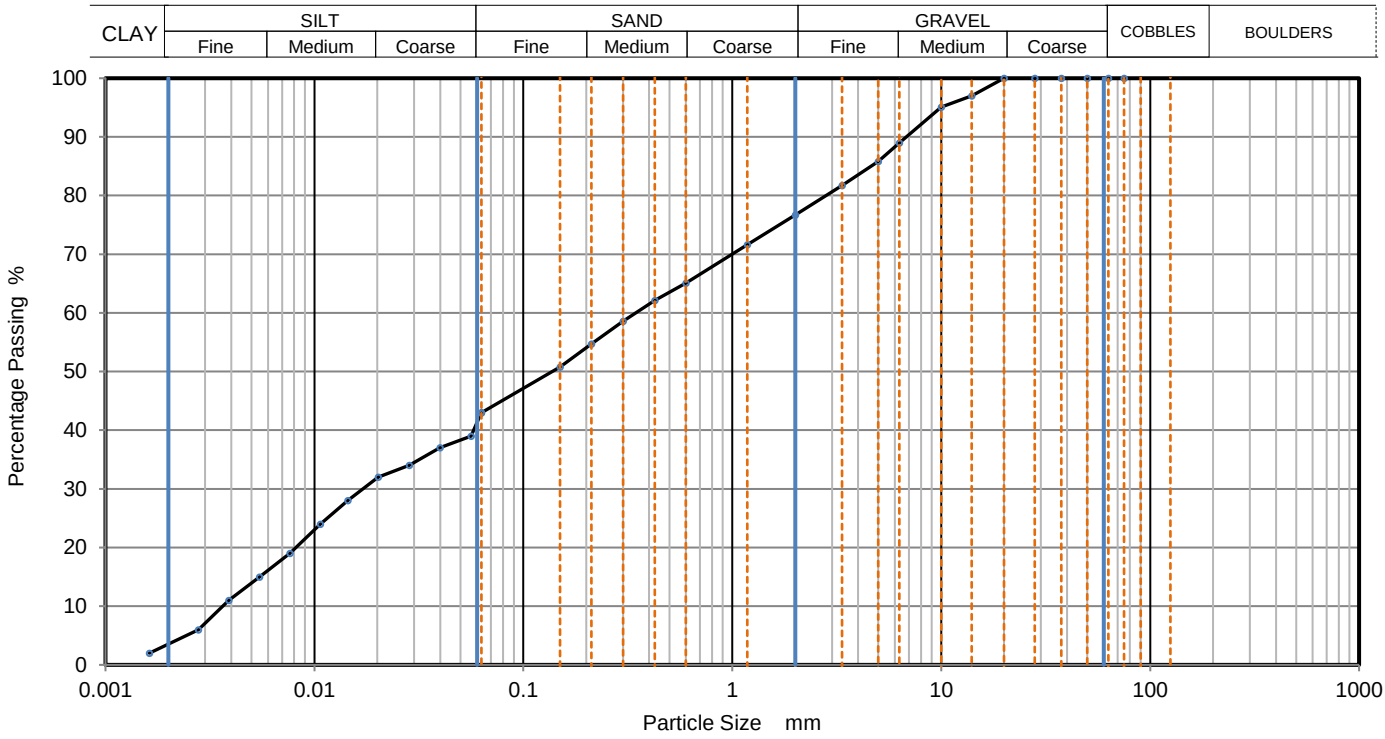
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70304
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122124



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0562	39
75	100	0.0400	37
63	100	0.0284	34
50	100	0.0202	32
37.5	100	0.0145	28
28	100	0.0107	24
20	100	0.0076	19
14	97	0.0055	15
10	95	0.0039	11
6.3	89	0.0028	6
5	86	0.0016	2
3.35	82		
2	77		
1.18	72		
0.6	65	Particle density (assumed)	
0.425	62	2.65 Mg/m3	
0.3	59		
0.212	55		
0.15	51		
0.063	43		

Dry Mass of sample, g	524

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	34
Silt	39
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.344
D_{30}	mm	0.017
D_{10}	mm	0.00367
Uniformity Coefficient		94
Curvature Coefficient		0.23

Remarks

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		Dympna Darcy B.Sc.	04/01/2023 12:22	**1** QC From No:R2

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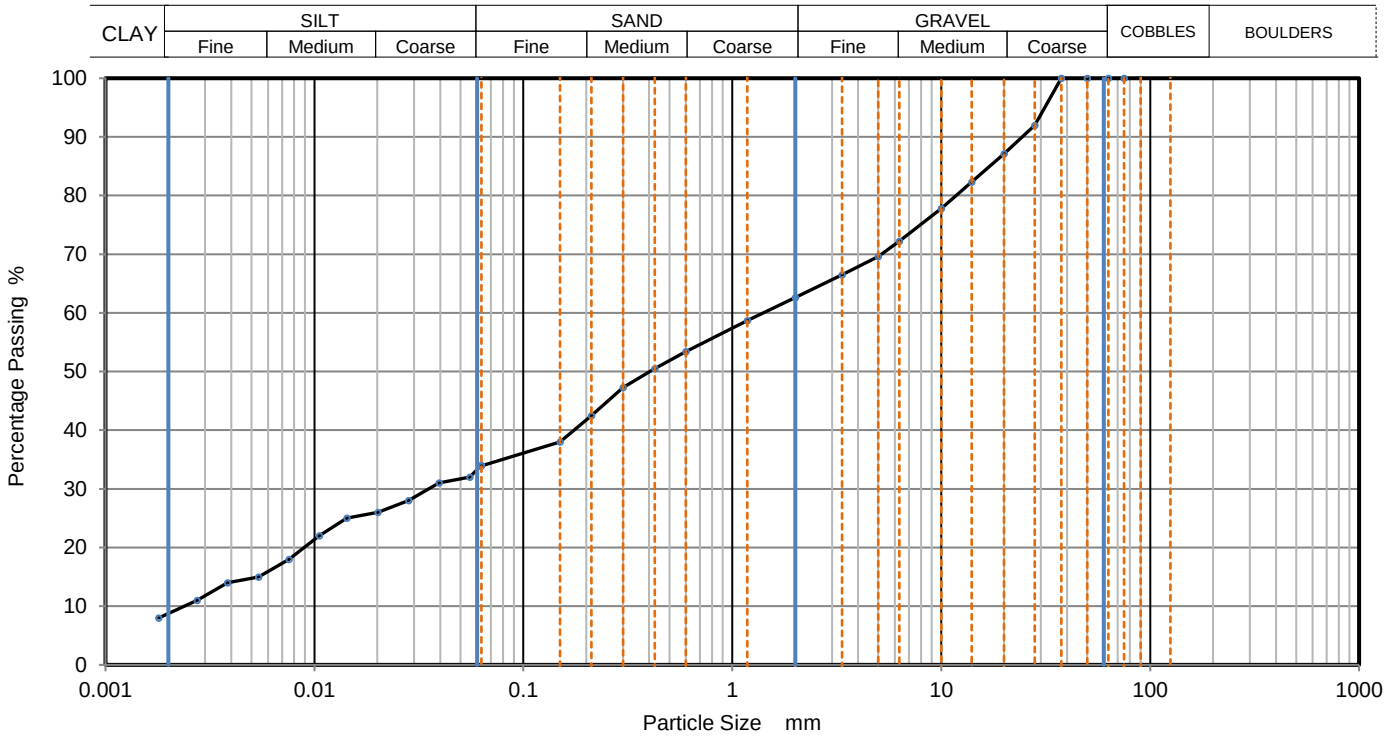
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-70304
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light brown very sandy very silty GRAVEL.	Depth, m	2.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122126



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0555	32
75	100	0.0395	31
63	100	0.0283	28
50	100	0.0201	26
37.5	100	0.0143	25
28	92	0.0106	22
20	87	0.0076	18
14	82	0.0054	15
10	78	0.0038	14
6.3	72	0.0027	11
5	70	0.0018	8
3.35	67		
2	63		
1.18	59		
0.6	53	Particle density (assumed)	
0.425	51	2.65 Mg/m3	
0.3	47		
0.212	43		
0.15	38		
0.063	34		

Dry Mass of sample, g	712

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	29
Silt	25
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.41
D_{30}	mm	0.0361
D_{10}	mm	0.00246
Uniformity Coefficient		570
Curvature Coefficient		0.38

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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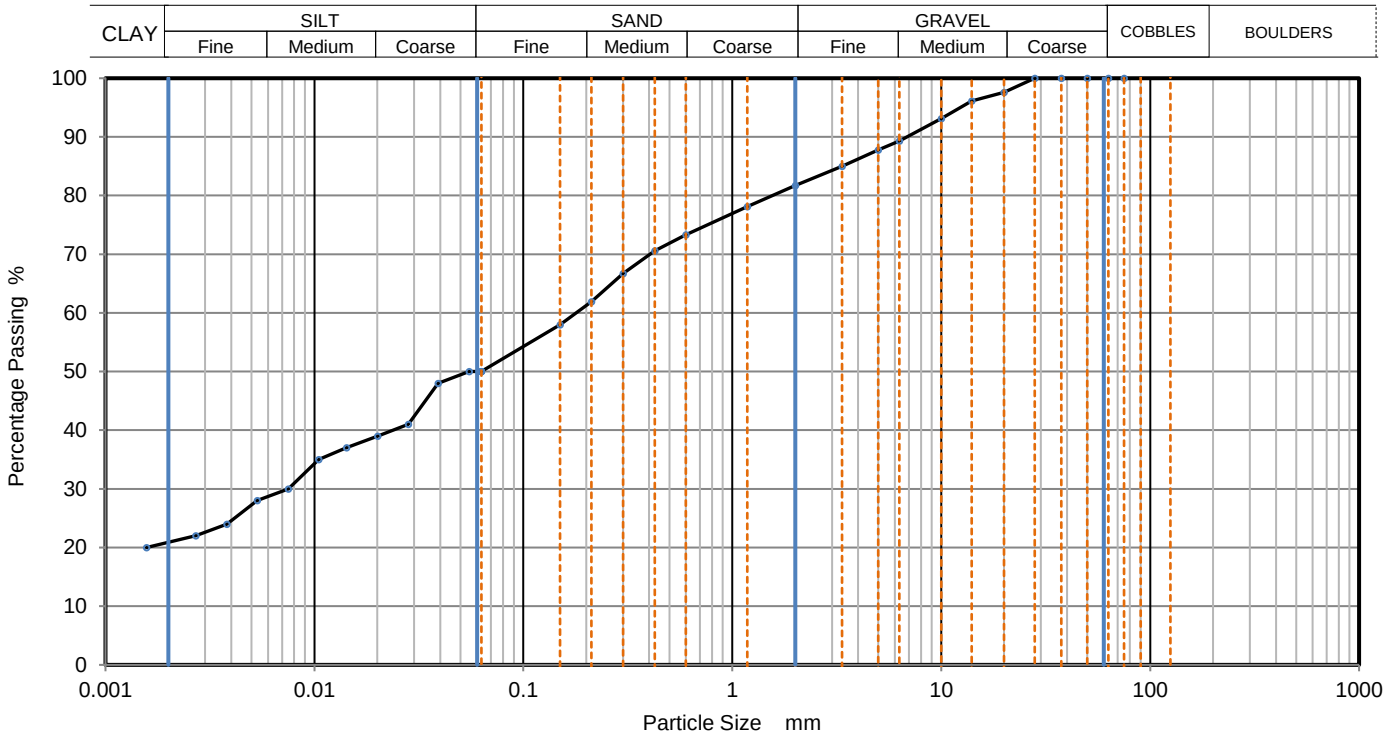
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70393
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122128



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	50
		0.0549	50
75	100	0.0391	48
63	100	0.0282	41
50	100	0.0200	39
37.5	100	0.0142	37
28	100	0.0105	35
20	98	0.0075	30
14	96	0.0053	28
10	93	0.0038	24
6.3	89	0.0027	22
5	88	0.0016	20
3.35	85		
2	82		
1.18	78		
0.6	73	Particle density (assumed)	
0.425	71	2.65 Mg/m3	
0.3	67		
0.212	62		
0.15	58		
0.063	50		

Dry Mass of sample, g	512

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	32
Silt	30
Clay	21

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.179
D_{30}	mm	0.00699
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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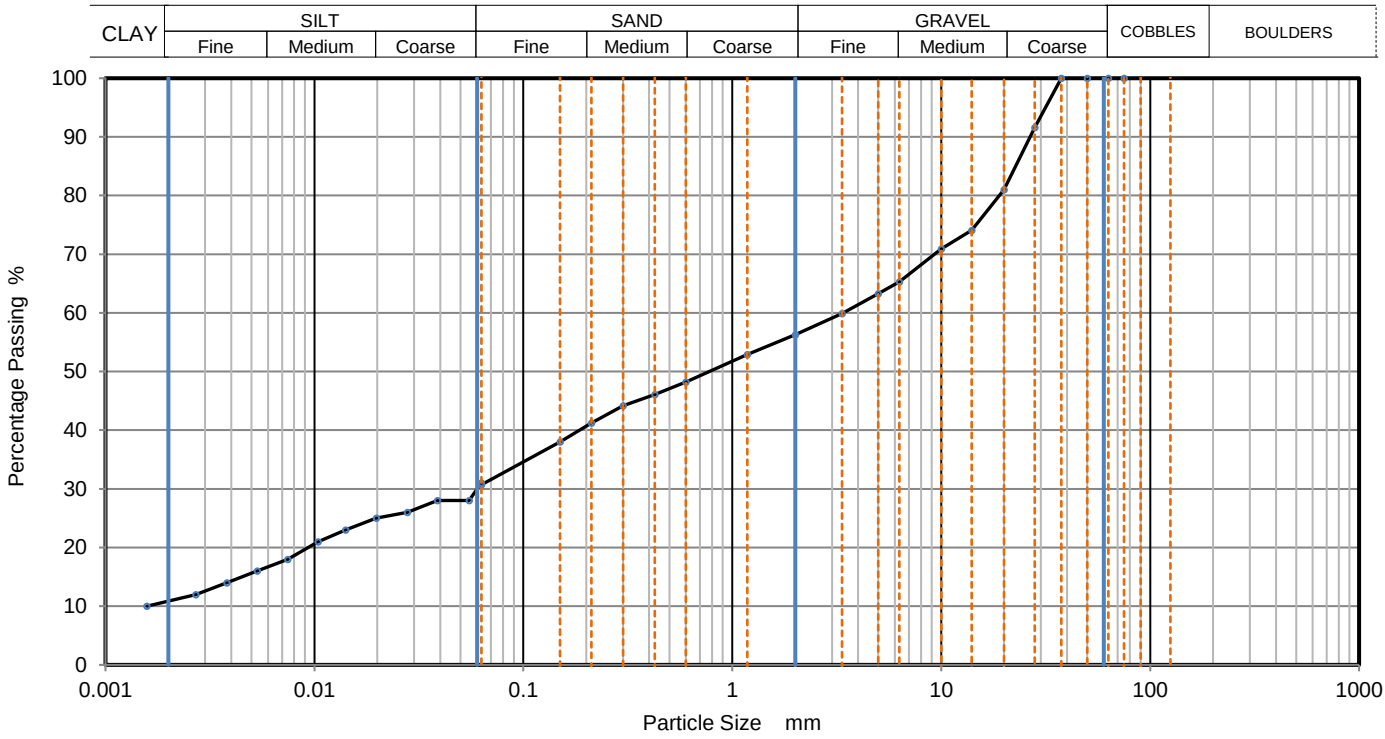
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-70393
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Light brown very sandy very silty GRAVEL.	Depth, m	0.70
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122131



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0549	28
75	100	0.0389	28
63	100	0.0278	26
50	100	0.0198	25
37.5	100	0.0141	23
28	92	0.0104	21
20	81	0.0074	18
14	74	0.0053	16
10	71	0.0038	14
6.3	65	0.0027	12
5	63	0.0016	10
3.35	60		
2	56		
1.18	53		
0.6	48	Particle density (assumed)	
0.425	46	2.65 Mg/m3	
0.3	44		
0.212	41		
0.15	38		
0.063	31		

Dry Mass of sample, g	740

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	26
Silt	20
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.37
D_{30}	mm	0.0605
D_{10}	mm	0.00164
Uniformity Coefficient		2100
Curvature Coefficient		0.66

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:49	**1** QC From No:R2

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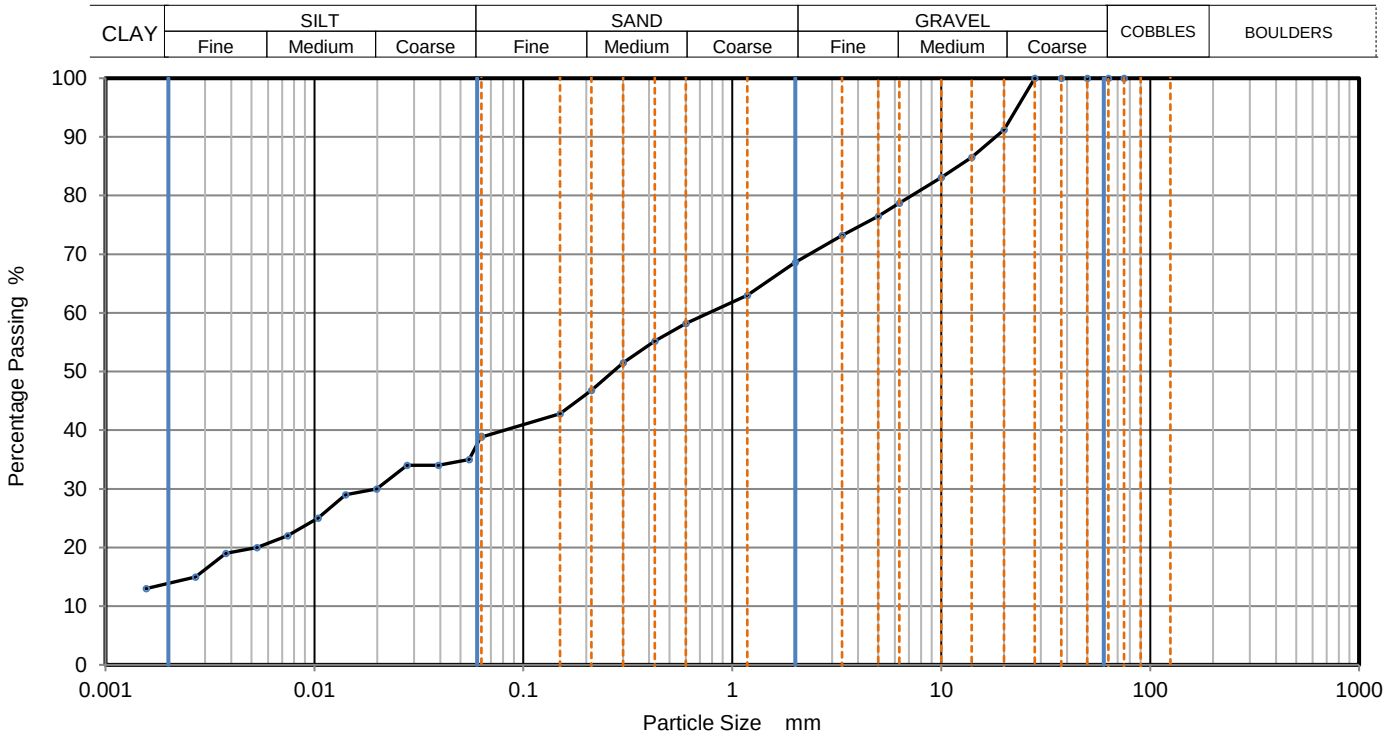
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70393
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey slightly sandy slightly gravelly SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122133



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0551	35
75	100	0.0392	34
63	100	0.0277	34
50	100	0.0198	30
37.5	100	0.0141	29
28	100	0.0104	25
20	91	0.0075	22
14	87	0.0053	20
10	83	0.0038	19
6.3	79	0.0027	15
5	77	0.0016	13
3.35	73		
2	69		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	55	2.65	Mg/m3
0.3	52		
0.212	47		
0.15	43		
0.063	39		

Dry Mass of sample, g	772

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	30
Silt	25
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.774
D_{30}	mm	0.0184
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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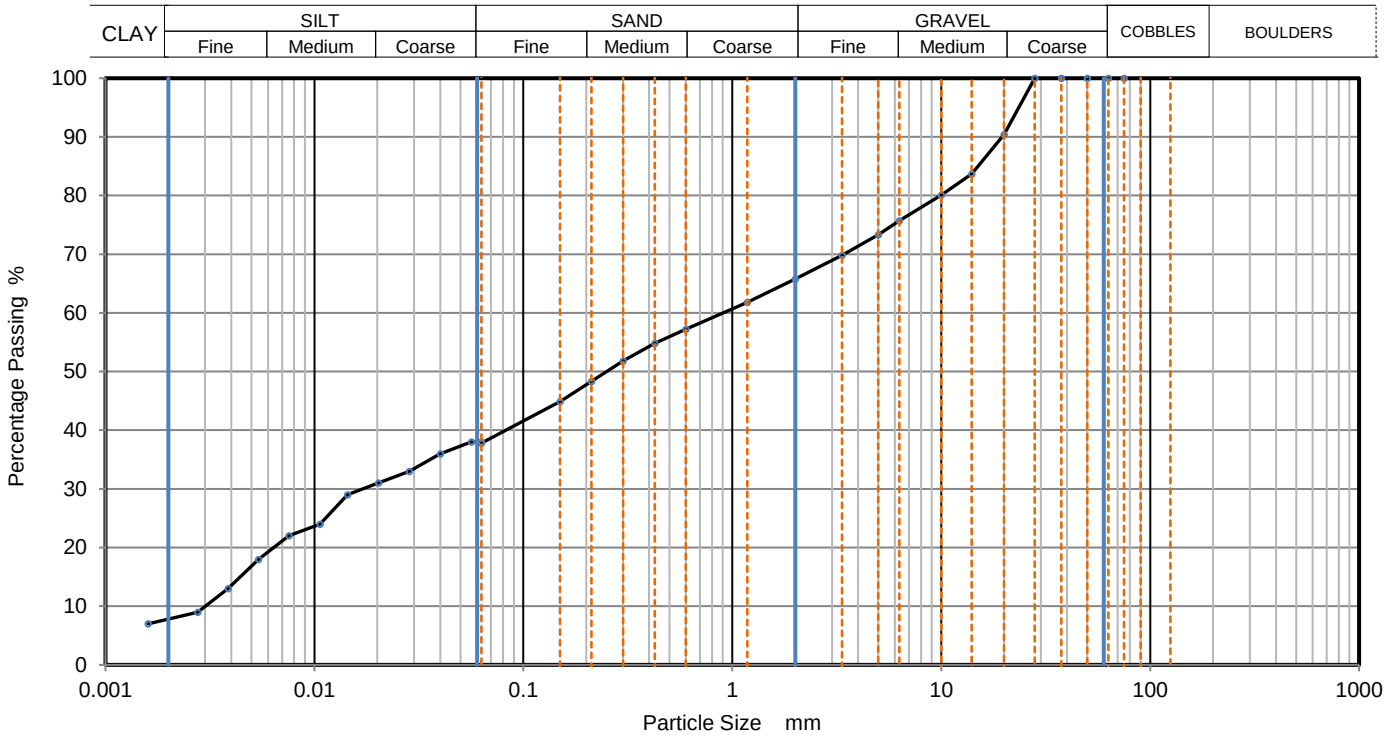
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70504
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly sandy gravelly SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122138



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0563	38
75	100	0.0400	36
63	100	0.0285	33
50	100	0.0203	31
37.5	100	0.0144	29
28	100	0.0106	24
20	90	0.0076	22
14	84	0.0054	18
10	80	0.0039	13
6.3	76	0.0028	9
5	73	0.0016	7
3.35	70		
2	66		
1.18	62		
0.6	57	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	52		
0.212	48		
0.15	45		
0.063	38		

Dry Mass of sample, g	720

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	28
Silt	30
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.903
D_{30}	mm	0.017
D_{10}	mm	0.003
Uniformity Coefficient		300
Curvature Coefficient		0.11

Remarks

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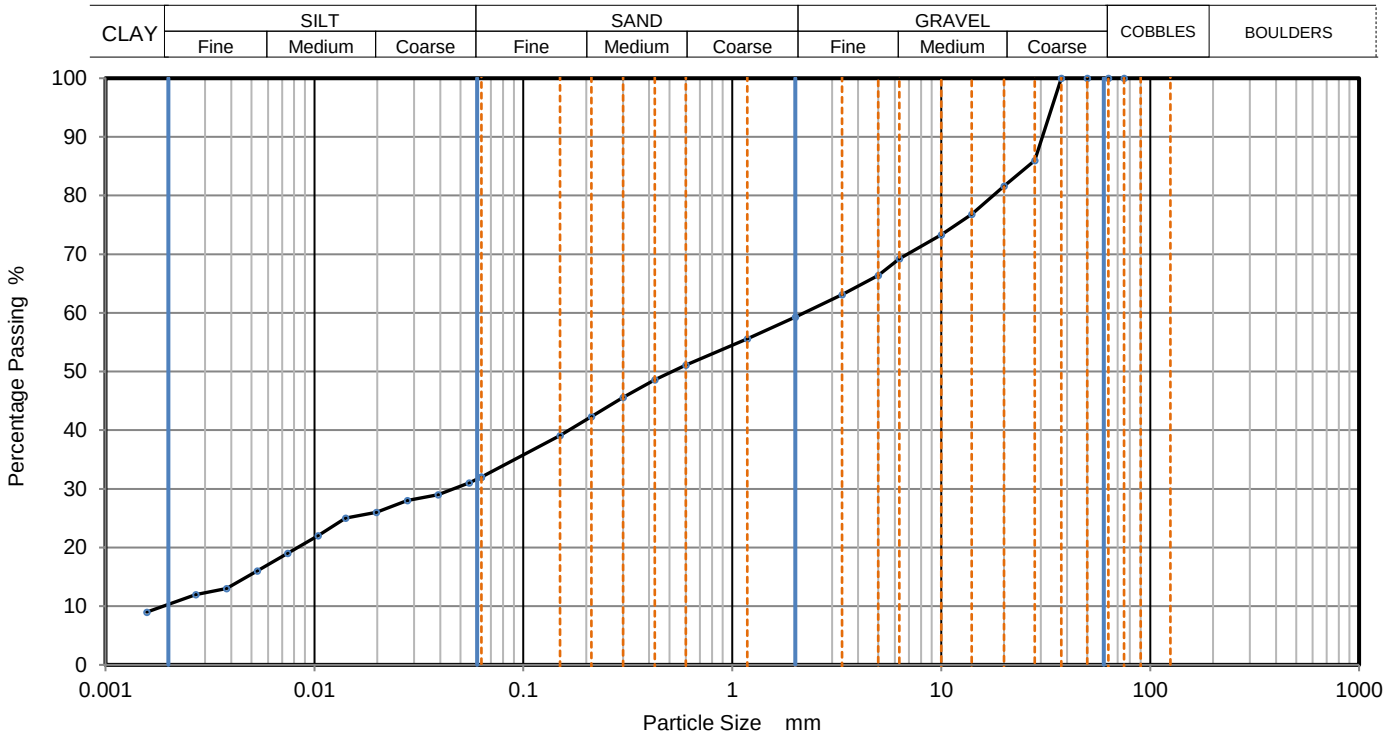
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-70504
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light brown very sandy very silty GRAVEL.	Depth, m	1.80
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122140



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0550	31
75	100	0.0391	29
63	100	0.0278	28
50	100	0.0198	26
37.5	100	0.0141	25
28	86	0.0104	22
20	82	0.0074	19
14	77	0.0053	16
10	73	0.0038	13
6.3	69	0.0027	12
5	66	0.0016	9
3.35	63		
2	59		
1.18	56		
0.6	51	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	46		
0.212	42		
0.15	39		
0.063	32		

Dry Mass of sample, g	778

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	27
Silt	22
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.19
D_{30}	mm	0.0484
D_{10}	mm	0.002
Uniformity Coefficient		1100
Curvature Coefficient		0.54

Remarks

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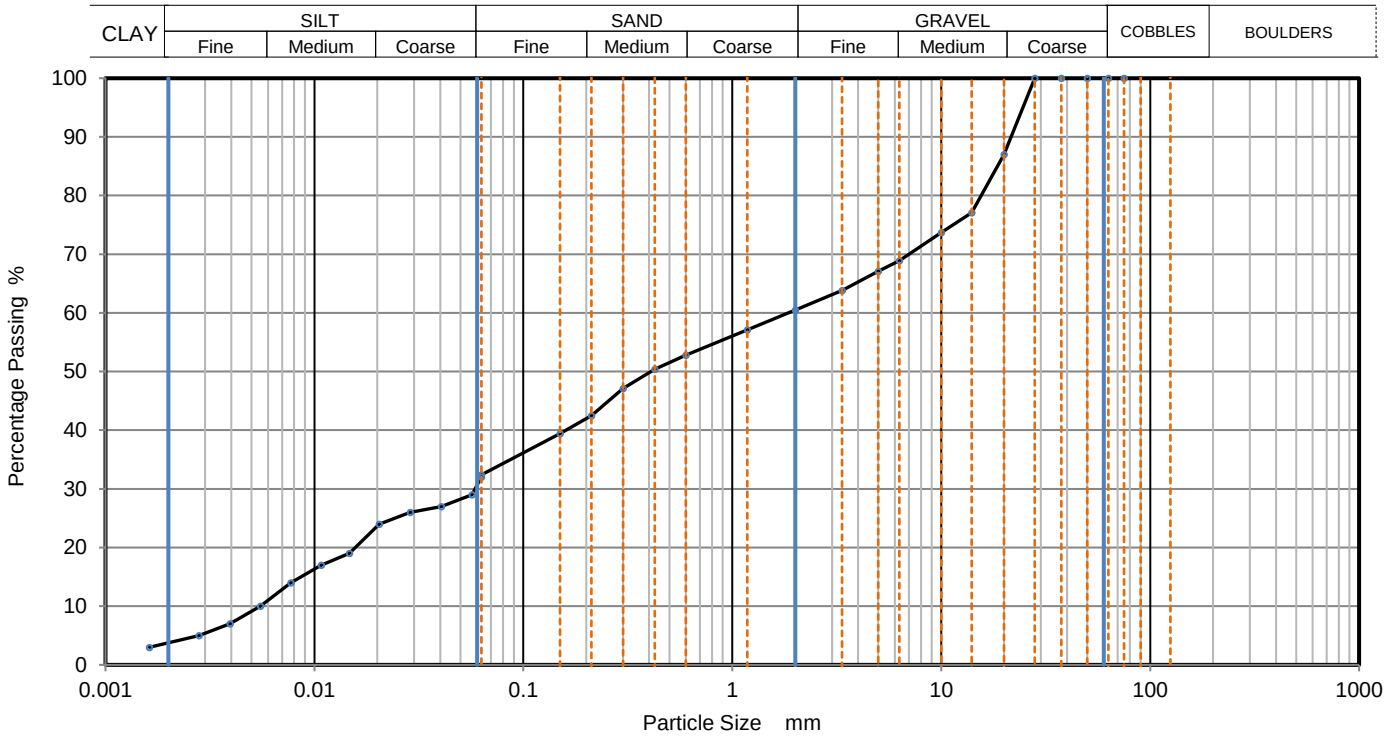
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-70608
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brownish-grey very sandy very silty GRAVEL.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122142



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0569	29
75	100	0.0404	27
63	100	0.0288	26
50	100	0.0205	24
37.5	100	0.0147	19
28	100	0.0108	17
20	87	0.0077	14
14	77	0.0055	10
10	74	0.0039	7
6.3	69	0.0028	5
5	67	0.0016	3
3.35	64		
2	61		
1.18	57		
0.6	53	Particle density (assumed)	
0.425	50	2.65 Mg/m3	
0.3	47		
0.212	43		
0.15	39		
0.063	32		

Dry Mass of sample, g	595

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Silt	28
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.84
D_{30}	mm	0.0586
D_{10}	mm	0.00539
Uniformity Coefficient		340
Curvature Coefficient		0.35

Remarks

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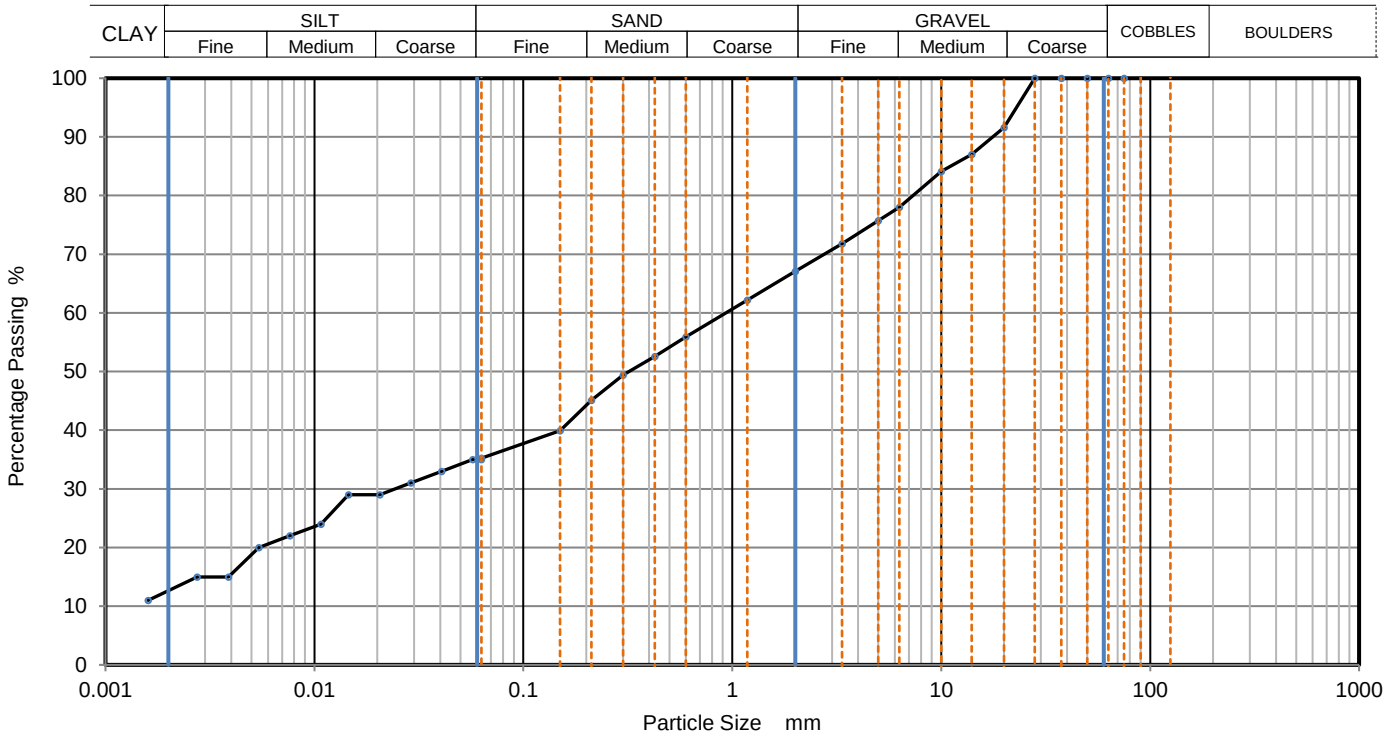
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70608
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey slightly sandy slightly gravelly SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122145



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0572	35
75	100	0.0407	33
63	100	0.0289	31
50	100	0.0206	29
37.5	100	0.0145	29
28	100	0.0107	24
20	92	0.0076	22
14	87	0.0054	20
10	84	0.0039	15
6.3	78	0.0027	15
5	76	0.0016	11
3.35	72		
2	67		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	49		
0.212	45		
0.15	40		
0.063	35		

Dry Mass of sample, g	935

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	32
Silt	23
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.932
D_{30}	mm	0.0255
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

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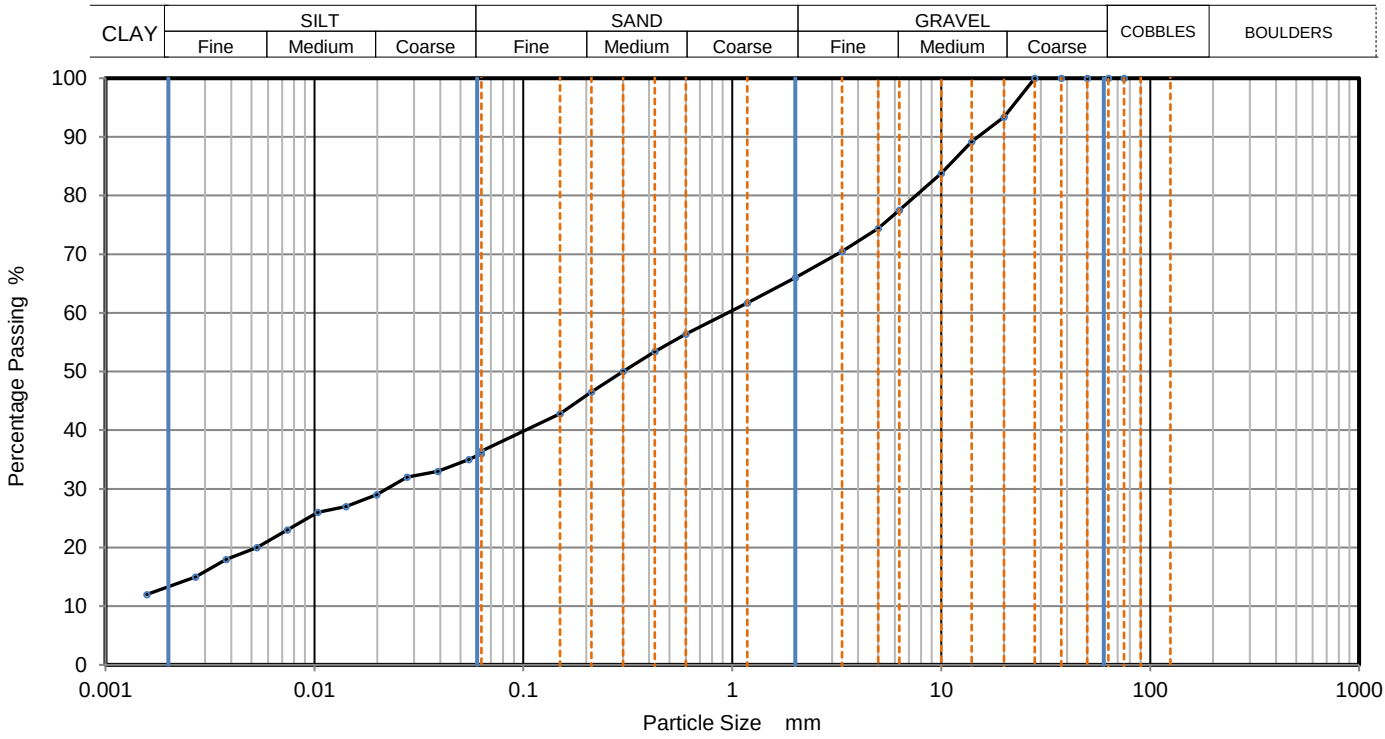
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-70608
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Brownish-grey slightly sandy gravelly SILT.	Depth, m	2.20
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0548	35
75	100	0.0390	33
63	100	0.0278	32
50	100	0.0199	29
37.5	100	0.0141	27
28	100	0.0104	26
20	93	0.0074	23
14	89	0.0053	20
10	84	0.0038	18
6.3	78	0.0027	15
5	74	0.0016	12
3.35	71		
2	66		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	706

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	30
Silt	23
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.953
D_{30}	mm	0.0226
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

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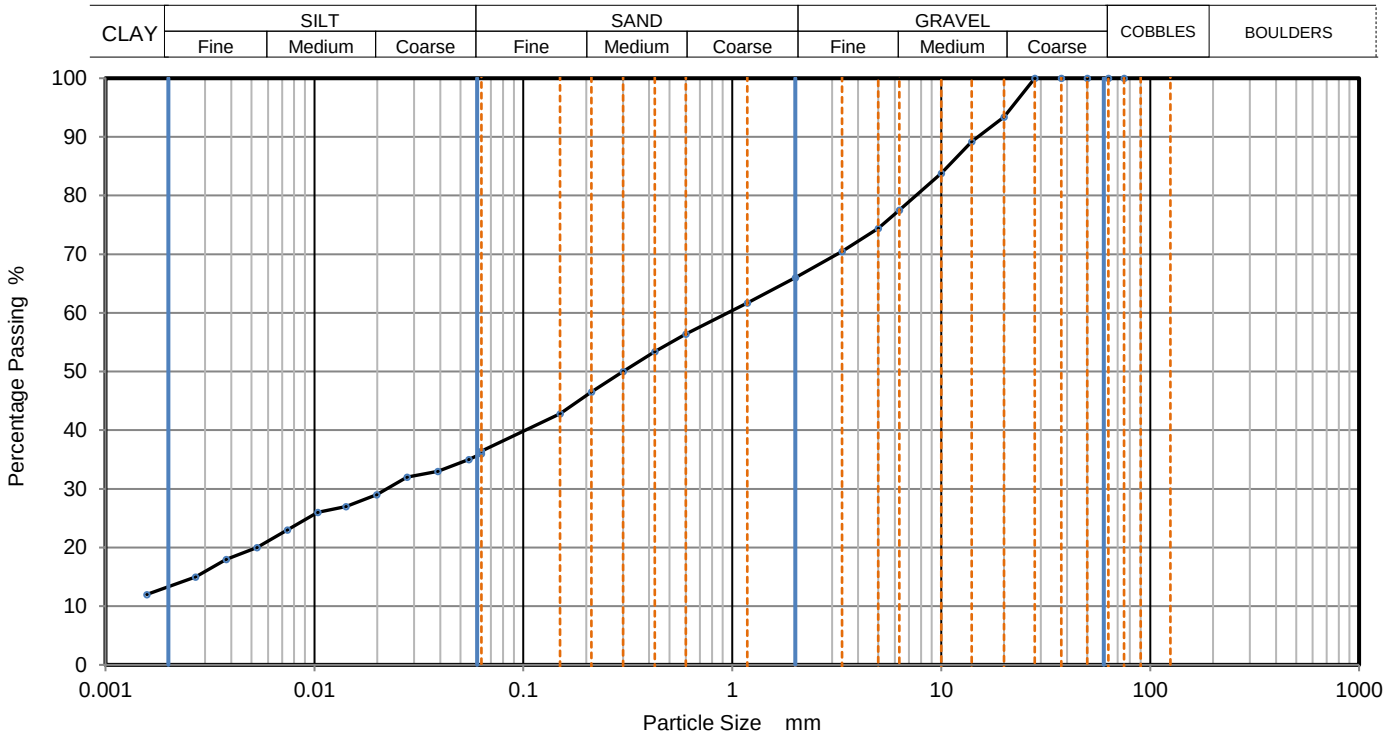
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-70608
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Brownish-grey slightly sandy gravelly SILT.	Depth, m	2.20
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0548	35
75	100	0.0390	33
63	100	0.0278	32
50	100	0.0199	29
37.5	100	0.0141	27
28	100	0.0104	26
20	93	0.0074	23
14	89	0.0053	20
10	84	0.0038	18
6.3	78	0.0027	15
5	74	0.0016	12
3.35	71		
2	66		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	706

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	30
Silt	23
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.953
D_{30}	mm	0.0226
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

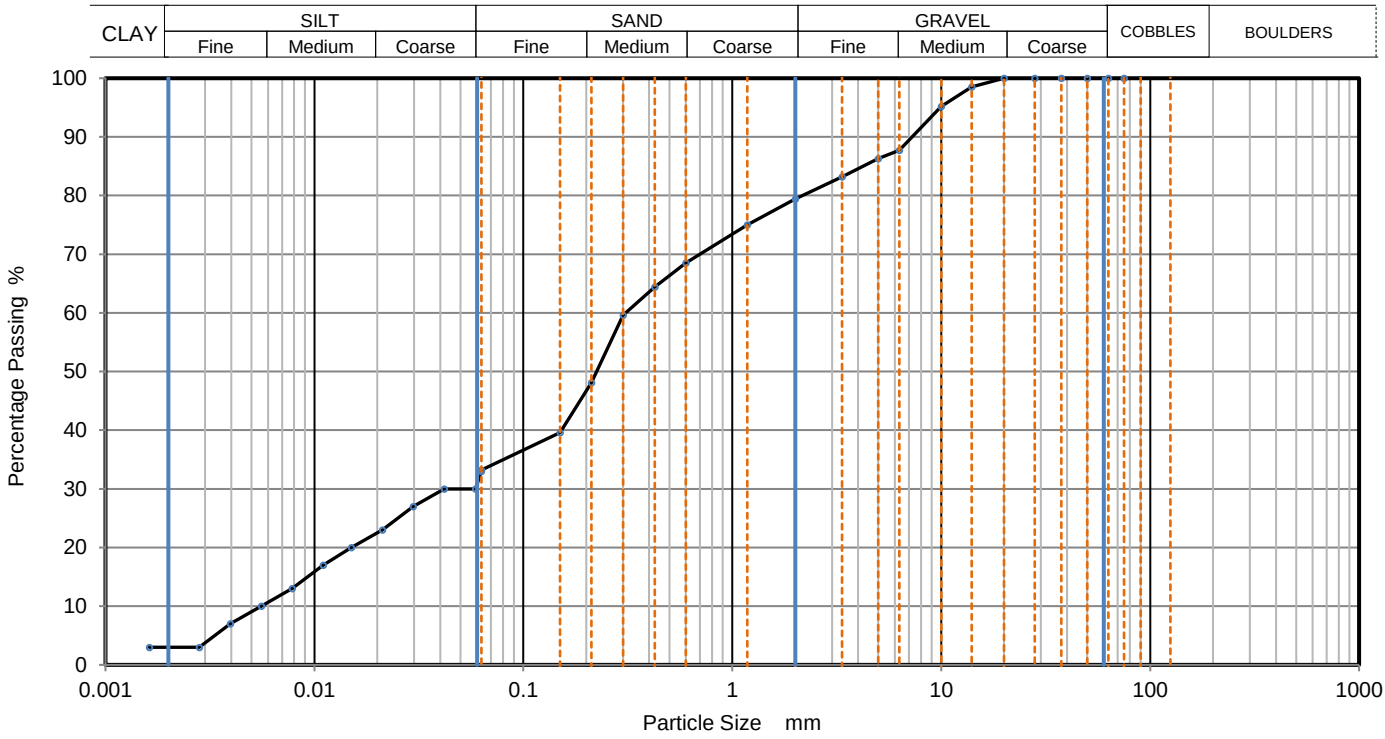
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:39	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-70716
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown very gravelly very silty medium SAND.	Depth, m	0.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122149



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0591	30
75	100	0.0418	30
63	100	0.0297	27
50	100	0.0211	23
37.5	100	0.0150	20
28	100	0.0110	17
20	100	0.0078	13
14	99	0.0056	10
10	95	0.0040	7
6.3	88	0.0028	3
5	86	0.0016	3
3.35	83		
2	79		
1.18	75		
0.6	69	Particle density (assumed)	
0.425	64	2.65 Mg/m3	
0.3	60		
0.212	48		
0.15	40		
0.063	33		

Dry Mass of sample, g	541

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	46
Silt	30
Clay	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.309
D_{30}	mm	0.0592
D_{10}	mm	0.00559
Uniformity Coefficient		55
Curvature Coefficient		2

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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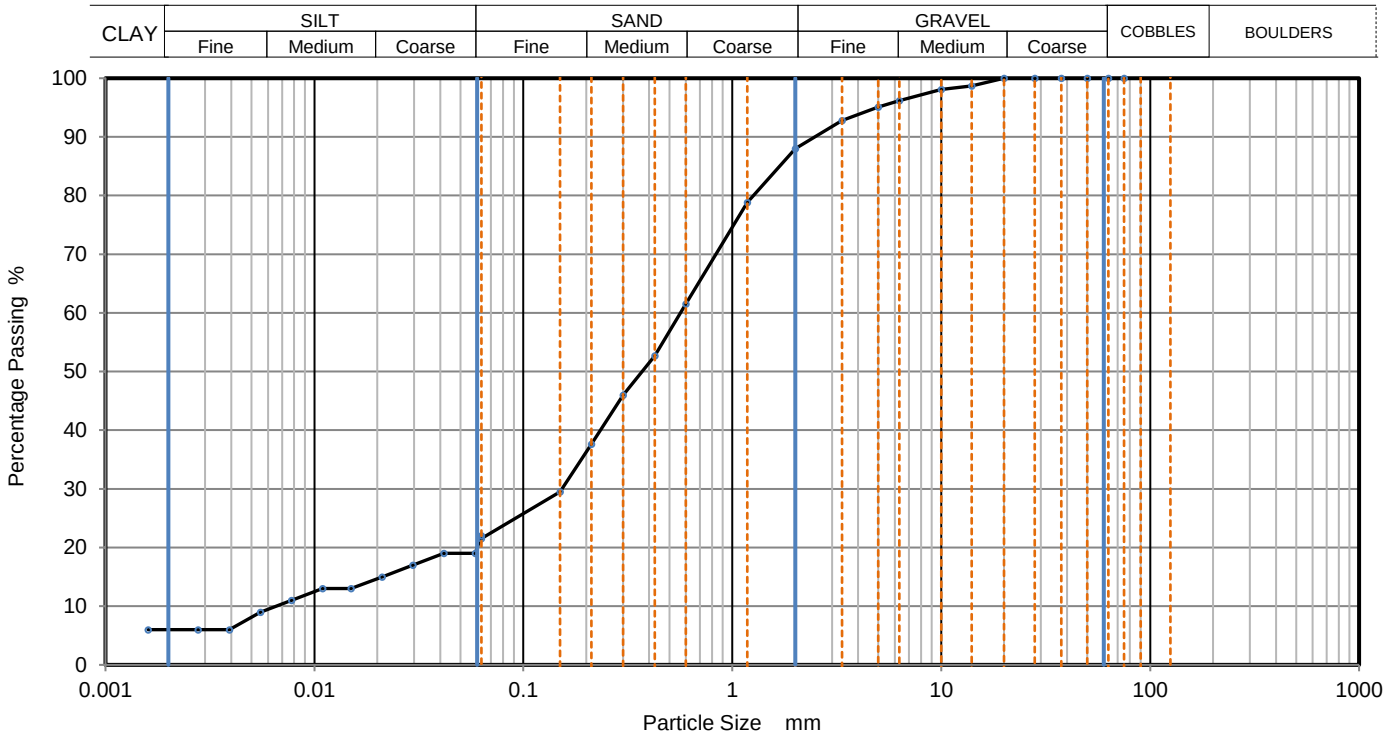
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-70716
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Bluish-grey gravelly very silty medium and coarse SAND.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122152



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	22
		0.0589	19
75	100	0.0416	19
63	100	0.0296	17
50	100	0.0210	15
37.5	100	0.0150	13
28	100	0.0109	13
20	100	0.0078	11
14	99	0.0055	9
10	98	0.0039	6
6.3	96	0.0028	6
5	95	0.0016	6
3.35	93		
2	88		
1.18	79		
0.6	62	Particle density (assumed)	
0.425	53	2.65	Mg/m3
0.3	46		
0.212	38		
0.15	30		
0.063	22		

Dry Mass of sample, g	534

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	67
Silt	15
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.565
D_{30}	mm	0.153
D_{10}	mm	0.00689
Uniformity Coefficient		82
Curvature Coefficient		6

Remarks

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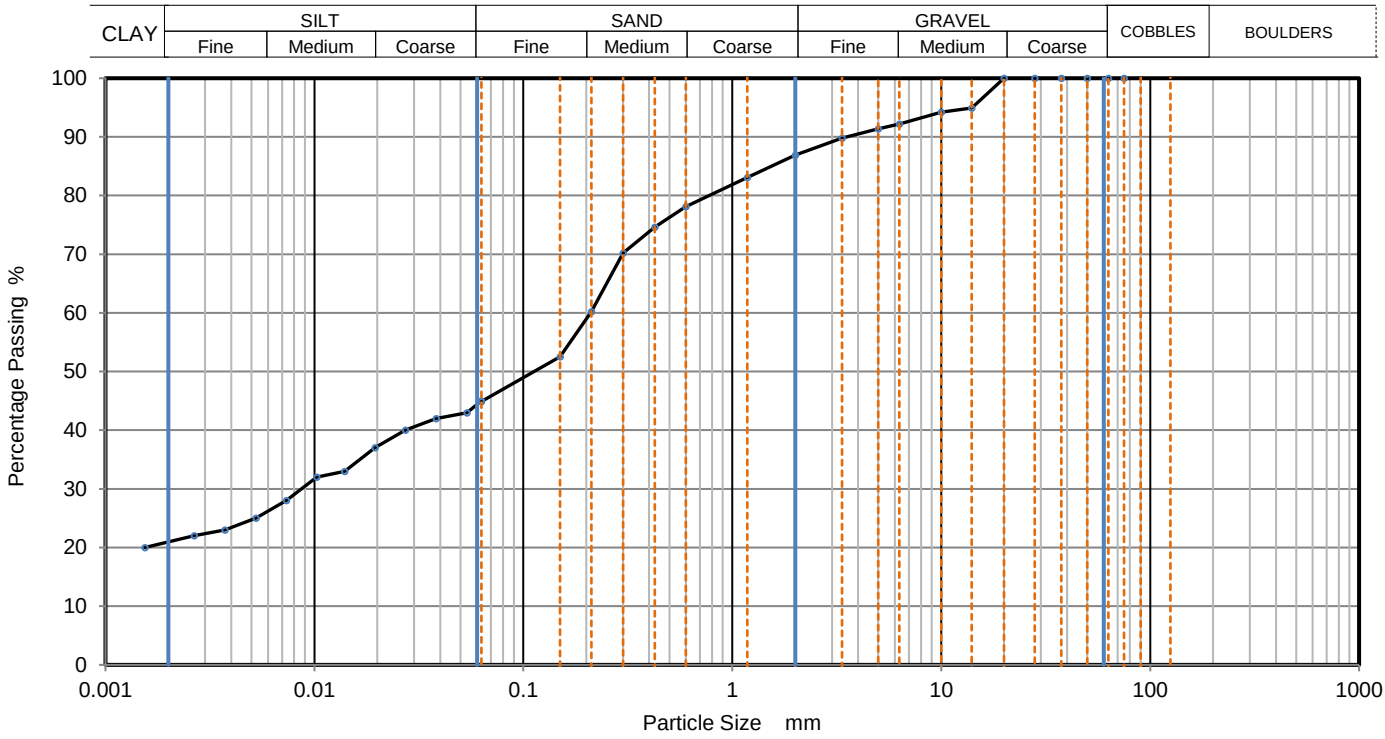
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-71808
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122155



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	45
		0.0538	43
75	100	0.0383	42
63	100	0.0272	40
50	100	0.0195	37
37.5	100	0.0140	33
28	100	0.0103	32
20	100	0.0073	28
14	95	0.0053	25
10	94	0.0037	23
6.3	92	0.0027	22
5	91	0.0015	20
3.35	90		
2	87		
1.18	83		
0.6	78	Particle density (assumed)	
0.425	75	2.65 Mg/m3	
0.3	70		
0.212	60		
0.15	53		
0.063	45		

Dry Mass of sample, g	530

Sample Proportions	% dry mass
Very coarse	0
Gravel	13
Sand	42
Silt	24
Clay	21

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.21
D_{30}	mm	0.00873
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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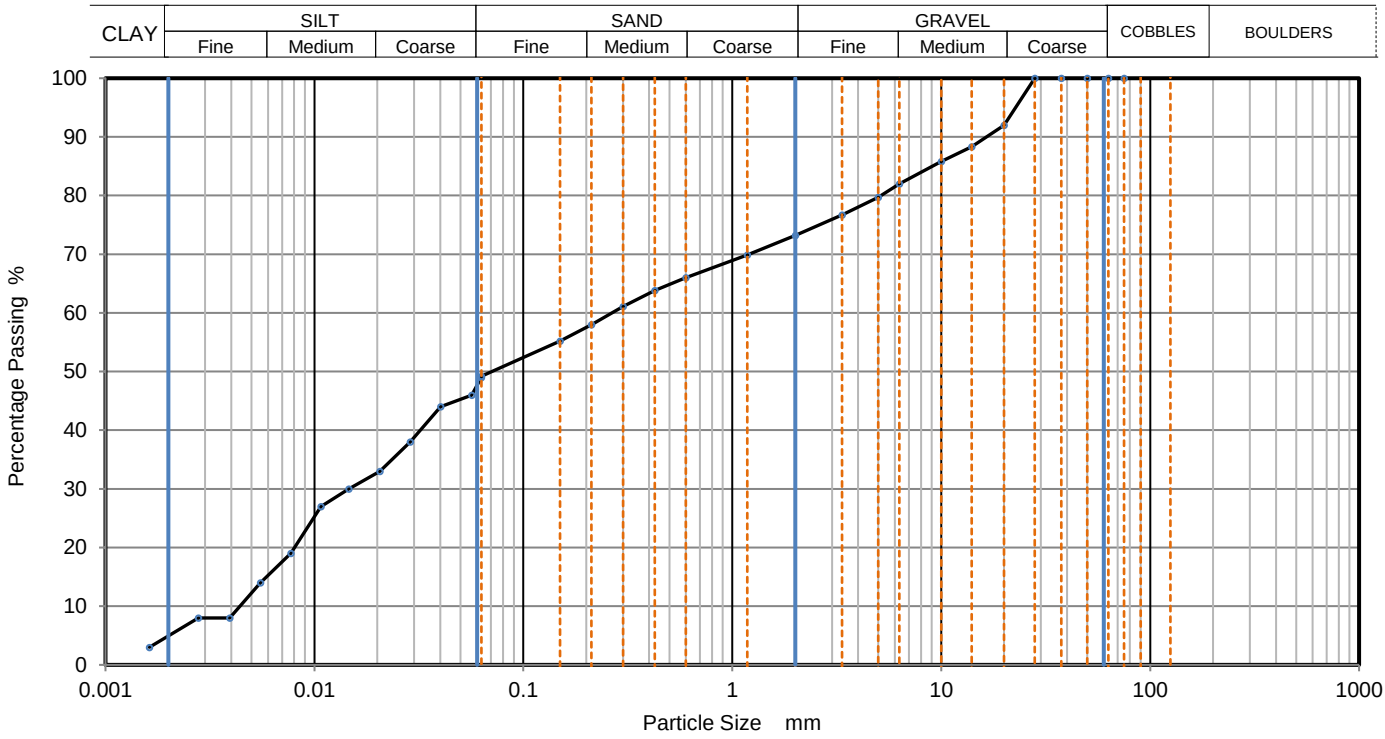
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-71808
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly sandy slightly gravelly SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122158



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	49
		0.0565	46
75	100	0.0402	44
63	100	0.0287	38
50	100	0.0206	33
37.5	100	0.0146	30
28	100	0.0107	27
20	92	0.0077	19
14	88	0.0055	14
10	86	0.0039	8
6.3	82	0.0028	8
5	80	0.0016	3
3.35	77		
2	73		
1.18	70		
0.6	66	Particle density (assumed)	
0.425	64	2.65 Mg/m3	
0.3	61		
0.212	58		
0.15	55		
0.063	49		

Dry Mass of sample, g	829

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	24
Silt	44
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.265
D_{30}	mm	0.0145
D_{10}	mm	0.0044
Uniformity Coefficient		60
Curvature Coefficient		0.18

Remarks

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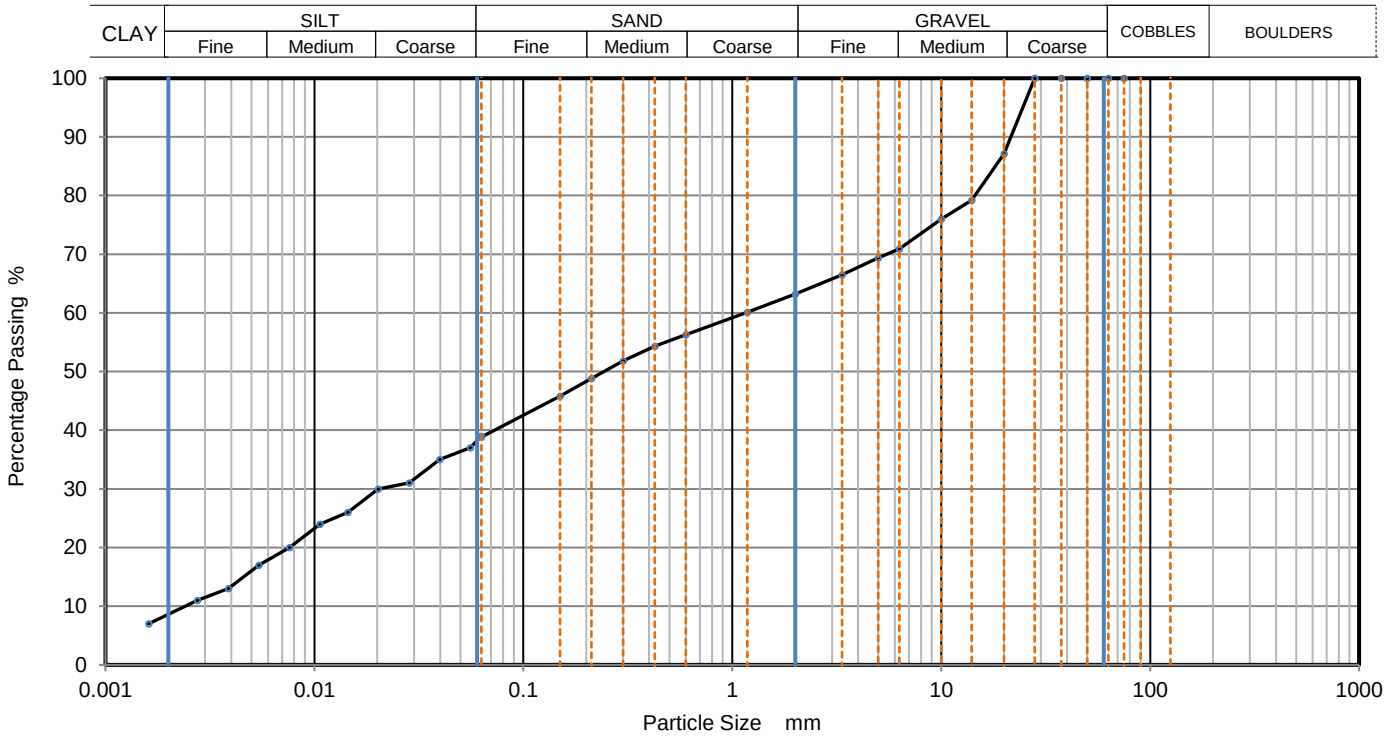
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-71808
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey slightly sandy gravelly SILT.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122160



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0558	37
75	100	0.0397	35
63	100	0.0284	31
50	100	0.0202	30
37.5	100	0.0145	26
28	100	0.0106	24
20	87	0.0076	20
14	79	0.0054	17
10	76	0.0039	13
6.3	71	0.0028	11
5	69	0.0016	7
3.35	67		
2	63		
1.18	60		
0.6	56	Particle density (assumed)	
0.425	54	2.65	Mg/m3
0.3	52		
0.212	49		
0.15	46		
0.063	39		

Dry Mass of sample, g	628

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	24
Silt	30
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.16
D_{30}	mm	0.0219
D_{10}	mm	0.00235
Uniformity Coefficient		490
Curvature Coefficient		0.18

Remarks

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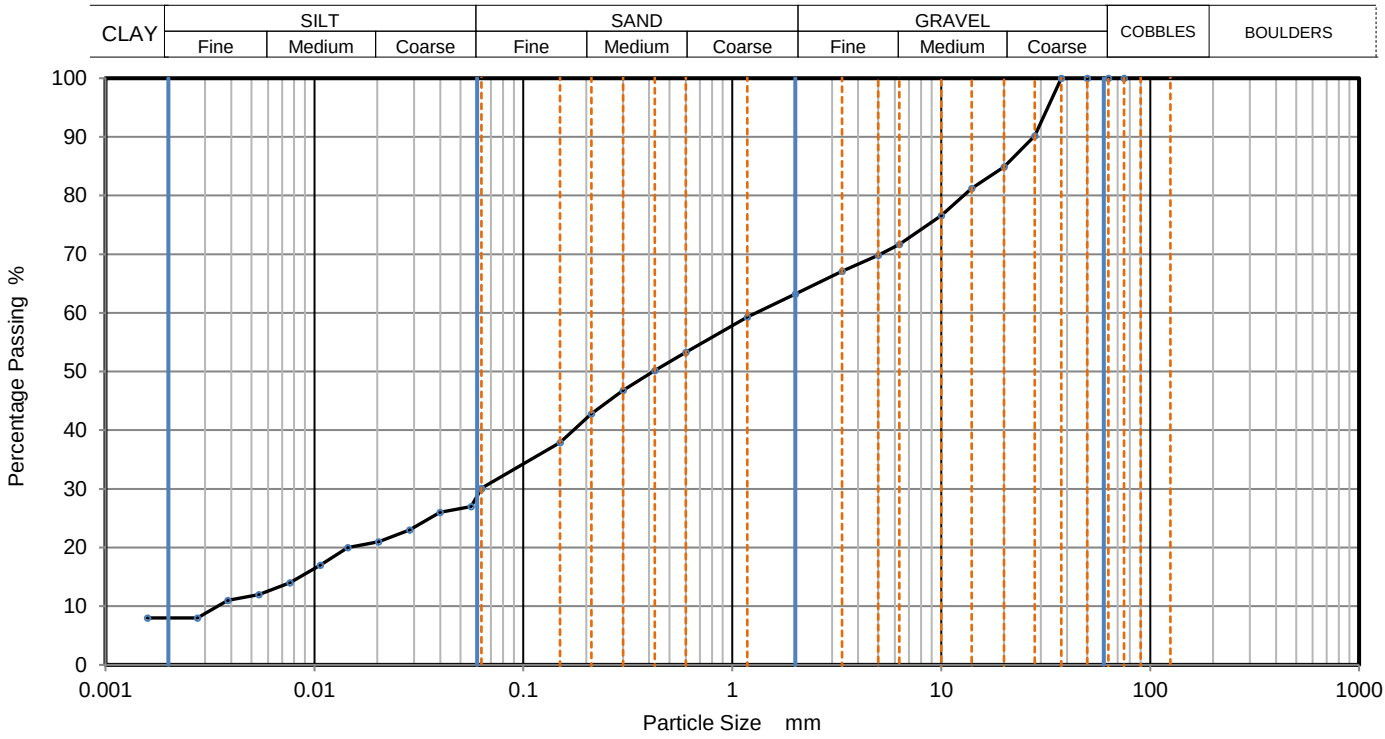
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-71907
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122162



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	30
		0.0561	27
75	100	0.0399	26
63	100	0.0285	23
50	100	0.0203	21
37.5	100	0.0144	20
28	90	0.0107	17
20	85	0.0076	14
14	81	0.0054	12
10	77	0.0039	11
6.3	72	0.0028	8
5	70	0.0016	8
3.35	67		
2	63		
1.18	59		
0.6	53	Particle density (assumed)	
0.425	50	2.65	Mg/m3
0.3	47		
0.212	43		
0.15	38		
0.063	30		

Dry Mass of sample, g	664

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	33
Silt	23
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.3
D_{30}	mm	0.0627
D_{10}	mm	0.00363
Uniformity Coefficient		360
Curvature Coefficient		0.84

Remarks

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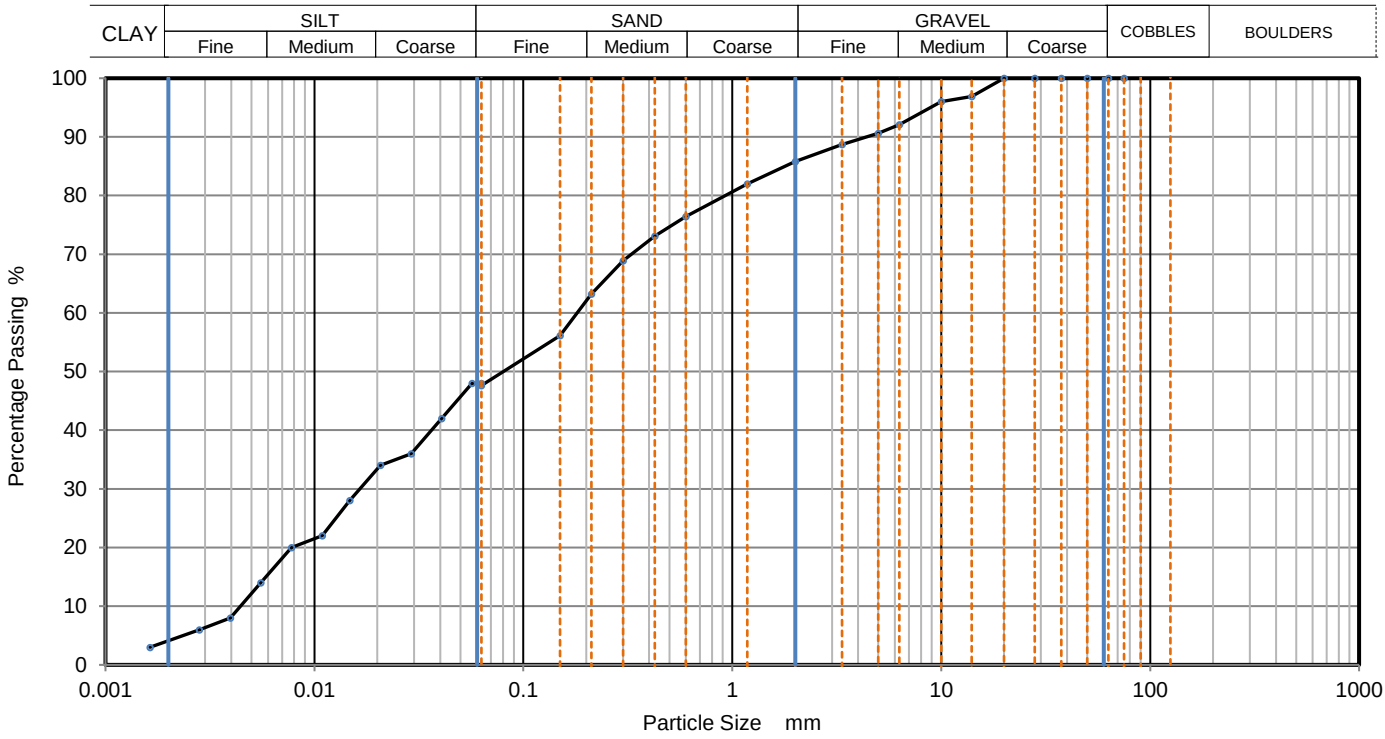
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72009
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orange-brown slighlty gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122164



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	48
		0.0569	48
75	100	0.0407	42
63	100	0.0291	36
50	100	0.0207	34
37.5	100	0.0148	28
28	100	0.0109	22
20	100	0.0078	20
14	97	0.0055	14
10	96	0.0040	8
6.3	92	0.0028	6
5	91	0.0016	3
3.35	89		
2	86		
1.18	82		
0.6	76	Particle density (assumed)	
0.425	73	2.65	Mg/m3
0.3	69		
0.212	63		
0.15	56		
0.063	48		

Dry Mass of sample, g	423

Sample Proportions	% dry mass
Very coarse	0
Gravel	14
Sand	38
Silt	44
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.181
D_{30}	mm	0.0167
D_{10}	mm	0.00436
Uniformity Coefficient		42
Curvature Coefficient		0.35

Remarks

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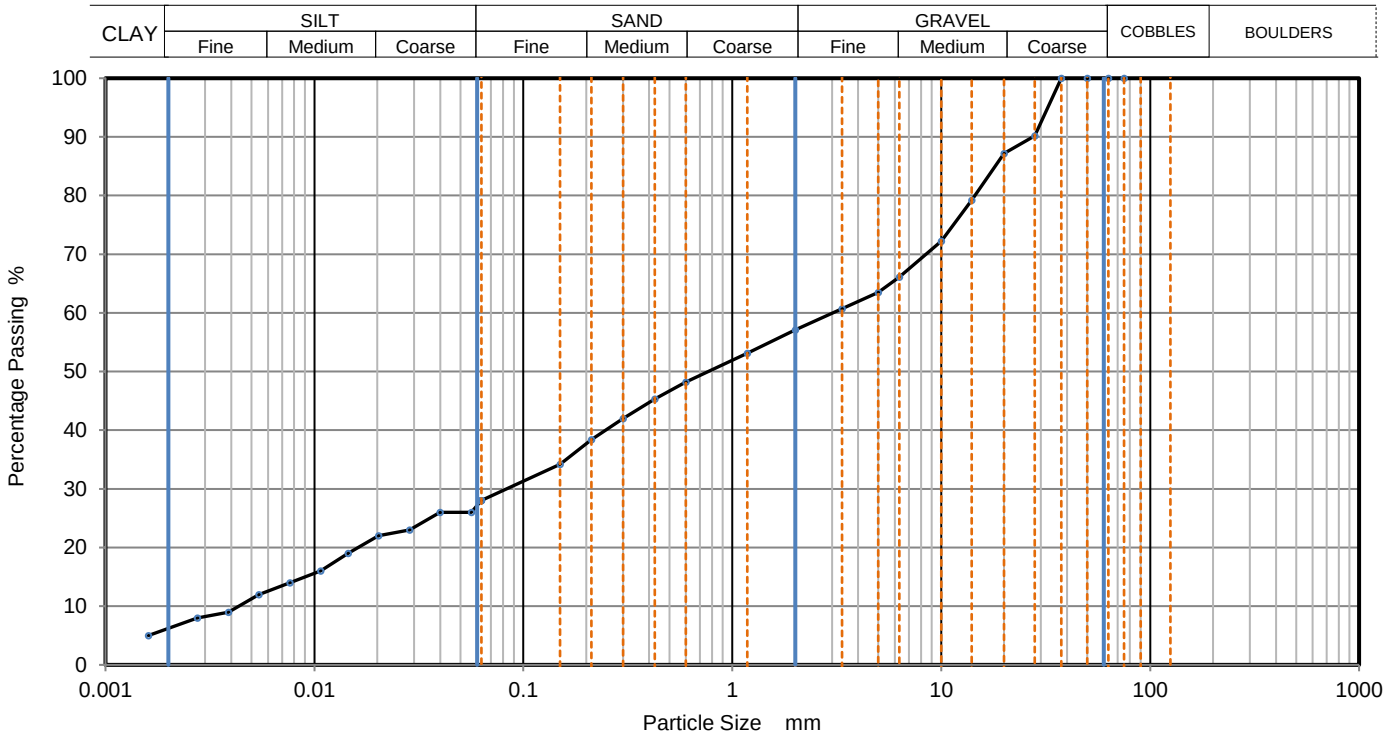
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72009
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy medium GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122167



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	28
		0.0564	26
75	100	0.0399	26
63	100	0.0285	23
50	100	0.0203	22
37.5	100	0.0145	19
28	90	0.0107	16
20	87	0.0076	14
14	79	0.0054	12
10	72	0.0039	9
6.3	66	0.0028	8
5	64	0.0016	5
3.35	61		
2	57		
1.18	53		
0.6	48	Particle density (assumed)	
0.425	45	2.65 Mg/m3	
0.3	42		
0.212	38		
0.15	34		
0.063	28		

Dry Mass of sample, g	722

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	29
Silt	22
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.04
D_{30}	mm	0.0831
D_{10}	mm	0.00416
Uniformity Coefficient		730
Curvature Coefficient		0.55

Remarks

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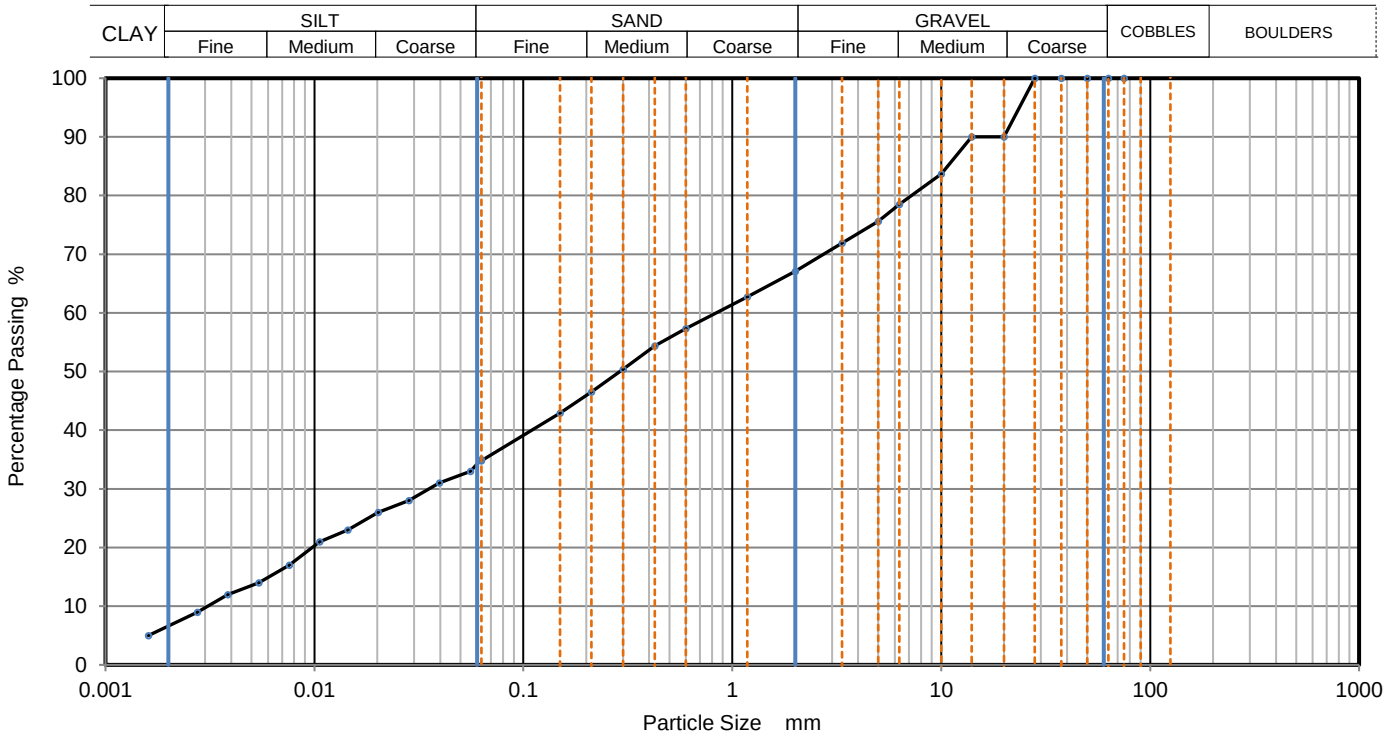
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-72108
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Brown slightly sandy slightly gravelly SILT.	Depth, m	0.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122169



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0558	33
75	100	0.0397	31
63	100	0.0284	28
50	100	0.0202	26
37.5	100	0.0144	23
28	100	0.0106	21
20	90	0.0076	17
14	90	0.0054	14
10	84	0.0039	12
6.3	79	0.0028	9
5	76	0.0016	5
3.35	72		
2	67		
1.18	63		
0.6	57	Particle density (assumed)	
0.425	54	2.65 Mg/m3	
0.3	50		
0.212	47		
0.15	43		
0.063	35		

Dry Mass of sample, g: 507

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	32
Silt	28
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.84
D_{30}	mm	0.0349
D_{10}	mm	0.00312
Uniformity Coefficient		270
Curvature Coefficient		0.47

Remarks

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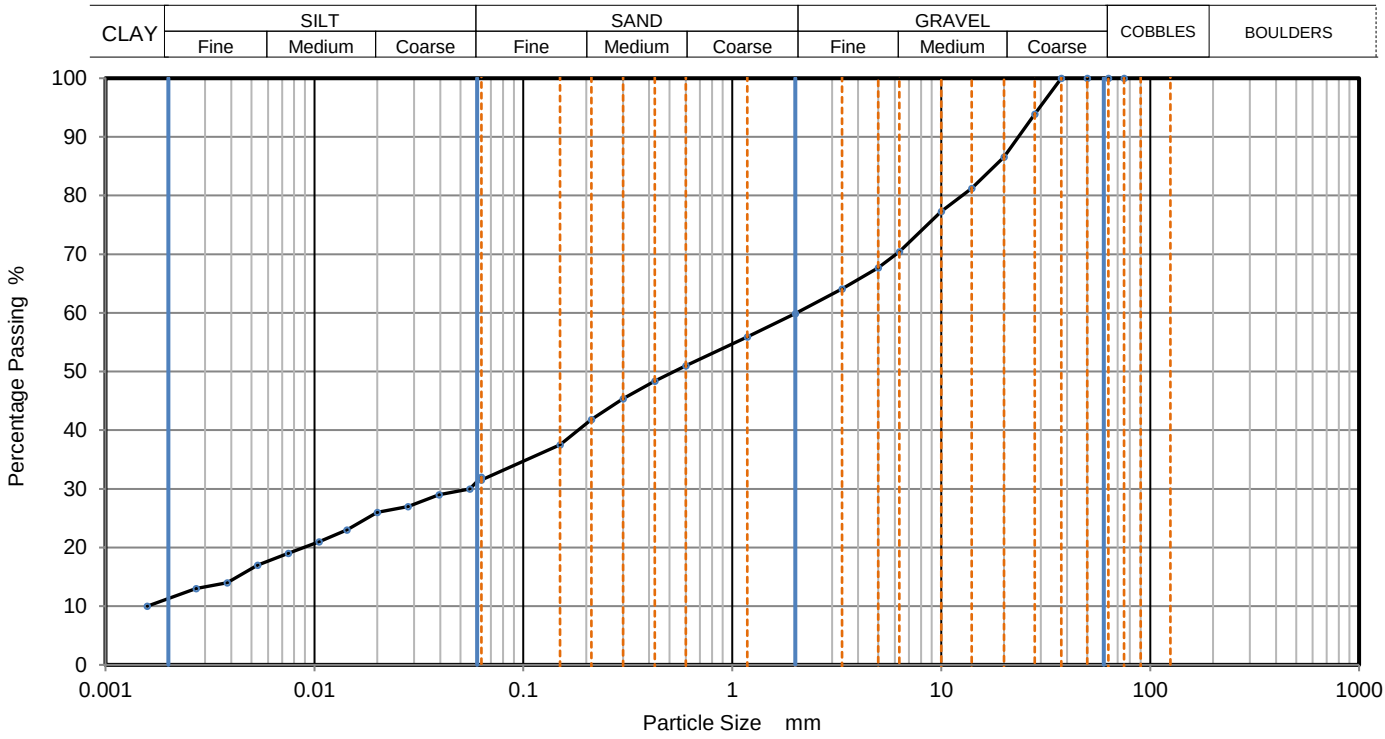
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72108
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey very sandy very silty GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122172



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	32
		0.0555	30
75	100	0.0395	29
63	100	0.0281	27
50	100	0.0200	26
37.5	100	0.0143	23
28	94	0.0105	21
20	87	0.0075	19
14	81	0.0053	17
10	77	0.0038	14
6.3	70	0.0027	13
5	68	0.0016	10
3.35	64		
2	60		
1.18	56		
0.6	51	Particle density (assumed)	
0.425	48	2.65 Mg/m3	
0.3	45		
0.212	42		
0.15	38		
0.063	32		

Dry Mass of sample, g	750

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Silt	20
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.03
D_{30}	mm	0.0546
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	18/10/2022 15:39	**1** QC From No:R2

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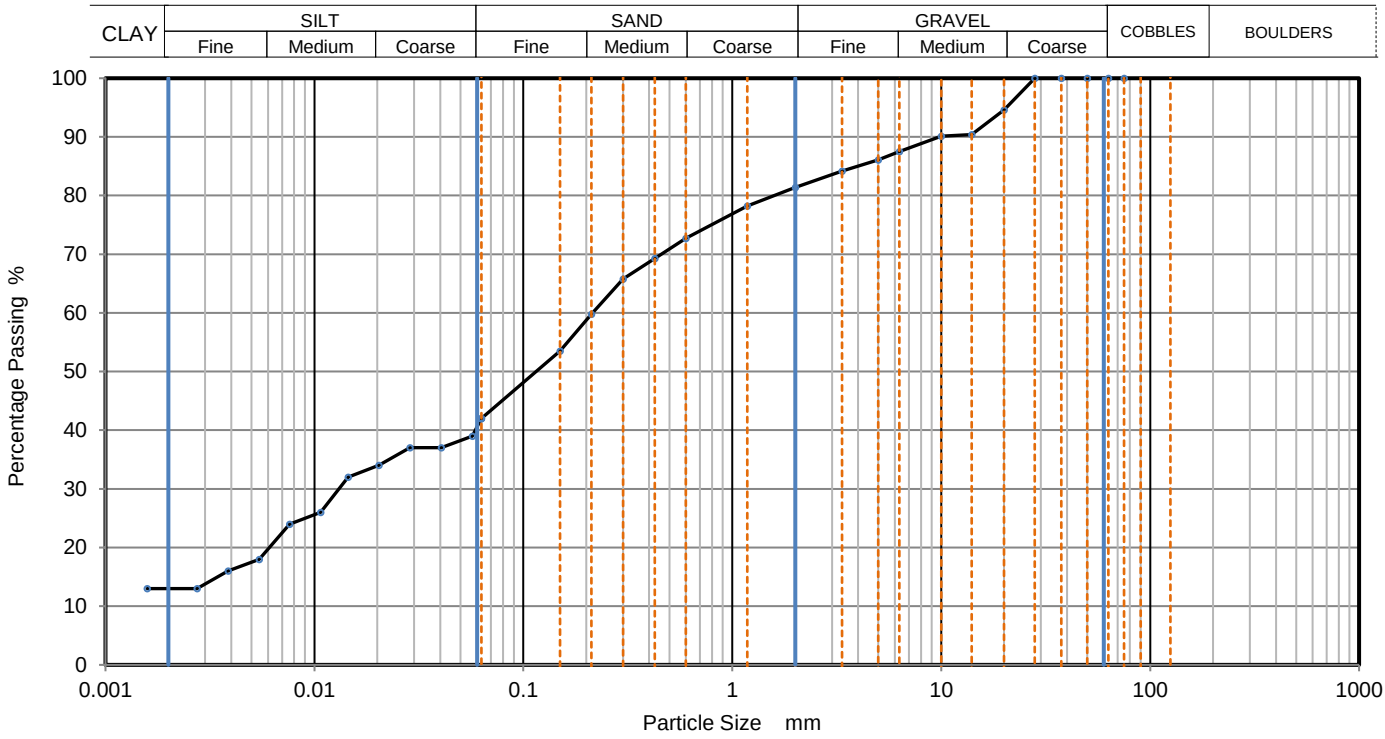
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72160
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122174



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0570	39
75	100	0.0405	37
63	100	0.0286	37
50	100	0.0204	34
37.5	100	0.0145	32
28	100	0.0107	26
20	95	0.0076	24
14	90	0.0054	18
10	90	0.0039	16
6.3	88	0.0027	13
5	86	0.0016	13
3.35	84		
2	81		
1.18	78		
0.6	73	Particle density (assumed)	
0.425	69	2.65 Mg/m3	
0.3	66		
0.212	60		
0.15	54		
0.063	42		

Dry Mass of sample, g	625

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	39
Silt	29
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.215
D_{30}	mm	0.0133
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

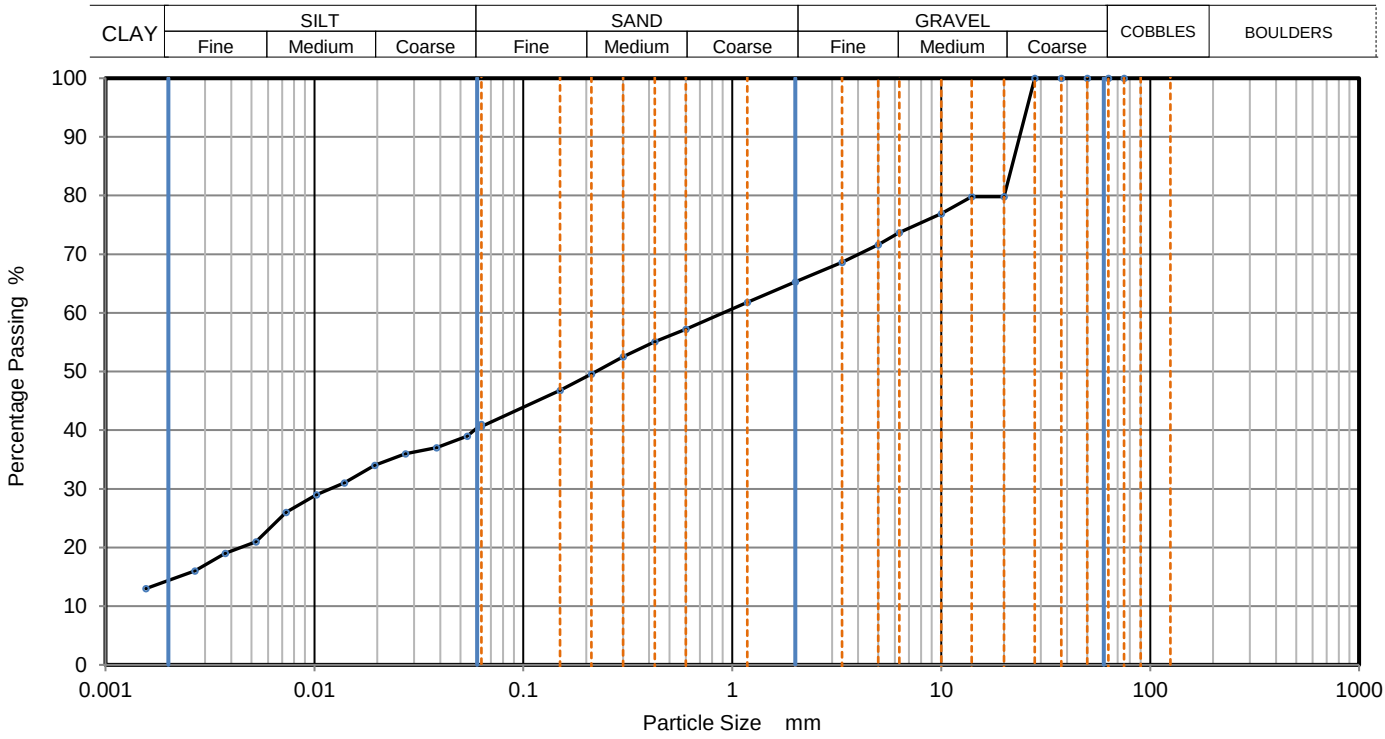
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:39	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72160
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122177



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0539	39
75	100	0.0384	37
63	100	0.0273	36
50	100	0.0194	34
37.5	100	0.0139	31
28	100	0.0102	29
20	80	0.0073	26
14	80	0.0053	21
10	77	0.0037	19
6.3	74	0.0027	16
5	72	0.0016	13
3.35	69		
2	65		
1.18	62		
0.6	57	Particle density (assumed)	
0.425	55	2.65	Mg/m3
0.3	53		
0.212	50		
0.15	47		
0.063	41		

Dry Mass of sample, g	726

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	25
Silt	26
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.908
D_{30}	mm	0.0118
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

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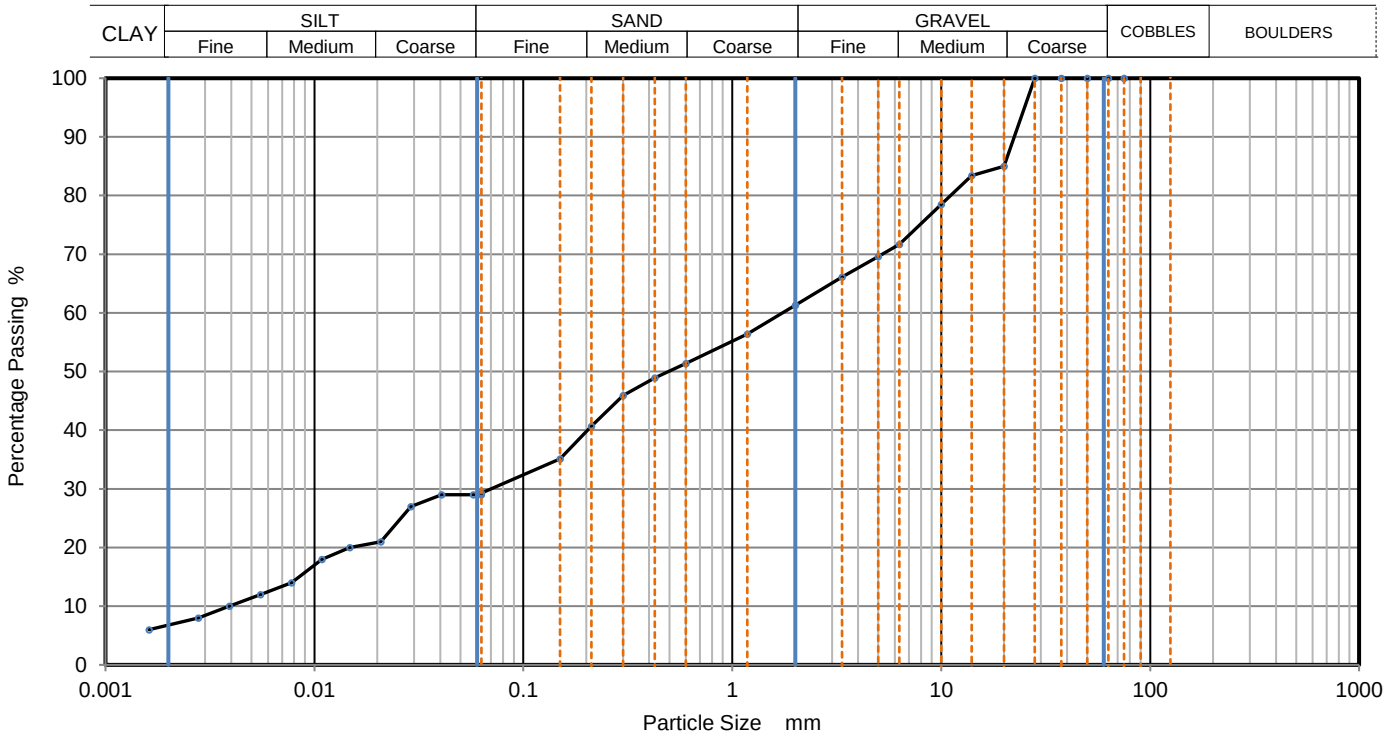
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72289
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty very sandy GRAVEL.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122179



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0575	29
75	100	0.0407	29
63	100	0.0289	27
50	100	0.0208	21
37.5	100	0.0148	20
28	100	0.0109	18
20	85	0.0078	14
14	83	0.0055	12
10	79	0.0039	10
6.3	72	0.0028	8
5	70	0.0016	6
3.35	66		
2	61		
1.18	56		
0.6	51	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	46		
0.212	41		
0.15	35		
0.063	29		

Dry Mass of sample, g: 475

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	32
Silt	23
Clay	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.74
D_{30}	mm	0.0697
D_{10}	mm	0.00408
Uniformity Coefficient		430
Curvature Coefficient		0.68

Remarks

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Operator	Checked	Approved	Sheet printed	
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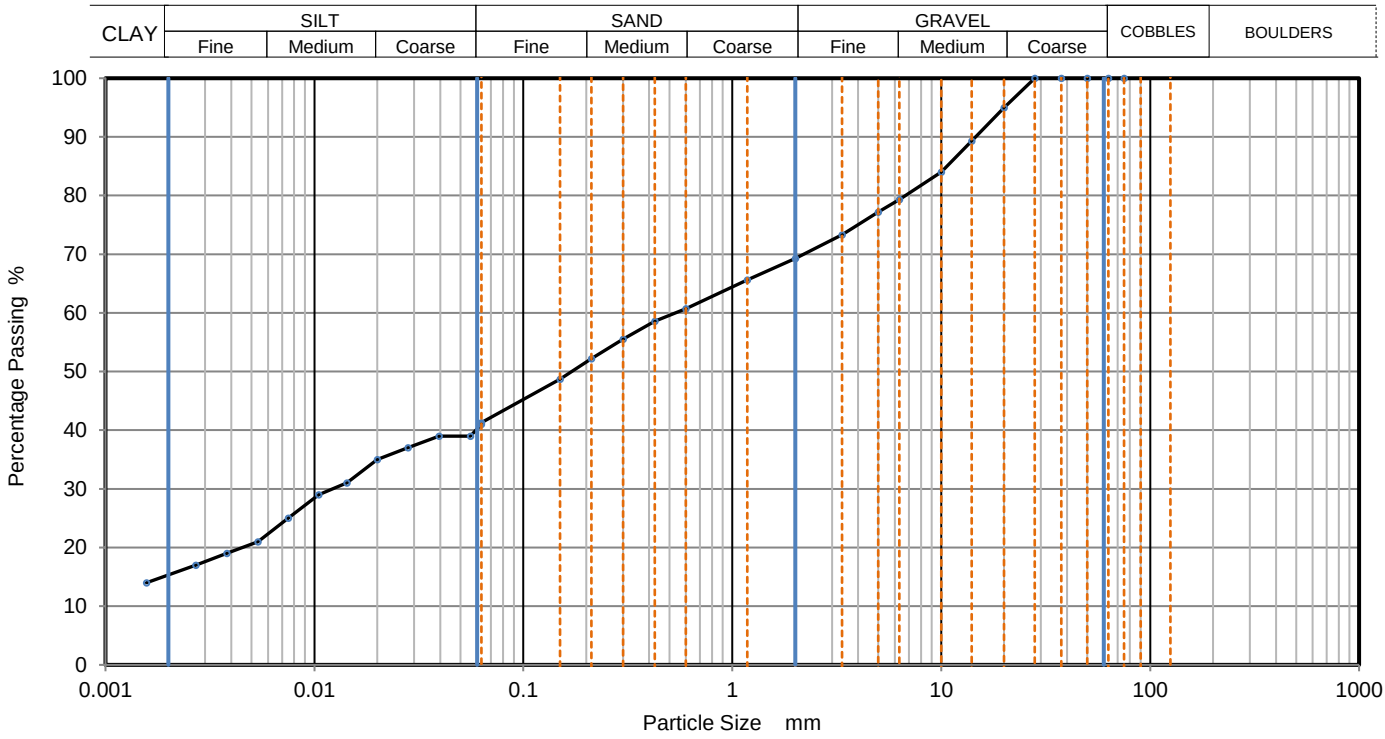
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-72289
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Light brown slightly sandy slightly gravelly SILT.	Depth, m	0.70
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122181



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0558	39
75	100	0.0394	39
63	100	0.0281	37
50	100	0.0200	35
37.5	100	0.0143	31
28	100	0.0105	29
20	95	0.0075	25
14	89	0.0054	21
10	84	0.0038	19
6.3	79	0.0027	17
5	77	0.0016	14
3.35	73		
2	69		
1.18	66		
0.6	61	Particle density (assumed)	
0.425	59	2.65 Mg/m3	
0.3	56		
0.212	52		
0.15	49		
0.063	41		

Dry Mass of sample, g	711

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	28
Silt	26
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.535
D_{30}	mm	0.0123
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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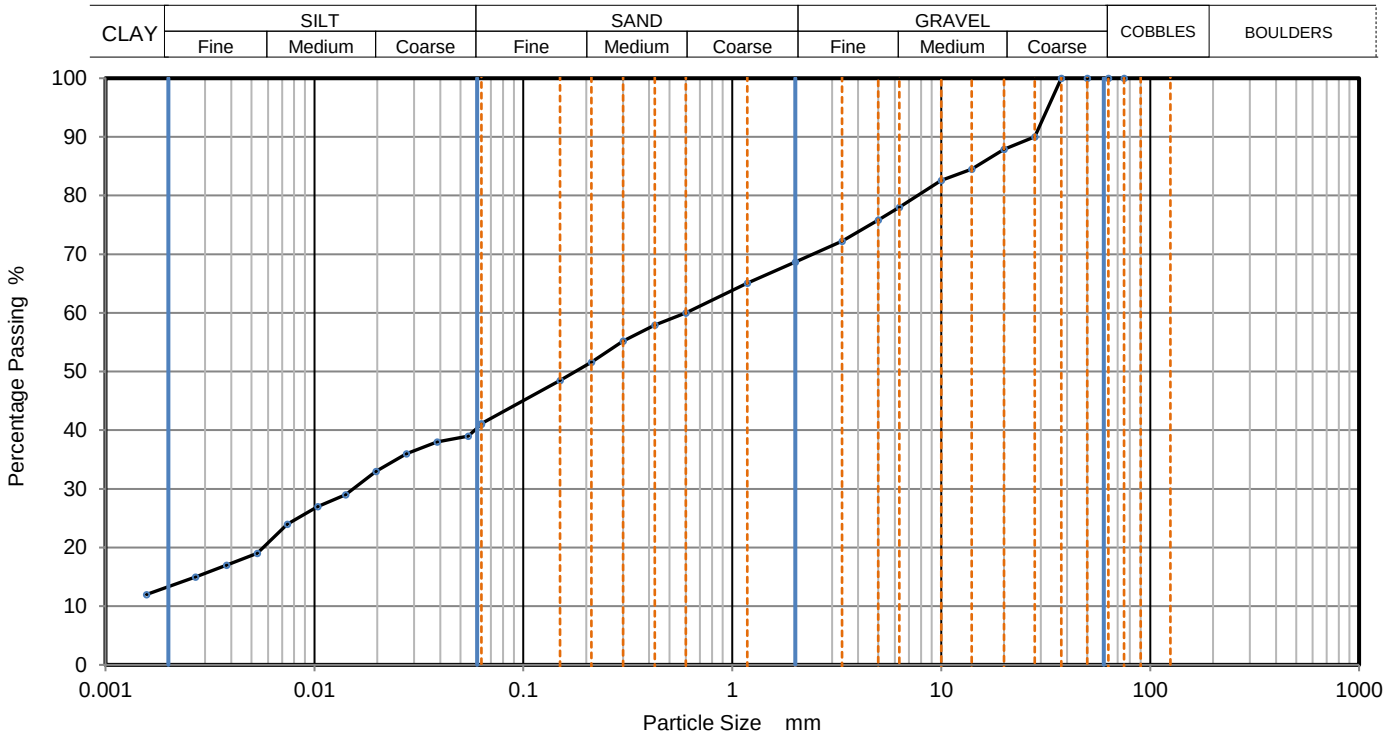
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-72289
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.	Depth, m	2.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122183



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0544	39
75	100	0.0387	38
63	100	0.0275	36
50	100	0.0197	33
37.5	100	0.0141	29
28	90	0.0104	27
20	88	0.0074	24
14	85	0.0053	19
10	83	0.0038	17
6.3	78	0.0027	15
5	76	0.0016	12
3.35	72		
2	69		
1.18	65		
0.6	60	Particle density (assumed)	
0.425	58	2.65 Mg/m3	
0.3	55		
0.212	52		
0.15	49		
0.063	41		

Dry Mass of sample, g	702

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	28
Silt	28
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.598
D_{30}	mm	0.0154
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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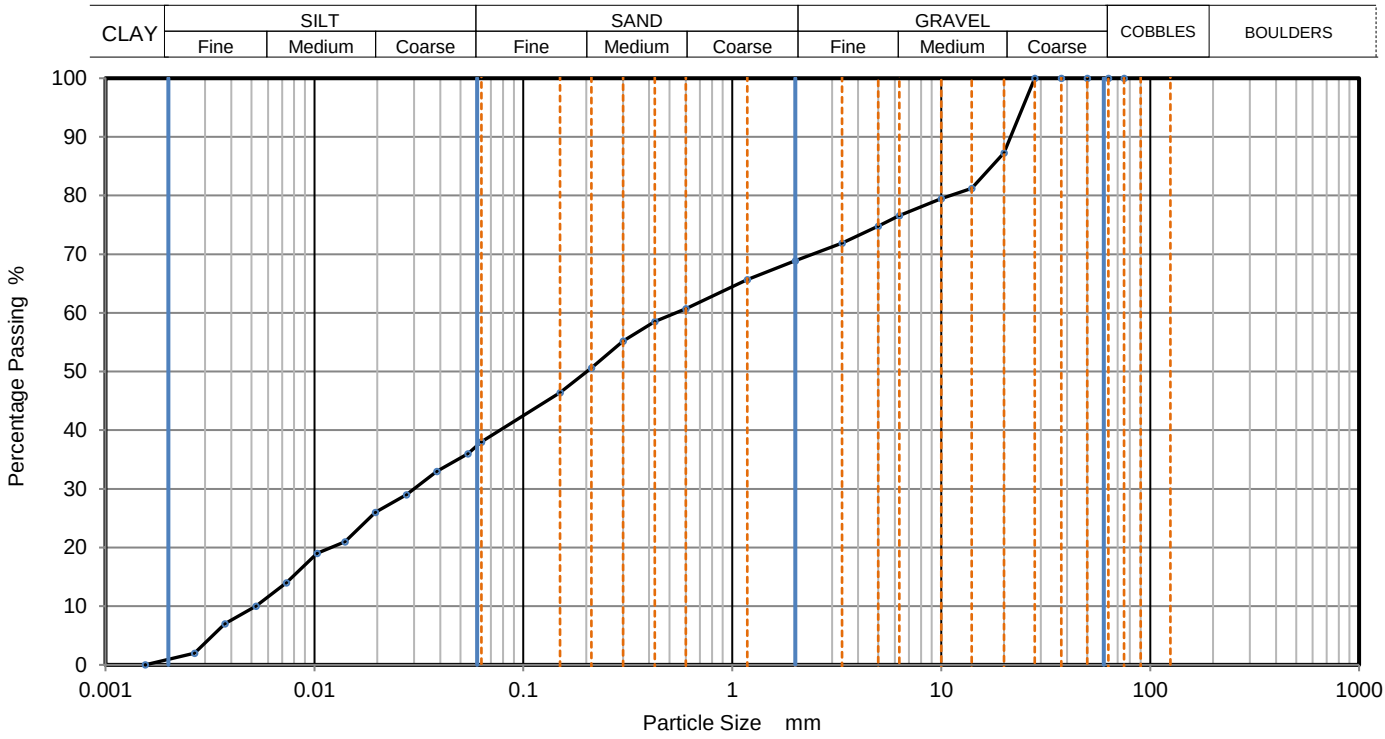
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72403
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122185



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	38
		0.0542	36
75	100	0.0386	33
63	100	0.0276	29
50	100	0.0196	26
37.5	100	0.0140	21
28	100	0.0103	19
20	87	0.0074	14
14	81	0.0053	10
10	80	0.0037	7
6.3	77	0.0027	2
5	75	0.0015	0
3.35	72		
2	69		
1.18	66		
0.6	61	Particle density (assumed)	
0.425	59	2.65	Mg/m3
0.3	55		
0.212	51		
0.15	46		
0.063	38		

Dry Mass of sample, g	533

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	31
Silt	37
Clay	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.539
D_{30}	mm	0.0307
D_{10}	mm	0.00544
Uniformity Coefficient		99
Curvature Coefficient		0.32

Remarks

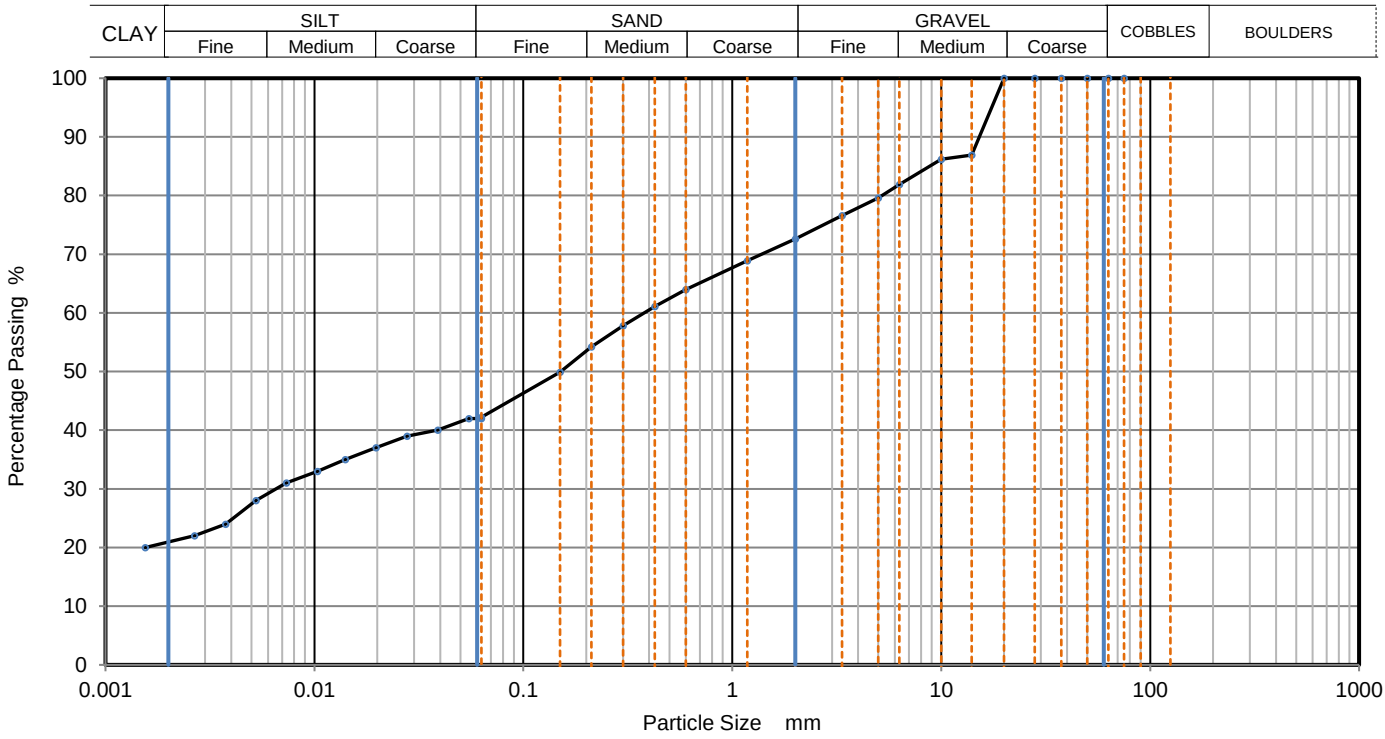
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-72403
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.	Depth, m	1.00
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12021122187



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0548	42
75	100	0.0390	40
63	100	0.0278	39
50	100	0.0197	37
37.5	100	0.0140	35
28	100	0.0103	33
20	100	0.0073	31
14	87	0.0053	28
10	86	0.0038	24
6.3	82	0.0027	22
5	80	0.0015	20
3.35	77		
2	73		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	58		
0.212	54		
0.15	50		
0.063	42		

Dry Mass of sample, g	580

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	30
Silt	21
Clay	21

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.378
D_{30}	mm	0.00658
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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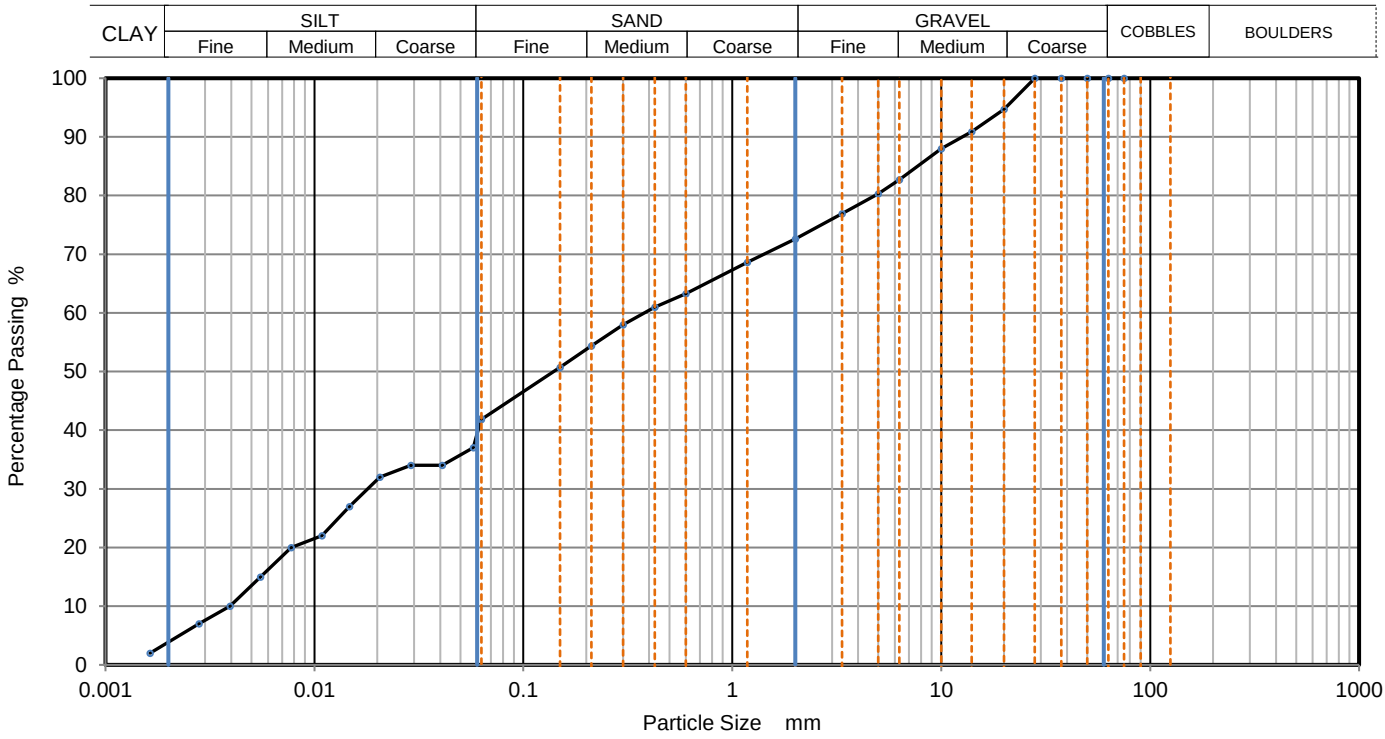
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72403
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown slightly gravelly slightly sandy SILT.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122189



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0576	37
75	100	0.0410	34
63	100	0.0290	34
50	100	0.0206	32
37.5	100	0.0147	27
28	100	0.0109	22
20	95	0.0077	20
14	91	0.0055	15
10	88	0.0039	10
6.3	83	0.0028	7
5	80	0.0016	2
3.35	77		
2	73		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	58		
0.212	54		
0.15	51		
0.063	42		

Dry Mass of sample, g	739

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	31
Silt	38
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.377
D_{30}	mm	0.018
D_{10}	mm	0.00399
Uniformity Coefficient		94
Curvature Coefficient		0.22

Remarks

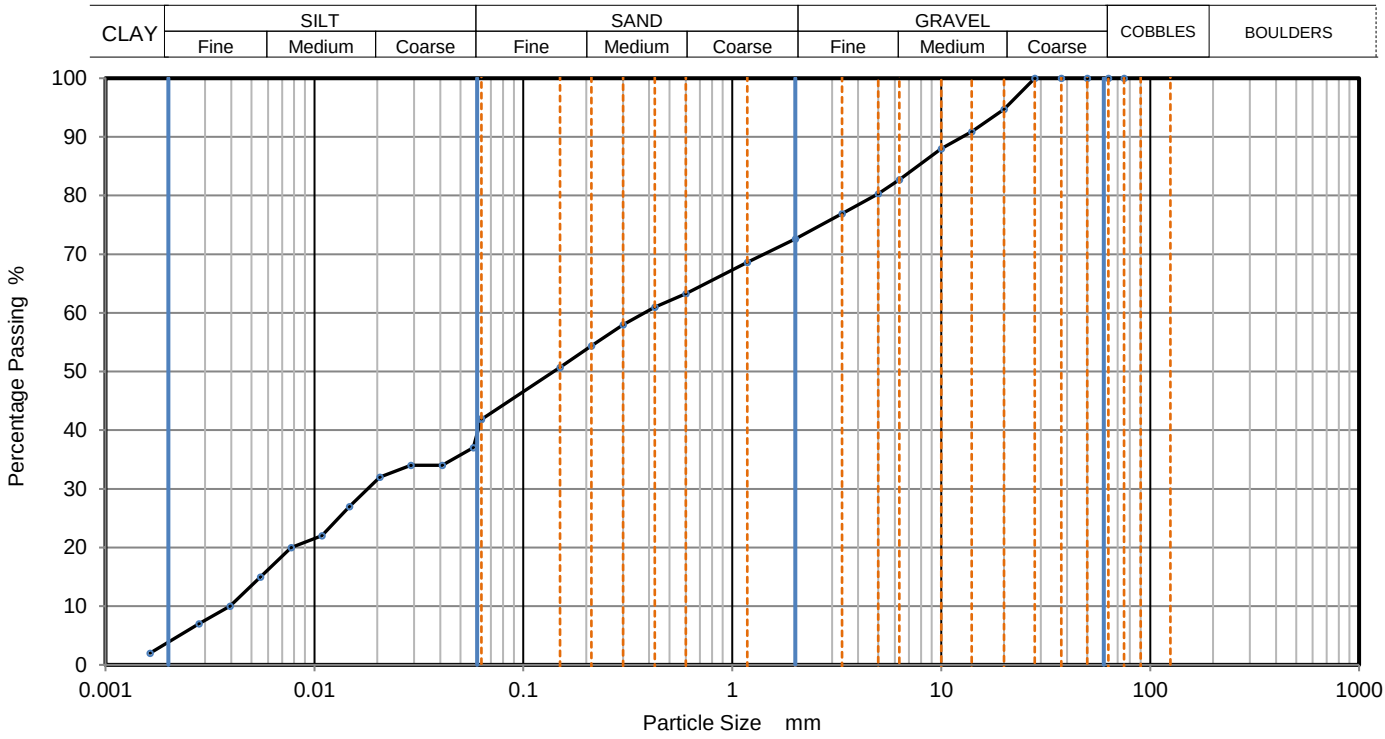
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72403
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown slightly gravelly slightly sandy SILT.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122189



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0576	37
75	100	0.0410	34
63	100	0.0290	34
50	100	0.0206	32
37.5	100	0.0147	27
28	100	0.0109	22
20	95	0.0077	20
14	91	0.0055	15
10	88	0.0039	10
6.3	83	0.0028	7
5	80	0.0016	2
3.35	77		
2	73		
1.18	69		
0.6	63	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	58		
0.212	54		
0.15	51		
0.063	42		

Dry Mass of sample, g	739

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	31
Silt	38
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.377
D_{30}	mm	0.018
D_{10}	mm	0.00399
Uniformity Coefficient		94
Curvature Coefficient		0.22

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:49	**1** QC From No:R2

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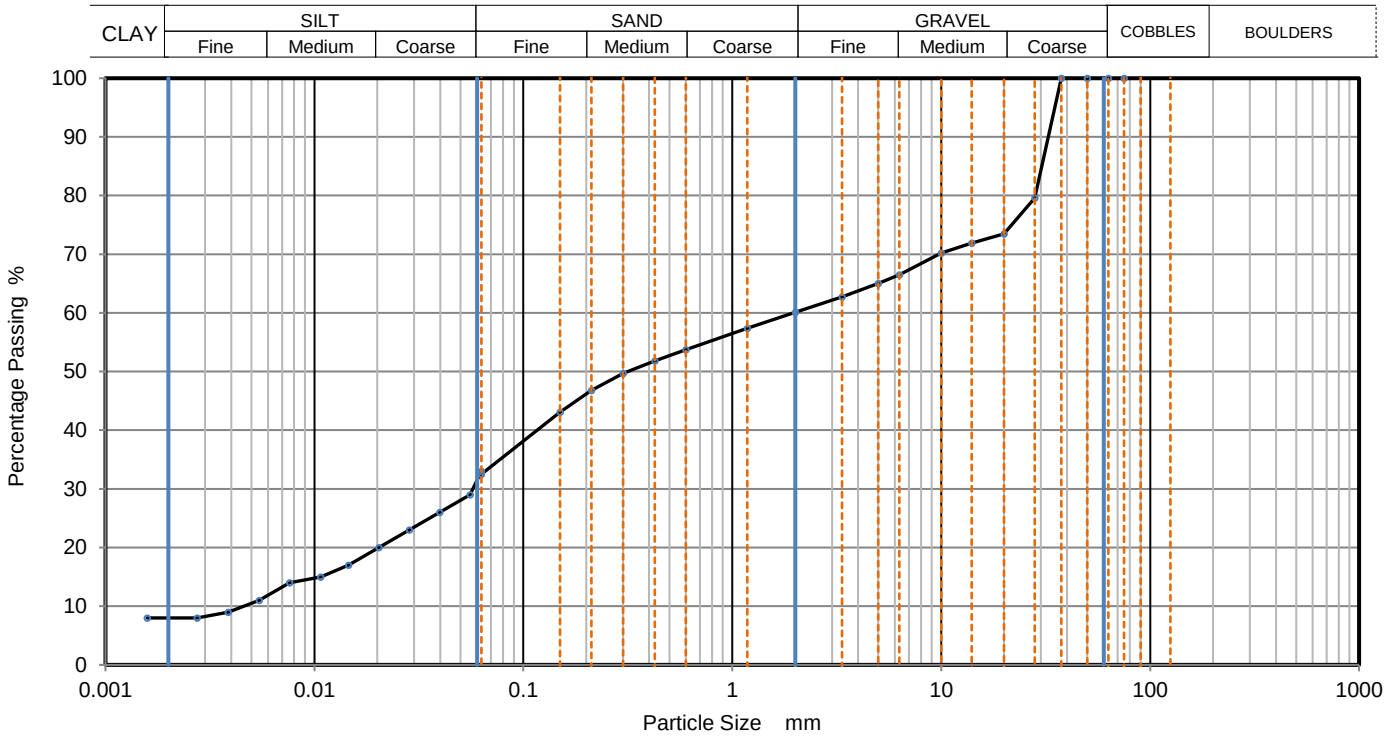
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey very sandy very silty coarse GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122194



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0556	29
75	100	0.0398	26
63	100	0.0285	23
50	100	0.0204	20
37.5	100	0.0146	17
28	80	0.0107	15
20	74	0.0076	14
14	72	0.0054	11
10	70	0.0039	9
6.3	67	0.0027	8
5	65	0.0016	8
3.35	63		
2	60		
1.18	57		
0.6	54	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	50		
0.212	47		
0.15	43		
0.063	33		

Dry Mass of sample, g	657

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Silt	25
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.98
D_{30}	mm	0.057
D_{10}	mm	0.00452
Uniformity Coefficient		440
Curvature Coefficient		0.36

Remarks

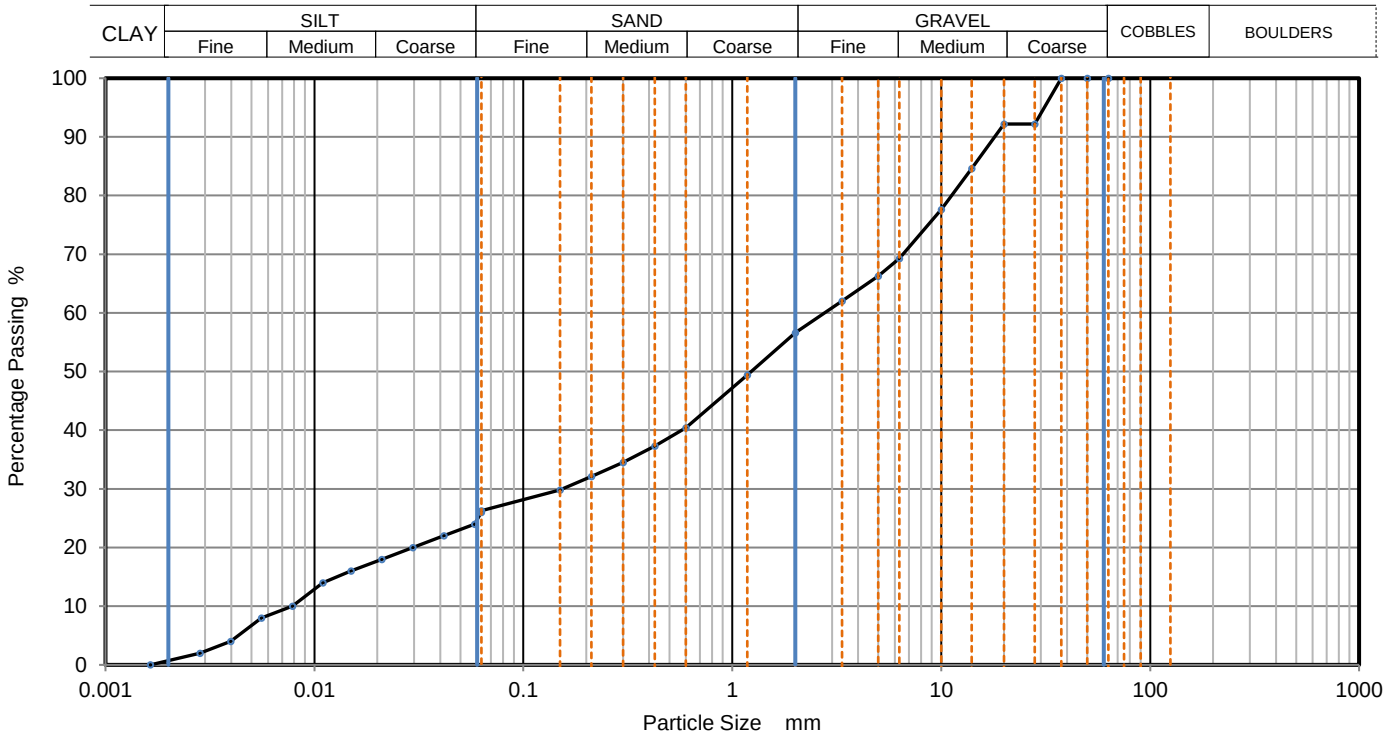
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72503
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey very silty very sandy medium GRAVEL.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12021122196



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0585	24
		0.0416	22
63	100	0.0296	20
50	100	0.0210	18
37.5	100	0.0149	16
28	92	0.0110	14
20	92	0.0078	10
14	85	0.0056	8
10	78	0.0040	4
6.3	69	0.0028	2
5	66	0.0016	0
3.35	62		
2	57		
1.18	49		
0.6	40	Particle density (assumed)	
0.425	37	2.65	Mg/m3
0.3	35		
0.212	32		
0.15	30		
0.063	26		

Dry Mass of sample, g	888

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	30
Silt	26
Clay	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.76
D_{30}	mm	0.155
D_{10}	mm	0.00769
Uniformity Coefficient		360
Curvature Coefficient		1.1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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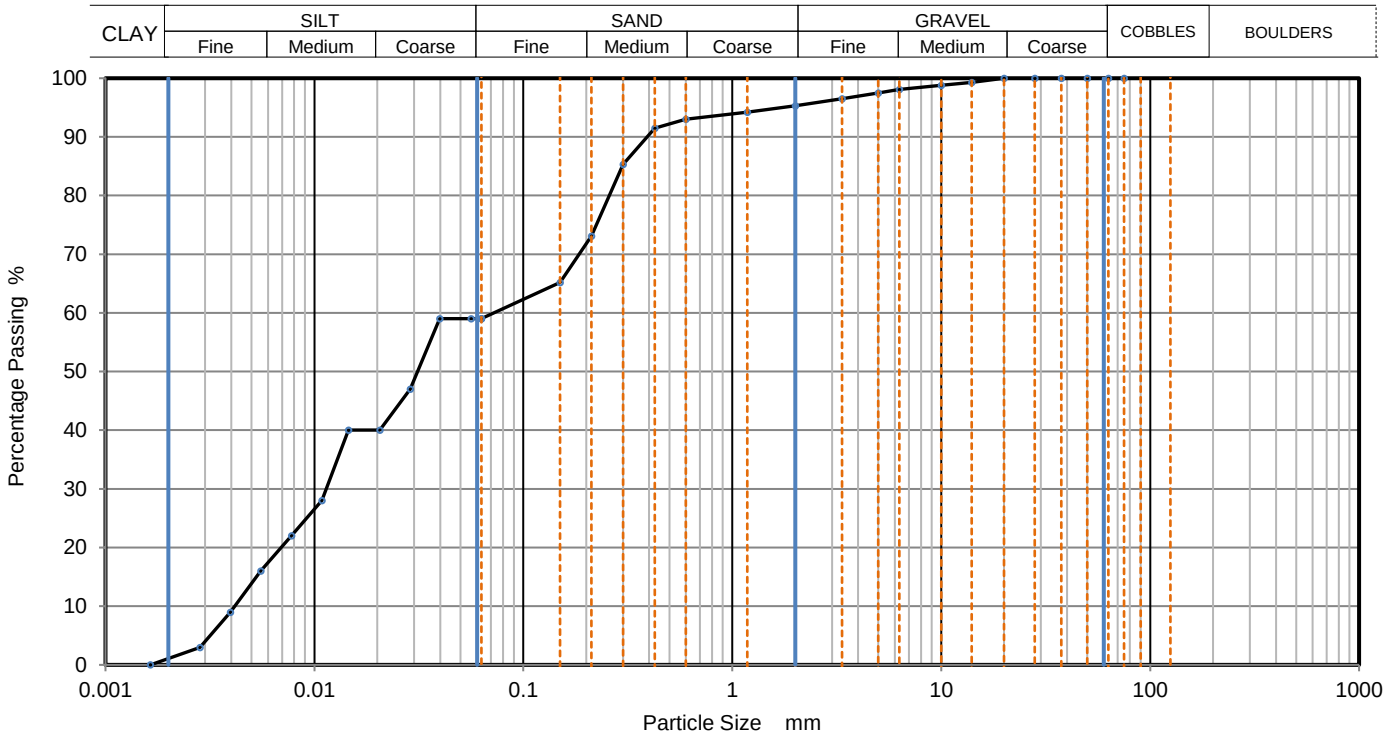
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72603
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Dark brown slightly gravelly sandy SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221100



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	59
		0.0562	59
75	100	0.0397	59
63	100	0.0288	47
50	100	0.0206	40
37.5	100	0.0145	40
28	100	0.0109	28
20	100	0.0078	22
14	99	0.0055	16
10	99	0.0040	9
6.3	98	0.0028	3
5	98	0.0016	0
3.35	97		
2	95		
1.18	94		
0.6	93	Particle density (assumed)	
0.425	92	2.65	Mg/m3
0.3	85		
0.212	73		
0.15	65		
0.063	59		

Dry Mass of sample, g	608

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	36
Silt	58
Clay	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.0724
D_{30}	mm	0.0114
D_{10}	mm	0.00411
Uniformity Coefficient		18
Curvature Coefficient		0.44

Remarks

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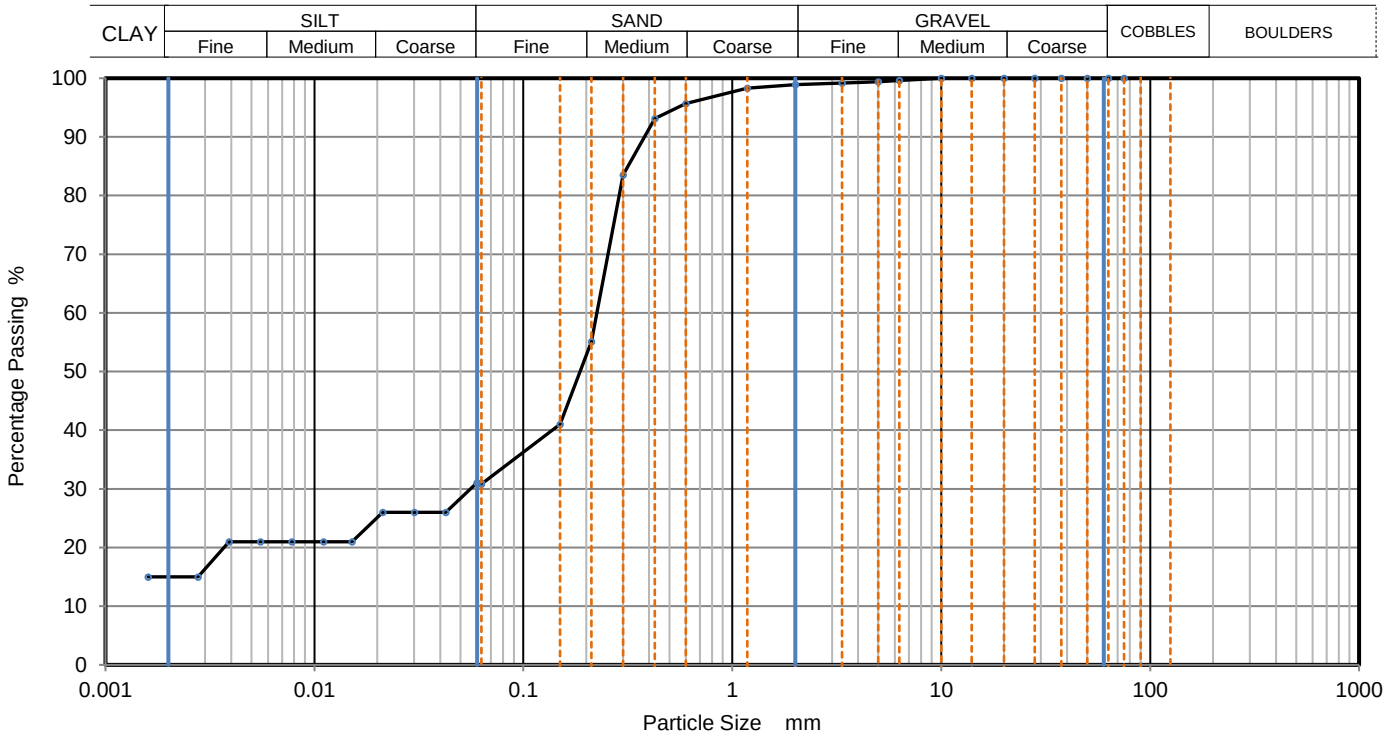
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72603
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark grey very silty medium SAND.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	31
		0.0598	31
75	100	0.0425	26
63	100	0.0301	26
50	100	0.0213	26
37.5	100	0.0151	21
28	100	0.0110	21
20	100	0.0078	21
14	100	0.0055	21
10	100	0.0039	21
6.3	100	0.0028	15
5	99	0.0016	15
3.35	99		
2	99		
1.18	98		
0.6	96	Particle density (assumed)	
0.425	93	2.65 Mg/m3	
0.3	84		
0.212	55		
0.15	41		
0.063	31		

Dry Mass of sample, g	570

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	68
Silt	15
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.225
D_{30}	mm	0.0567
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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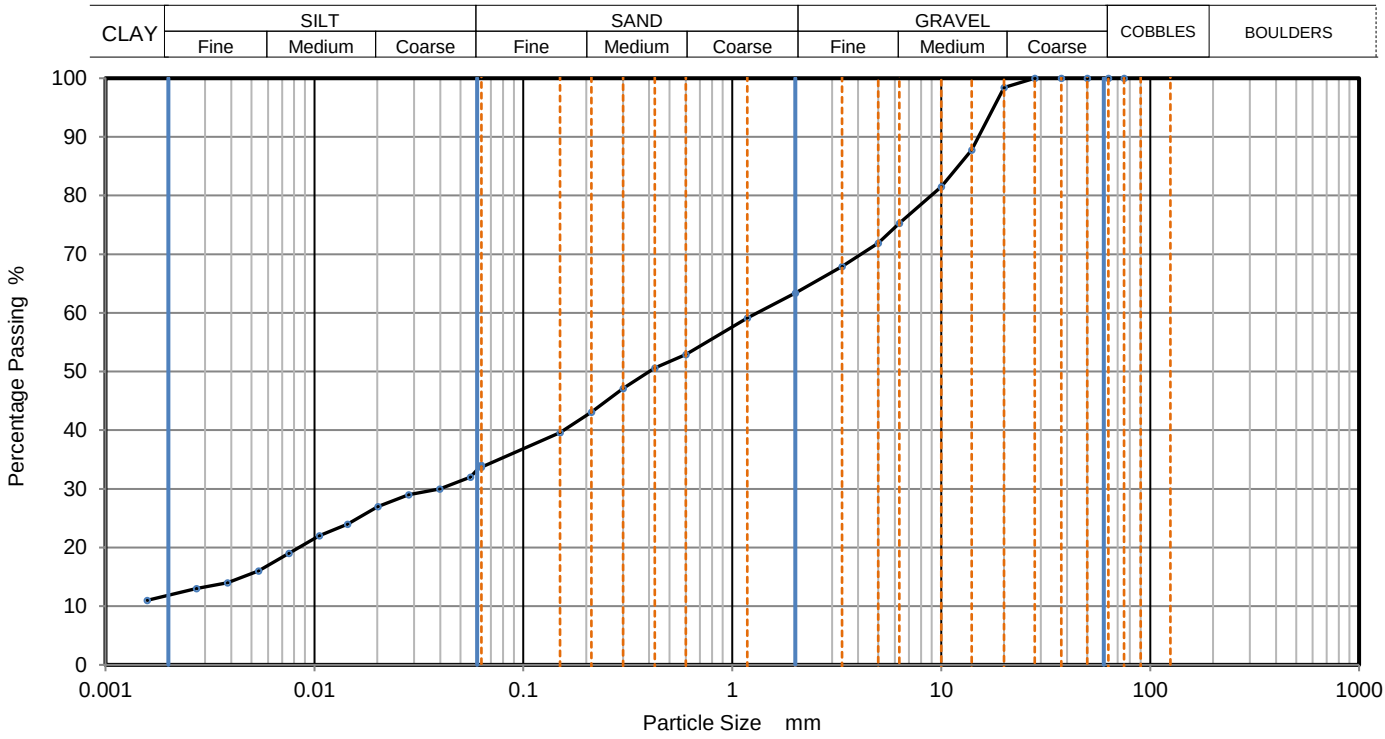
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72703
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey very sandy very silty medium GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221104



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0558	32
75	100	0.0397	30
63	100	0.0283	29
50	100	0.0201	27
37.5	100	0.0144	24
28	100	0.0106	22
20	98	0.0076	19
14	88	0.0054	16
10	82	0.0038	14
6.3	75	0.0027	13
5	72	0.0016	11
3.35	68		
2	63		
1.18	59		
0.6	53	Particle density (assumed)	
0.425	51	2.65	Mg/m3
0.3	47		
0.212	43		
0.15	40		
0.063	34		

Dry Mass of sample, g	675

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	30
Silt	22
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.32
D_{30}	mm	0.0358
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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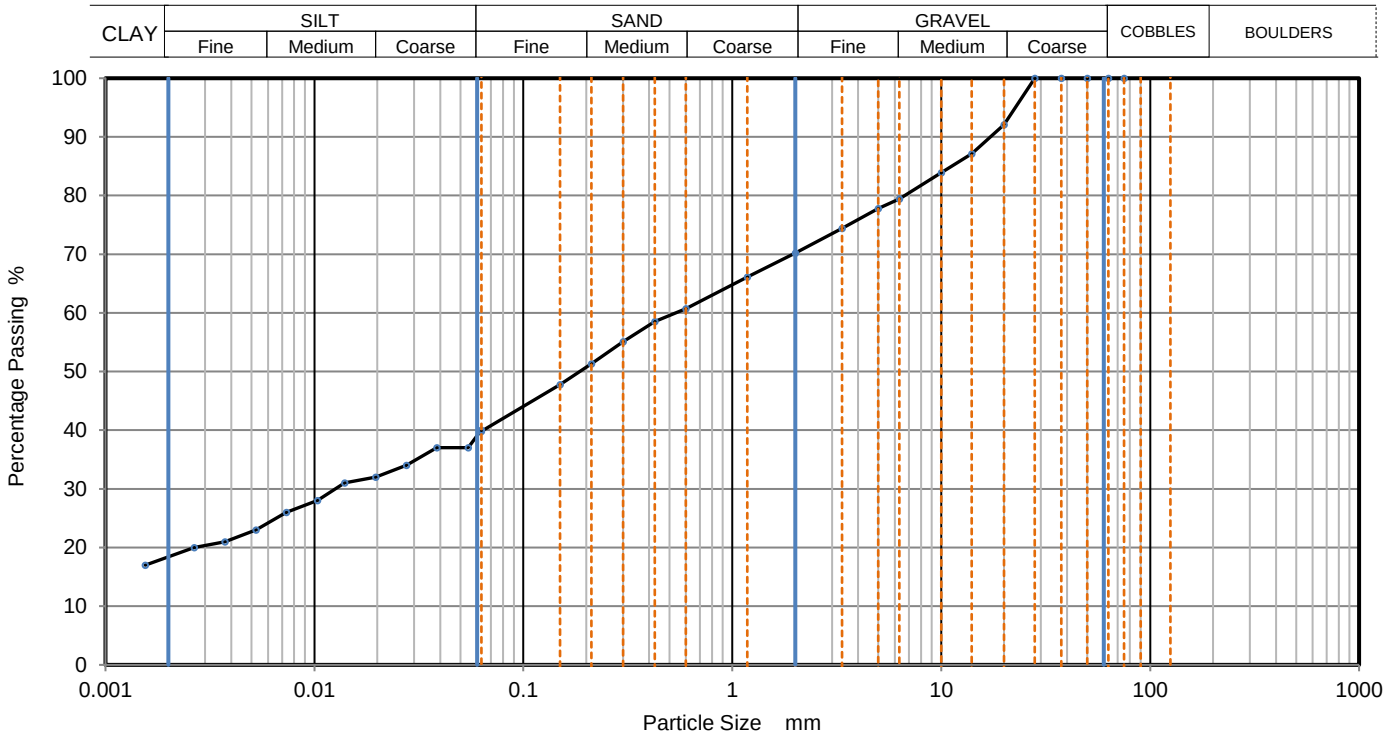
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72703
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221106



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0545	37
75	100	0.0385	37
63	100	0.0276	34
50	100	0.0196	32
37.5	100	0.0140	31
28	100	0.0103	28
20	92	0.0073	26
14	87	0.0053	23
10	84	0.0037	21
6.3	79	0.0027	20
5	78	0.0015	17
3.35	74		
2	70		
1.18	66		
0.6	61	Particle density (assumed)	
0.425	59	2.65 Mg/m3	
0.3	55		
0.212	51		
0.15	48		
0.063	40		

Dry Mass of sample, g	888

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	30
Silt	22
Clay	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.536
D_{30}	mm	0.0131
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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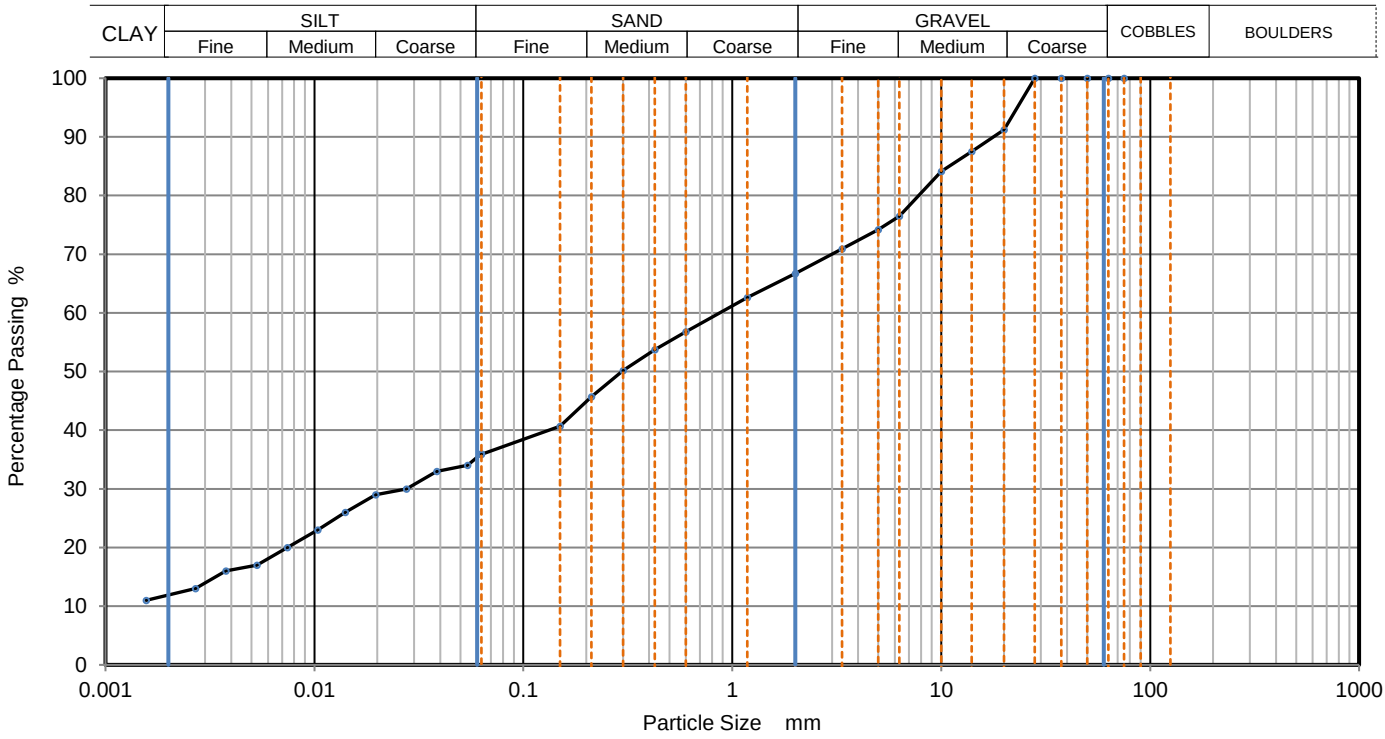
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72801
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark grey slightly sandy slightly gravelly SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0541	34
75	100	0.0385	33
63	100	0.0276	30
50	100	0.0196	29
37.5	100	0.0140	26
28	100	0.0104	23
20	91	0.0074	20
14	88	0.0053	17
10	84	0.0038	16
6.3	77	0.0027	13
5	74	0.0016	11
3.35	71		
2	67		
1.18	63		
0.6	57	Particle density (assumed)	
0.425	54	2.65 Mg/m3	
0.3	50		
0.212	46		
0.15	41		
0.063	36		

Dry Mass of sample, g	610

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	31
Silt	24
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.874
D_{30}	mm	0.0266
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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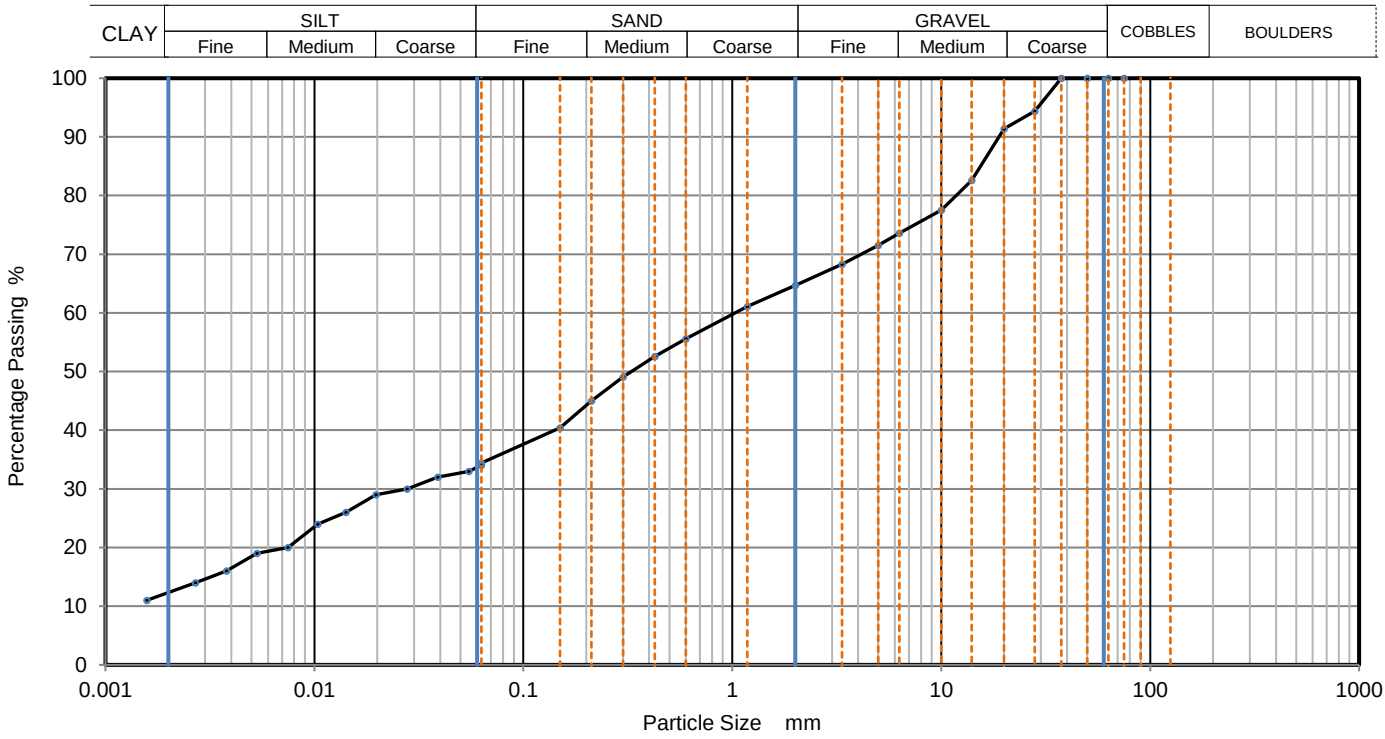
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-72801
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Brownish-grey very silty very sandy medium GRAVEL.	Depth, m	1.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211221112



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0548	33
75	100	0.0390	32
63	100	0.0278	30
50	100	0.0197	29
37.5	100	0.0141	26
28	94	0.0104	24
20	91	0.0075	20
14	83	0.0053	19
10	78	0.0038	16
6.3	74	0.0027	14
5	72	0.0016	11
3.35	68		
2	65		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	49		
0.212	45		
0.15	40		
0.063	34		

Dry Mass of sample, g	784

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	30
Silt	22
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.03
D_{30}	mm	0.0271
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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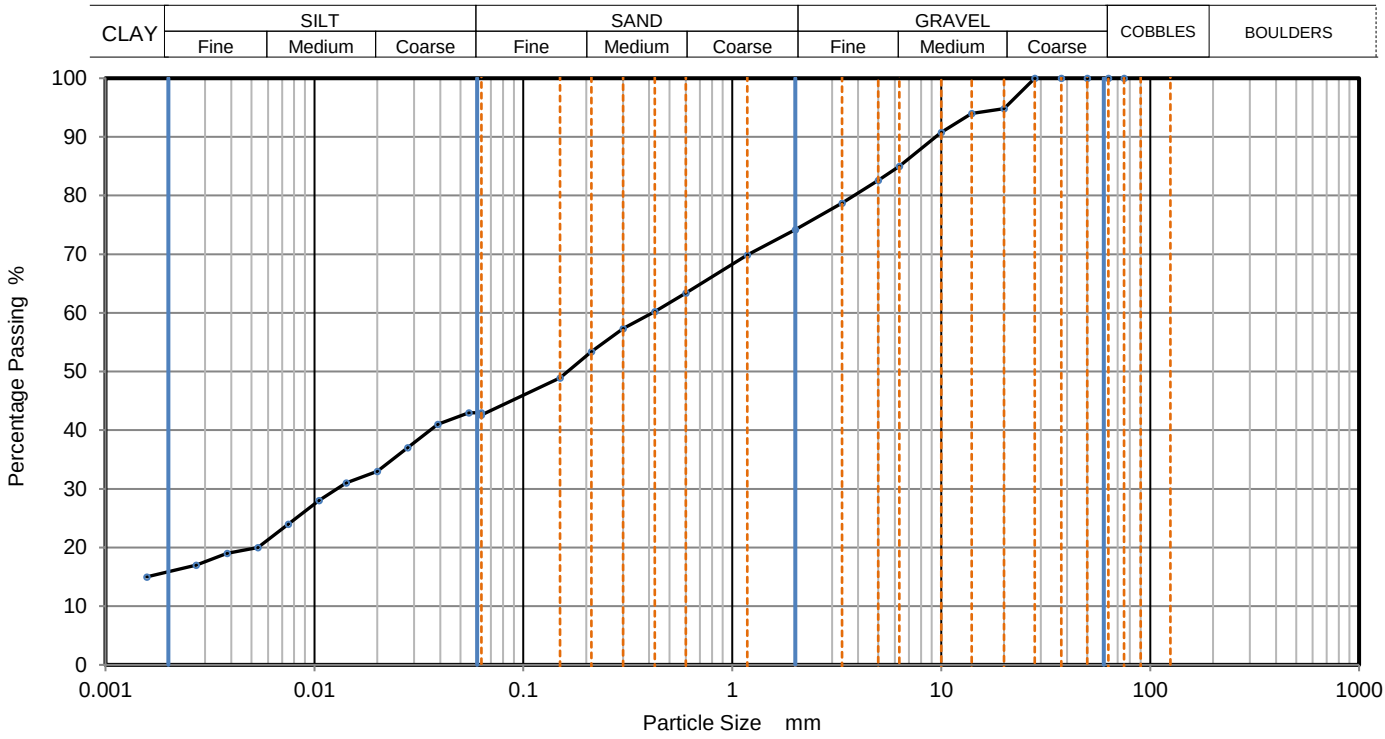
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72903
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221116



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0548	43
75	100	0.0390	41
63	100	0.0279	37
50	100	0.0200	33
37.5	100	0.0142	31
28	100	0.0105	28
20	95	0.0075	24
14	94	0.0054	20
10	91	0.0038	19
6.3	85	0.0027	17
5	83	0.0016	15
3.35	79		
2	74		
1.18	70		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	57		
0.212	53		
0.15	49		
0.063	43		

Dry Mass of sample, g	783

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	32
Silt	27
Clay	16

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.415
D_{30}	mm	0.0126
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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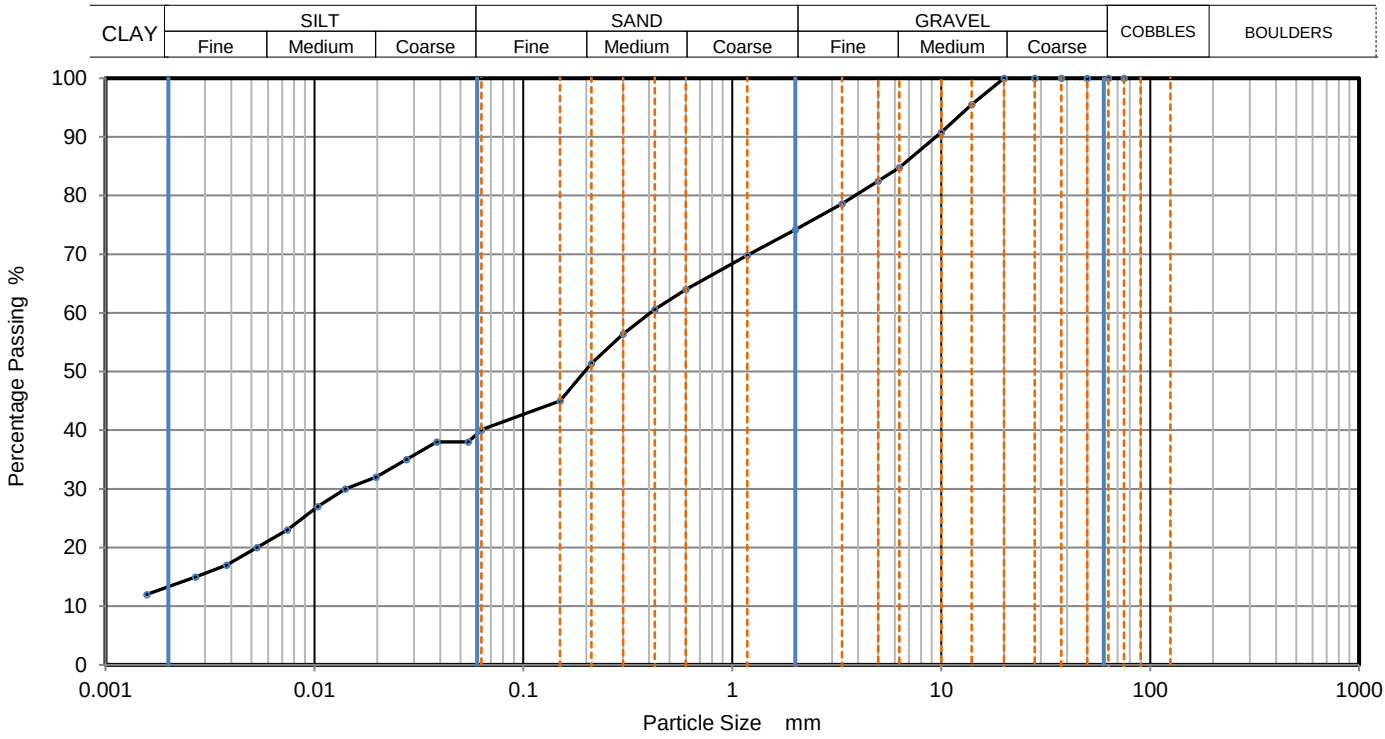
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-72903
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221118



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0545	38
75	100	0.0385	38
63	100	0.0276	35
50	100	0.0197	32
37.5	100	0.0140	30
28	100	0.0104	27
20	100	0.0074	23
14	96	0.0053	20
10	91	0.0038	17
6.3	85	0.0027	15
5	83	0.0016	12
3.35	79		
2	74		
1.18	70		
0.6	64	Particle density (assumed)	
0.425	61	2.65	Mg/m3
0.3	56		
0.212	51		
0.15	45		
0.063	40		

Dry Mass of sample, g	623

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	34
Silt	27
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.405
D_{30}	mm	0.0139
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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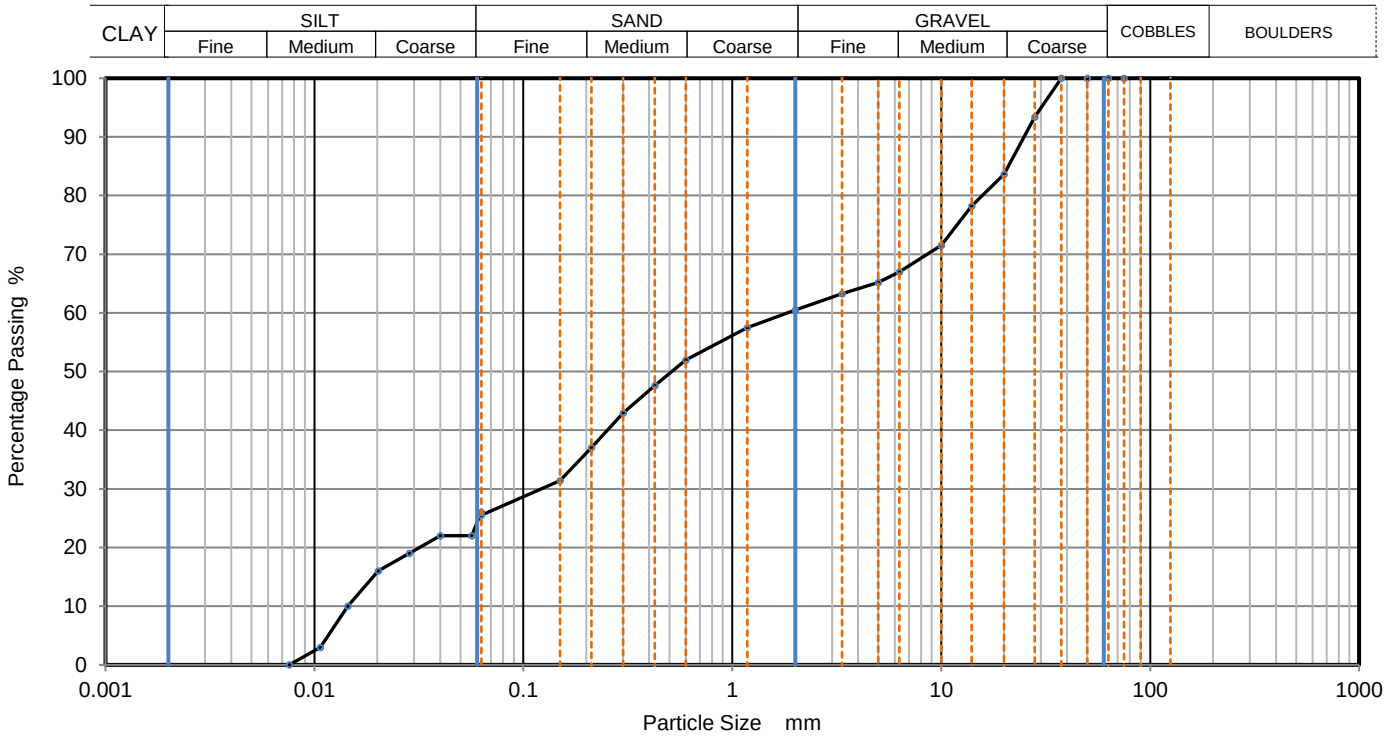
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73001
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Grey very silty very sandy GRAVEL.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221120



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	26
		0.0566	22
75	100	0.0401	22
63	100	0.0285	19
50	100	0.0202	16
37.5	100	0.0145	10
28	93	0.0107	3
20	84	0.0076	0
14	78		
10	72		
6.3	67		
5	65		
3.35	63		
2	61		
1.18	58		
0.6	52	Particle density (assumed)	
0.425	48	2.65	Mg/m3
0.3	43		
0.212	37		
0.15	31		
0.063	26		

Dry Mass of sample, g	548

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	35
Fines <0.063mm	26

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.82
D_{30}	mm	0.122
D_{10}	mm	0.0148
Uniformity Coefficient		120
Curvature Coefficient		0.55

Remarks

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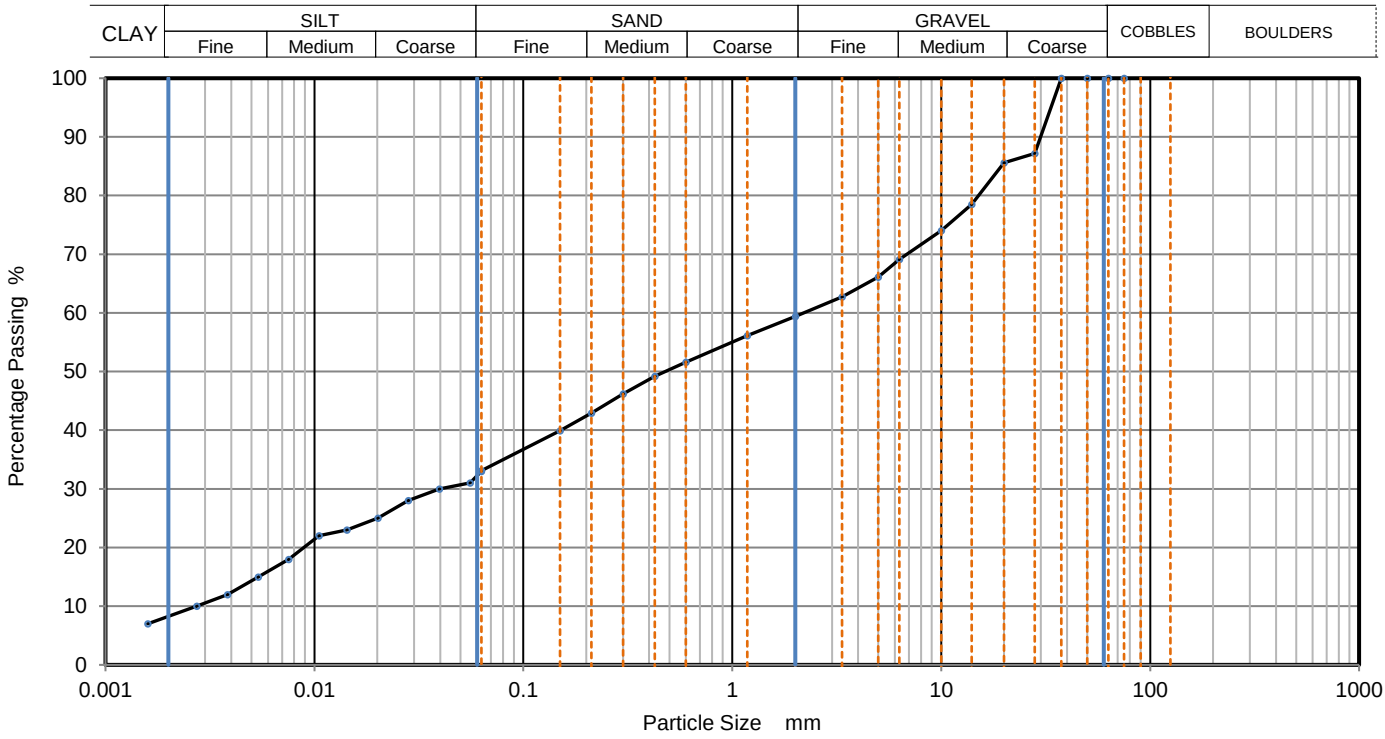
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

Job Ref	2021OY102		
Borehole/Pit No.	TP-73001		
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Dark grey very sandy very silty GRAVEL.	Depth, m	1.70
Specimen Reference		Specimen Depth	m
Sample Type	B		
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211221124



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0556	31
75	100	0.0396	30
63	100	0.0282	28
50	100	0.0201	25
37.5	100	0.0143	23
28	87	0.0105	22
20	86	0.0075	18
14	79	0.0054	15
10	74	0.0038	12
6.3	69	0.0027	10
5	66	0.0016	7
3.35	63		
2	59		
1.18	56		
0.6	52	Particle density (assumed)	
0.425	49	2.65 Mg/m3	
0.3	46		
0.212	43		
0.15	40		
0.063	33		

Dry Mass of sample, g	693

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	26
Silt	25
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.21
D_{30}	mm	0.0413
D_{10}	mm	0.00277
Uniformity Coefficient		800
Curvature Coefficient		0.28

Remarks

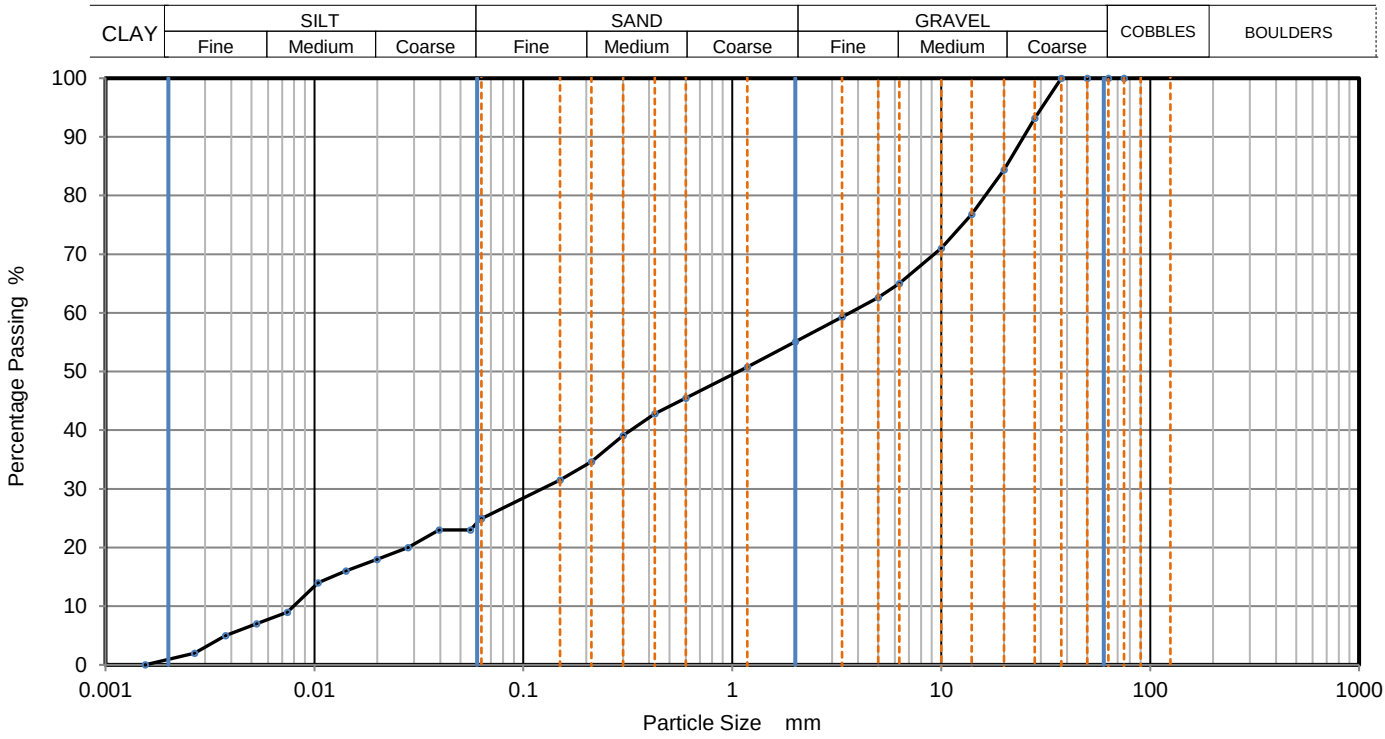
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73103
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty very sandy GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221126



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0557	23
75	100	0.0394	23
63	100	0.0280	20
50	100	0.0199	18
37.5	100	0.0142	16
28	93	0.0104	14
20	84	0.0074	9
14	77	0.0053	7
10	71	0.0038	5
6.3	65	0.0027	2
5	63	0.0015	0
3.35	59		
2	55		
1.18	51		
0.6	46	Particle density (assumed)	
0.425	43	2.65	Mg/m3
0.3	39		
0.212	35		
0.15	32		
0.063	25		

Dry Mass of sample, g	616

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	30
Silt	24
Clay	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.66
D_{30}	mm	0.124
D_{10}	mm	0.00797
Uniformity Coefficient		460
Curvature Coefficient		0.53

Remarks

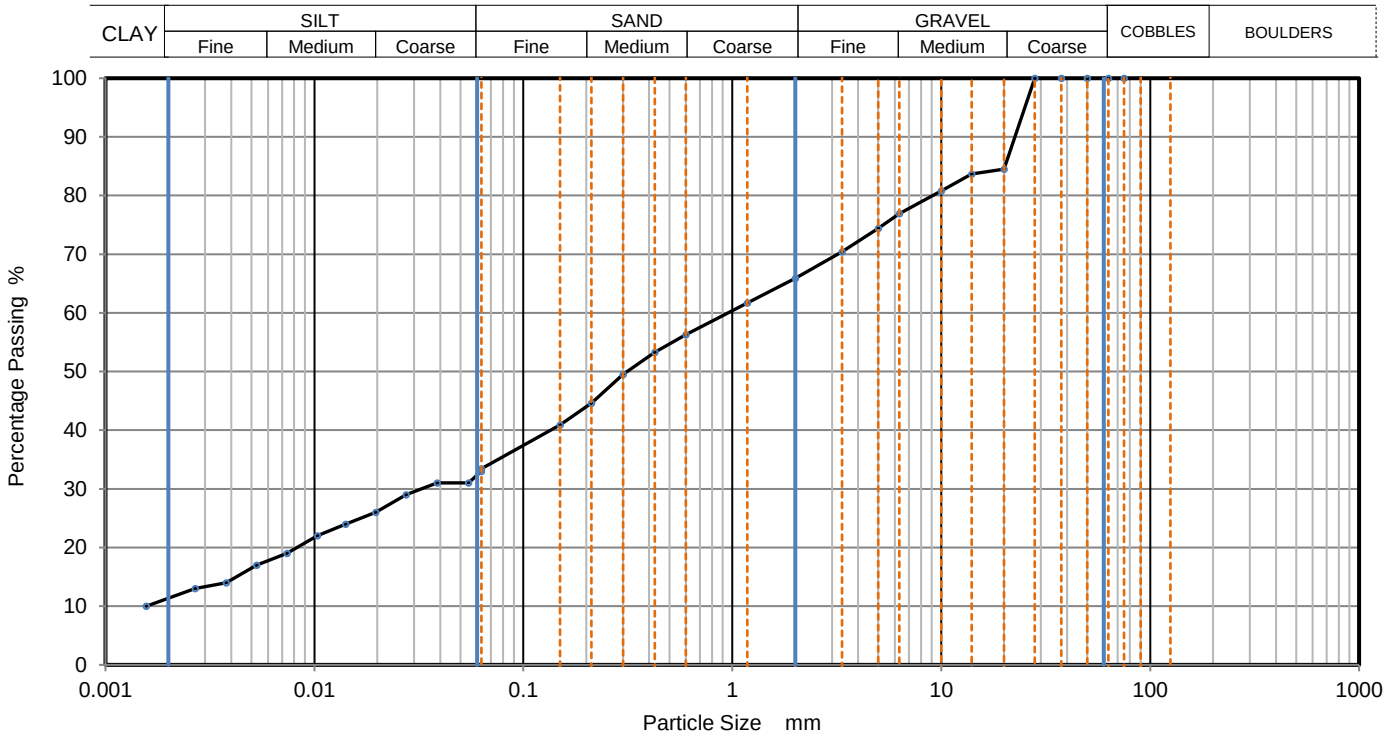
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-73103
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Light brown very silty SAND and GRAVEL.	Depth, m	1.70
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211221128



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0546	31
75	100	0.0386	31
63	100	0.0275	29
50	100	0.0197	26
37.5	100	0.0141	24
28	100	0.0103	22
20	85	0.0074	19
14	84	0.0053	17
10	81	0.0038	14
6.3	77	0.0027	13
5	74	0.0016	10
3.35	70		
2	66		
1.18	62		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	45		
0.15	41		
0.063	33		

Dry Mass of sample, g	801

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	33
Silt	22
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.956
D_{30}	mm	0.0332
D_{10}	mm	0.00165
Uniformity Coefficient		580
Curvature Coefficient		0.7

Remarks

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		Dympna Darcy B.Sc.	18/10/2022 15:39	**1** QC From No:R2

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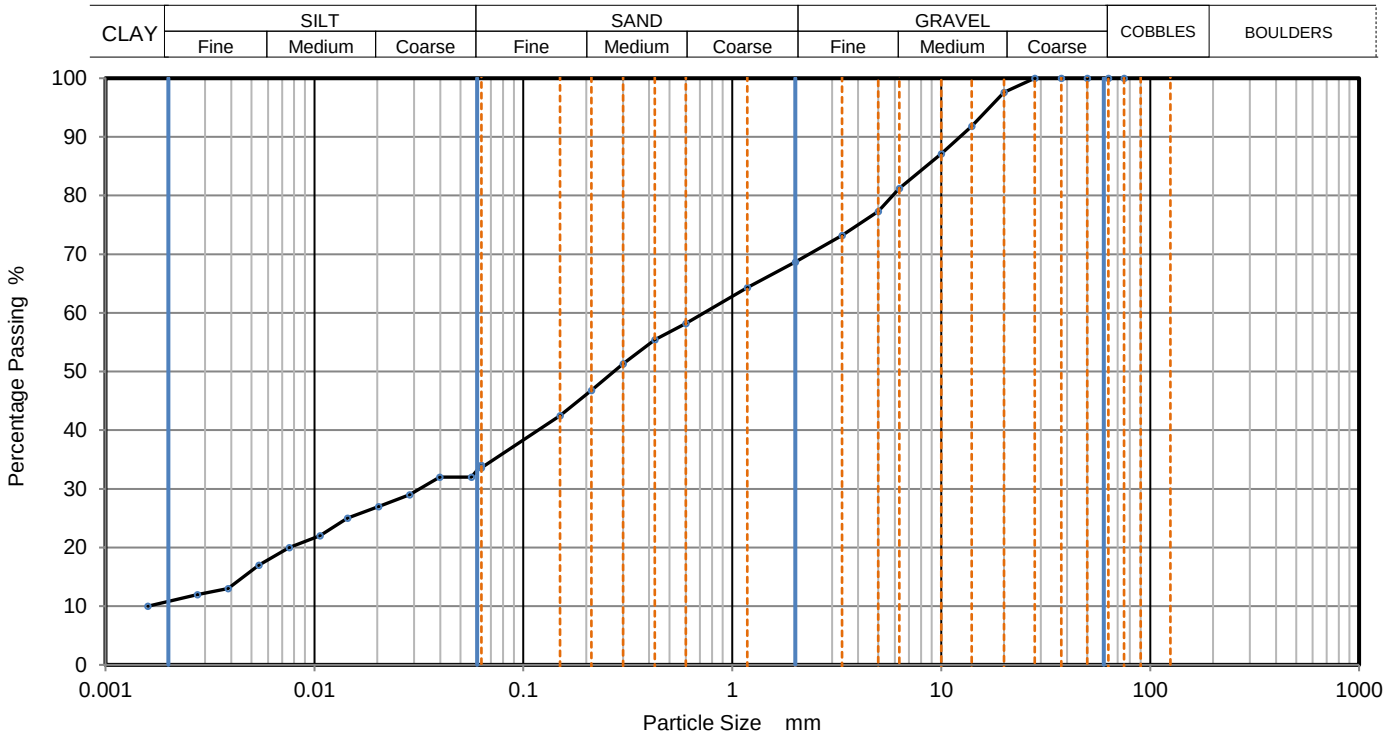
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73202
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221133



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0563	32
75	100	0.0398	32
63	100	0.0285	29
50	100	0.0203	27
37.5	100	0.0144	25
28	100	0.0106	22
20	98	0.0076	20
14	92	0.0054	17
10	87	0.0039	13
6.3	81	0.0027	12
5	77	0.0016	10
3.35	73		
2	69		
1.18	64		
0.6	58	Particle density (assumed)	
0.425	55	2.65 Mg/m3	
0.3	51		
0.212	47		
0.15	43		
0.063	34		

Dry Mass of sample, g	660

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	35
Silt	23
Clay	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.732
D_{30}	mm	0.0329
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

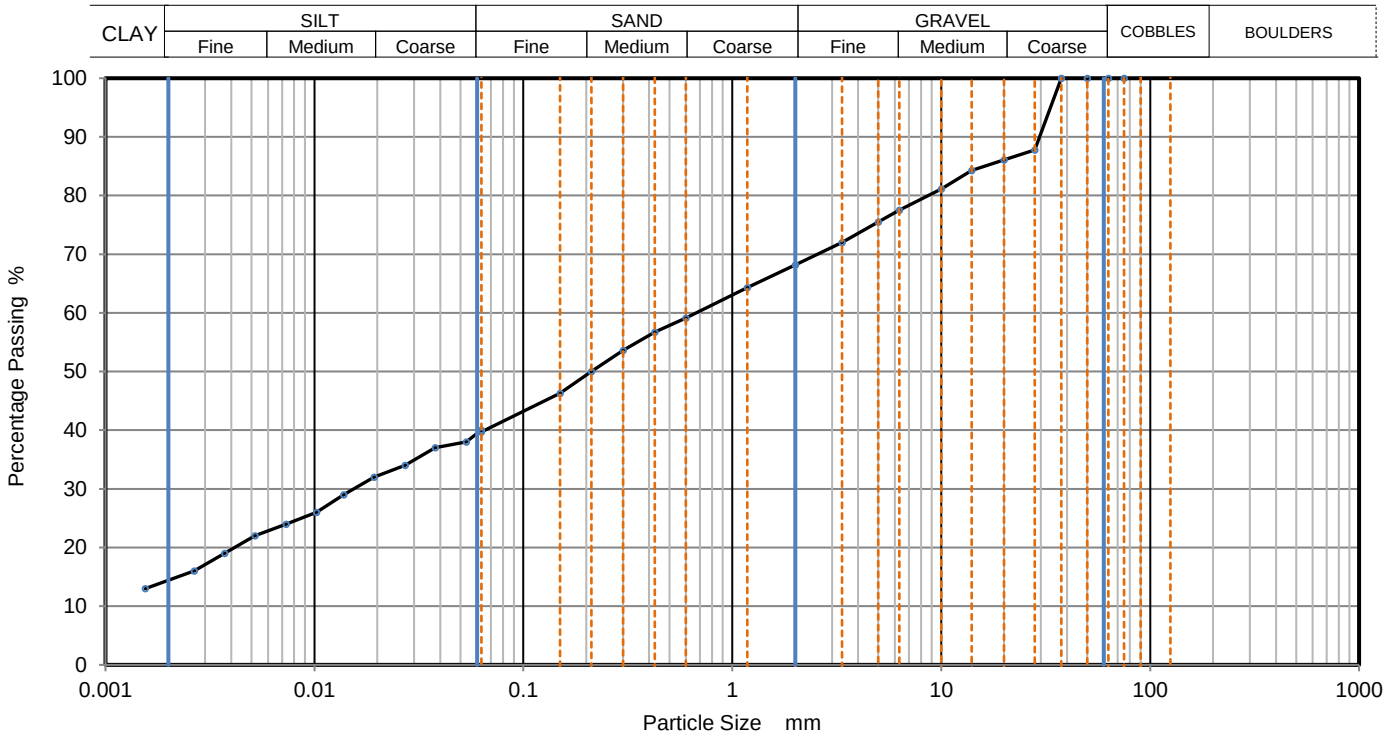
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:50	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73202
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221135



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0532	38
75	100	0.0379	37
63	100	0.0271	34
50	100	0.0193	32
37.5	100	0.0138	29
28	88	0.0102	26
20	86	0.0073	24
14	84	0.0052	22
10	81	0.0037	19
6.3	78	0.0027	16
5	76	0.0016	13
3.35	72		
2	68		
1.18	64		
0.6	59	Particle density (assumed)	
0.425	57	2.65	Mg/m3
0.3	54		
0.212	50		
0.15	46		
0.063	40		

Dry Mass of sample, g	891

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	29
Silt	25
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.673
D_{30}	mm	0.0148
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	04/01/2023 12:23	**1** QC From No:R2

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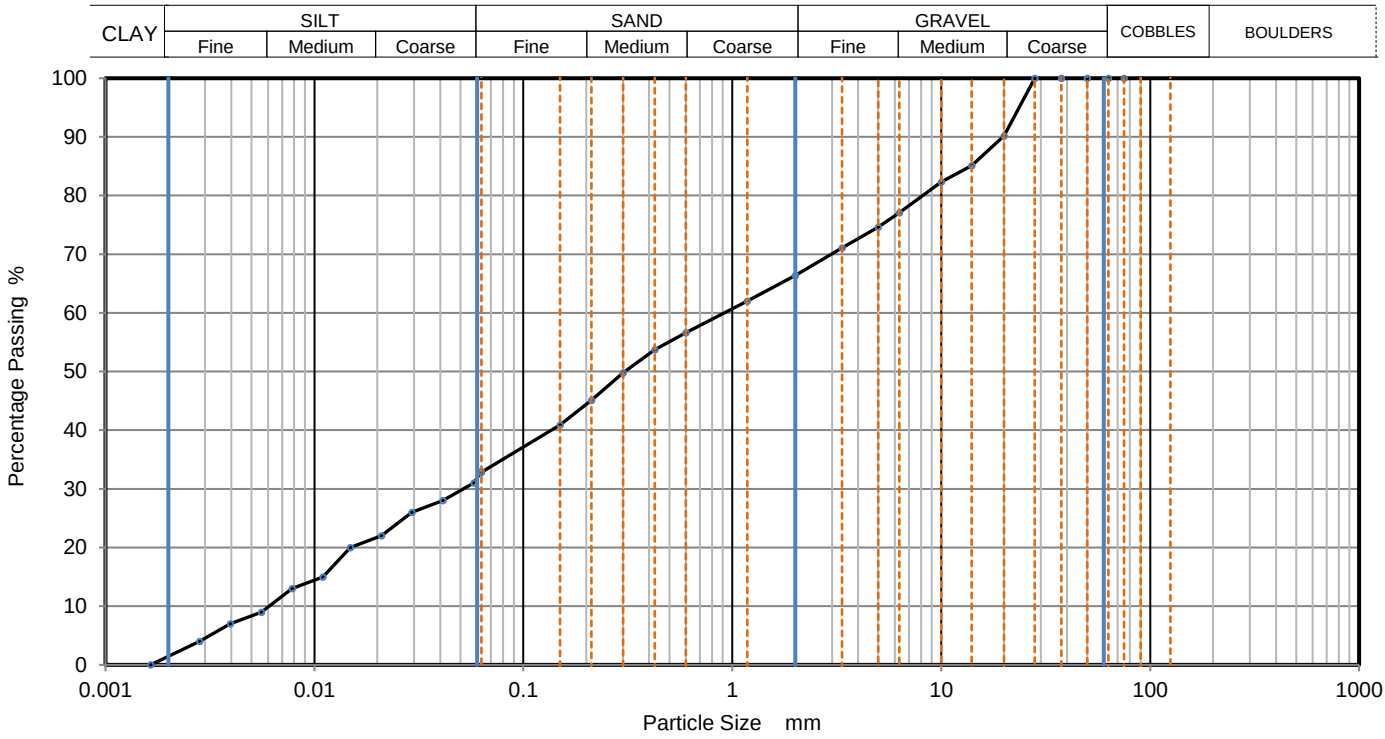
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73303
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Yellowish-brown very silty SAND and GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221137



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0579	31
75	100	0.0412	28
63	100	0.0293	26
50	100	0.0209	22
37.5	100	0.0149	20
28	100	0.0110	15
20	90	0.0078	13
14	85	0.0056	9
10	82	0.0040	7
6.3	77	0.0028	4
5	75	0.0016	0
3.35	71		
2	66		
1.18	62		
0.6	57	Particle density (assumed)	
0.425	54	2.65	Mg/m3
0.3	50		
0.212	45		
0.15	41		
0.063	33		

Dry Mass of sample, g	693

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	34
Silt	31
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.915
D_{30}	mm	0.0526
D_{10}	mm	0.00614
Uniformity Coefficient		150
Curvature Coefficient		0.49

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:50	**1** QC From No:R2

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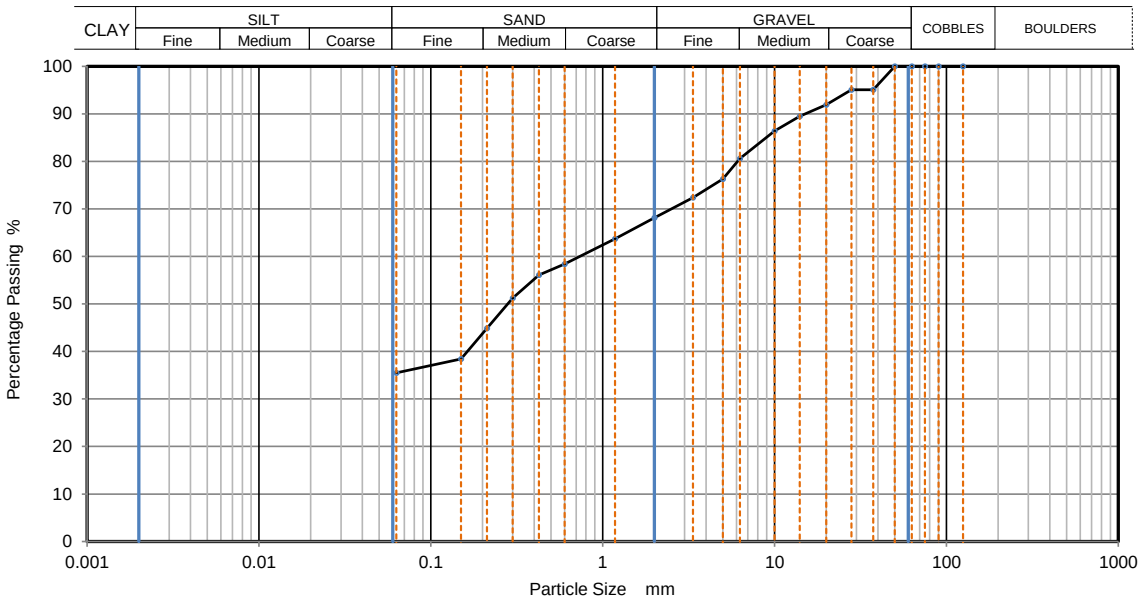
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	01/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	95		
20	92		
14	90		
10	86		
6.3	81		
5	76		
3.35	72		
2	68		
1.18	64		
0.6	58		
0.425	56		
0.3	51		
0.212	45		
0.15	38		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	31.9
Sand	32.6
Fines <0.063mm	35.5

Grading Analysis		
D100	mm	
D60	mm	0.736
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

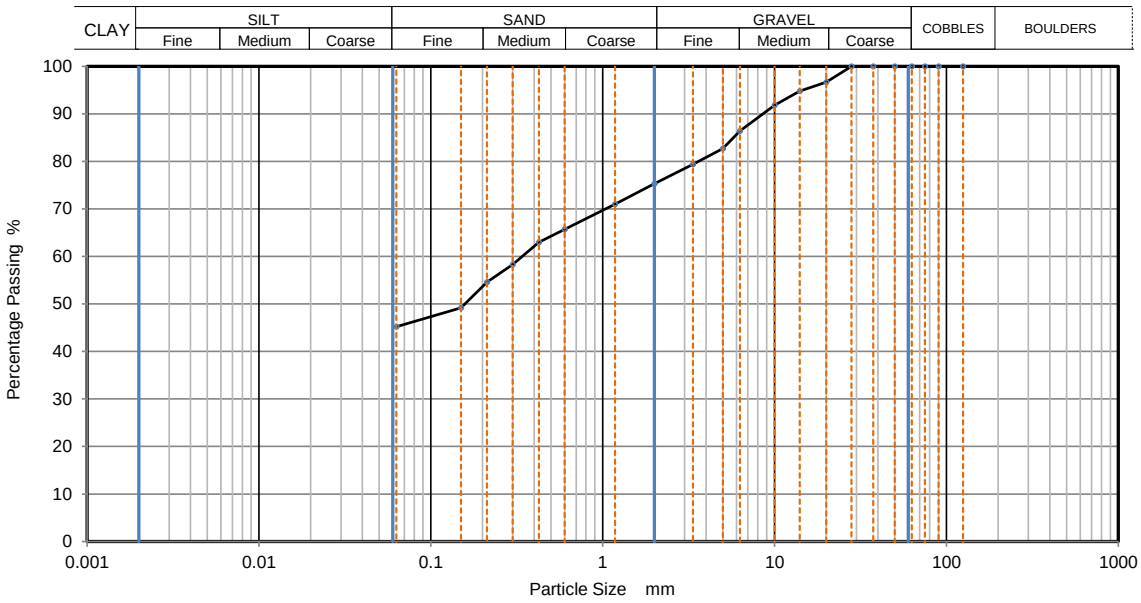
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-73403
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	01/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	95		
10	92		
6.3	86		
5	83		
3.35	79		
2	75		
1.18	71		
0.6	66		
0.425	63		
0.3	58		
0.212	55		
0.15	49		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.7
Sand	30.1
Fines <0.063mm	45.2

Grading Analysis		
D100	mm	
D60	mm	0.34
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

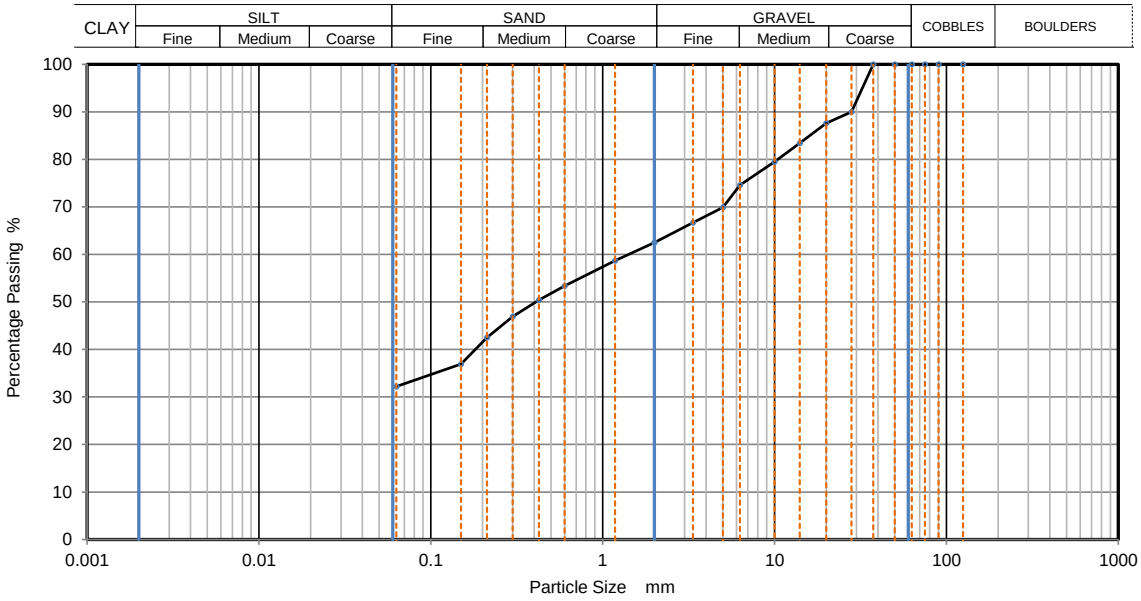
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-73504
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	01/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	88		
14	83		
10	80		
6.3	75		
5	70		
3.35	67		
2	63		
1.18	59		
0.6	53		
0.425	50		
0.3	47		
0.212	43		
0.15	37		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	37.5
Sand	30.3
Fines <0.063mm	32.2

Grading Analysis		
D100	mm	
D60	mm	1.42
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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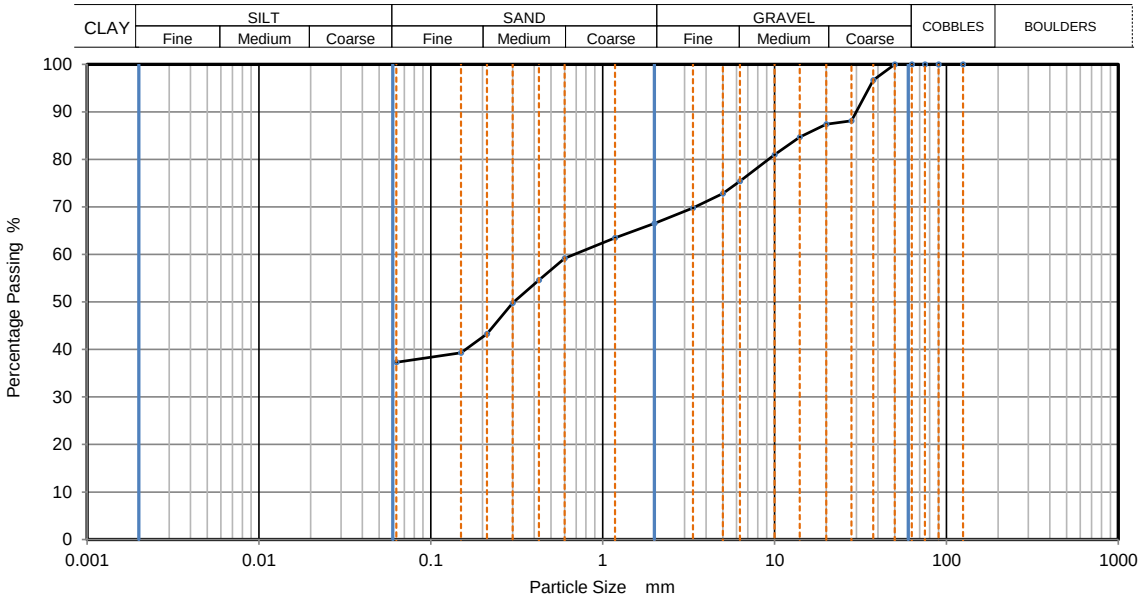
Initials: **J.P**

Date: 15/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-73504
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	88		
20	87		
14	85		
10	81		
6.3	75		
5	73		
3.35	70		
2	67		
1.18	64		
0.6	59		
0.425	55		
0.3	50		
0.212	43		
0.15	39		
0.063	37		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.5
Sand	29.2
Fines <0.063mm	37.4

Grading Analysis		
D100	mm	
D60	mm	0.682
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 15/11/2022

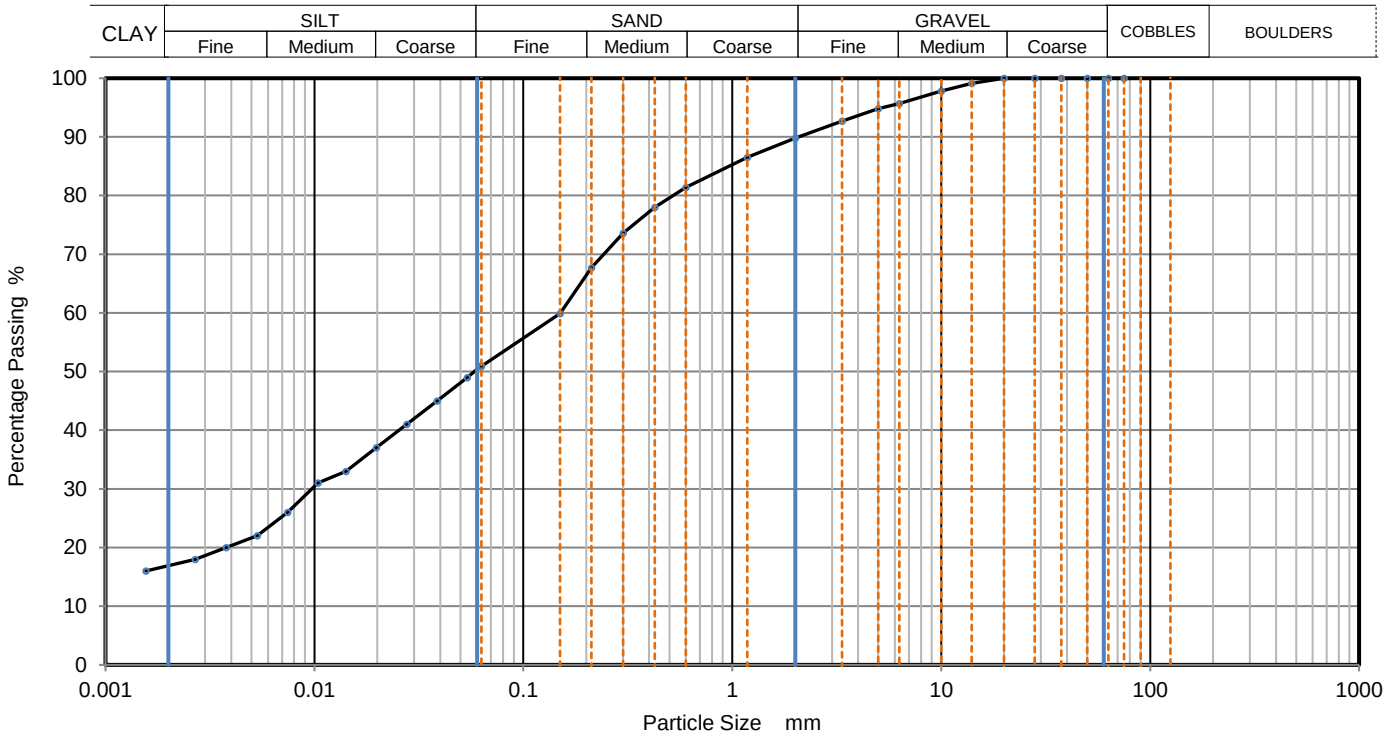
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73602
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221139



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	51
		0.0539	49
75	100	0.0386	45
63	100	0.0277	41
50	100	0.0198	37
37.5	100	0.0142	33
28	100	0.0104	31
20	100	0.0074	26
14	99	0.0053	22
10	98	0.0038	20
6.3	96	0.0027	18
5	95	0.0016	16
3.35	93		
2	90		
1.18	87		
0.6	81	Particle density (assumed)	
0.425	78	2.65	Mg/m3
0.3	74		
0.212	68		
0.15	60		
0.063	51		

Dry Mass of sample, g	476

Sample Proportions	% dry mass
Very coarse	0
Gravel	10
Sand	39
Silt	34
Clay	17

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.15
D_{30}	mm	0.00995
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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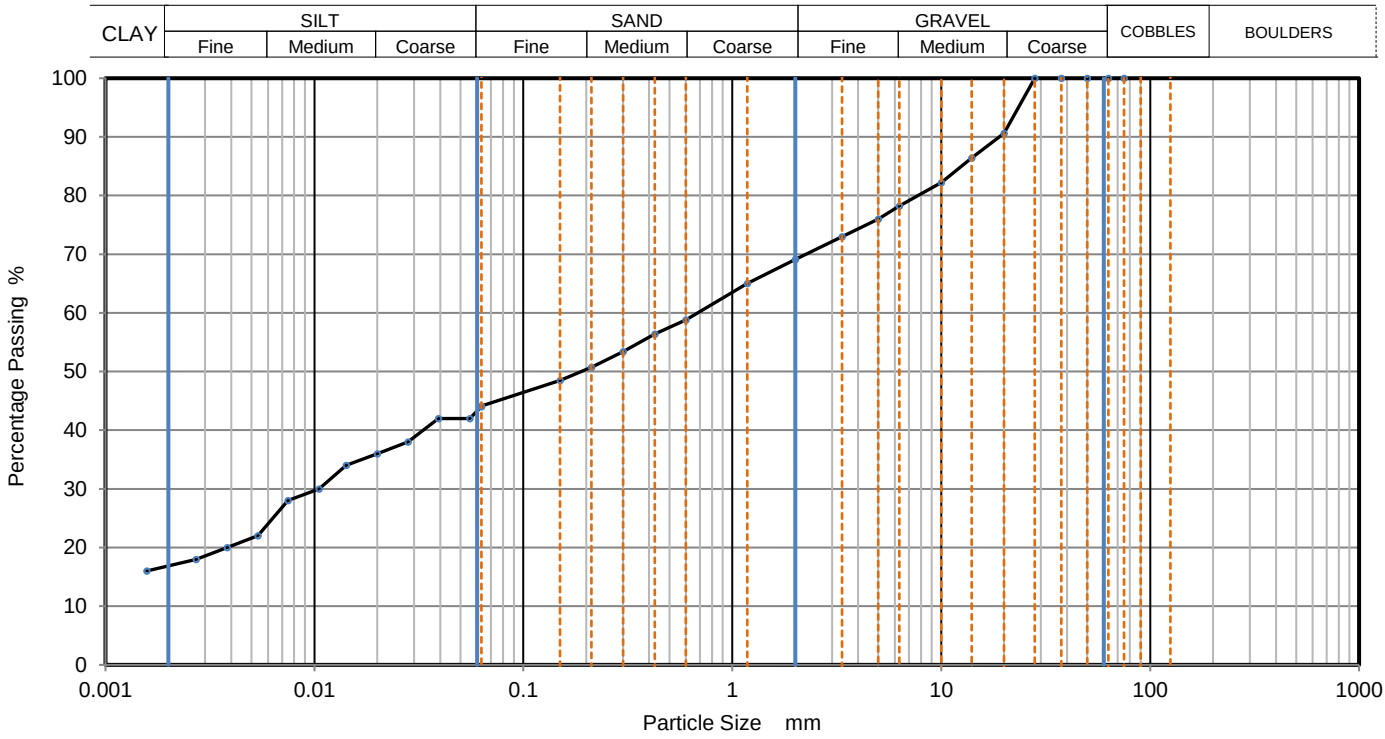
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73602
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly sandy slightly gravelly SILT.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221142



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	44
		0.0555	42
75	100	0.0392	42
63	100	0.0281	38
50	100	0.0200	36
37.5	100	0.0142	34
28	100	0.0105	30
20	91	0.0075	28
14	86	0.0054	22
10	82	0.0038	20
6.3	78	0.0027	18
5	76	0.0016	16
3.35	73		
2	69		
1.18	65		
0.6	59	Particle density (assumed)	
0.425	56	2.65 Mg/m3	
0.3	53		
0.212	51		
0.15	49		
0.063	44		

Dry Mass of sample, g	844

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	25
Silt	27
Clay	17

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.686
D_{30}	mm	0.0104
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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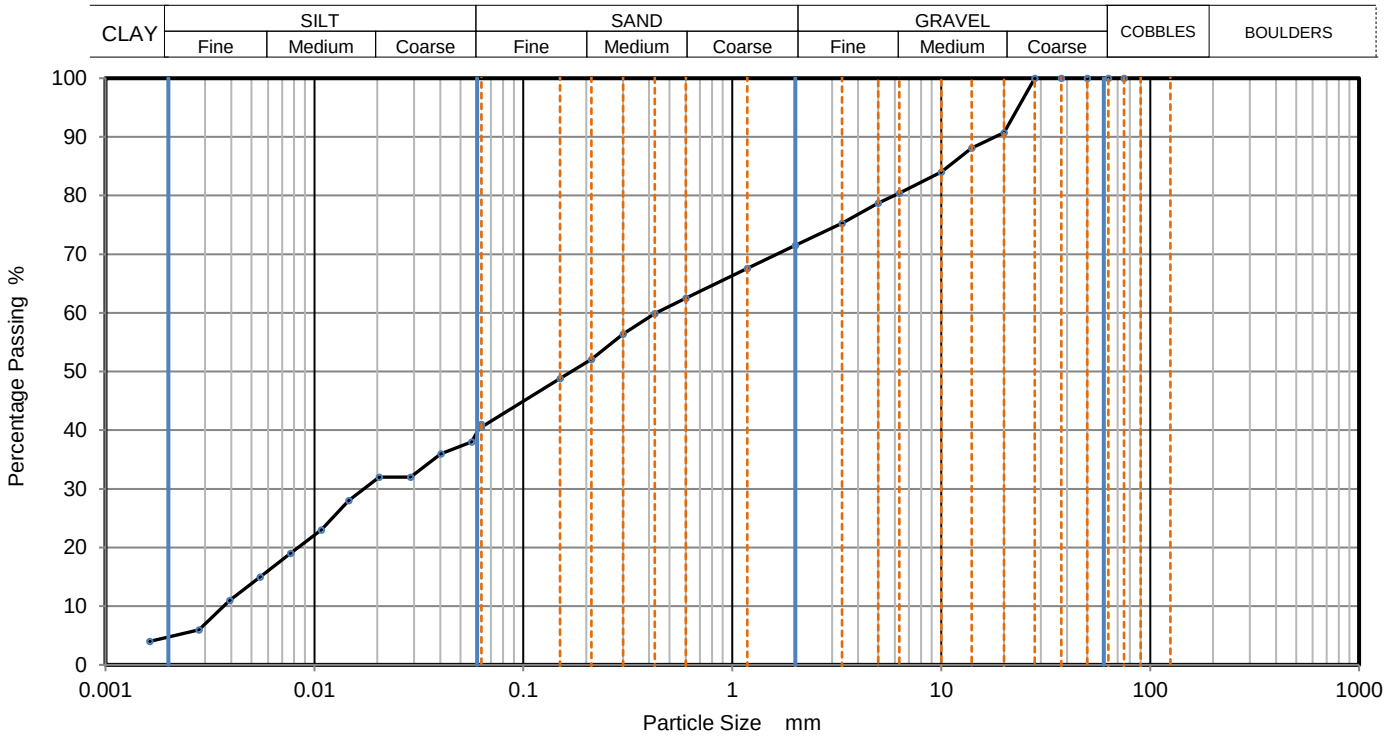
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73602
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221144



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0567	38
75	100	0.0403	36
63	100	0.0288	32
50	100	0.0204	32
37.5	100	0.0146	28
28	100	0.0108	23
20	91	0.0077	19
14	88	0.0055	15
10	84	0.0039	11
6.3	80	0.0028	6
5	79	0.0016	4
3.35	75		
2	72		
1.18	68		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	56		
0.212	52		
0.15	49		
0.063	41		

Dry Mass of sample, g: 590

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	31
Silt	35
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.43
D_{30}	mm	0.0175
D_{10}	mm	0.00373
Uniformity Coefficient		120
Curvature Coefficient		0.19

Remarks

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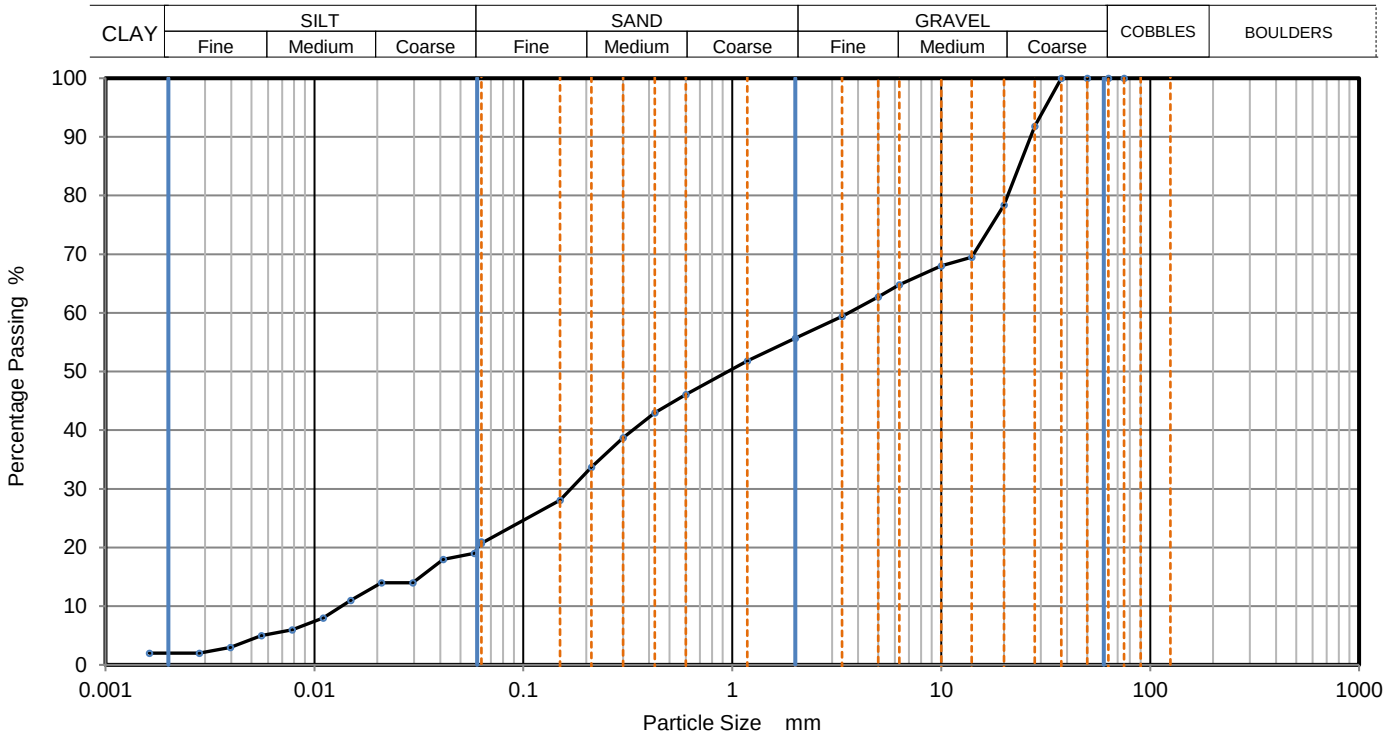
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-73704
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Dark grey very silty very sandy coarse GRAVEL.	Depth, m	0.60
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211221146



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	21
		0.0581	19
75	100	0.0413	18
63	100	0.0295	14
50	100	0.0209	14
37.5	100	0.0149	11
28	92	0.0110	8
20	78	0.0078	6
14	70	0.0056	5
10	68	0.0040	3
6.3	65	0.0028	2
5	63	0.0016	2
3.35	59		
2	56		
1.18	52		
0.6	46	Particle density (assumed)	
0.425	43	2.65 Mg/m3	
0.3	39		
0.212	34		
0.15	28		
0.063	21		

Dry Mass of sample, g: 469

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	35
Silt	19
Clay	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.6
D_{30}	mm	0.169
D_{10}	mm	0.0134
Uniformity Coefficient		270
Curvature Coefficient		0.59

Remarks

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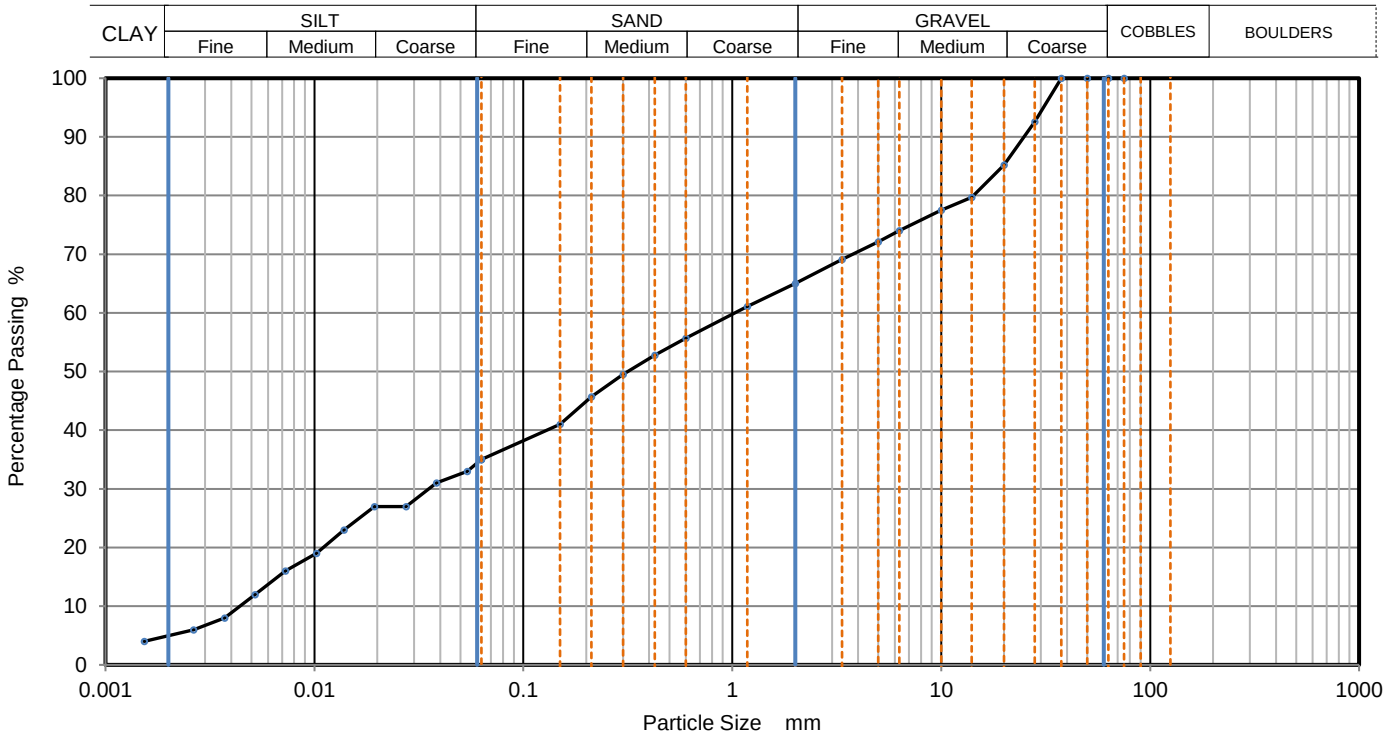
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-73704
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Brown slightly sandy gravelly SILT.	Depth, m	1.30
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL120211221148



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	35
		0.0539	33
75	100	0.0383	31
63	100	0.0274	27
50	100	0.0194	27
37.5	100	0.0139	23
28	93	0.0102	19
20	85	0.0073	16
14	80	0.0052	12
10	78	0.0037	8
6.3	74	0.0026	6
5	72	0.0015	4
3.35	69		
2	65		
1.18	61		
0.6	56	Particle density (assumed)	
0.425	53	2.65 Mg/m3	
0.3	50		
0.212	46		
0.15	41		
0.063	35		

Dry Mass of sample, g	715

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	30
Silt	30
Clay	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.02
D_{30}	mm	0.0357
D_{10}	mm	0.00429
Uniformity Coefficient		240
Curvature Coefficient		0.29

Remarks

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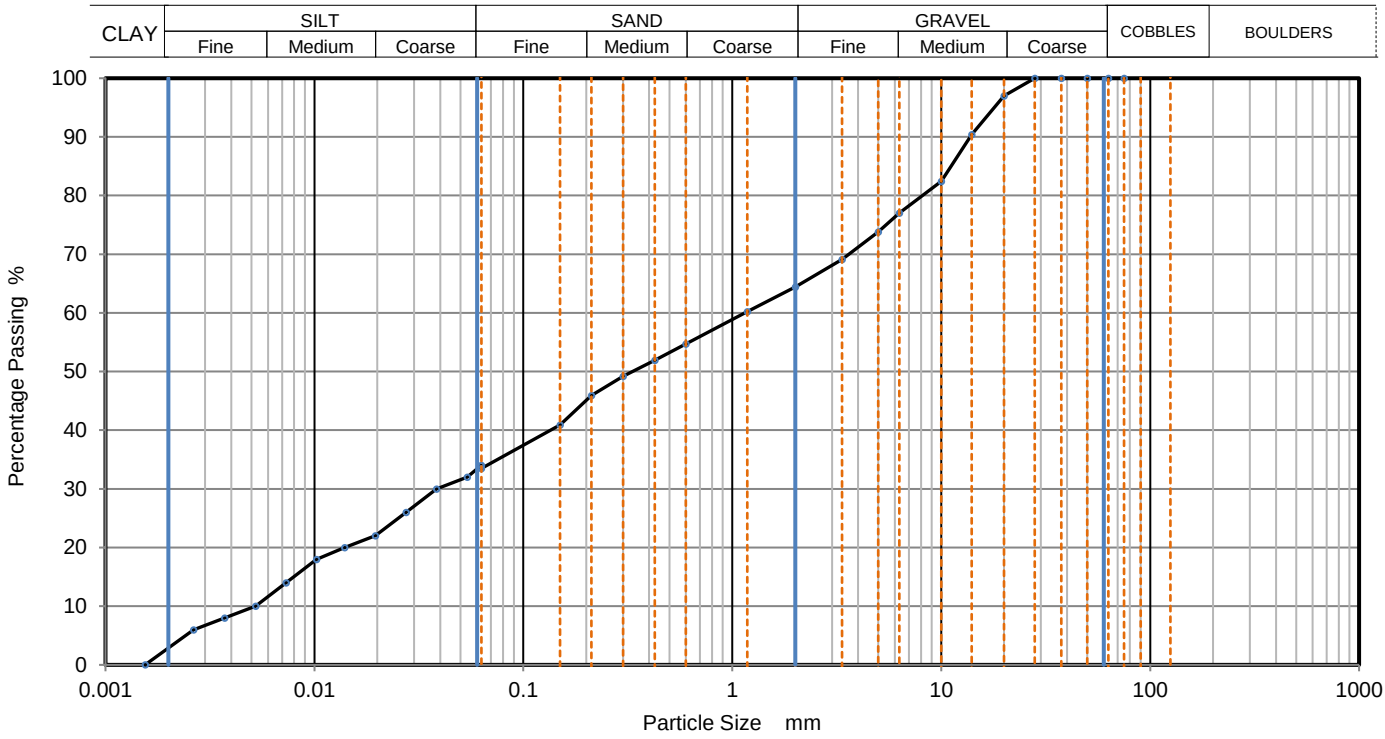
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-73704
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greenish-grey slightly sandy gravelly SILT. Gravel is medium.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120211221150



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0539	32
75	100	0.0383	30
63	100	0.0274	26
50	100	0.0196	22
37.5	100	0.0139	20
28	100	0.0102	18
20	97	0.0073	14
14	90	0.0052	10
10	82	0.0037	8
6.3	77	0.0026	6
5	74	0.0015	0
3.35	69		
2	64		
1.18	60		
0.6	55	Particle density (assumed)	
0.425	52	2.65	Mg/m3
0.3	49		
0.212	46		
0.15	41		
0.063	34		

Dry Mass of sample, g	819

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	31
Silt	31
Clay	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.14
D_{30}	mm	0.0414
D_{10}	mm	0.00529
Uniformity Coefficient		220
Curvature Coefficient		0.28

Remarks

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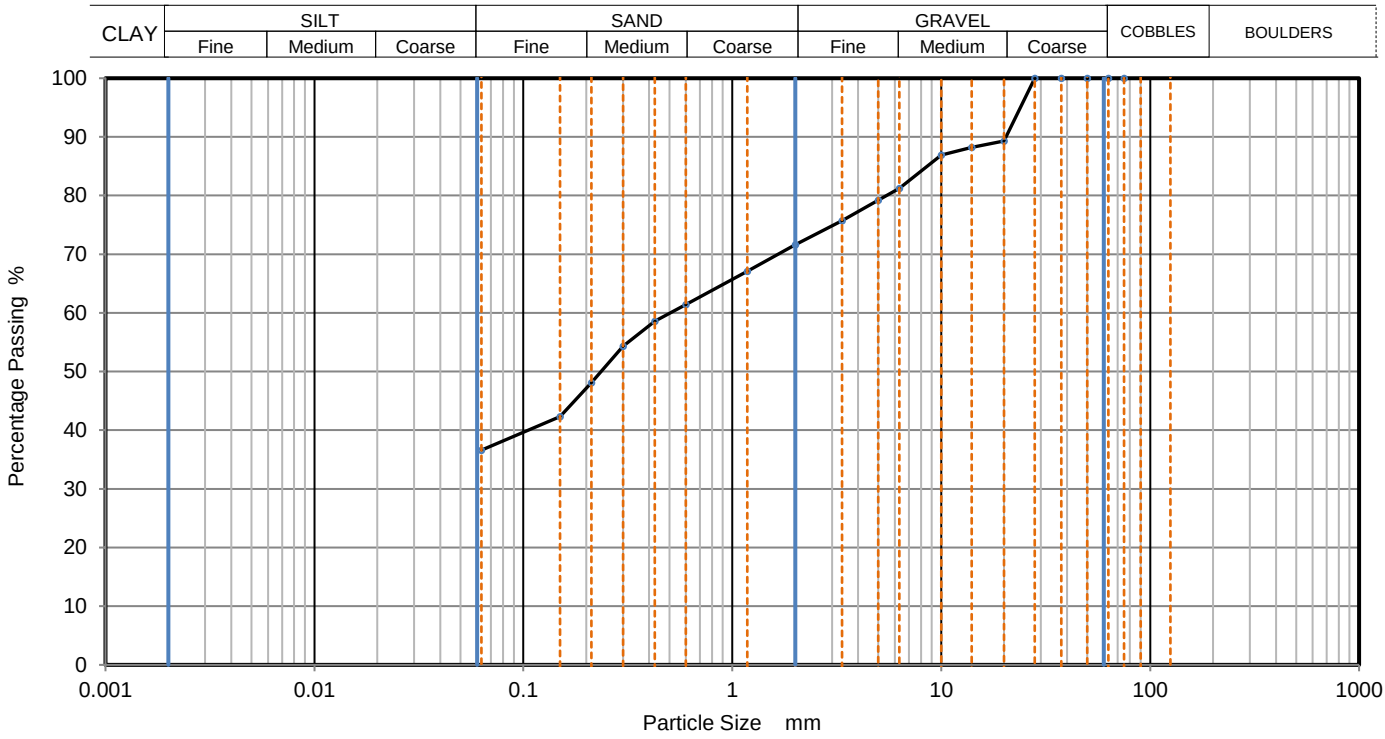
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74102
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011372



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	88		
10	87		
6.3	81		
5	79		
3.35	76		
2	72		
1.18	67		
0.6	61		
0.425	59		
0.3	54		
0.212	48		
0.15	42		
0.063	37		

Dry Mass of sample, g	608

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	35
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	0.504
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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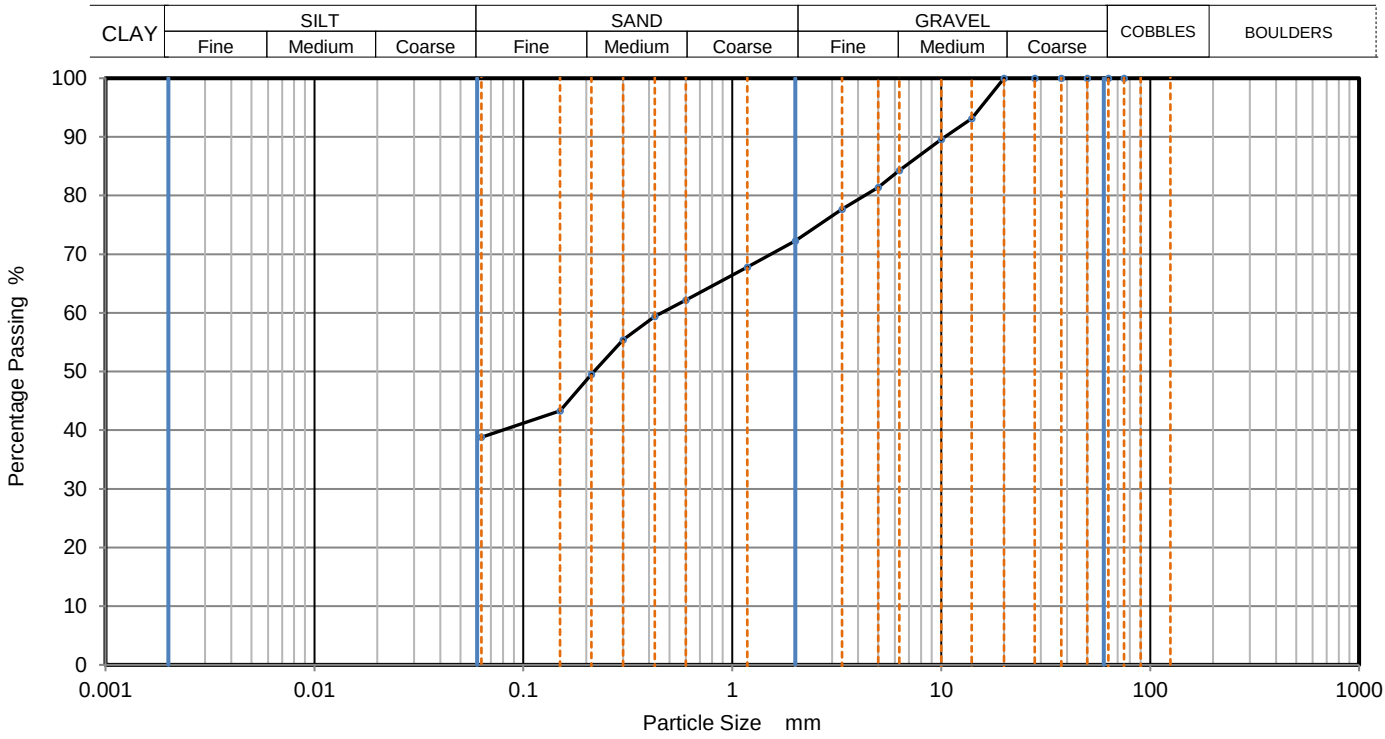
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74102
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey slightly gravelly sandy SILT.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011374



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	93		
10	90		
6.3	84		
5	81		
3.35	78		
2	72		
1.18	68		
0.6	62		
0.425	59		
0.3	55		
0.212	50		
0.15	43		
0.063	39		

Dry Mass of sample, g	916

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	34
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.458
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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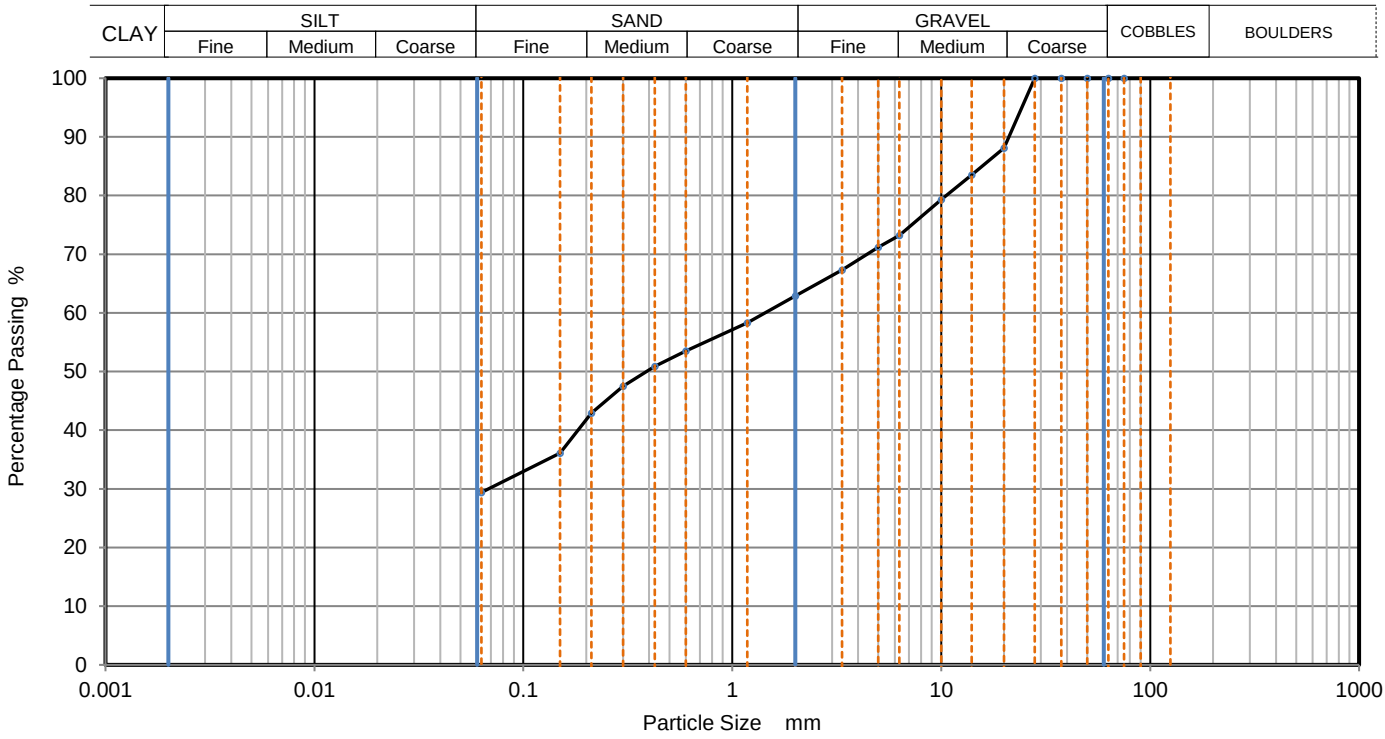
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74102
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark grey very silty SAND and GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011376



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	88		
14	84		
10	79		
6.3	73		
5	71		
3.35	67		
2	63		
1.18	58		
0.6	54		
0.425	51		
0.3	48		
0.212	43		
0.15	36		
0.063	29		

Dry Mass of sample, g: 842

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	34
Fines <0.063mm	29

Grading Analysis		
D100	mm	
D60	mm	1.43
D30	mm	0.0684
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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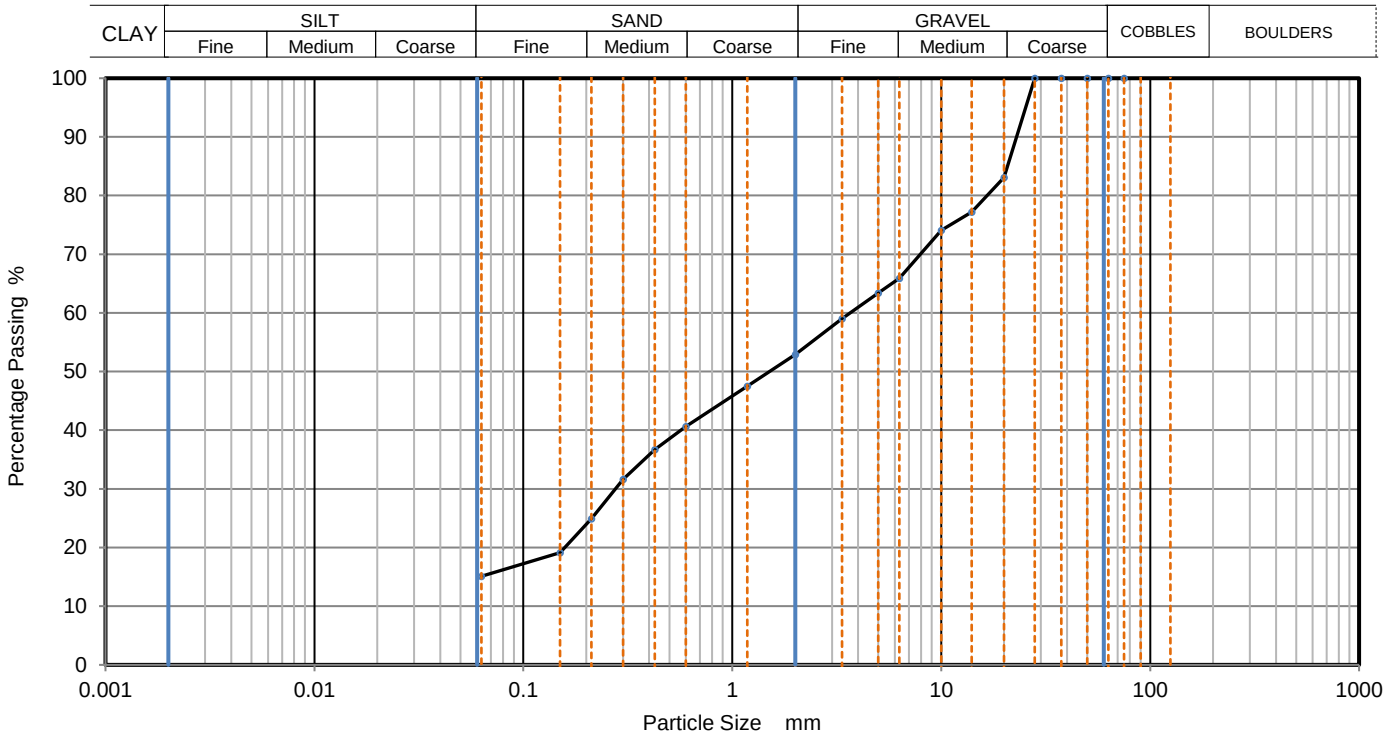
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74170
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Dark grey silty very sandy GRAVEL.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011378



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	83		
14	77		
10	74		
6.3	66		
5	63		
3.35	59		
2	53		
1.18	48		
0.6	41		
0.425	37		
0.3	32		
0.212	25		
0.15	19		
0.063	15		

Dry Mass of sample, g	620

Sample Proportions	% dry mass
Very coarse	0
Gravel	47
Sand	38
Fines <0.063mm	15

Grading Analysis		
D100	mm	
D60	mm	3.66
D30	mm	0.276
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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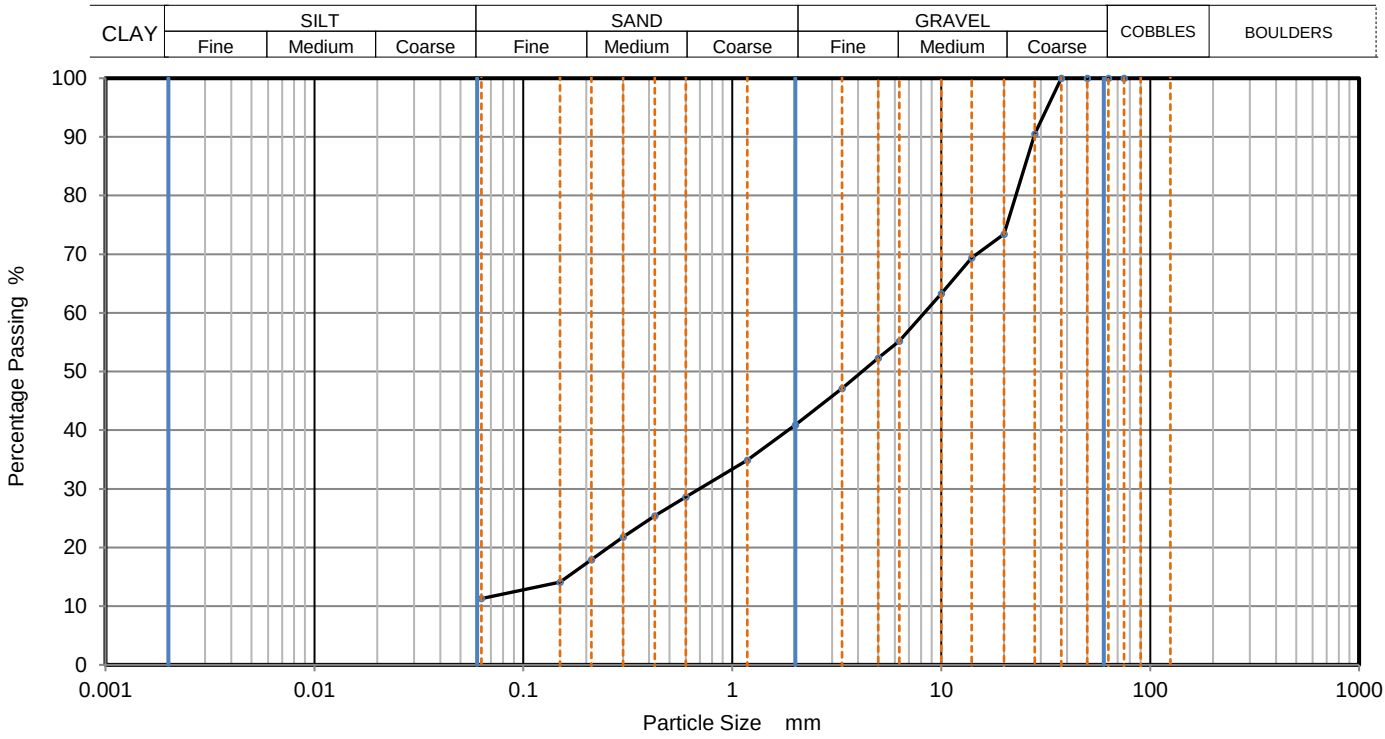
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74170
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Dark grey silty very sandy coarse GRAVEL.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011380



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	73		
14	69		
10	63		
6.3	55		
5	52		
3.35	47		
2	41		
1.18	35		
0.6	29		
0.425	25		
0.3	22		
0.212	18		
0.15	14		
0.063	11		

Dry Mass of sample, g	710

Sample Proportions	% dry mass
Very coarse	0
Gravel	59
Sand	30
Fines <0.063mm	11

Grading Analysis		
D100	mm	
D60	mm	8.29
D30	mm	0.7
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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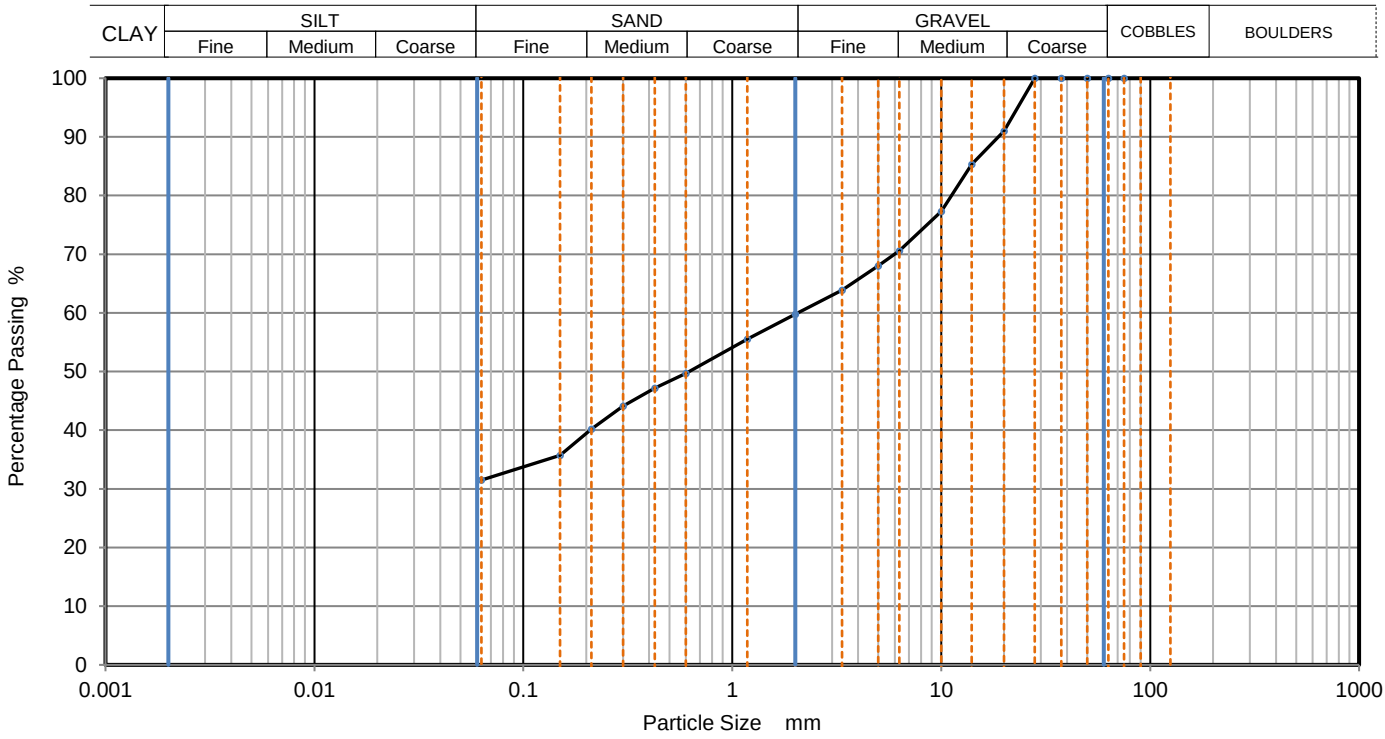
		Dympna Darcy B.Sc.	09/12/2022 16:08	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74170
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Grey very sandy very silty medium GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011381



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	85		
10	77		
6.3	71		
5	68		
3.35	64		
2	60		
1.18	56		
0.6	50		
0.425	47		
0.3	44		
0.212	40		
0.15	36		
0.063	32		

Dry Mass of sample, g	876

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	28
Fines <0.063mm	31

Grading Analysis		
D100	mm	
D60	mm	2.05
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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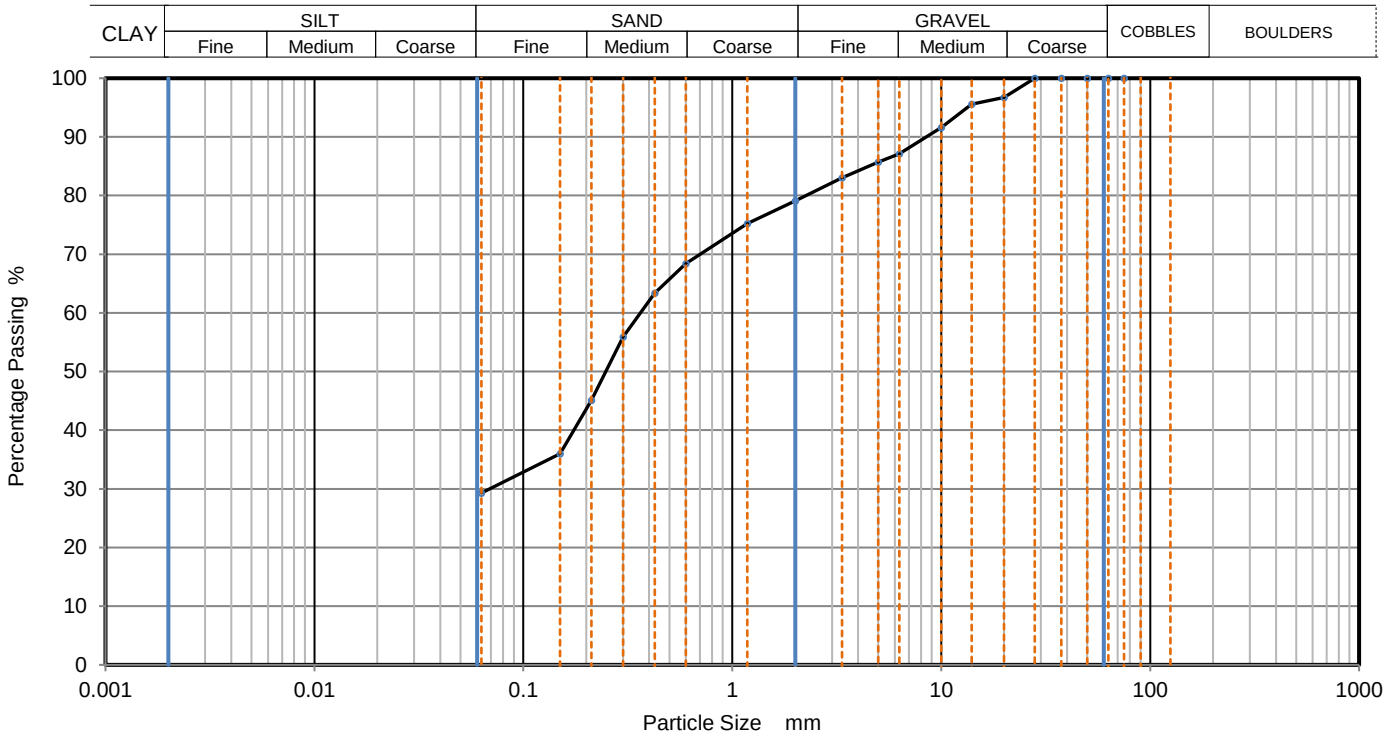
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74416
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey very gravelly very silty medium SAND.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011383



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	97		
14	96		
10	92		
6.3	87		
5	86		
3.35	83		
2	79		
1.18	75		
0.6	68		
0.425	63		
0.3	56		
0.212	45		
0.15	36		
0.063	29		

Dry Mass of sample, g	697

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	50
Fines <0.063mm	29

Grading Analysis		
D100	mm	
D60	mm	0.363
D30	mm	0.0686
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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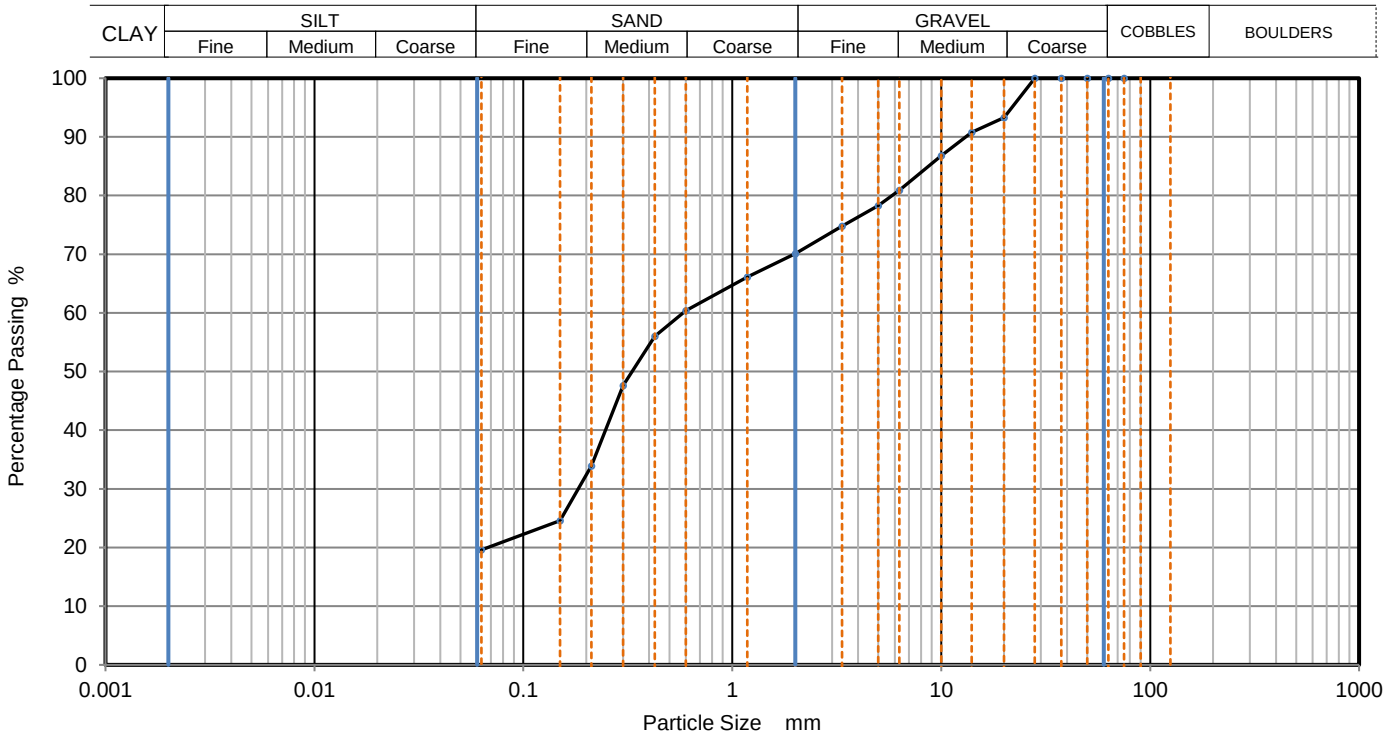
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74416
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Bluish-grey very silty very gravelly medium SAND.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011386



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	93		
14	91		
10	87		
6.3	81		
5	78		
3.35	75		
2	70		
1.18	66		
0.6	60		
0.425	56		
0.3	48		
0.212	34		
0.15	25		
0.063	20		

Dry Mass of sample, g	643

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	51
Fines <0.063mm	20

Grading Analysis		
D100	mm	
D60	mm	0.582
D30	mm	0.183
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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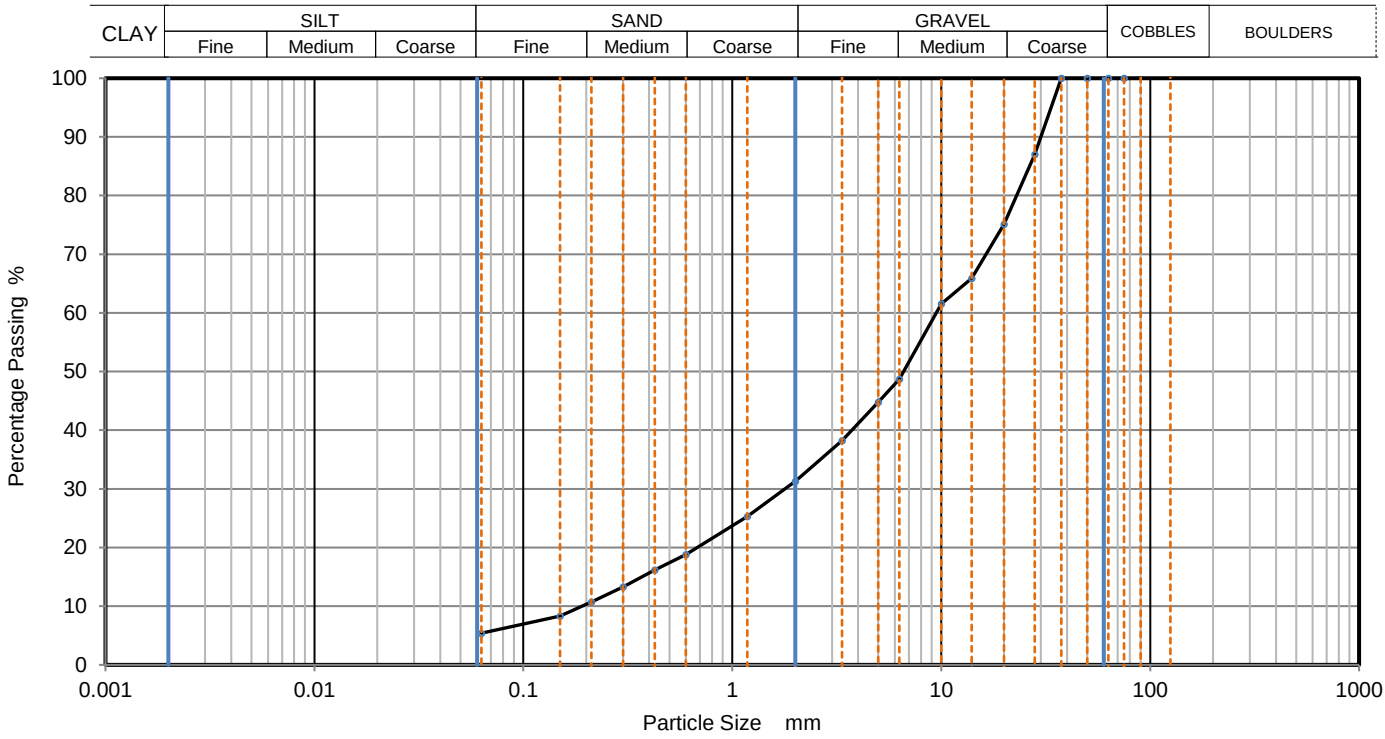
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74416
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Bluish-grey silty very sandy medium and coarse GRAVEL.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011388



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	87		
20	75		
14	66		
10	62		
6.3	49		
5	45		
3.35	38		
2	31		
1.18	25		
0.6	19		
0.425	16		
0.3	13		
0.212	11		
0.15	8		
0.063	5		

Dry Mass of sample, g	687

Sample Proportions	% dry mass
Very coarse	0
Gravel	69
Sand	26
Fines <0.063mm	5

Grading Analysis		
D100	mm	
D60	mm	9.46
D30	mm	1.79
D10	mm	0.192
Uniformity Coefficient		49
Curvature Coefficient		1.8

Remarks

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		Dympna Darcy B.Sc.	09/12/2022 16:08	**1** QC From No:R2

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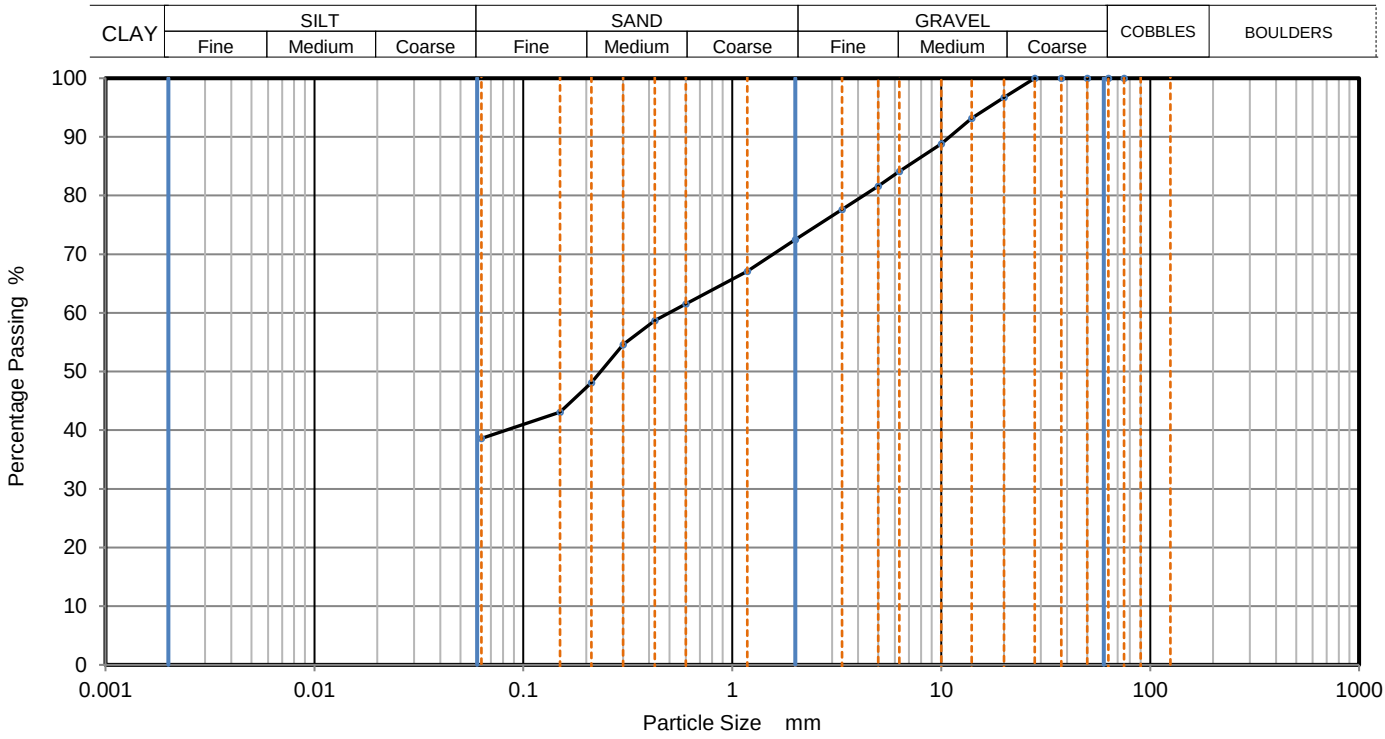
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74503
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201060



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	93		
10	89		
6.3	84		
5	82		
3.35	78		
2	73		
1.18	67		
0.6	62		
0.425	59		
0.3	55		
0.212	48		
0.15	43		
0.063	39		

Dry Mass of sample, g	588

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	34
Fines <0.063mm	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.498
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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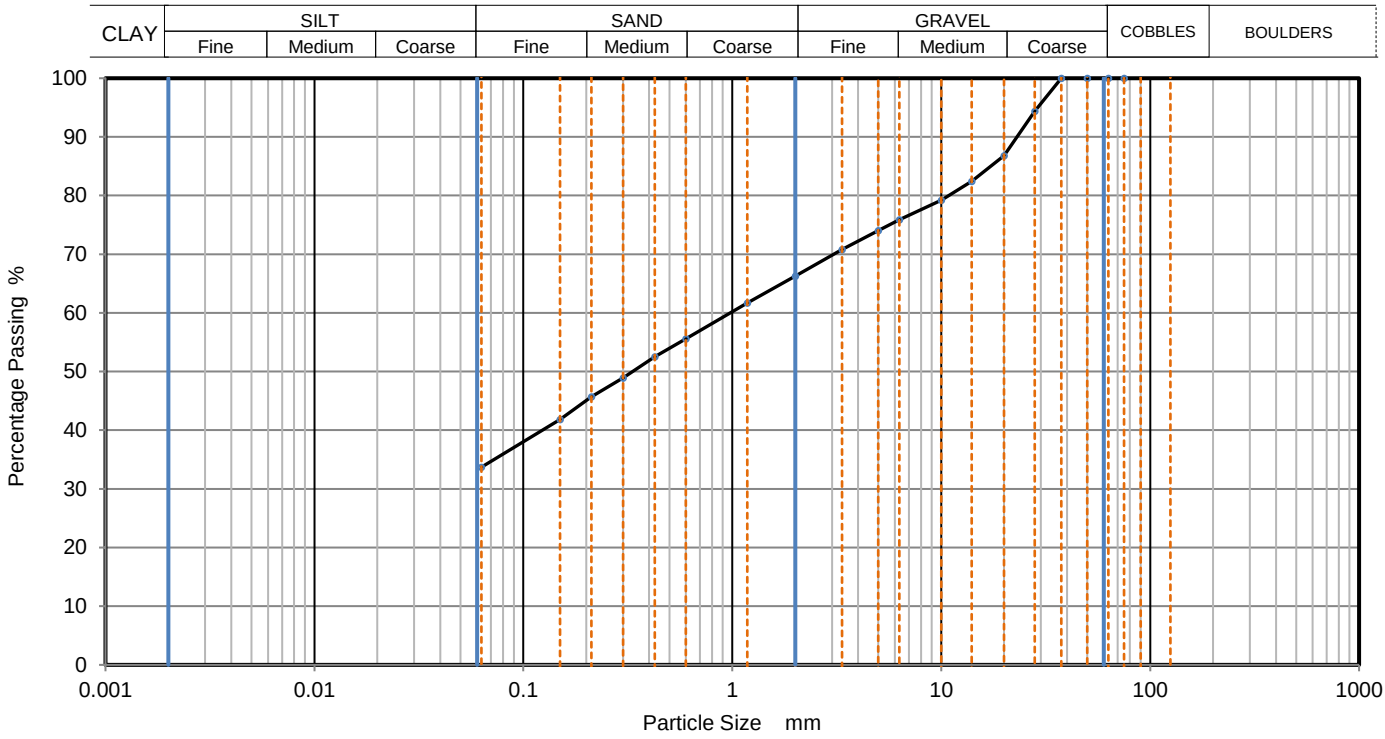
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201063



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	87		
14	82		
10	79		
6.3	76		
5	74		
3.35	71		
2	66		
1.18	62		
0.6	56		
0.425	53		
0.3	49		
0.212	46		
0.15	42		
0.063	34		

Dry Mass of sample, g	728

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	33
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	0.978
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/12/2022 16:01	**1** QC From No:R2

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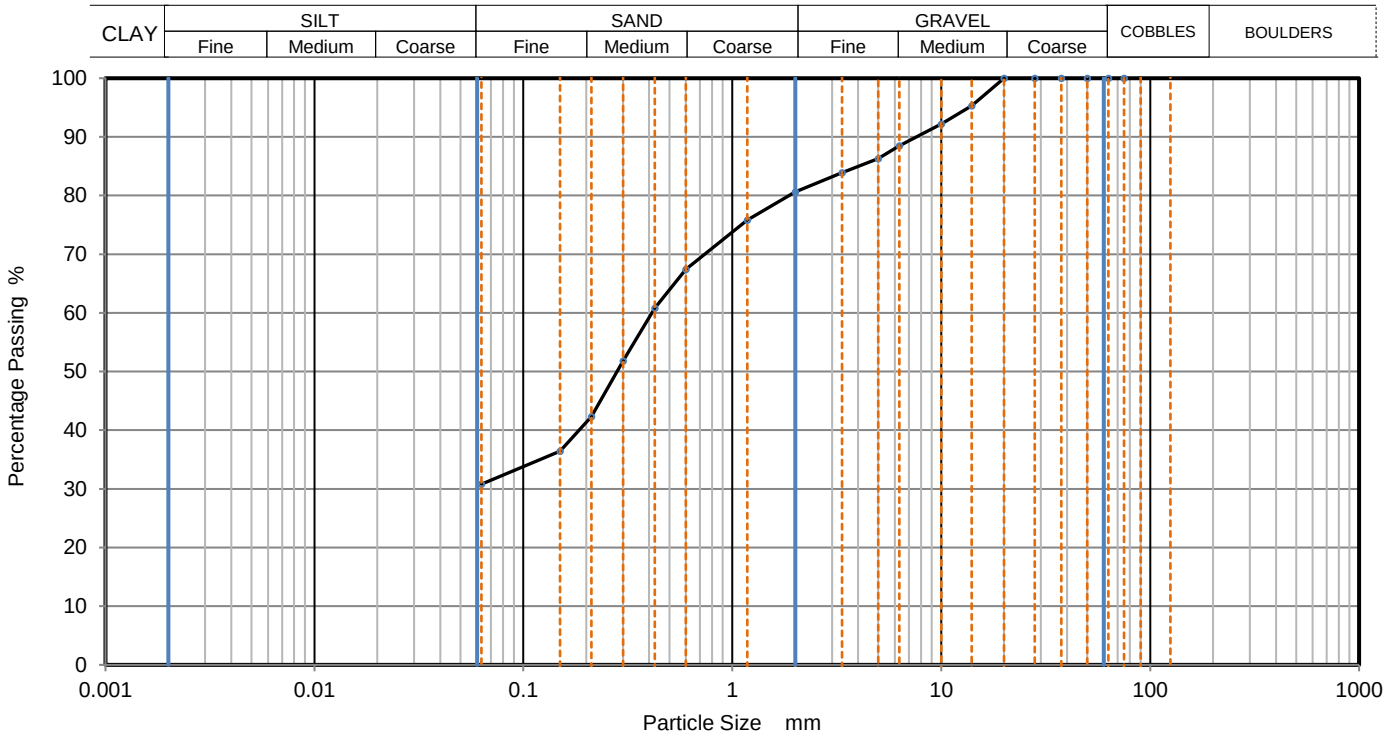
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74601
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown gravelly very silty medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201065



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	92		
6.3	89		
5	86		
3.35	84		
2	81		
1.18	76		
0.6	67		
0.425	61		
0.3	52		
0.212	42		
0.15	36		
0.063	31		

Dry Mass of sample, g	423

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	50
Fines <0.063mm	31

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.413
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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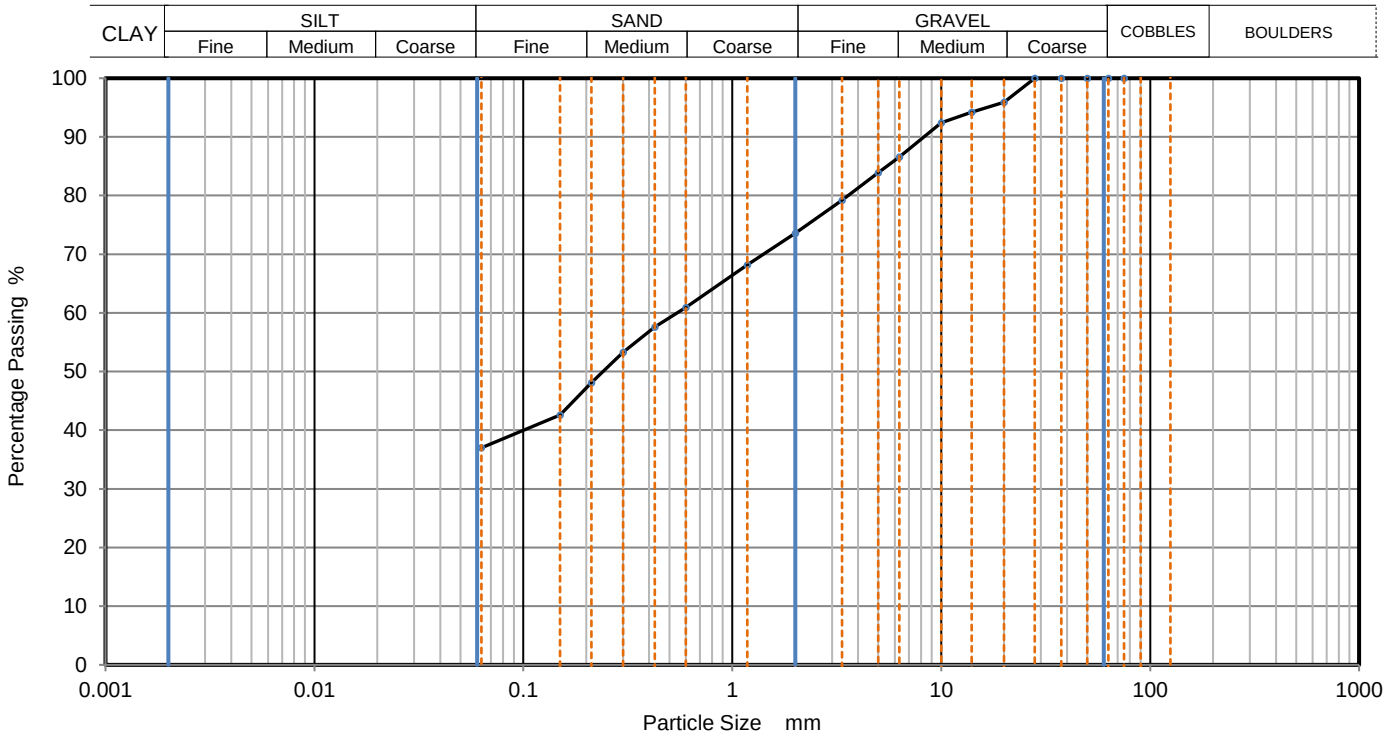
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74601
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201068



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	94		
10	92		
6.3	87		
5	84		
3.35	79		
2	74		
1.18	68		
0.6	61		
0.425	58		
0.3	53		
0.212	48		
0.15	43		
0.063	37		

Dry Mass of sample, g	826

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	37
Fines <0.063mm	37

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.547
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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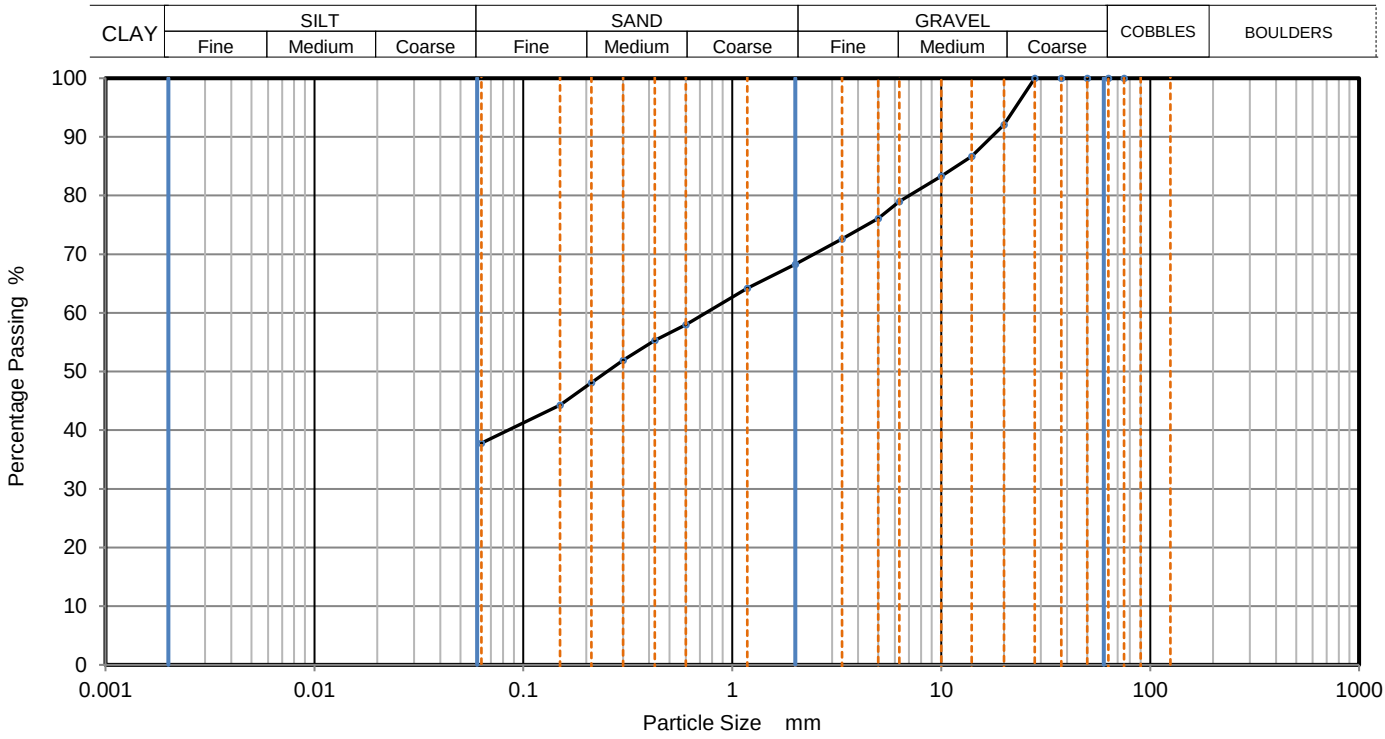
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74601
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light grey slightly sandy slightly gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010610



Sieving		Sedimentation	
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63	100		
50	100		
37.5	100		
28	100		
20	92		
14	87		
10	83		
6.3	79		
5	76		
3.35	73		
2	68		
1.18	64		
0.6	58		
0.425	55		
0.3	52		
0.212	48		
0.15	44		
0.063	38		

Dry Mass of sample, g	945

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	31
Fines <0.063mm	38

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.744
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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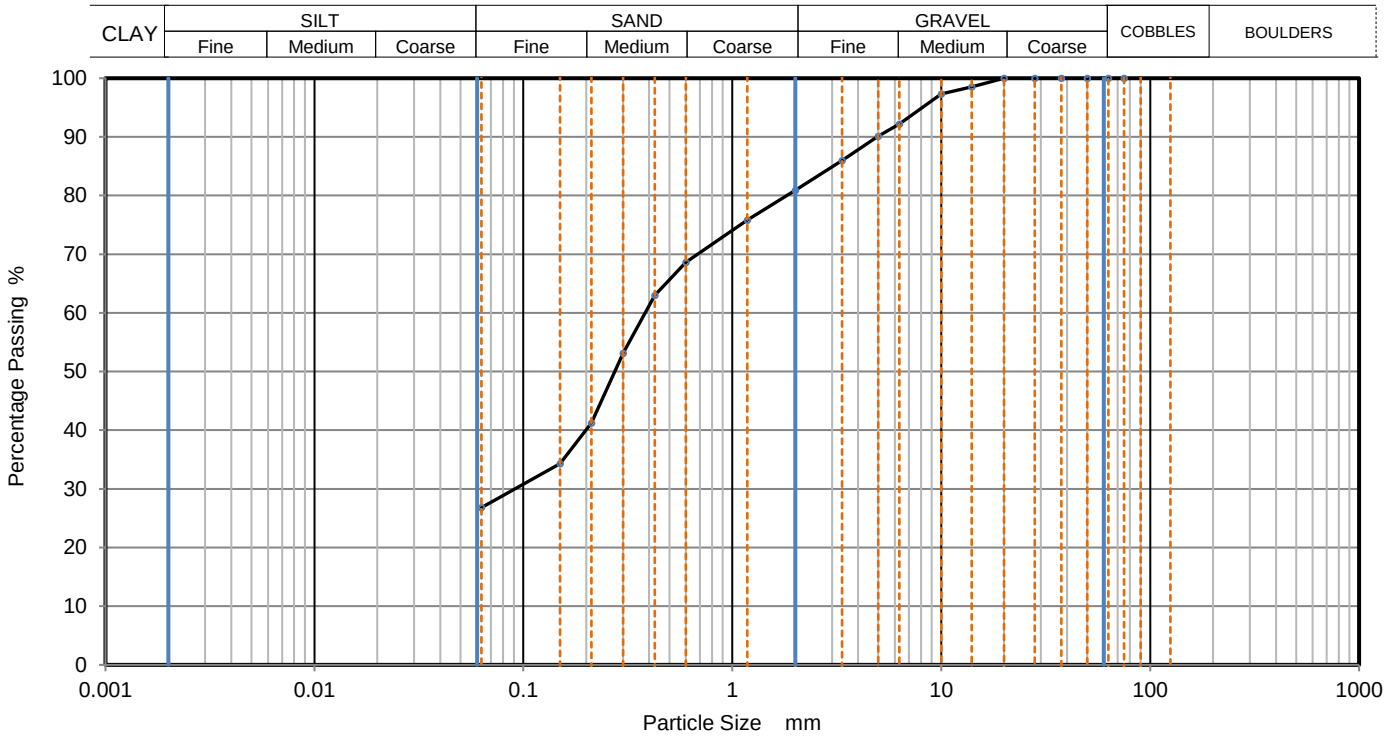
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74702
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey gravelly very silty medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010612



Sieving		Sedimentation	
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63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	97		
6.3	92		
5	90		
3.35	86		
2	81		
1.18	76		
0.6	69		
0.425	63		
0.3	53		
0.212	41		
0.15	34		
0.063	27		

Dry Mass of sample, g	644

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	54
Fines <0.063mm	27

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.382
D_{30}	mm	0.0914
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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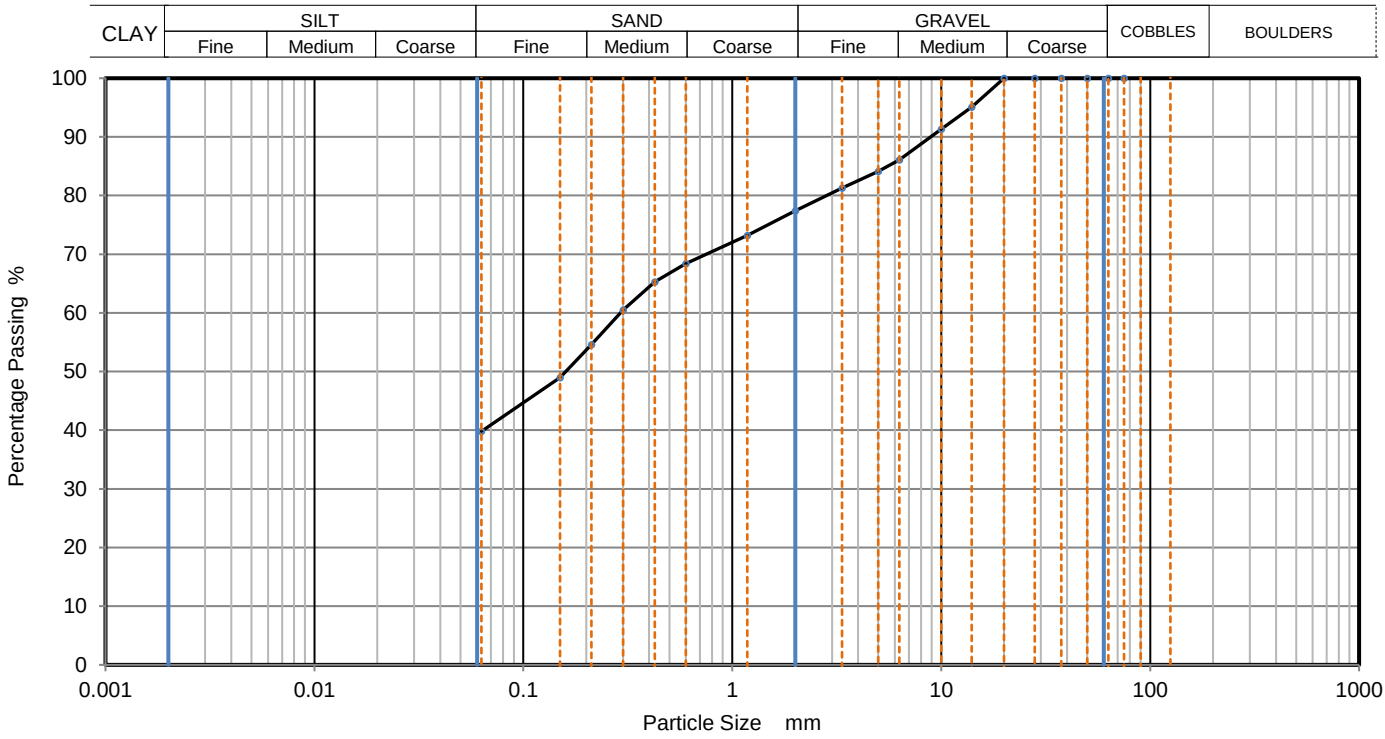
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74702
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010614



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	91		
6.3	86		
5	84		
3.35	81		
2	77		
1.18	73		
0.6	68		
0.425	65		
0.3	61		
0.212	55		
0.15	49		
0.063	40		

Dry Mass of sample, g	794

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	38
Fines <0.063mm	40

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.291
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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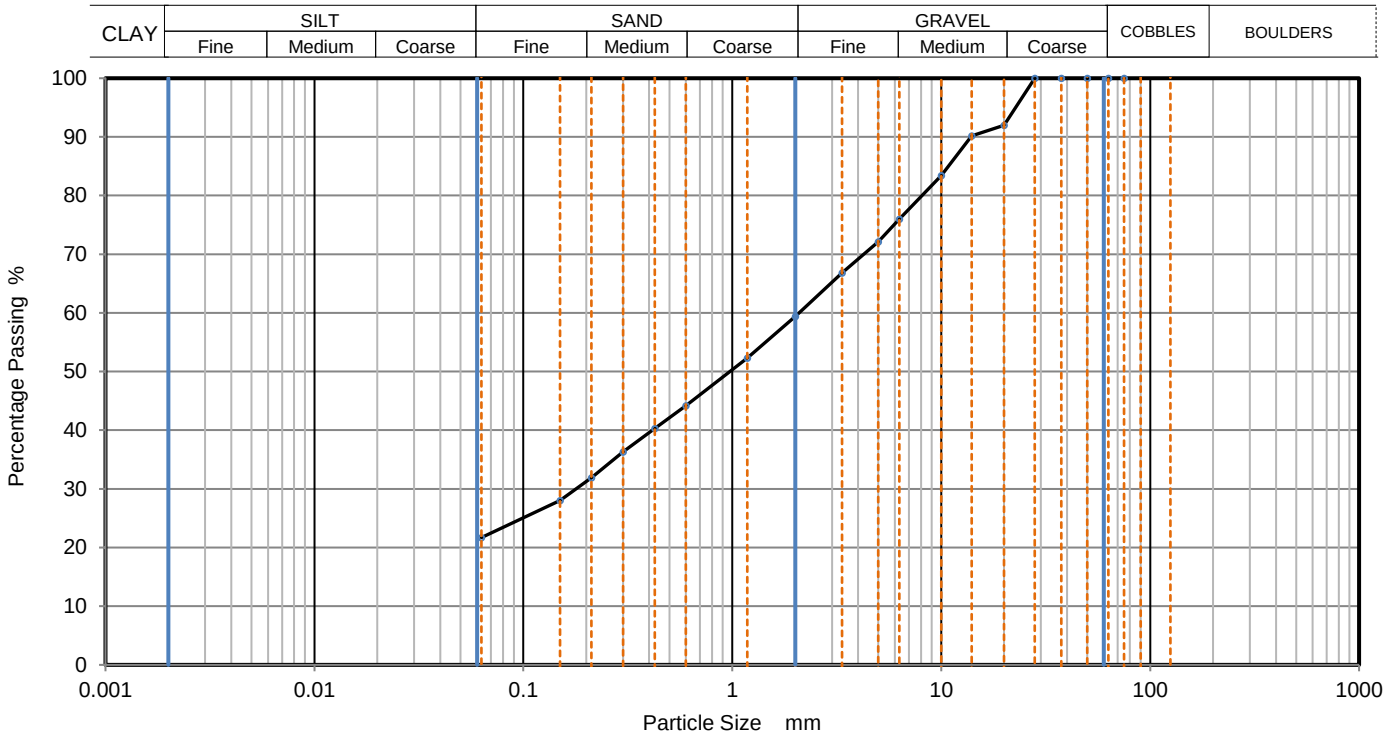
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74702
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey very silty SAND and GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010616



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	92		
14	90		
10	83		
6.3	76		
5	72		
3.35	67		
2	59		
1.18	52		
0.6	44		
0.425	40		
0.3	36		
0.212	32		
0.15	28		
0.063	22		

Dry Mass of sample, g	864

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	38
Fines <0.063mm	22

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.09
D_{30}	mm	0.179
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

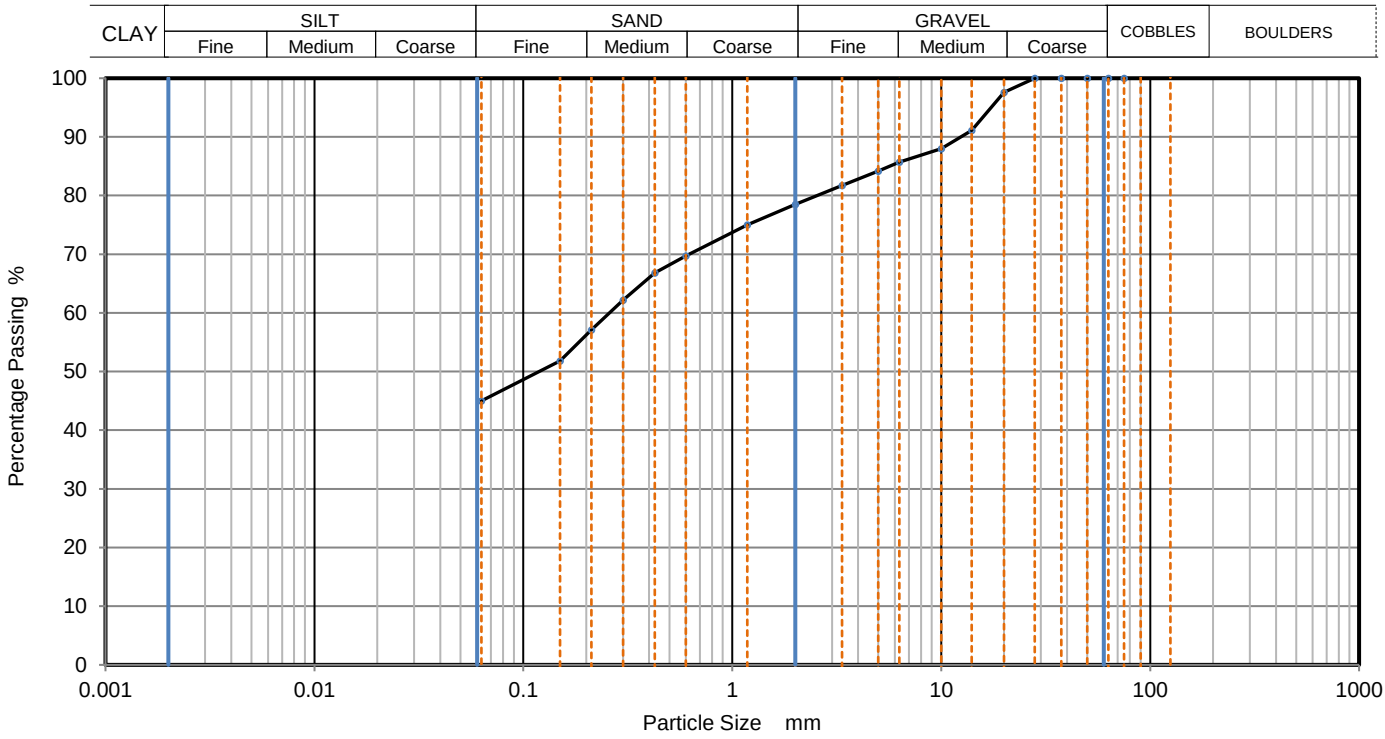
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74804
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey slighlty gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010618



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	91		
10	88		
6.3	86		
5	84		
3.35	82		
2	79		
1.18	75		
0.6	70		
0.425	67		
0.3	62		
0.212	57		
0.15	52		
0.063	45		

Dry Mass of sample, g	884

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	33
Fines <0.063mm	45

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.258
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:50	**1** QC From No:R2

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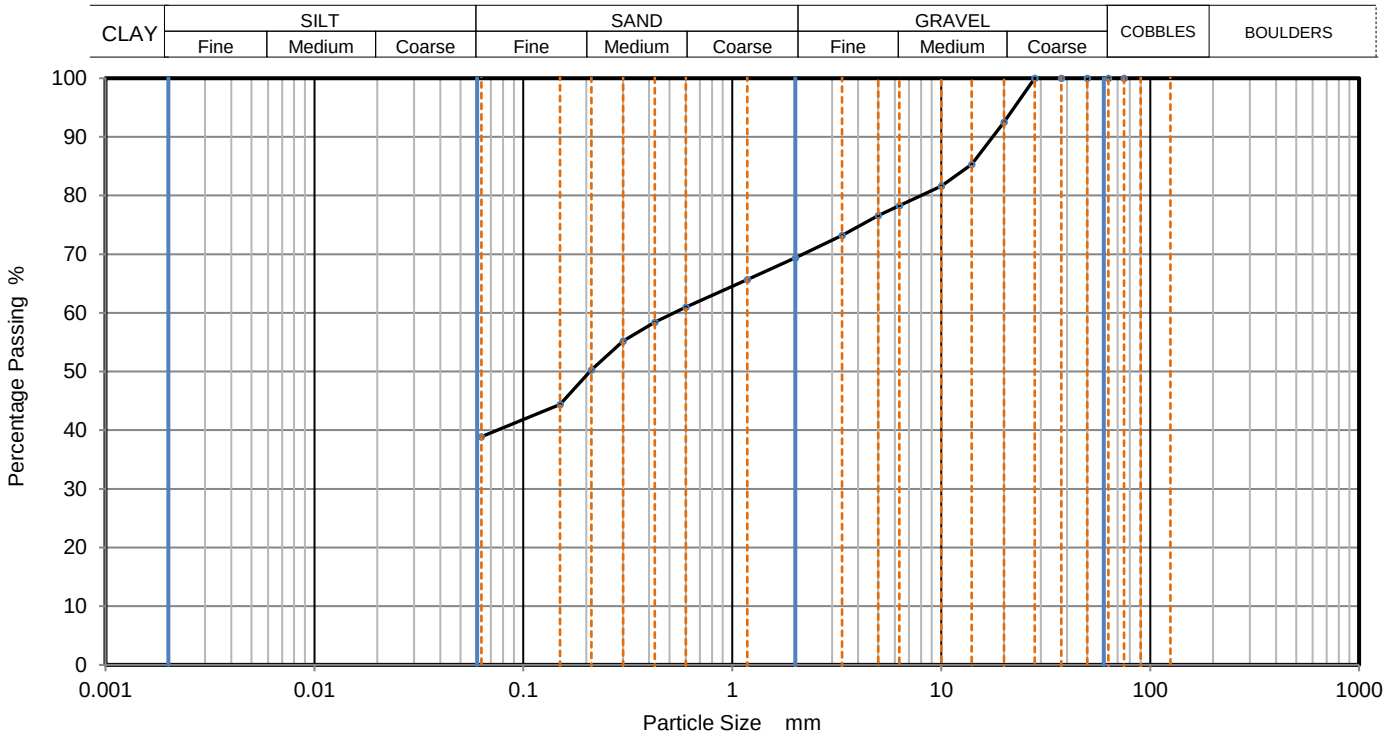
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74804
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey and orange-brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010620



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	93		
14	85		
10	82		
6.3	78		
5	77		
3.35	73		
2	69		
1.18	66		
0.6	61		
0.425	58		
0.3	55		
0.212	50		
0.15	44		
0.063	39		

Dry Mass of sample, g	1025

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	31
Fines <0.063mm	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.524
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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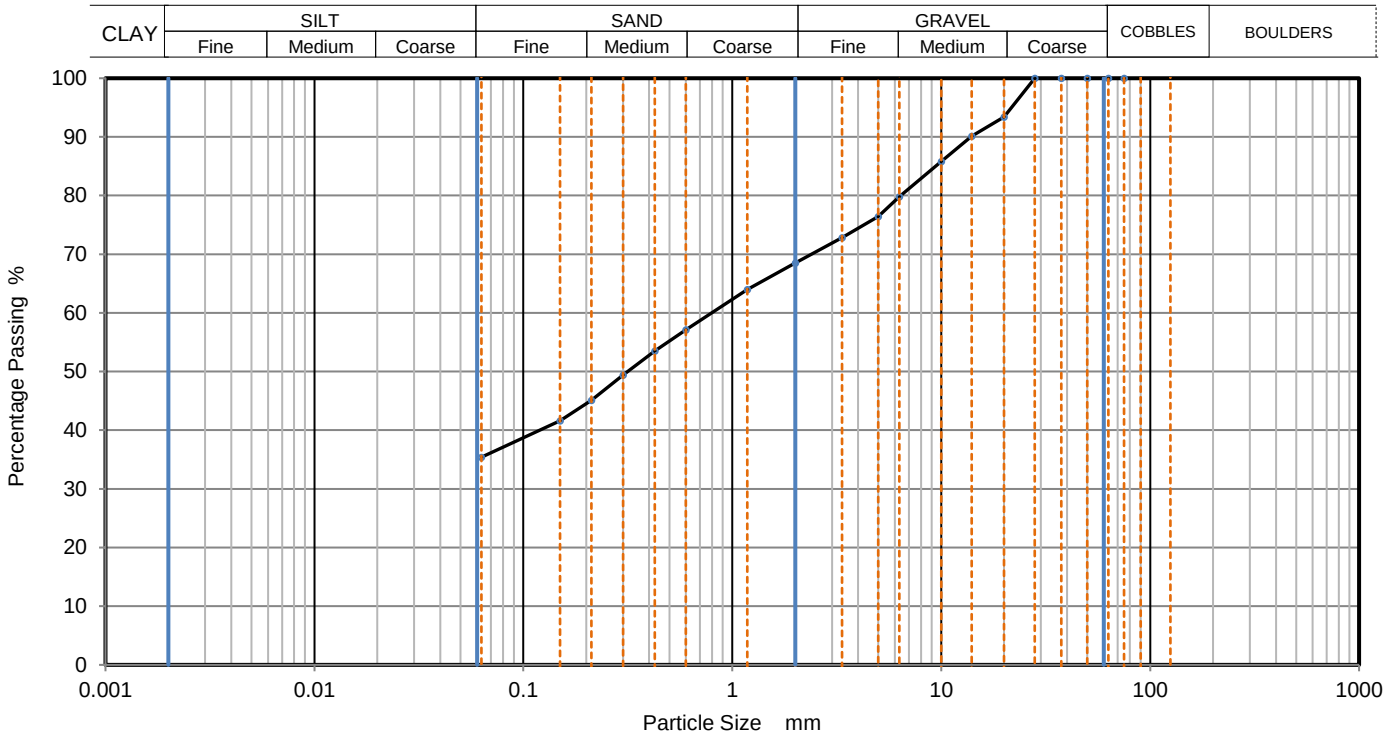
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74804
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010622



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	93		
14	90		
10	86		
6.3	80		
5	76		
3.35	73		
2	69		
1.18	64		
0.6	57		
0.425	54		
0.3	49		
0.212	45		
0.15	42		
0.063	35		

Dry Mass of sample, g	782

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	33
Fines <0.063mm	35

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.796
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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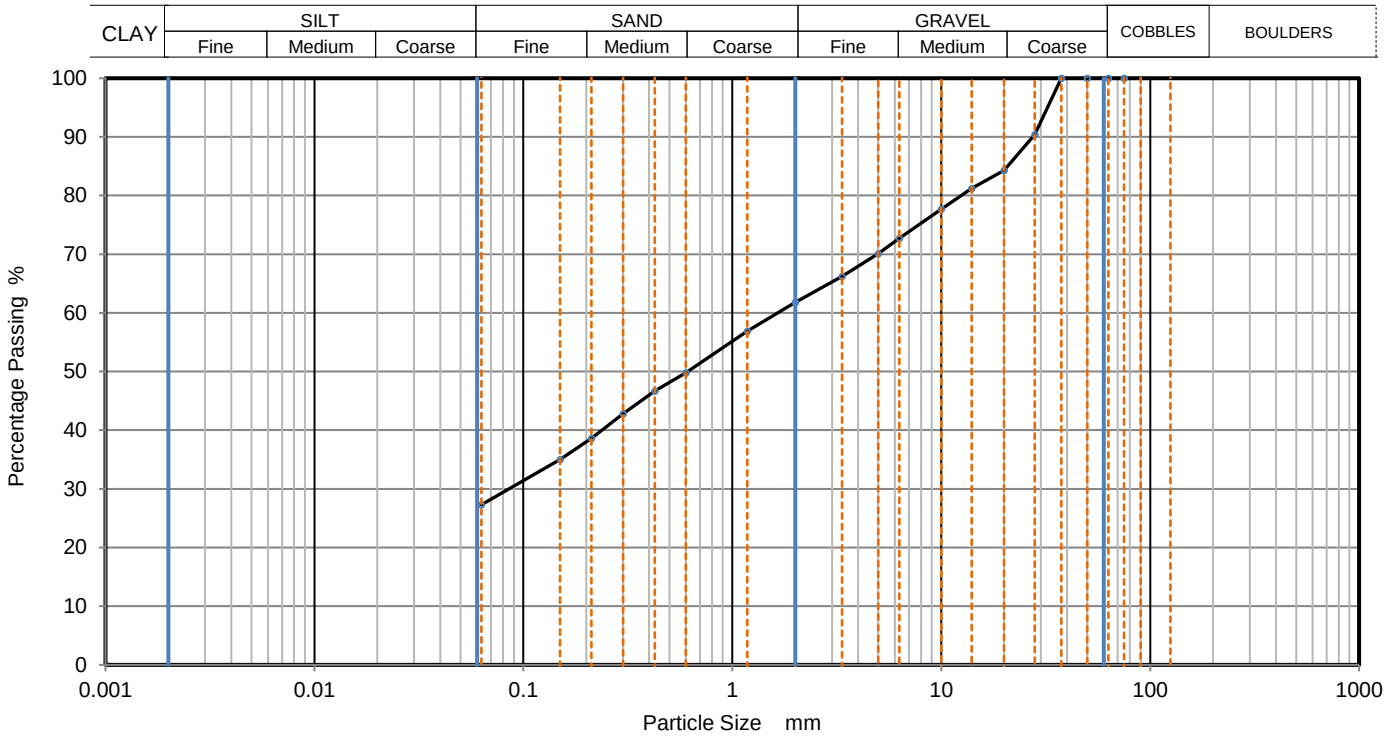
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74902
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey very silty SAND and GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010624



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	84		
14	81		
10	78		
6.3	73		
5	70		
3.35	66		
2	62		
1.18	57		
0.6	50		
0.425	47		
0.3	43		
0.212	39		
0.15	35		
0.063	27		

Dry Mass of sample, g	703

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	35
Fines <0.063mm	27

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.65
D_{30}	mm	0.0853
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

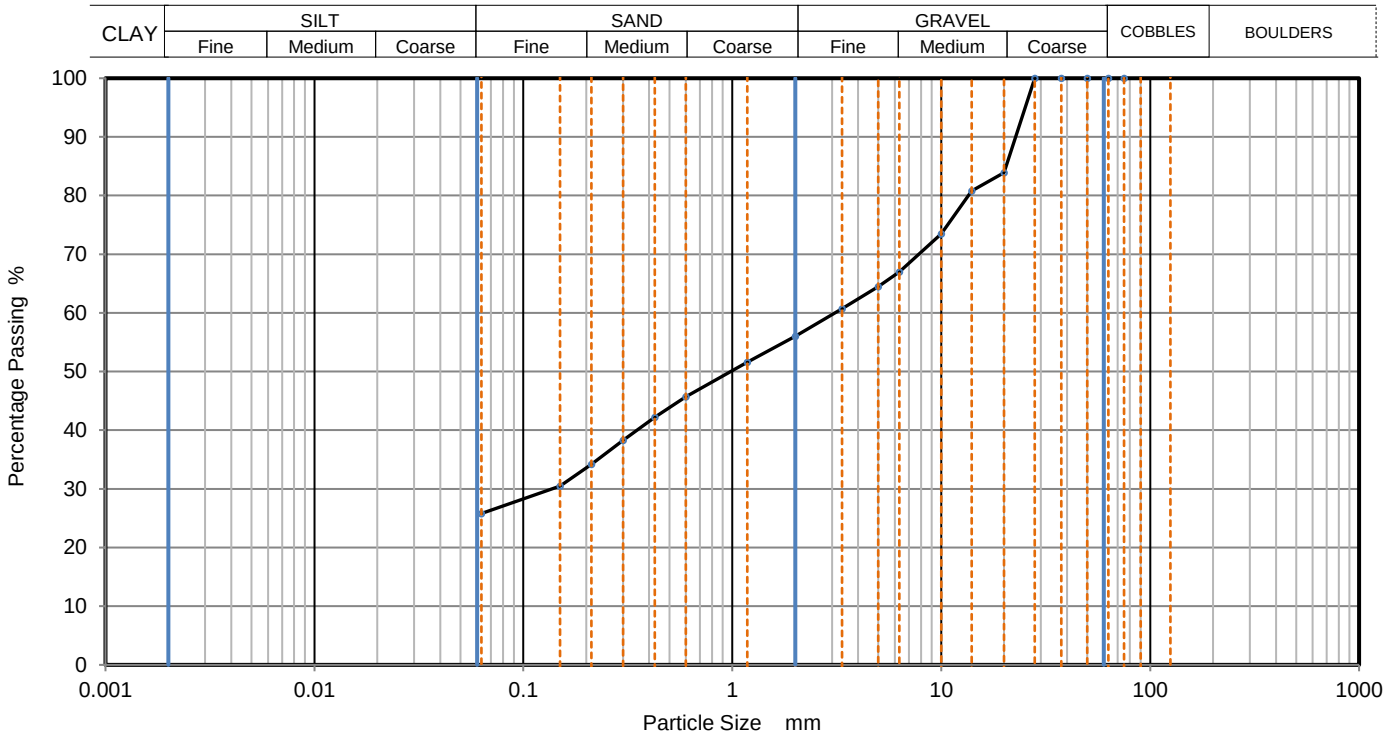
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

Job Ref	**2021OY102**		
Borehole/Pit No.	TP-74902		
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Grey and orange-brown very silty very sandy GRAVEL.	Depth, m	0.90
Specimen Reference		Specimen Depth: m	Sample Type: B
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL12022010626



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	84		
14	81		
10	74		
6.3	67		
5	65		
3.35	61		
2	56		
1.18	52		
0.6	46		
0.425	42		
0.3	38		
0.212	34		
0.15	31		
0.063	26		

Dry Mass of sample, g: 899

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	30
Fines <0.063mm	26

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.09
D_{30}	mm	0.136
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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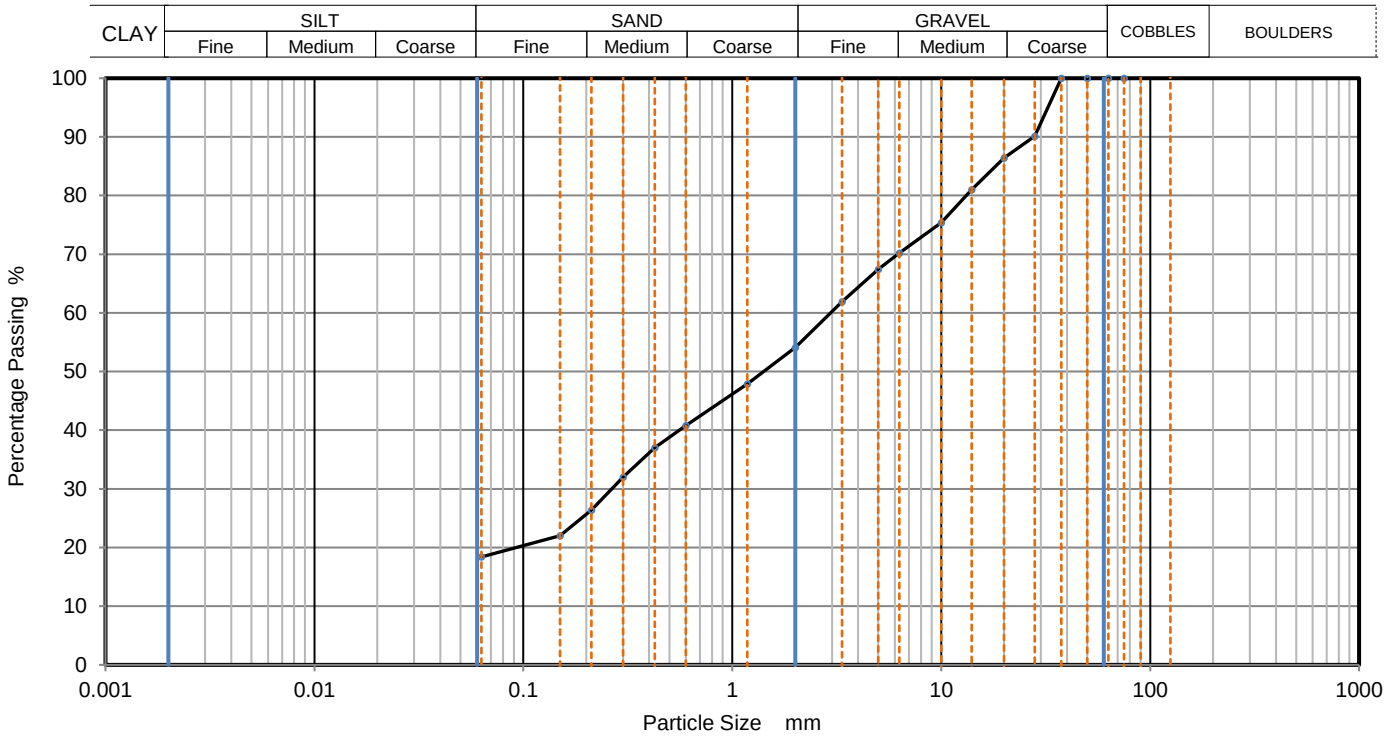
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74902
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey silty very sandy GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010628



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	86		
14	81		
10	75		
6.3	70		
5	67		
3.35	62		
2	54		
1.18	48		
0.6	41		
0.425	37		
0.3	32		
0.212	26		
0.15	22		
0.063	18		

Dry Mass of sample, g	802

Sample Proportions	% dry mass
Very coarse	0
Gravel	46
Sand	36
Fines <0.063mm	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.95
D_{30}	mm	0.265
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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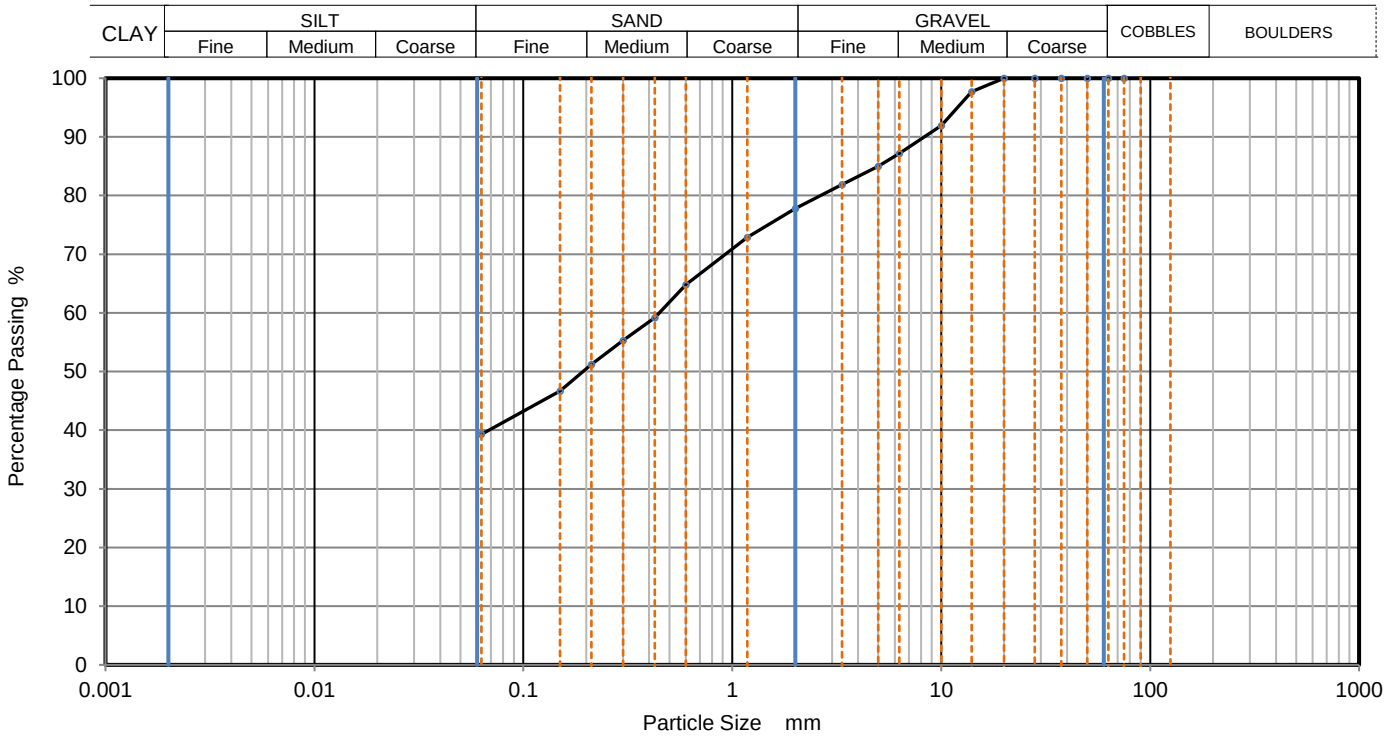
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74969
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010630



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	92		
6.3	87		
5	85		
3.35	82		
2	78		
1.18	73		
0.6	65		
0.425	59		
0.3	55		
0.212	51		
0.15	47		
0.063	39		

Dry Mass of sample, g	455

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	39
Fines <0.063mm	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.446
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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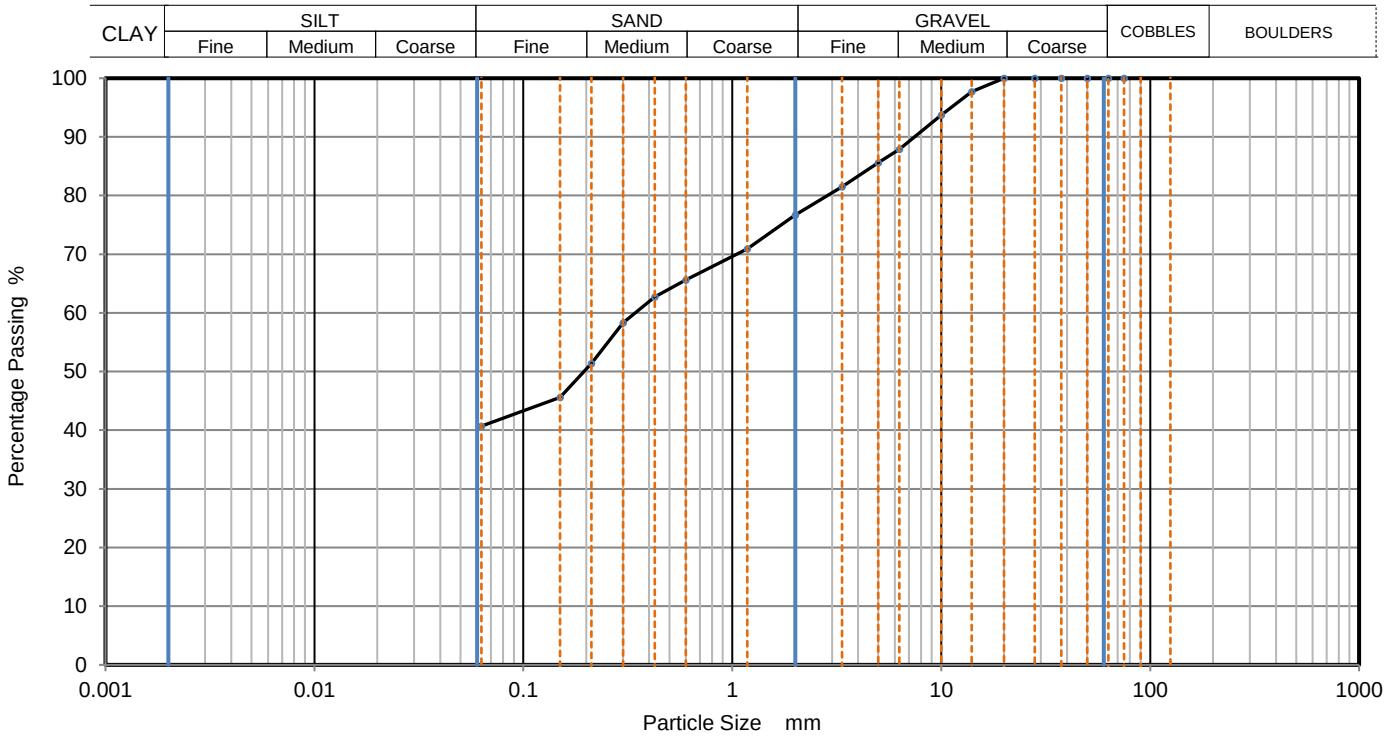
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74969
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey and orange-brown slightly gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010633



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	94		
6.3	88		
5	86		
3.35	82		
2	77		
1.18	71		
0.6	66		
0.425	63		
0.3	58		
0.212	51		
0.15	46		
0.063	41		

Dry Mass of sample, g	822

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	36
Fines <0.063mm	41

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.343
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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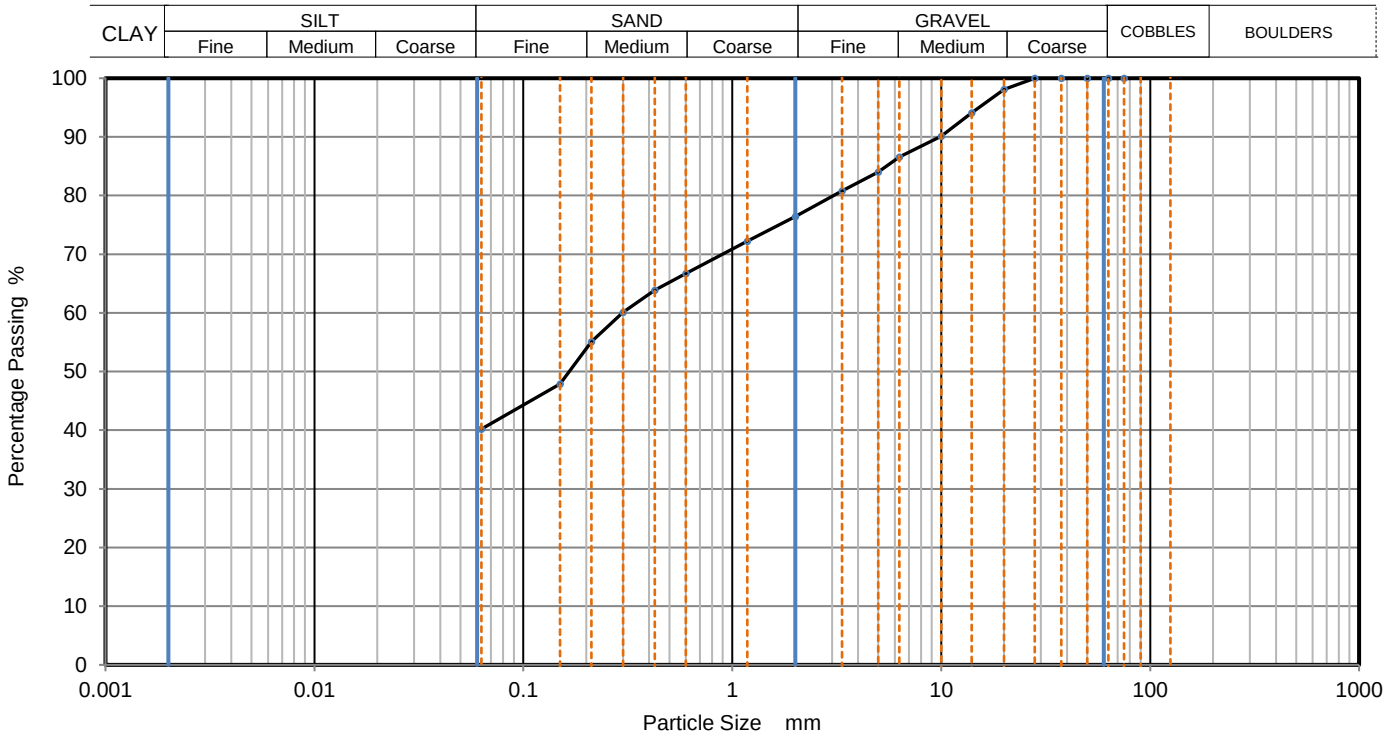
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74969
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly gravelly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010635



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	90		
6.3	87		
5	84		
3.35	81		
2	76		
1.18	72		
0.6	67		
0.425	64		
0.3	60		
0.212	55		
0.15	48		
0.063	40		

Dry Mass of sample, g	740

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	36
Fines <0.063mm	40

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.298
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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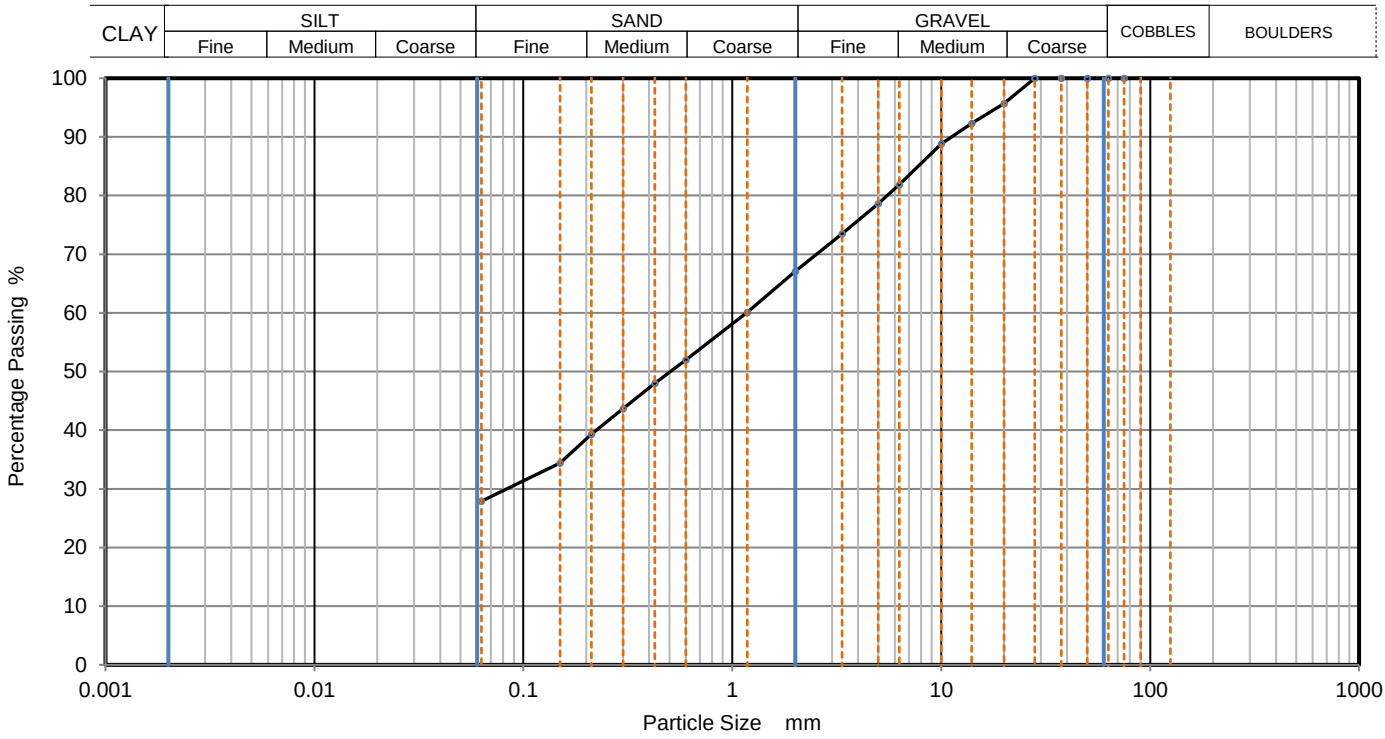
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-74969
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Grey very silty SAND and GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010637



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	92		
10	89		
6.3	82		
5	79		
3.35	74		
2	67		
1.18	60		
0.6	52		
0.425	48		
0.3	44		
0.212	39		
0.15	34		
0.063	28		

Dry Mass of sample, g	844

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	39
Fines <0.063mm	28

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.17
D_{30}	mm	0.0834
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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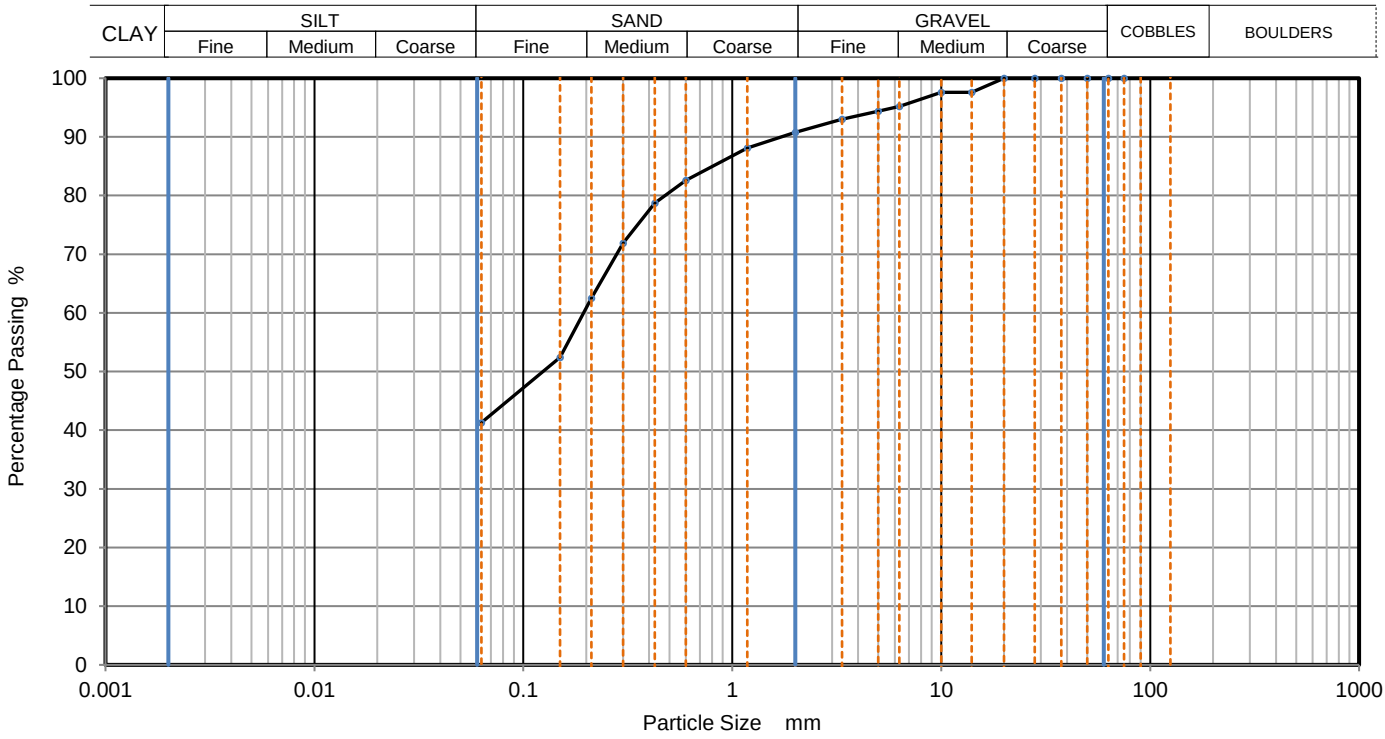
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-75104
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT. Sand is medium and fine.	Depth, m	0.20
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL12022010638



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	98		
6.3	95		
5	94		
3.35	93		
2	91		
1.18	88		
0.6	83		
0.425	79		
0.3	72		
0.212	63		
0.15	52		
0.063	41		

Dry Mass of sample, g	577

Sample Proportions	% dry mass
Very coarse	0
Gravel	9
Sand	50
Fines <0.063mm	41

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.195
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

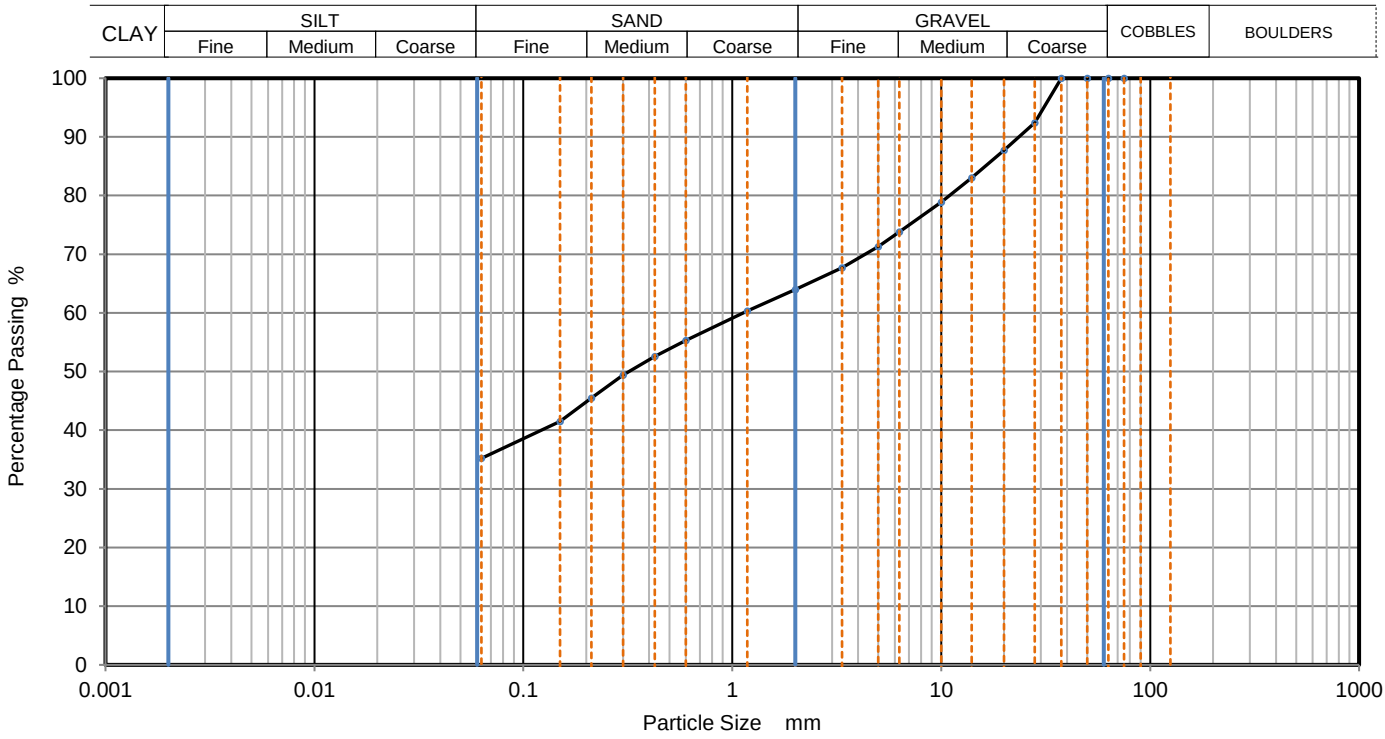
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75104
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010641



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	88		
14	83		
10	79		
6.3	74		
5	71		
3.35	68		
2	64		
1.18	60		
0.6	55		
0.425	53		
0.3	49		
0.212	46		
0.15	42		
0.063	35		

Dry Mass of sample, g	802

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	29
Fines <0.063mm	35

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.14
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

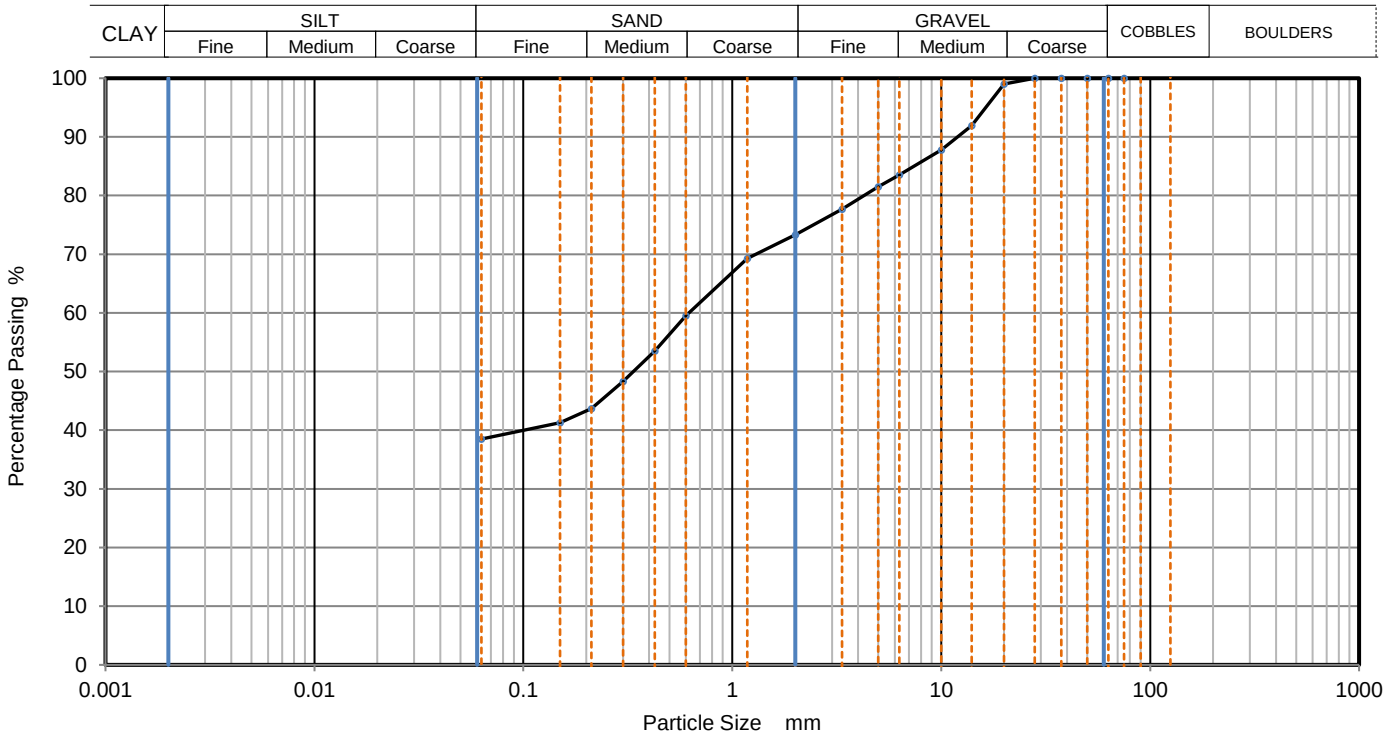
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75104
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010643



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	92		
10	88		
6.3	84		
5	82		
3.35	78		
2	73		
1.18	69		
0.6	60		
0.425	54		
0.3	48		
0.212	44		
0.15	41		
0.063	39		

Dry Mass of sample, g	1058

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	35
Fines <0.063mm	38

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.621
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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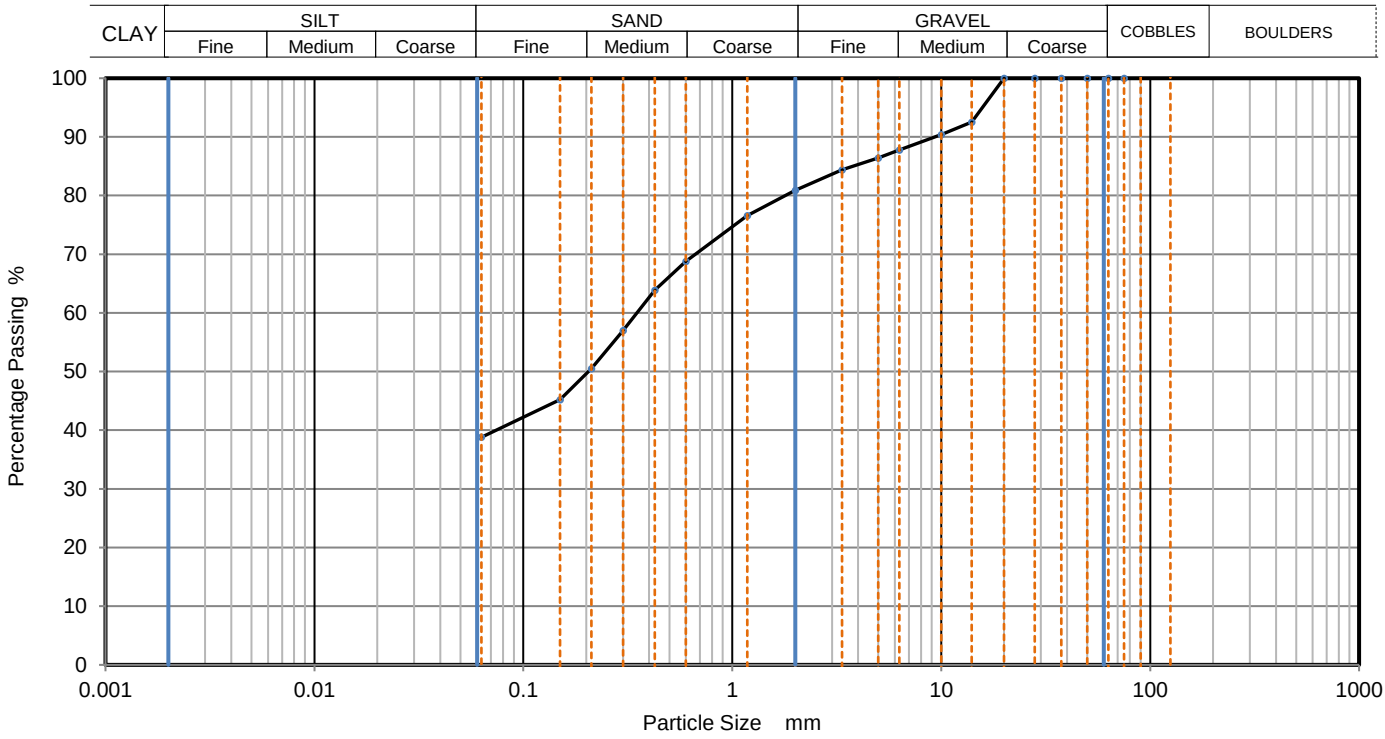
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75197
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010645



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	93		
10	90		
6.3	88		
5	86		
3.35	84		
2	81		
1.18	77		
0.6	69		
0.425	64		
0.3	57		
0.212	51		
0.15	45		
0.063	39		

Dry Mass of sample, g	615

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	42
Fines <0.063mm	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.349
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:50	**1** QC From No:R2

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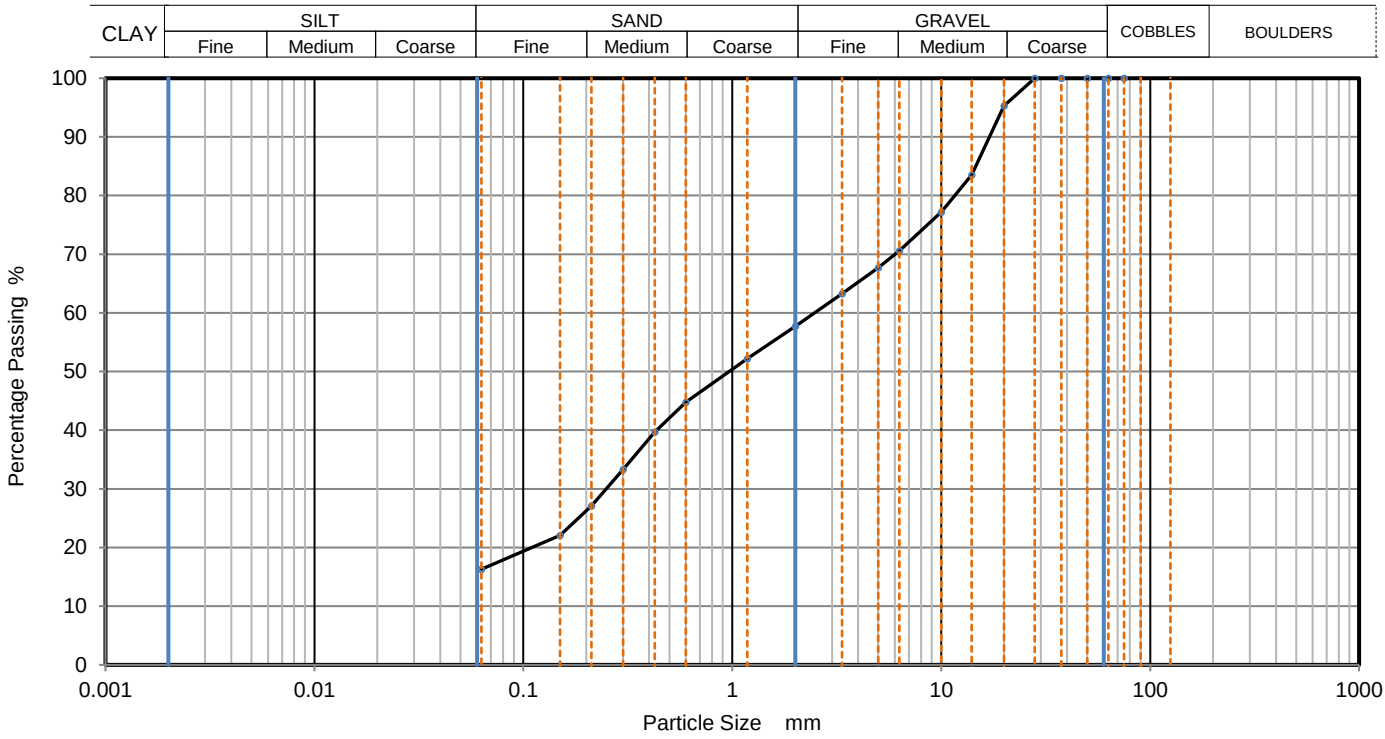
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-75197
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Light brown silty SAND and GRAVEL. Gravel is medium.	Depth, m	0.50
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL12022010648



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	84		
10	77		
6.3	71		
5	68		
3.35	63		
2	58		
1.18	52		
0.6	45		
0.425	40		
0.3	33		
0.212	27		
0.15	22		
0.063	16		

Dry Mass of sample, g	807

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	41
Fines <0.063mm	16

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.47
D_{30}	mm	0.25
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

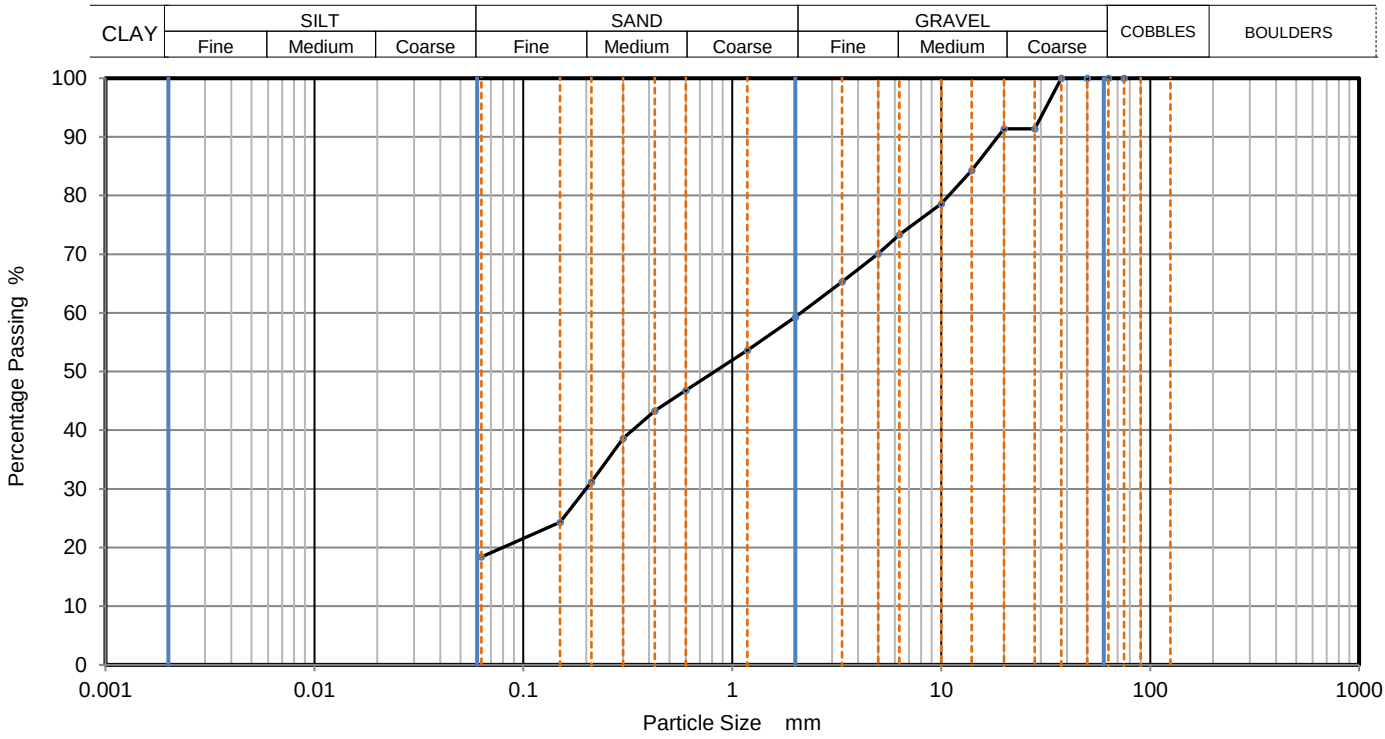
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75197
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown silty SAND and GRAVEL.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010650



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	91		
14	84		
10	79		
6.3	73		
5	70		
3.35	65		
2	59		
1.18	54		
0.6	47		
0.425	43		
0.3	39		
0.212	31		
0.15	24		
0.063	18		

Dry Mass of sample, g	756

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	41
Fines <0.063mm	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.13
D_{30}	mm	0.199
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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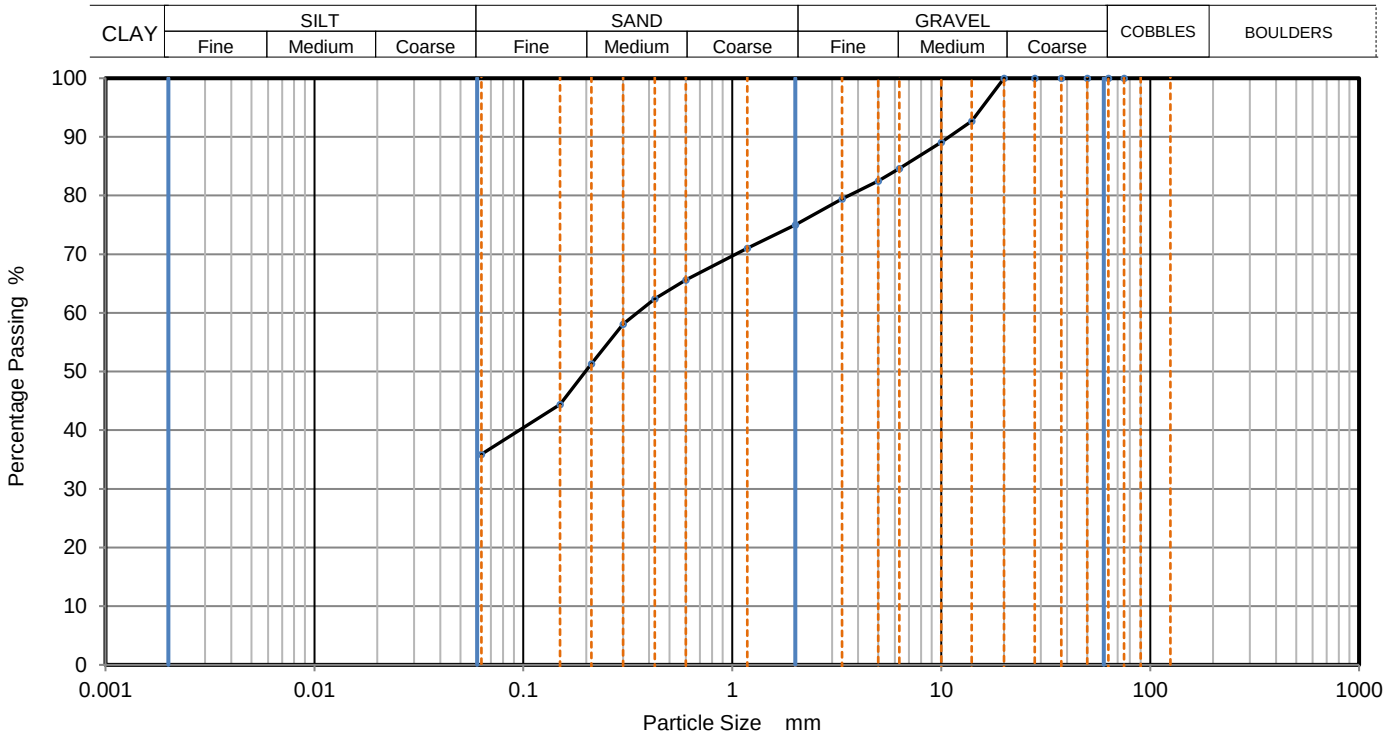
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75197
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010652



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	93		
10	89		
6.3	85		
5	83		
3.35	79		
2	75		
1.18	71		
0.6	66		
0.425	62		
0.3	58		
0.212	51		
0.15	44		
0.063	36		

Dry Mass of sample, g	796

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	39
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.35
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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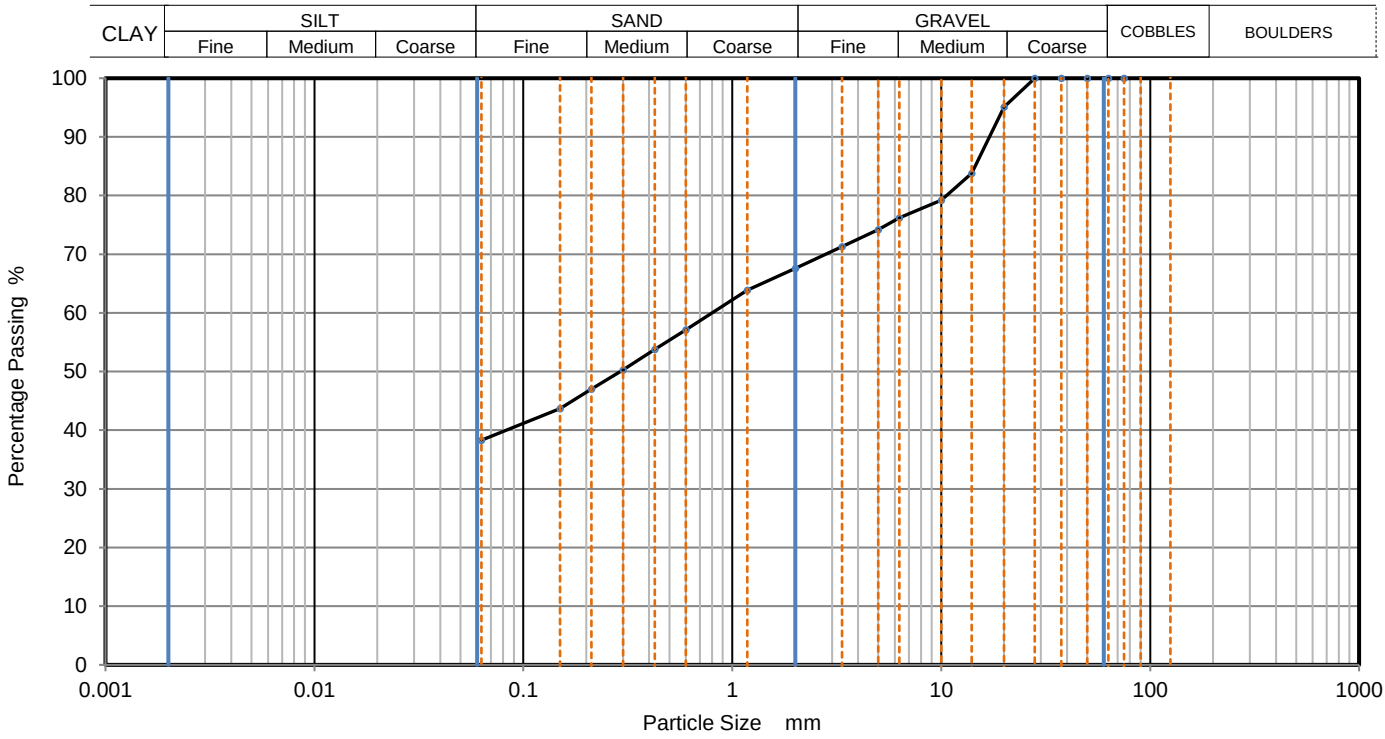
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75305
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly sandy slightly gravelly SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010654



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	84		
10	79		
6.3	76		
5	74		
3.35	71		
2	68		
1.18	64		
0.6	57		
0.425	54		
0.3	50		
0.212	47		
0.15	44		
0.063	38		

Dry Mass of sample, g	848

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	29
Fines <0.063mm	38

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.802
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

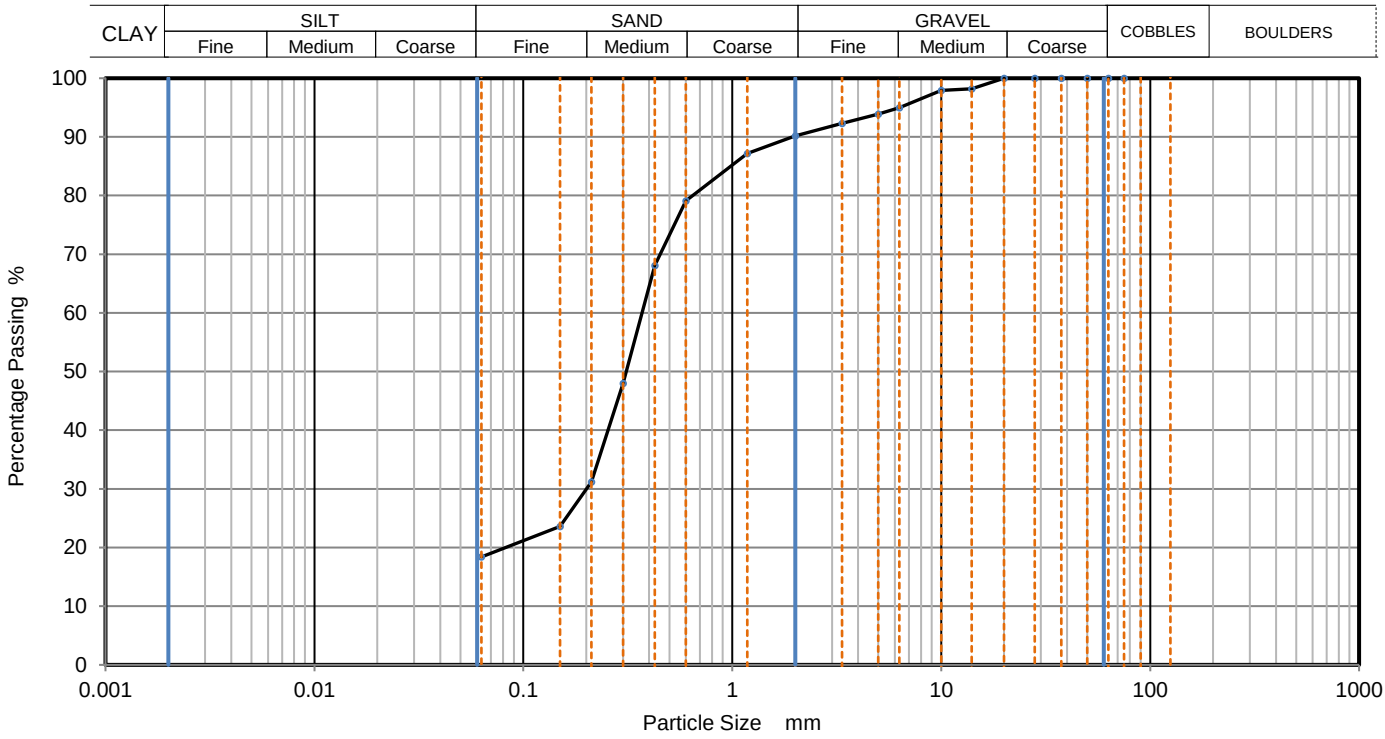
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75305
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Greyish-brown gravelly silty medium SAND.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010657



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	98		
6.3	95		
5	94		
3.35	92		
2	90		
1.18	87		
0.6	79		
0.425	68		
0.3	48		
0.212	31		
0.15	24		
0.063	18		

Dry Mass of sample, g	718

Sample Proportions	% dry mass
Very coarse	0
Gravel	10
Sand	72
Fines <0.063mm	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.369
D_{30}	mm	0.201
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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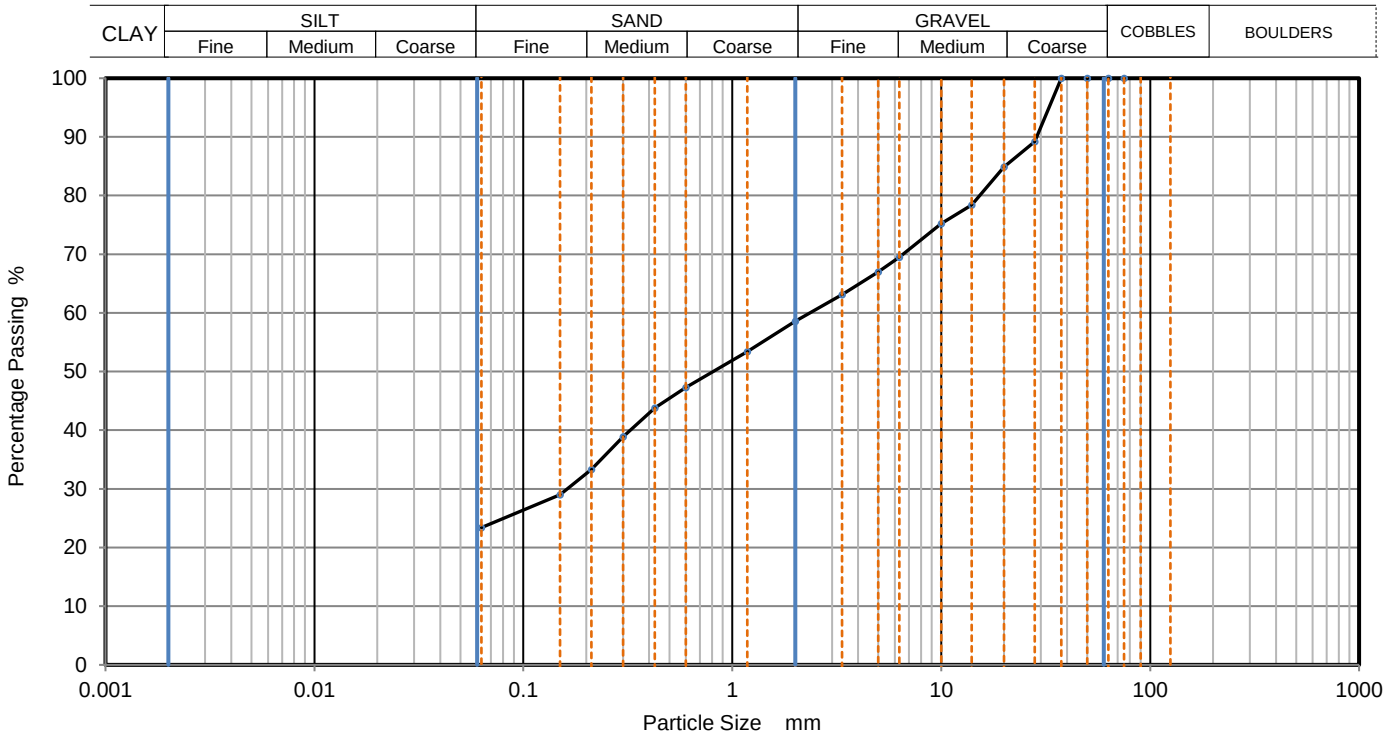
		Dympna Darcy B.Sc.	18/10/2022 15:40	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75305
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brown very silty very sandy GRAVEL.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010658



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	89		
20	85		
14	78		
10	75		
6.3	70		
5	67		
3.35	63		
2	59		
1.18	53		
0.6	47		
0.425	44		
0.3	39		
0.212	33		
0.15	29		
0.063	23		

Dry Mass of sample, g	834

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	35
Fines <0.063mm	23

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.35
D_{30}	mm	0.162
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

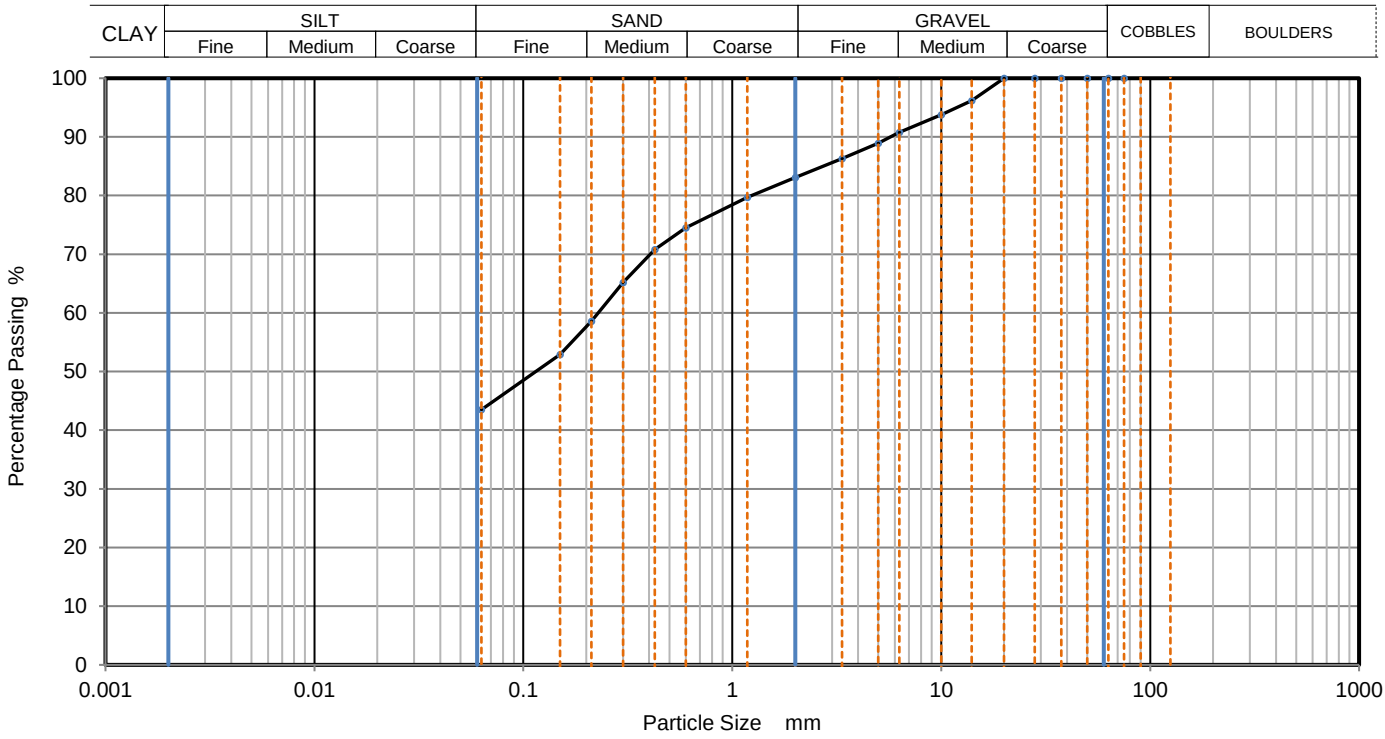
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75404
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010660



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	94		
6.3	91		
5	89		
3.35	86		
2	83		
1.18	80		
0.6	75		
0.425	71		
0.3	65		
0.212	59		
0.15	53		
0.063	44		

Dry Mass of sample, g	446

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	40
Fines <0.063mm	43

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.228
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

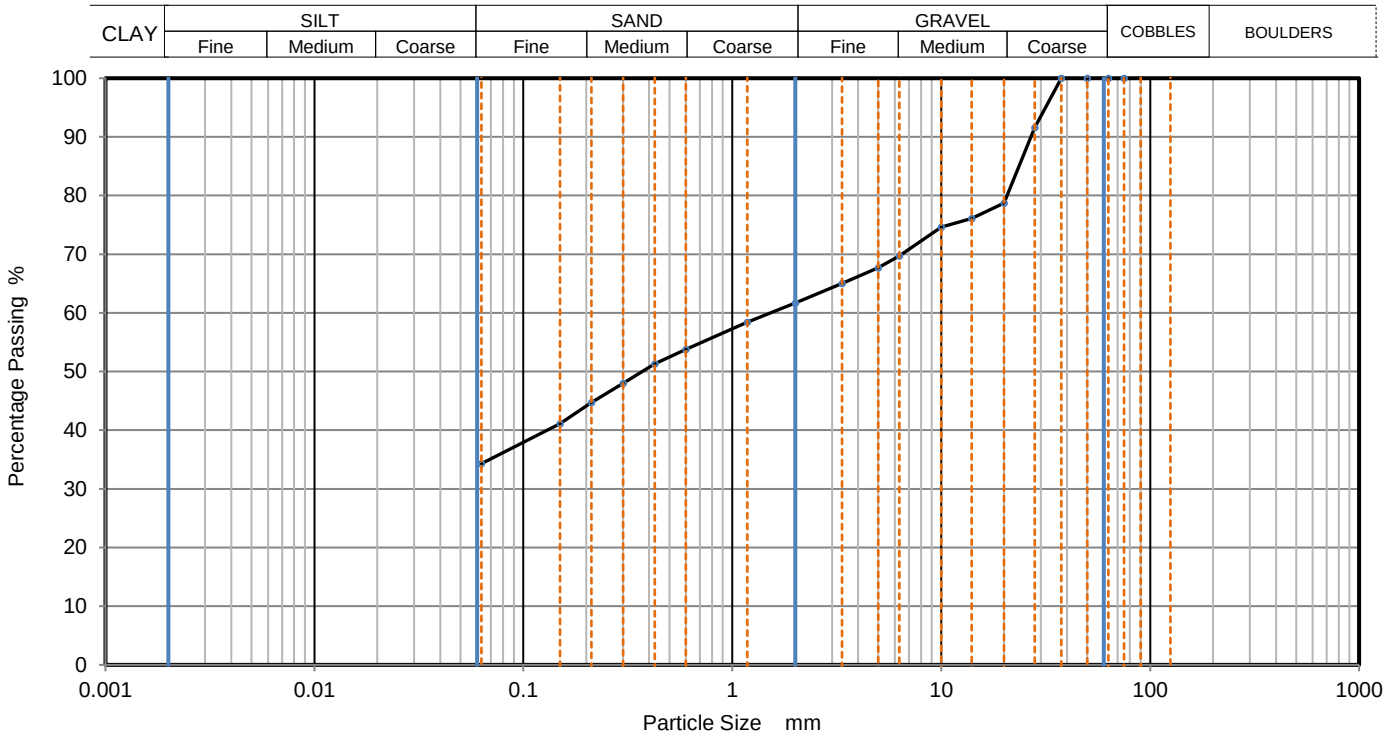
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75404
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very sandy very silty coarse GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010663



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	79		
14	76		
10	75		
6.3	70		
5	68		
3.35	65		
2	62		
1.18	58		
0.6	54		
0.425	51		
0.3	48		
0.212	45		
0.15	41		
0.063	34		

Dry Mass of sample, g	962

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	27
Fines <0.063mm	34

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.52
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

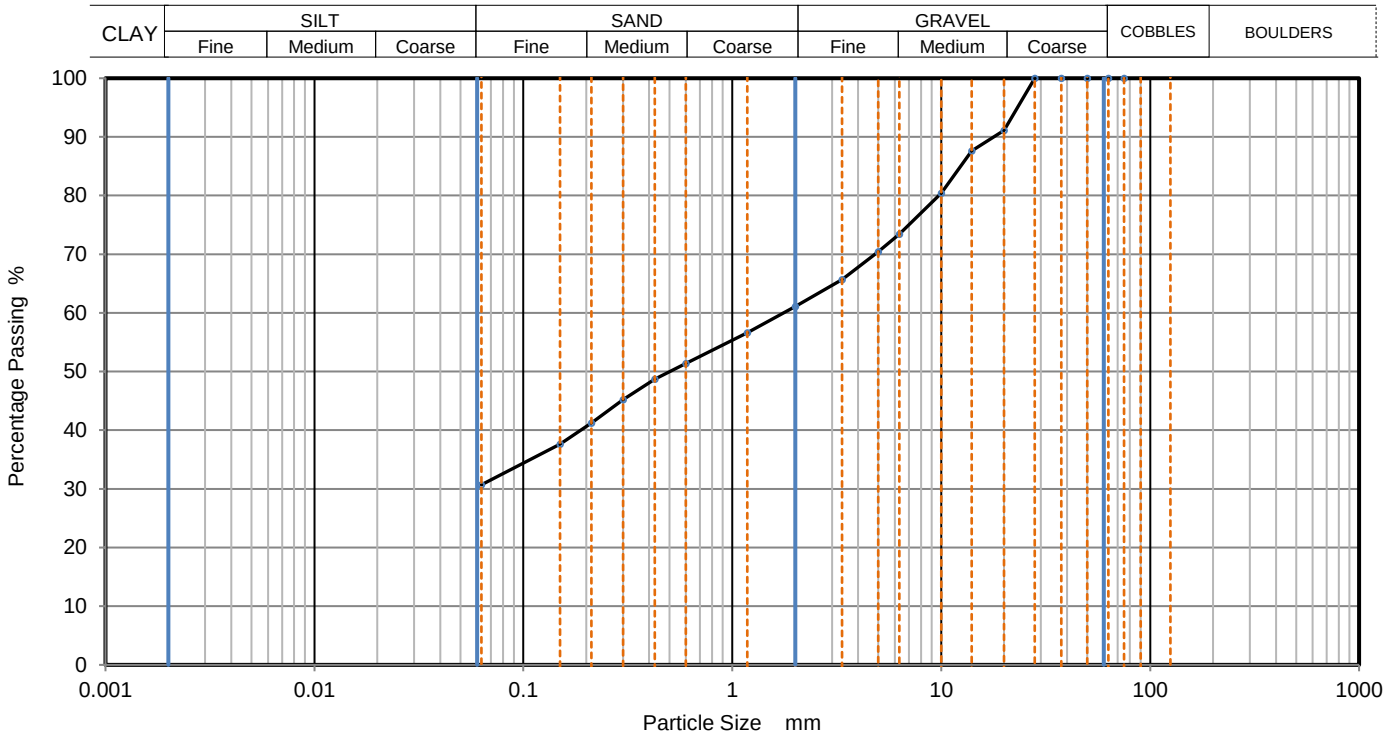
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75404
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very sandy very silty medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010665



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	88		
10	80		
6.3	73		
5	70		
3.35	66		
2	61		
1.18	57		
0.6	51		
0.425	49		
0.3	45		
0.212	41		
0.15	38		
0.063	31		

Dry Mass of sample, g	880

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	30
Fines <0.063mm	31

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.76
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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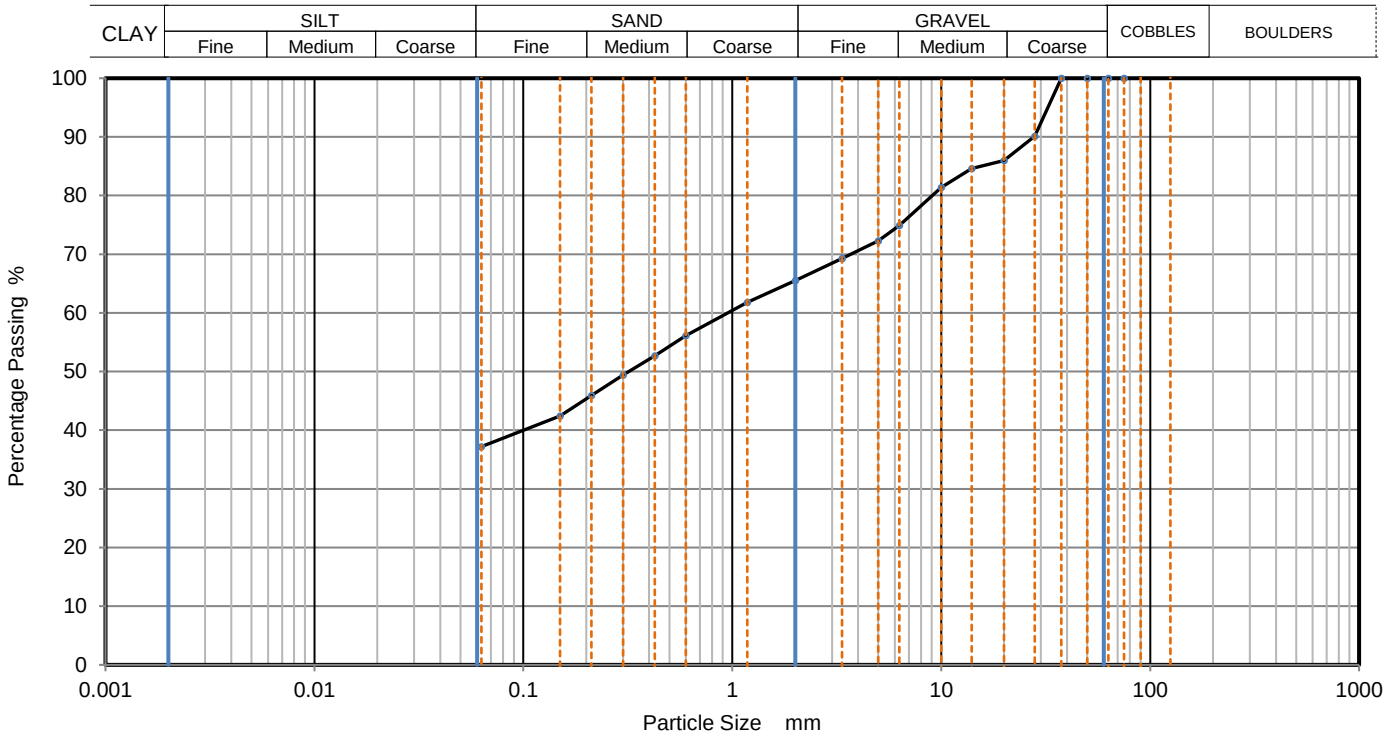
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75508
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010668



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	86		
14	85		
10	81		
6.3	75		
5	72		
3.35	69		
2	66		
1.18	62		
0.6	56		
0.425	53		
0.3	49		
0.212	46		
0.15	42		
0.063	37		

Dry Mass of sample, g	807

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	28
Fines <0.063mm	37

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.957
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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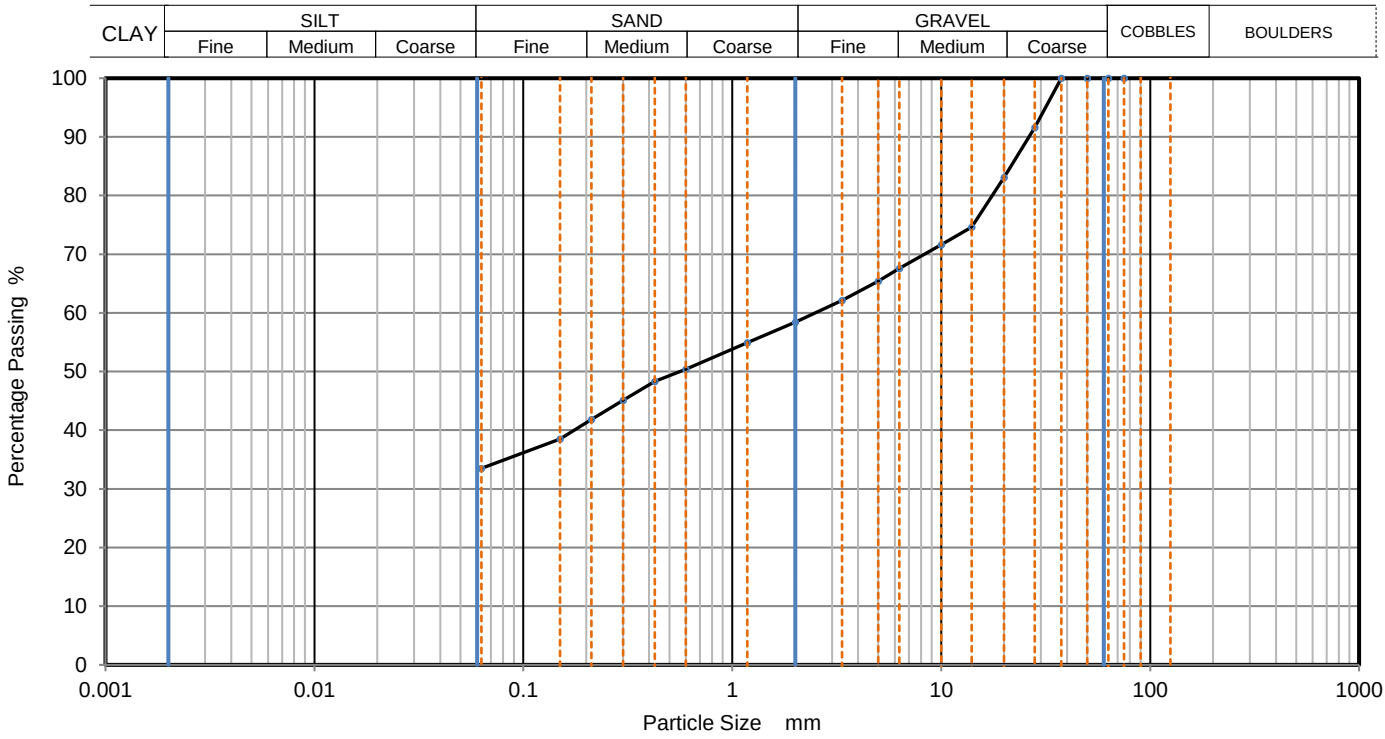
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75508
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very sandy very silty GRAVEL.			Depth, m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010670



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	83		
14	75		
10	72		
6.3	68		
5	65		
3.35	62		
2	58		
1.18	55		
0.6	50		
0.425	48		
0.3	45		
0.212	42		
0.15	39		
0.063	34		

Dry Mass of sample, g	866

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	25
Fines <0.063mm	33

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.49
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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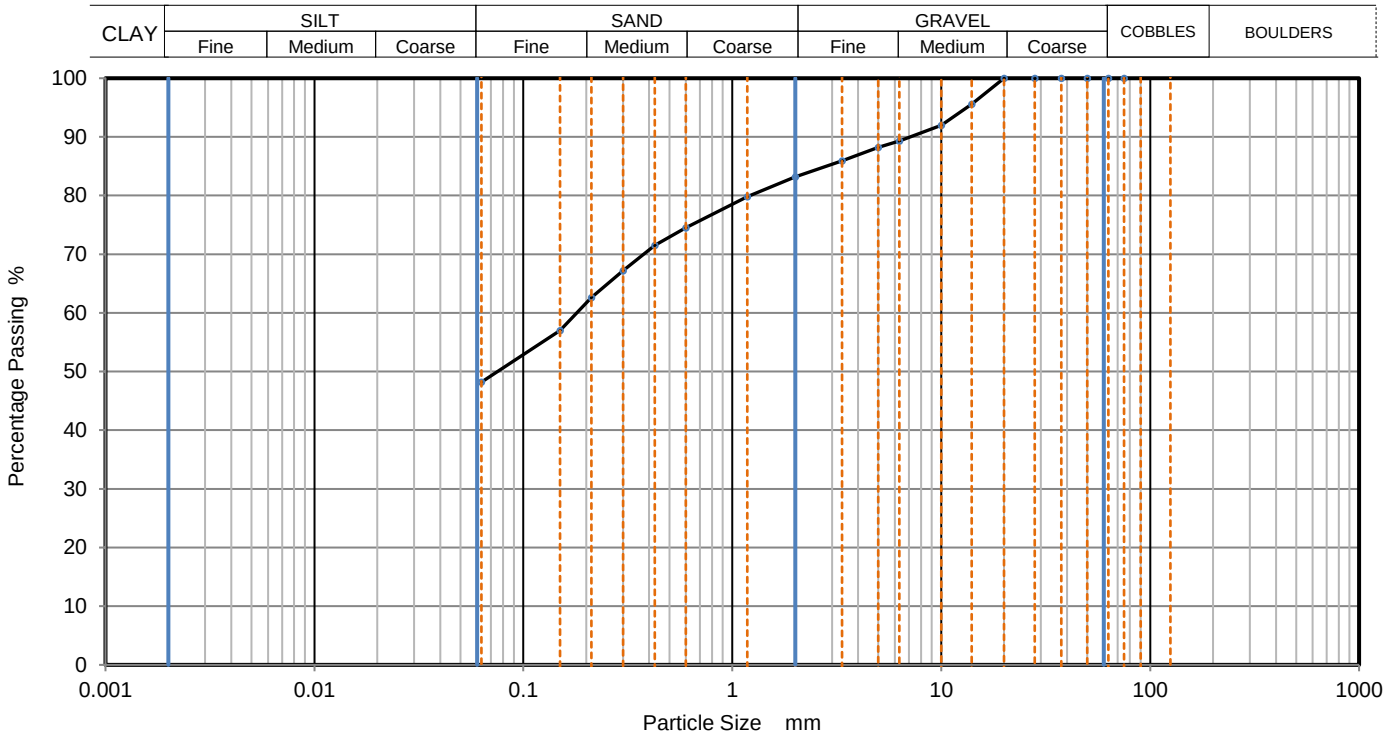
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75605
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orange-brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010672



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	92		
6.3	89		
5	88		
3.35	86		
2	83		
1.18	80		
0.6	75		
0.425	72		
0.3	67		
0.212	63		
0.15	57		
0.063	48		

Dry Mass of sample, g	705

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	35
Fines <0.063mm	48

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.181
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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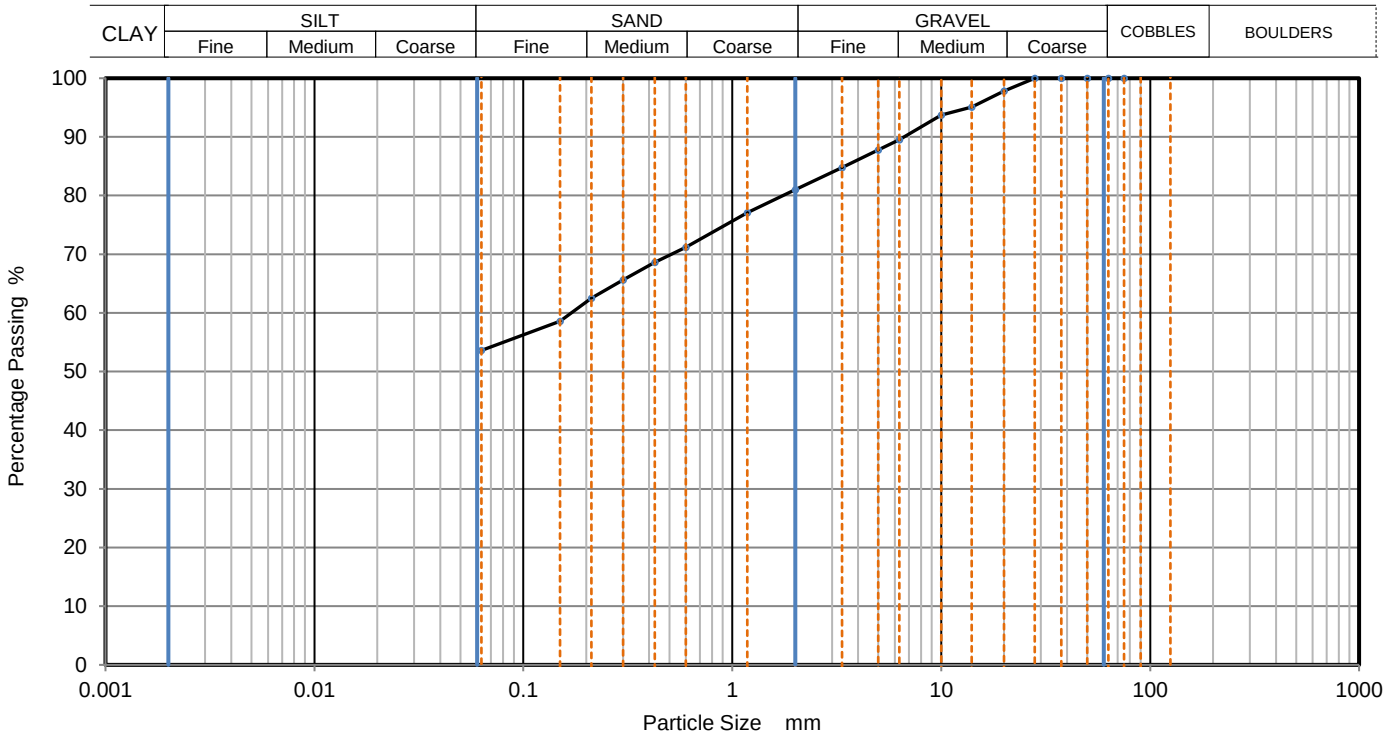
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75605
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010675



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	98		
14	95		
10	94		
6.3	90		
5	88		
3.35	85		
2	81		
1.18	77		
0.6	71		
0.425	69		
0.3	66		
0.212	63		
0.15	59		
0.063	54		

Dry Mass of sample, g	772

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	27
Fines <0.063mm	54

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.17
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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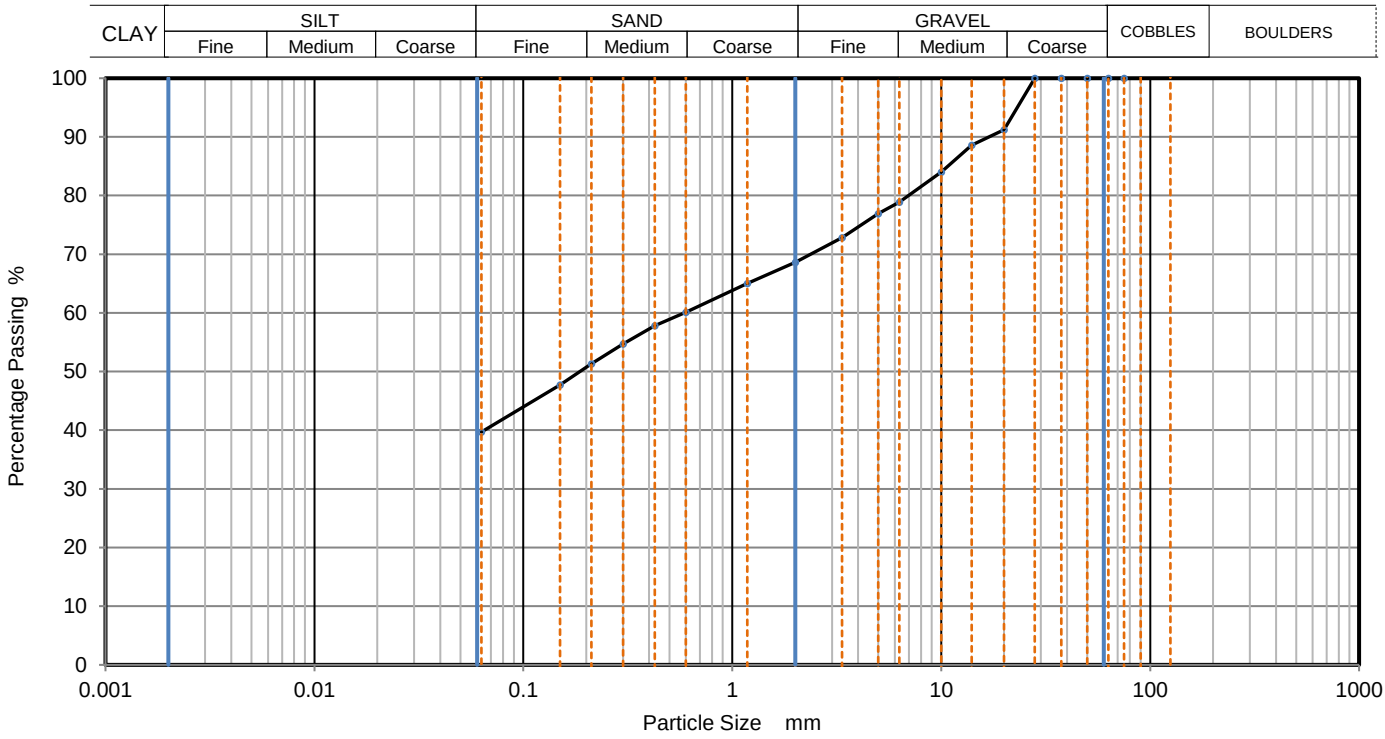
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75605
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010677



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	91		
14	89		
10	84		
6.3	79		
5	77		
3.35	73		
2	69		
1.18	65		
0.6	60		
0.425	58		
0.3	55		
0.212	51		
0.15	48		
0.063	40		

Dry Mass of sample, g	761

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	29
Fines <0.063mm	40

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.589
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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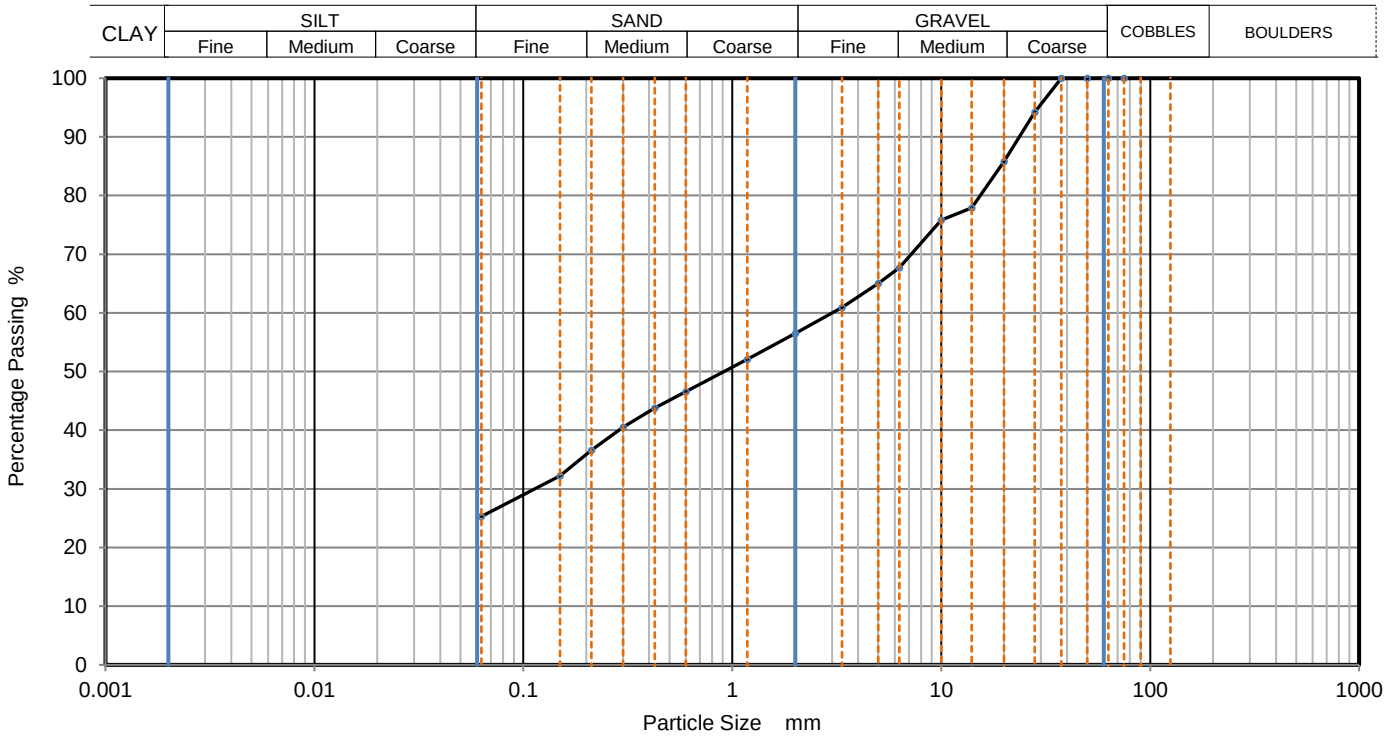
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75908
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty very sandy GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011389



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	86		
14	78		
10	76		
6.3	68		
5	65		
3.35	61		
2	57		
1.18	52		
0.6	47		
0.425	44		
0.3	41		
0.212	37		
0.15	32		
0.063	25		

Dry Mass of sample, g	820

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	31
Fines <0.063mm	25

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3
D_{30}	mm	0.114
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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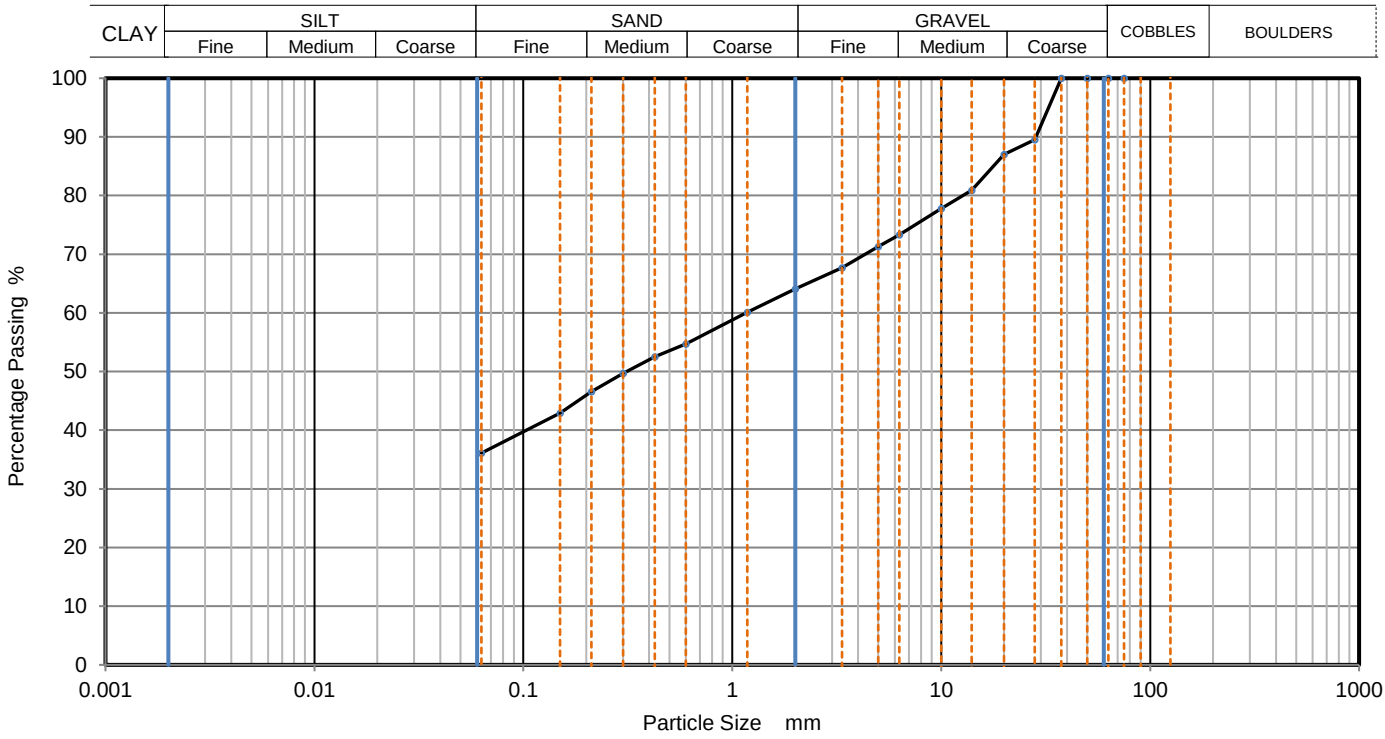
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-75908
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011391



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	87		
14	81		
10	78		
6.3	73		
5	71		
3.35	68		
2	64		
1.18	60		
0.6	55		
0.425	53		
0.3	50		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	1008

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	28
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.16
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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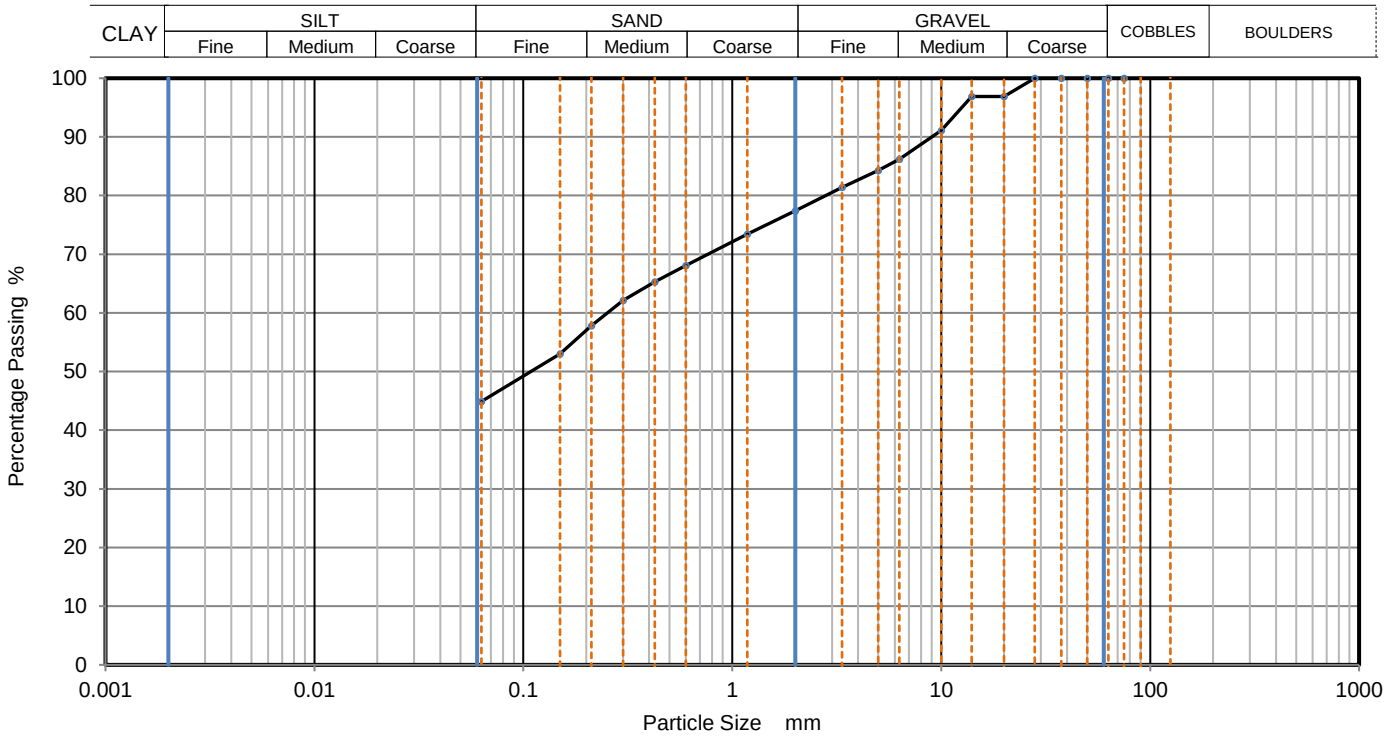
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76006
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011393



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	97		
14	97		
10	91		
6.3	86		
5	84		
3.35	81		
2	77		
1.18	73		
0.6	68		
0.425	65		
0.3	62		
0.212	58		
0.15	53		
0.063	45		

Dry Mass of sample, g	718

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	33
Fines <0.063mm	45

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.253
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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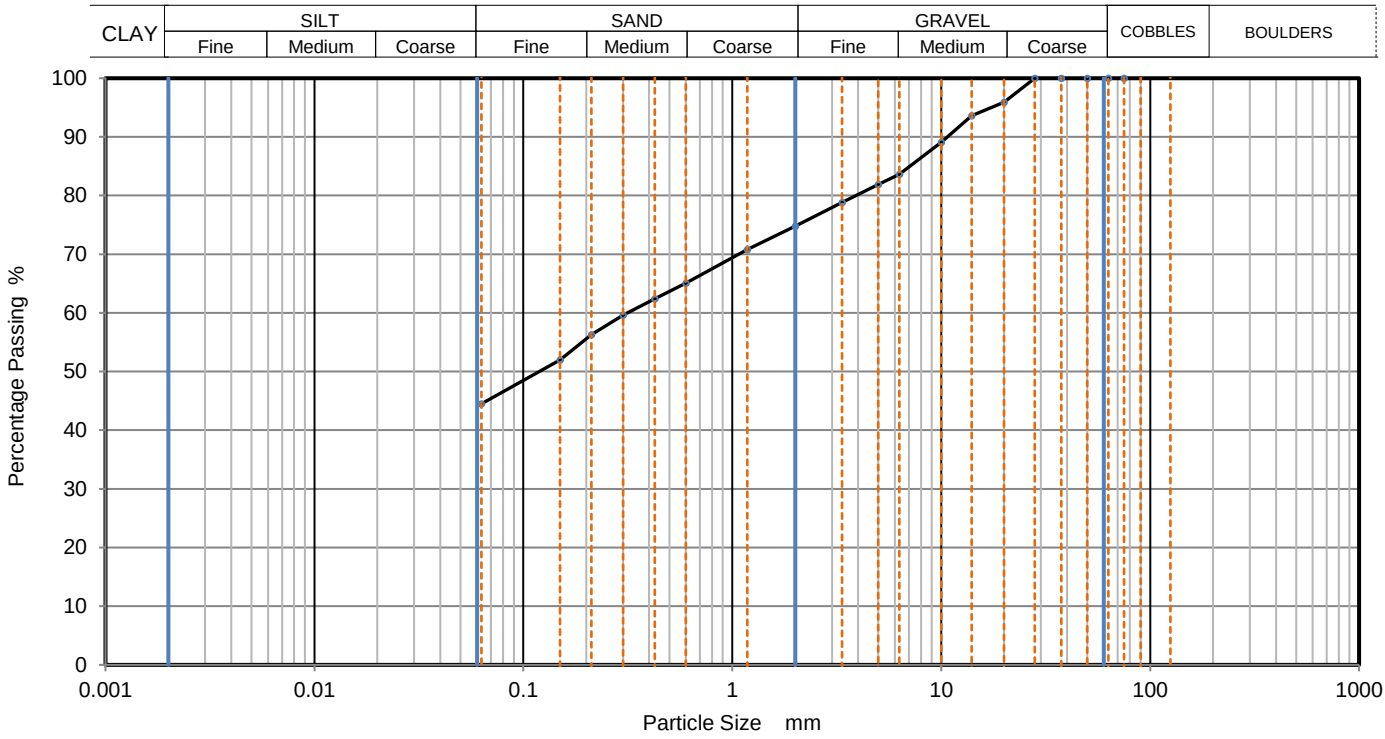
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76006
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011396



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	96		
14	94		
10	89		
6.3	84		
5	82		
3.35	79		
2	75		
1.18	71		
0.6	65		
0.425	62		
0.3	60		
0.212	56		
0.15	52		
0.063	45		

Dry Mass of sample, g	955

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	30
Fines <0.063mm	44

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.315
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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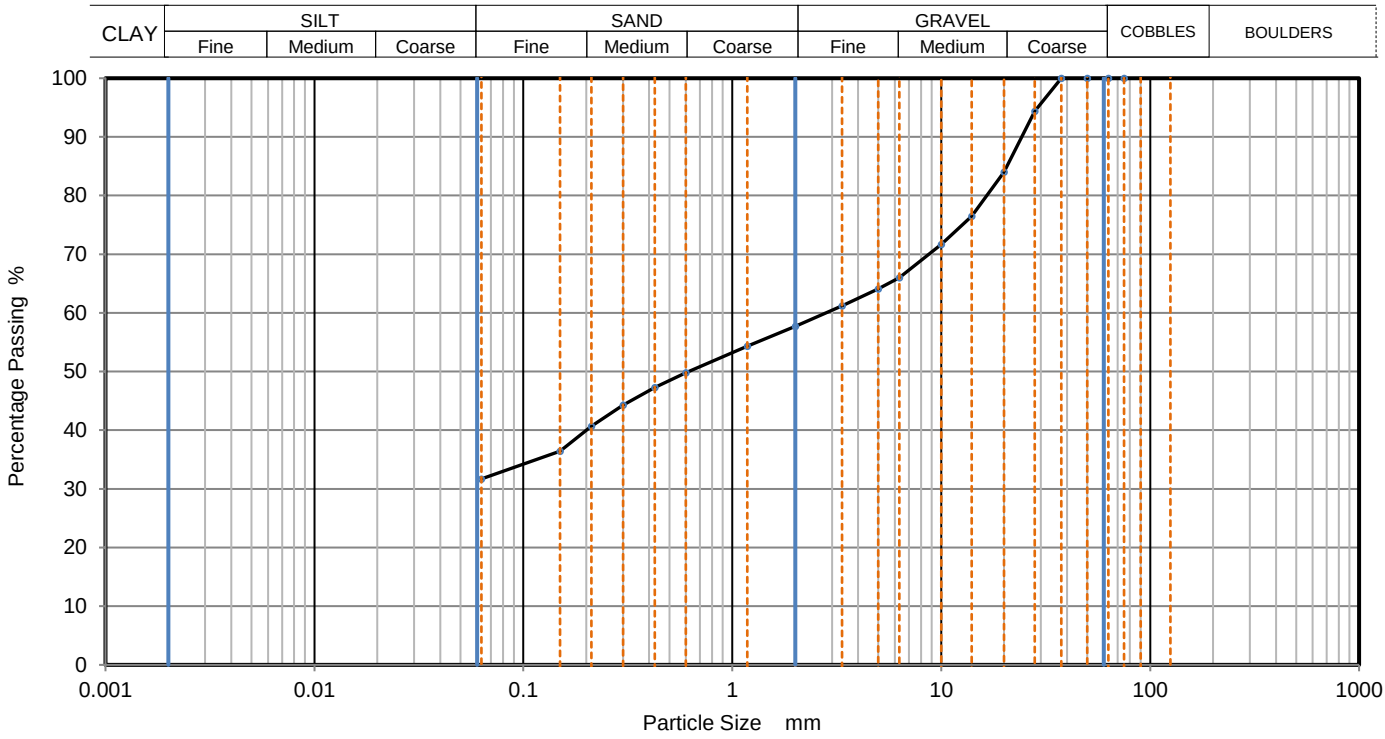
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76087
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very sandy very silty medium and coarse GRAVEL.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010679



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	84		
14	77		
10	72		
6.3	66		
5	64		
3.35	61		
2	58		
1.18	54		
0.6	50		
0.425	47		
0.3	44		
0.212	41		
0.15	36		
0.063	32		

Dry Mass of sample, g	944

Sample Proportions	% dry mass
Very coarse	0
Gravel	42
Sand	26
Fines <0.063mm	32

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.82
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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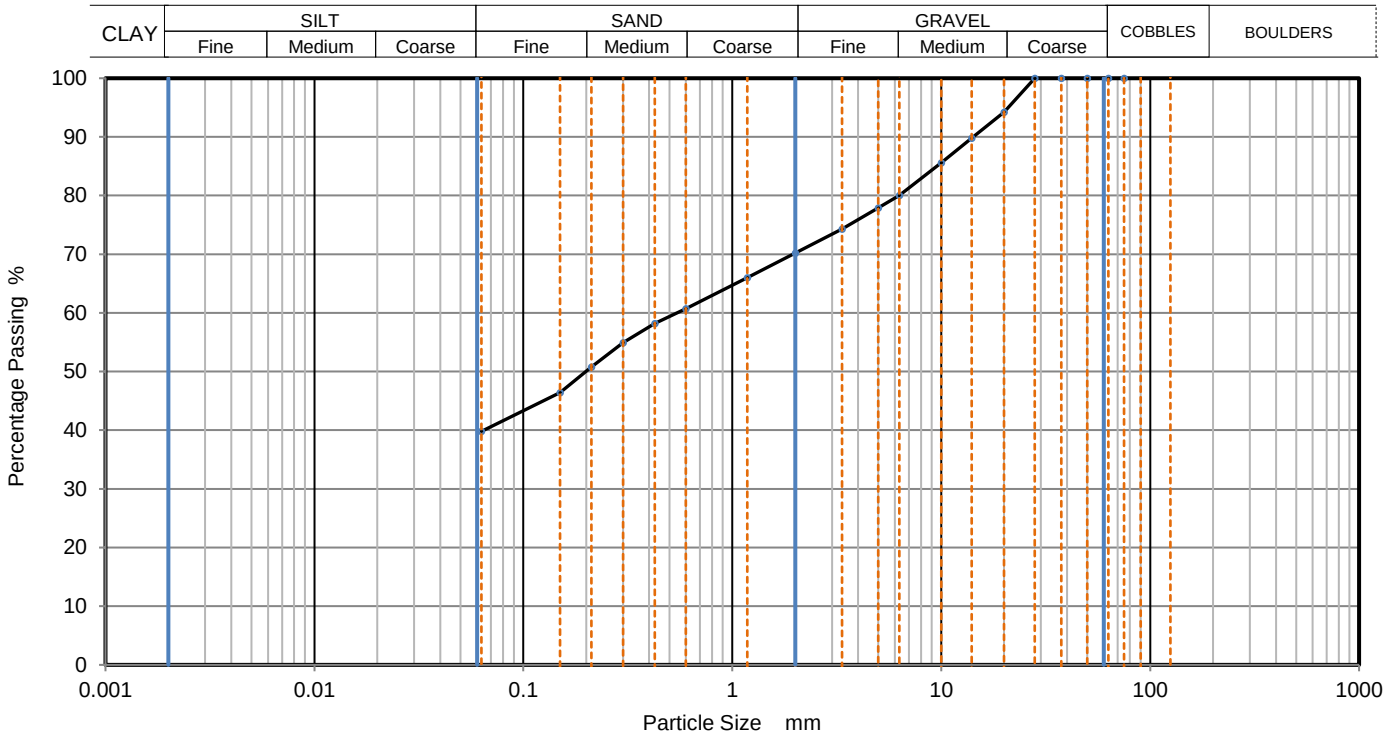
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76087
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010682



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	90		
10	86		
6.3	80		
5	78		
3.35	74		
2	70		
1.18	66		
0.6	61		
0.425	58		
0.3	55		
0.212	51		
0.15	46		
0.063	40		

Dry Mass of sample, g	869

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	30
Fines <0.063mm	40

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.542
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

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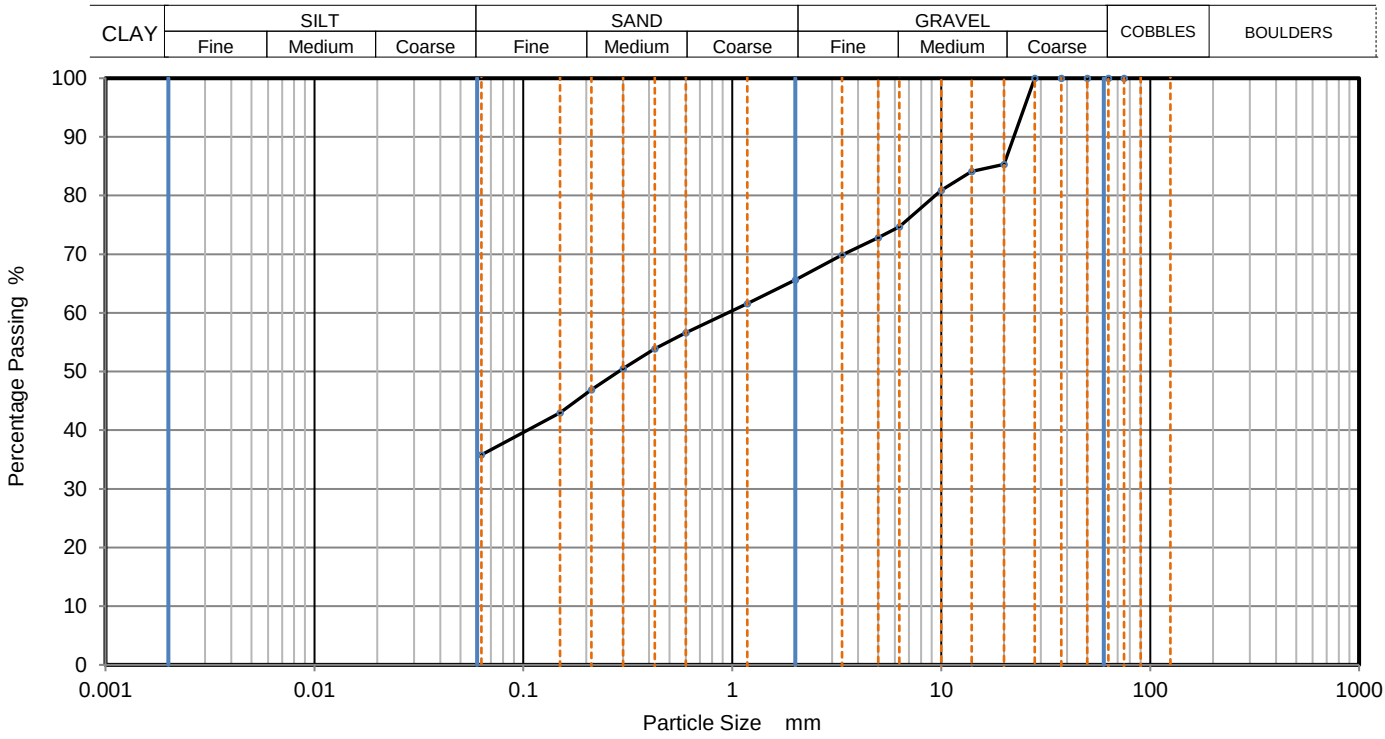
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76212
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly sandy slightly gravelly SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010684



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	85		
14	84		
10	81		
6.3	75		
5	73		
3.35	70		
2	66		
1.18	62		
0.6	57		
0.425	54		
0.3	51		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	838

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	30
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.948
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

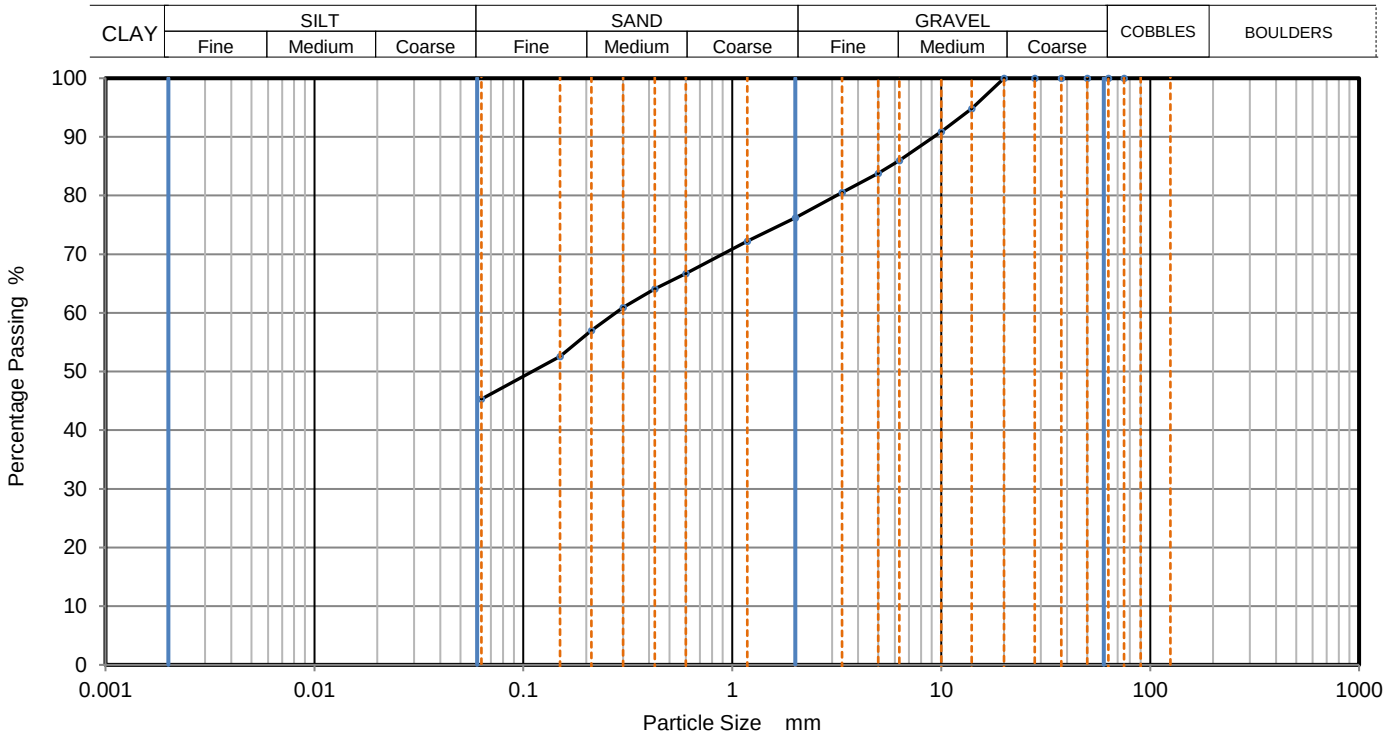
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:51	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76212
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010687



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	91		
6.3	86		
5	84		
3.35	81		
2	76		
1.18	72		
0.6	67		
0.425	64		
0.3	61		
0.212	57		
0.15	53		
0.063	45		

Dry Mass of sample, g	714

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	31
Fines <0.063mm	45

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.277
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

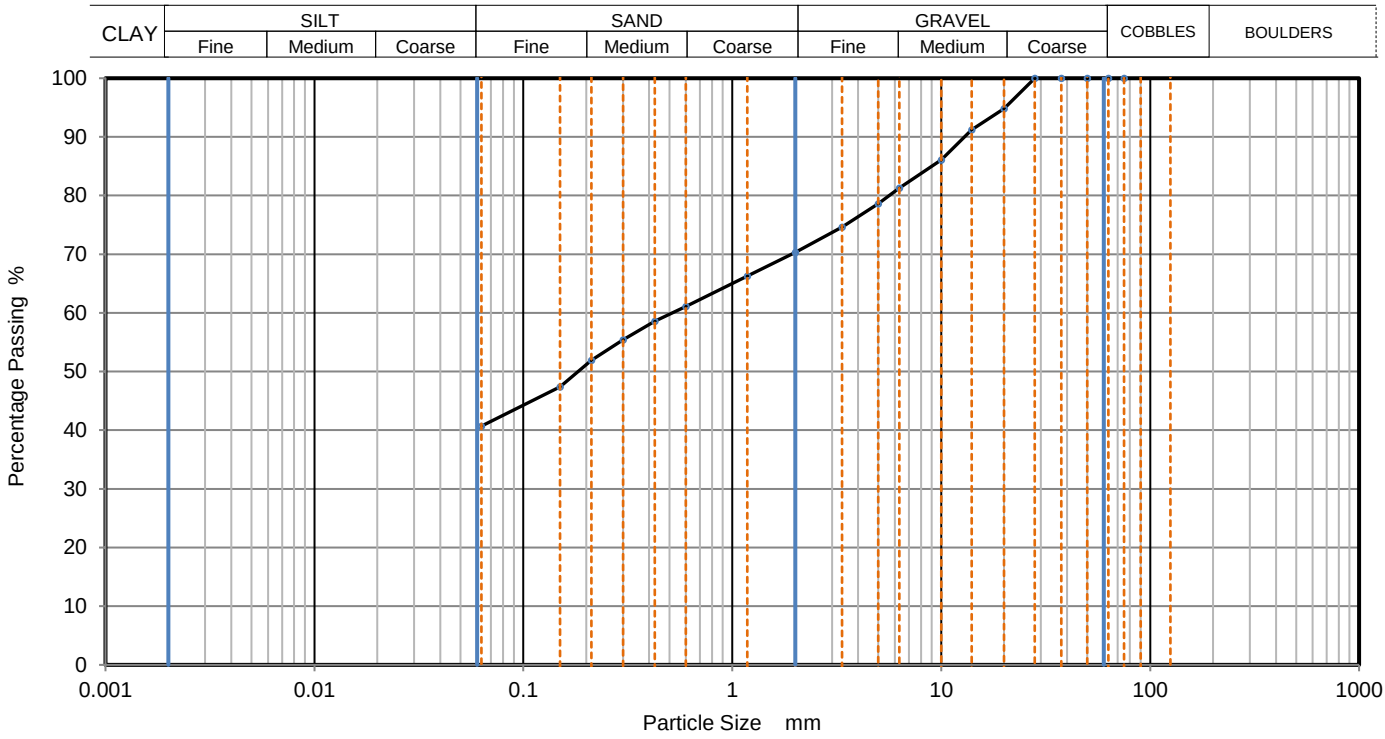
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76212
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	3.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010691



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	91		
10	86		
6.3	81		
5	79		
3.35	75		
2	70		
1.18	66		
0.6	61		
0.425	59		
0.3	55		
0.212	52		
0.15	47		
0.063	41		

Dry Mass of sample, g	759

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	30
Fines <0.063mm	41

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.516
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

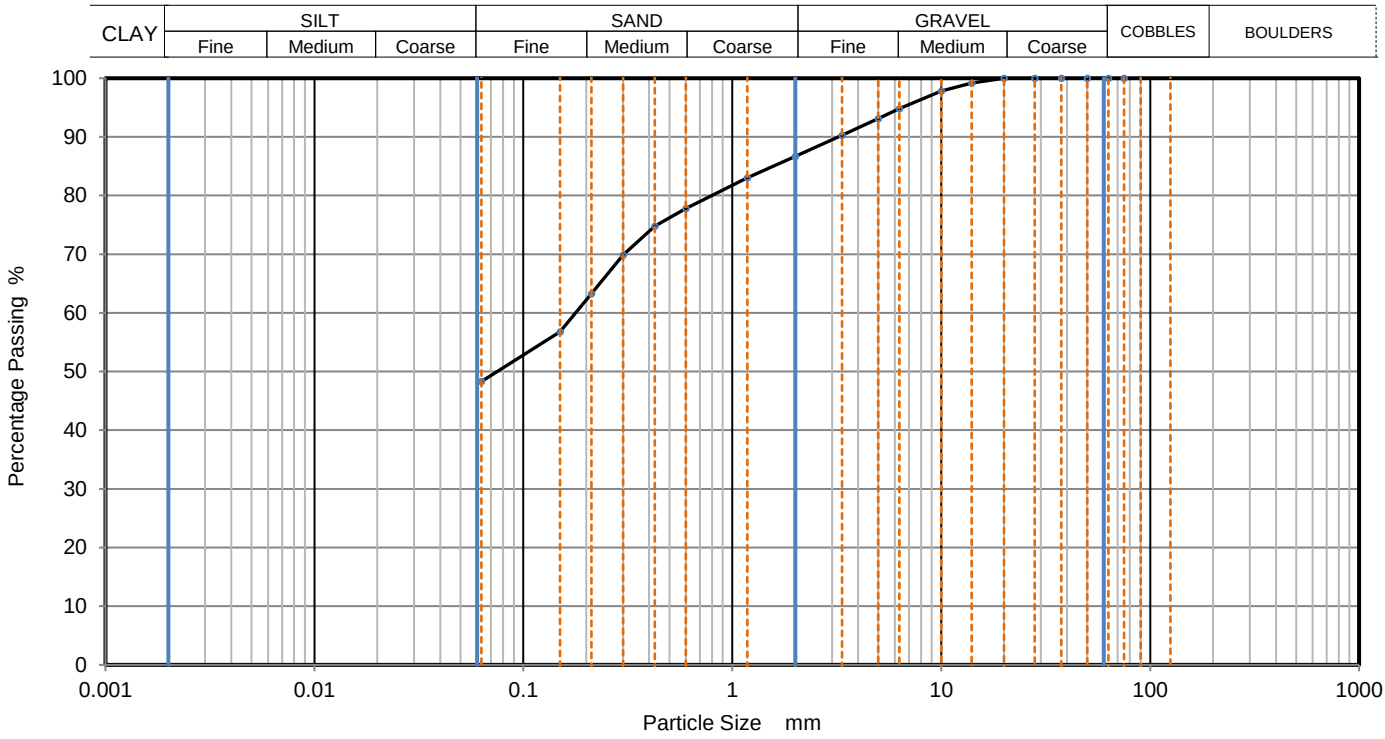
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76309
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light bornw slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010693



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	95		
5	93		
3.35	90		
2	87		
1.18	83		
0.6	78		
0.425	75		
0.3	70		
0.212	63		
0.15	57		
0.063	48		

Dry Mass of sample, g: 726

Sample Proportions	% dry mass
Very coarse	0
Gravel	13
Sand	38
Fines <0.063mm	48

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.178
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

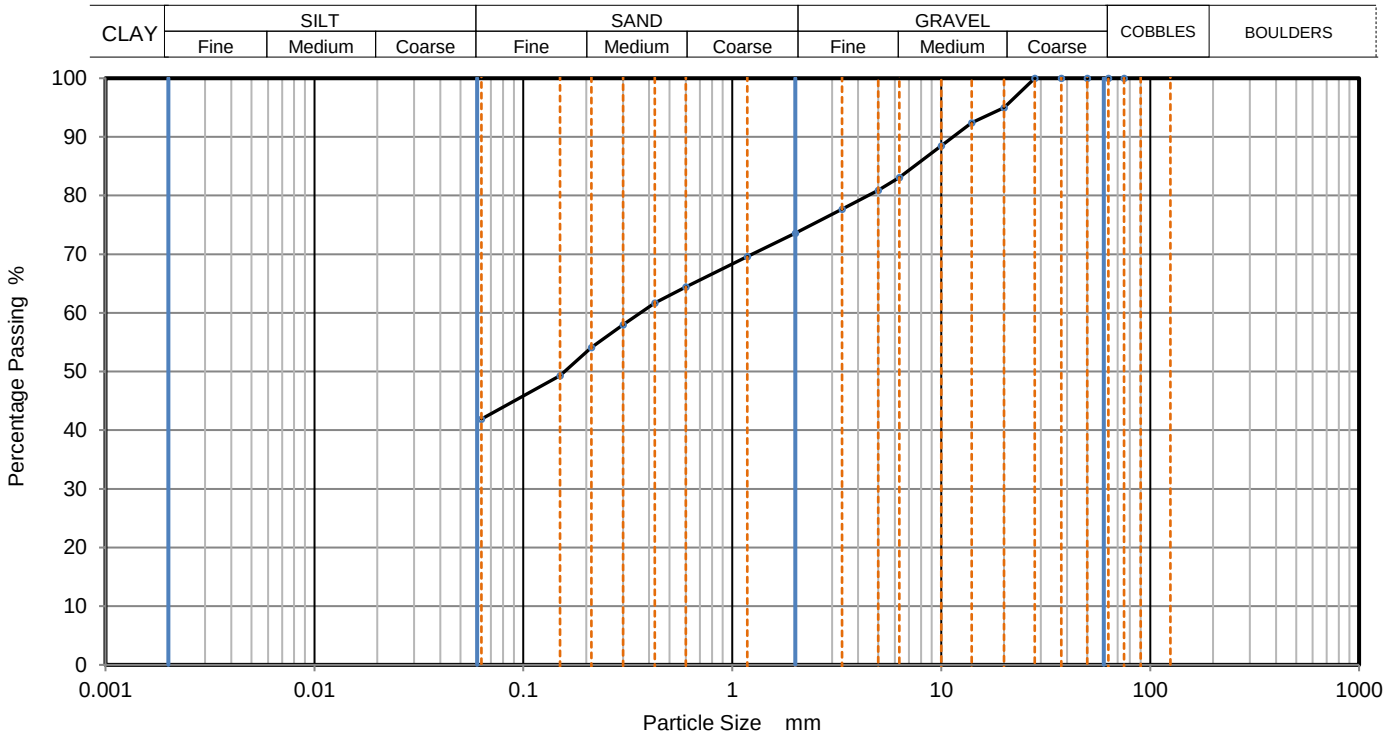
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76309
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010695



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	92		
10	89		
6.3	83		
5	81		
3.35	78		
2	74		
1.18	70		
0.6	64		
0.425	62		
0.3	58		
0.212	54		
0.15	49		
0.063	42		

Dry Mass of sample, g	687

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	32
Fines <0.063mm	42

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.362
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

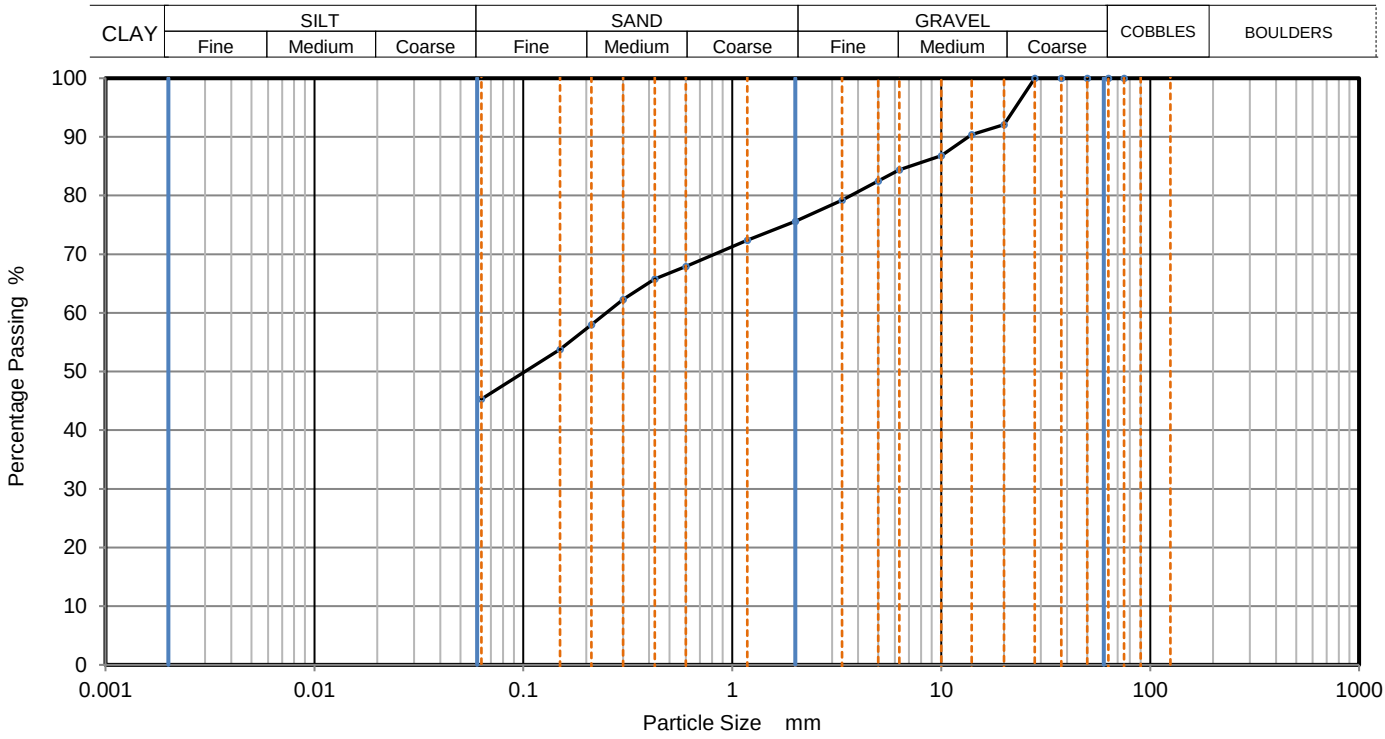
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76440
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly slightly SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022010699



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	90		
10	87		
6.3	84		
5	83		
3.35	79		
2	76		
1.18	72		
0.6	68		
0.425	66		
0.3	62		
0.212	58		
0.15	54		
0.063	45		

Dry Mass of sample, g	399

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	30
Fines <0.063mm	45

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.249
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

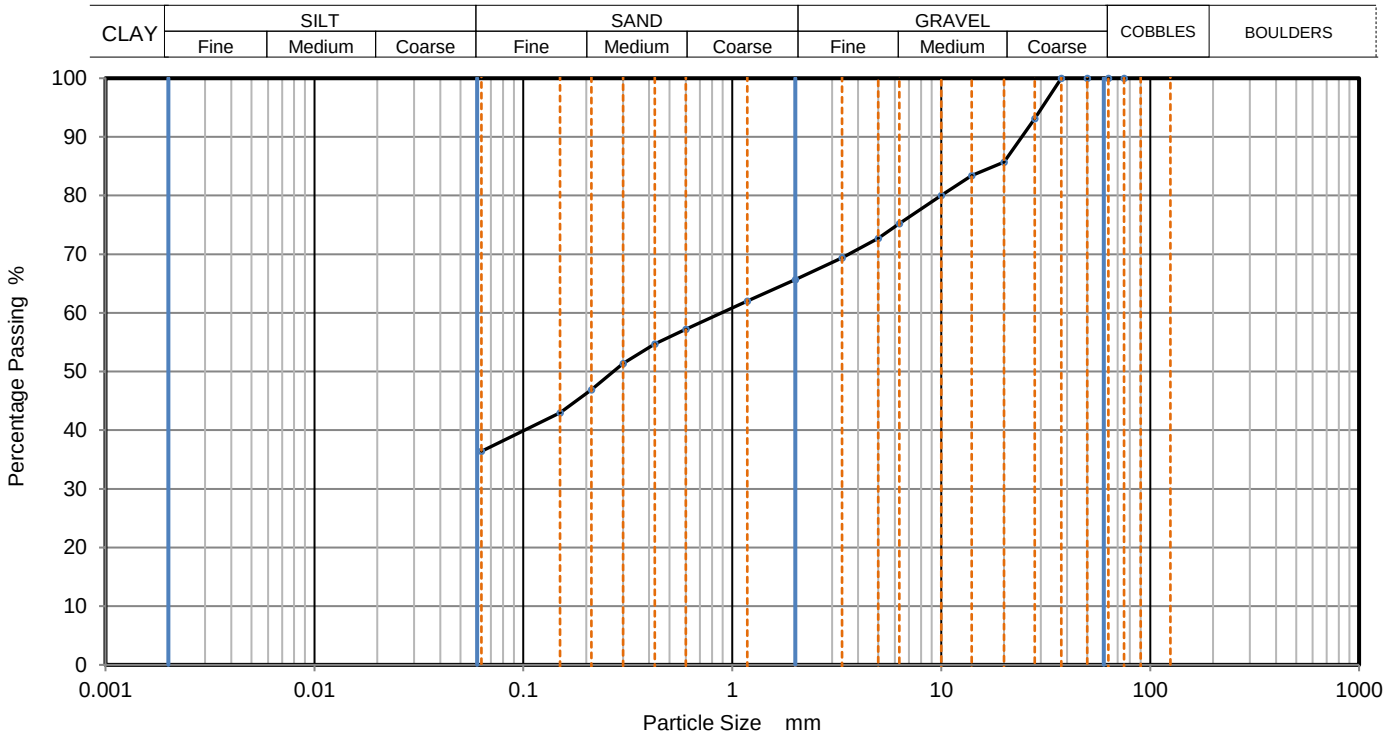
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76440
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	86		
14	83		
10	80		
6.3	75		
5	73		
3.35	69		
2	66		
1.18	62		
0.6	57		
0.425	55		
0.3	51		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	999

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	29
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.89
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

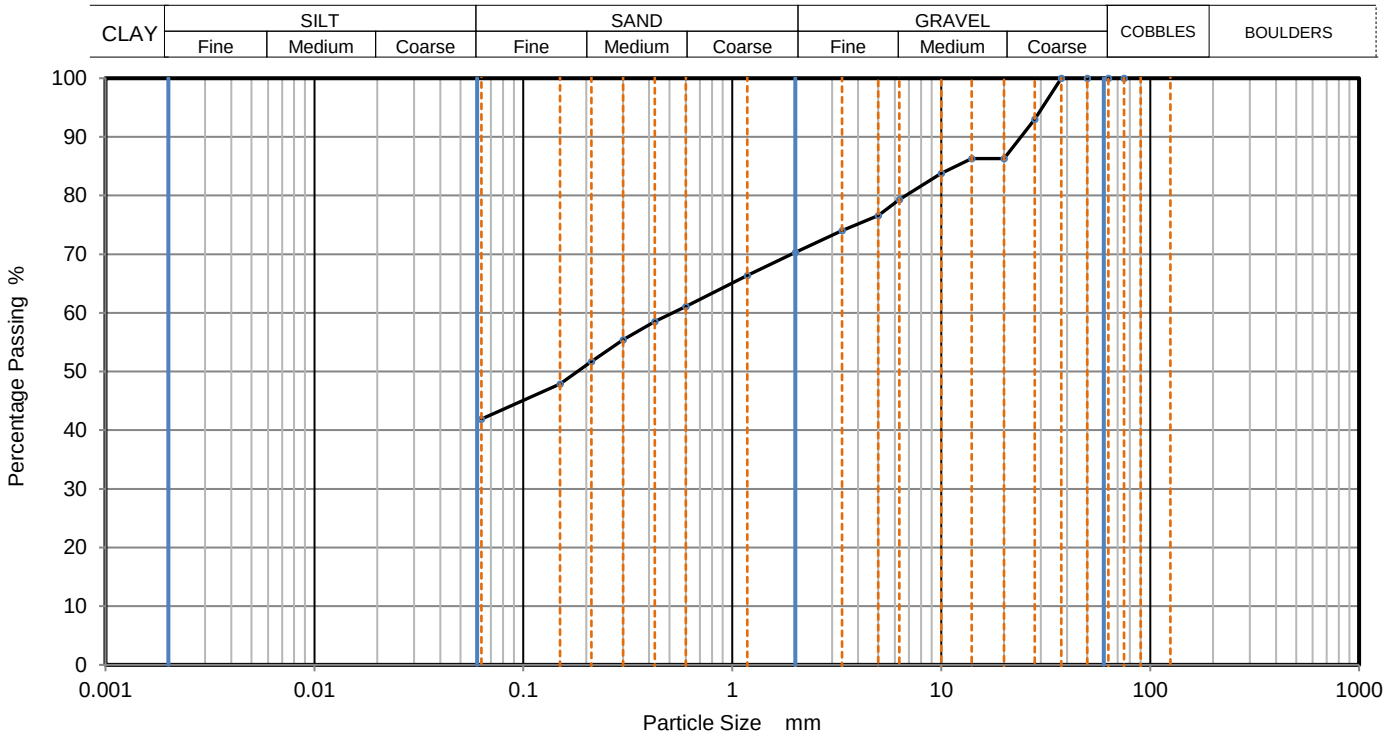
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76440
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106104



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	86		
14	86		
10	84		
6.3	79		
5	77		
3.35	74		
2	70		
1.18	66		
0.6	61		
0.425	59		
0.3	55		
0.212	52		
0.15	48		
0.063	42		

Dry Mass of sample, g	800

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	28
Fines <0.063mm	42

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.518
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

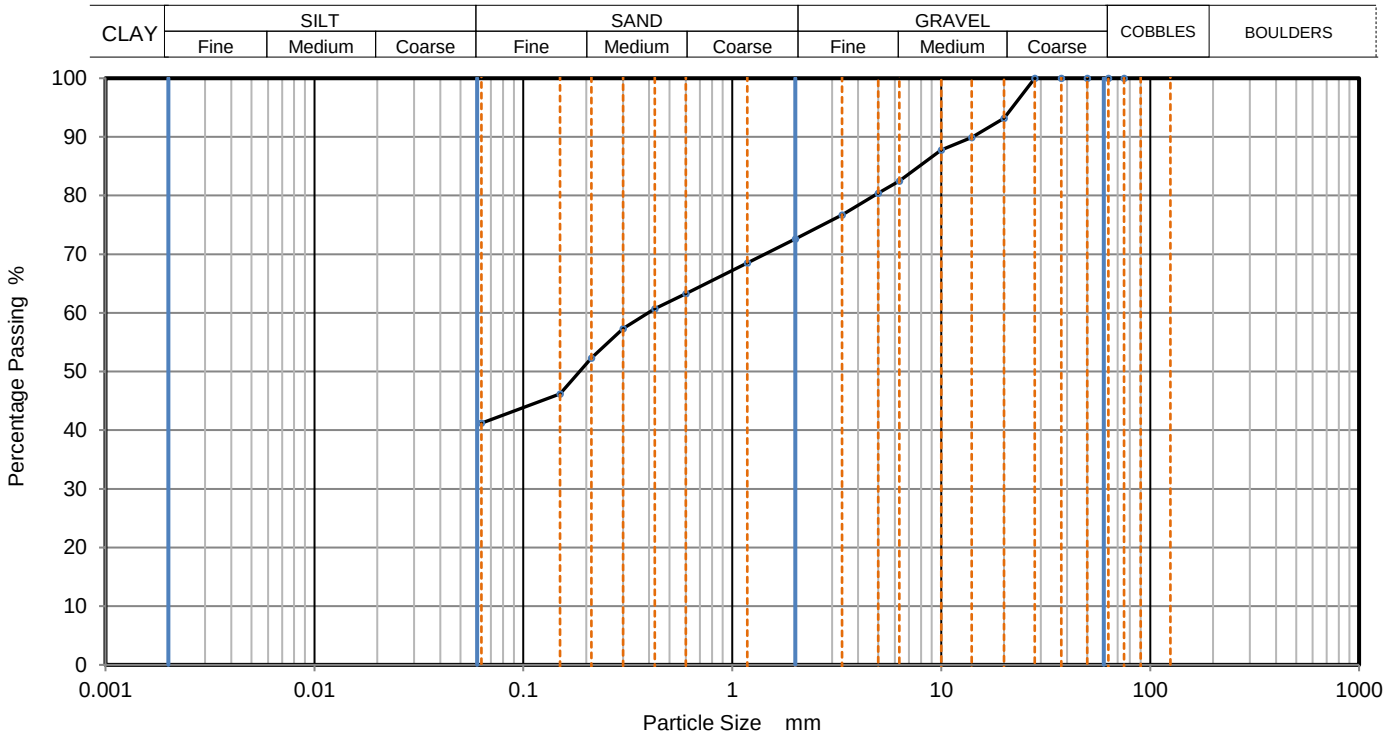
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76508
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106106



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	90		
10	88		
6.3	83		
5	80		
3.35	77		
2	73		
1.18	69		
0.6	63		
0.425	61		
0.3	57		
0.212	52		
0.15	46		
0.063	41		

Dry Mass of sample, g	777

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	31
Fines <0.063mm	41

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.396
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

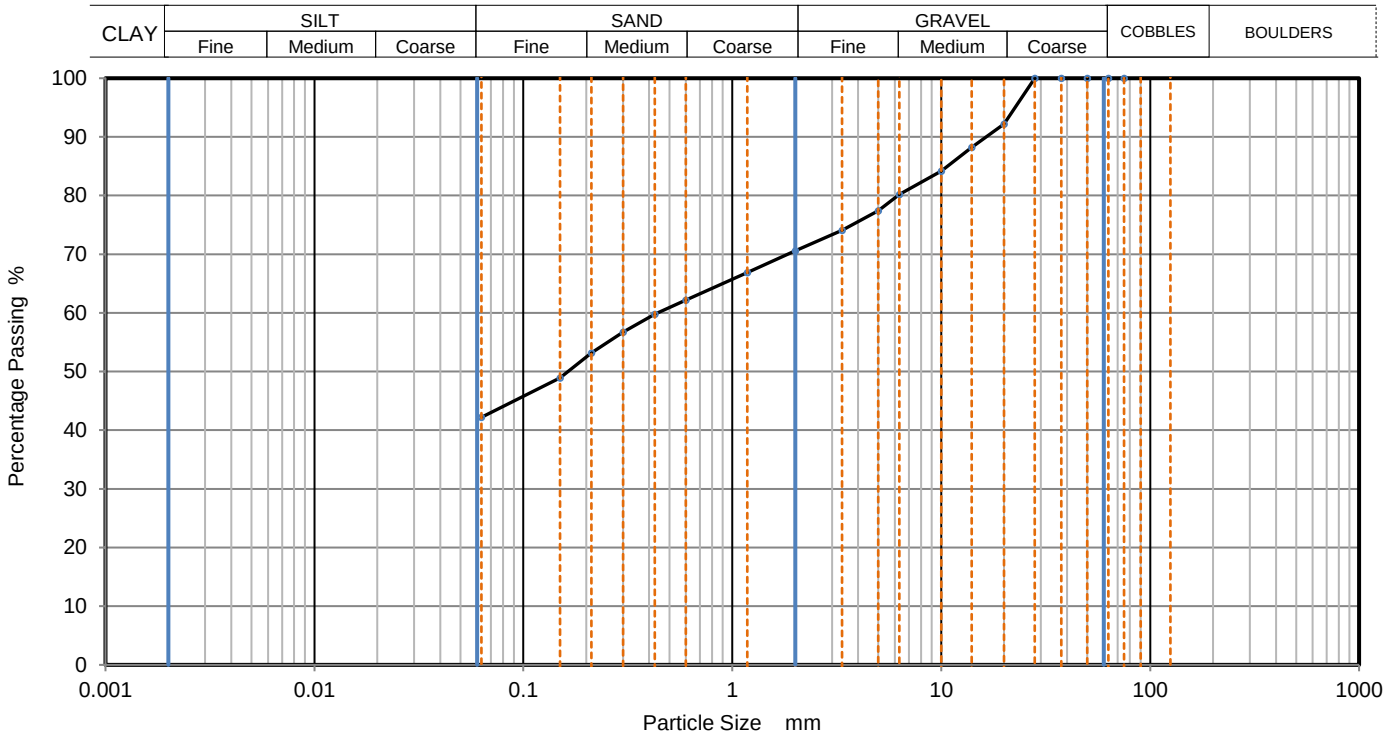
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	20/10/2022 16:51	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76508
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106108



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	88		
10	84		
6.3	80		
5	77		
3.35	74		
2	71		
1.18	67		
0.6	62		
0.425	60		
0.3	57		
0.212	53		
0.15	49		
0.063	42		

Dry Mass of sample, g	999

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	28
Fines <0.063mm	42

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.44
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

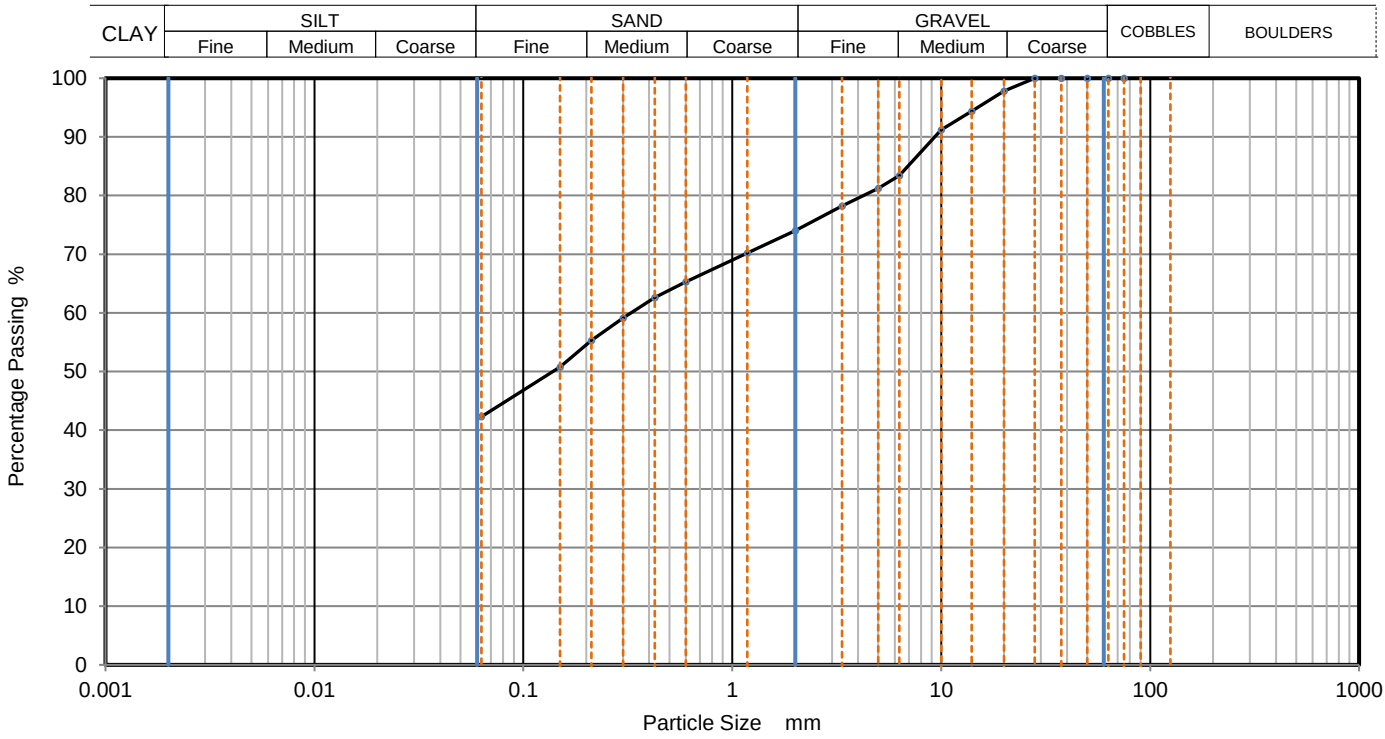
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:40	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76508
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	91		
6.3	83		
5	81		
3.35	78		
2	74		
1.18	70		
0.6	65		
0.425	63		
0.3	59		
0.212	55		
0.15	51		
0.063	42		

Dry Mass of sample, g	836

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	32
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.328
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

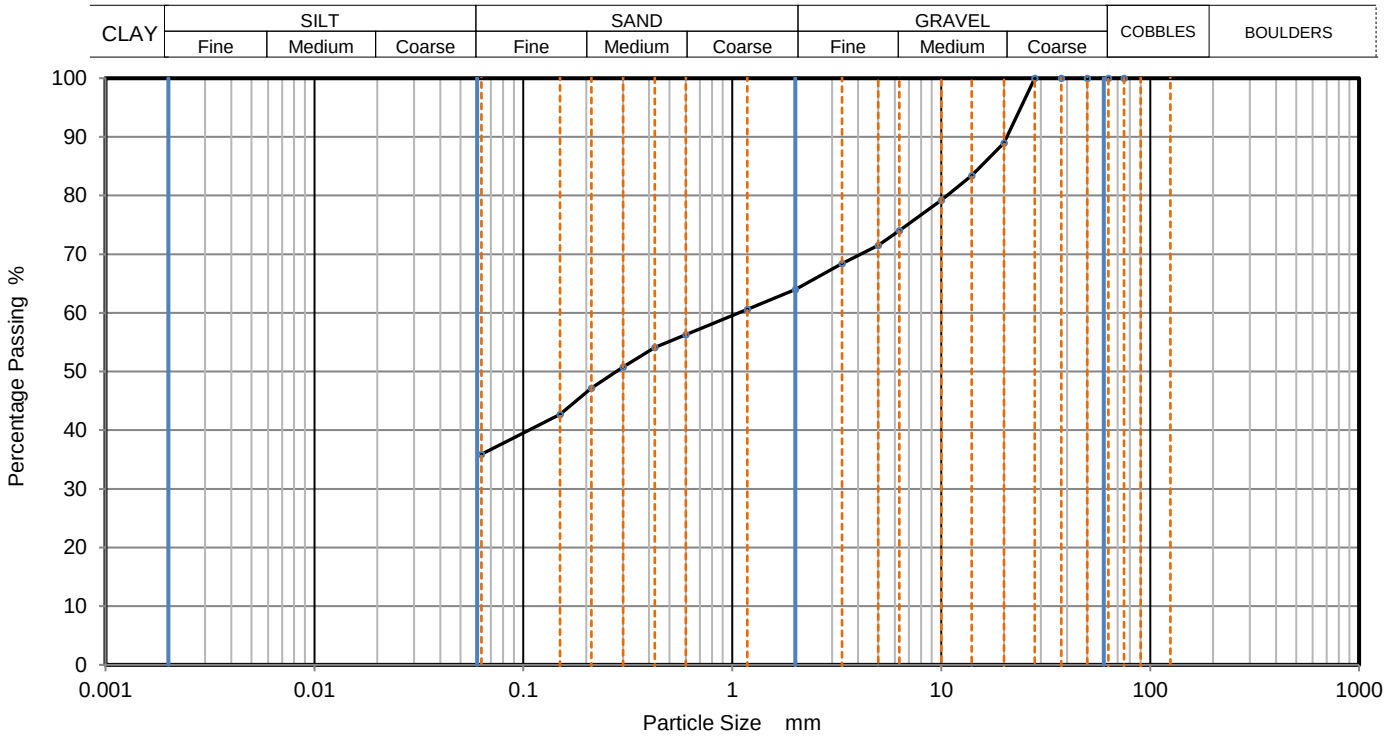
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/12/2022 16:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76641
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106112



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	83		
10	79		
6.3	74		
5	72		
3.35	68		
2	64		
1.18	61		
0.6	56		
0.425	54		
0.3	51		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	578

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	28
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.08
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

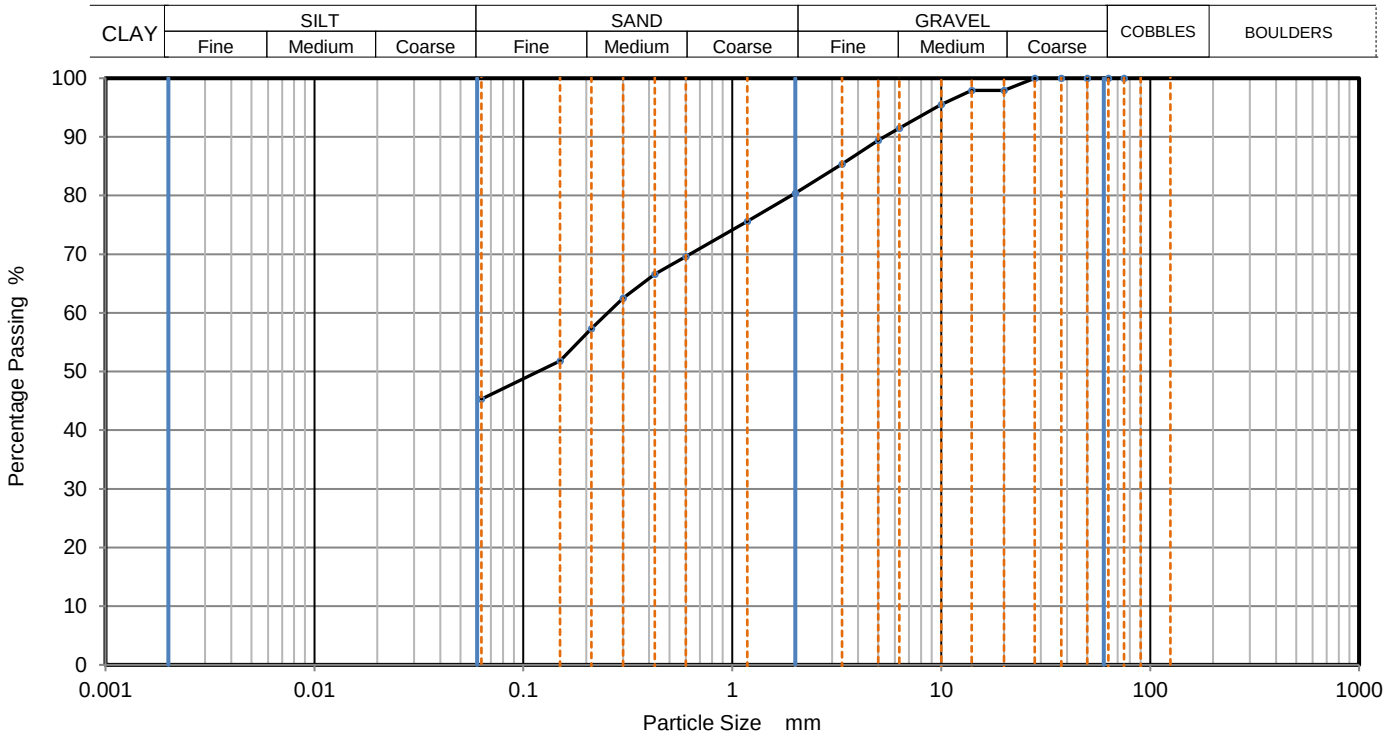
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	18/10/2022 15:41	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76641
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light btown slightly gravelly sandy SILT.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106114



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	98		
14	98		
10	96		
6.3	92		
5	89		
3.35	85		
2	80		
1.18	76		
0.6	70		
0.425	67		
0.3	63		
0.212	57		
0.15	52		
0.063	45		

Dry Mass of sample, g	886

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	35
Fines <0.063mm	45

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.254
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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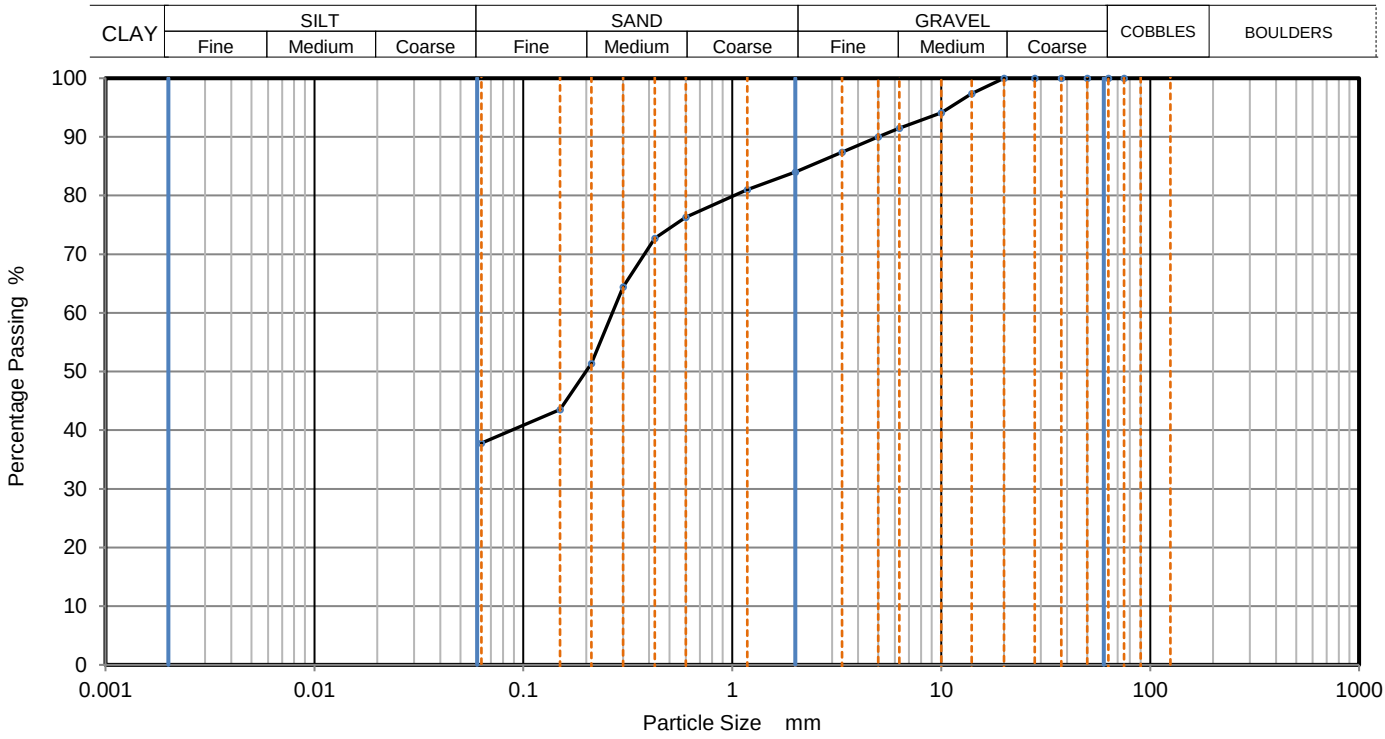
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76707
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orange-brown slightly gravelly sandy SILT. Sand is medium.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106118



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	92		
5	90		
3.35	87		
2	84		
1.18	81		
0.6	76		
0.425	73		
0.3	64		
0.212	51		
0.15	44		
0.063	38		

Dry Mass of sample, g	786

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	46
Fines <0.063mm	38

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.267
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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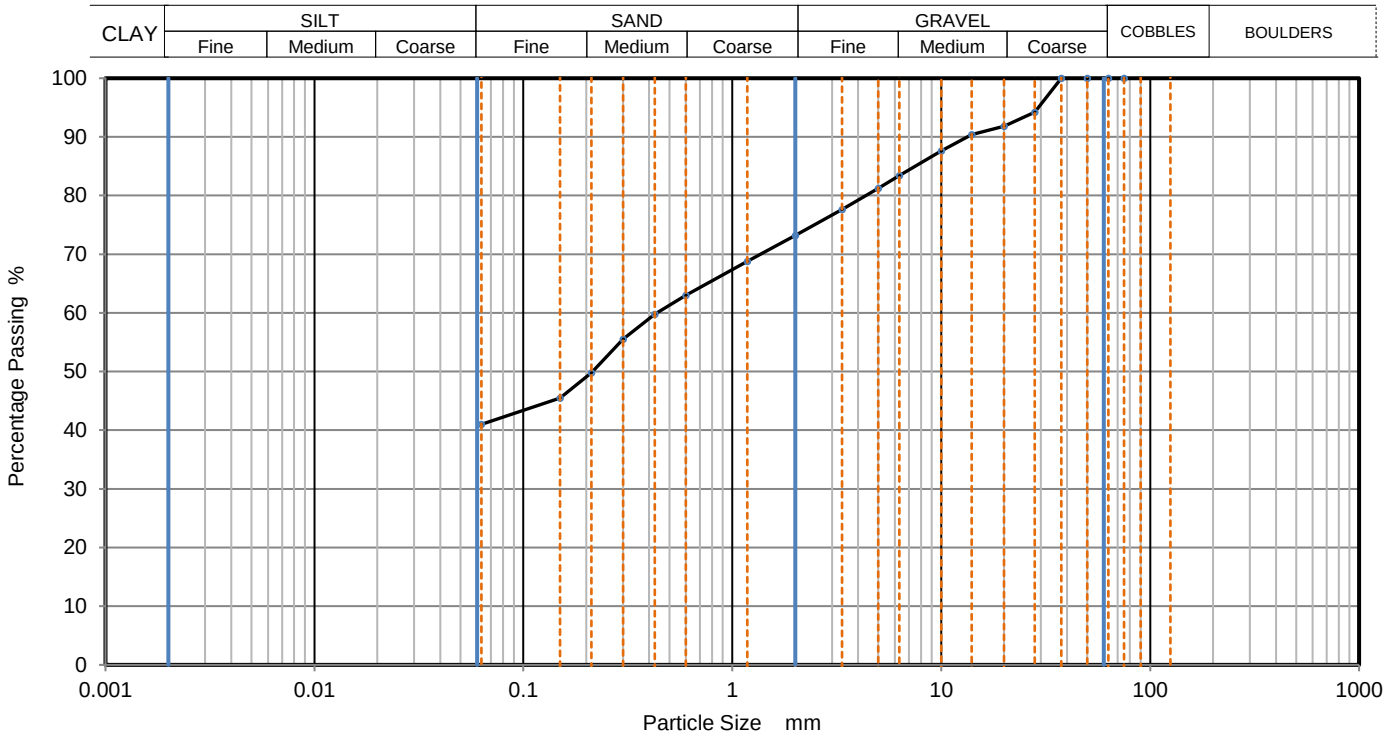
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76707
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106121



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	92		
14	90		
10	88		
6.3	83		
5	81		
3.35	78		
2	73		
1.18	69		
0.6	63		
0.425	60		
0.3	56		
0.212	50		
0.15	46		
0.063	41		

Dry Mass of sample, g	725

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	32
Fines <0.063mm	41

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.434
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	18/10/2022 15:41	**1** QC From No:R2

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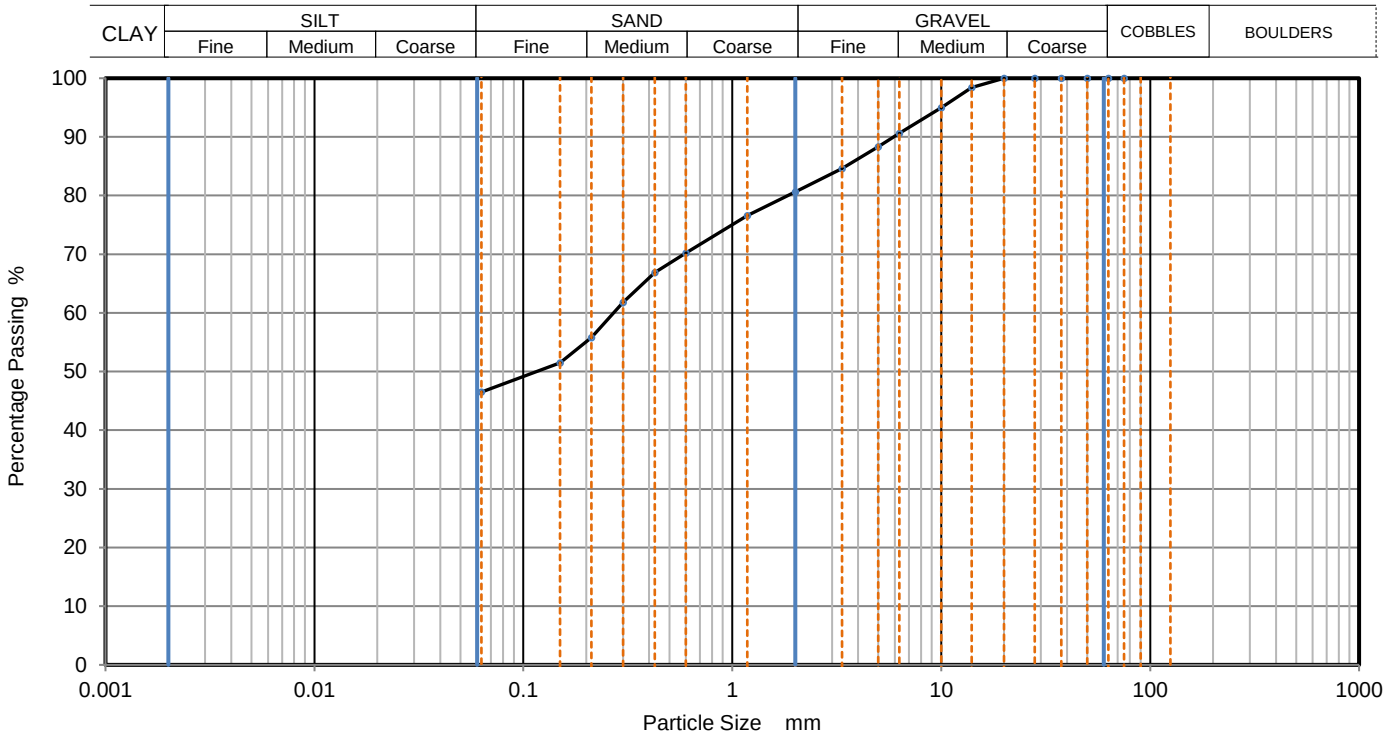
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76707
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220106123



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	95		
6.3	91		
5	88		
3.35	85		
2	81		
1.18	77		
0.6	70		
0.425	67		
0.3	62		
0.212	56		
0.15	52		
0.063	47		

Dry Mass of sample, g	852

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	34
Fines <0.063mm	46

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.27
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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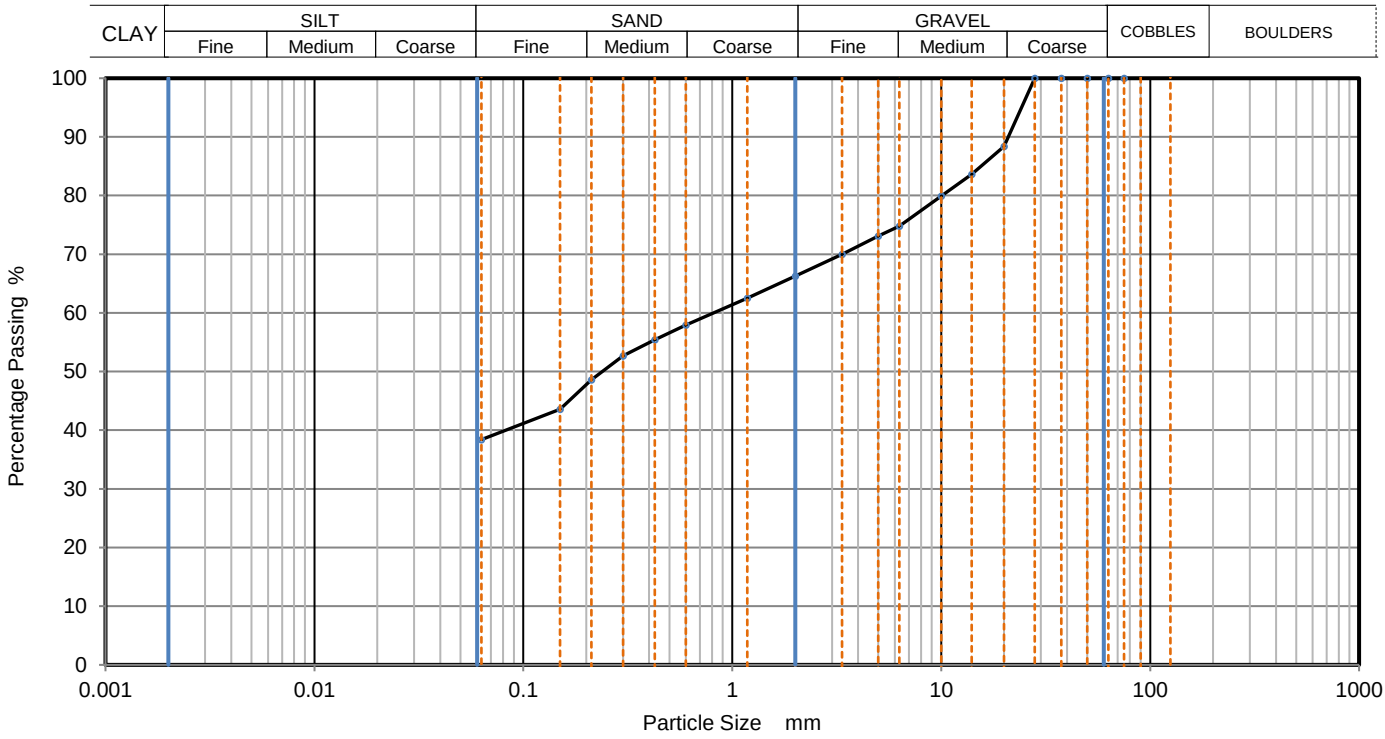
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76805
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011398



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	88		
14	84		
10	80		
6.3	75		
5	73		
3.35	70		
2	66		
1.18	63		
0.6	58		
0.425	55		
0.3	53		
0.212	49		
0.15	44		
0.063	38		

Dry Mass of sample, g	651

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	28
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.819
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/12/2022 16:08	**1**
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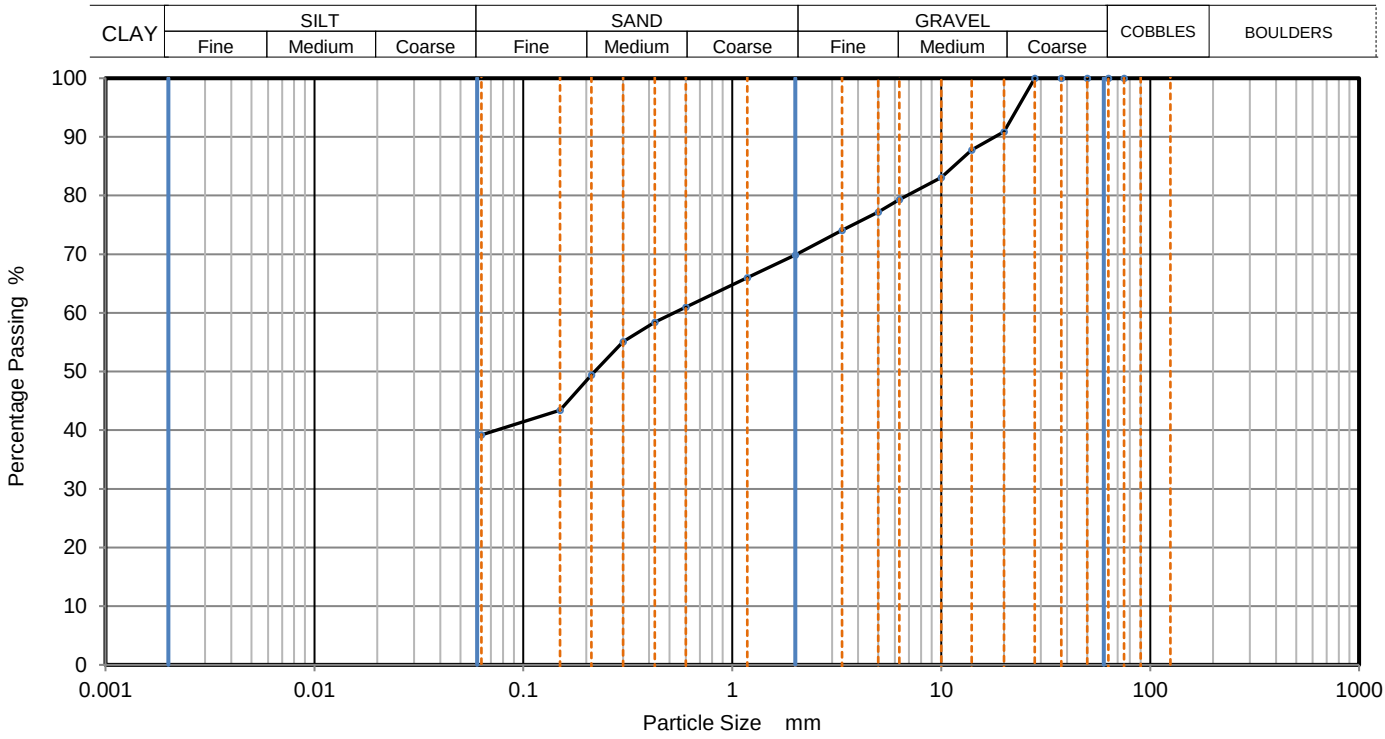
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76805
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113101



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	91		
14	88		
10	83		
6.3	79		
5	77		
3.35	74		
2	70		
1.18	66		
0.6	61		
0.425	58		
0.3	55		
0.212	49		
0.15	43		
0.063	39		

Dry Mass of sample, g	949

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	31
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.527
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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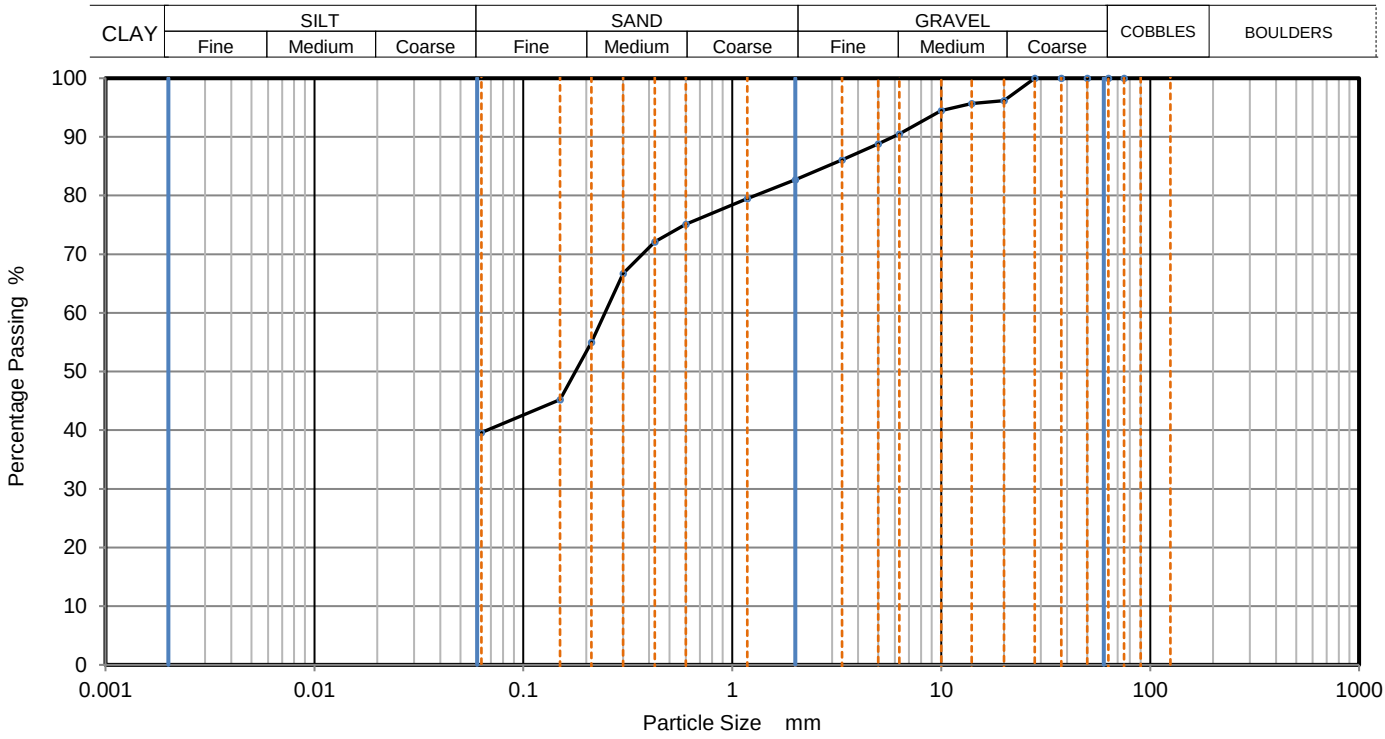
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76907
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113105



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	96		
10	95		
6.3	91		
5	89		
3.35	86		
2	83		
1.18	80		
0.6	75		
0.425	72		
0.3	67		
0.212	55		
0.15	45		
0.063	40		

Dry Mass of sample, g	733

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	43
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.246
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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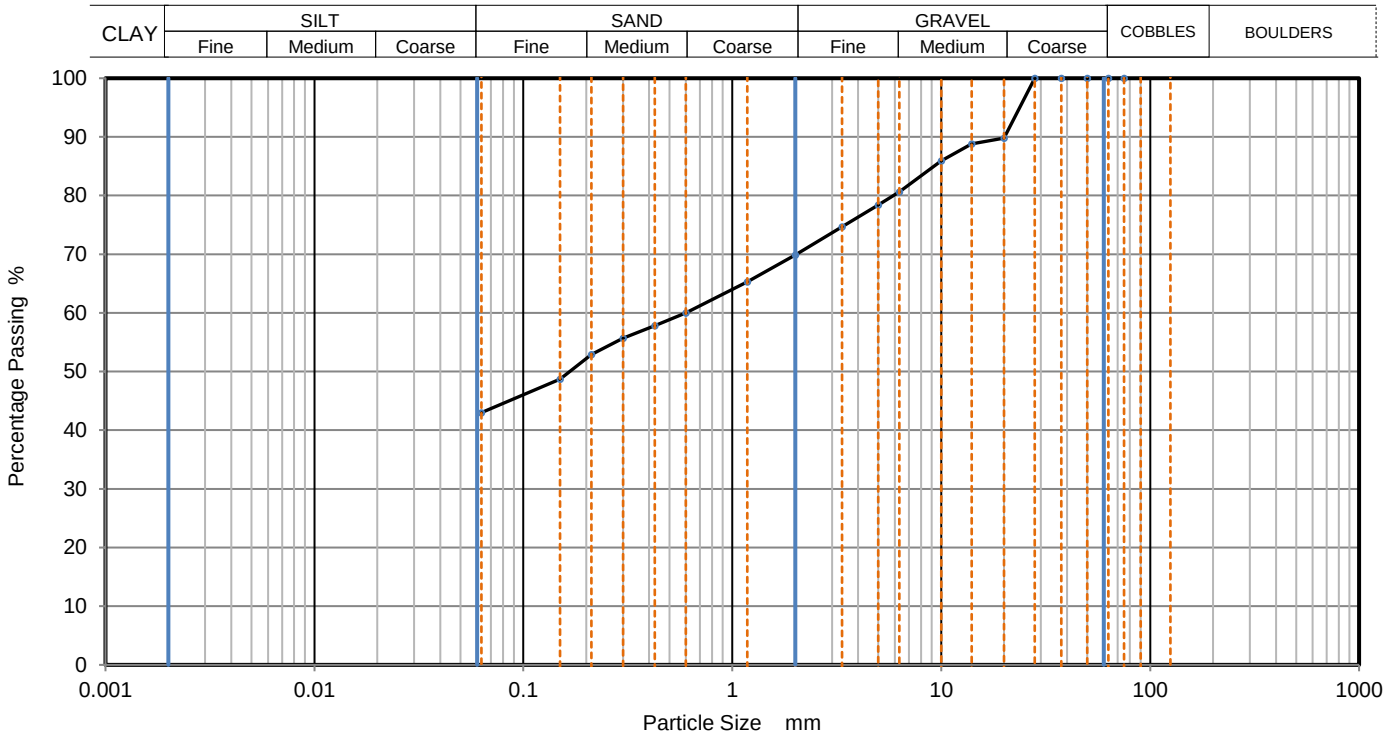
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76907
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy slighlty gravelly SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113108



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	90		
14	89		
10	86		
6.3	81		
5	78		
3.35	75		
2	70		
1.18	65		
0.6	60		
0.425	58		
0.3	56		
0.212	53		
0.15	49		
0.063	43		

Dry Mass of sample, g	830

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	27
Fines <0.063mm	43

Grading Analysis		
D100	mm	
D60	mm	0.596
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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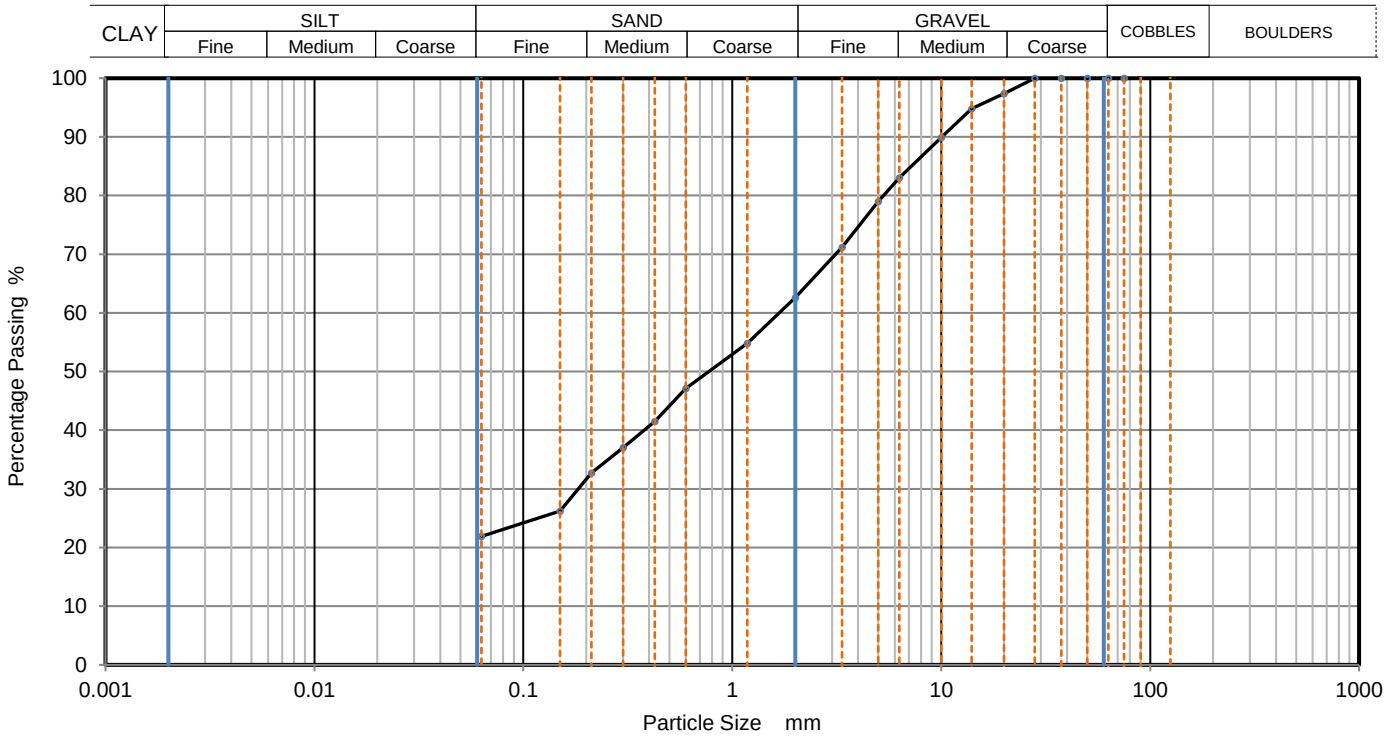
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76907
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	97		
14	95		
10	90		
6.3	83		
5	79		
3.35	71		
2	63		
1.18	55		
0.6	47		
0.425	42		
0.3	37		
0.212	33		
0.15	26		
0.063	22		

Dry Mass of sample, g: 665

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	41
Fines <0.063mm	22

Grading Analysis		
D100	mm	
D60	mm	1.68
D30	mm	0.184
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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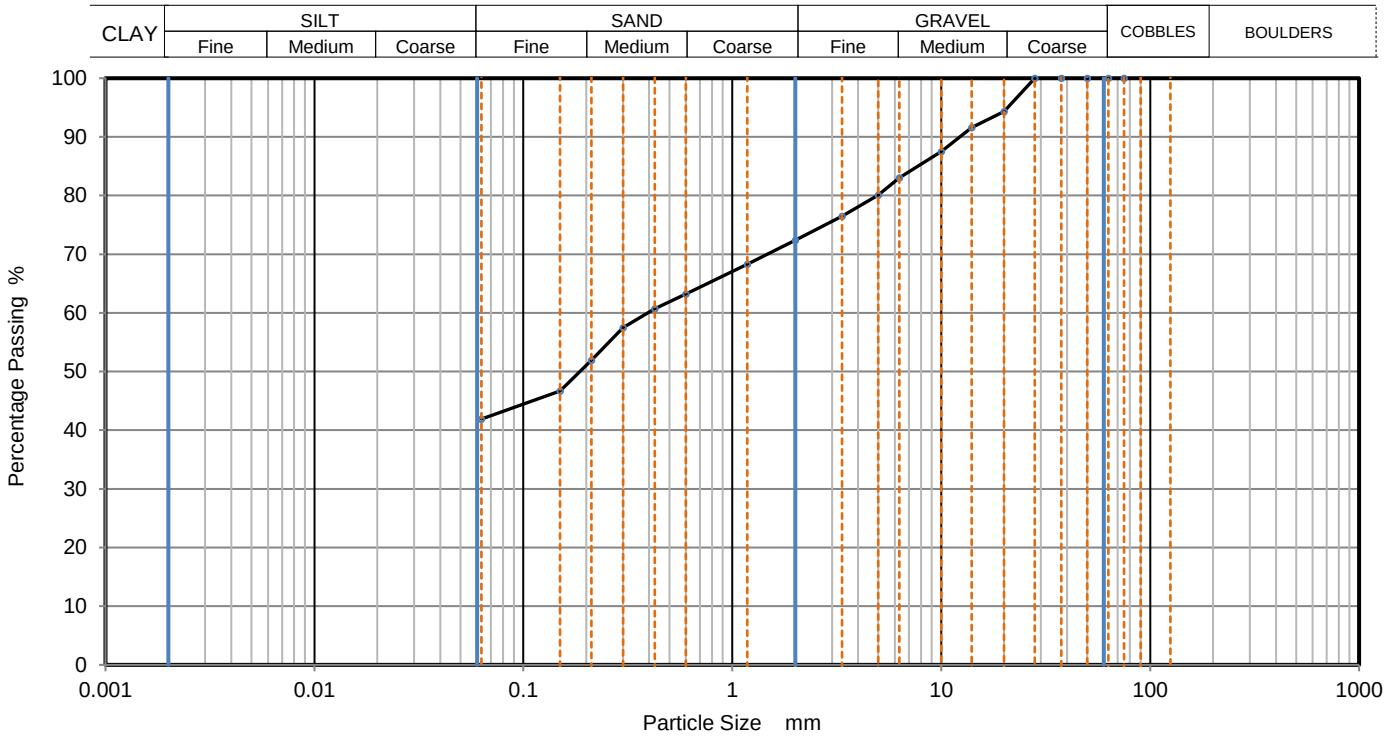
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-76907
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	3.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113111



Sieving		Sedimentation	
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63	100		
50	100		
37.5	100		
28	100		
20	94		
14	92		
10	88		
6.3	83		
5	80		
3.35	77		
2	72		
1.18	68		
0.6	63		
0.425	61		
0.3	58		
0.212	52		
0.15	47		
0.063	42		

Dry Mass of sample, g	965

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	31
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.394
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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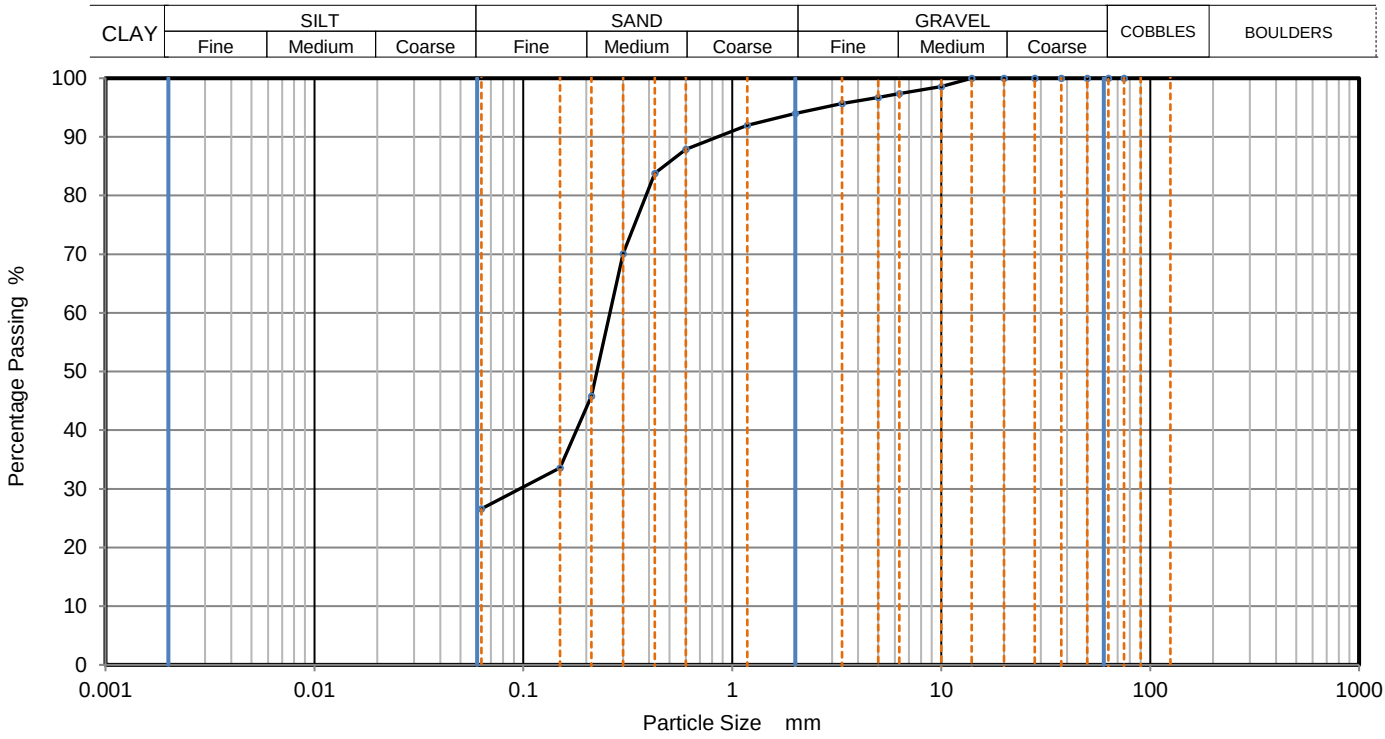
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77008
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown gravelly very silty medium SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113113



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	97		
5	97		
3.35	96		
2	94		
1.18	92		
0.6	88		
0.425	84		
0.3	70		
0.212	46		
0.15	34		
0.063	27		

Dry Mass of sample, g	792

Sample Proportions	% dry mass
Very coarse	0
Gravel	6
Sand	67
Fines <0.063mm	27

Grading Analysis		
D100	mm	
D60	mm	0.26
D30	mm	0.0959
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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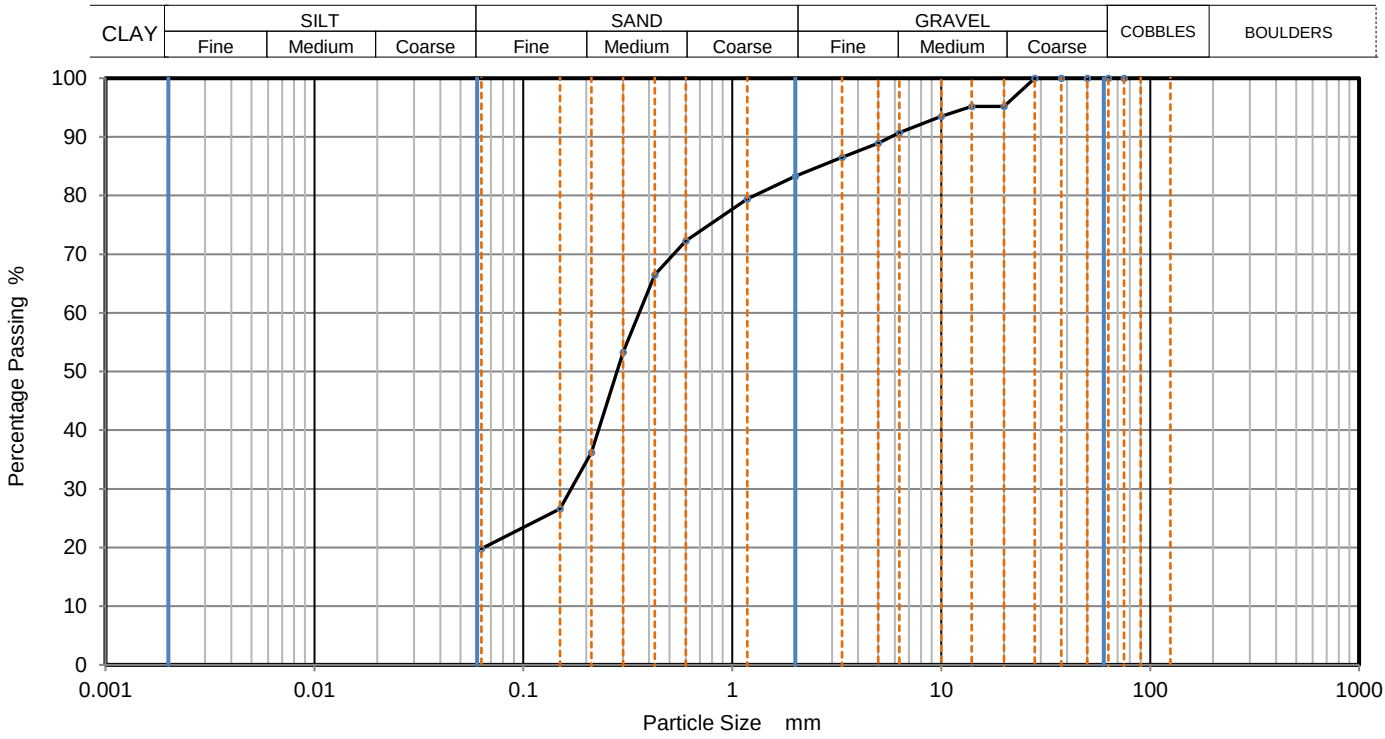
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77008
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown gravelly very silty medium SAND.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113115



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	95		
14	95		
10	94		
6.3	91		
5	89		
3.35	87		
2	83		
1.18	79		
0.6	72		
0.425	67		
0.3	53		
0.212	36		
0.15	27		
0.063	20		

Dry Mass of sample, g: 690

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	64
Fines <0.063mm	20

Grading Analysis		
D100	mm	
D60	mm	0.358
D30	mm	0.17
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	09/12/2022 16:08	**1**
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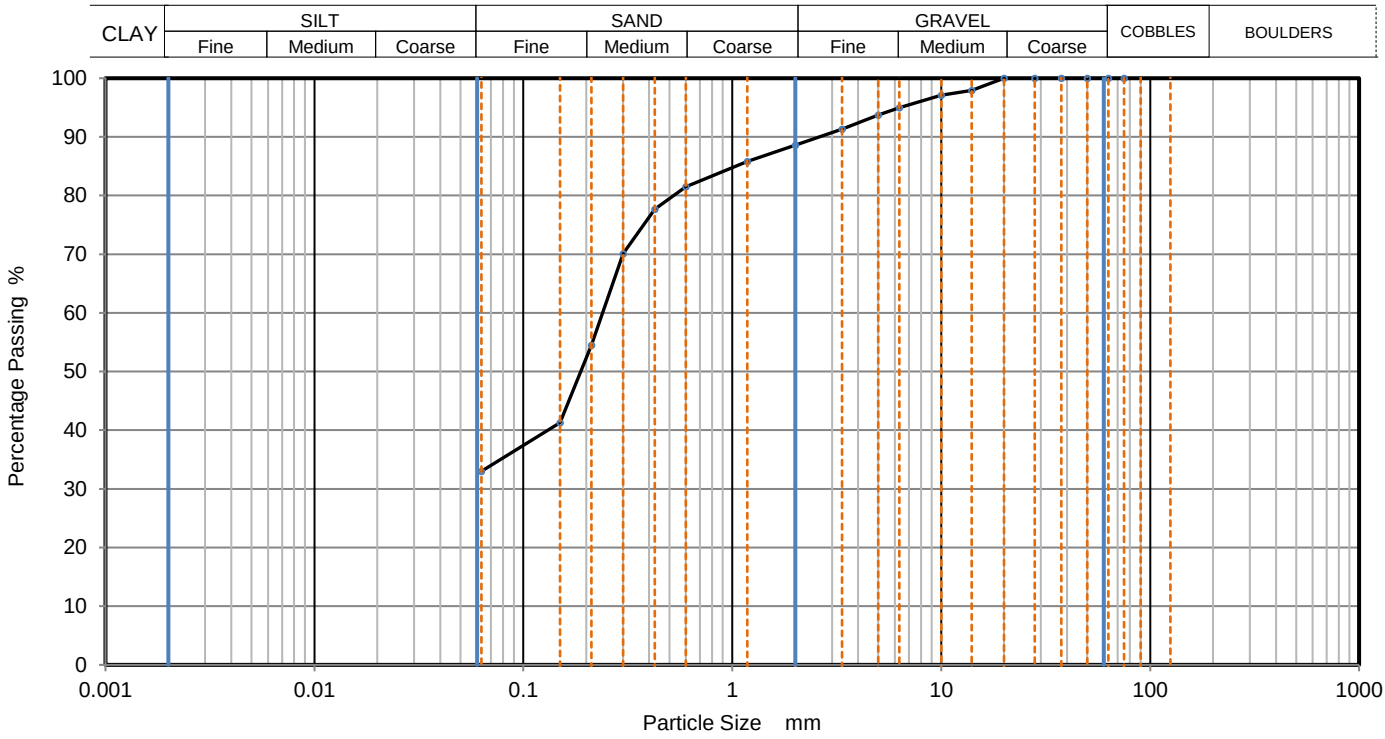
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77107
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly very silty fine and medium SAND.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113117



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	95		
5	94		
3.35	91		
2	89		
1.18	86		
0.6	82		
0.425	78		
0.3	70		
0.212	55		
0.15	41		
0.063	33		

Dry Mass of sample, g	714

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	56
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	0.24
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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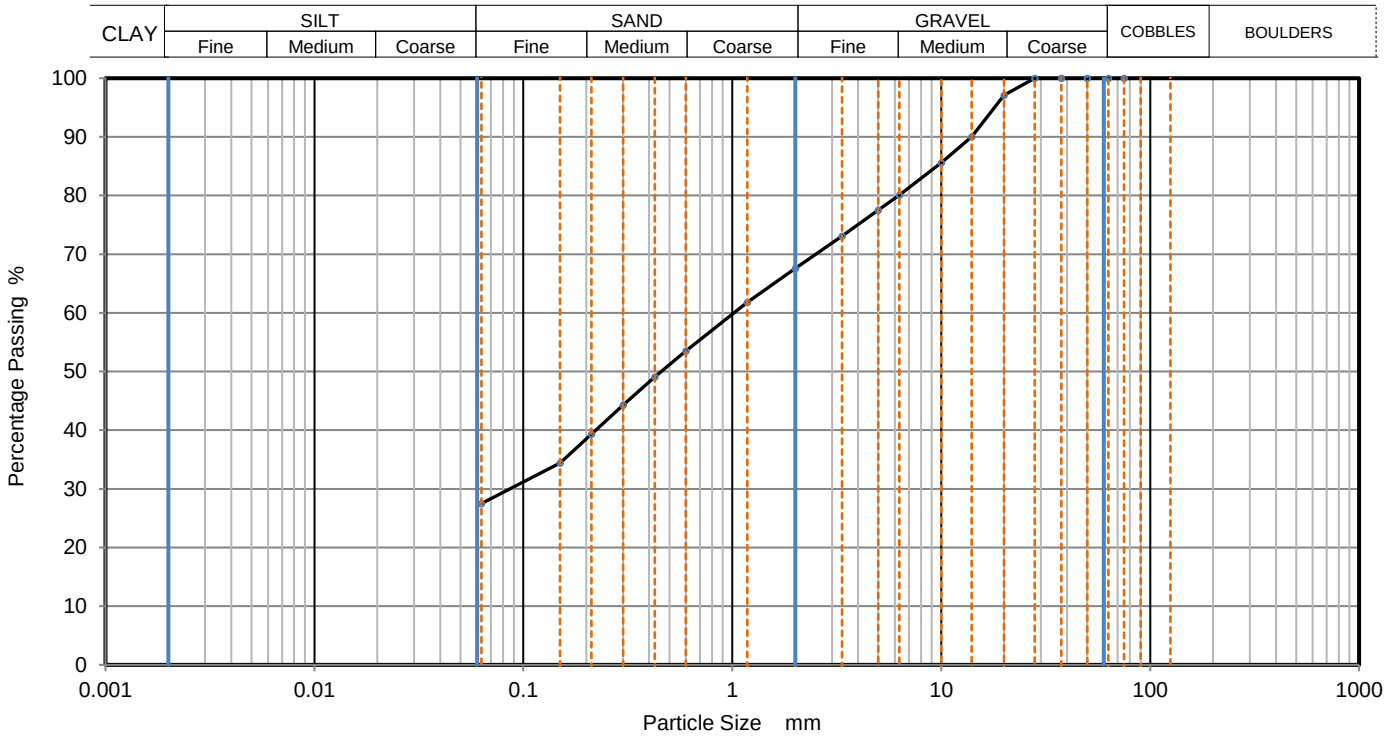
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77107
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very gravelly SAND.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113119



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	90		
10	86		
6.3	80		
5	78		
3.35	73		
2	68		
1.18	62		
0.6	54		
0.425	49		
0.3	44		
0.212	39		
0.15	34		
0.063	28		

Dry Mass of sample, g	600

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	40
Fines <0.063mm	27

Grading Analysis		
D100	mm	
D60	mm	1.02
D30	mm	0.0864
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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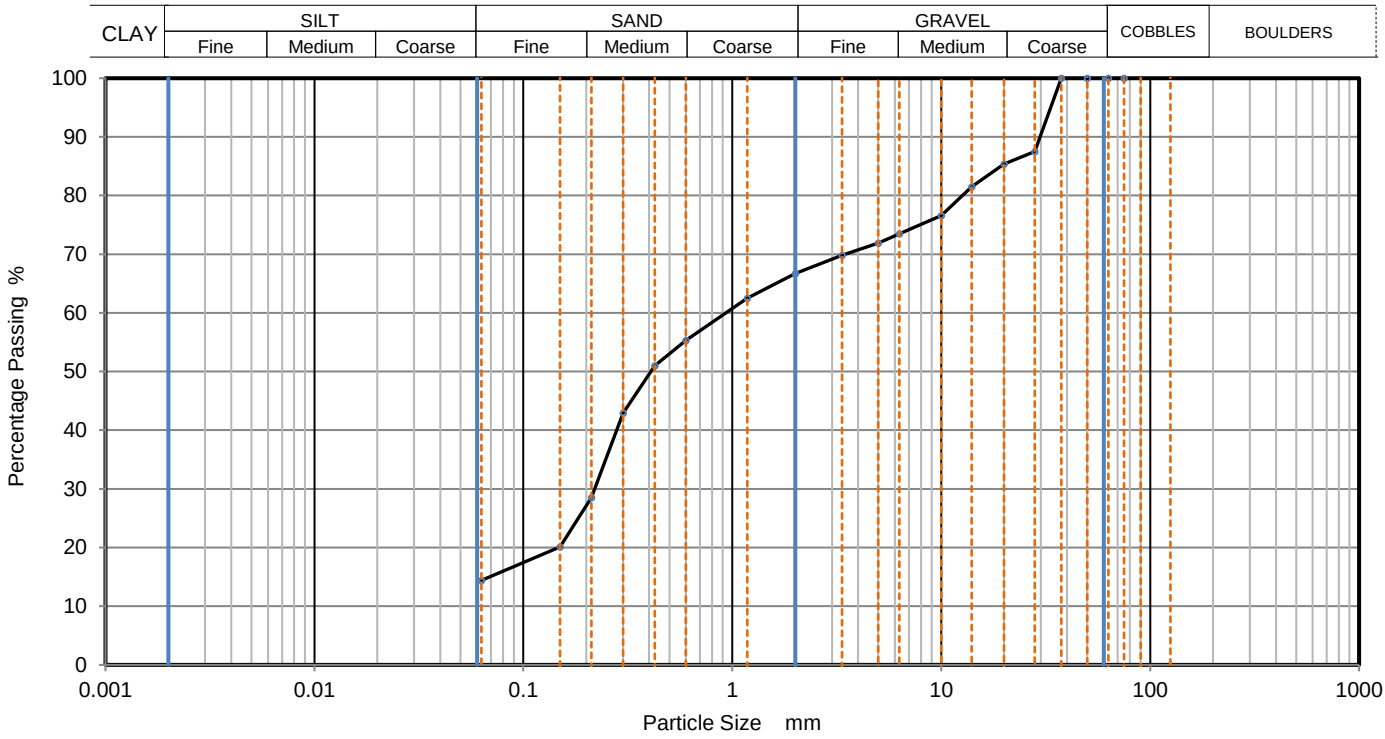
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77107
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Greyish-brown silty very gravelly medium SAND.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113120



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	88		
20	85		
14	82		
10	77		
6.3	74		
5	72		
3.35	70		
2	67		
1.18	63		
0.6	55		
0.425	51		
0.3	43		
0.212	29		
0.15	20		
0.063	14		

Dry Mass of sample, g	553

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	52
Fines <0.063mm	14

Grading Analysis		
D100	mm	
D60	mm	0.933
D30	mm	0.22
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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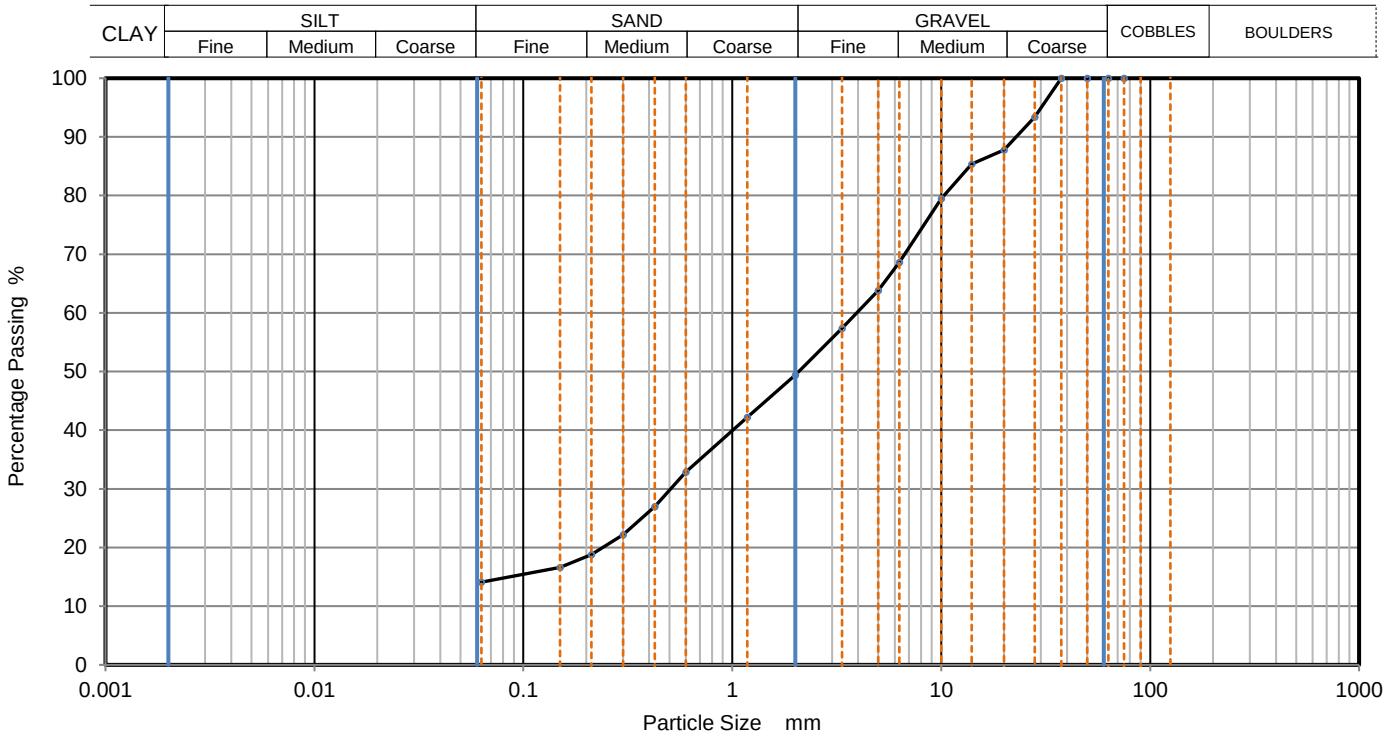
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77107
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown silty very sandy GRAVEL.			Depth, m	3.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113121



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	88		
14	85		
10	80		
6.3	69		
5	64		
3.35	57		
2	49		
1.18	42		
0.6	33		
0.425	27		
0.3	22		
0.212	19		
0.15	17		
0.063	14		

Dry Mass of sample, g	621

Sample Proportions	% dry mass
Very coarse	0
Gravel	51
Sand	35
Fines <0.063mm	14

Grading Analysis		
D100	mm	
D60	mm	3.94
D30	mm	0.506
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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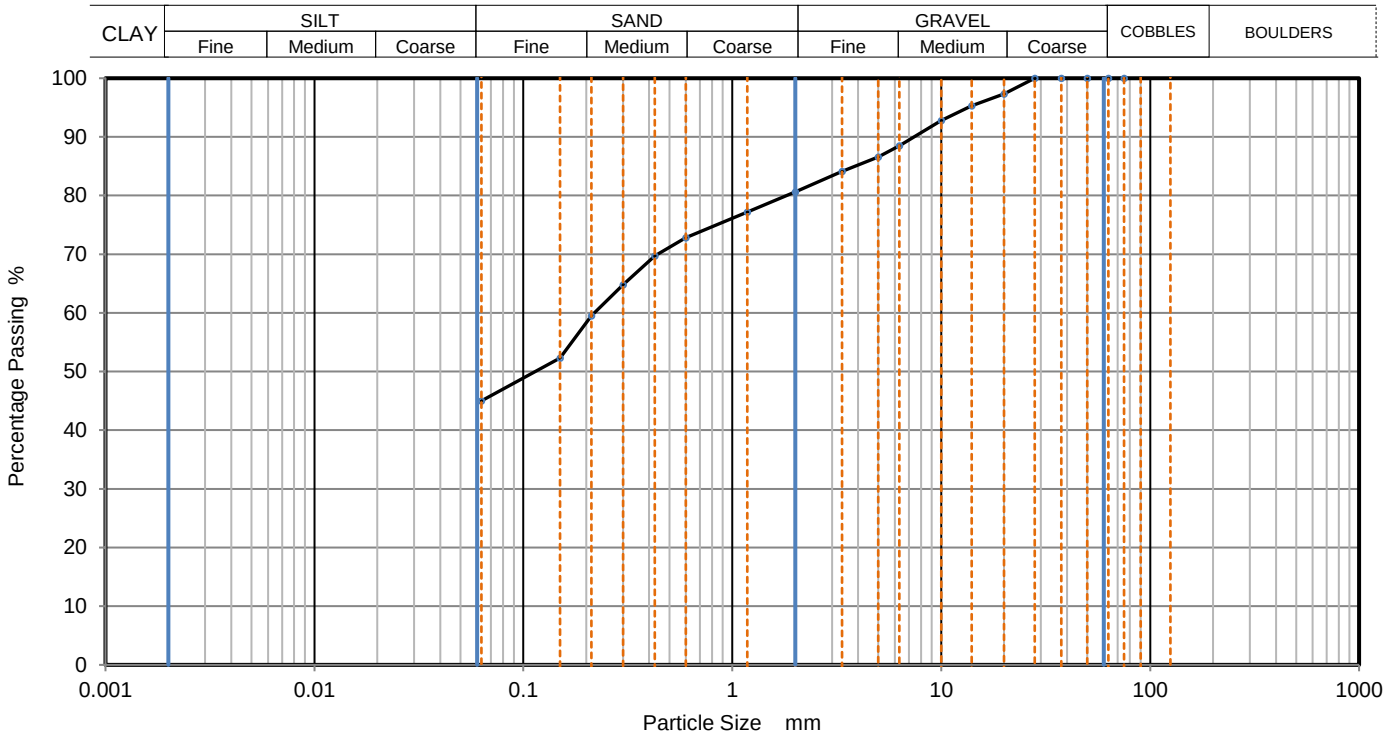
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77175
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113122



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	95		
10	93		
6.3	89		
5	87		
3.35	84		
2	81		
1.18	77		
0.6	73		
0.425	70		
0.3	65		
0.212	60		
0.15	52		
0.063	45		

Dry Mass of sample, g	731

Sample Proportions	% dry mass
Very coarse	0
Gravel	19
Sand	36
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.219
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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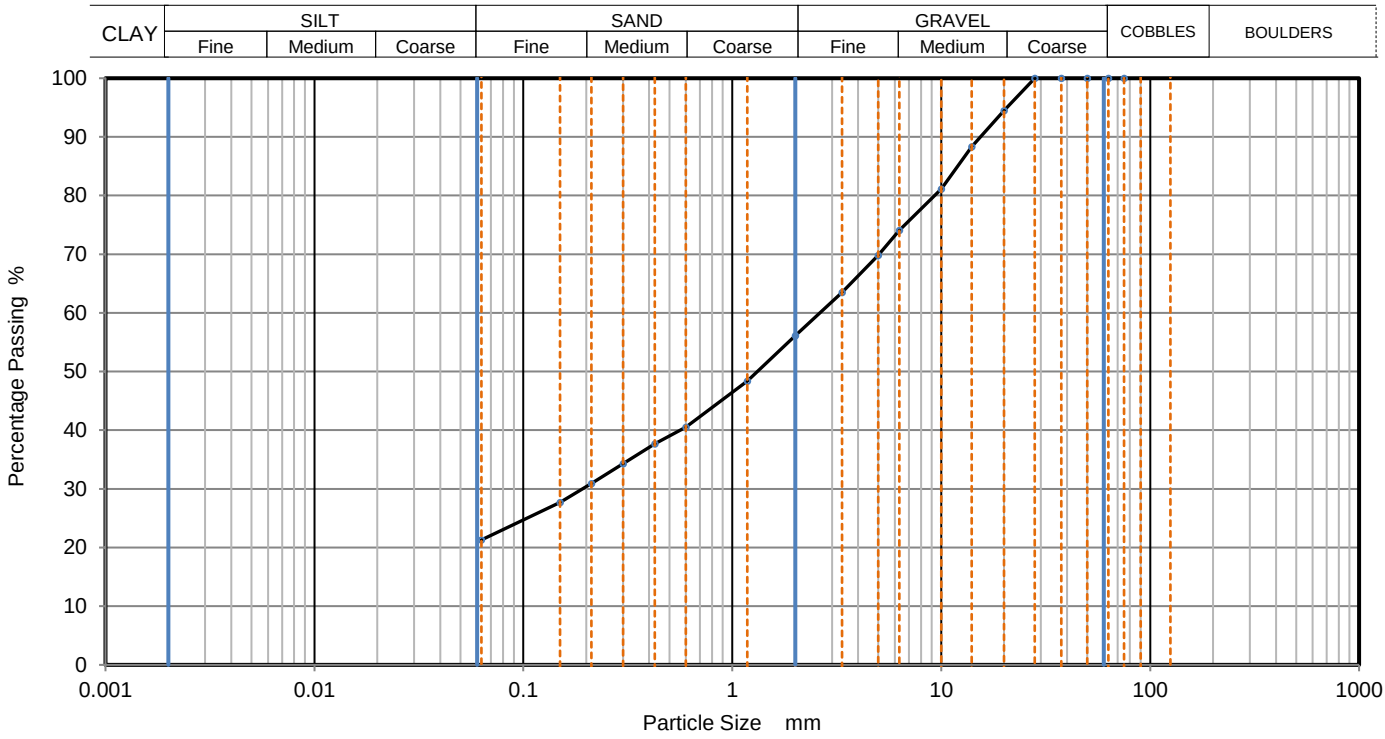
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77175
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy medium and fine GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113125



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	88		
10	81		
6.3	74		
5	70		
3.35	64		
2	56		
1.18	48		
0.6	41		
0.425	38		
0.3	34		
0.212	31		
0.15	28		
0.063	21		

Dry Mass of sample, g	589

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	35
Fines <0.063mm	21

Grading Analysis		
D100	mm	
D60	mm	2.62
D30	mm	0.193
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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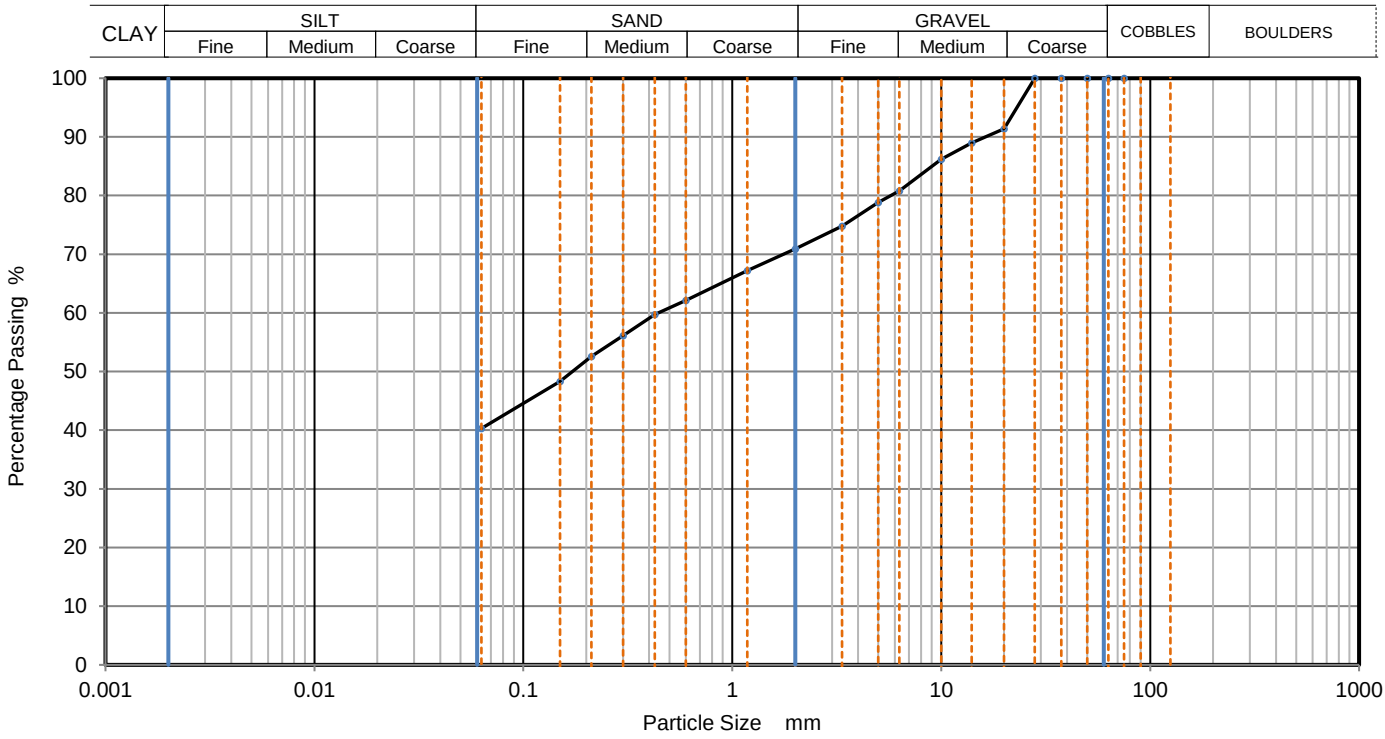
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77175
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113127



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	89		
10	86		
6.3	81		
5	79		
3.35	75		
2	71		
1.18	67		
0.6	62		
0.425	60		
0.3	56		
0.212	53		
0.15	48		
0.063	40		

Dry Mass of sample, g	1010

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	31
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.446
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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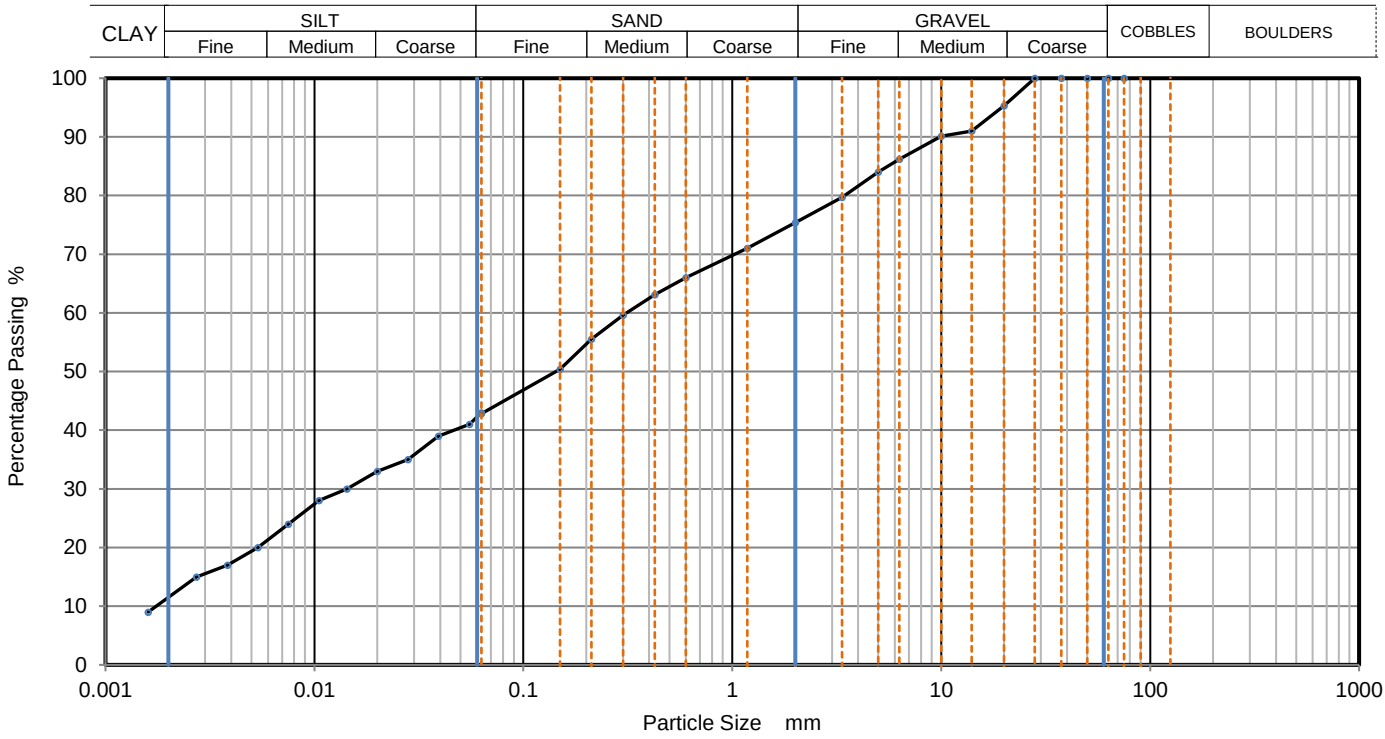
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77304
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202201140



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0552	41
75	100	0.0392	39
63	100	0.0281	35
50	100	0.0200	33
37.5	100	0.0143	30
28	100	0.0105	28
20	95	0.0075	24
14	91	0.0054	20
10	90	0.0038	17
6.3	86	0.0027	15
5	84	0.0016	9
3.35	80		
2	75		
1.18	71		
0.6	66	Particle density (assumed)	
0.425	63	2.65 Mg/m3	
0.3	60		
0.212	56		
0.15	50		
0.063	43		

Dry Mass of sample, g	931

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	33
Silt	31
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.312
D_{30}	mm	0.0146
D_{10}	mm	0.00171
Uniformity Coefficient		180
Curvature Coefficient		0.4

Remarks

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Operator	Checked	Approved	Sheet printed	
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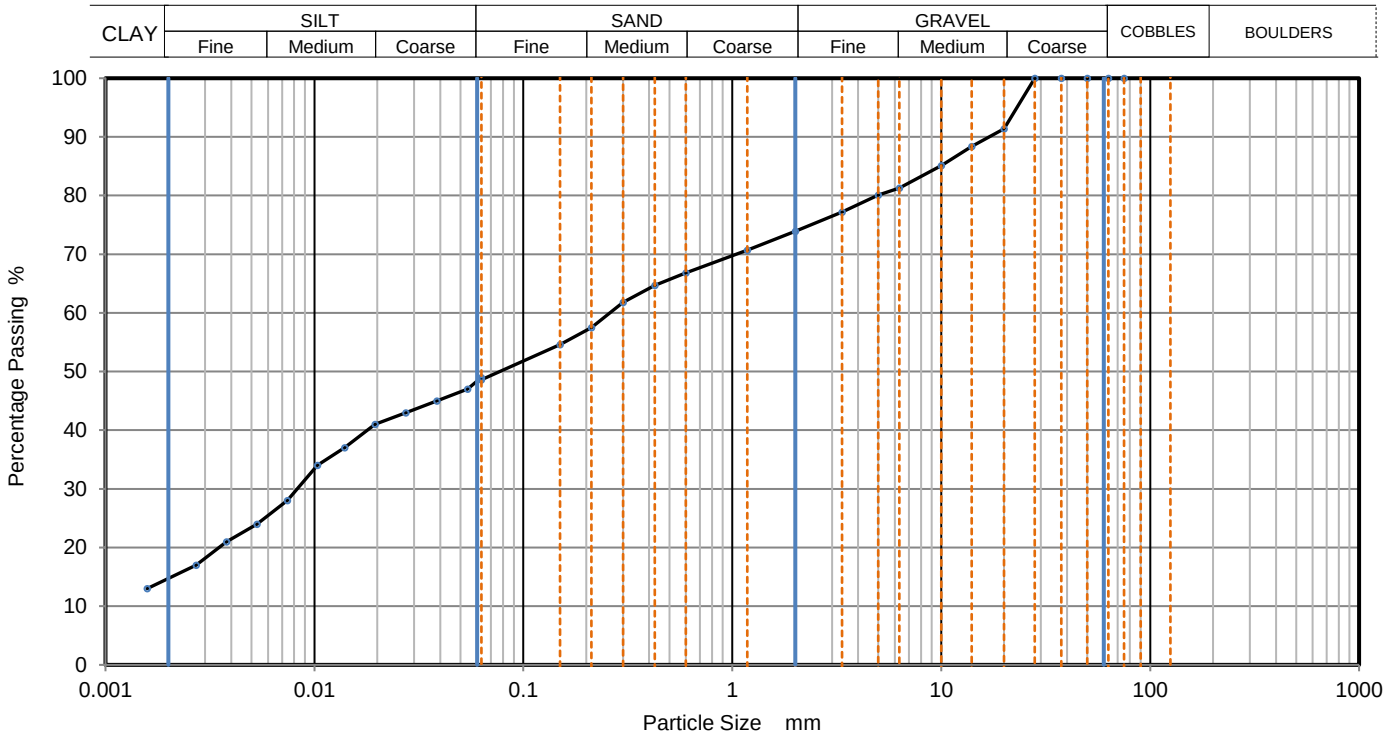
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-77304
Site Name	WSP Eastern & Midlands Region	Sample No.	3
Soil Description	Light brown slightly sandy slightly gravelly SILT.	Depth, m	1.70
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL1202201143



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	49
		0.0541	47
75	100	0.0385	45
63	100	0.0274	43
50	100	0.0195	41
37.5	100	0.0140	37
28	100	0.0103	34
20	91	0.0074	28
14	88	0.0053	24
10	85	0.0038	21
6.3	81	0.0027	17
5	80	0.0016	13
3.35	77		
2	74		
1.18	71		
0.6	67	Particle density (assumed)	
0.425	65	2.65 Mg/m3	
0.3	62		
0.212	58		
0.15	55		
0.063	49		

Dry Mass of sample, g	932

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	25
Silt	34
Clay	15

Grading Analysis		
D100	mm	
D60	mm	0.259
D30	mm	0.00833
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	25/11/2022 14:48	**1** QC From No:R2

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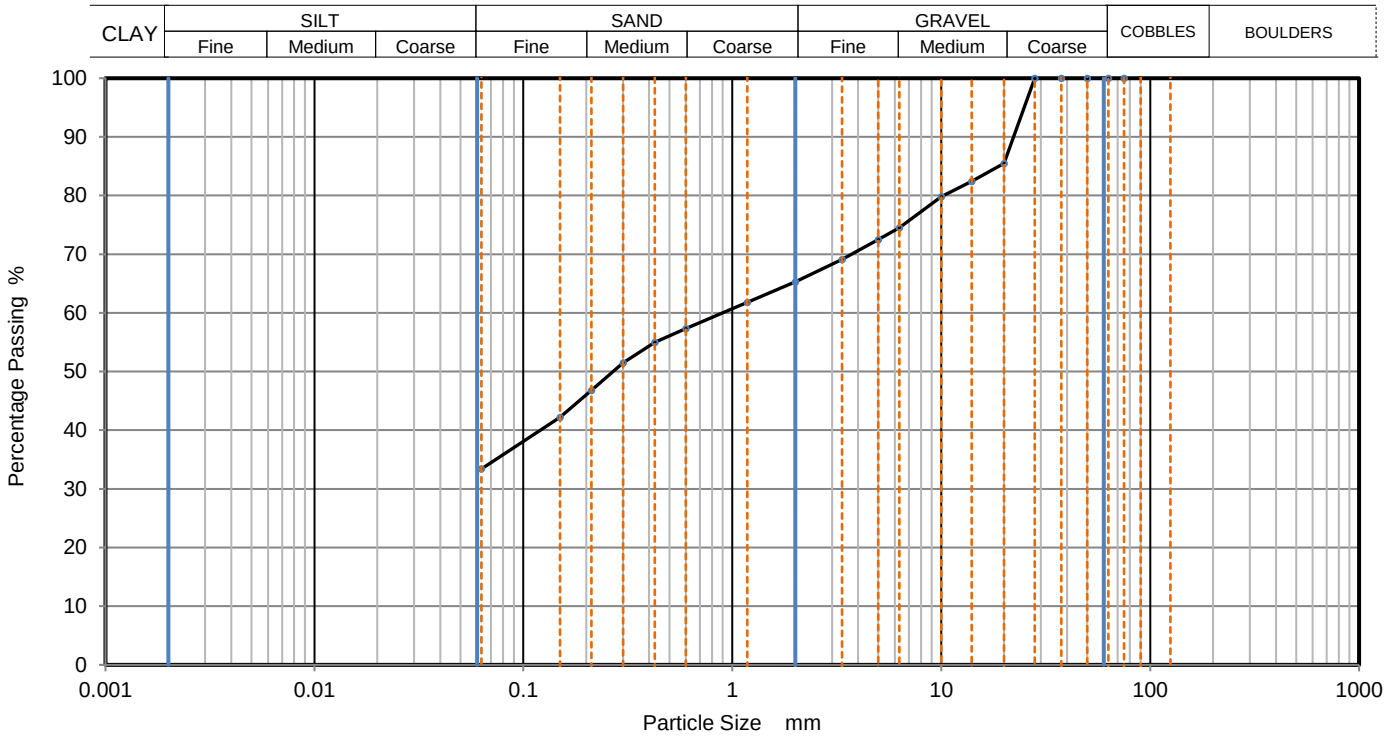
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77416
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty SAND and GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113129



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	86		
14	82		
10	80		
6.3	75		
5	73		
3.35	69		
2	65		
1.18	62		
0.6	57		
0.425	55		
0.3	52		
0.212	47		
0.15	42		
0.063	33		

Dry Mass of sample, g	520

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	32
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	0.897
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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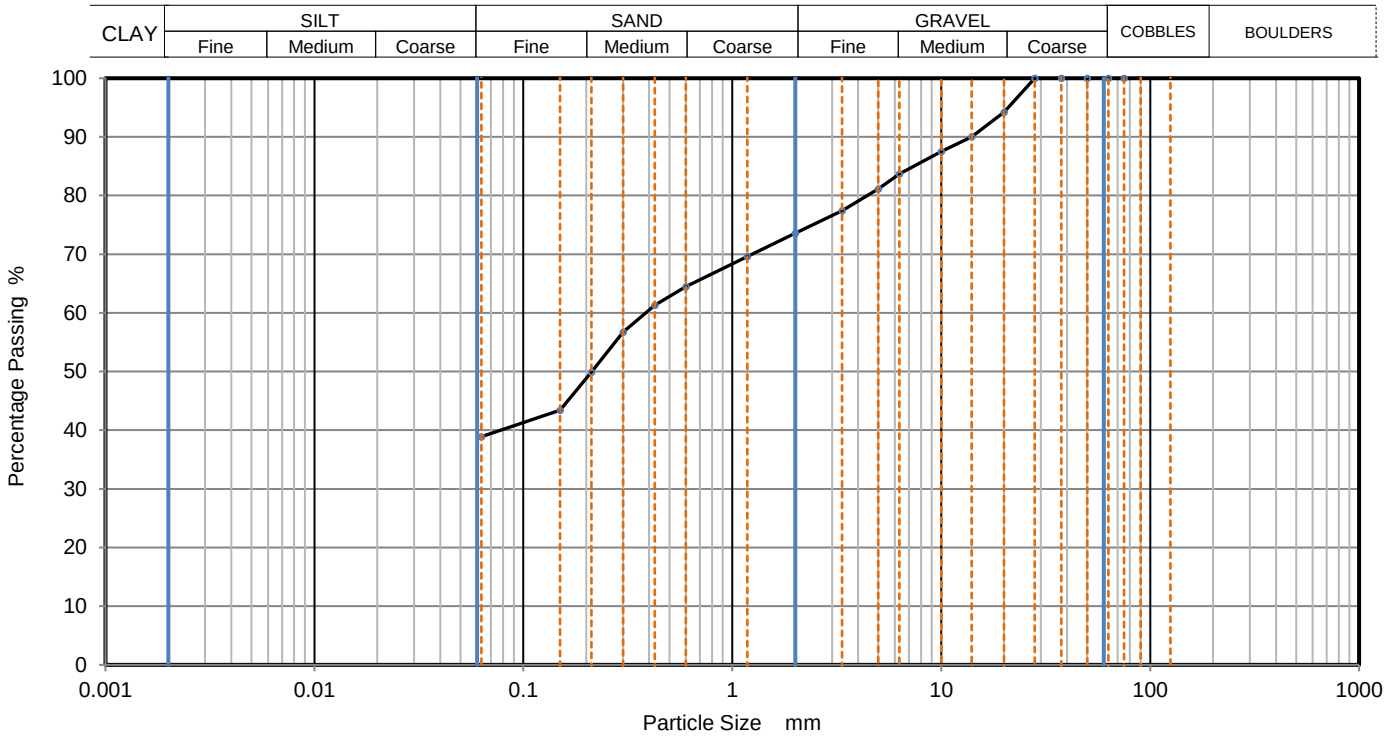
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77416
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220113132



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	90		
10	88		
6.3	84		
5	81		
3.35	77		
2	74		
1.18	70		
0.6	65		
0.425	61		
0.3	57		
0.212	50		
0.15	43		
0.063	39		

Dry Mass of sample, g	661

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	35
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.385
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	09/12/2022 16:08	**1**
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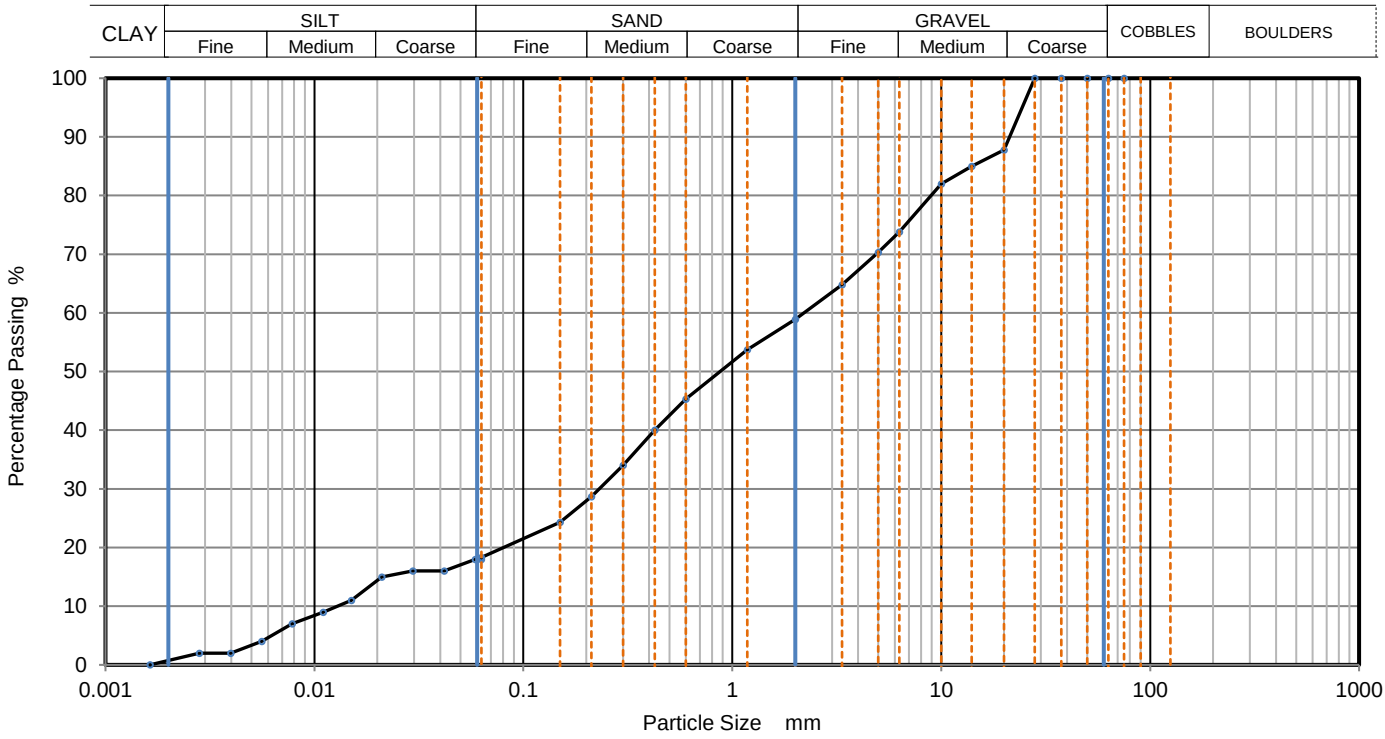
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77504
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Greyish-brown silty SAND and GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202201145



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	18
		0.0588	18
75	100	0.0418	16
63	100	0.0295	16
50	100	0.0210	15
37.5	100	0.0150	11
28	100	0.0110	9
20	88	0.0078	7
14	85	0.0056	4
10	82	0.0040	2
6.3	74	0.0028	2
5	70	0.0016	0
3.35	65		
2	59		
1.18	54		
0.6	45	Particle density (assumed)	
0.425	40	2.65	Mg/m3
0.3	34		
0.212	29		
0.15	24		
0.063	18		

Dry Mass of sample, g	671

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	41
Silt	18
Clay	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.19
D_{30}	mm	0.231
D_{10}	mm	0.0127
Uniformity Coefficient		170
Curvature Coefficient		1.9

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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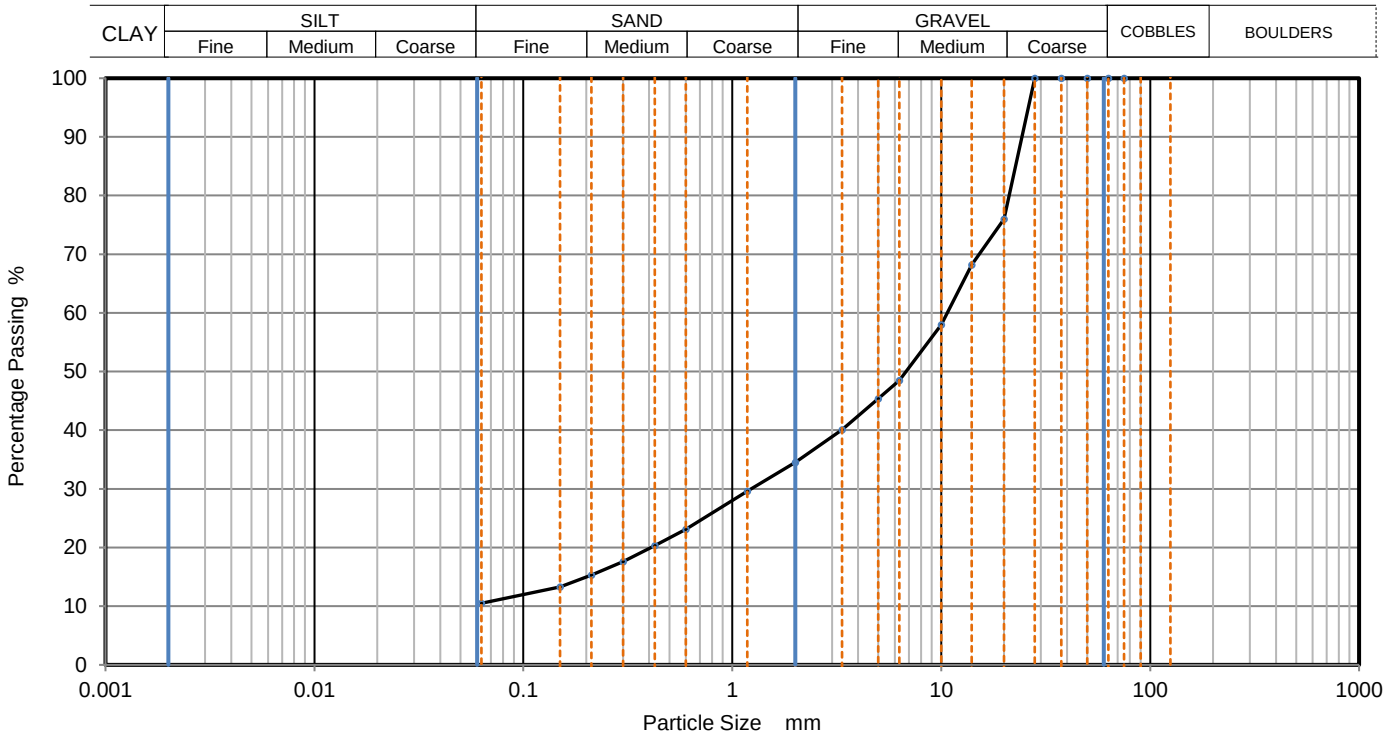
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77504
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very sandy medium and coarse GRAVEL.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	76		
14	68		
10	58		
6.3	49		
5	45		
3.35	40		
2	35		
1.18	30		
0.6	23		
0.425	20		
0.3	18		
0.212	15		
0.15	13		
0.063	11		

Dry Mass of sample, g	657

Sample Proportions	% dry mass
Very coarse	0
Gravel	66
Sand	24
Fines <0.063mm	11

Grading Analysis		
D_{100}	mm	
D_{60}	mm	10.7
D_{30}	mm	1.23
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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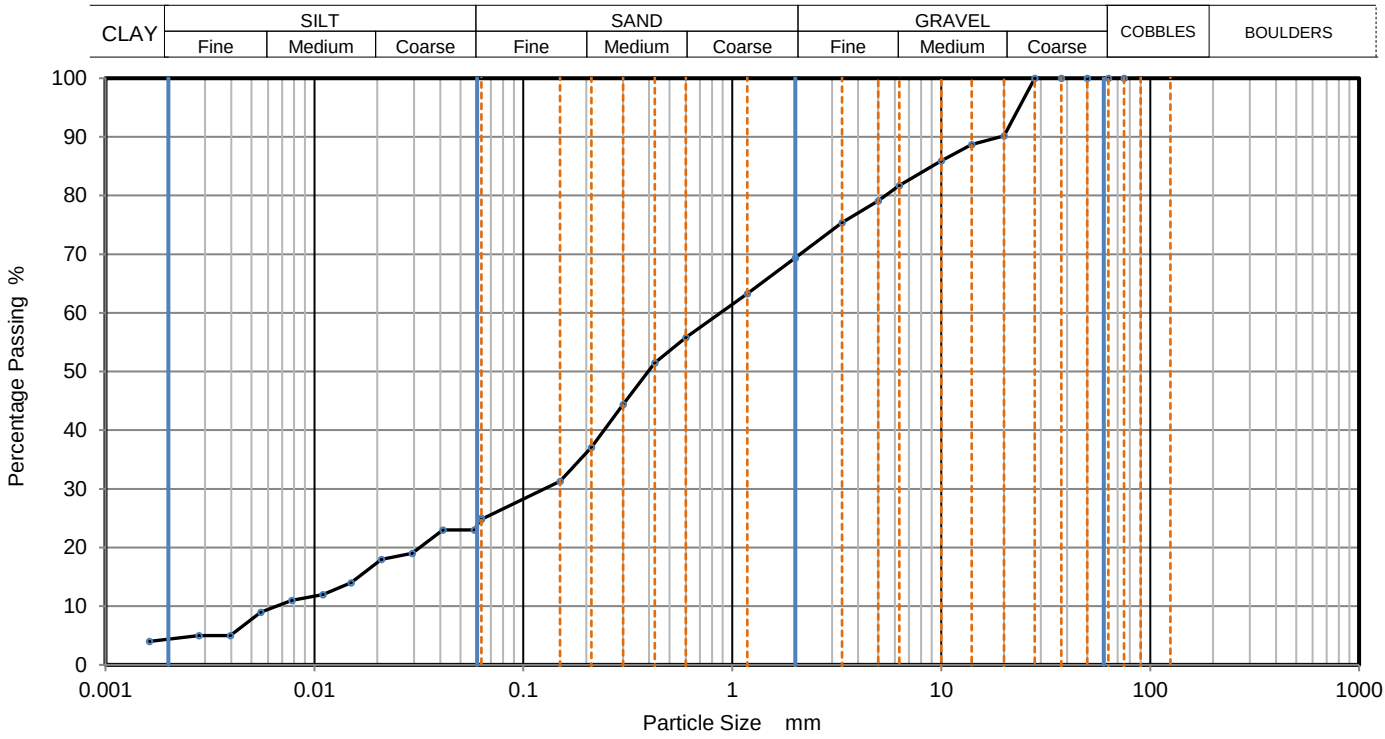
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77705
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty very gravelly SAND.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL1202201148



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	25
		0.0582	23
75	100	0.0411	23
63	100	0.0294	19
50	100	0.0209	18
37.5	100	0.0149	14
28	100	0.0110	12
20	90	0.0078	11
14	89	0.0055	9
10	86	0.0040	5
6.3	82	0.0028	5
5	79	0.0016	4
3.35	75		
2	69		
1.18	63		
0.6	56	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	44		
0.212	37		
0.15	31		
0.063	25		

Dry Mass of sample, g: 591

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	45
Silt	21
Clay	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.875
D_{30}	mm	0.126
D_{10}	mm	0.00691
Uniformity Coefficient		130
Curvature Coefficient		2.6

Remarks

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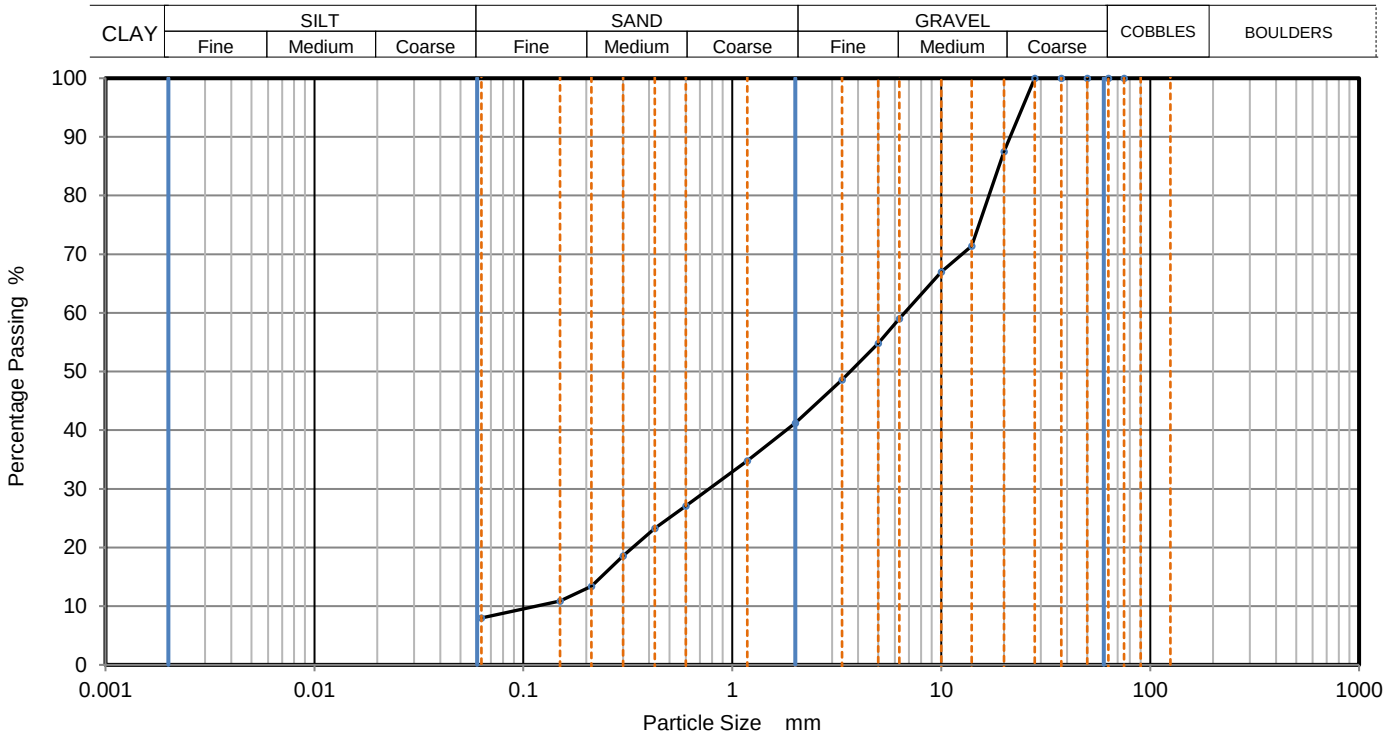
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77705
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	0.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011411



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	88		
14	71		
10	67		
6.3	59		
5	55		
3.35	49		
2	41		
1.18	35		
0.6	27		
0.425	23		
0.3	19		
0.212	13		
0.15	11		
0.063	8		

Dry Mass of sample, g	722

Sample Proportions	% dry mass
Very coarse	0
Gravel	59
Sand	33
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	6.69
D_{30}	mm	0.774
D_{10}	mm	0.114
Uniformity Coefficient		59
Curvature Coefficient		0.78

Remarks

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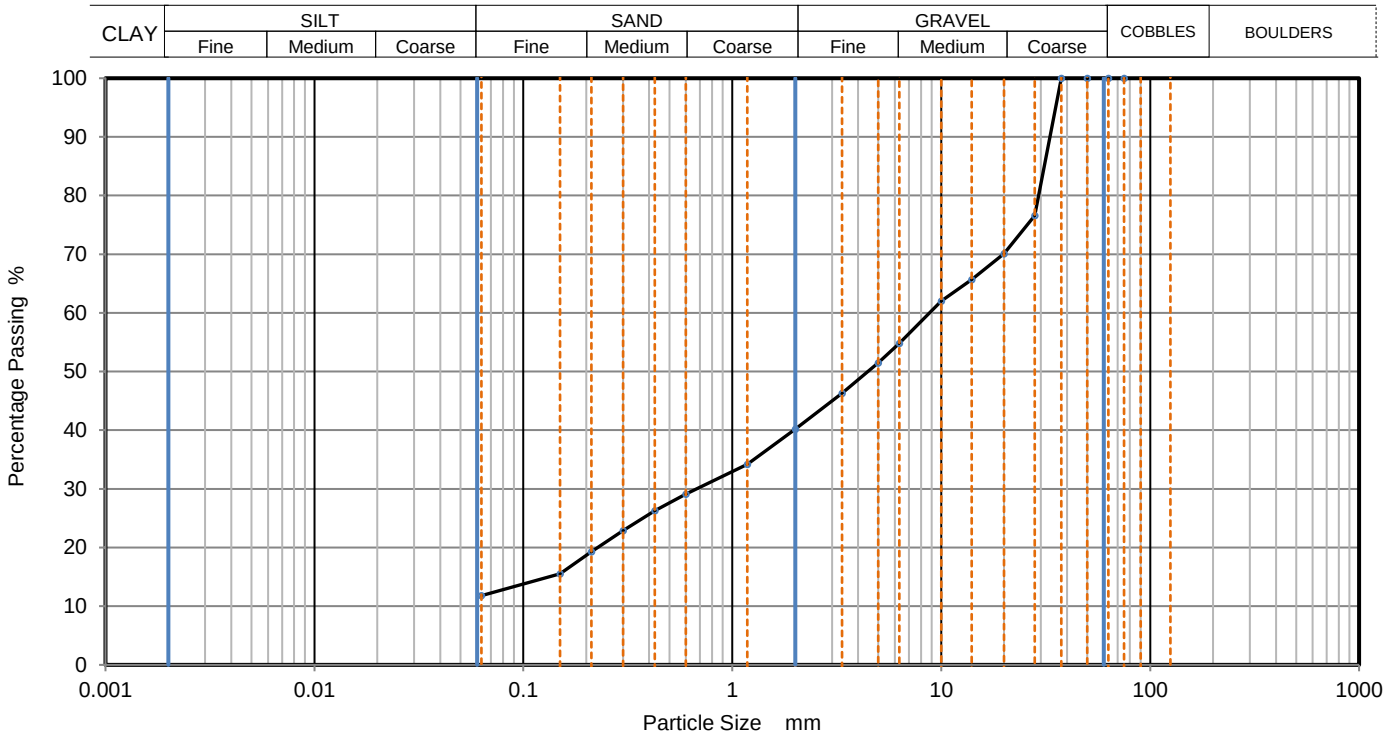
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77705
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Golden-brown silty very sandy coarse GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011412



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	77		
20	70		
14	66		
10	62		
6.3	55		
5	52		
3.35	46		
2	40		
1.18	34		
0.6	29		
0.425	26		
0.3	23		
0.212	19		
0.15	16		
0.063	12		

Dry Mass of sample, g	595

Sample Proportions	% dry mass
Very coarse	0
Gravel	60
Sand	28
Fines <0.063mm	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	8.78
D_{30}	mm	0.68
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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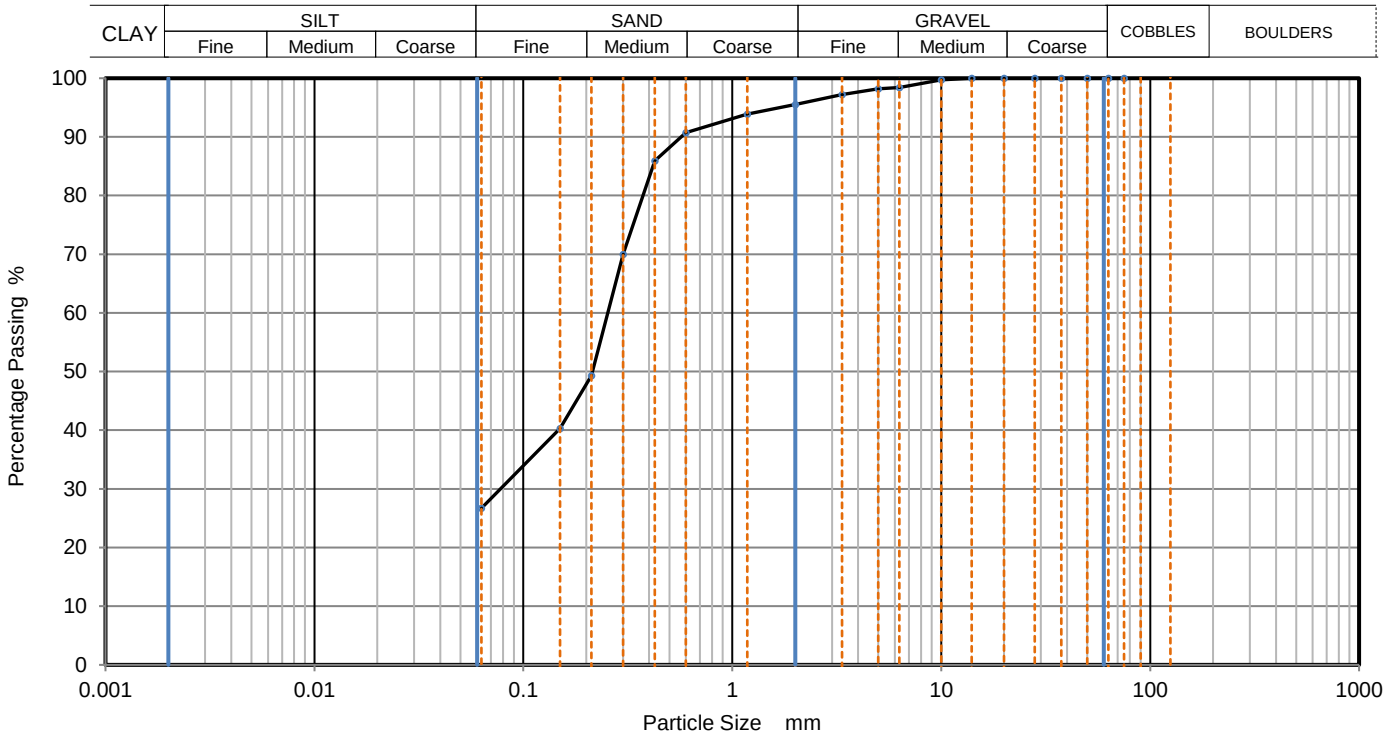
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77808
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Grey gravelly very silty medium SAND.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011414



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	98		
5	98		
3.35	97		
2	96		
1.18	94		
0.6	91		
0.425	86		
0.3	70		
0.212	49		
0.15	40		
0.063	27		

Dry Mass of sample, g	518

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	69
Fines <0.063mm	27

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.254
D_{30}	mm	0.0779
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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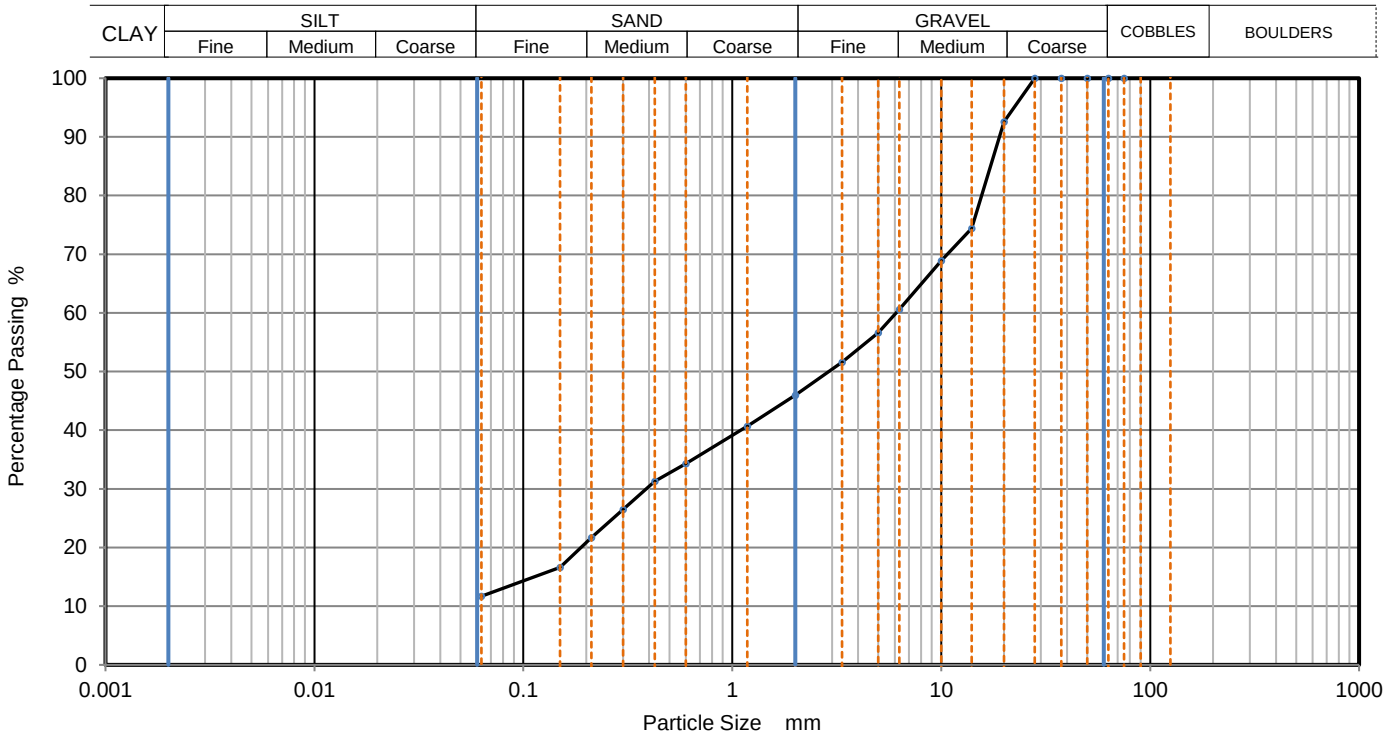
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77808
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey silty very sandy medium GRAVEL.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011415



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	74		
10	69		
6.3	61		
5	57		
3.35	52		
2	46		
1.18	41		
0.6	34		
0.425	31		
0.3	27		
0.212	22		
0.15	17		
0.063	12		

Dry Mass of sample, g	692

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	34
Fines <0.063mm	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	6.09
D_{30}	mm	0.387
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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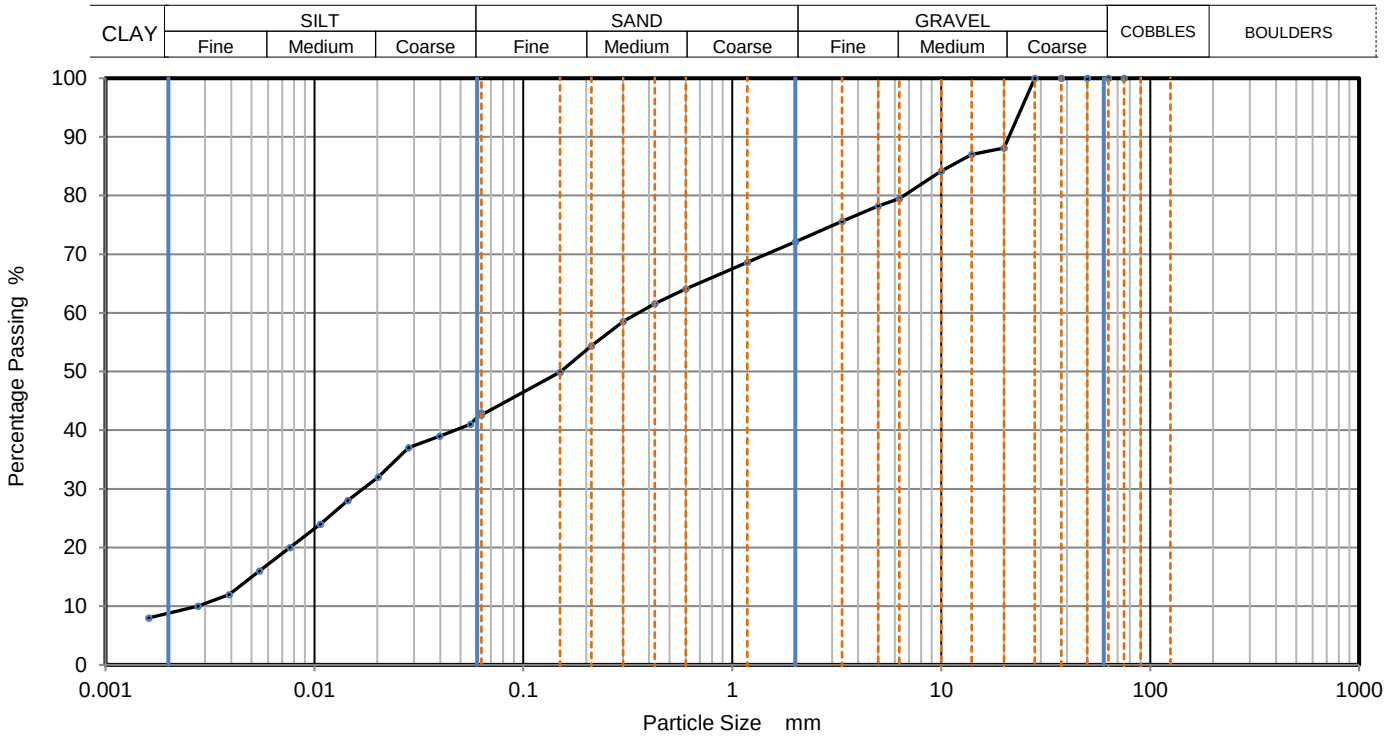
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-77903
Site Name	WSP Eastern & Midlands Region	Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.	Depth, m	0.50
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12022011416



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0558	41
75	100	0.0397	39
63	100	0.0283	37
50	100	0.0202	32
37.5	100	0.0145	28
28	100	0.0107	24
20	88	0.0076	20
14	87	0.0055	16
10	84	0.0039	12
6.3	80	0.0028	10
5	78	0.0016	8
3.35	76		
2	72		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	62	2.65 Mg/m3	
0.3	59		
0.212	54		
0.15	50		
0.063	43		

Dry Mass of sample, g	913

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	30
Silt	34
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.356
D_{30}	mm	0.0165
D_{10}	mm	0.00267
Uniformity Coefficient		130
Curvature Coefficient		0.29

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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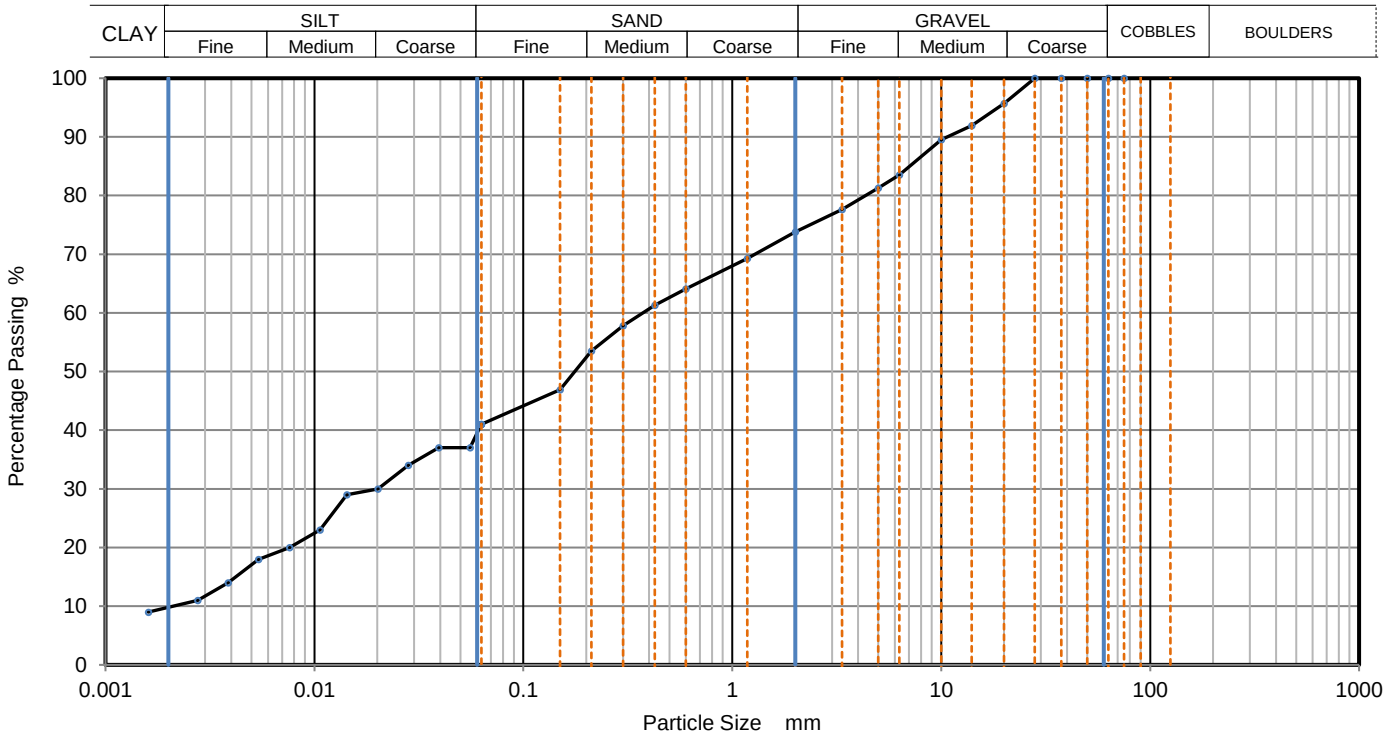
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77903
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Greyish-brown slightly gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011418



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0556	37
75	100	0.0393	37
63	100	0.0281	34
50	100	0.0201	30
37.5	100	0.0143	29
28	100	0.0106	23
20	96	0.0076	20
14	92	0.0054	18
10	90	0.0039	14
6.3	84	0.0028	11
5	81	0.0016	9
3.35	78		
2	74		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	58		
0.212	54		
0.15	47		
0.063	41		

Dry Mass of sample, g	754

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	33
Silt	31
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.374
D_{30}	mm	0.019
D_{10}	mm	0.00223
Uniformity Coefficient		170
Curvature Coefficient		0.43

Remarks

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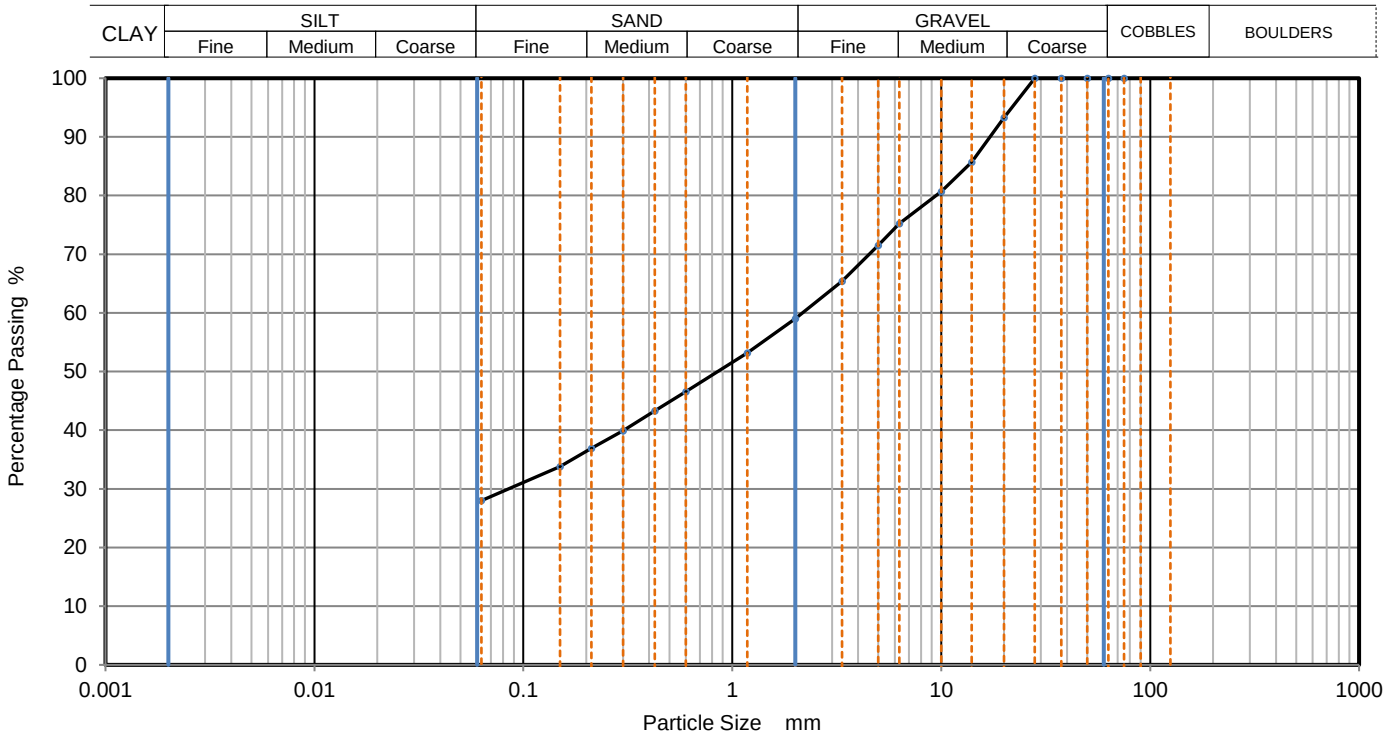
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-77903
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown very silty very sandy fine and medium GRAVEL.			Depth, m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011420



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	86		
10	81		
6.3	75		
5	72		
3.35	65		
2	59		
1.18	53		
0.6	47		
0.425	43		
0.3	40		
0.212	37		
0.15	34		
0.063	28		

Dry Mass of sample, g	832

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	31
Fines <0.063mm	28

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.16
D_{30}	mm	0.085
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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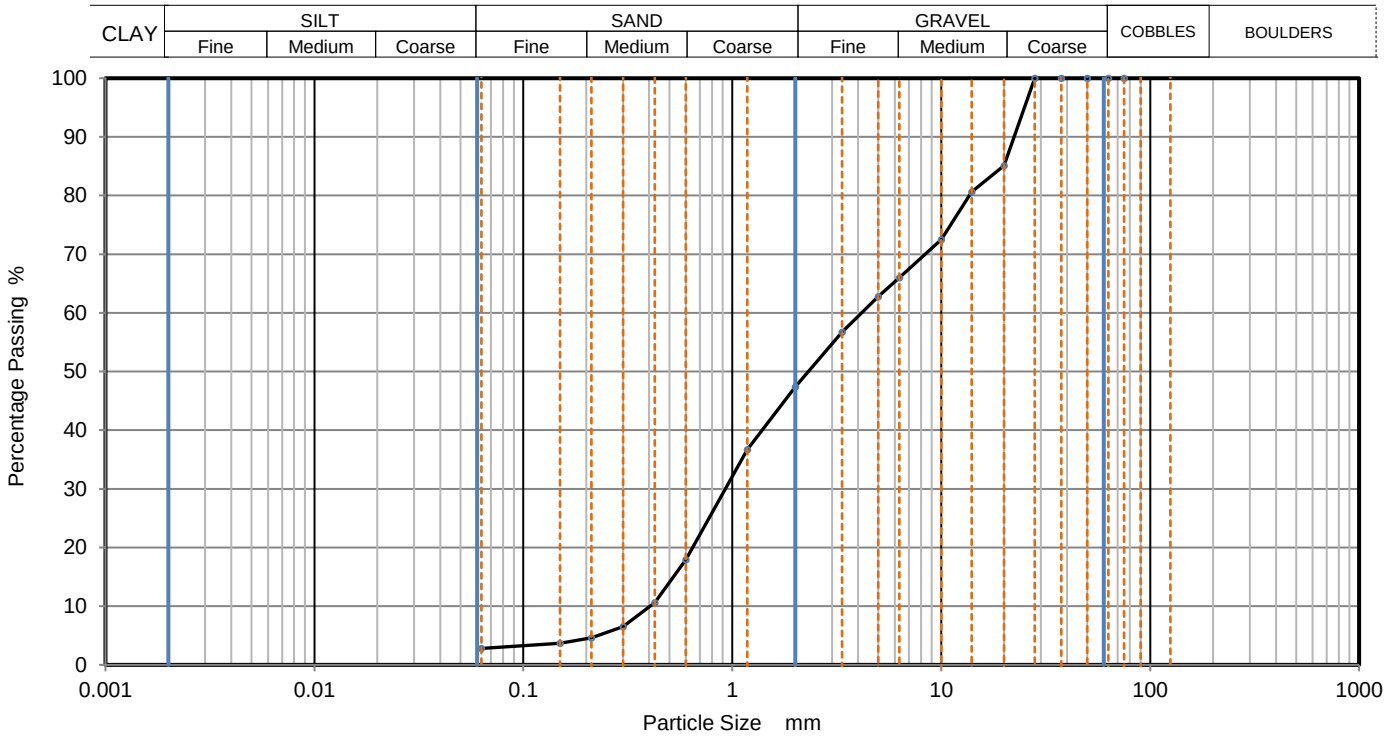
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78507
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Bluish-grey slightly silty SAND and GRAVEL. Sand is coarse.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011422



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	85		
14	81		
10	73		
6.3	66		
5	63		
3.35	57		
2	47		
1.18	37		
0.6	18		
0.425	11		
0.3	7		
0.212	5		
0.15	4		
0.063	3		

Dry Mass of sample, g	672

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	45
Fines <0.063mm	3

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.15
D_{30}	mm	0.927
D_{10}	mm	0.404
Uniformity Coefficient		10
Curvature Coefficient		0.51

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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		Dympna Darcy B.Sc.	04/01/2023 14:43	**1** QC From No:R2

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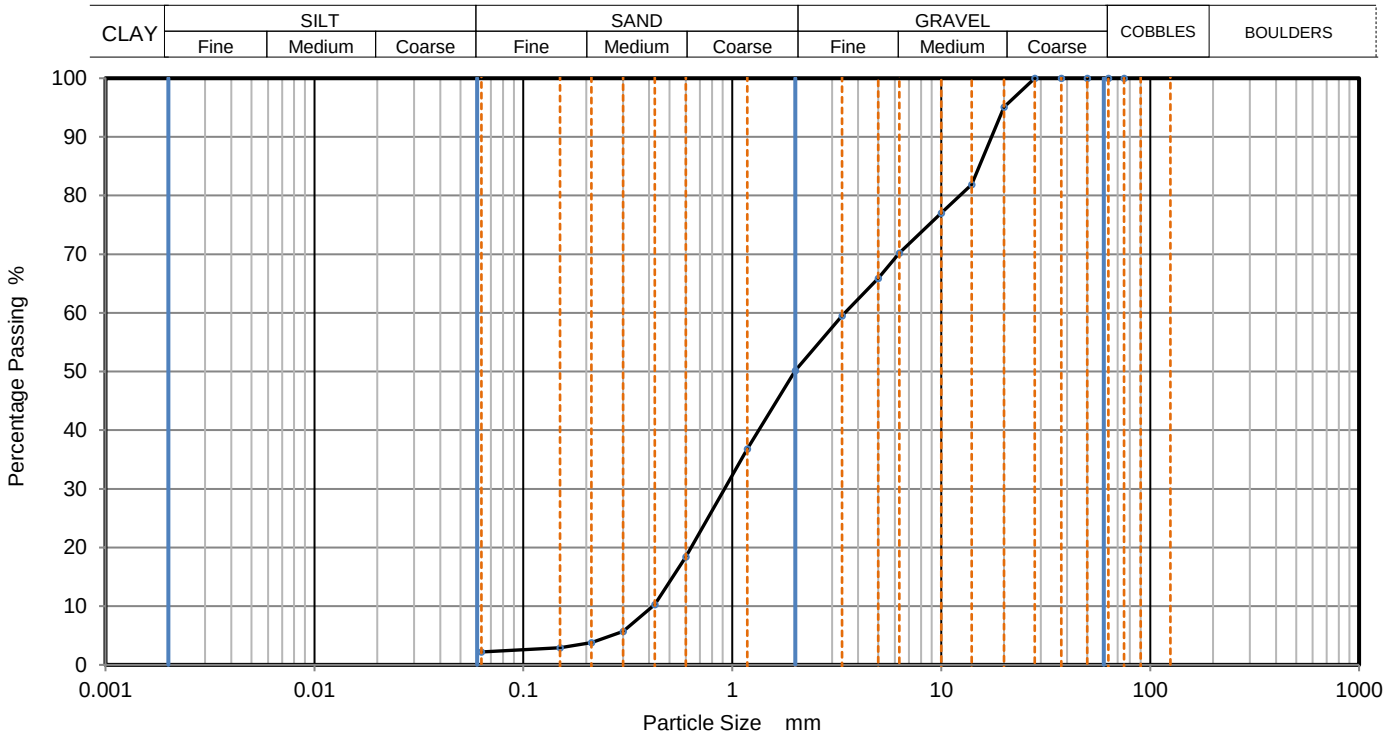
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78507
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Bluish-grey slightly silty coarse SAND and fine and medium GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011423



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	82		
10	77		
6.3	70		
5	66		
3.35	60		
2	50		
1.18	37		
0.6	18		
0.425	10		
0.3	6		
0.212	4		
0.15	3		
0.063	2		

Dry Mass of sample, g	687

Sample Proportions	% dry mass
Very coarse	0
Gravel	50
Sand	48
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	3.45
D_{30}	mm	0.919
D_{10}	mm	0.416
Uniformity Coefficient		8.3
Curvature Coefficient		0.59

Remarks

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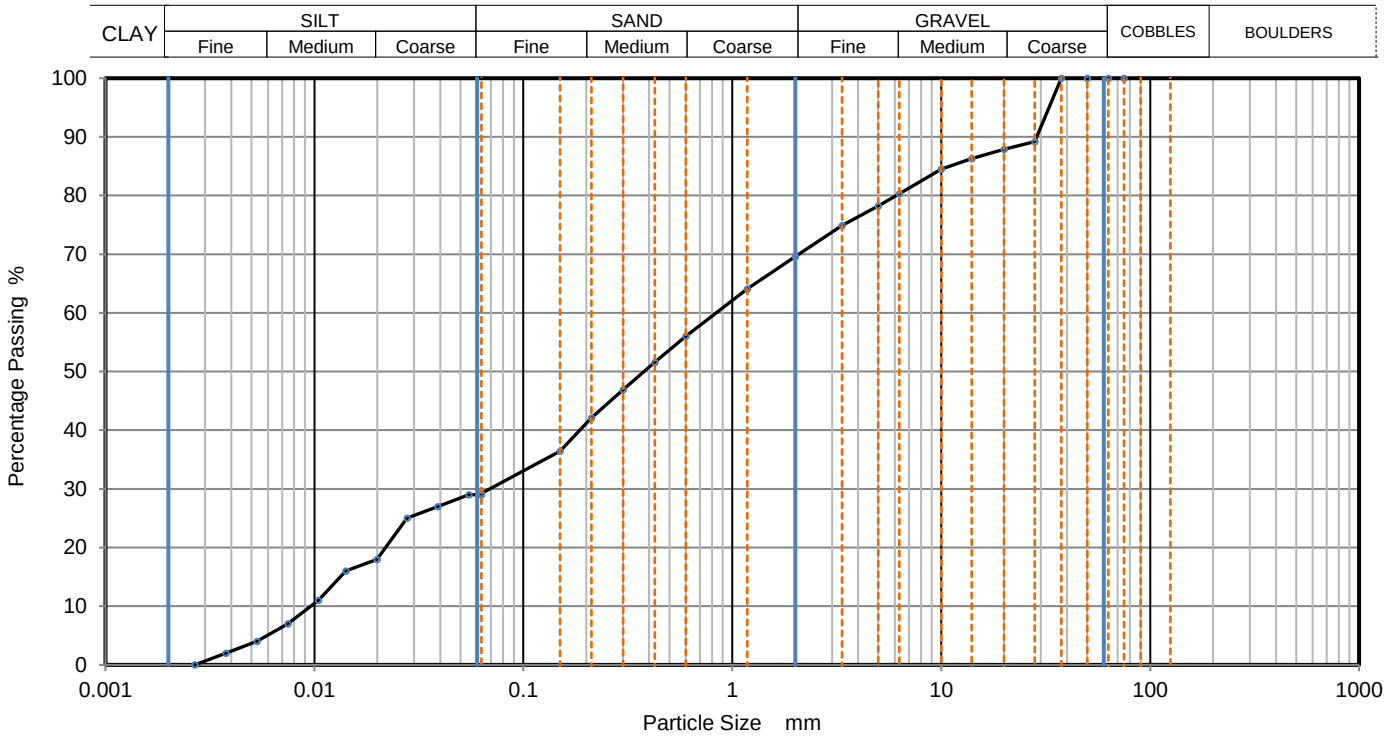
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78697
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very silty very gravelly SAND.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011424



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	29
		0.0548	29
75	100	0.0390	27
63	100	0.0277	25
50	100	0.0199	18
37.5	100	0.0142	16
28	89	0.0105	11
20	88	0.0075	7
14	86	0.0053	4
10	85	0.0038	2
6.3	80	0.0027	0
5	78		
3.35	75		
2	70		
1.18	64		
0.6	56	Particle density (assumed)	
0.425	52	2.65	Mg/m3
0.3	47		
0.212	42		
0.15	36		
0.063	29		

Dry Mass of sample, g	759

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	40
Fines <0.063mm	29

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.838
D_{30}	mm	0.0694
D_{10}	mm	0.00953
Uniformity Coefficient		88
Curvature Coefficient		0.6

Remarks

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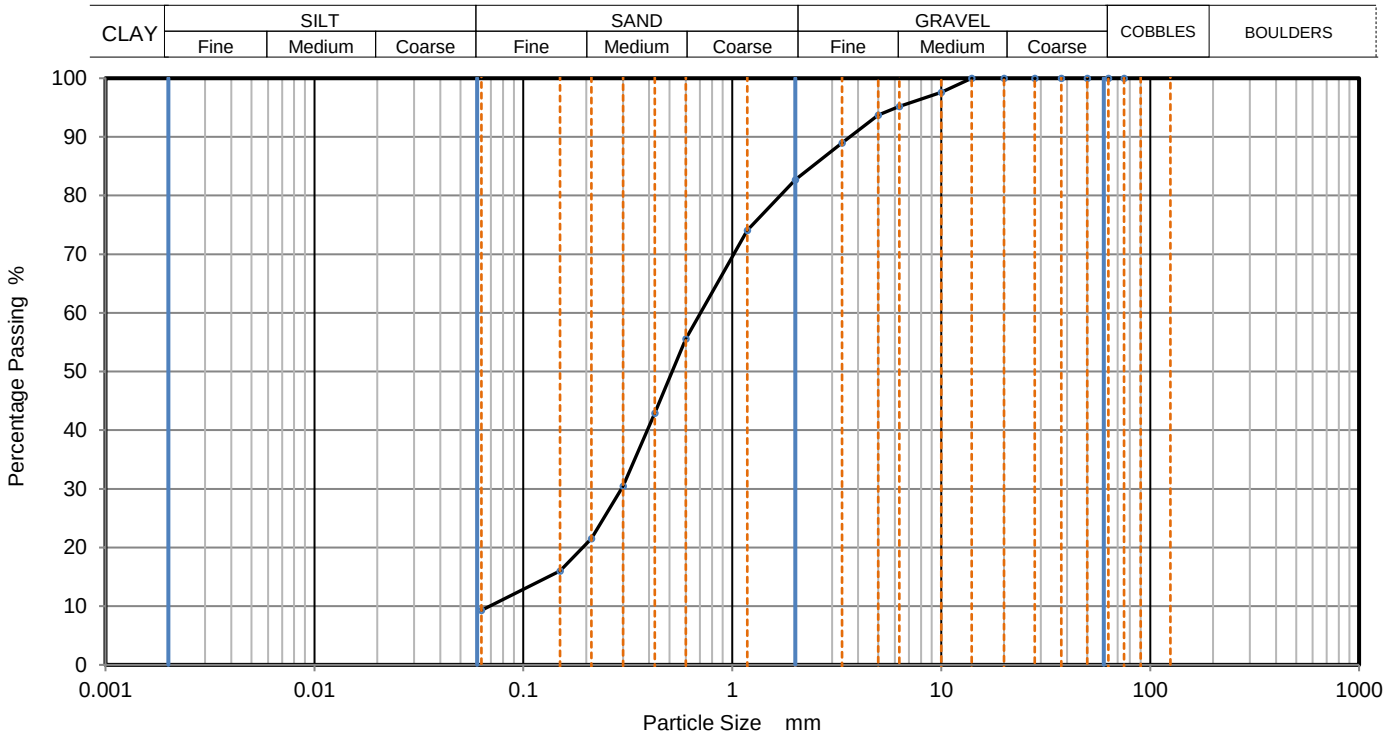
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78697
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey silty gravelyl coarse and medium SAND.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011426



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	95		
5	94		
3.35	89		
2	83		
1.18	74		
0.6	56		
0.425	43		
0.3	31		
0.212	22		
0.15	16		
0.063	9		

Dry Mass of sample, g	567

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	73
Fines <0.063mm	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.705
D_{30}	mm	0.295
D_{10}	mm	0.0691
Uniformity Coefficient		10
Curvature Coefficient		1.8

Remarks

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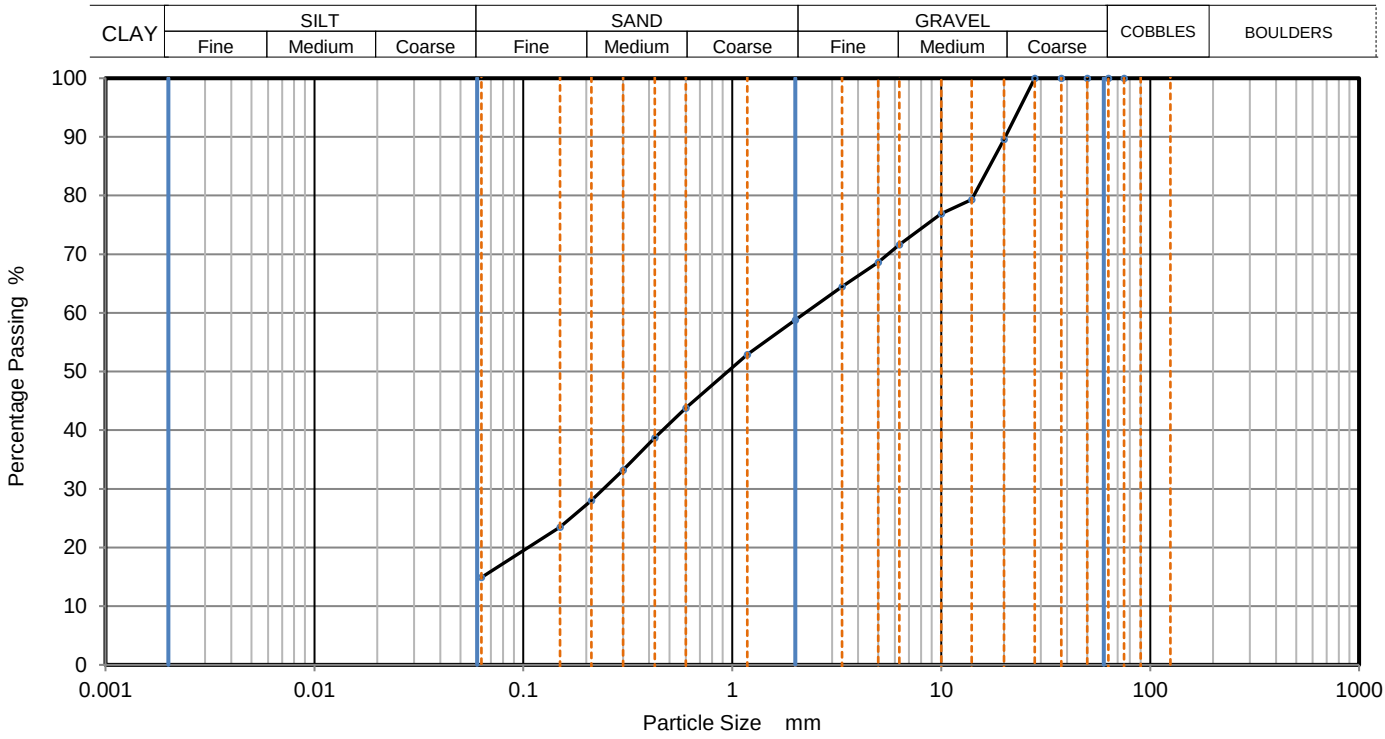
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78697
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark brown silty SAND and GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011428



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	90		
14	79		
10	77		
6.3	72		
5	69		
3.35	65		
2	59		
1.18	53		
0.6	44		
0.425	39		
0.3	33		
0.212	28		
0.15	24		
0.063	15		

Dry Mass of sample, g	658

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	44
Fines <0.063mm	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.23
D_{30}	mm	0.242
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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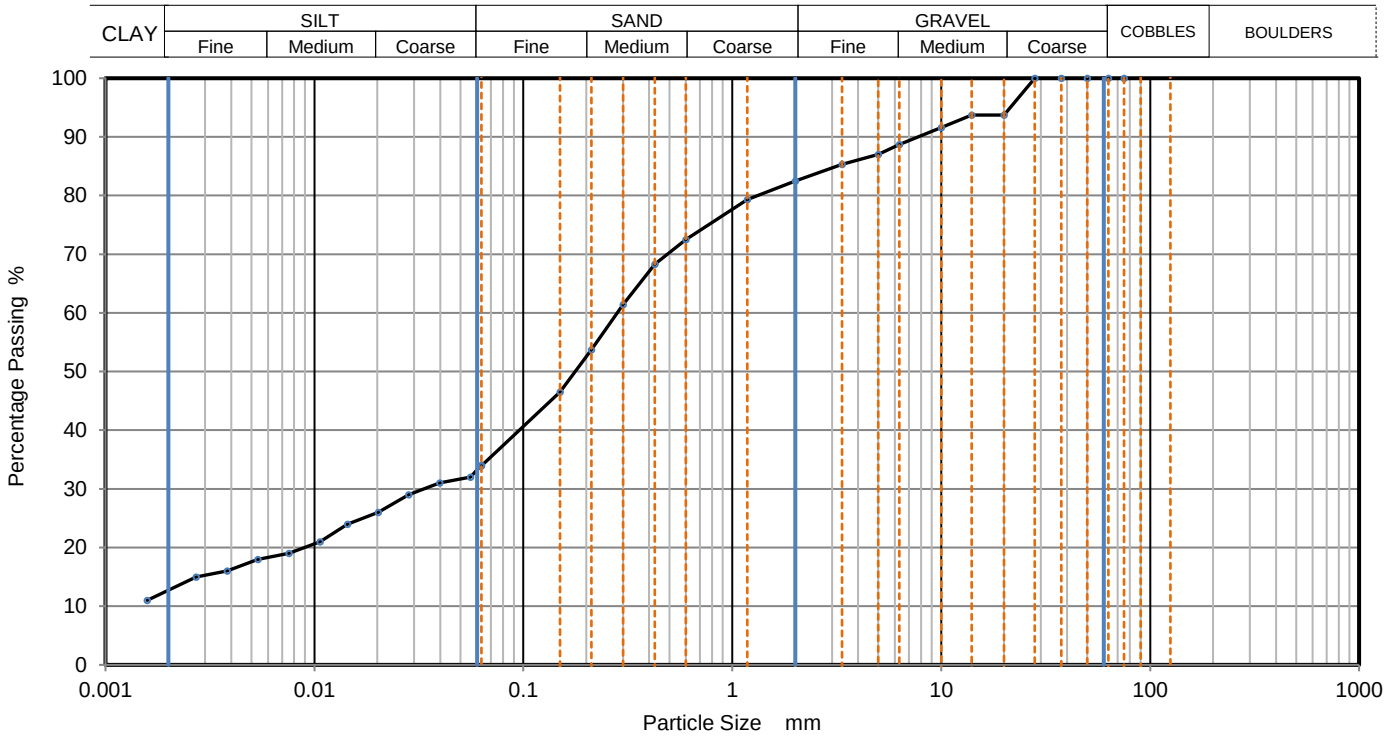
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78784
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown gravelly very silty fine and medium SAND.			Depth, m	0.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011430



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	34
		0.0558	32
75	100	0.0397	31
63	100	0.0283	29
50	100	0.0202	26
37.5	100	0.0144	24
28	100	0.0106	21
20	94	0.0076	19
14	94	0.0054	18
10	92	0.0038	16
6.3	89	0.0027	15
5	87	0.0016	11
3.35	85		
2	83		
1.18	79		
0.6	73	Particle density (assumed)	
0.425	68	2.65 Mg/m3	
0.3	61		
0.212	54		
0.15	47		
0.063	34		

Dry Mass of sample, g	588

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	49
Silt	21
Clay	13

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.281
D_{30}	mm	0.0345
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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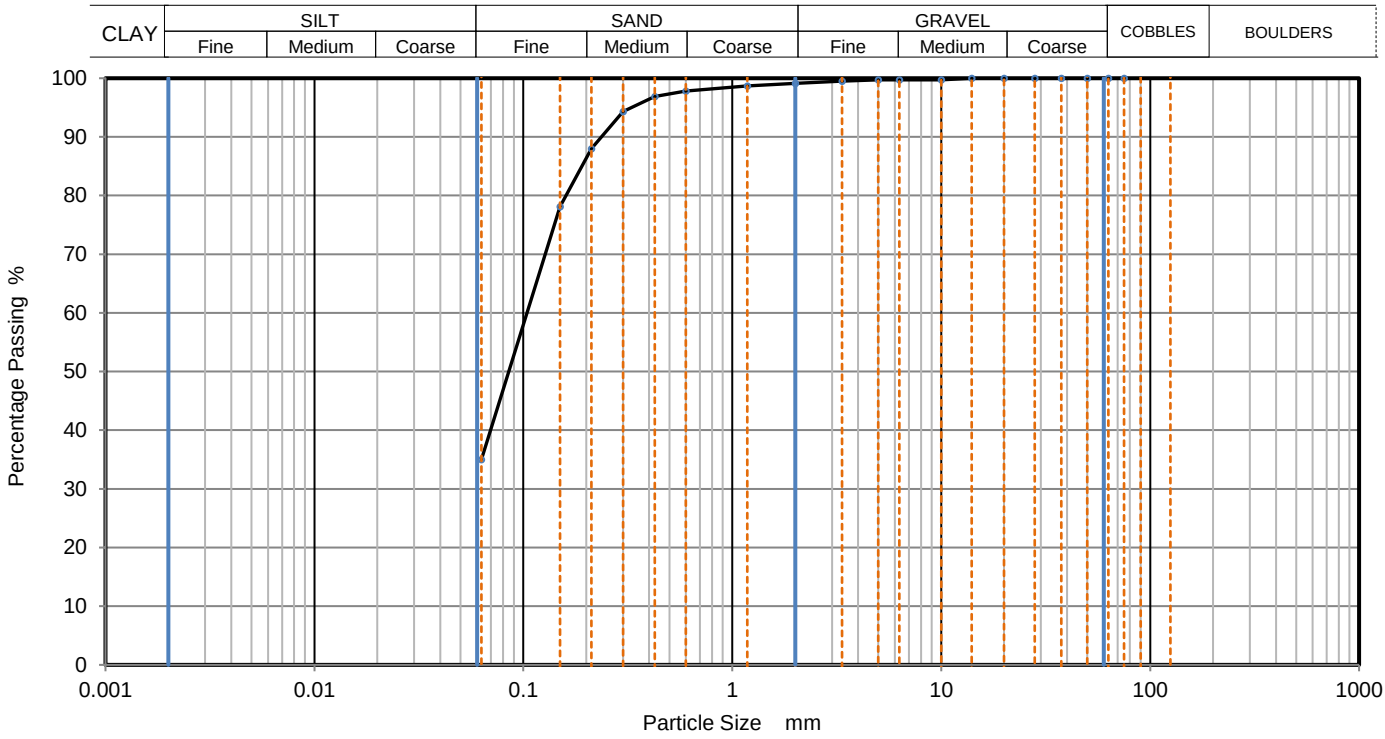
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78784
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Grey sandy SILT. Sand is fine.			Depth, m	1.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011433



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	98		
0.425	97		
0.3	94		
0.212	88		
0.15	78		
0.063	35		

Dry Mass of sample, g	631

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	64
Fines <0.063mm	35

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.104
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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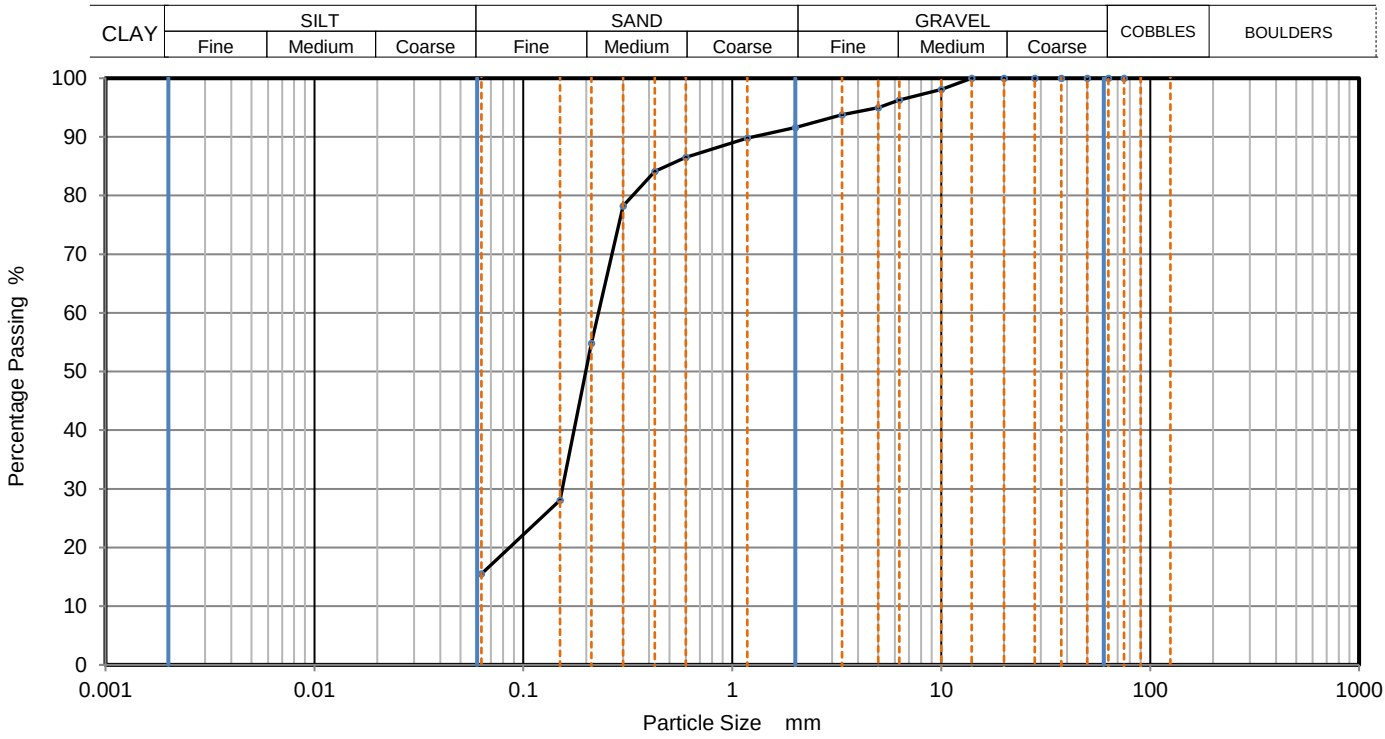
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-78784
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Dark grey gravelly silty fine and medium SAND.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022011434



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	96		
5	95		
3.35	94		
2	92		
1.18	90		
0.6	87		
0.425	84		
0.3	78		
0.212	55		
0.15	28		
0.063	16		

Dry Mass of sample, g	728

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	76
Fines <0.063mm	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.229
D_{30}	mm	0.154
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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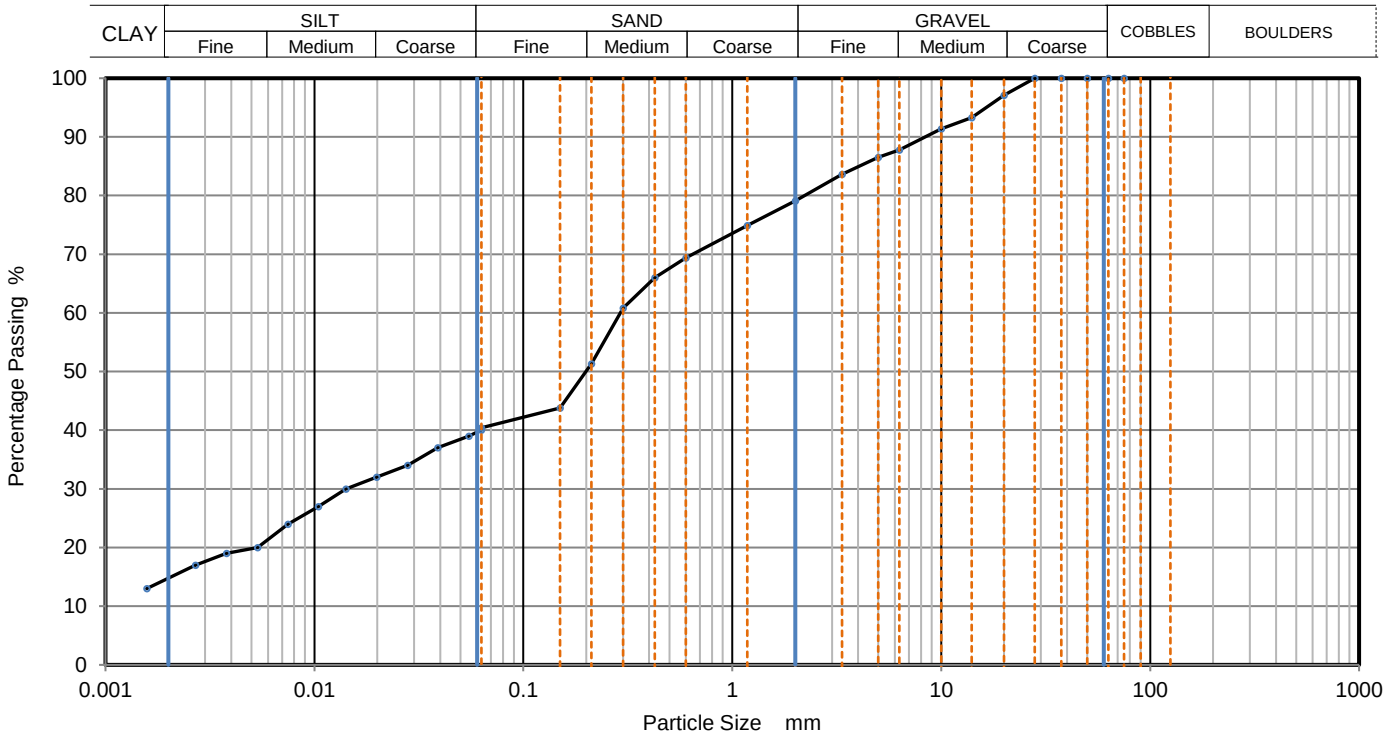
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79208
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011435



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0548	39
75	100	0.0390	37
63	100	0.0279	34
50	100	0.0199	32
37.5	100	0.0141	30
28	100	0.0104	27
20	97	0.0075	24
14	93	0.0053	20
10	91	0.0038	19
6.3	88	0.0027	17
5	87	0.0016	13
3.35	84		
2	79		
1.18	75		
0.6	69	Particle density (assumed)	
0.425	66	2.65	Mg/m3
0.3	61		
0.212	51		
0.15	44		
0.063	40		

Dry Mass of sample, g	588

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	39
Silt	25
Clay	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.291
D_{30}	mm	0.0138
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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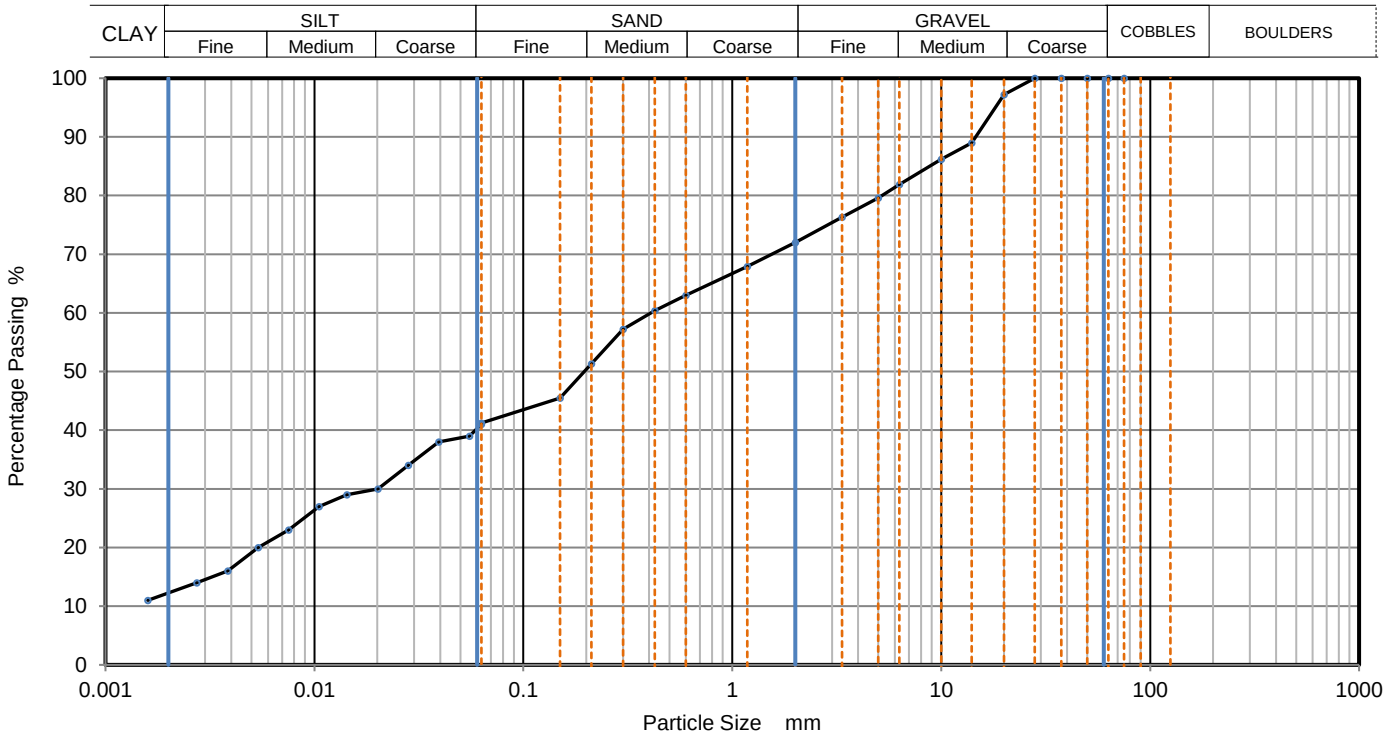
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79208
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011439



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0552	39
75	100	0.0393	38
63	100	0.0281	34
50	100	0.0201	30
37.5	100	0.0143	29
28	100	0.0105	27
20	97	0.0075	23
14	89	0.0054	20
10	86	0.0038	16
6.3	82	0.0027	14
5	80	0.0016	11
3.35	76		
2	72		
1.18	68		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	57		
0.212	51		
0.15	46		
0.063	41		

Dry Mass of sample, g	751

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	31
Silt	29
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.406
D_{30}	mm	0.0185
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

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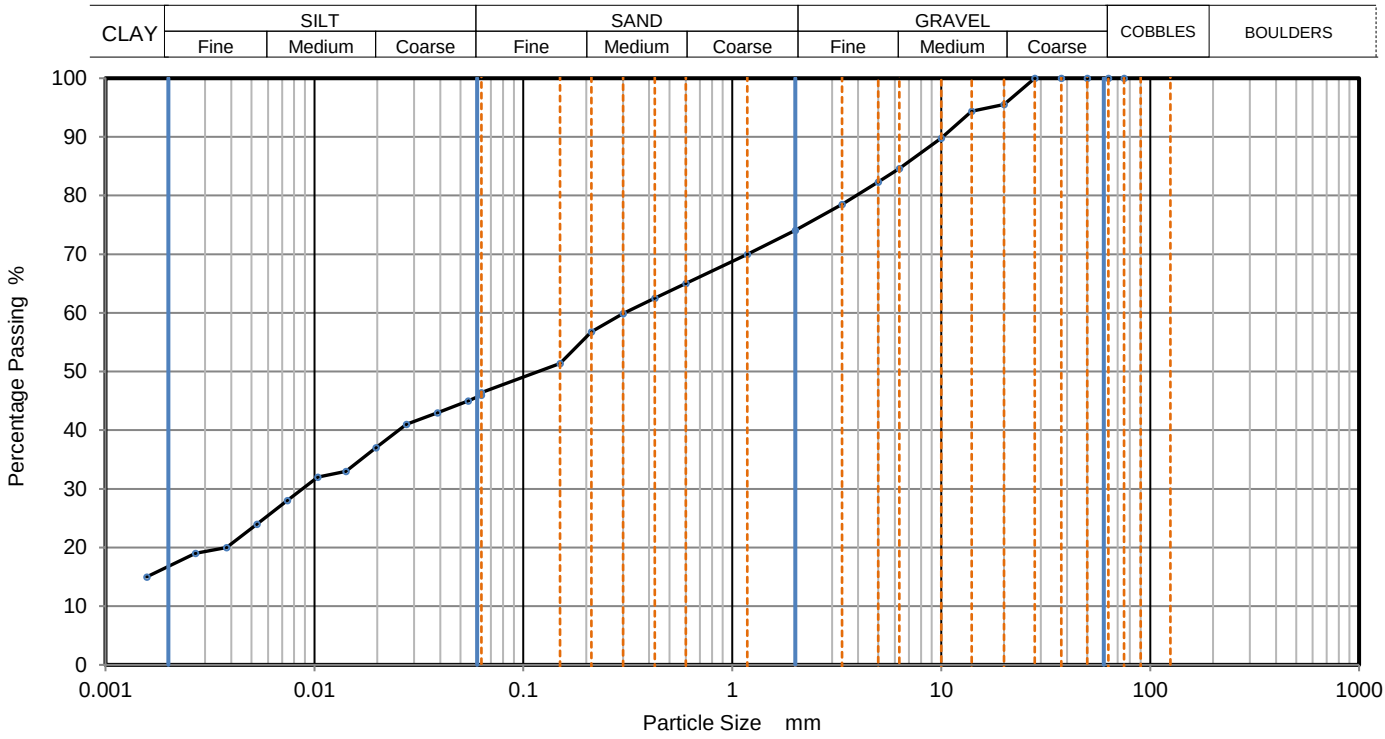
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79208
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011441



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0545	45
75	100	0.0388	43
63	100	0.0276	41
50	100	0.0197	37
37.5	100	0.0141	33
28	100	0.0104	32
20	96	0.0074	28
14	94	0.0053	24
10	90	0.0038	20
6.3	85	0.0027	19
5	82	0.0016	15
3.35	79		
2	74		
1.18	70		
0.6	65	Particle density (assumed)	
0.425	63	2.65	Mg/m3
0.3	60		
0.212	57		
0.15	51		
0.063	46		

Dry Mass of sample, g	743

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	28
Silt	30
Clay	17

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.302
D_{30}	mm	0.00902
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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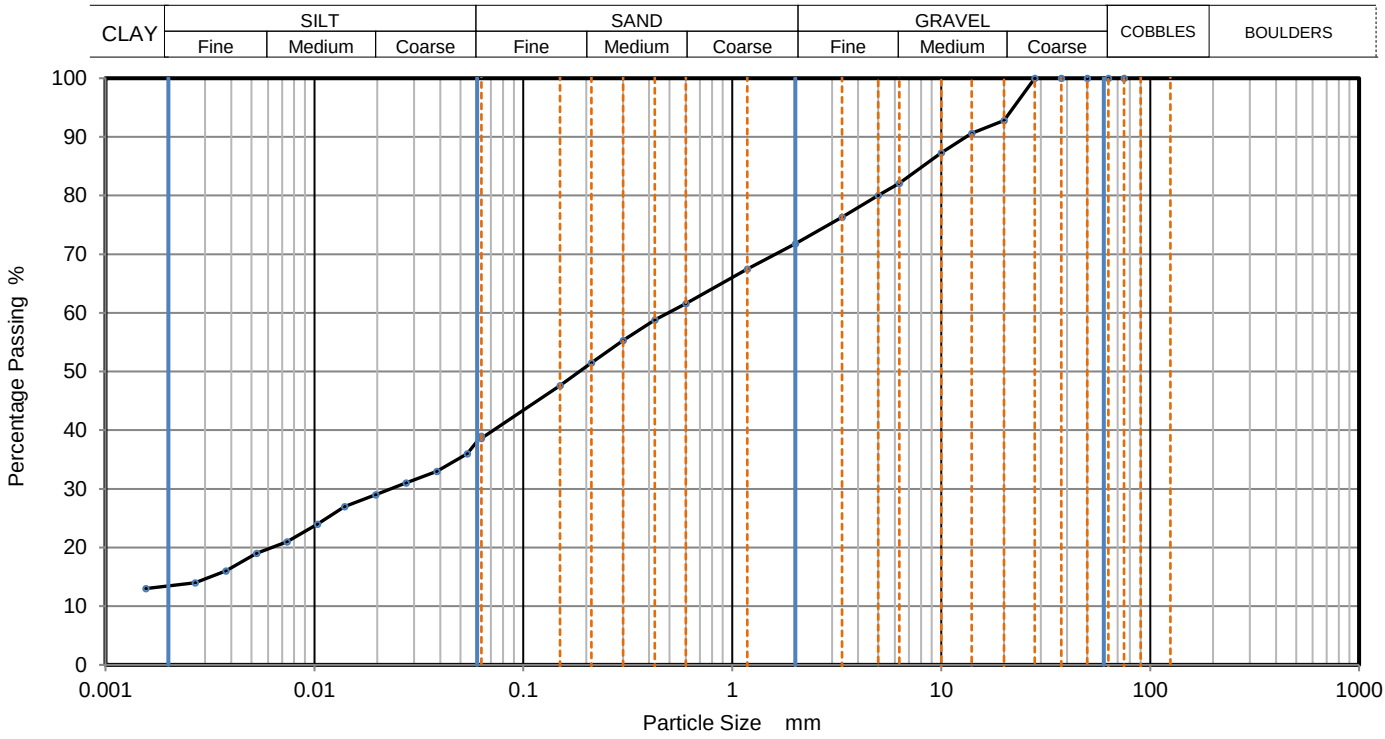
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79309
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slighlty gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011443



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0538	36
75	100	0.0385	33
63	100	0.0274	31
50	100	0.0196	29
37.5	100	0.0140	27
28	100	0.0103	24
20	93	0.0074	21
14	91	0.0053	19
10	87	0.0038	16
6.3	82	0.0027	14
5	80	0.0016	13
3.35	76		
2	72		
1.18	68		
0.6	62	Particle density (assumed)	
0.425	59	2.65 Mg/m3	
0.3	55		
0.212	52		
0.15	48		
0.063	39		

Dry Mass of sample, g	642

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	33
Silt	25
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.492
D_{30}	mm	0.0231
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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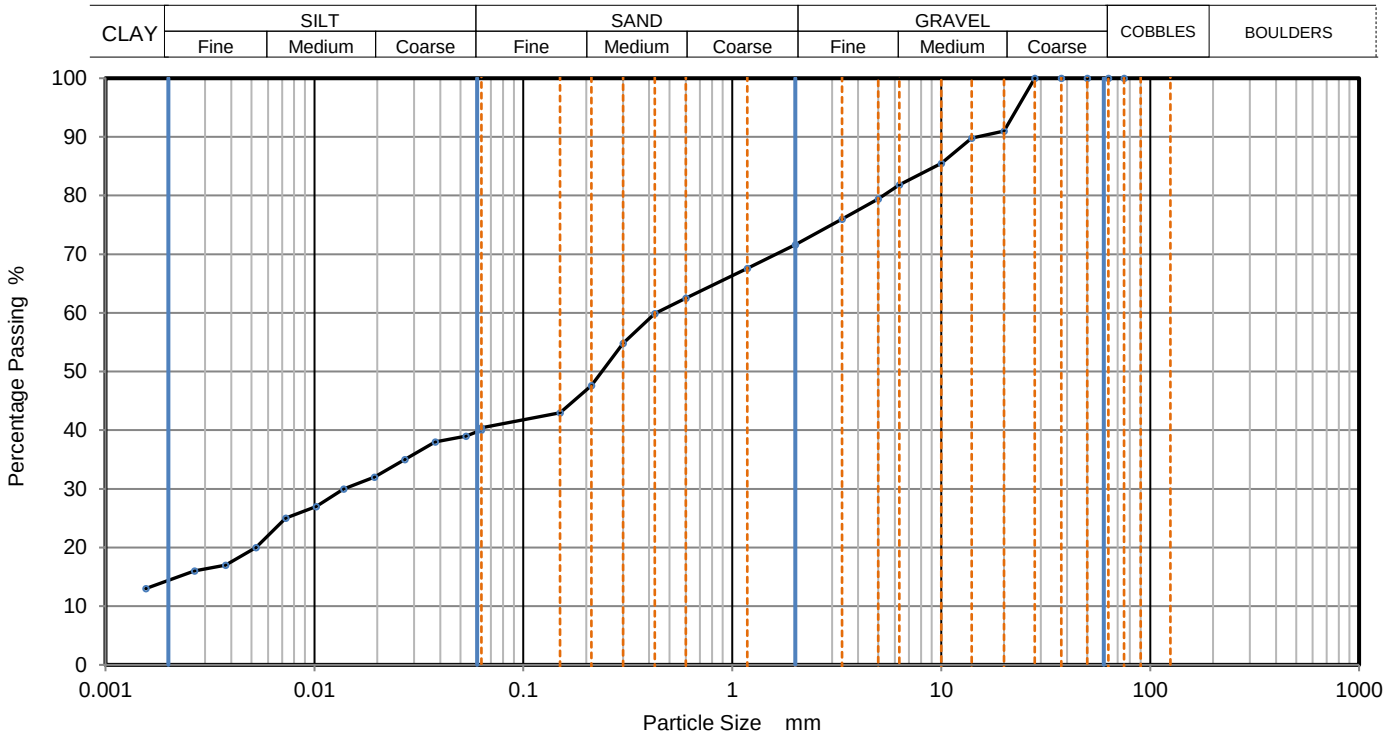
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-79309
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.	Depth, m	2.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12022011447



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	40
		0.0531	39
75	100	0.0378	38
63	100	0.0271	35
50	100	0.0194	32
37.5	100	0.0138	30
28	100	0.0102	27
20	91	0.0073	25
14	90	0.0052	20
10	86	0.0038	17
6.3	82	0.0027	16
5	79	0.0016	13
3.35	76		
2	72		
1.18	68		
0.6	63	Particle density (assumed)	
0.425	60	2.65 Mg/m3	
0.3	55		
0.212	48		
0.15	43		
0.063	40		

Dry Mass of sample, g	791

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	31
Silt	26
Clay	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.432
D_{30}	mm	0.0134
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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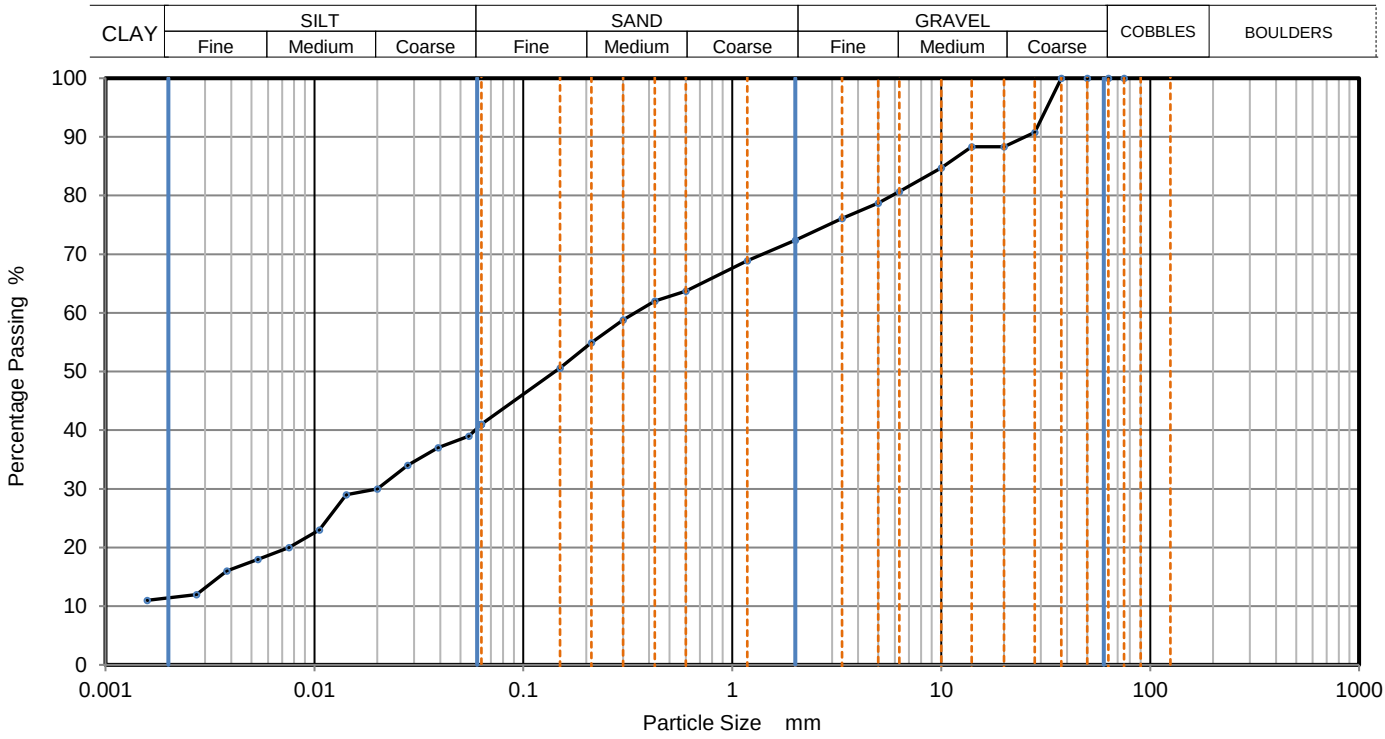
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79425
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011450



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0548	39
75	100	0.0390	37
63	100	0.0279	34
50	100	0.0200	30
37.5	100	0.0142	29
28	91	0.0106	23
20	88	0.0075	20
14	88	0.0054	18
10	85	0.0038	16
6.3	81	0.0027	12
5	79	0.0016	11
3.35	76		
2	72		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	62	2.65	Mg/m3
0.3	59		
0.212	55		
0.15	51		
0.063	41		

Dry Mass of sample, g	710

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	32
Silt	29
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.341
D_{30}	mm	0.0188
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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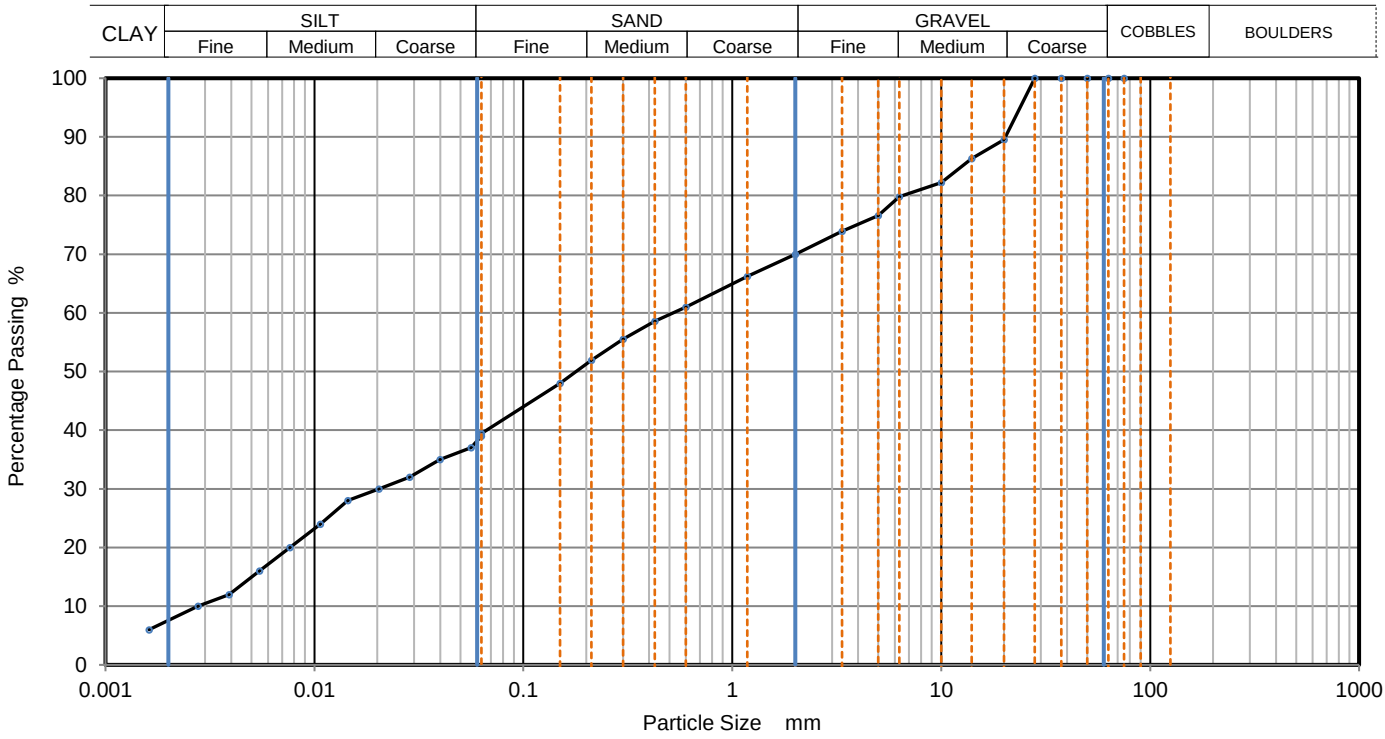
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79425
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly slighlty sandy SILT.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011452



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	39
		0.0562	37
75	100	0.0400	35
63	100	0.0286	32
50	100	0.0203	30
37.5	100	0.0145	28
28	100	0.0107	24
20	90	0.0076	20
14	86	0.0055	16
10	82	0.0039	12
6.3	80	0.0028	10
5	77	0.0016	6
3.35	74		
2	70		
1.18	66		
0.6	61	Particle density (assumed)	
0.425	59	2.65 Mg/m3	
0.3	56		
0.212	52		
0.15	48		
0.063	39		

Dry Mass of sample, g	728

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	31
Silt	32
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.52
D_{30}	mm	0.022
D_{10}	mm	0.00284
Uniformity Coefficient		180
Curvature Coefficient		0.33

Remarks

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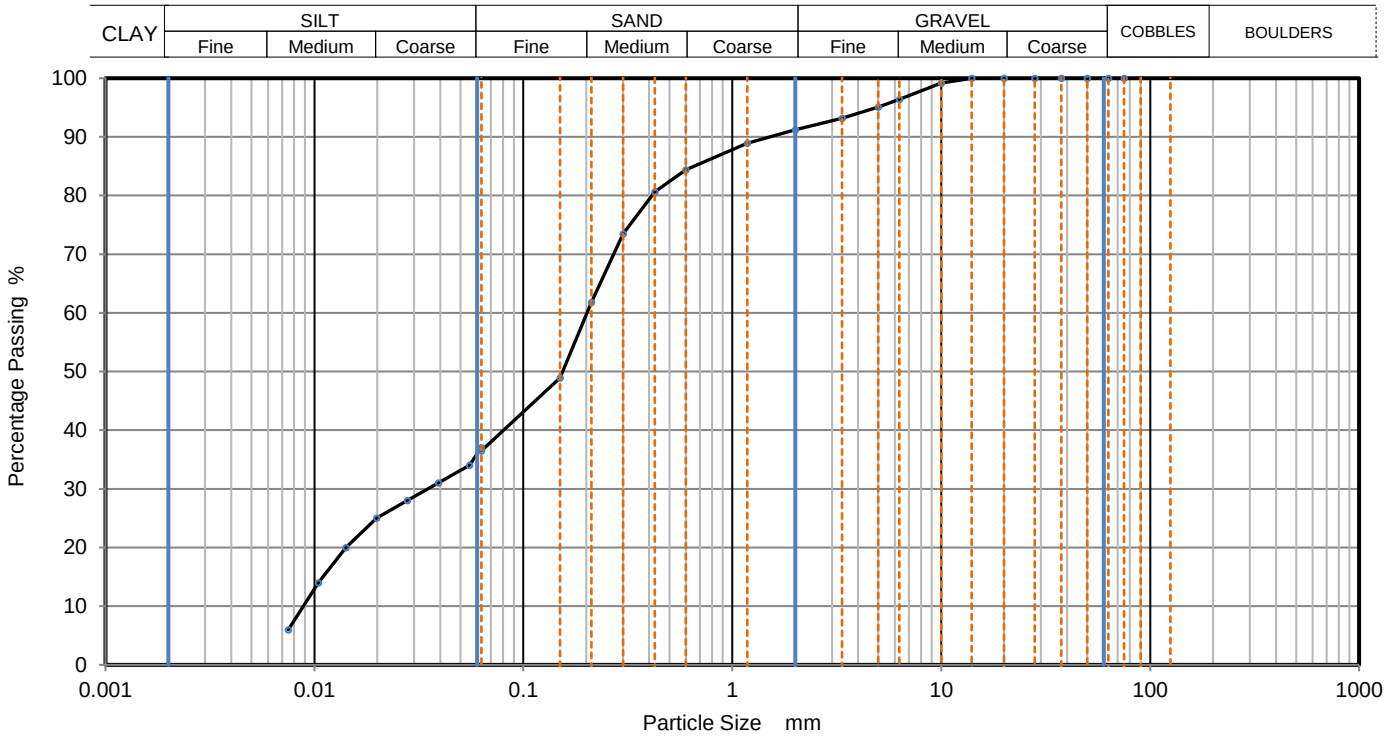
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79507
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Greyish-brown slightly gravelly sandy SILT. Sand is fine and medium.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011454



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0551	34
75	100	0.0392	31
63	100	0.0279	28
50	100	0.0198	25
37.5	100	0.0142	20
28	100	0.0105	14
20	100	0.0075	6
14	100		
10	99		
6.3	96		
5	95		
3.35	93		
2	91		
1.18	89		
0.6	84	Particle density (assumed)	
0.425	81	2.65 Mg/m3	
0.3	74		
0.212	62		
0.15	49		
0.063	37		

Dry Mass of sample, g	689

Sample Proportions	% dry mass
Very coarse	0
Gravel	9
Sand	55
Fines <0.063mm	37

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.202
D_{30}	mm	0.0352
D_{10}	mm	0.00892
Uniformity Coefficient		23
Curvature Coefficient		0.69

Remarks

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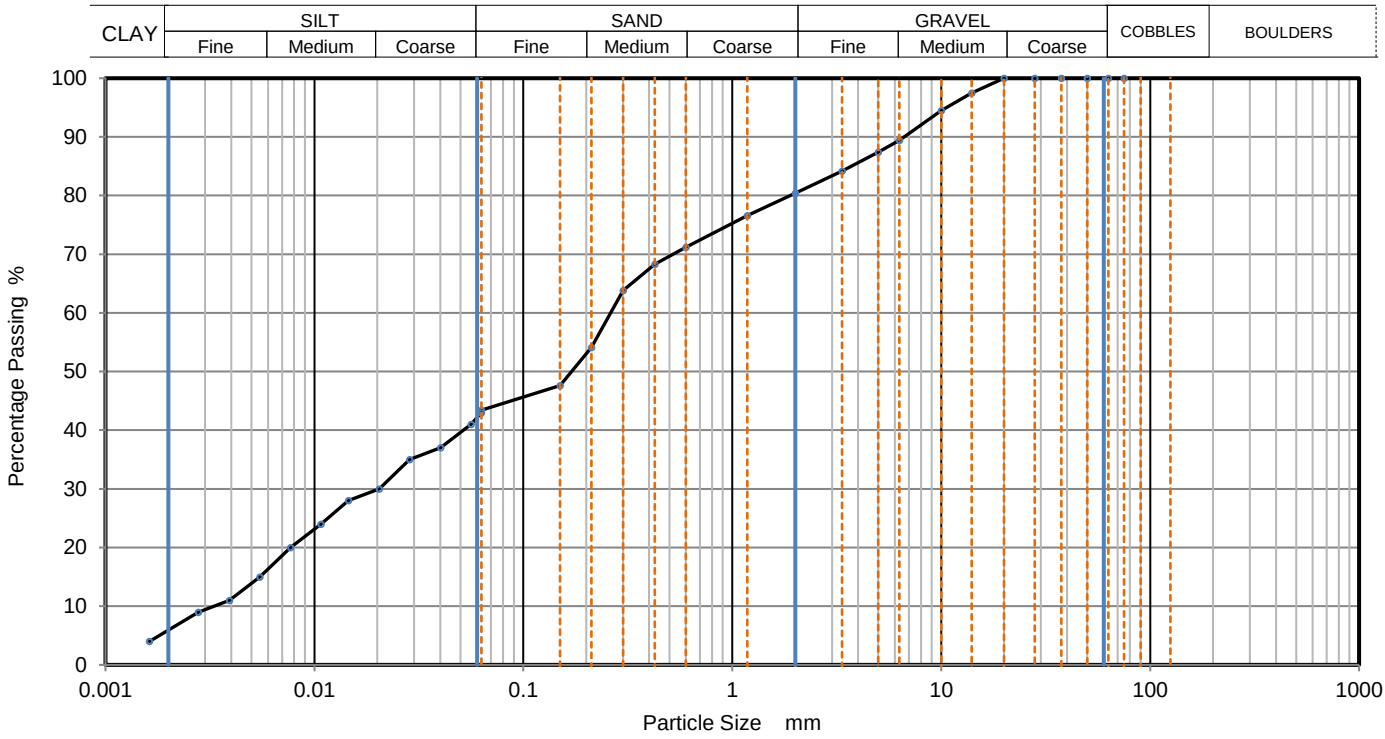
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-79507
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Greyish-brown slightly gravelly sandy SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011456



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0562	41
75	100	0.0402	37
63	100	0.0286	35
50	100	0.0205	30
37.5	100	0.0145	28
28	100	0.0107	24
20	100	0.0077	20
14	98	0.0055	15
10	95	0.0039	11
6.3	89	0.0028	9
5	87	0.0016	4
3.35	84		
2	80		
1.18	77		
0.6	71	Particle density (assumed)	
0.425	68	2.65 Mg/m3	
0.3	64		
0.212	54		
0.15	48		
0.063	43		

Dry Mass of sample, g	740

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	37
Silt	37
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.261
D_{30}	mm	0.0193
D_{10}	mm	0.00343
Uniformity Coefficient		76
Curvature Coefficient		0.41

Remarks

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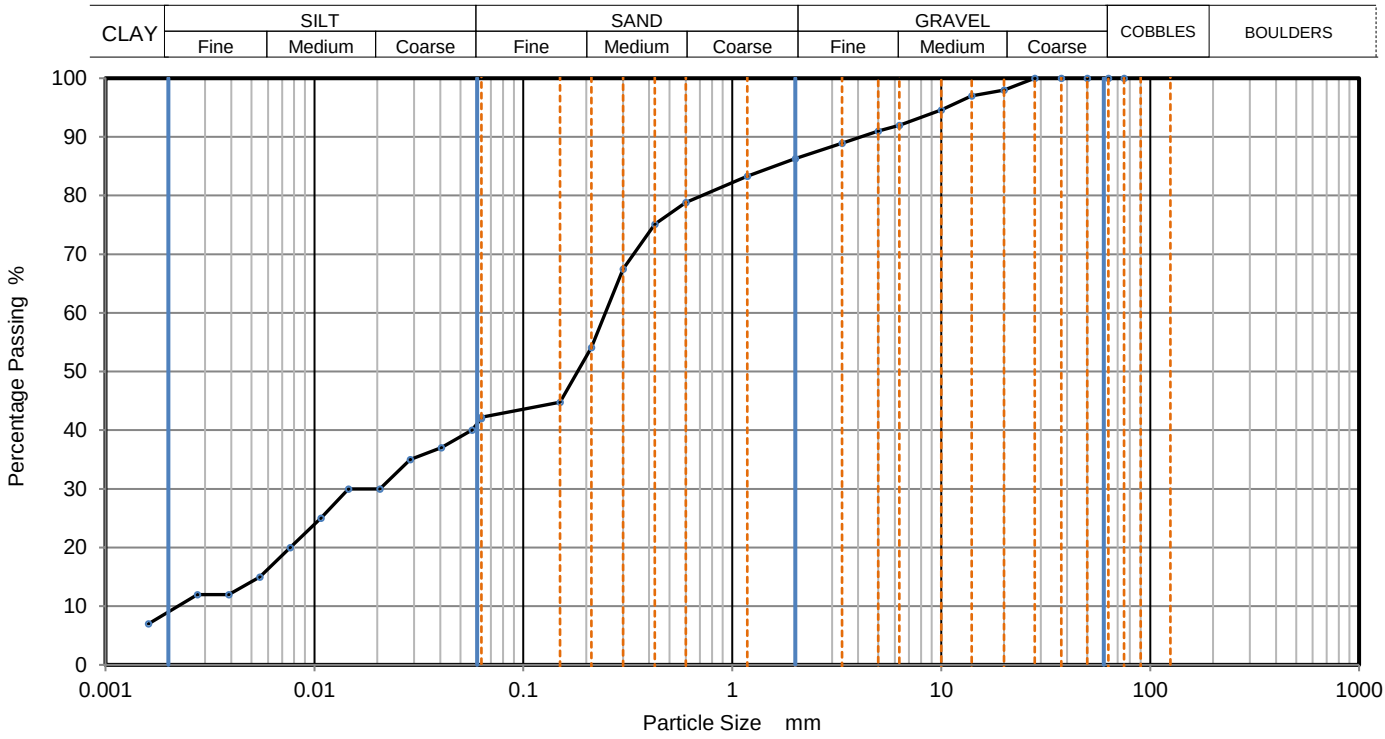
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80306
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Brownish-grey slightly gravelly sandy SILT. Sand is medium.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	D
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011459



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0568	40
75	100	0.0404	37
63	100	0.0287	35
50	100	0.0206	30
37.5	100	0.0145	30
28	100	0.0107	25
20	98	0.0077	20
14	97	0.0055	15
10	95	0.0039	12
6.3	92	0.0028	12
5	91	0.0016	7
3.35	89		
2	86		
1.18	83		
0.6	79	Particle density (assumed)	
0.425	75	2.65 Mg/m3	
0.3	68		
0.212	54		
0.15	45		
0.063	42		

Dry Mass of sample, g	674

Sample Proportions	% dry mass
Very coarse	0
Gravel	14
Sand	44
Silt	33
Clay	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.247
D_{30}	mm	0.0209
D_{10}	mm	0.00212
Uniformity Coefficient		120
Curvature Coefficient		0.83

Remarks

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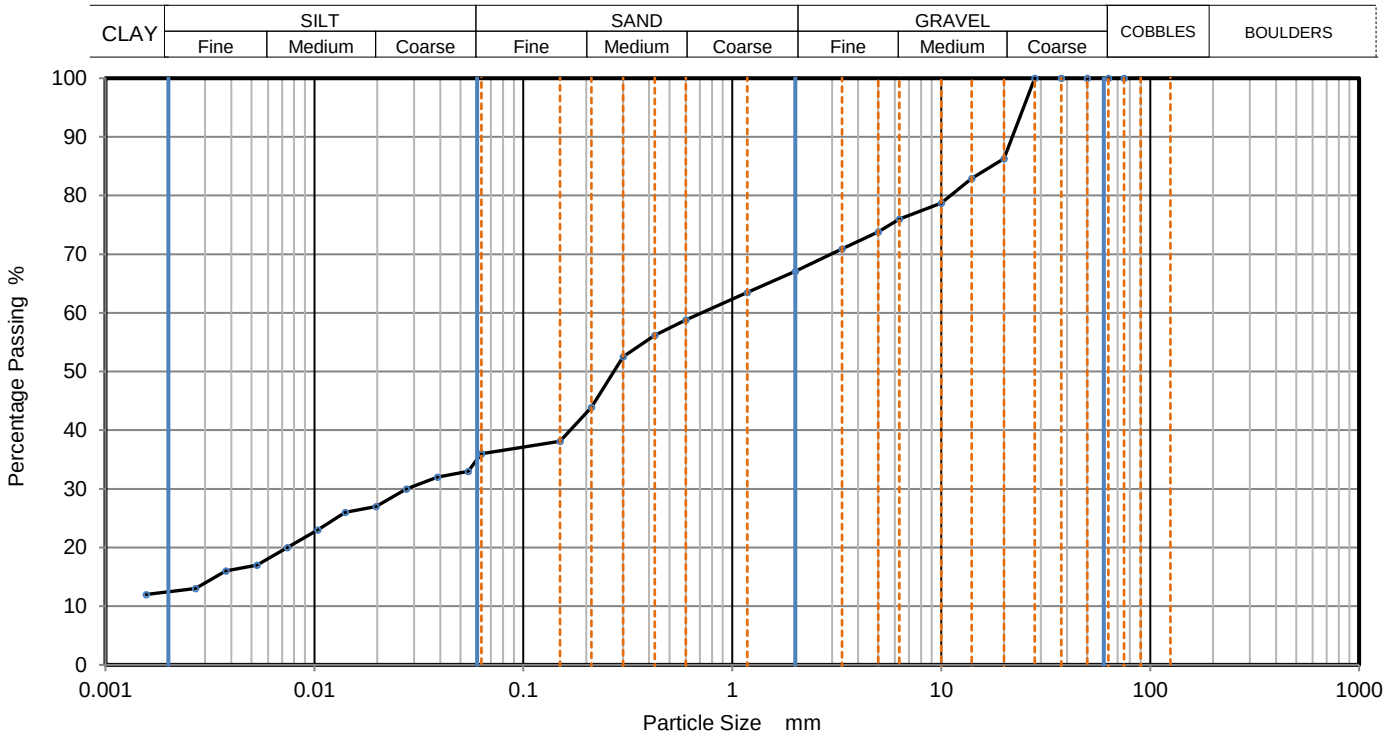
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80306
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011460



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	36
		0.0545	33
75	100	0.0388	32
63	100	0.0276	30
50	100	0.0197	27
37.5	100	0.0140	26
28	100	0.0104	23
20	86	0.0074	20
14	83	0.0053	17
10	79	0.0038	16
6.3	76	0.0027	13
5	74	0.0016	12
3.35	71		
2	67		
1.18	64		
0.6	59	Particle density (assumed)	
0.425	56	2.65	Mg/m3
0.3	53		
0.212	44		
0.15	38		
0.063	36		

Dry Mass of sample, g	836

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	31
Silt	24
Clay	12

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.711
D_{30}	mm	0.0268
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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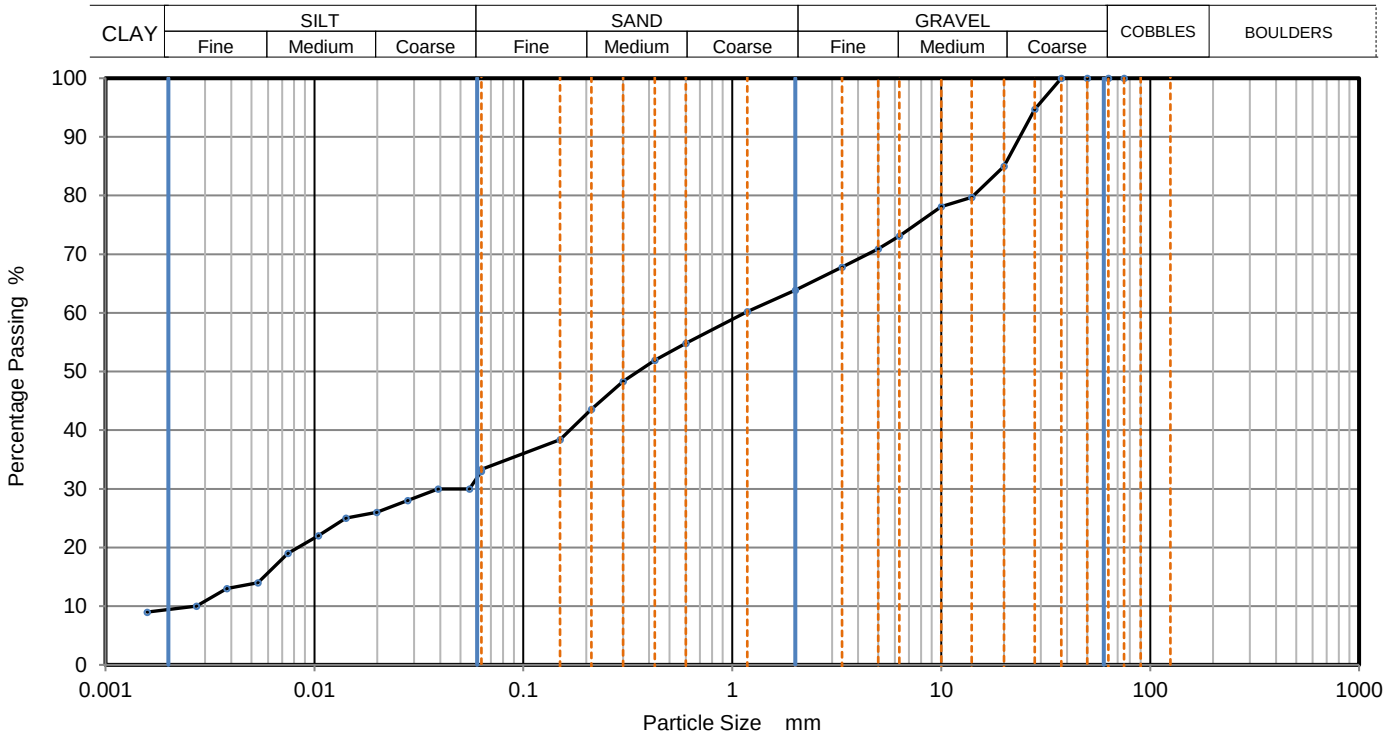
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80306
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey very silty SAND and GRAVEL.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011462



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	33
		0.0552	30
75	100	0.0390	30
63	100	0.0279	28
50	100	0.0199	26
37.5	100	0.0141	25
28	95	0.0104	22
20	85	0.0075	19
14	80	0.0054	14
10	78	0.0038	13
6.3	73	0.0027	10
5	71	0.0016	9
3.35	68		
2	64		
1.18	60		
0.6	55	Particle density (assumed)	
0.425	52	2.65 Mg/m3	
0.3	48		
0.212	44		
0.15	38		
0.063	33		

Dry Mass of sample, g	849

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	31
Silt	24
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.15
D_{30}	mm	0.0372
D_{10}	mm	0.00259
Uniformity Coefficient		450
Curvature Coefficient		0.46

Remarks

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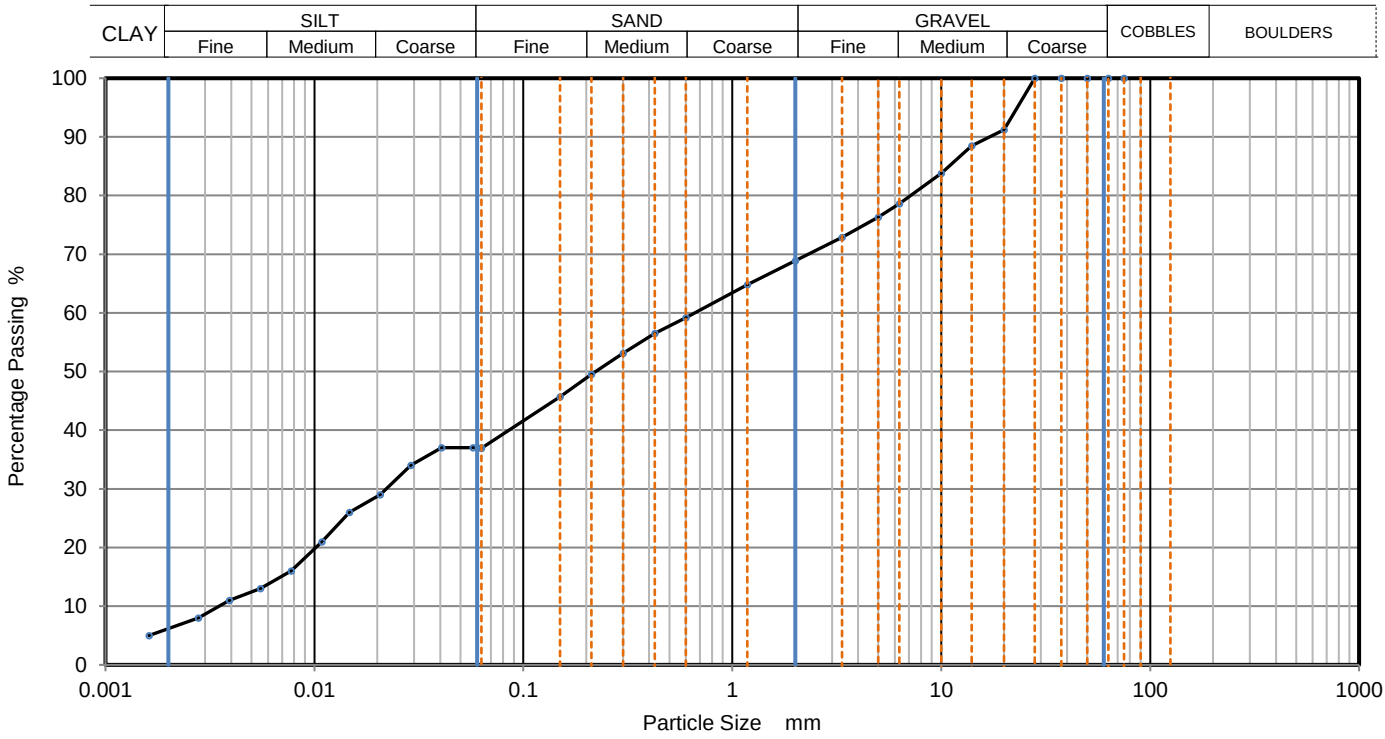
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80442
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022011464



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	37
		0.0575	37
75	100	0.0407	37
63	100	0.0289	34
50	100	0.0207	29
37.5	100	0.0147	26
28	100	0.0108	21
20	91	0.0078	16
14	89	0.0055	13
10	84	0.0039	11
6.3	79	0.0028	8
5	76	0.0016	5
3.35	73		
2	69		
1.18	65		
0.6	59	Particle density (assumed)	
0.425	57	2.65 Mg/m3	
0.3	53		
0.212	50		
0.15	46		
0.063	37		

Dry Mass of sample, g	641

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	32
Silt	31
Clay	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.66
D_{30}	mm	0.022
D_{10}	mm	0.00365
Uniformity Coefficient		180
Curvature Coefficient		0.2

Remarks

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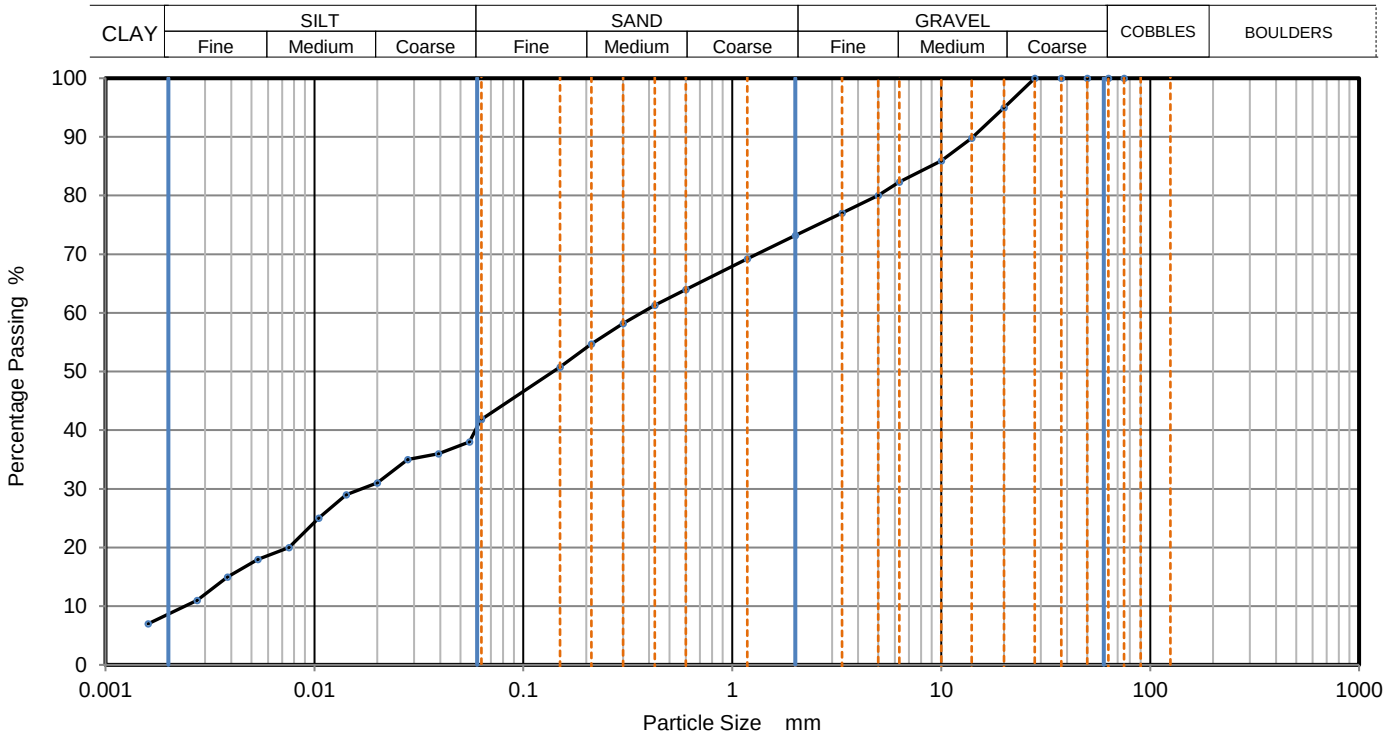
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**	Job Ref	**2021OY102**
		Borehole/Pit No.	TP-80442
Site Name	WSP Eastern & Midlands Region	Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.	Depth, m	2.40
Specimen Reference	Specimen Depth: m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5	KeyLAB ID	IDL12022011469



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	42
		0.0552	38
75	100	0.0392	36
63	100	0.0279	35
50	100	0.0200	31
37.5	100	0.0142	29
28	100	0.0105	25
20	95	0.0075	20
14	90	0.0054	18
10	86	0.0038	15
6.3	82	0.0027	11
5	80	0.0016	7
3.35	77		
2	73		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	61	2.65 Mg/m3	
0.3	58		
0.212	55		
0.15	51		
0.063	42		

Dry Mass of sample, g	758

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	31
Silt	33
Clay	9

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.367
D_{30}	mm	0.0169
D_{10}	mm	0.0024
Uniformity Coefficient		150
Curvature Coefficient		0.32

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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		Dympna Darcy B.Sc.	04/01/2023 14:43	**1** QC From No:R2

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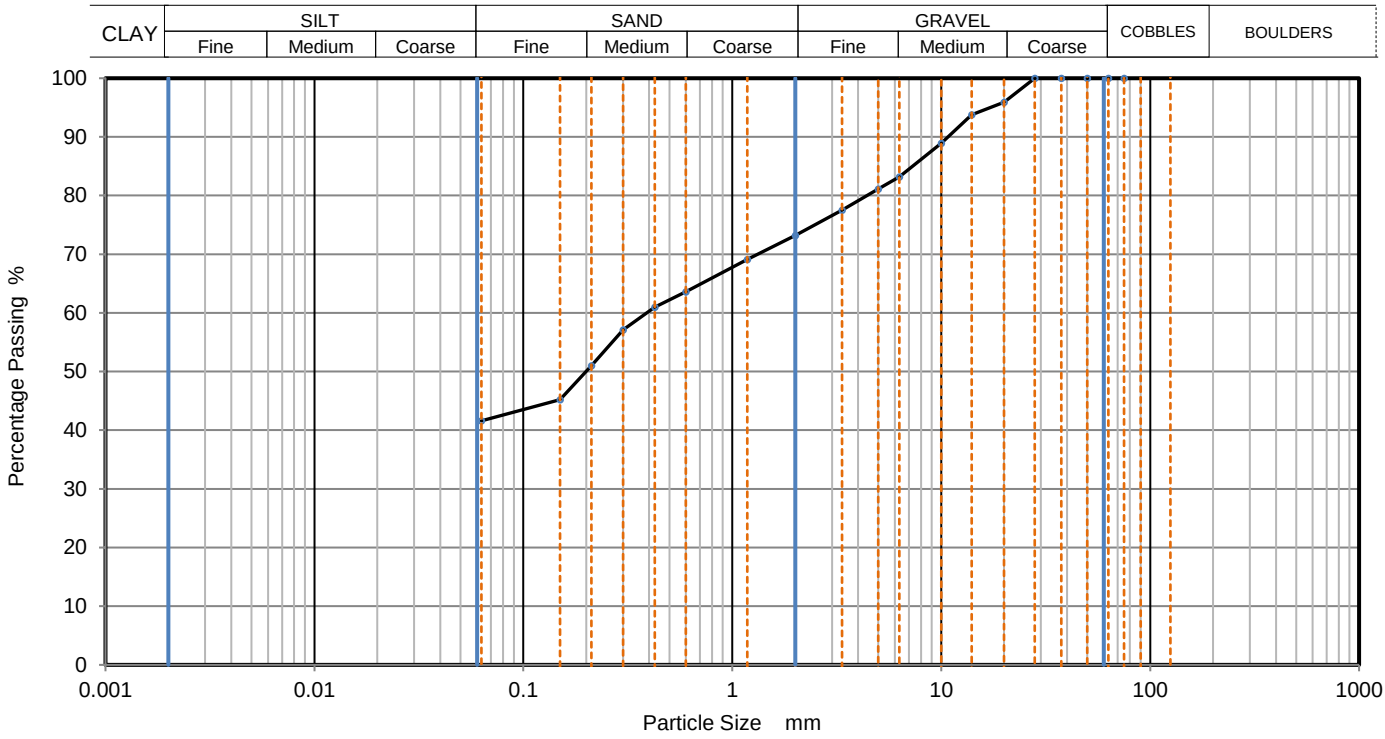
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80508
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012126



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	94		
10	89		
6.3	83		
5	81		
3.35	78		
2	73		
1.18	69		
0.6	64		
0.425	61		
0.3	57		
0.212	51		
0.15	45		
0.063	42		

Dry Mass of sample, g	681

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	32
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.389
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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		Dympna Darcy B.Sc.	25/11/2022 14:49	**1** QC From No:R2

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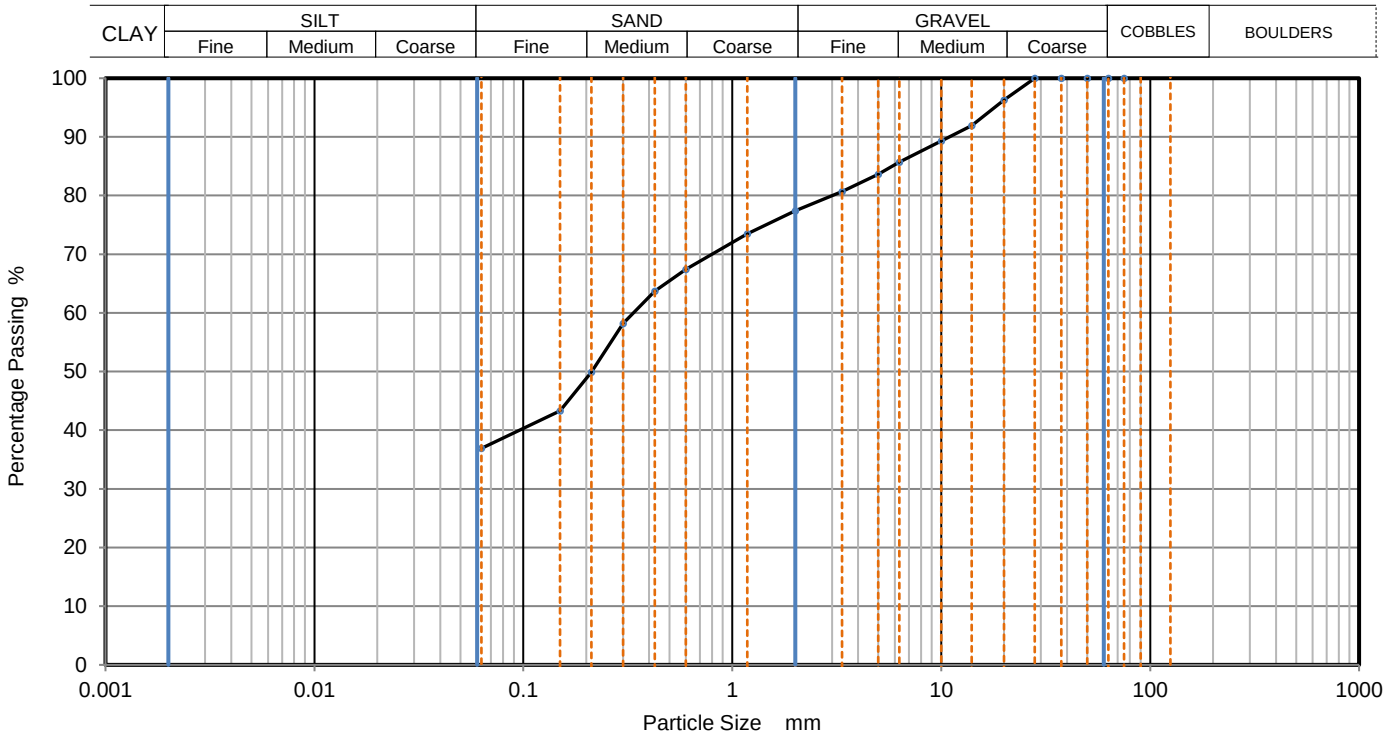
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80634
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orangish-brown slightly gravelly sandy SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012130



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	92		
10	89		
6.3	86		
5	84		
3.35	81		
2	77		
1.18	74		
0.6	67		
0.425	64		
0.3	58		
0.212	50		
0.15	43		
0.063	37		

Dry Mass of sample, g	706

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	41
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	0.336
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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				QC From No:R2

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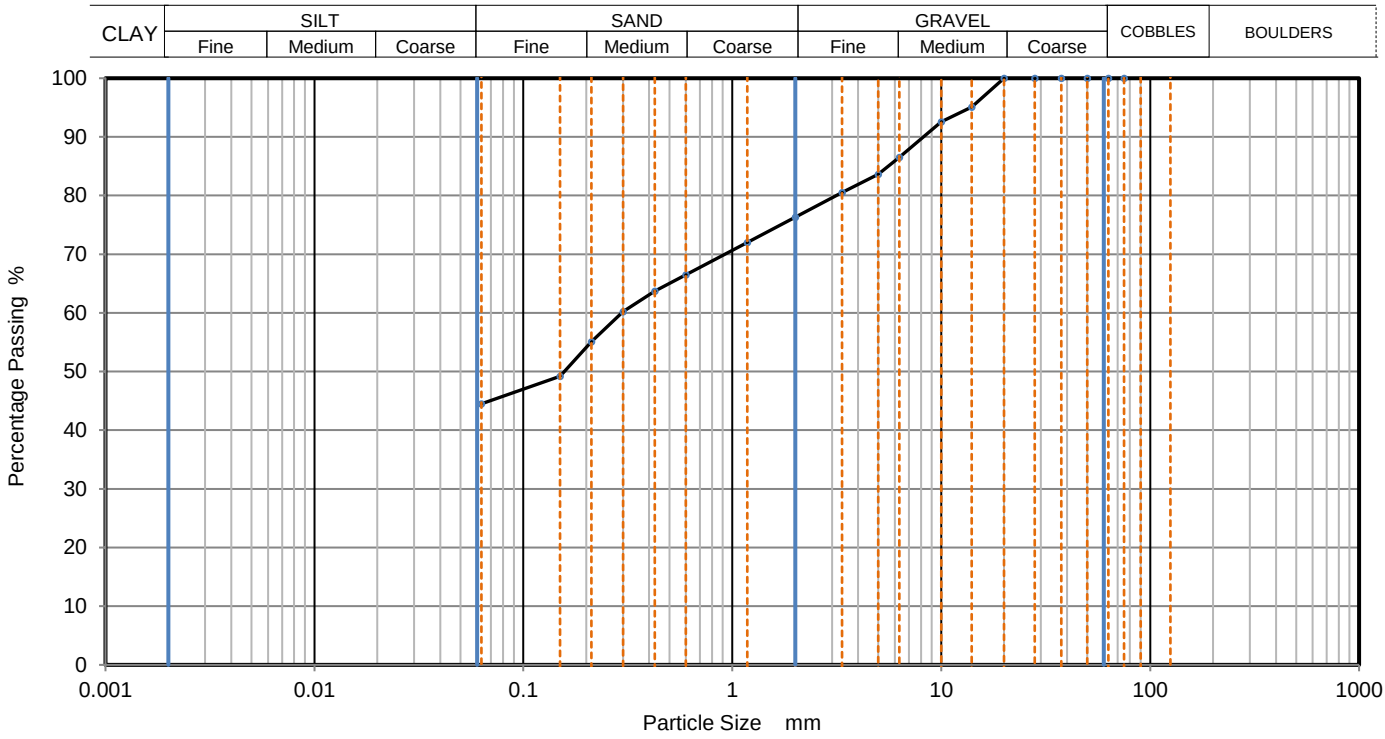
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80634
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012134



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	93		
6.3	87		
5	84		
3.35	81		
2	76		
1.18	72		
0.6	67		
0.425	64		
0.3	60		
0.212	55		
0.15	49		
0.063	45		

Dry Mass of sample, g	698

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	32
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.296
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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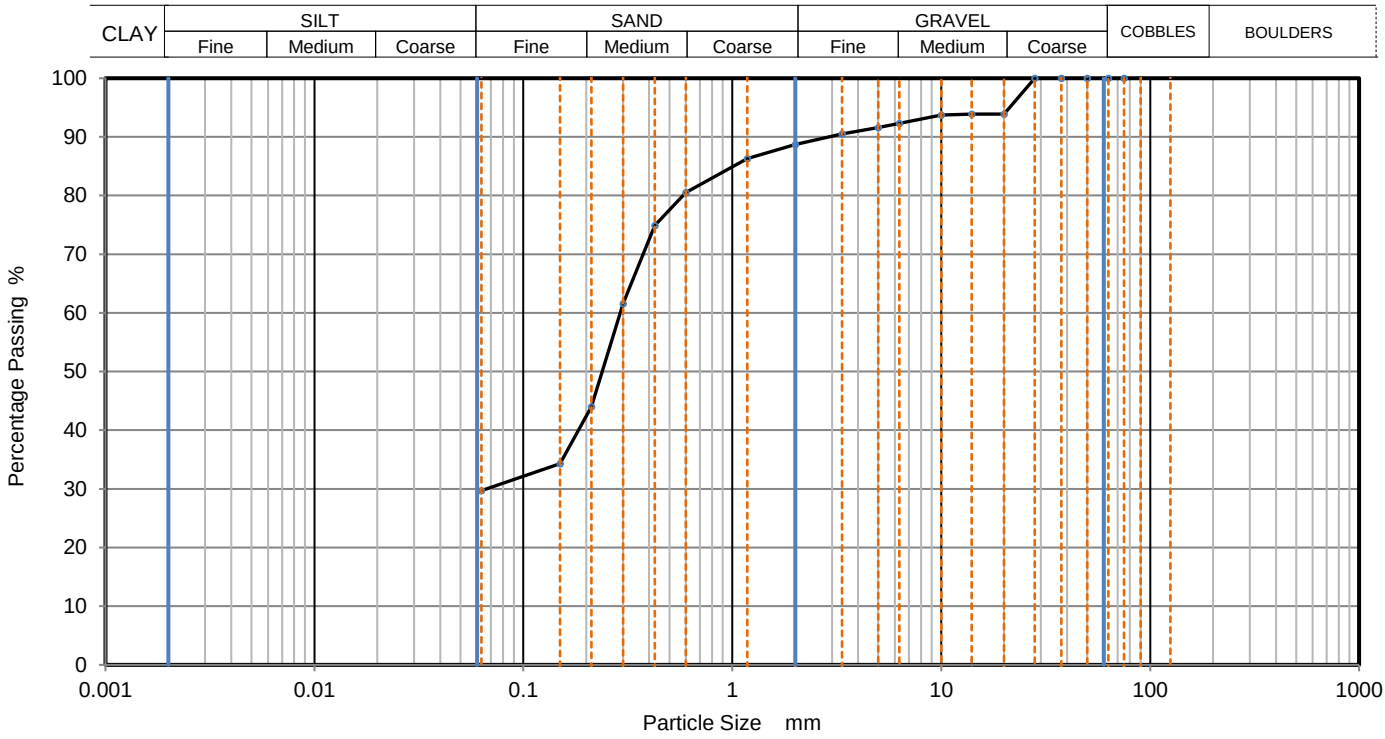
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80718
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Orangish-brown gravelly very silty medium SAND.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012138



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	94		
10	94		
6.3	92		
5	92		
3.35	91		
2	89		
1.18	86		
0.6	81		
0.425	75		
0.3	62		
0.212	44		
0.15	34		
0.063	30		

Dry Mass of sample, g	706

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	59
Fines <0.063mm	30

Grading Analysis		
D100	mm	
D60	mm	0.291
D30	mm	0.0662
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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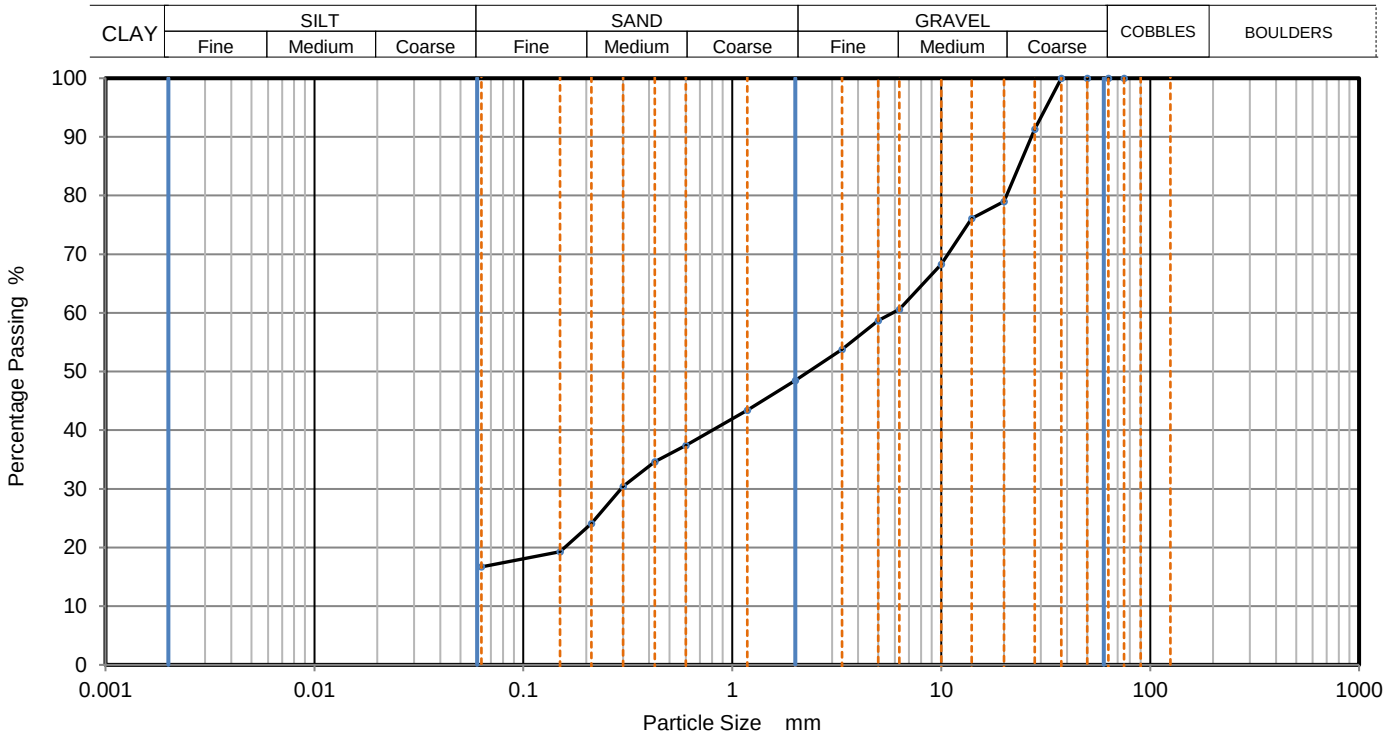
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80718
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown silty very sandy medium and coarse GRAVEL.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012140



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	79		
14	76		
10	68		
6.3	61		
5	59		
3.35	54		
2	49		
1.18	43		
0.6	37		
0.425	35		
0.3	30		
0.212	24		
0.15	19		
0.063	17		

Dry Mass of sample, g: 686

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	32
Fines <0.063mm	17

Grading Analysis		
D100	mm	
D60	mm	5.84
D30	mm	0.293
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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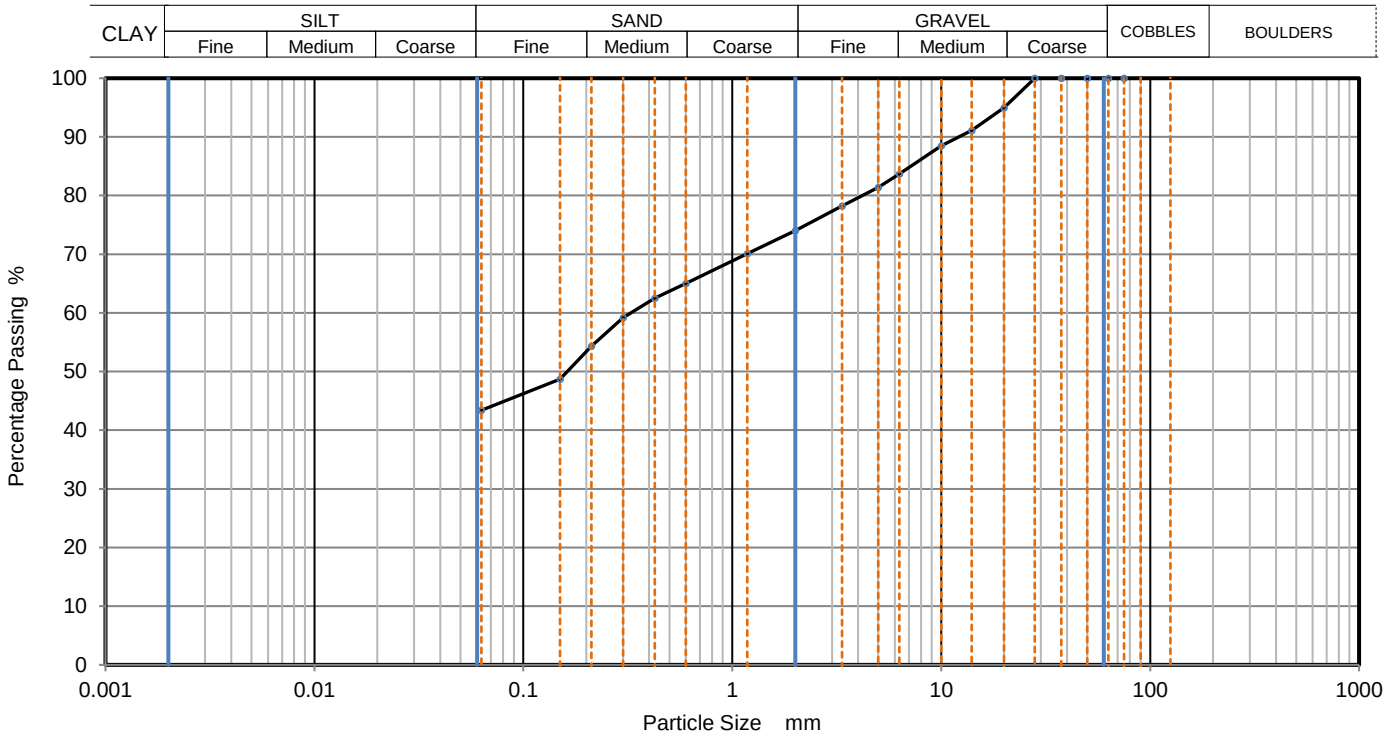
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80800
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Light brown slighlty gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012144



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	91		
10	89		
6.3	84		
5	81		
3.35	78		
2	74		
1.18	70		
0.6	65		
0.425	63		
0.3	59		
0.212	54		
0.15	49		
0.063	43		

Dry Mass of sample, g	658

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	31
Fines <0.063mm	43

Grading Analysis		
D100	mm	
D60	mm	0.327
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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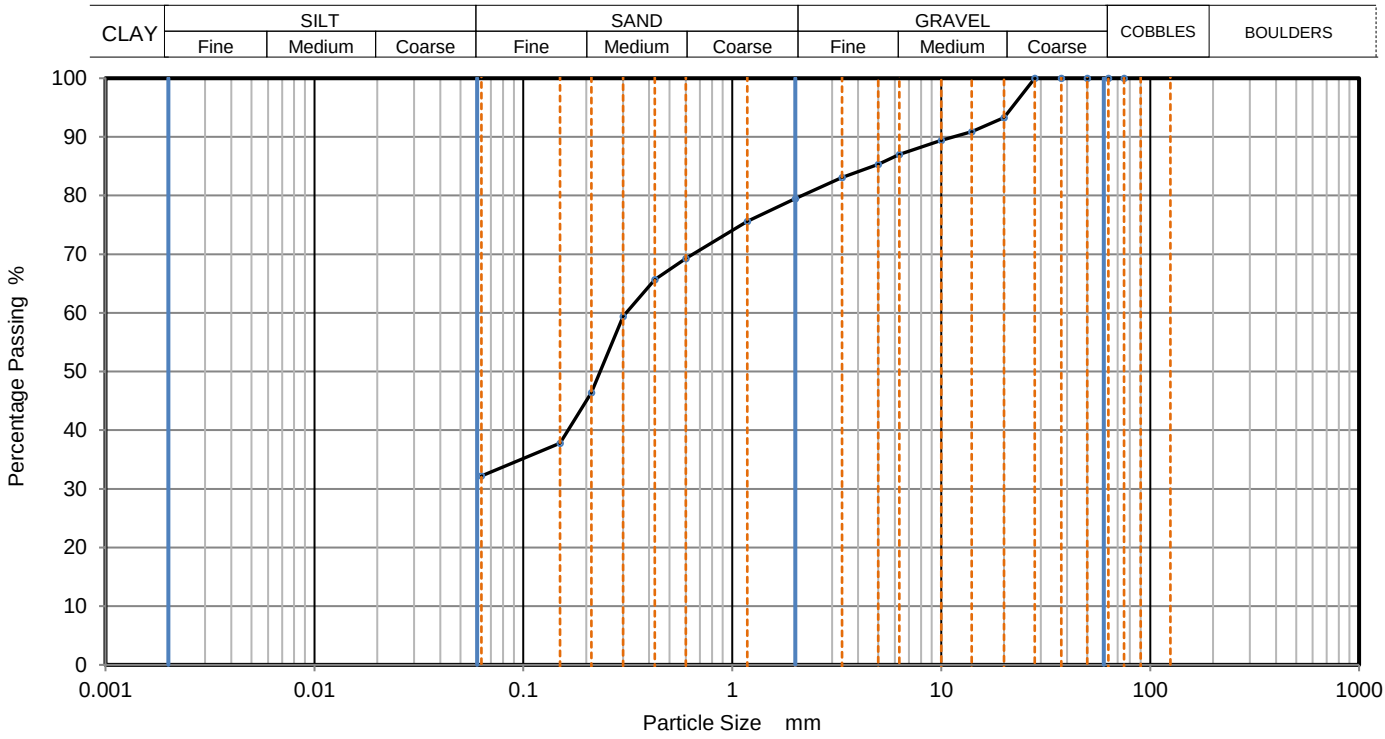
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80903
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Brown very gravelly very silty medium SAND.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012147



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	91		
10	89		
6.3	87		
5	85		
3.35	83		
2	80		
1.18	76		
0.6	69		
0.425	66		
0.3	59		
0.212	46		
0.15	38		
0.063	32		

Dry Mass of sample, g	421

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	47
Fines <0.063mm	32

Grading Analysis		
D100	mm	
D60	mm	0.31
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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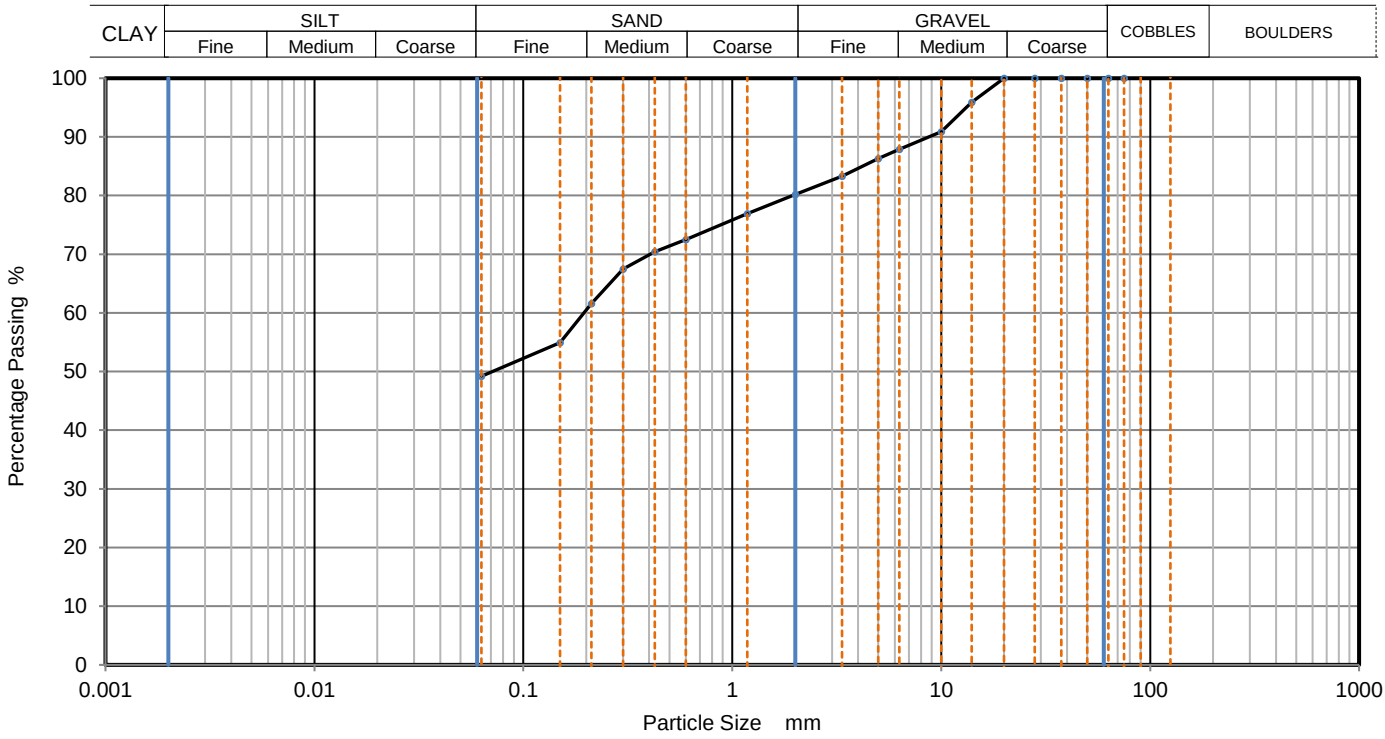
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80903
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012150



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	91		
6.3	88		
5	86		
3.35	83		
2	80		
1.18	77		
0.6	73		
0.425	70		
0.3	68		
0.212	62		
0.15	55		
0.063	49		

Dry Mass of sample, g	695

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	31
Fines <0.063mm	49

Grading Analysis		
D100	mm	
D60	mm	0.195
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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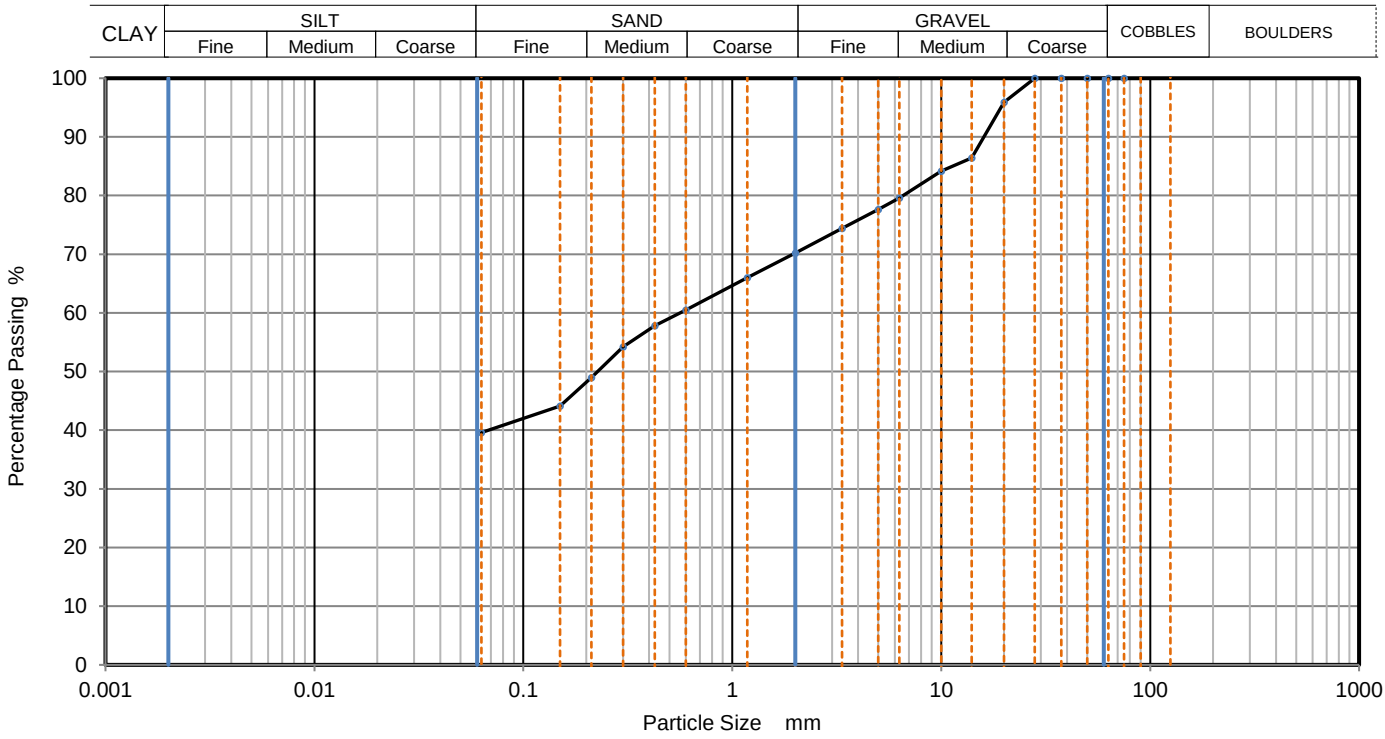
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80972
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012155



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	86		
10	84		
6.3	80		
5	78		
3.35	74		
2	70		
1.18	66		
0.6	61		
0.425	58		
0.3	54		
0.212	49		
0.15	44		
0.063	40		

Dry Mass of sample, g	743

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	31
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.564
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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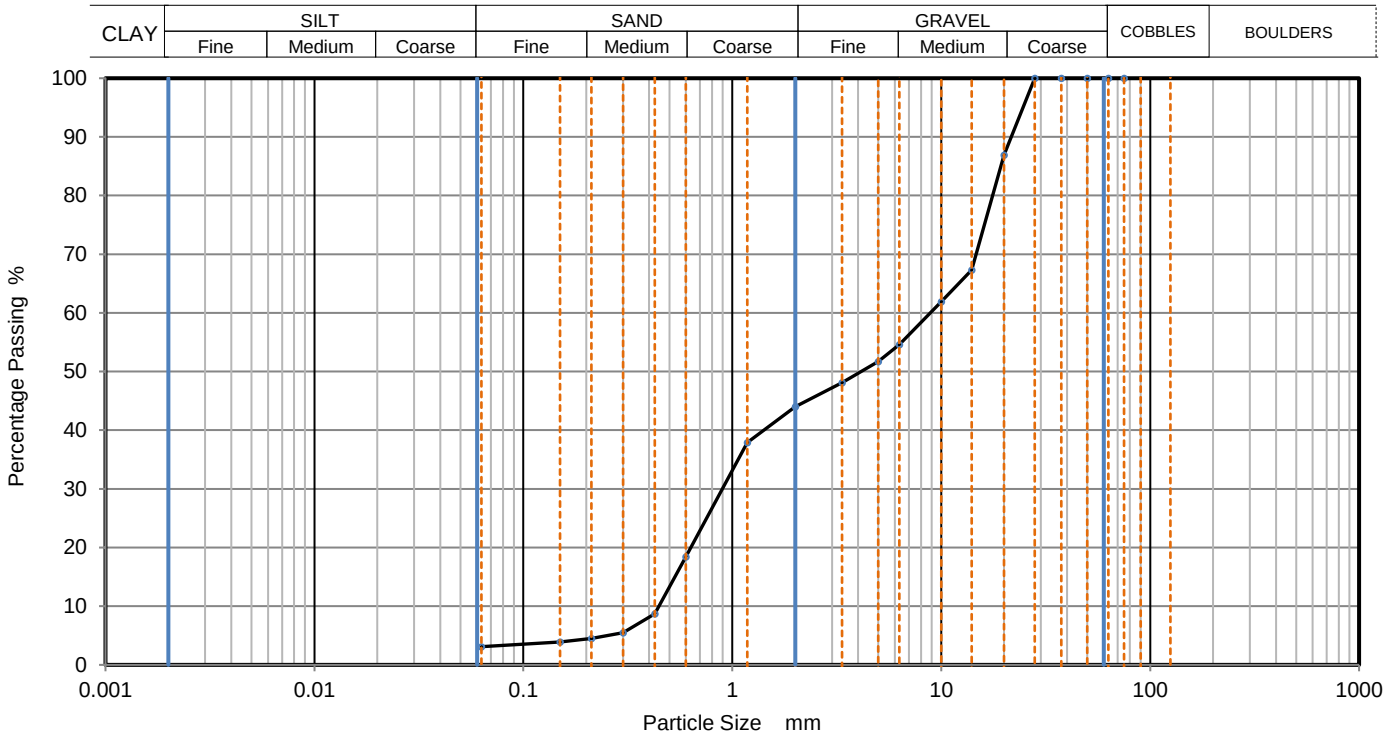
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-80972
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Blusih-grey slightly silty very sandy medium GRAVEL. Sand is coarse.			Depth, m	3.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012159



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	67		
10	62		
6.3	55		
5	52		
3.35	48		
2	44		
1.18	38		
0.6	18		
0.425	9		
0.3	6		
0.212	5		
0.15	4		
0.063	3		

Dry Mass of sample, g	662

Sample Proportions	% dry mass
Very coarse	0
Gravel	56
Sand	41
Fines <0.063mm	3

Grading Analysis		
D100	mm	
D60	mm	8.87
D30	mm	0.897
D10	mm	0.445
Uniformity Coefficient		20
Curvature Coefficient		0.2

Remarks

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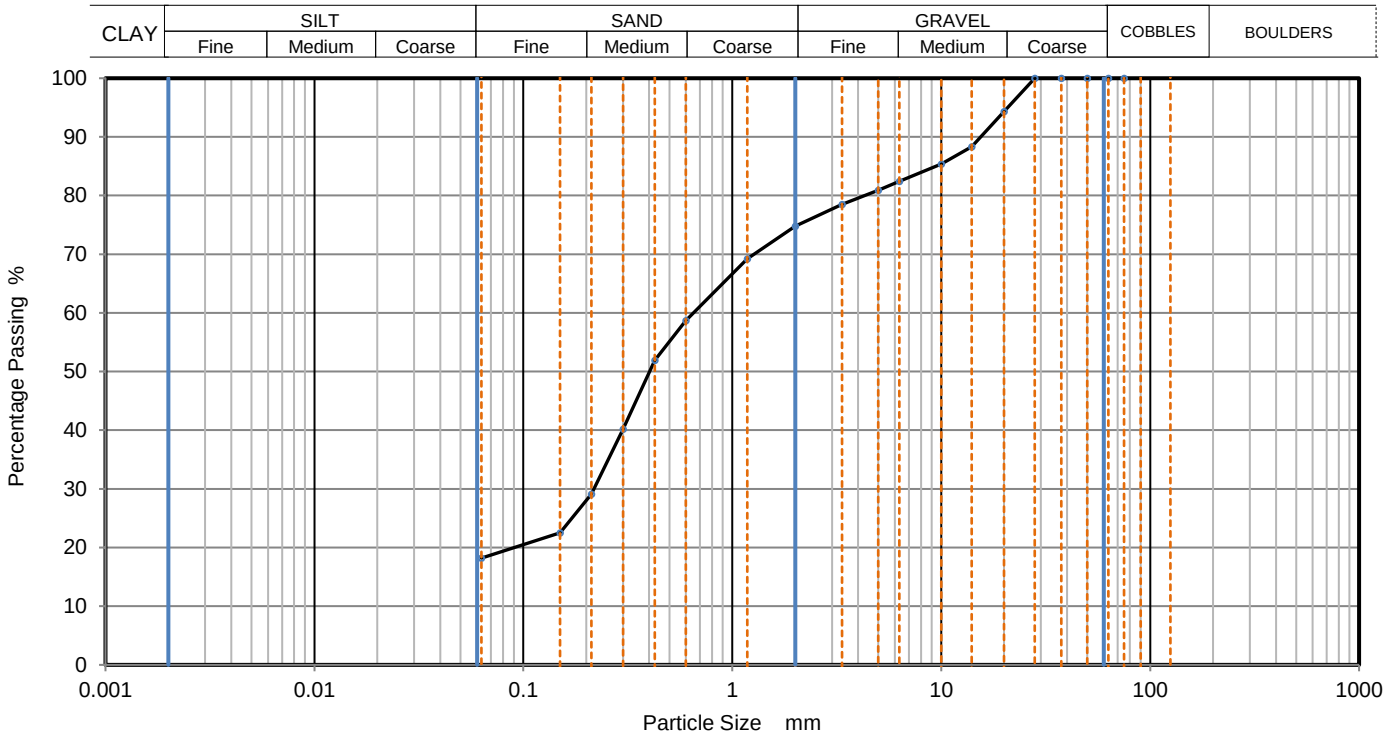
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81064
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Brown silty very gravelly medium SAND.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012161



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	88		
10	85		
6.3	82		
5	81		
3.35	79		
2	75		
1.18	69		
0.6	59		
0.425	52		
0.3	40		
0.212	29		
0.15	23		
0.063	18		

Dry Mass of sample, g	400

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	57
Fines <0.063mm	18

Grading Analysis		
D100	mm	
D60	mm	0.652
D30	mm	0.218
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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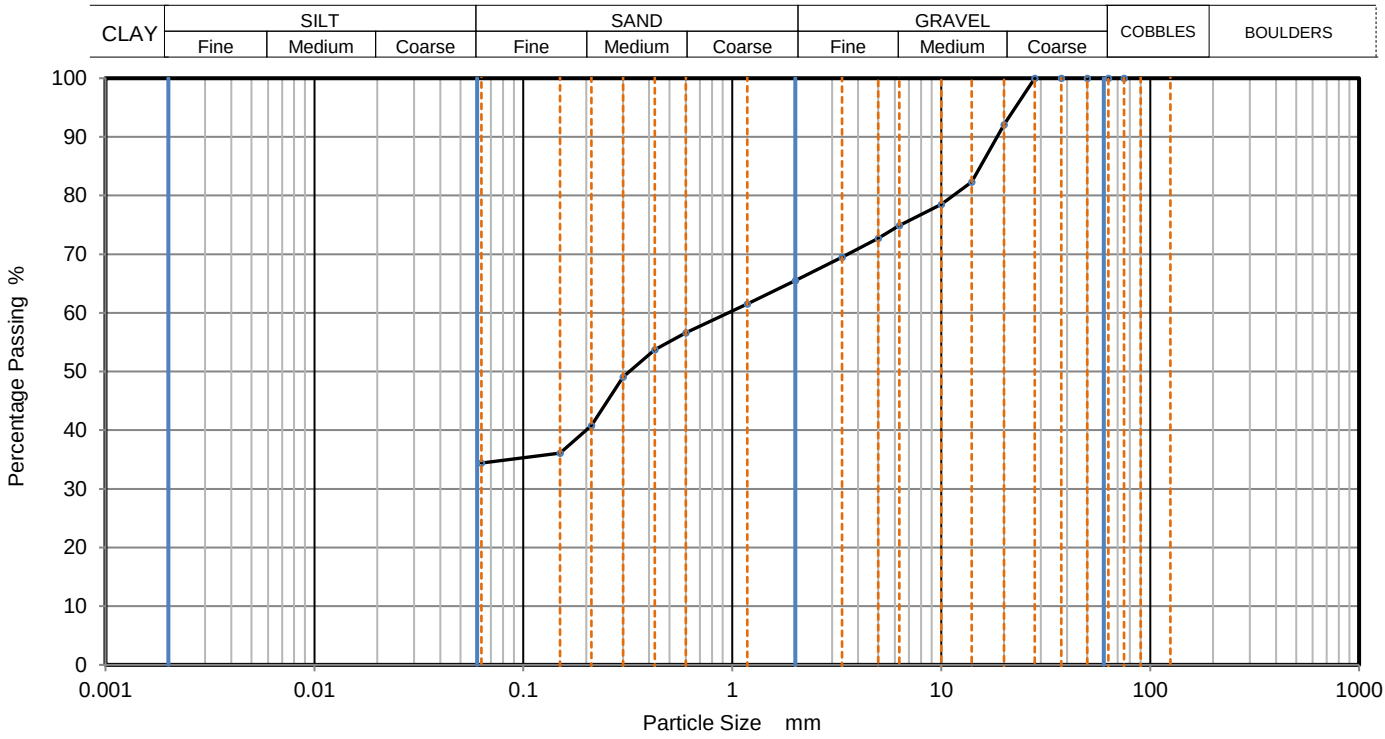
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81202
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012164



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	82		
10	79		
6.3	75		
5	73		
3.35	70		
2	66		
1.18	62		
0.6	57		
0.425	54		
0.3	49		
0.212	41		
0.15	36		
0.063	34		

Dry Mass of sample, g: 880

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	31
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	0.959
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:49	**1** QC From No:R2

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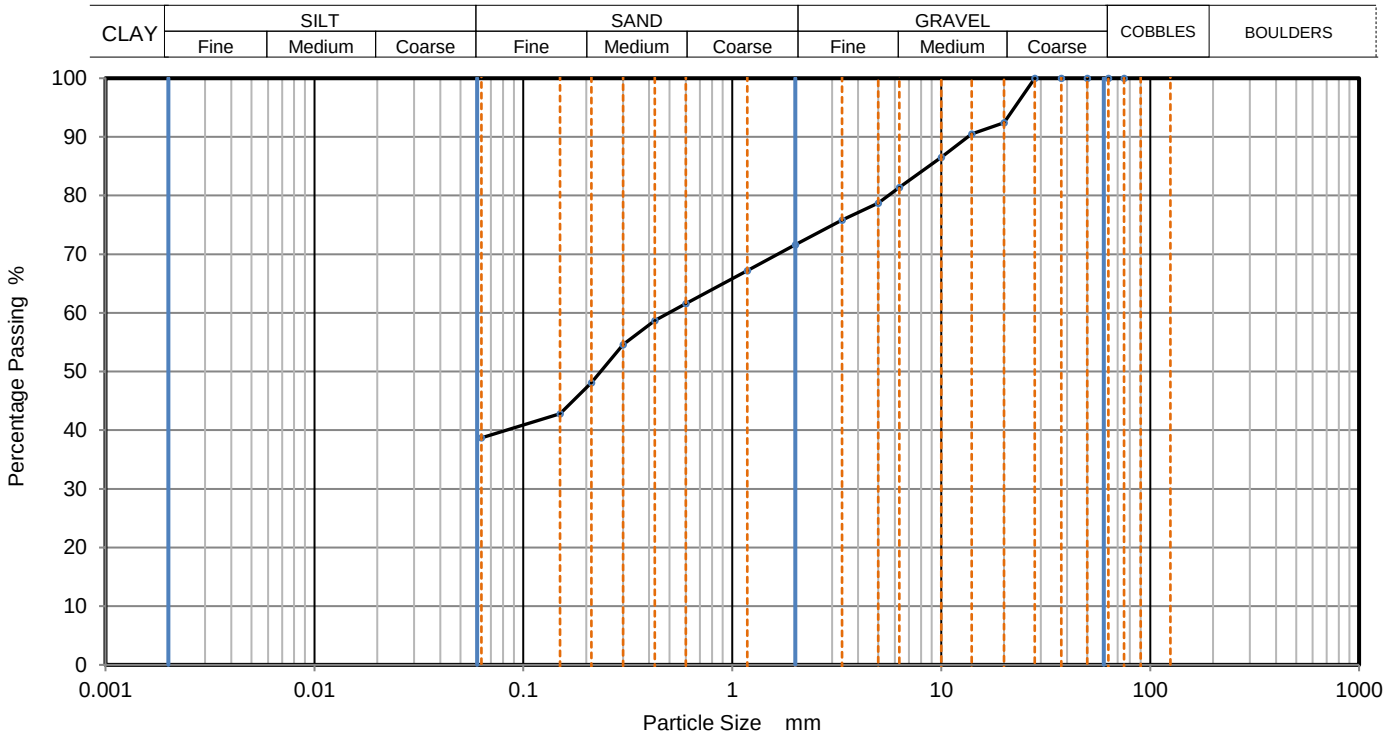
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81202
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012166



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	92		
14	91		
10	87		
6.3	81		
5	79		
3.35	76		
2	72		
1.18	67		
0.6	62		
0.425	59		
0.3	55		
0.212	48		
0.15	43		
0.063	39		

Dry Mass of sample, g	887

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	33
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.497
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:49	**1** QC From No:R2

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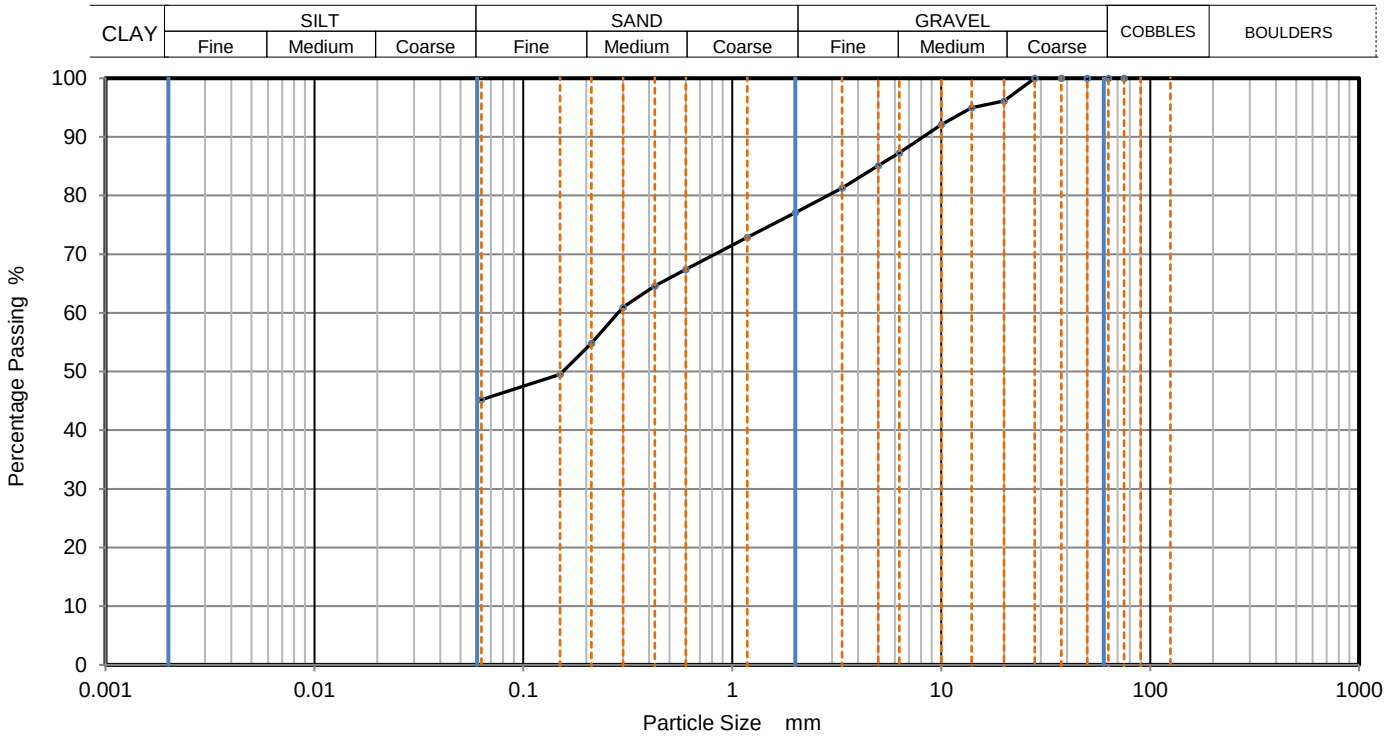
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81300
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012170



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	95		
10	92		
6.3	87		
5	85		
3.35	81		
2	77		
1.18	73		
0.6	67		
0.425	65		
0.3	61		
0.212	55		
0.15	50		
0.063	45		

Dry Mass of sample, g	846

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	32
Fines <0.063mm	45

Grading Analysis		
D100	mm	
D60	mm	0.284
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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		Dympna Darcy B.Sc.	25/11/2022 14:49	1
				QC From No:R2

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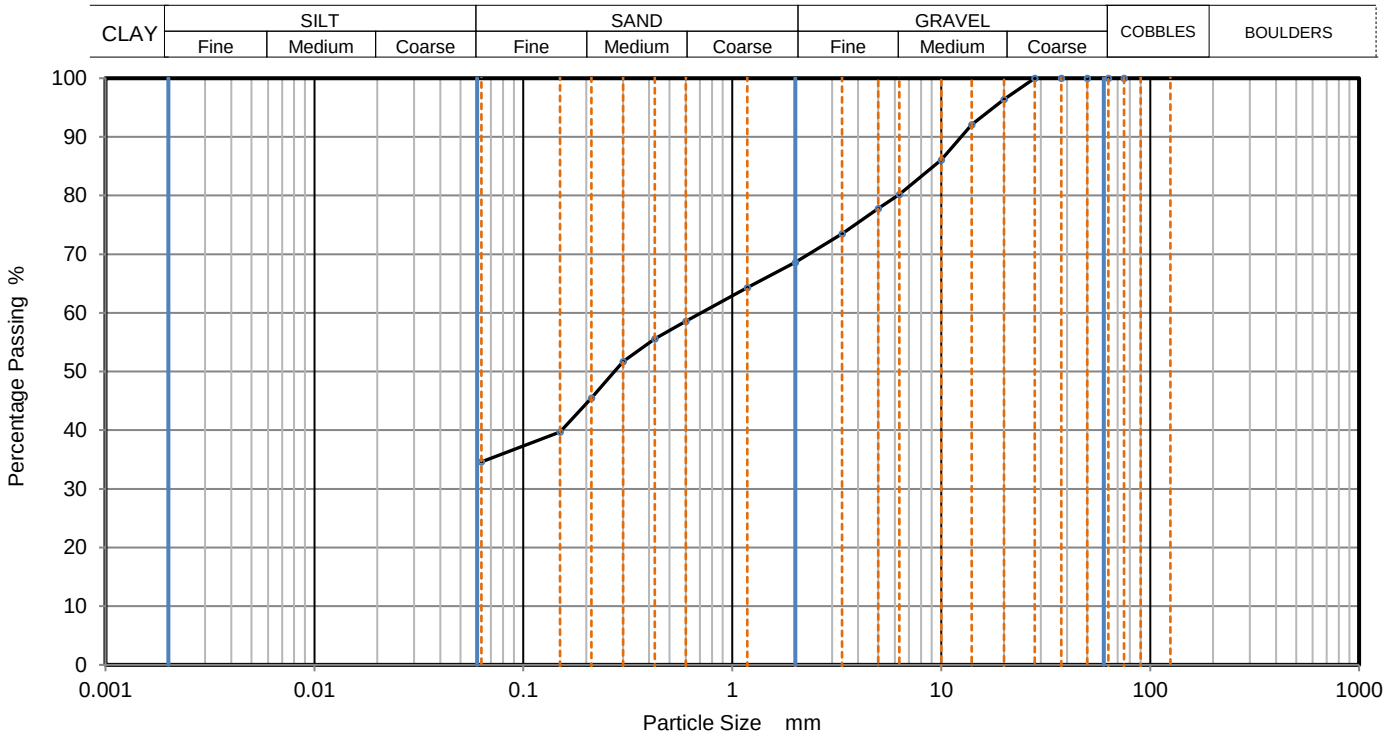
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81404
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slighlty gravelly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012174



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	92		
10	86		
6.3	80		
5	78		
3.35	74		
2	69		
1.18	64		
0.6	59		
0.425	56		
0.3	52		
0.212	46		
0.15	40		
0.063	35		

Dry Mass of sample, g	827

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	34
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	0.709
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:49	**1**
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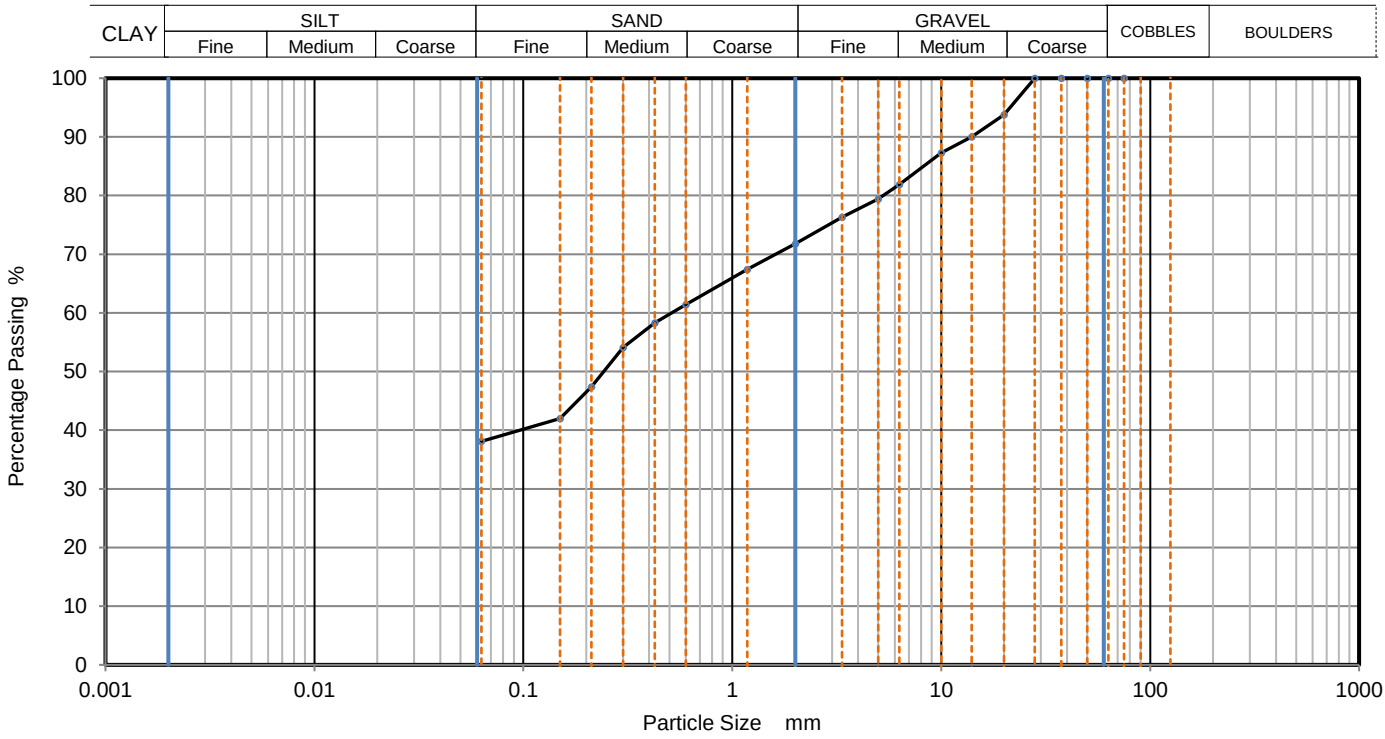
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81501
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012178



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	90		
10	87		
6.3	82		
5	79		
3.35	76		
2	72		
1.18	67		
0.6	61		
0.425	58		
0.3	54		
0.212	47		
0.15	42		
0.063	38		

Dry Mass of sample, g	969

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	34
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.512
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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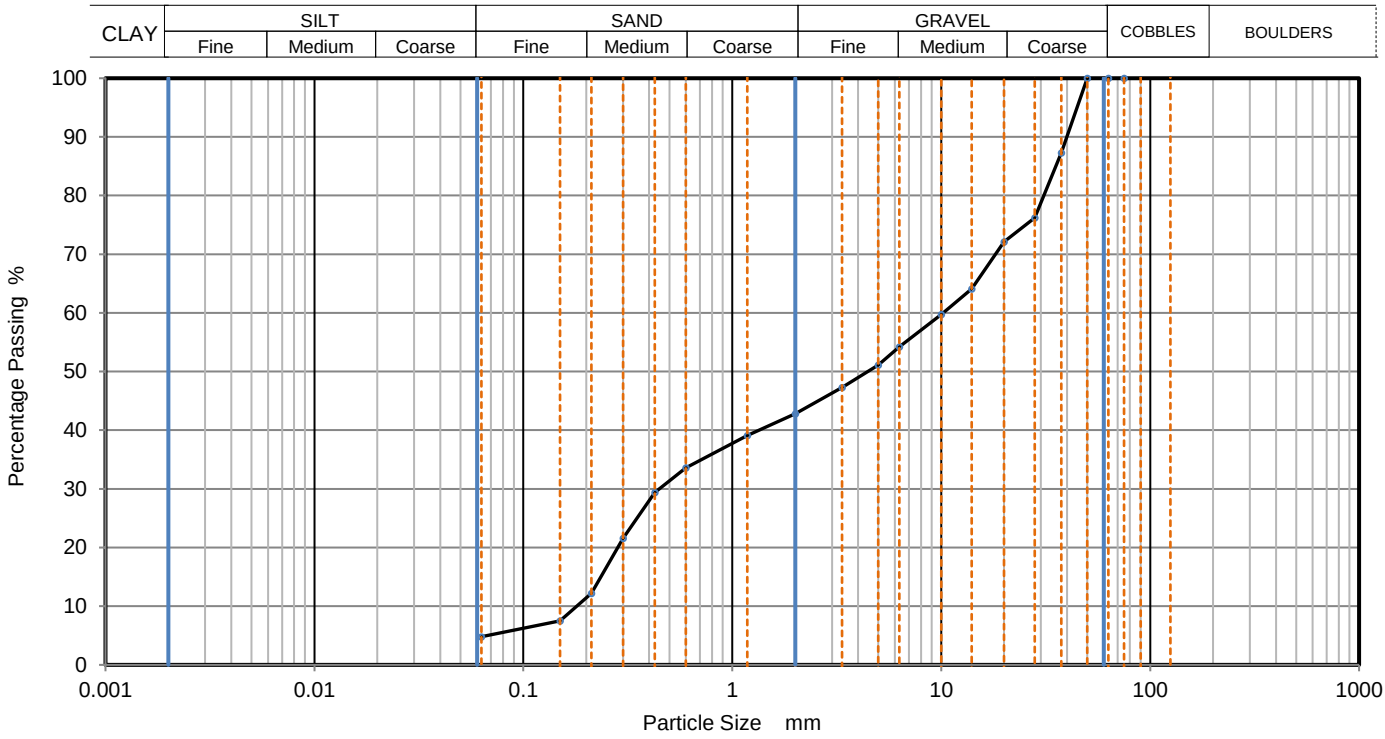
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81601
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Greyish-brown silty very sandy coare GRAVEL. Sand is medium.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012181



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	87		
28	76		
20	72		
14	64		
10	60		
6.3	54		
5	51		
3.35	47		
2	43		
1.18	39		
0.6	34		
0.425	29		
0.3	22		
0.212	12		
0.15	8		
0.063	5		

Dry Mass of sample, g	809

Sample Proportions	% dry mass
Very coarse	0
Gravel	57
Sand	38
Fines <0.063mm	5

Grading Analysis		
D100	mm	
D60	mm	10.2
D30	mm	0.446
D10	mm	0.18
Uniformity Coefficient		57
Curvature Coefficient		0.11

Remarks

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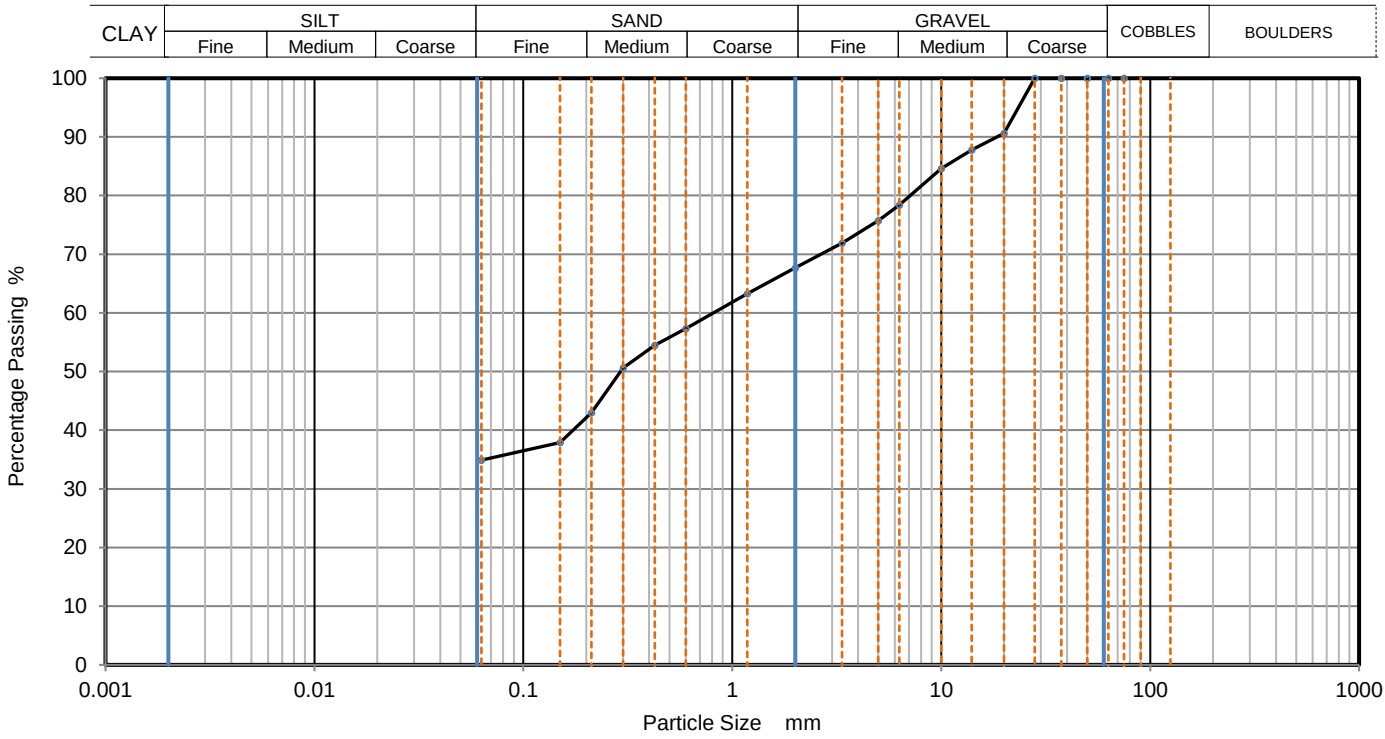
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81601
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Greyish-brown slightly gravelly slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012182



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	88		
10	85		
6.3	78		
5	76		
3.35	72		
2	68		
1.18	63		
0.6	57		
0.425	55		
0.3	51		
0.212	43		
0.15	38		
0.063	35		

Dry Mass of sample, g	975

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	33
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	0.814
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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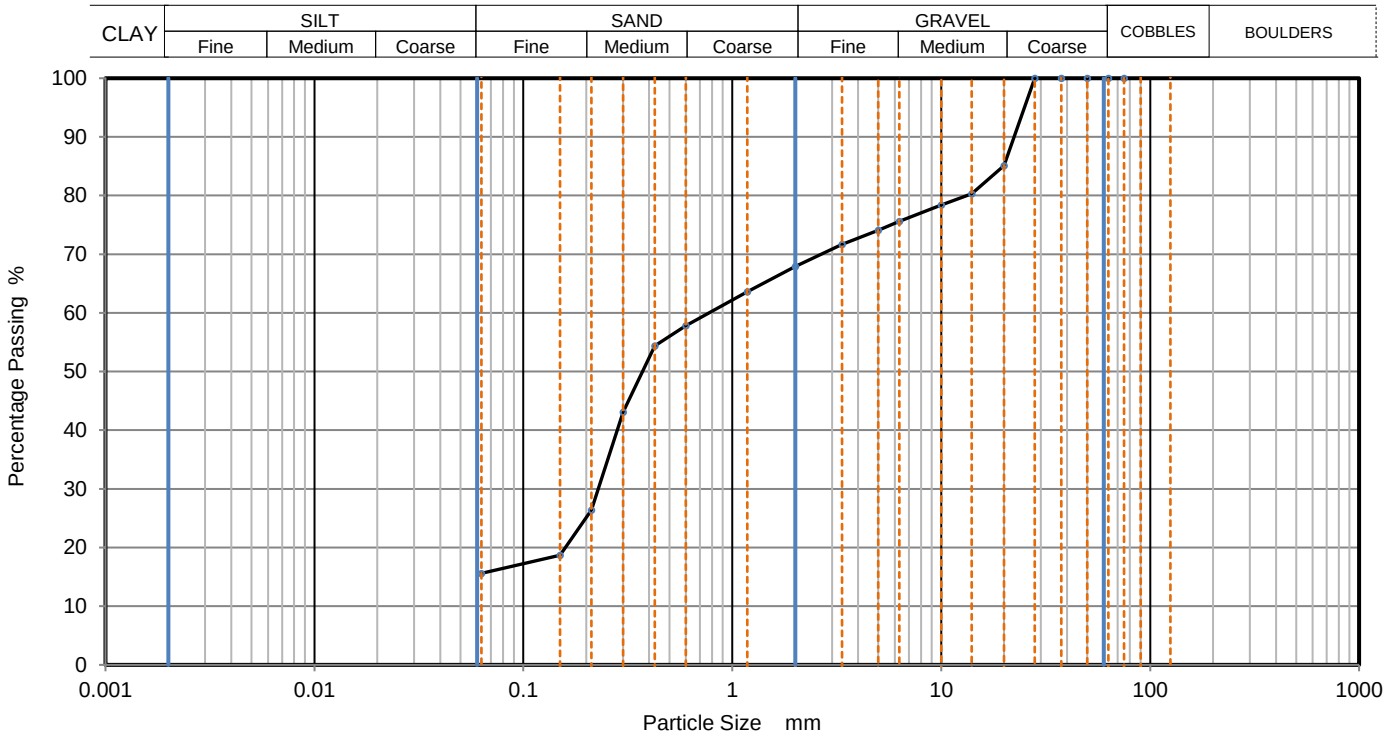
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81601
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark grey silty very gravelly medium SAND.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012184



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	85		
14	80		
10	78		
6.3	76		
5	74		
3.35	72		
2	68		
1.18	64		
0.6	58		
0.425	54		
0.3	43		
0.212	26		
0.15	19		
0.063	16		

Dry Mass of sample, g	682

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	52
Fines <0.063mm	16

Grading Analysis		
D100	mm	
D60	mm	0.78
D30	mm	0.228
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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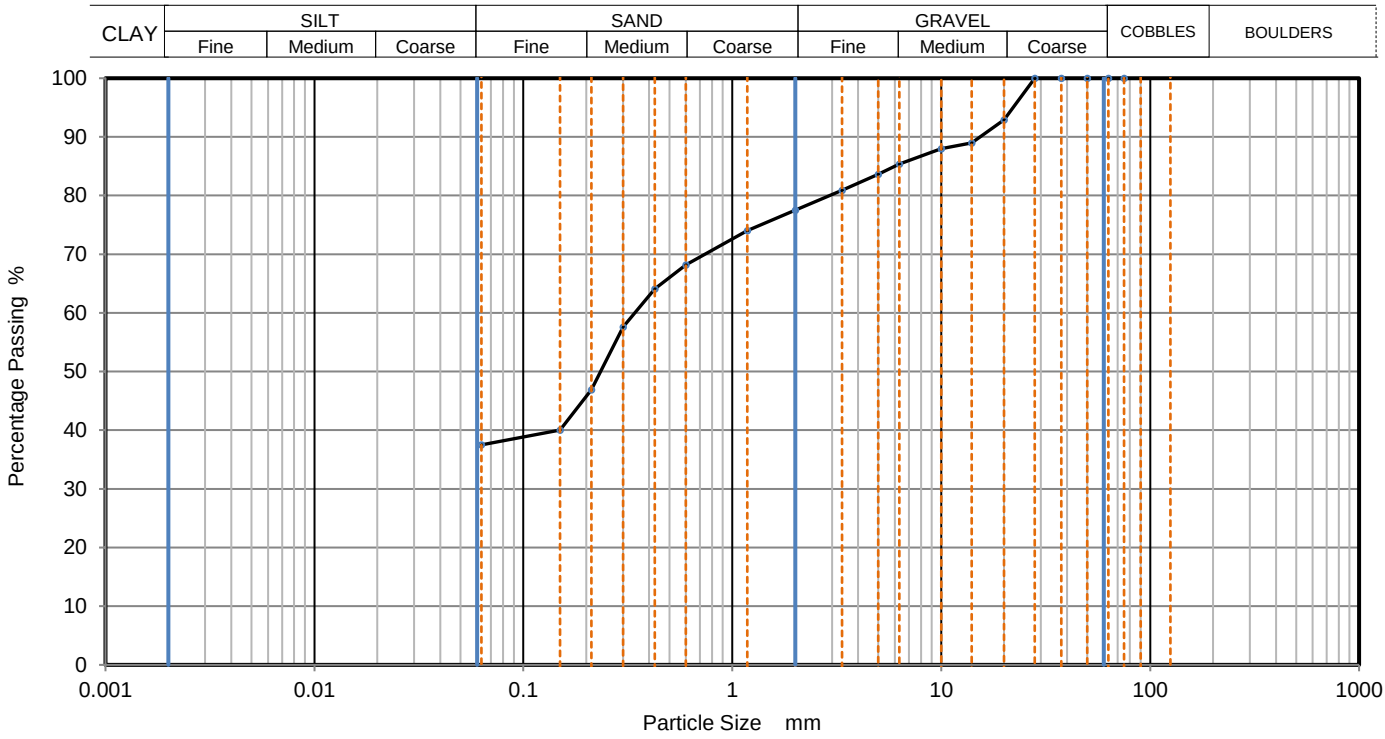
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81702
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slighlty gravelly sandy SILT. Sand is medium.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012185



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	89		
10	88		
6.3	85		
5	84		
3.35	81		
2	78		
1.18	74		
0.6	68		
0.425	64		
0.3	58		
0.212	47		
0.15	40		
0.063	38		

Dry Mass of sample, g	654

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	40
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	0.341
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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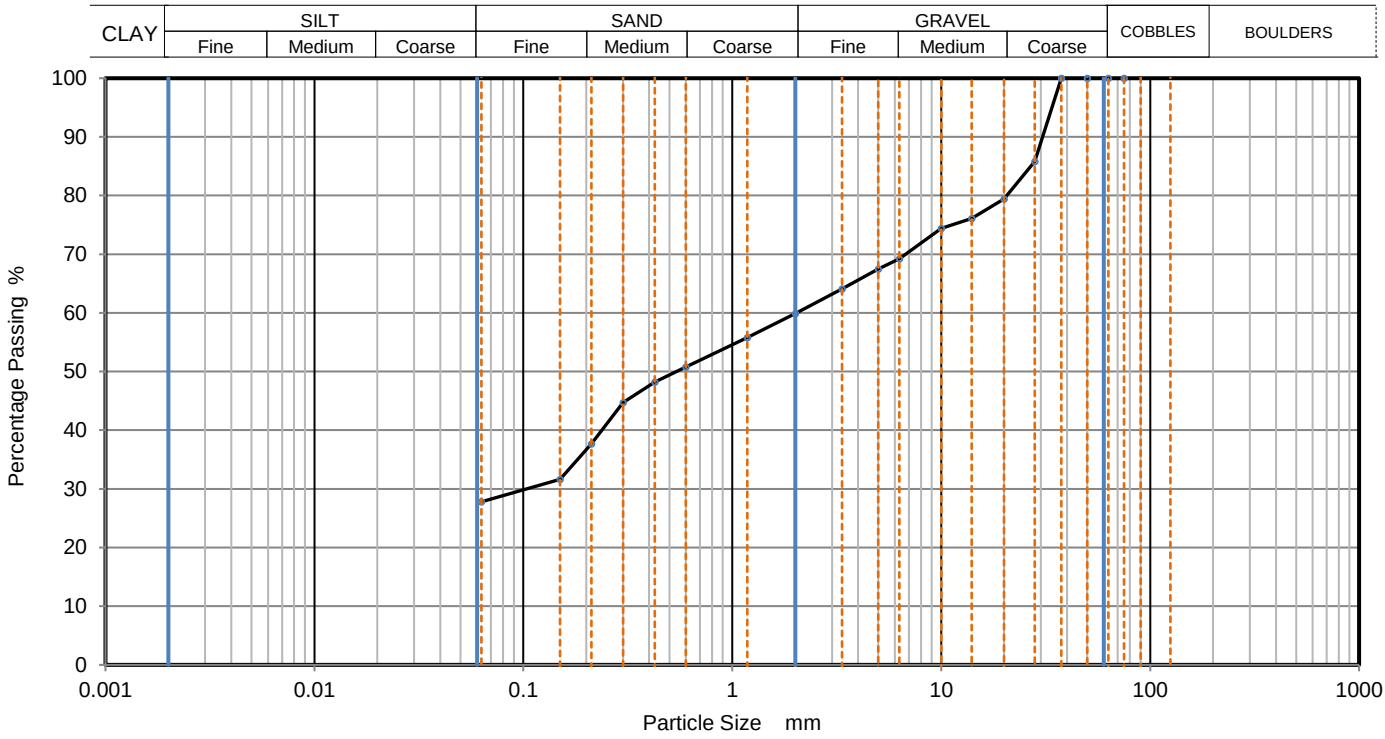
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81702
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Greyish-brown very silty very sandy coarse GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012187



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	86		
20	79		
14	76		
10	74		
6.3	69		
5	68		
3.35	64		
2	60		
1.18	56		
0.6	51		
0.425	48		
0.3	45		
0.212	38		
0.15	32		
0.063	28		

Dry Mass of sample, g	764

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	32
Fines <0.063mm	28

Grading Analysis		
D100	mm	
D60	mm	2.02
D30	mm	0.103
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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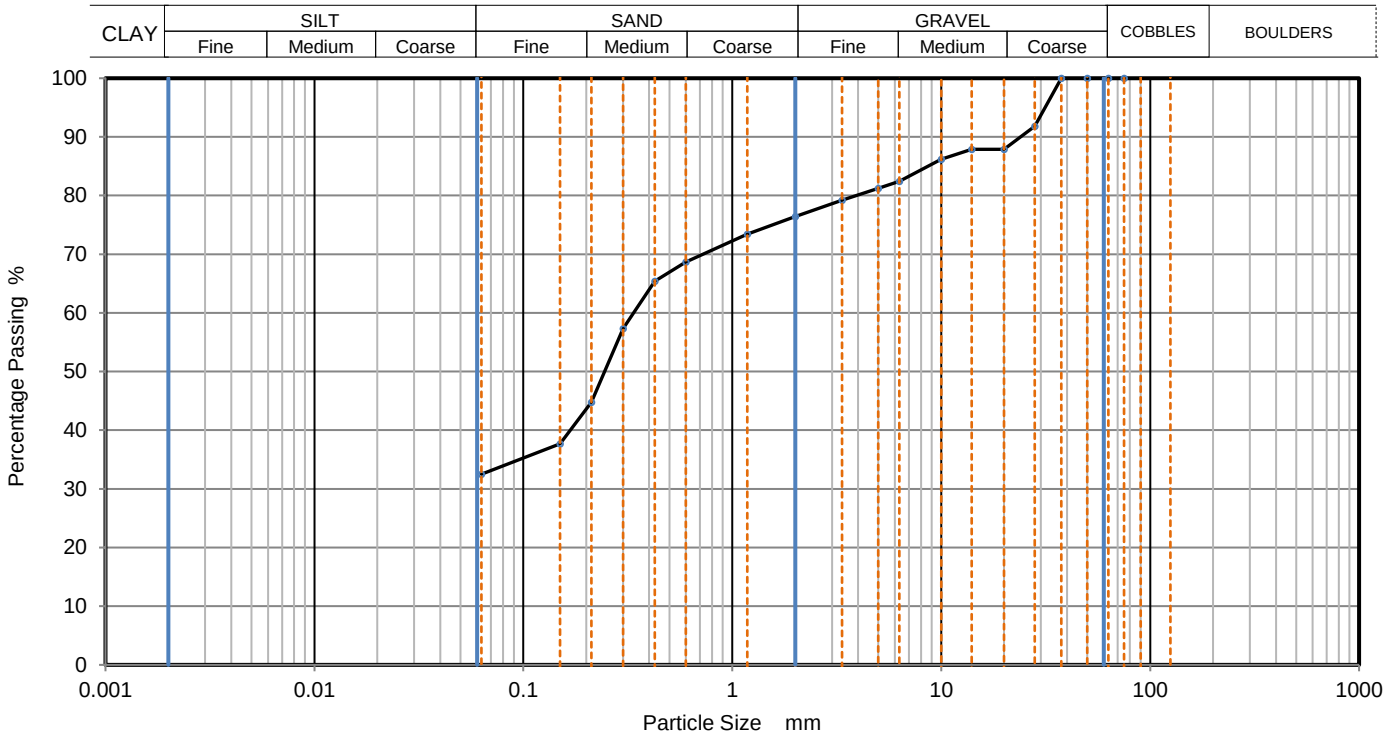
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81802
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown very gravelly very silty medium SAND.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012191



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	88		
14	88		
10	86		
6.3	82		
5	81		
3.35	79		
2	76		
1.18	73		
0.6	69		
0.425	65		
0.3	57		
0.212	45		
0.15	38		
0.063	33		

Dry Mass of sample, g	595

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	44
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	0.337
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:49	**1** QC From No:R2

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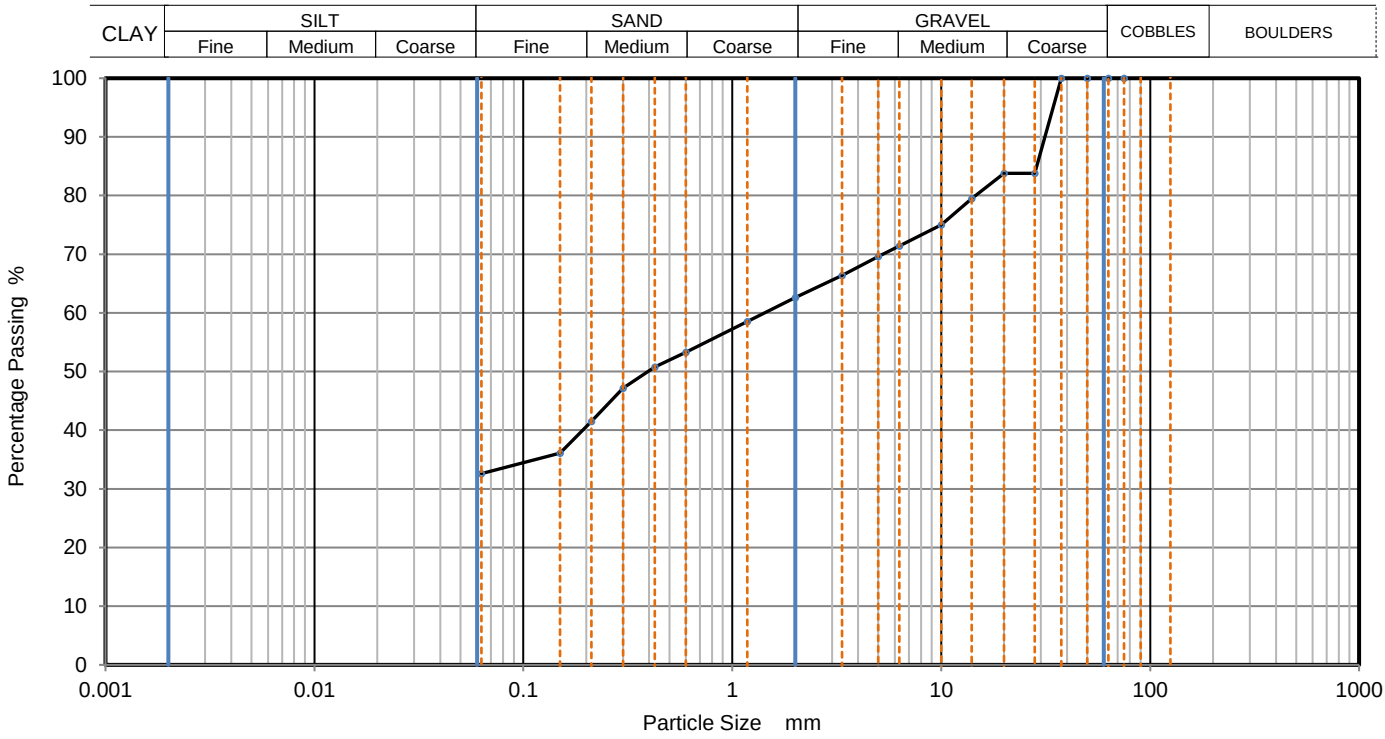
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81802
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012193



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	84		
20	84		
14	80		
10	75		
6.3	71		
5	70		
3.35	66		
2	63		
1.18	59		
0.6	53		
0.425	51		
0.3	47		
0.212	42		
0.15	36		
0.063	33		

Dry Mass of sample, g	866

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	30
Fines <0.063mm	33

Grading Analysis		
D100	mm	
D60	mm	1.43
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

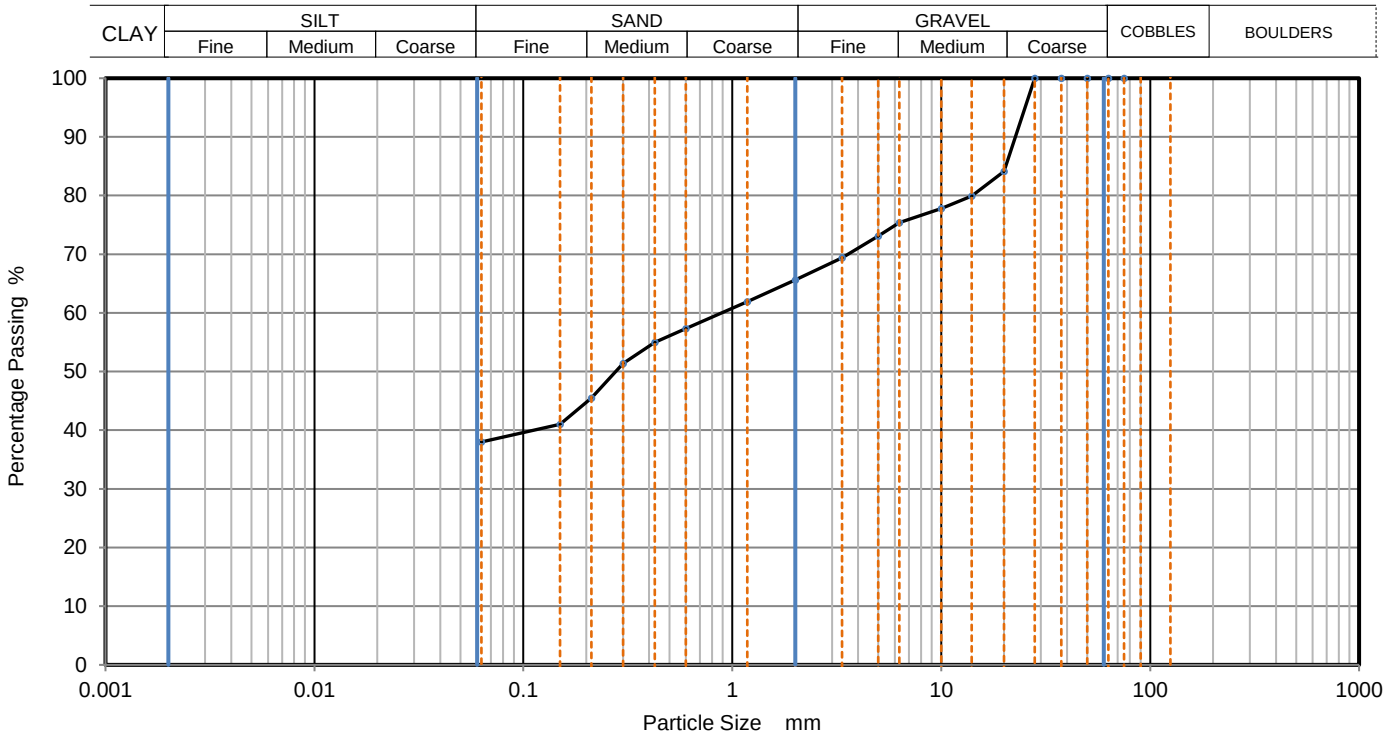
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:49	**1**
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81802
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brownish-grey slighlty sandy gravelly SILT.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012195



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	84		
14	80		
10	78		
6.3	75		
5	73		
3.35	69		
2	66		
1.18	62		
0.6	57		
0.425	55		
0.3	51		
0.212	46		
0.15	41		
0.063	38		

Dry Mass of sample, g	978

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	28
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.89
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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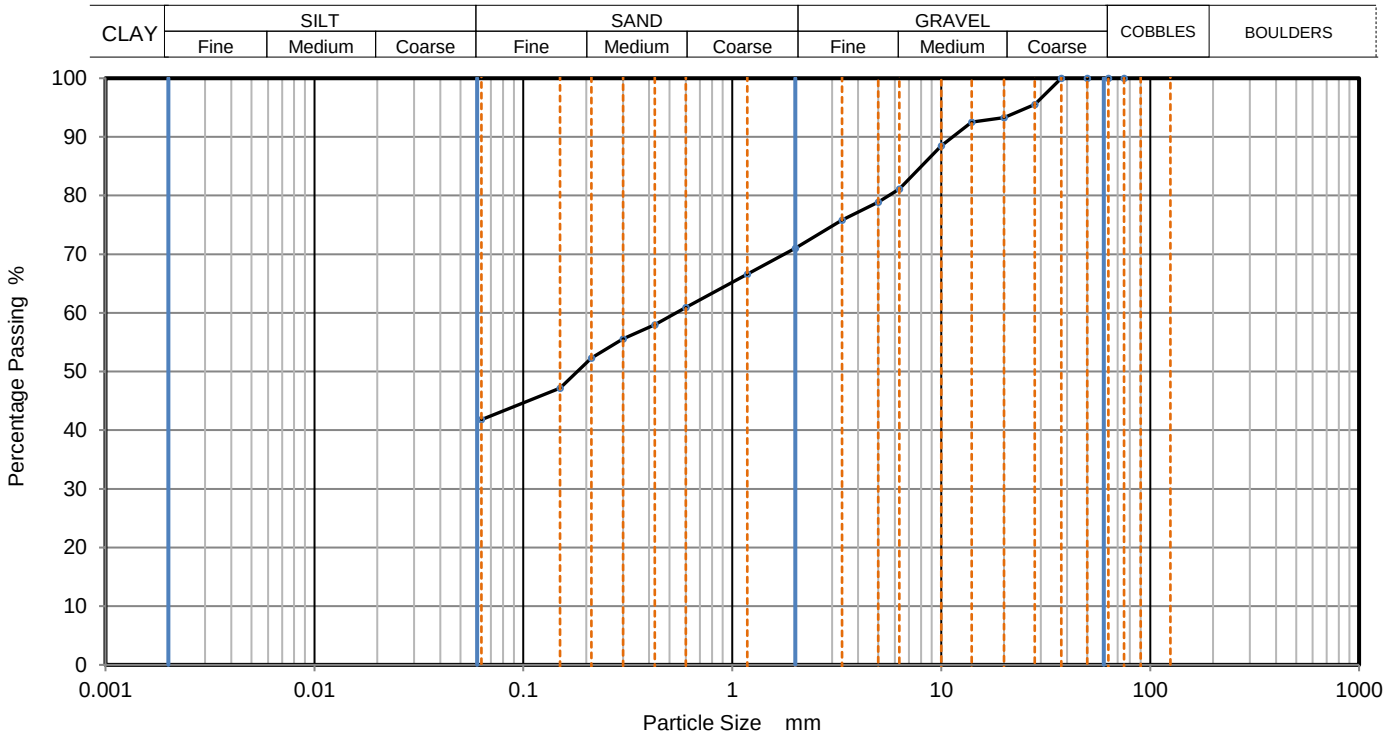
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81902
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201270



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	93		
14	93		
10	89		
6.3	81		
5	79		
3.35	76		
2	71		
1.18	67		
0.6	61		
0.425	58		
0.3	56		
0.212	52		
0.15	47		
0.063	42		

Dry Mass of sample, g	988

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	29
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.538
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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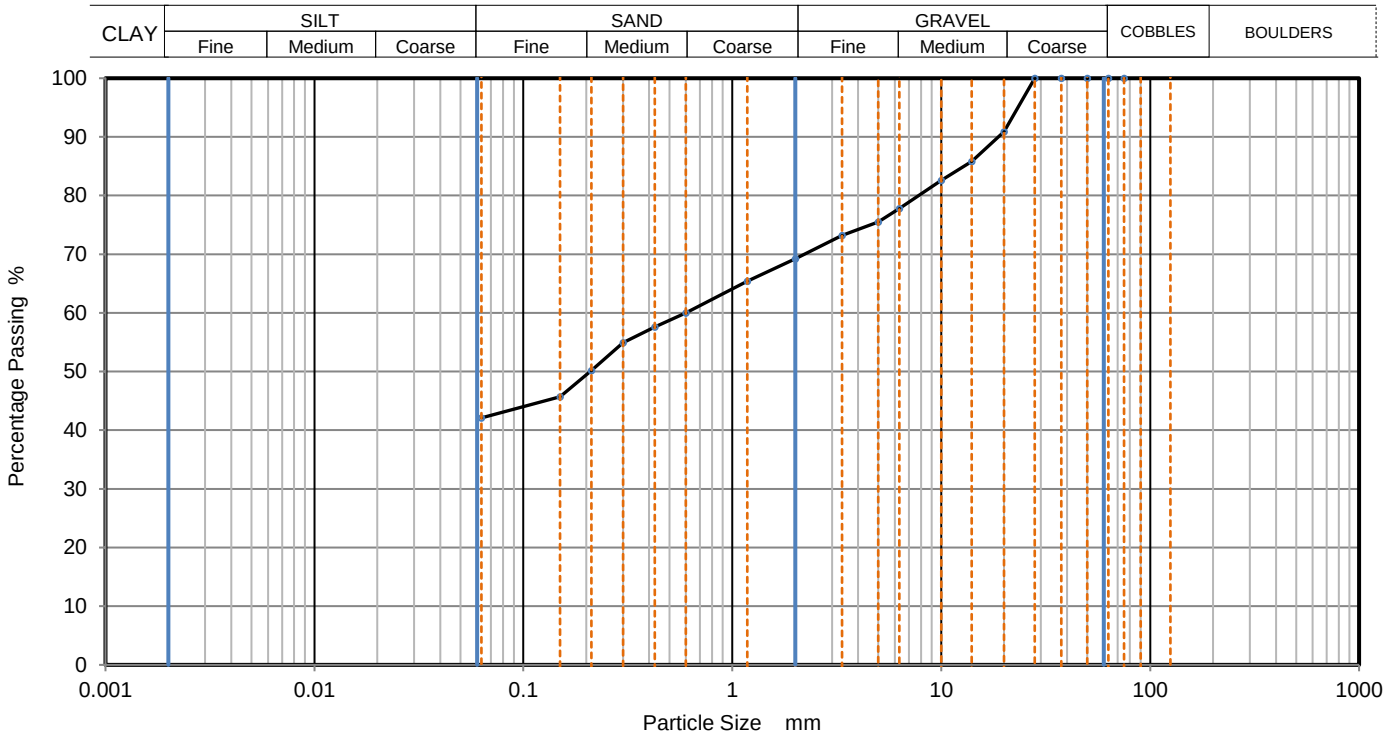
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81902
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201273



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	86		
10	83		
6.3	78		
5	76		
3.35	73		
2	69		
1.18	65		
0.6	60		
0.425	58		
0.3	55		
0.212	50		
0.15	46		
0.063	42		

Dry Mass of sample, g	751

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	27
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.598
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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		Dympna Darcy B.Sc.	25/11/2022 14:49	**1**
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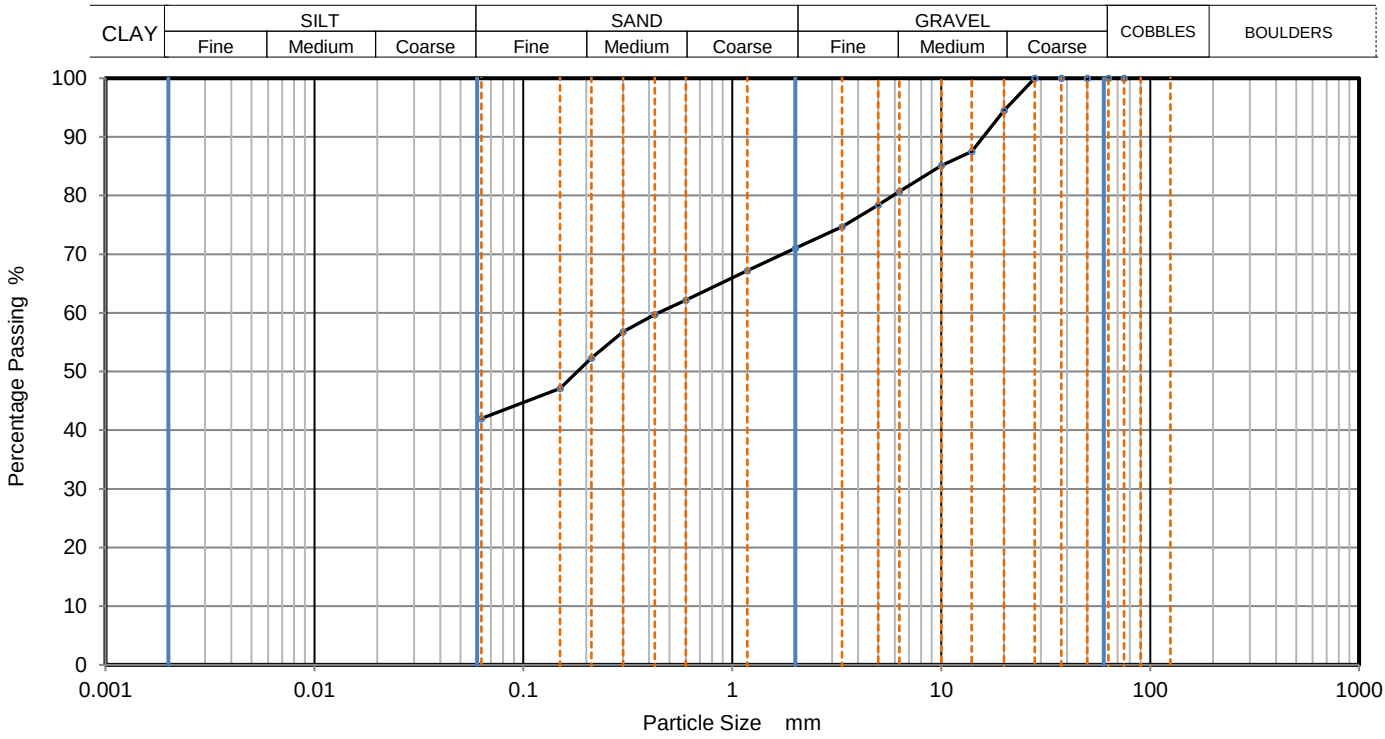
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-81902
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	3.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201275



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	88		
10	85		
6.3	81		
5	78		
3.35	75		
2	71		
1.18	67		
0.6	62		
0.425	60		
0.3	57		
0.212	52		
0.15	47		
0.063	42		

Dry Mass of sample, g	809

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	29
Fines <0.063mm	42

Grading Analysis		
D100	mm	
D60	mm	0.444
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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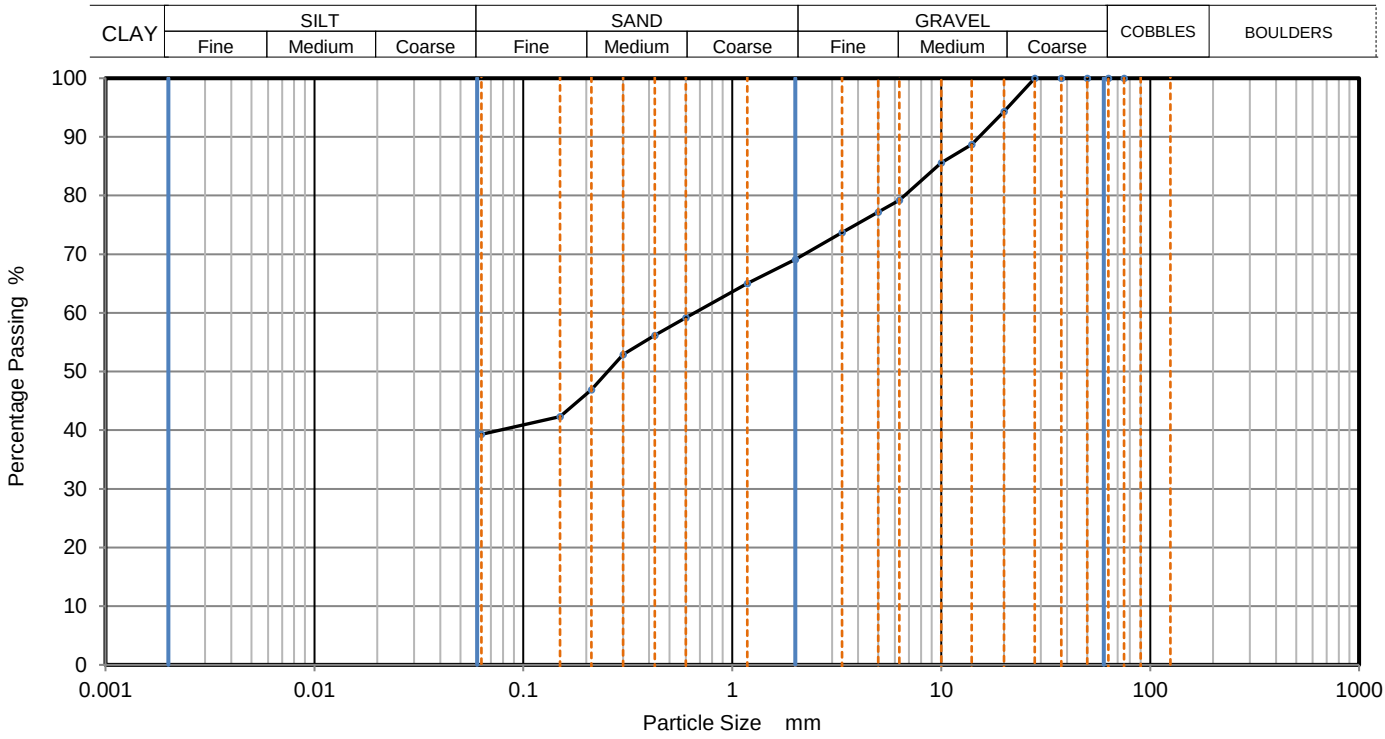
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82001
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202201278



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	89		
10	86		
6.3	79		
5	77		
3.35	74		
2	69		
1.18	65		
0.6	59		
0.425	56		
0.3	53		
0.212	47		
0.15	42		
0.063	39		

Dry Mass of sample, g	872

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	30
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.661
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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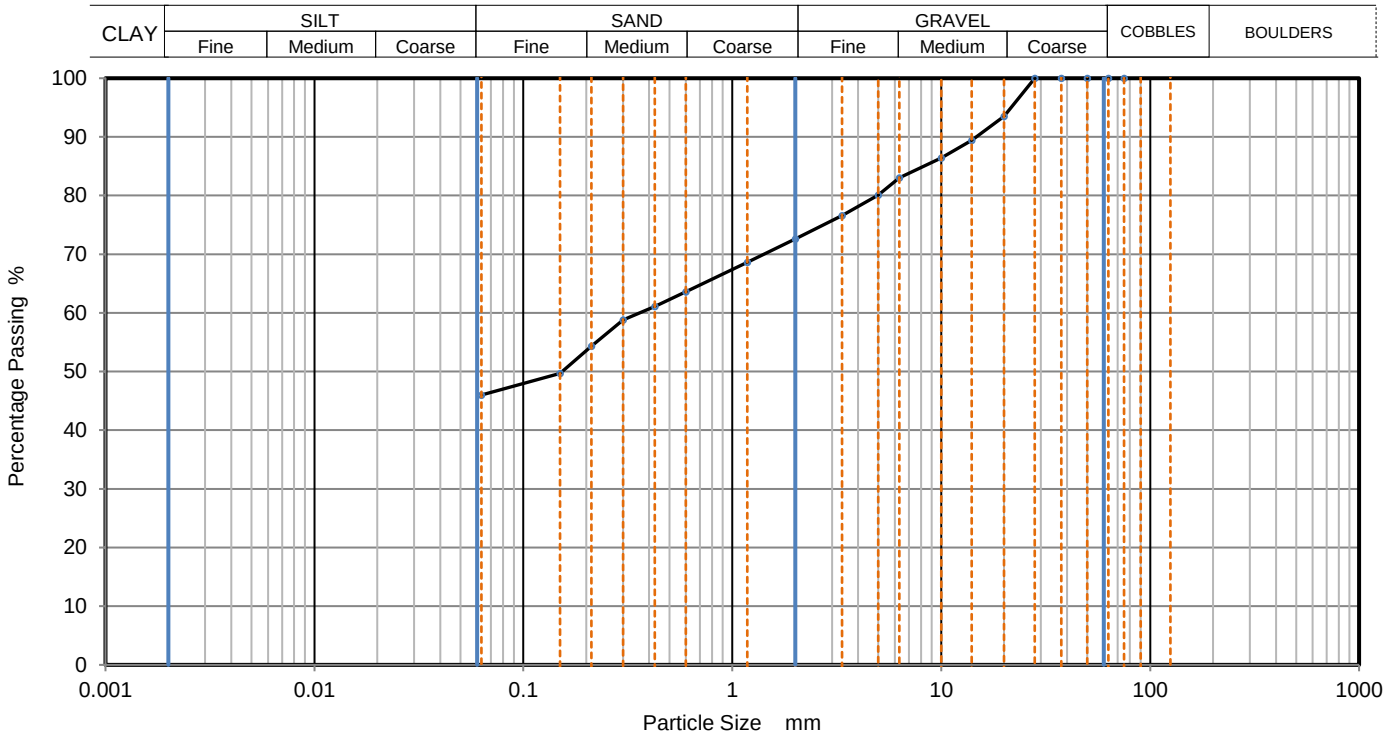
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82001
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	2.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012710



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	89		
10	86		
6.3	83		
5	80		
3.35	77		
2	73		
1.18	69		
0.6	64		
0.425	61		
0.3	59		
0.212	54		
0.15	50		
0.063	46		

Dry Mass of sample, g	907

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	27
Fines <0.063mm	46

Grading Analysis		
D100	mm	
D60	mm	0.36
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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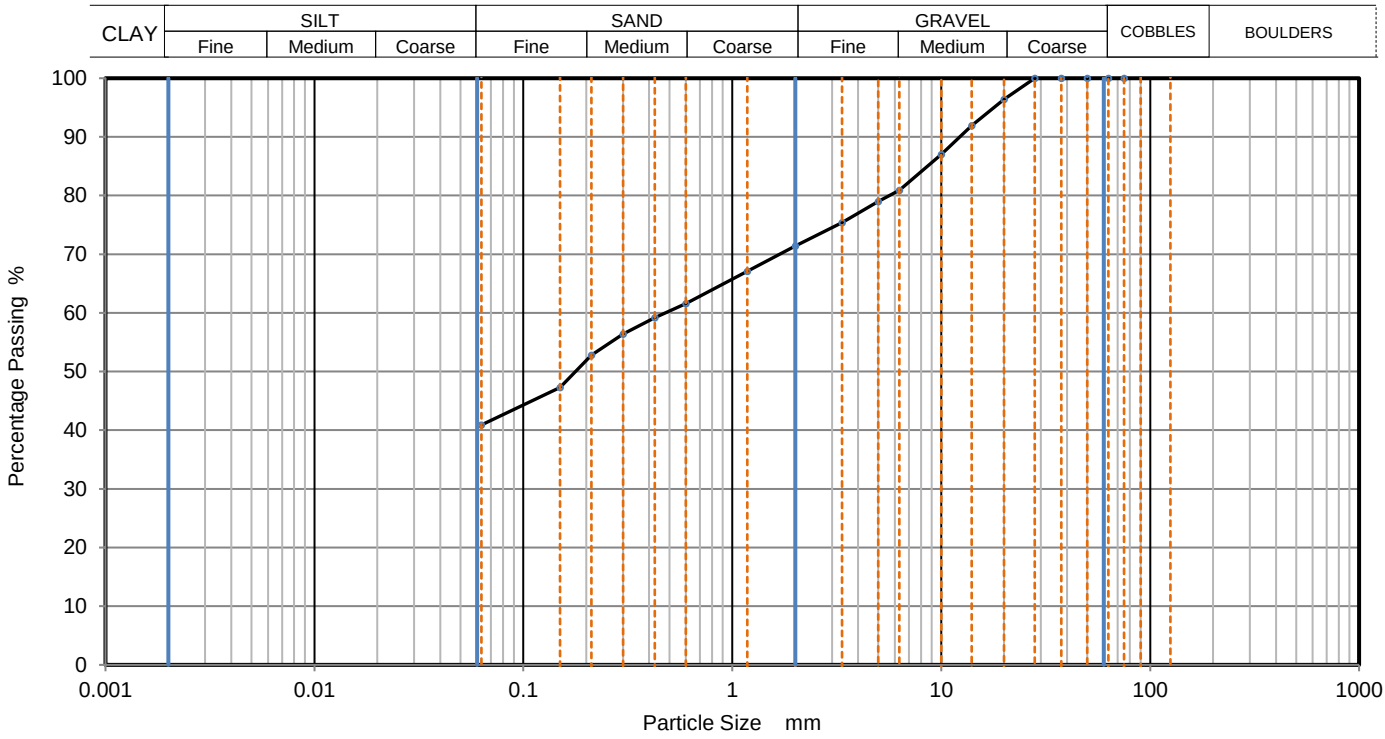
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82102
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012712



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	96		
14	92		
10	87		
6.3	81		
5	79		
3.35	75		
2	71		
1.18	67		
0.6	62		
0.425	59		
0.3	56		
0.212	53		
0.15	47		
0.063	41		

Dry Mass of sample, g	905

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	31
Fines <0.063mm	41

Grading Analysis		
D100	mm	
D60	mm	0.478
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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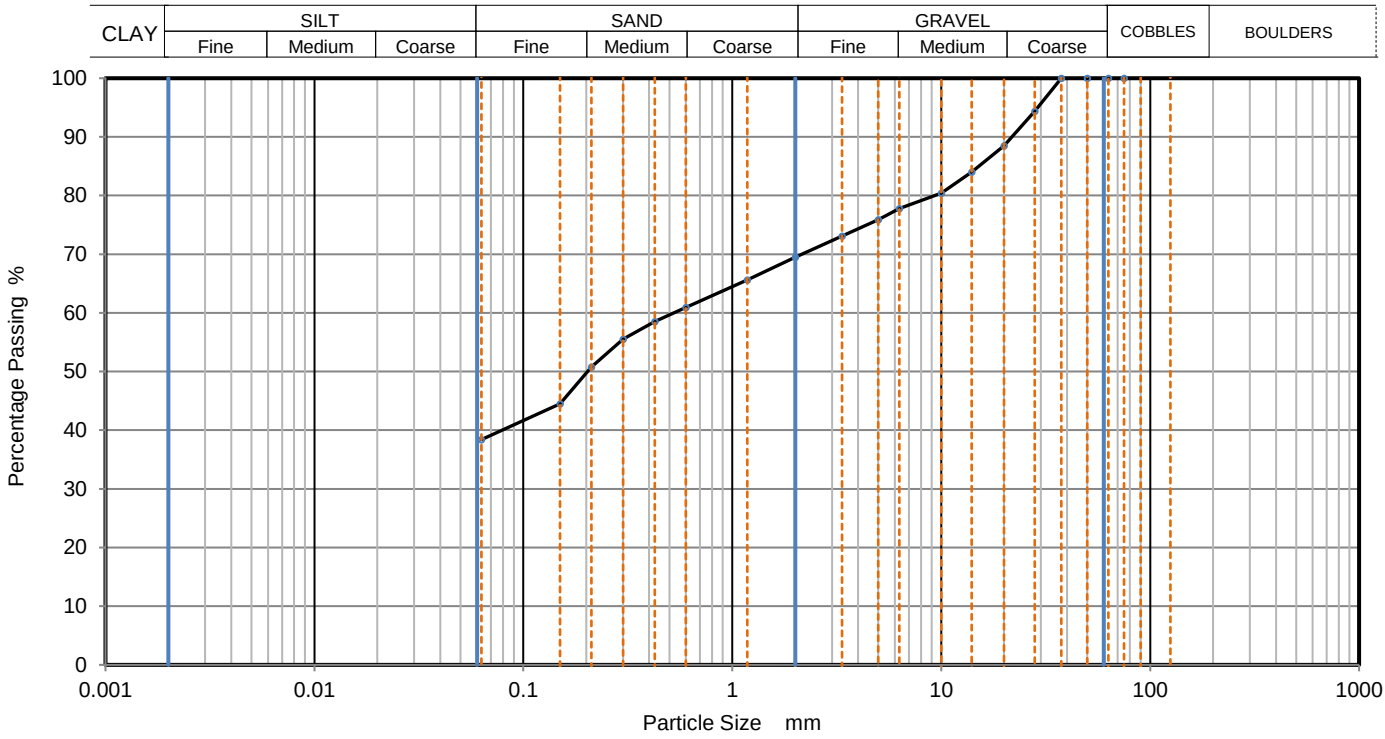
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82102
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012715



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	89		
14	84		
10	80		
6.3	78		
5	76		
3.35	73		
2	70		
1.18	66		
0.6	61		
0.425	59		
0.3	56		
0.212	51		
0.15	45		
0.063	38		

Dry Mass of sample, g	962

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	31
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.526
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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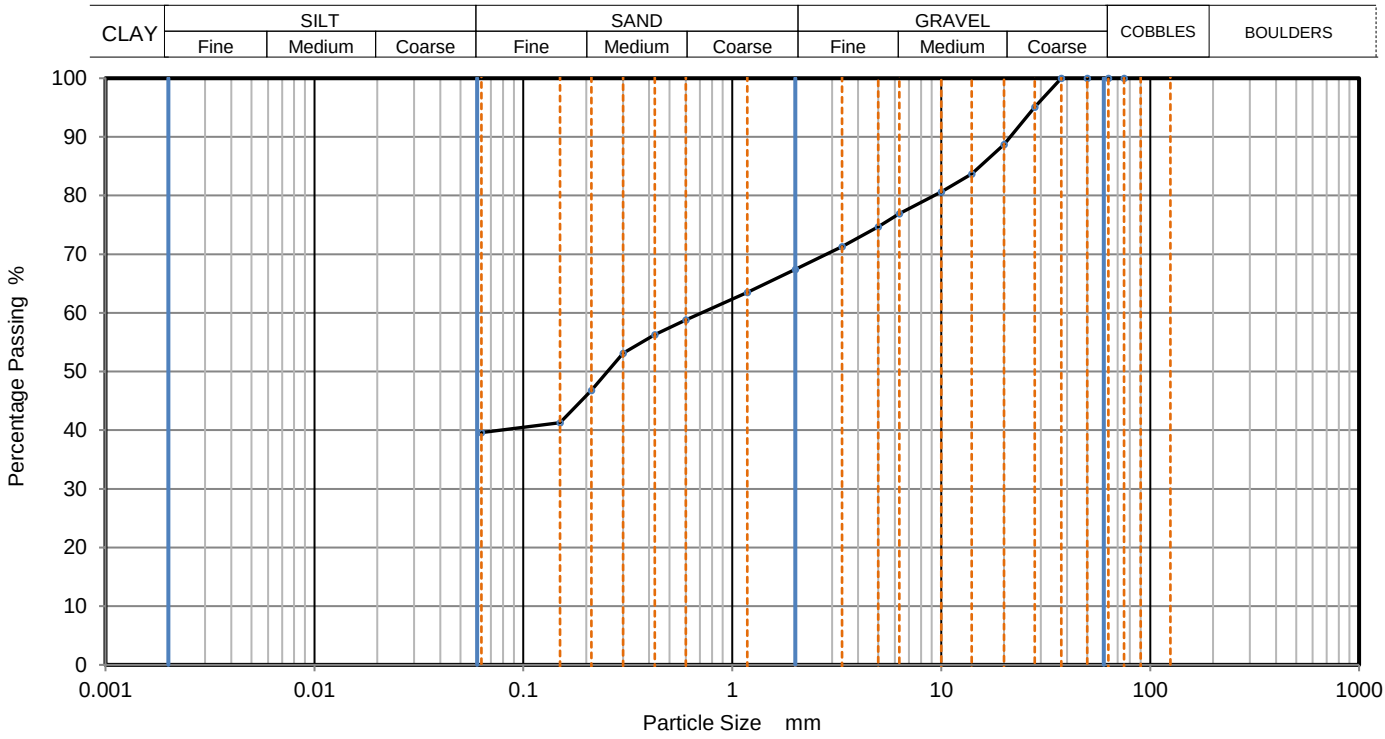
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82102
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	IIGHT brown slightly sandy slightly gravelly SILT.			Depth, m	3.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012719



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	95		
20	89		
14	84		
10	81		
6.3	77		
5	75		
3.35	71		
2	67		
1.18	64		
0.6	59		
0.425	56		
0.3	53		
0.212	47		
0.15	41		
0.063	40		

Dry Mass of sample, g	895

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	28
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.711
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:49	**1**
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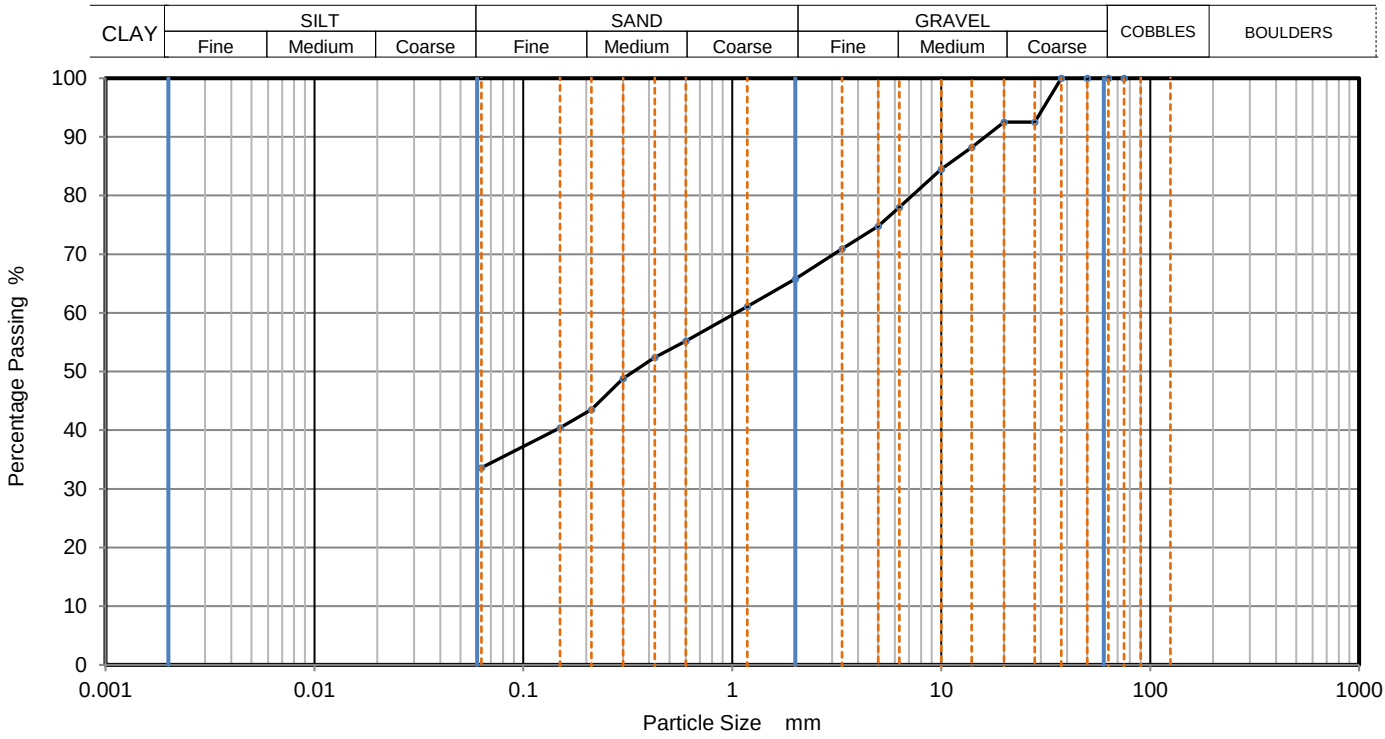
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82207
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown very silty SAND and GRAVEL.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012721



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	93		
14	88		
10	85		
6.3	78		
5	75		
3.35	71		
2	66		
1.18	61		
0.6	55		
0.425	52		
0.3	49		
0.212	44		
0.15	40		
0.063	34		

Dry Mass of sample, g	807

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	32
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	1.04
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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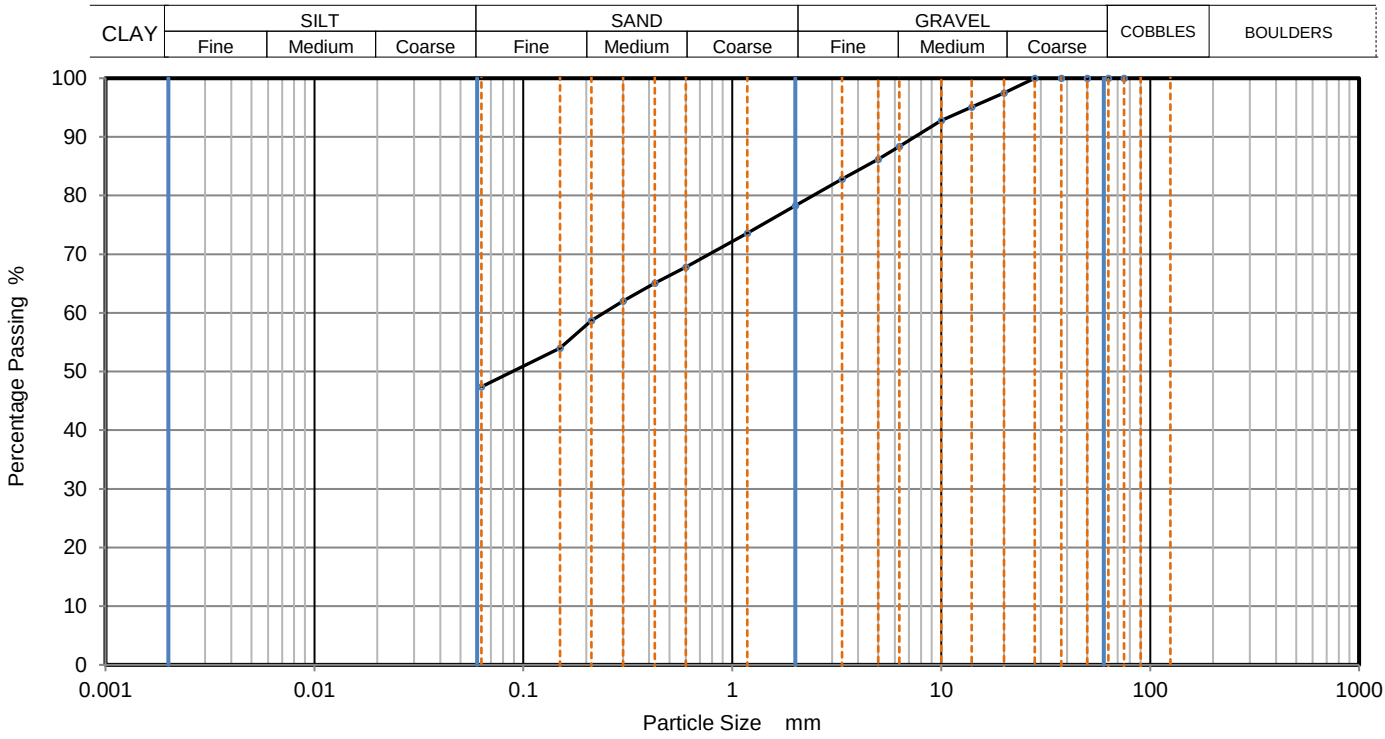
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82207
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth, m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012724



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	98		
14	95		
10	93		
6.3	88		
5	86		
3.35	83		
2	78		
1.18	74		
0.6	68		
0.425	65		
0.3	62		
0.212	59		
0.15	54		
0.063	47		

Dry Mass of sample, g	815

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	31
Fines <0.063mm	47

Grading Analysis		
D100	mm	
D60	mm	0.244
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

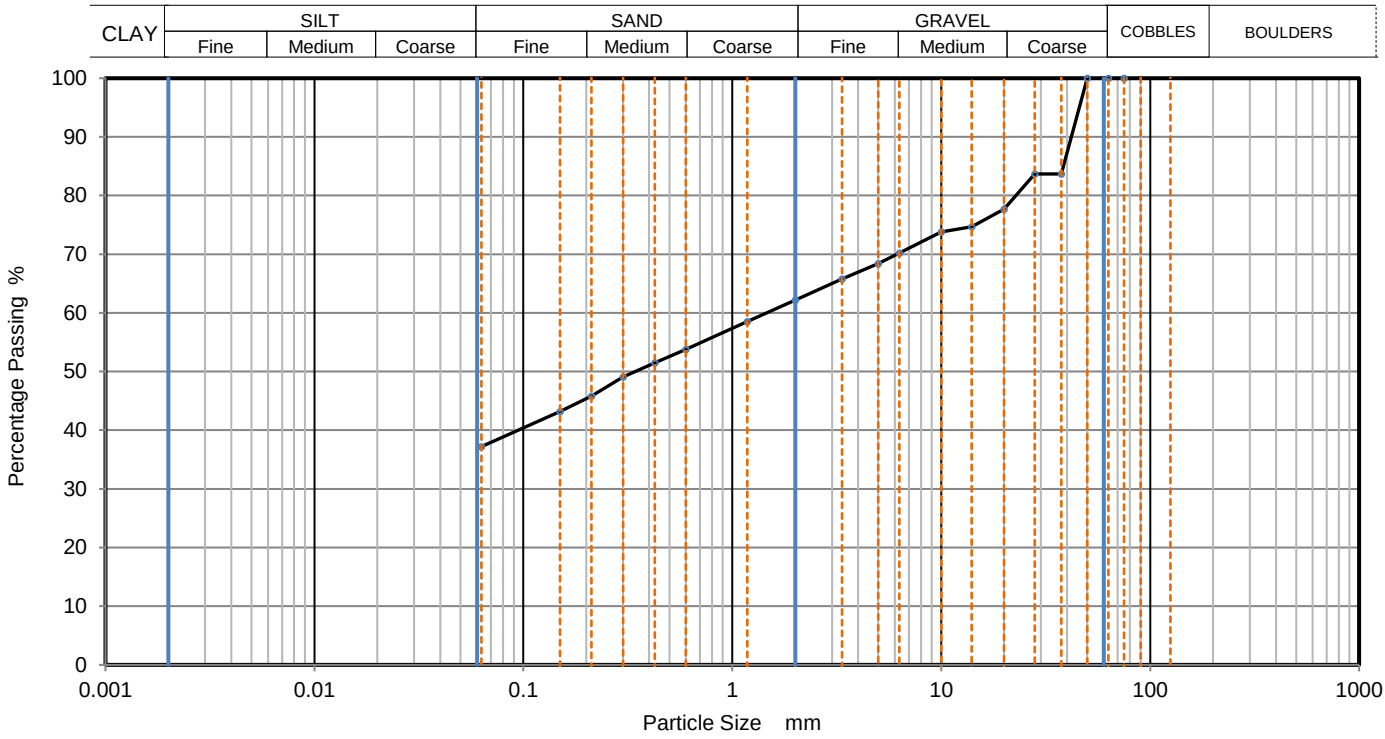
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:50	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82303
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012728



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	84		
28	84		
20	78		
14	75		
10	74		
6.3	70		
5	68		
3.35	66		
2	62		
1.18	59		
0.6	54		
0.425	52		
0.3	49		
0.212	46		
0.15	43		
0.063	37		

Dry Mass of sample, g	810

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	25
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	1.46
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:50	**1** QC From No:R2

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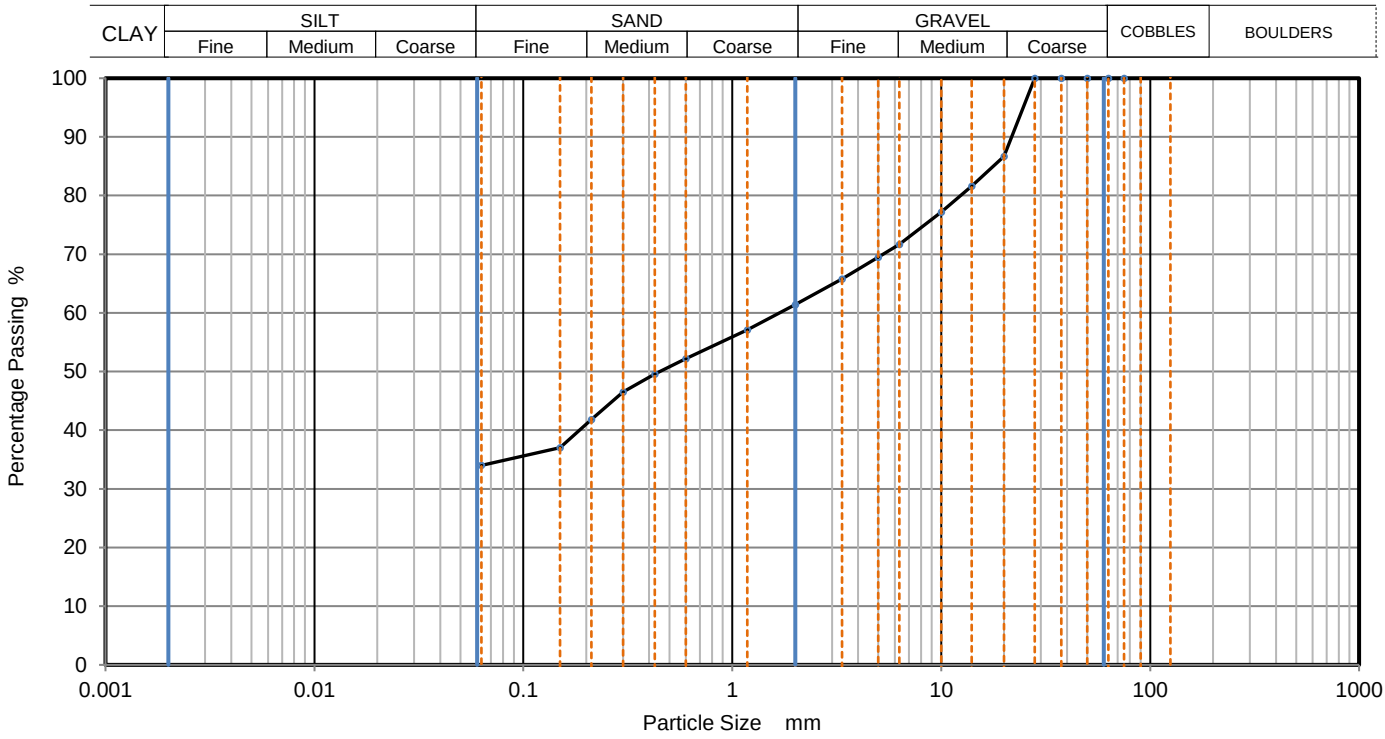
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82303
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth, m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012731



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	82		
10	77		
6.3	72		
5	70		
3.35	66		
2	61		
1.18	57		
0.6	52		
0.425	50		
0.3	47		
0.212	42		
0.15	37		
0.063	34		

Dry Mass of sample, g	884

Sample Proportions	% dry mass
Very coarse	0
Gravel	39
Sand	27
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	1.68
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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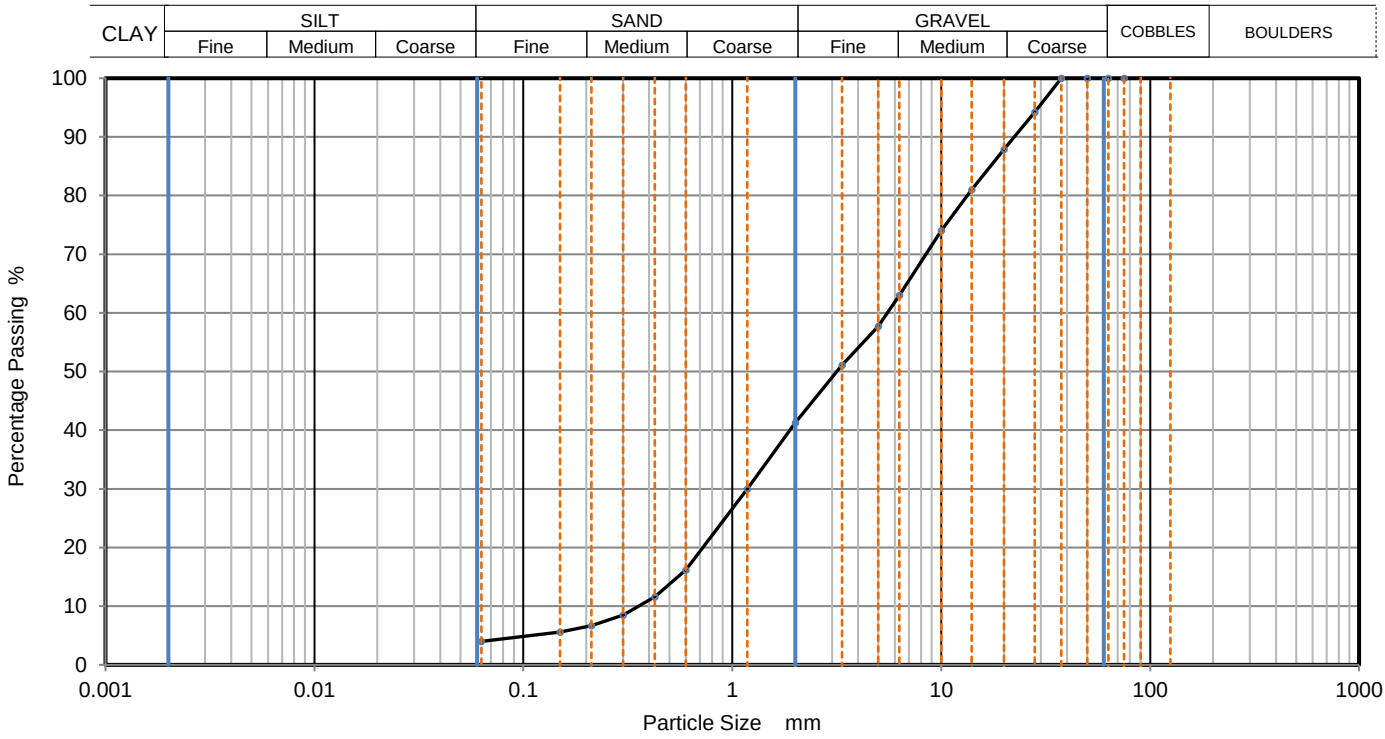
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82303
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Blusih-grey slightly silty very sandy fine and medium GRAVEL.			Depth, m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012733



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	88		
14	81		
10	74		
6.3	63		
5	58		
3.35	51		
2	41		
1.18	30		
0.6	16		
0.425	12		
0.3	9		
0.212	7		
0.15	6		
0.063	4		

Dry Mass of sample, g	708

Sample Proportions	% dry mass
Very coarse	0
Gravel	59
Sand	37
Fines <0.063mm	4

Grading Analysis		
D100	mm	
D60	mm	5.53
D30	mm	1.18
D10	mm	0.354
Uniformity Coefficient		16
Curvature Coefficient		0.71

Remarks

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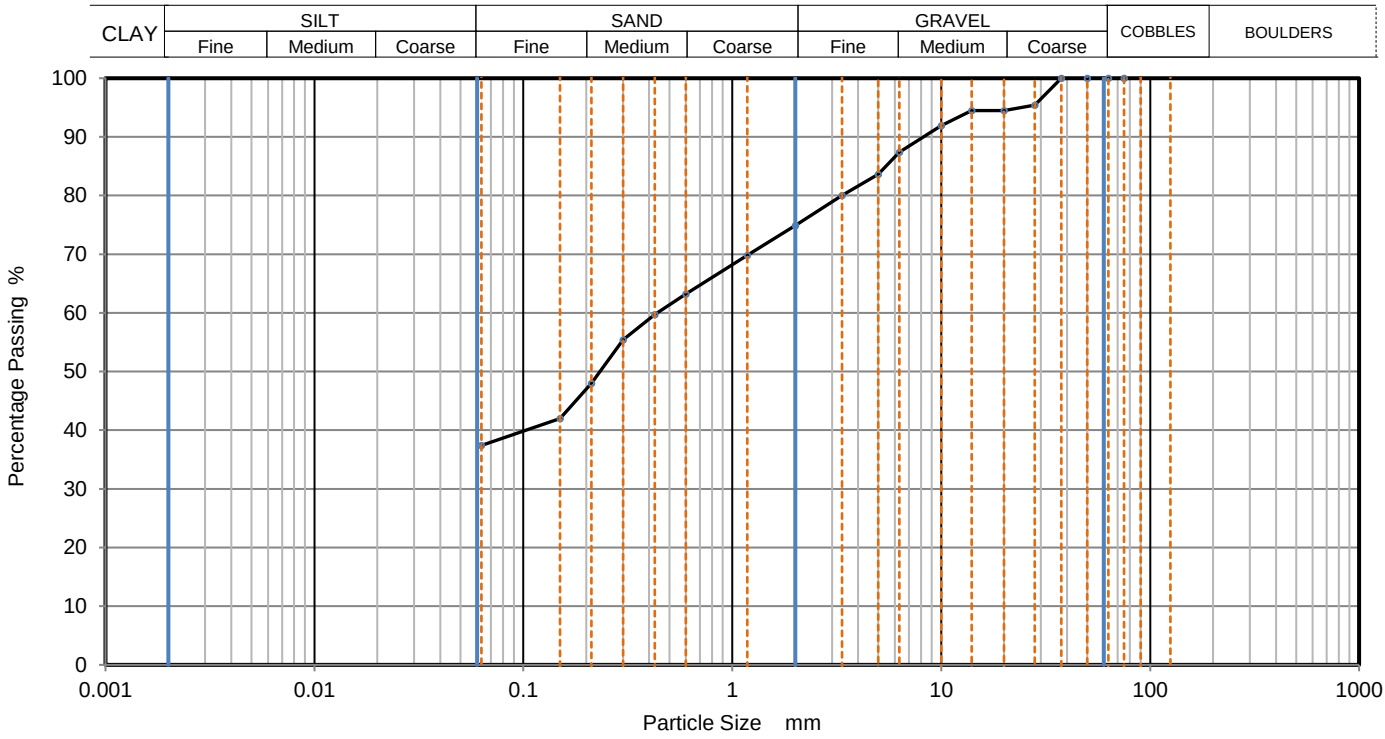
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82400
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slighlty gravelly sandy SILT.			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012734



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	95		
14	95		
10	92		
6.3	87		
5	84		
3.35	80		
2	75		
1.18	70		
0.6	63		
0.425	60		
0.3	55		
0.212	48		
0.15	42		
0.063	37		

Dry Mass of sample, g	871

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	38
Fines <0.063mm	37

Grading Analysis		
D100	mm	
D60	mm	0.436
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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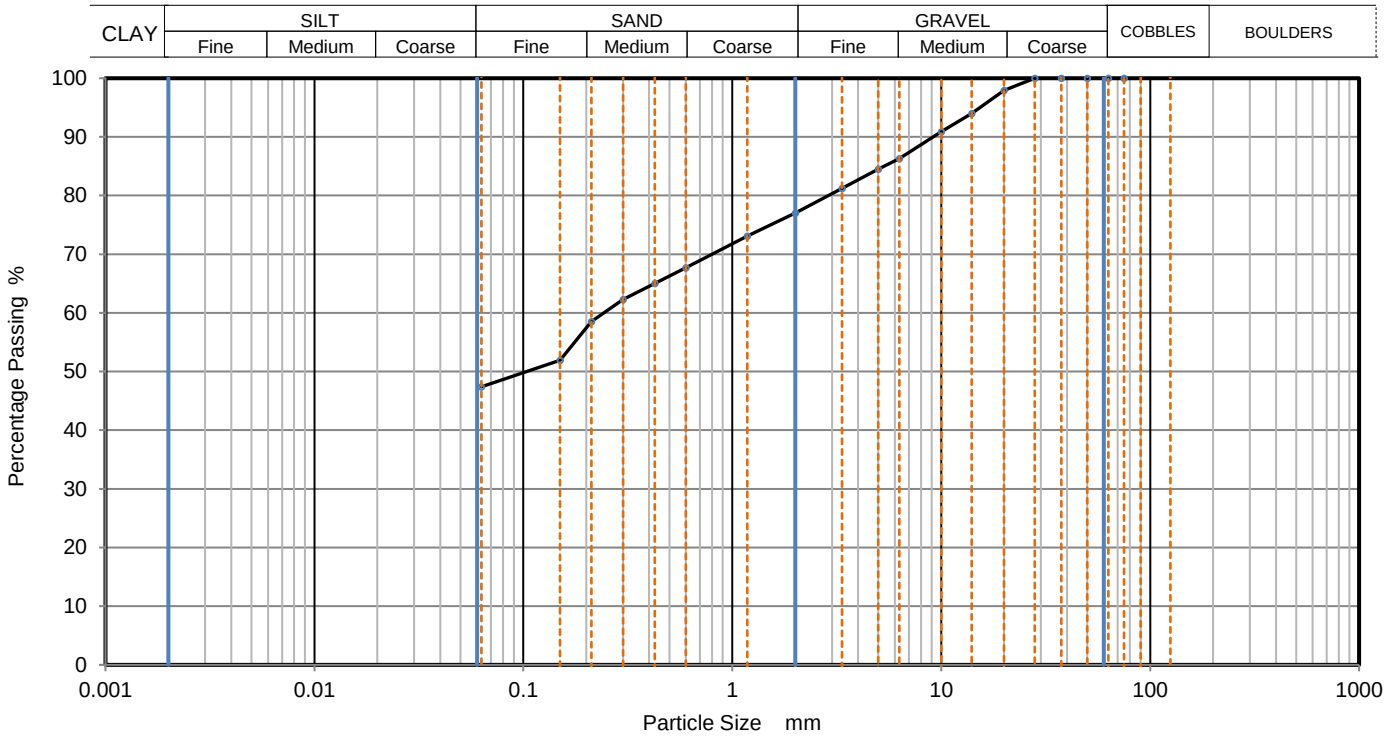
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82400
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slighlty gravelly slightly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012737



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	91		
6.3	86		
5	85		
3.35	81		
2	77		
1.18	73		
0.6	68		
0.425	65		
0.3	62		
0.212	59		
0.15	52		
0.063	47		

Dry Mass of sample, g	732

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	30
Fines <0.063mm	47

Grading Analysis		
D100	mm	
D60	mm	0.243
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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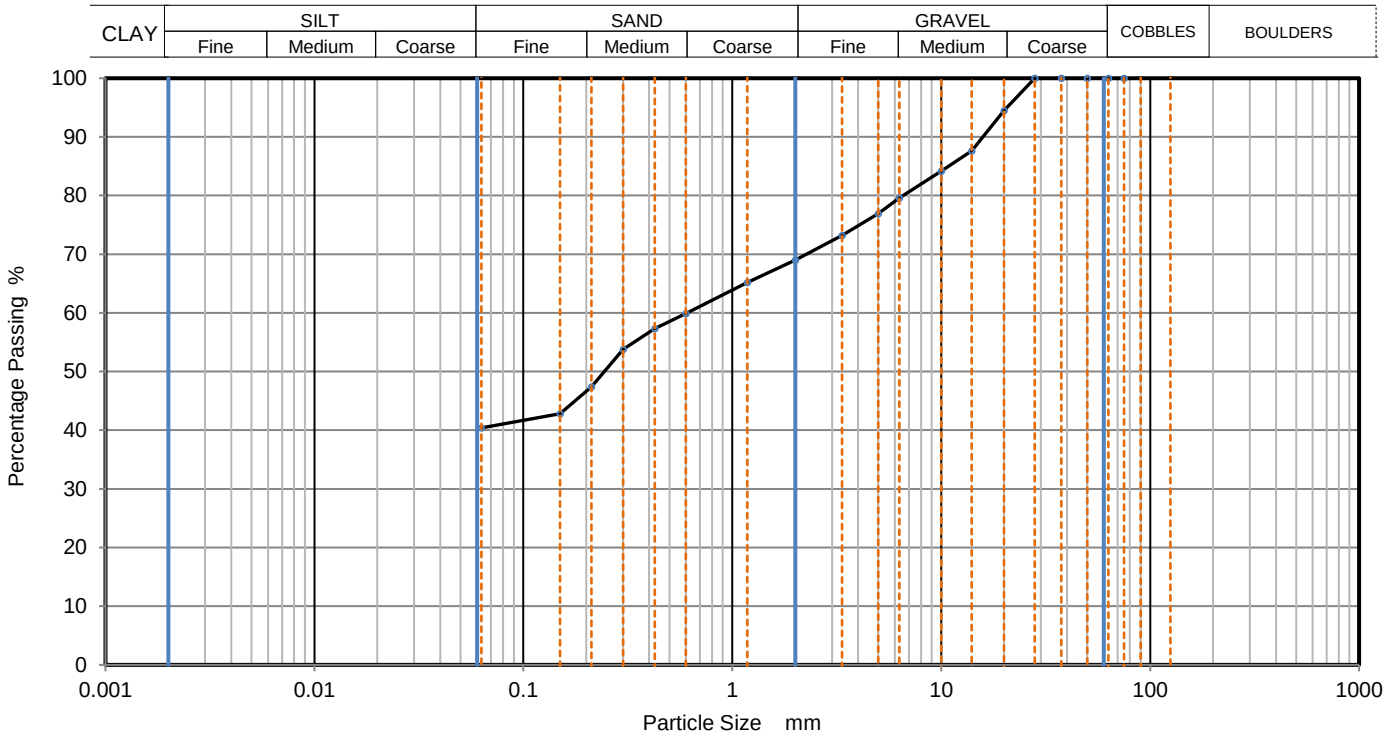
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82400
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth, m	3.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012739



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	88		
10	84		
6.3	80		
5	77		
3.35	73		
2	69		
1.18	65		
0.6	60		
0.425	57		
0.3	54		
0.212	47		
0.15	43		
0.063	40		

Dry Mass of sample, g	898

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	29
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.605
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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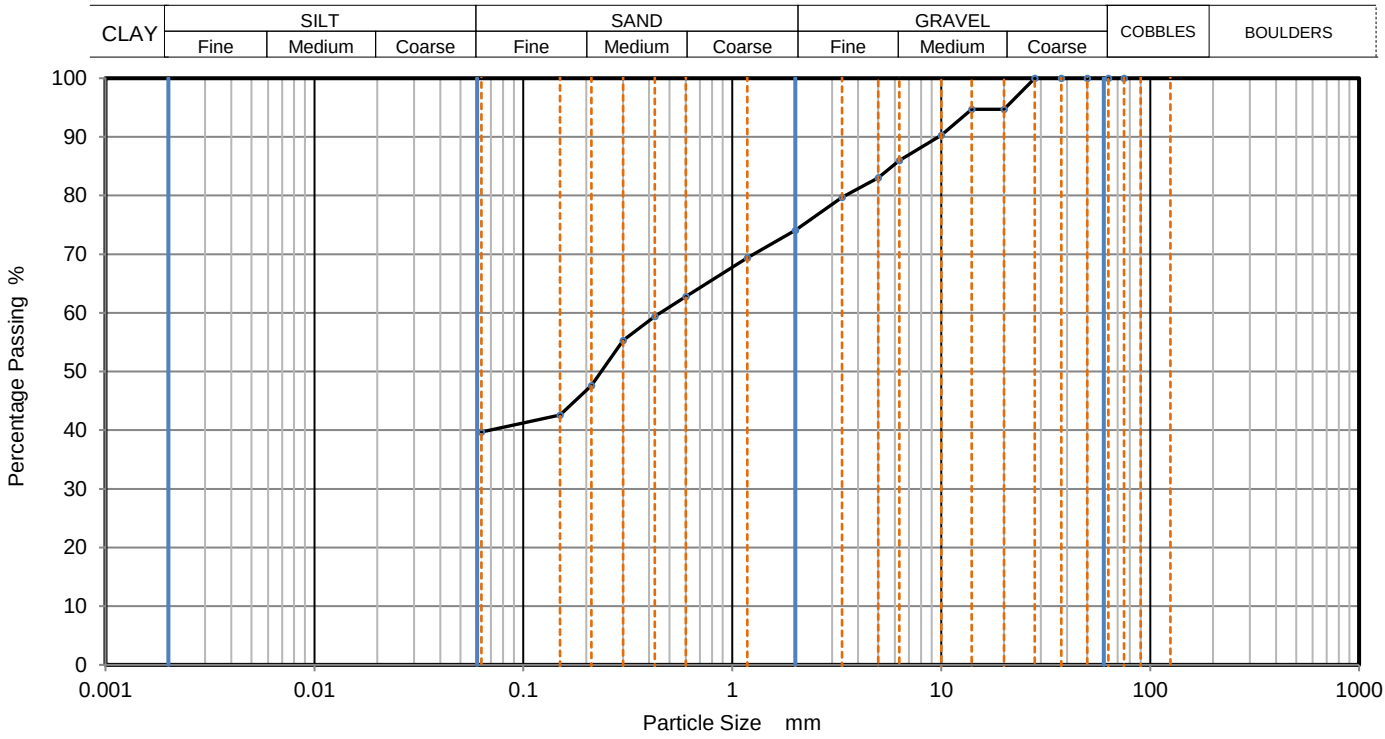
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82502
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012741



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	95		
10	90		
6.3	86		
5	83		
3.35	80		
2	74		
1.18	69		
0.6	63		
0.425	59		
0.3	55		
0.212	48		
0.15	43		
0.063	40		

Dry Mass of sample, g	885

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	34
Fines <0.063mm	40

Grading Analysis		
D100	mm	
D60	mm	0.453
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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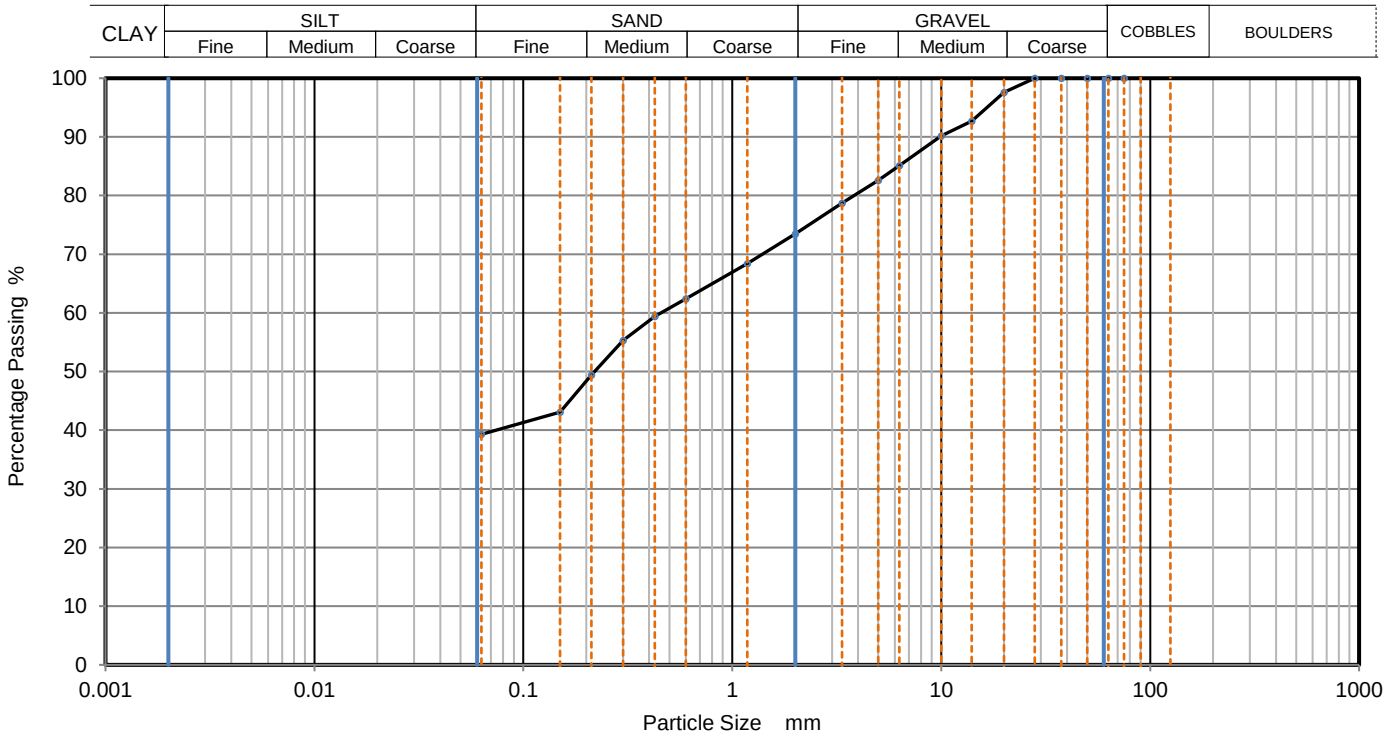
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82502
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	2.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012744



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	93		
10	90		
6.3	85		
5	83		
3.35	79		
2	74		
1.18	68		
0.6	62		
0.425	59		
0.3	55		
0.212	49		
0.15	43		
0.063	39		

Dry Mass of sample, g	874

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	34
Fines <0.063mm	39

Grading Analysis		
D100	mm	
D60	mm	0.456
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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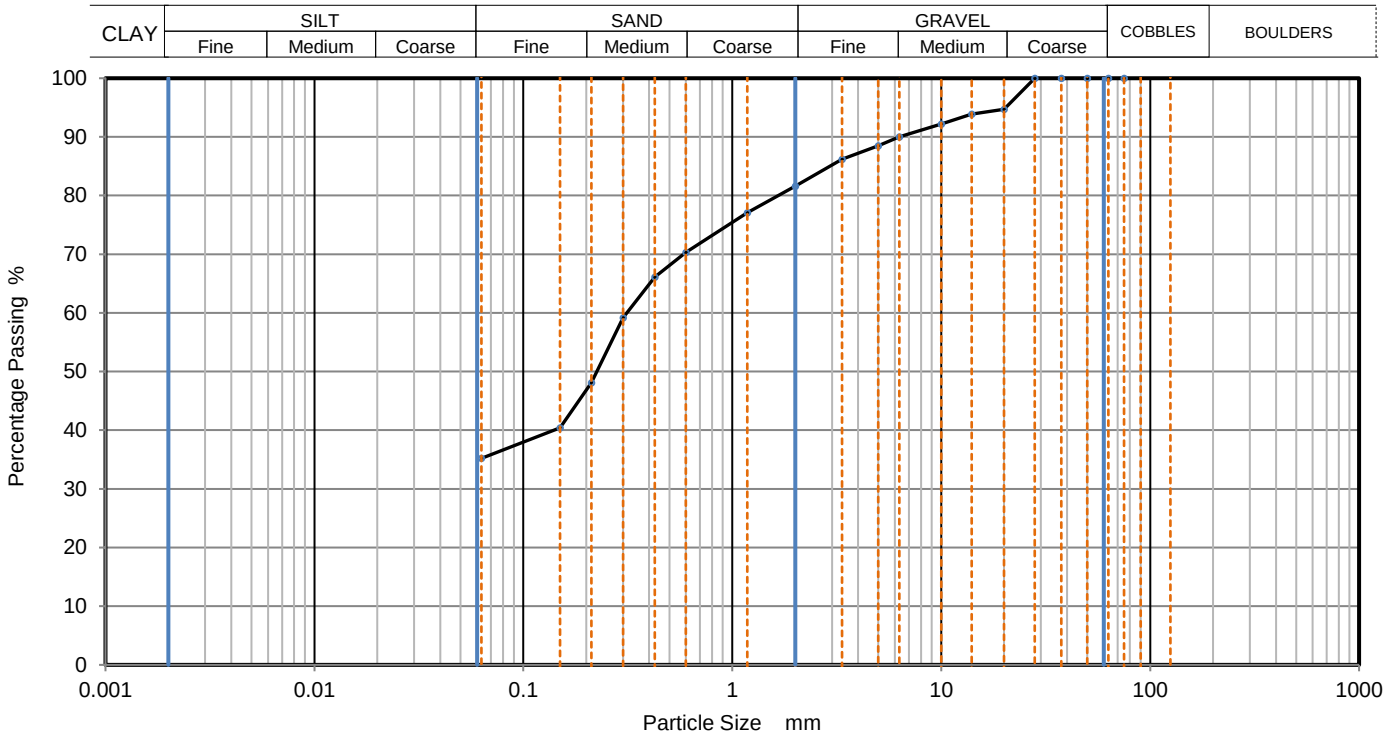
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82590
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	Orange-brown slightly gravelly sandy SILT. Sand is medium.			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012748



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	94		
10	92		
6.3	90		
5	89		
3.35	86		
2	82		
1.18	77		
0.6	70		
0.425	66		
0.3	59		
0.212	48		
0.15	40		
0.063	35		

Dry Mass of sample, g	475

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	47
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	0.313
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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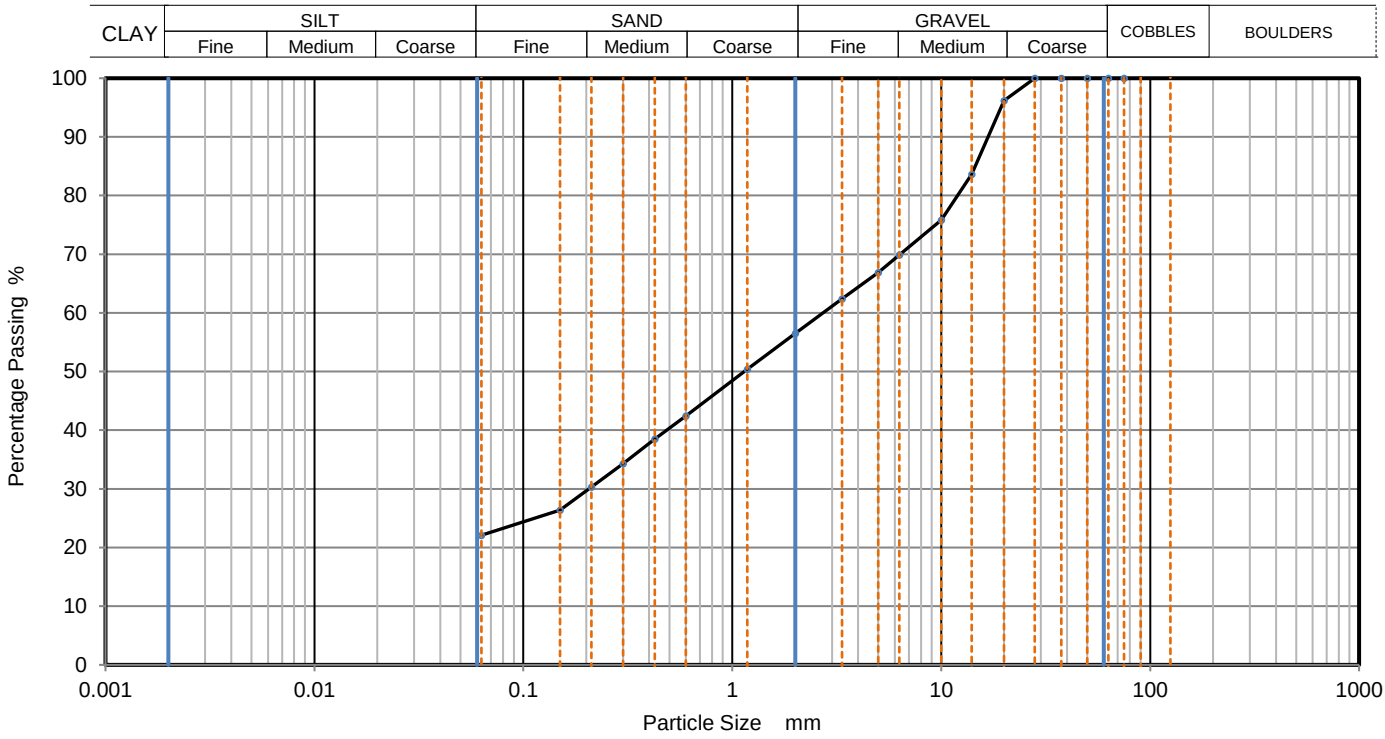
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82590
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Brown very silty very sandy medium GRAVEL.			Depth, m	0.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012750



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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63	100		
50	100		
37.5	100		
28	100		
20	96		
14	84		
10	76		
6.3	70		
5	67		
3.35	62		
2	57		
1.18	50		
0.6	42		
0.425	39		
0.3	34		
0.212	30		
0.15	26		
0.063	22		

Dry Mass of sample, g	659

Sample Proportions	% dry mass
Very coarse	0
Gravel	44
Sand	34
Fines <0.063mm	22

Grading Analysis		
D100	mm	
D60	mm	2.71
D30	mm	0.207
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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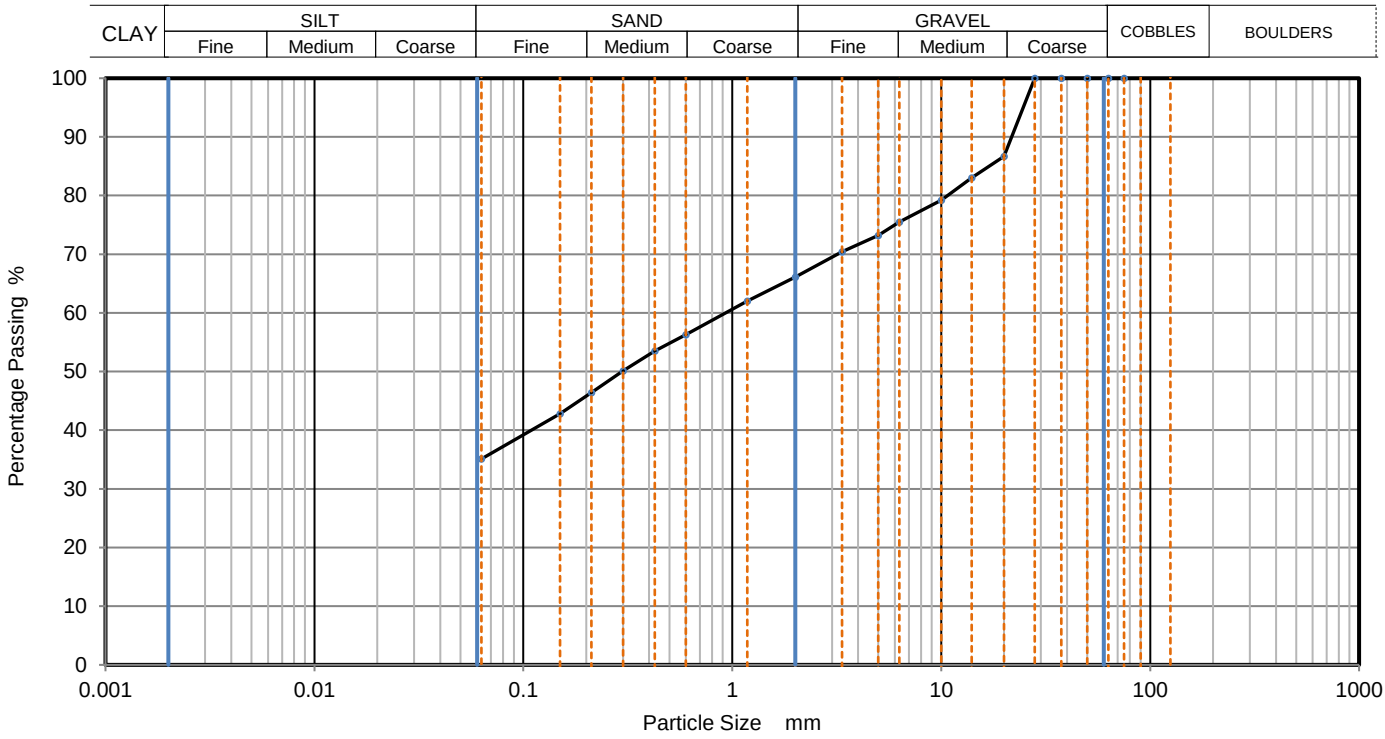
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82590
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey slightly sandy gravelly SILT.			Depth, m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012751



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	83		
10	79		
6.3	76		
5	73		
3.35	70		
2	66		
1.18	62		
0.6	56		
0.425	54		
0.3	50		
0.212	46		
0.15	43		
0.063	35		

Dry Mass of sample, g	752

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	31
Fines <0.063mm	35

Grading Analysis		
D100	mm	
D60	mm	0.933
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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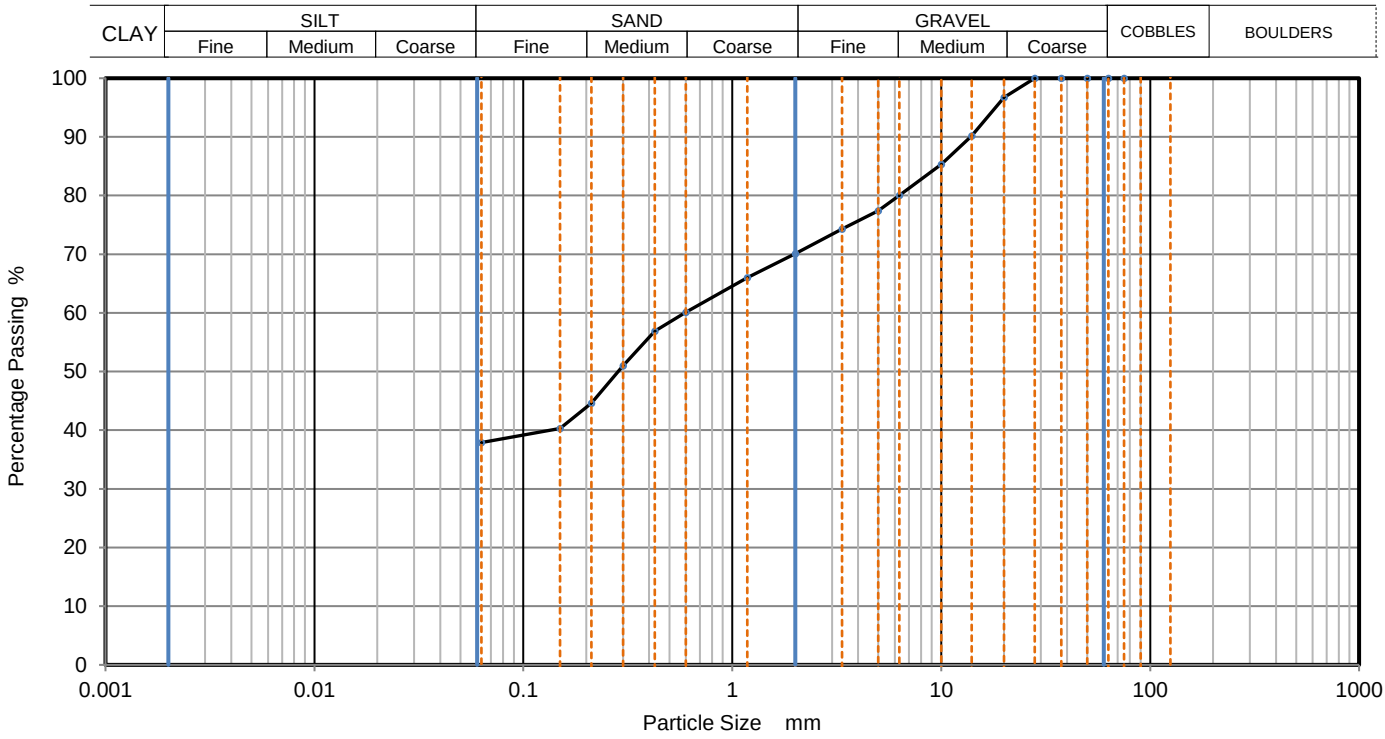
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82590
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Soil Description	Light brown slighlty gravelly slightly sandy SILT.			Depth, m	3.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012753



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	90		
10	85		
6.3	80		
5	77		
3.35	74		
2	70		
1.18	66		
0.6	60		
0.425	57		
0.3	51		
0.212	45		
0.15	40		
0.063	38		

Dry Mass of sample, g	727

Sample Proportions	% dry mass
Very coarse	0
Gravel	30
Sand	32
Fines <0.063mm	38

Grading Analysis		
D100	mm	
D60	mm	0.591
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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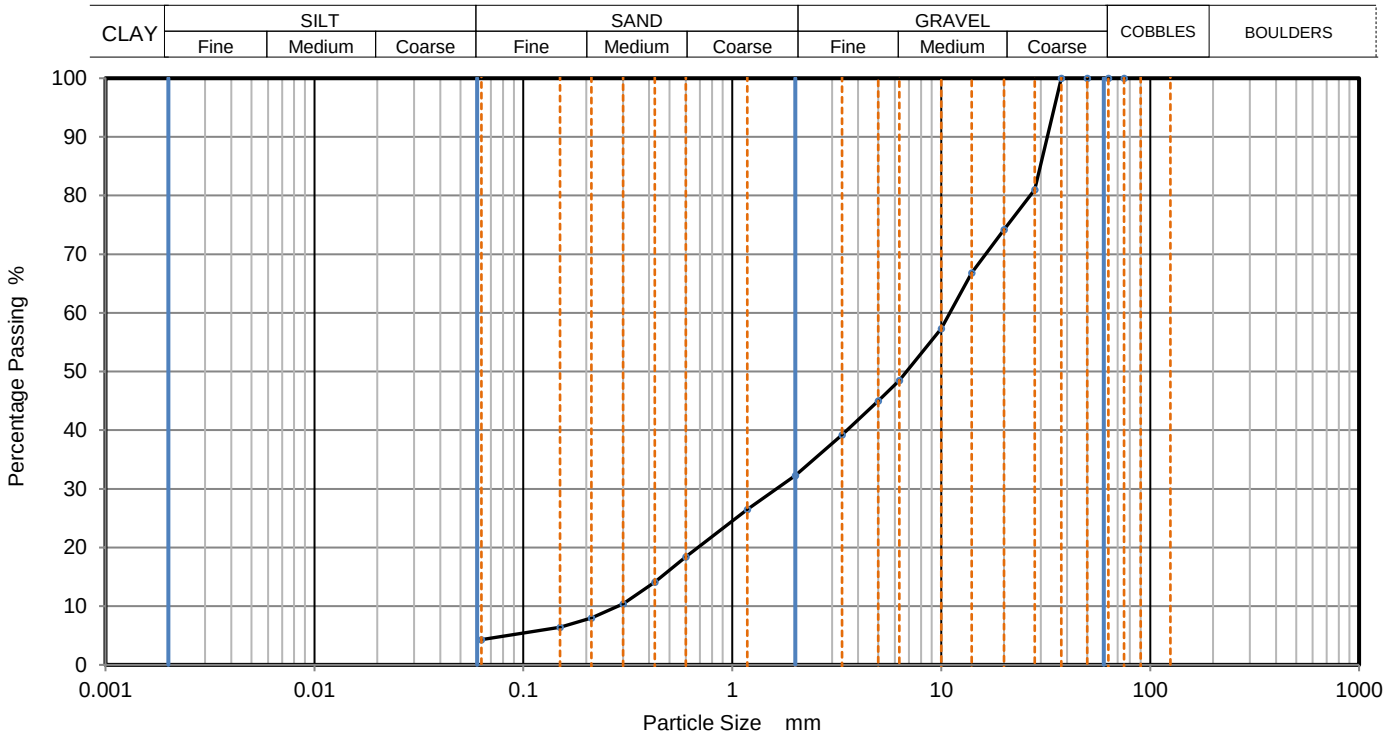
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82702
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Soil Description	greyish-brown slightly silty very sandy medium and coarse GRAVEL.			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012756



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	81		
20	74		
14	67		
10	57		
6.3	49		
5	45		
3.35	39		
2	32		
1.18	27		
0.6	18		
0.425	14		
0.3	10		
0.212	8		
0.15	6		
0.063	4		

Dry Mass of sample, g: 760

Sample Proportions	% dry mass
Very coarse	0
Gravel	68
Sand	28
Fines <0.063mm	4

Grading Analysis		
D100	mm	
D60	mm	11
D30	mm	1.63
D10	mm	0.284
Uniformity Coefficient		39
Curvature Coefficient		0.85

Remarks

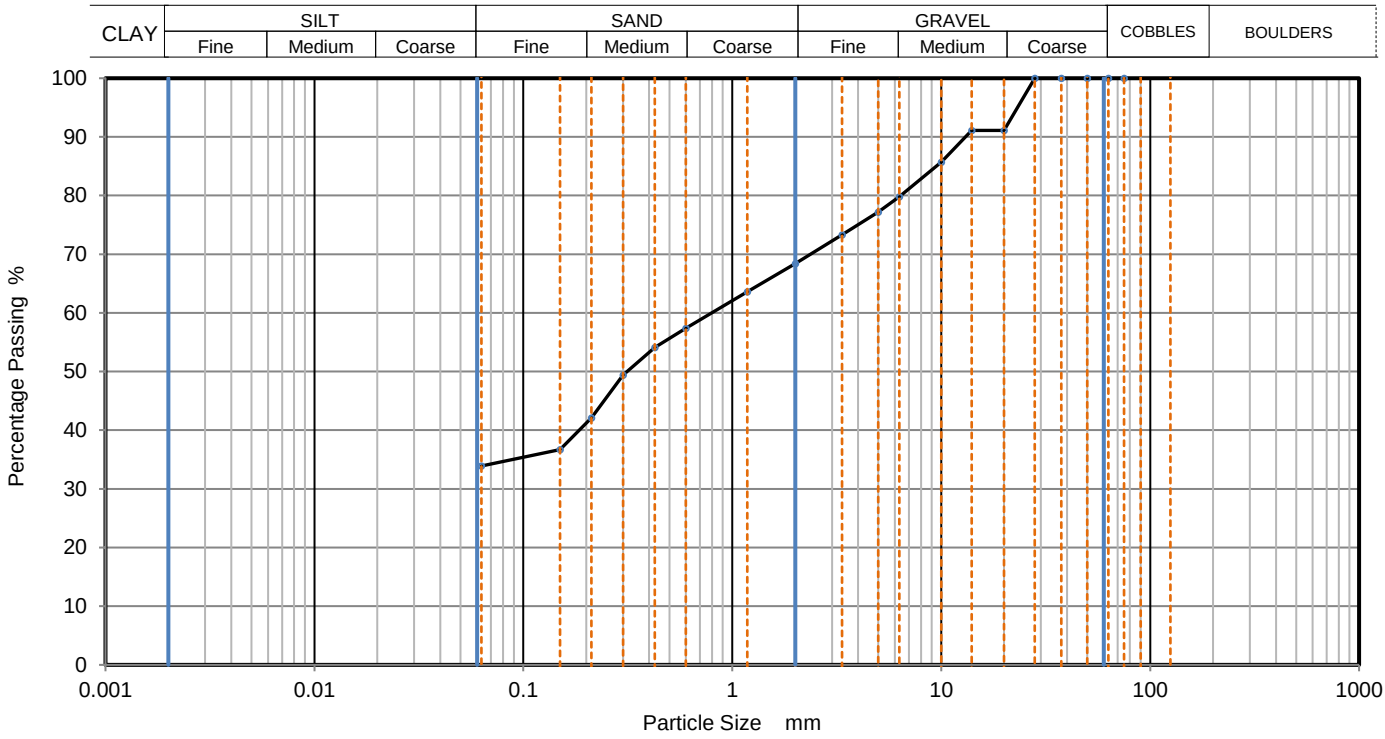
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:50	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	TP-82702
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Light brown slightly gravelly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022012757



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	91		
10	86		
6.3	80		
5	77		
3.35	73		
2	68		
1.18	64		
0.6	57		
0.425	54		
0.3	49		
0.212	42		
0.15	37		
0.063	34		

Dry Mass of sample, g	781

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	35
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	0.798
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:50	**1** QC From No:R2

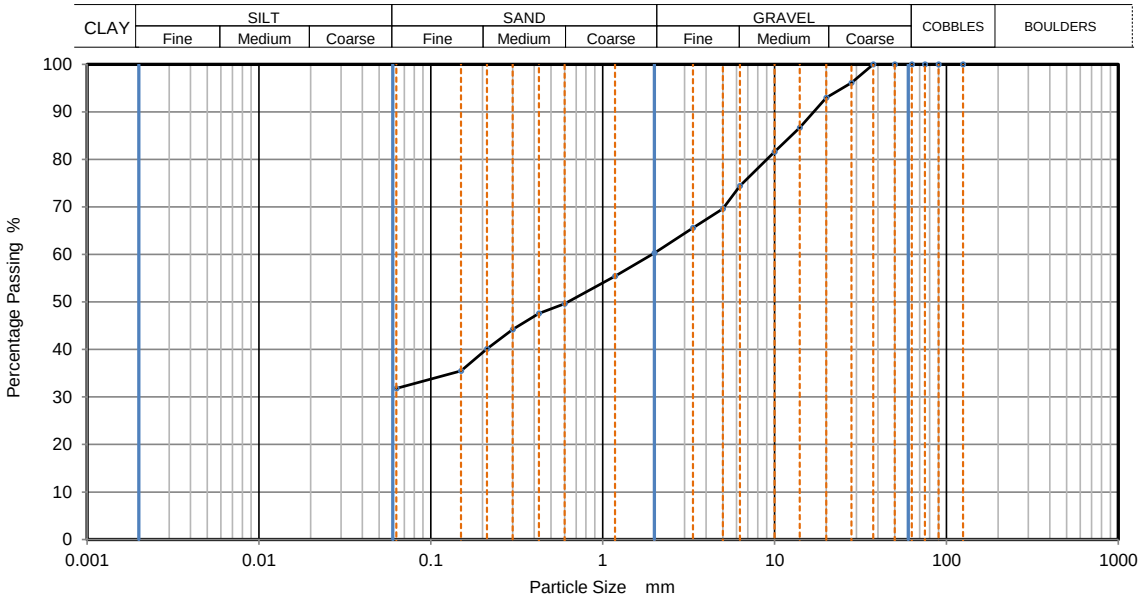
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-82812
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	25/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	93		
14	87		
10	82		
6.3	74		
5	70		
3.35	66		
2	60		
1.18	55		
0.6	50		
0.425	48		
0.3	44		
0.212	40		
0.15	36		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.7
Sand	28.6
Fines <0.063mm	31.8

Grading Analysis		
D100	mm	
D60	mm	1.93
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Tel: 01923 711288

Checked and Approved

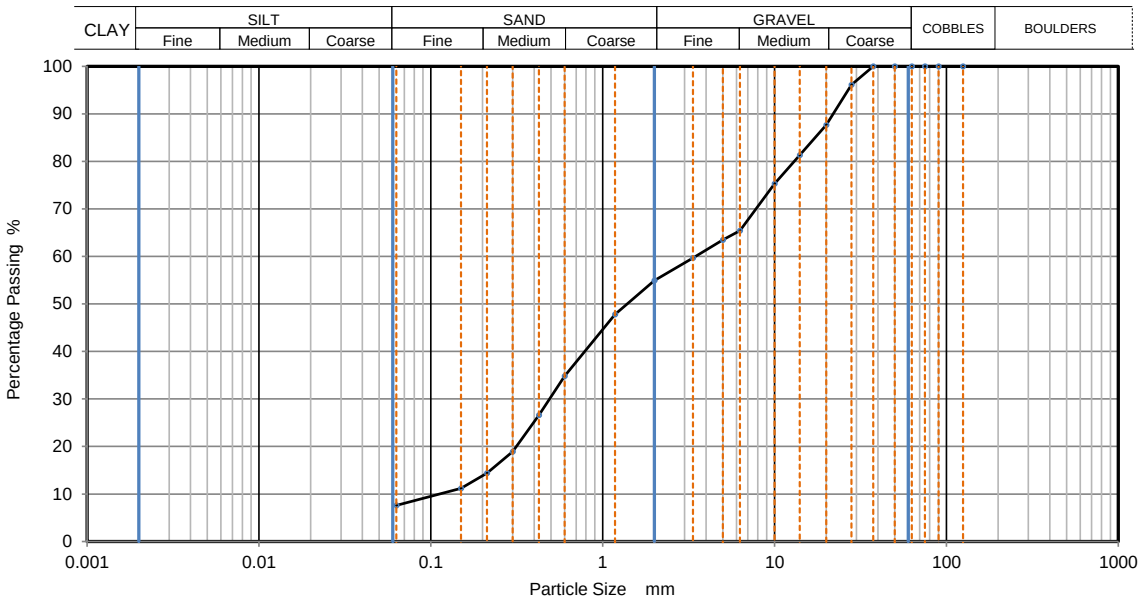
Initials: **J.P**

Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-82812
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Brownish grey silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	88		
14	81		
10	75		
6.3	65		
5	64		
3.35	60		
2	55		
1.18	48		
0.6	35		
0.425	27		
0.3	19		
0.212	14		
0.15	11		
0.063	8		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	45.1
Sand	47.3
Fines <0.063mm	7.6

Grading Analysis		
D100	mm	
D60	mm	3.44
D30	mm	0.491
D10	mm	0.113
Uniformity Coefficient		31
Curvature Coefficient		0.62

Remarks

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Date: 14/11/2022

UKAS TESTING

2519

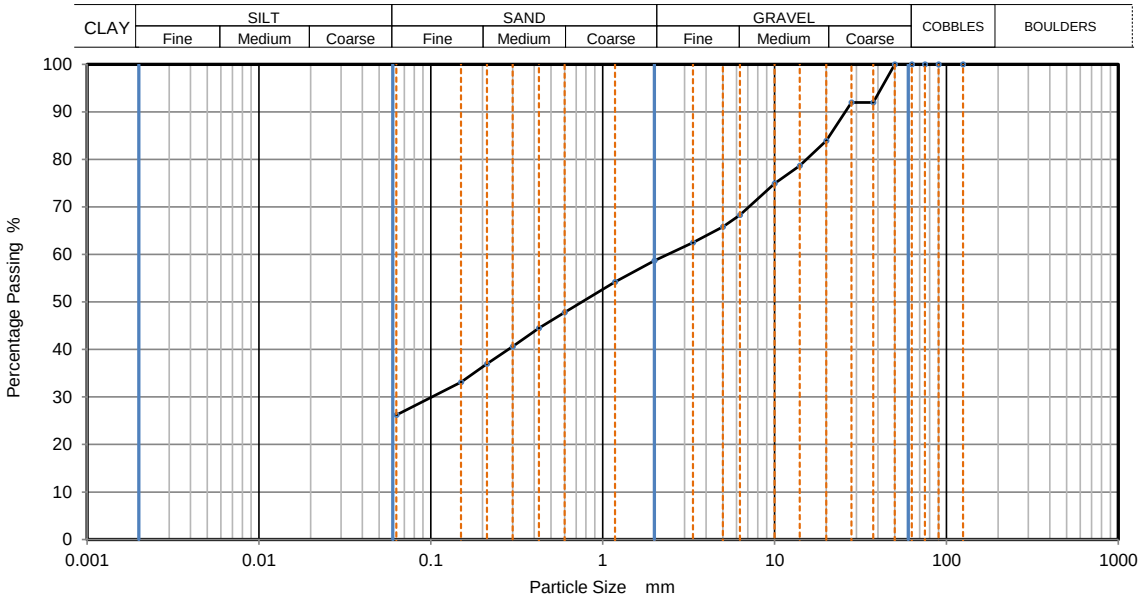
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-82902
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	92		
20	84		
14	79		
10	75		
6.3	68		
5	66		
3.35	63		
2	59		
1.18	54		
0.6	48		
0.425	45		
0.3	41		
0.212	37		
0.15	33		
0.063	26		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	41.3
Sand	32.5
Fines <0.063mm	26.2

Grading Analysis		
D100	mm	
D60	mm	2.39
D30	mm	0.102
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/11/2022

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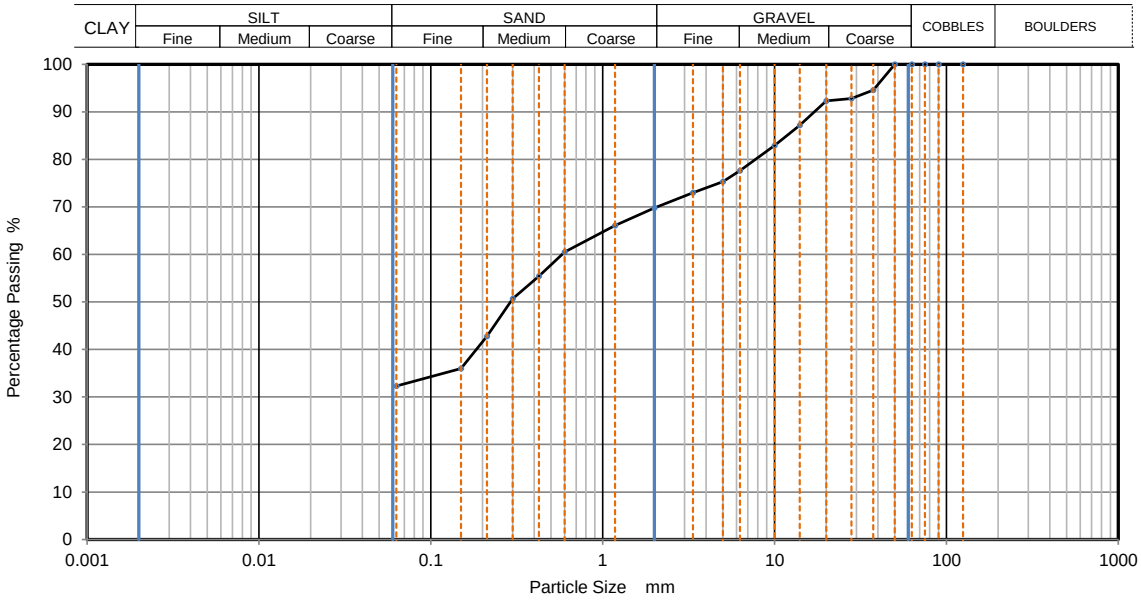
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-82902
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.40 m
Soil Description	Brownish grey silty clayey very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	3.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	93		
20	92		
14	87		
10	83		
6.3	78		
5	75		
3.35	73		
2	70		
1.18	66		
0.6	61		
0.425	55		
0.3	51		
0.212	43		
0.15	36		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.2
Sand	37.5
Fines <0.063mm	32.3

Grading Analysis		
D100	mm	
D60	mm	0.579
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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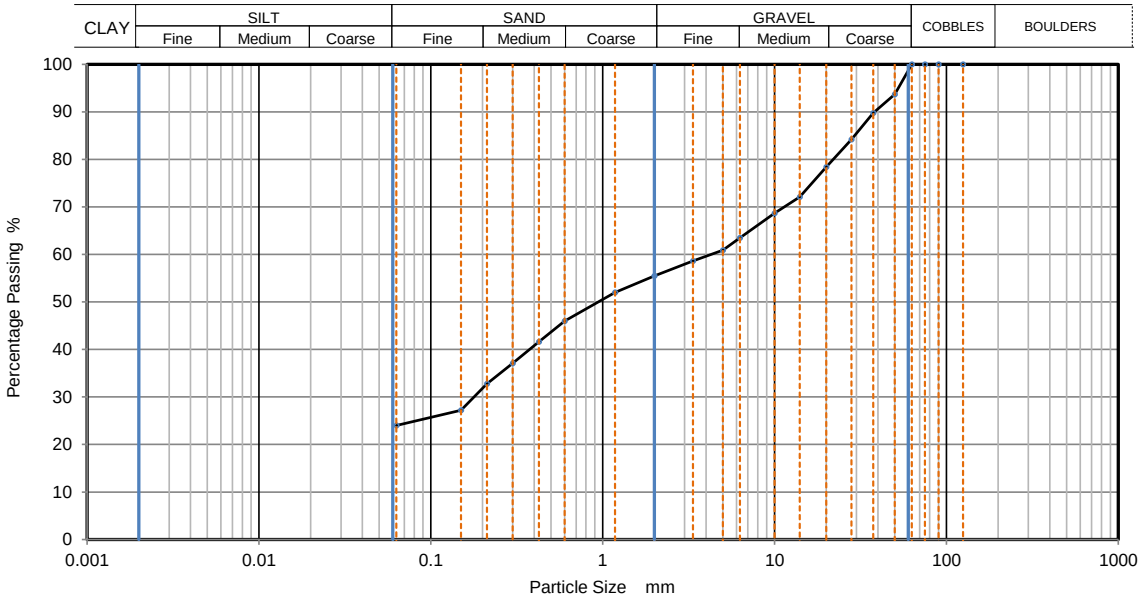
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-82979
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	94		
37.5	90		
28	84		
20	78		
14	72		
10	69		
6.3	64		
5	61		
3.35	59		
2	56		
1.18	52		
0.6	46		
0.425	42		
0.3	37		
0.212	33		
0.15	27		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	44.5
Sand	31.5
Fines <0.063mm	24.0

Grading Analysis		
D100	mm	
D60	mm	4.29
D30	mm	0.179
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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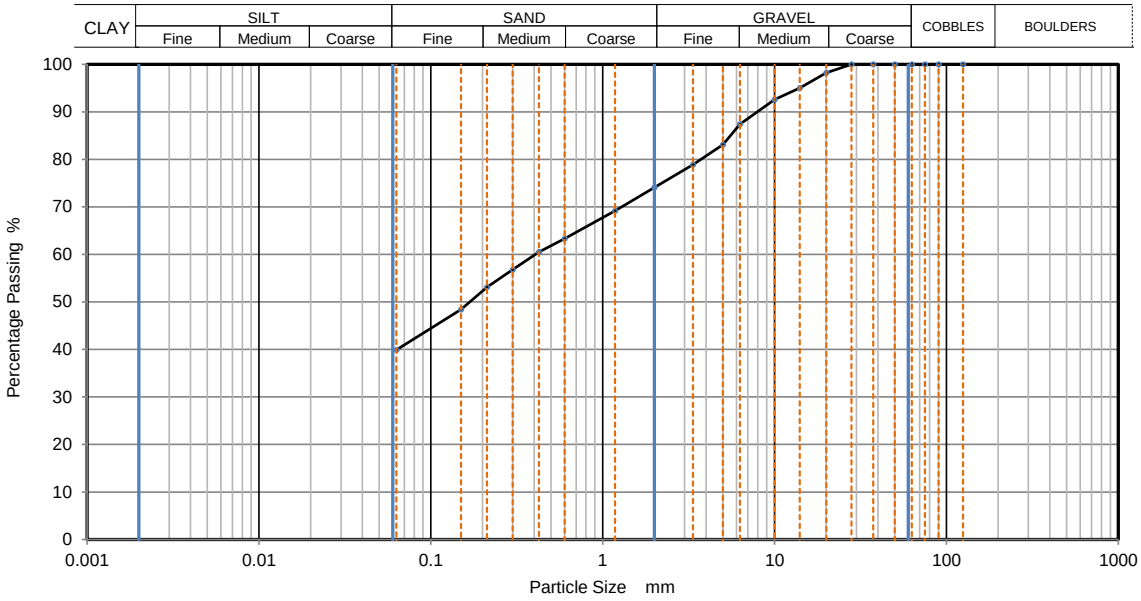
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-82979
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	95		
10	93		
6.3	87		
5	83		
3.35	79		
2	74		
1.18	69		
0.6	63		
0.425	61		
0.3	57		
0.212	53		
0.15	48		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.9
Sand	34.2
Fines <0.063mm	39.9

Grading Analysis		
D100	mm	
D60	mm	0.405
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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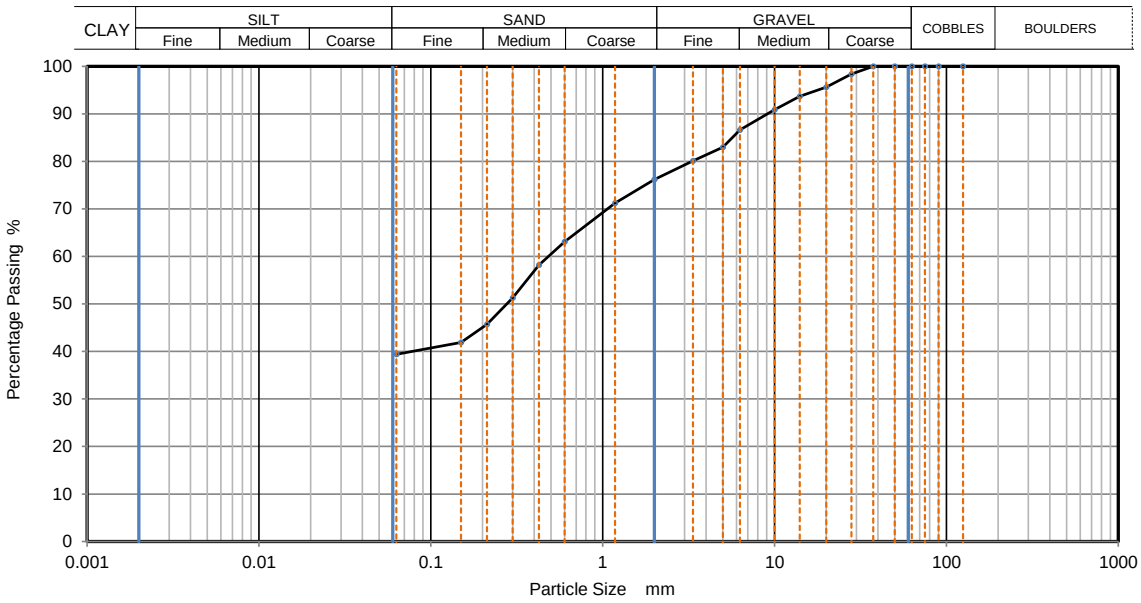
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	94		
10	91		
6.3	87		
5	83		
3.35	80		
2	76		
1.18	71		
0.6	63		
0.425	58		
0.3	51		
0.212	46		
0.15	42		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.8
Sand	36.8
Fines <0.063mm	39.4

Grading Analysis		
D100	mm	
D60	mm	0.482
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/11/2022

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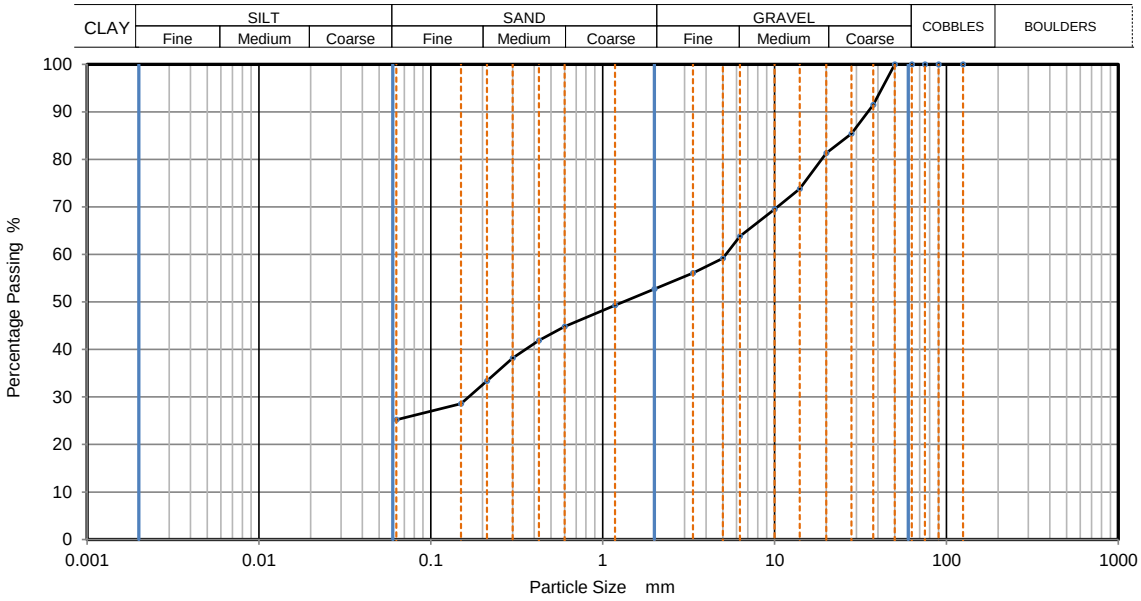
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey silty clayey very sandy GRAVEL gravel is fmc and angular to sub-angular)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	85		
20	81		
14	74		
10	70		
6.3	64		
5	59		
3.35	56		
2	53		
1.18	49		
0.6	45		
0.425	42		
0.3	38		
0.212	33		
0.15	29		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	47.3
Sand	27.5
Fines <0.063mm	25.2

Grading Analysis		
D100	mm	
D60	mm	5.2
D30	mm	0.166
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/11/2022

UKAS TESTING

2519

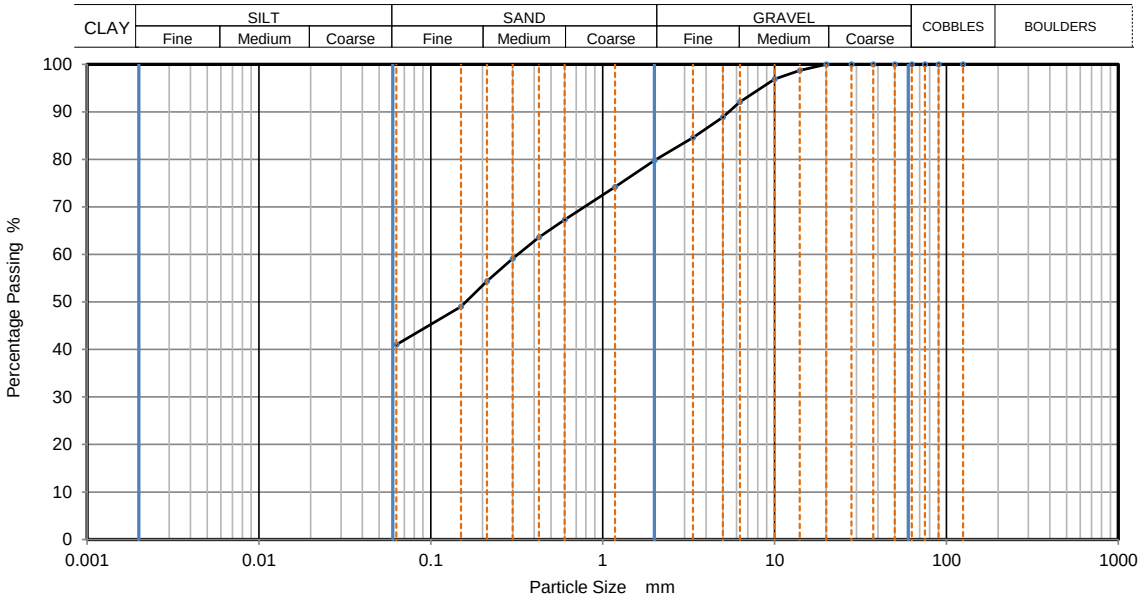
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-83101
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	3.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	97		
6.3	92		
5	89		
3.35	85		
2	80		
1.18	74		
0.6	67		
0.425	64		
0.3	59		
0.212	54		
0.15	49		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.2
Sand	38.7
Fines <0.063mm	41.0

Grading Analysis		
D100	mm	
D60	mm	0.323
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

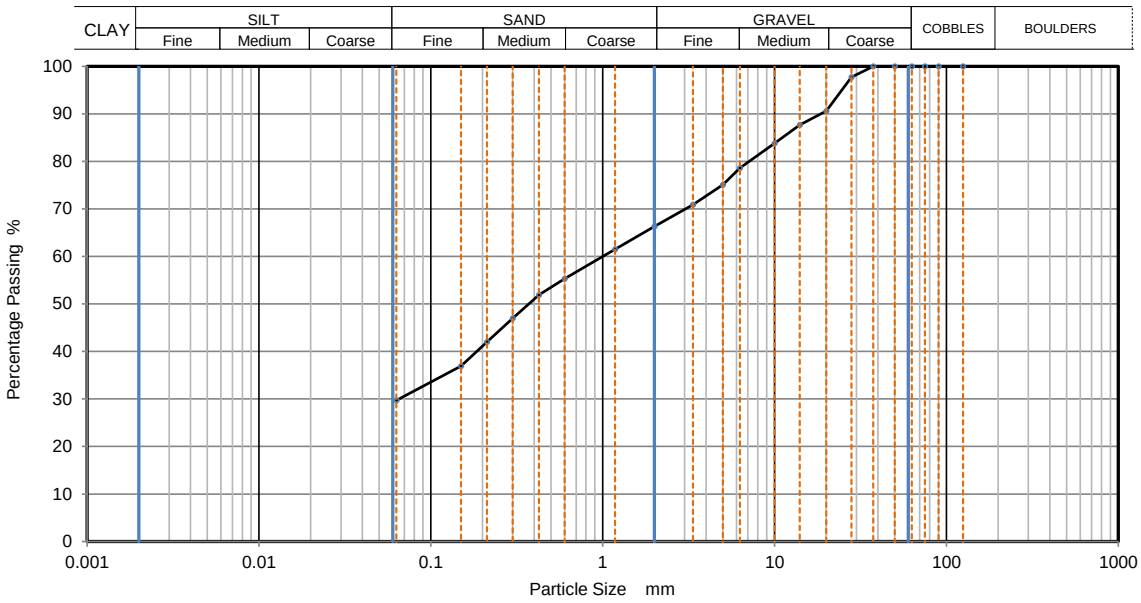
Initials: **J.P**

Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-83303
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown silty clayey very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	91		
14	88		
10	84		
6.3	79		
5	75		
3.35	71		
2	66		
1.18	62		
0.6	55		
0.425	52		
0.3	47		
0.212	42		
0.15	37		
0.063	30		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.7
Sand	36.5
Fines <0.063mm	29.7

Grading Analysis		
D100	mm	
D60	mm	1
D30	mm	0.065
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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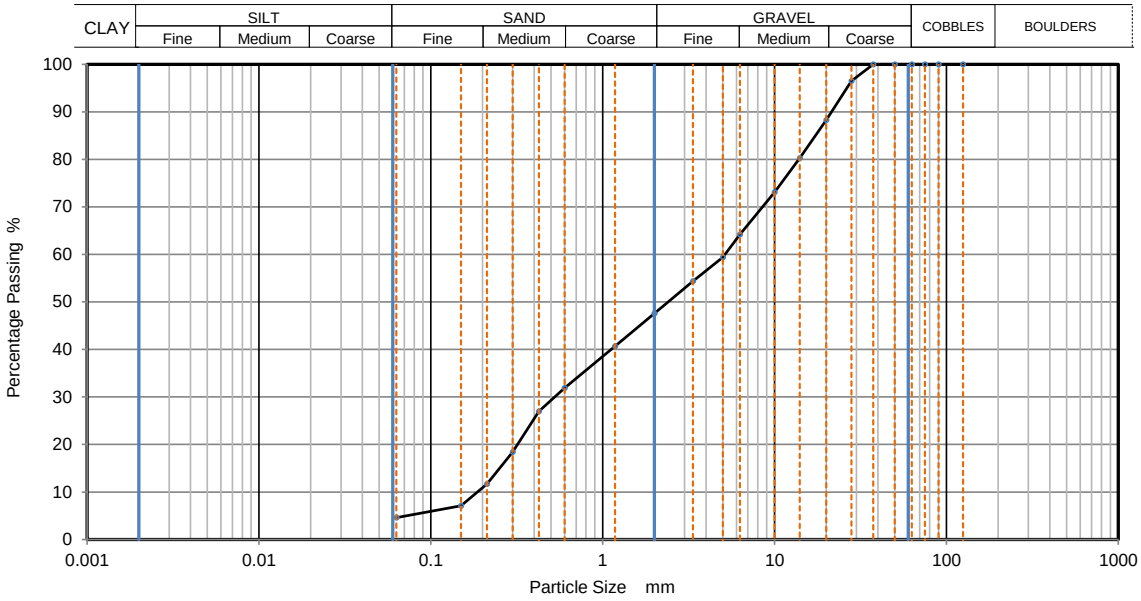
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-83303
Project No.	2021OY102	Client	Irish Drilling	Sample No.	5
				Depth Top	2.30 m
Soil Description	Brownish grey slightly clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	88		
14	80		
10	73		
6.3	64		
5	59		
3.35	54		
2	48		
1.18	41		
0.6	32		
0.425	27		
0.3	18		
0.212	12		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	52.4
Sand	43.0
Fines <0.063mm	4.6

Grading Analysis		
D100	mm	
D60	mm	5.14
D30	mm	0.525
D10	mm	0.187
Uniformity Coefficient		27
Curvature Coefficient		0.29

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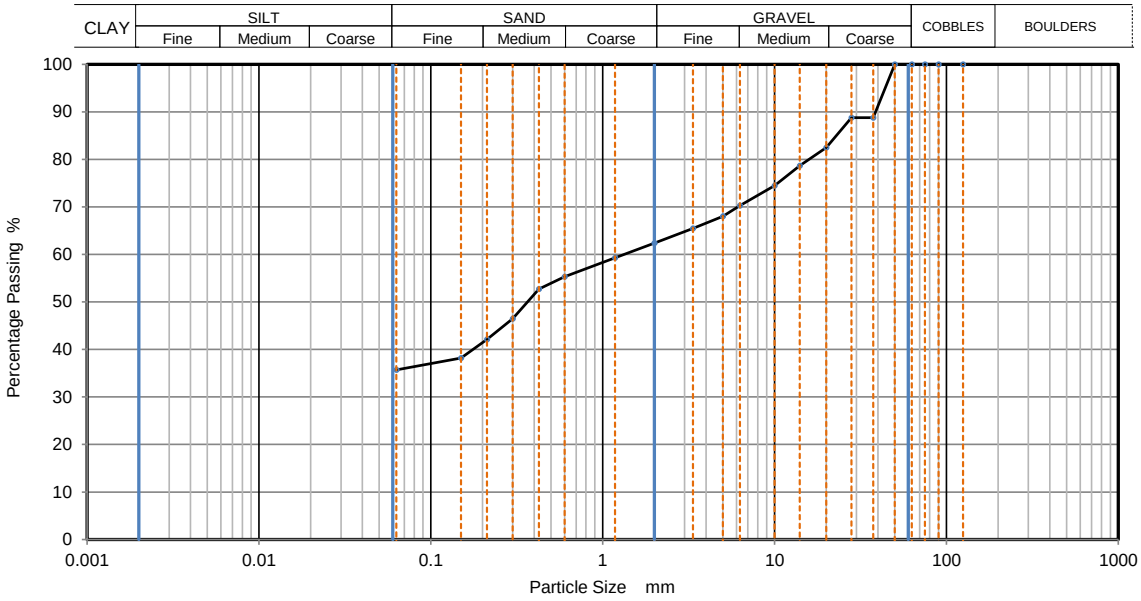
Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-84901
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	89		
28	89		
20	83		
14	79		
10	75		
6.3	70		
5	68		
3.35	66		
2	62		
1.18	59		
0.6	55		
0.425	53		
0.3	47		
0.212	42		
0.15	38		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	37.6
Sand	26.8
Fines <0.063mm	35.7

Grading Analysis		
D100	mm	
D60	mm	1.32
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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UKAS TESTING

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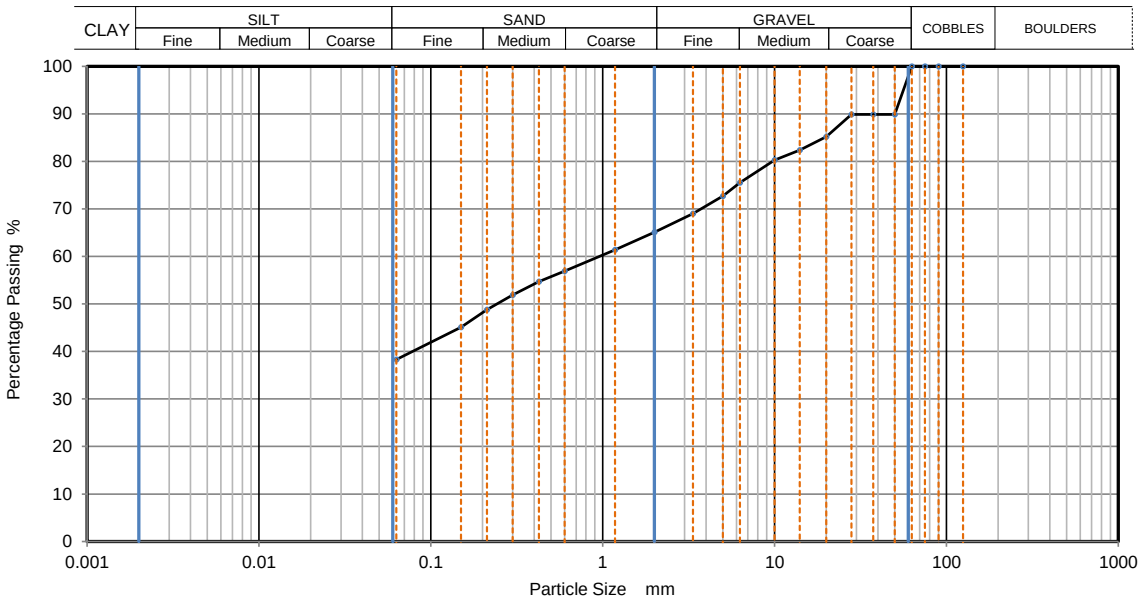
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-84901
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	90		
37.5	90		
28	90		
20	85		
14	82		
10	80		
6.3	76		
5	73		
3.35	69		
2	65		
1.18	61		
0.6	57		
0.425	55		
0.3	52		
0.212	49		
0.15	45		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.9
Sand	26.8
Fines <0.063mm	38.3

Grading Analysis		
D100	mm	
D60	mm	0.96
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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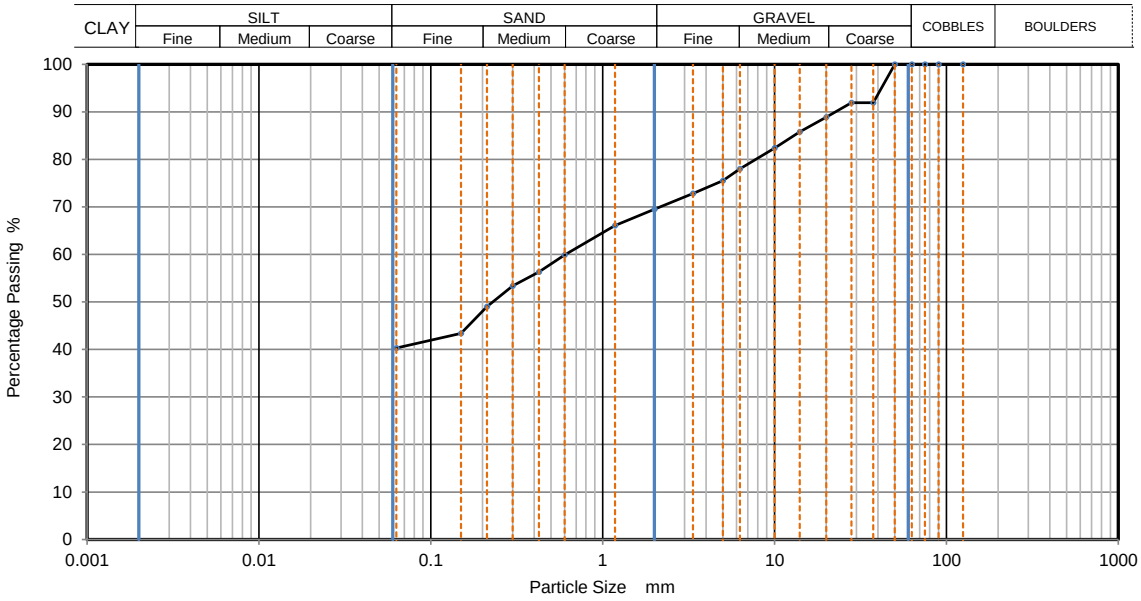
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	92		
20	89		
14	86		
10	82		
6.3	78		
5	76		
3.35	73		
2	70		
1.18	66		
0.6	60		
0.425	56		
0.3	53		
0.212	49		
0.15	43		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.5
Sand	29.2
Fines <0.063mm	40.3

Grading Analysis		
D100	mm	
D60	mm	0.607
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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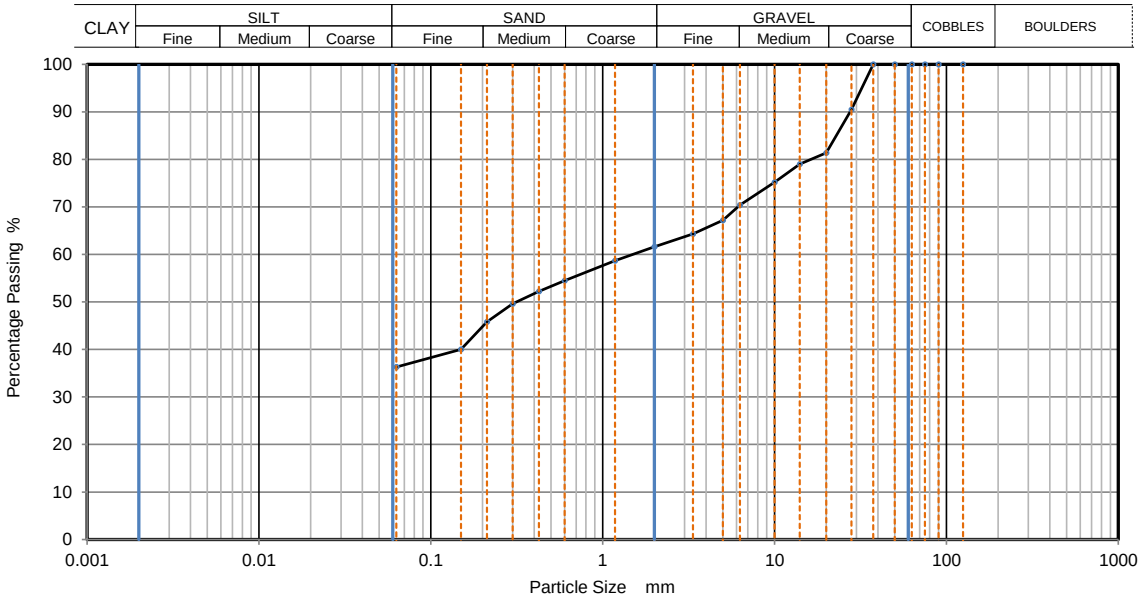
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	81		
14	79		
10	75		
6.3	70		
5	67		
3.35	64		
2	62		
1.18	59		
0.6	55		
0.425	52		
0.3	50		
0.212	46		
0.15	40		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	38.4
Sand	25.3
Fines <0.063mm	36.3

Grading Analysis		
D100	mm	
D60	mm	1.49
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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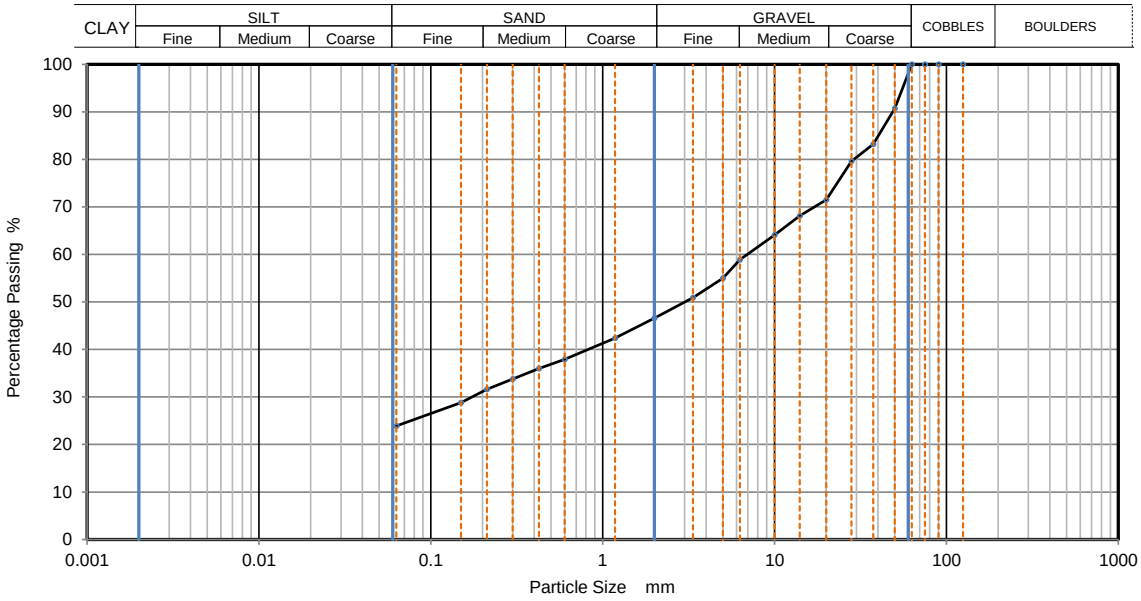
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85005
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	83		
28	80		
20	72		
14	68		
10	64		
6.3	59		
5	55		
3.35	51		
2	47		
1.18	42		
0.6	38		
0.425	36		
0.3	34		
0.212	32		
0.15	29		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	53.4
Sand	22.7
Fines <0.063mm	23.9

Grading Analysis		
D100	mm	
D60	mm	6.95
D30	mm	0.173
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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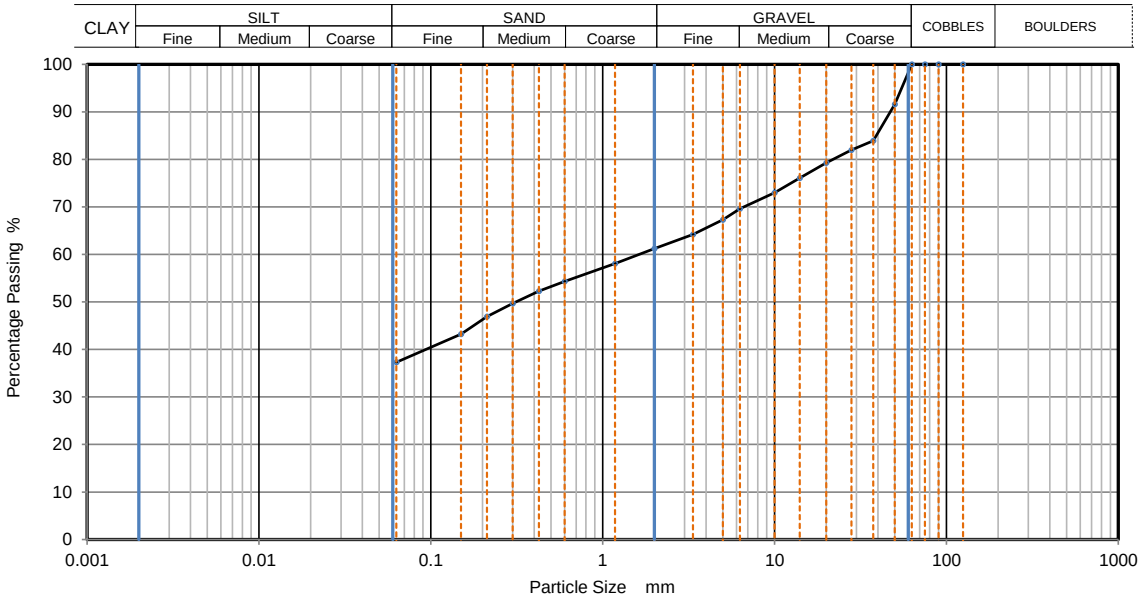
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85102
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	92		
37.5	84		
28	82		
20	79		
14	76		
10	73		
6.3	70		
5	67		
3.35	64		
2	61		
1.18	58		
0.6	54		
0.425	52		
0.3	50		
0.212	47		
0.15	43		
0.063	37		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	38.8
Sand	23.9
Fines <0.063mm	37.3

Grading Analysis		
D100	mm	
D60	mm	1.62
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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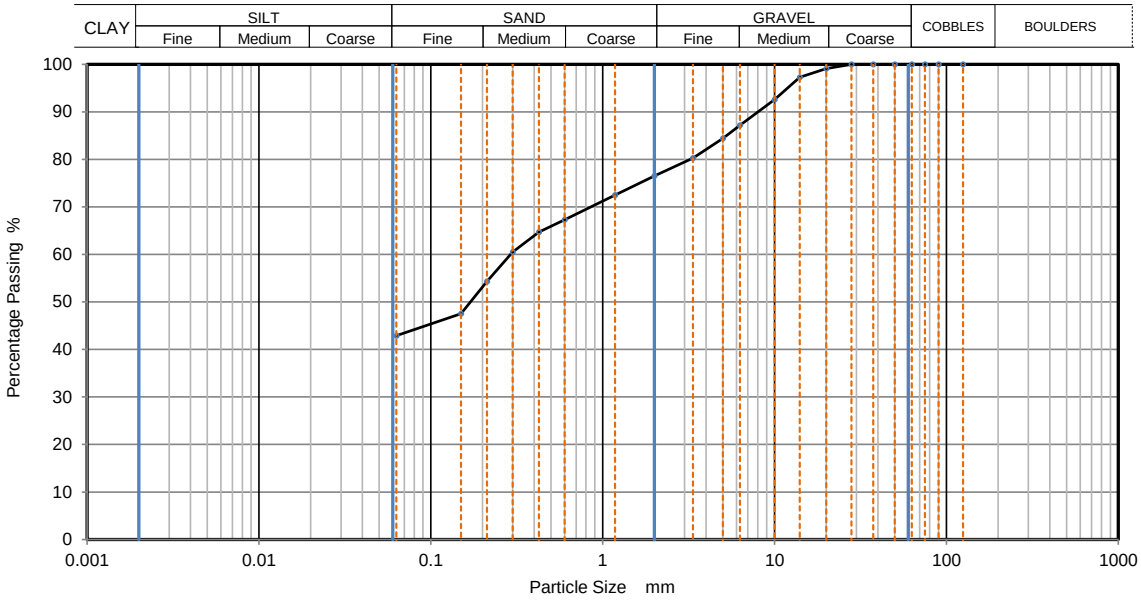
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85102
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.60 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	97		
10	93		
6.3	87		
5	84		
3.35	80		
2	77		
1.18	73		
0.6	67		
0.425	65		
0.3	61		
0.212	54		
0.15	48		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.5
Sand	33.6
Fines <0.063mm	42.9

Grading Analysis		
D100	mm	
D60	mm	0.291
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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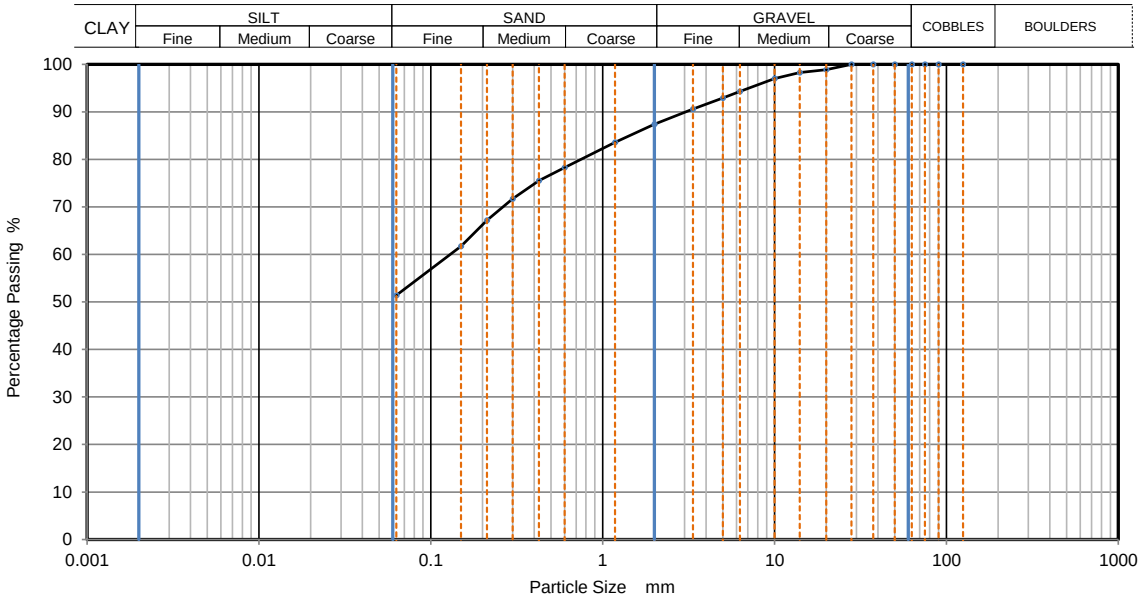
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85302
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	98		
10	97		
6.3	94		
5	93		
3.35	91		
2	87		
1.18	84		
0.6	78		
0.425	76		
0.3	72		
0.212	67		
0.15	62		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	12.6
Sand	36.0
Fines <0.063mm	51.4

Grading Analysis		
D100	mm	
D60	mm	0.13
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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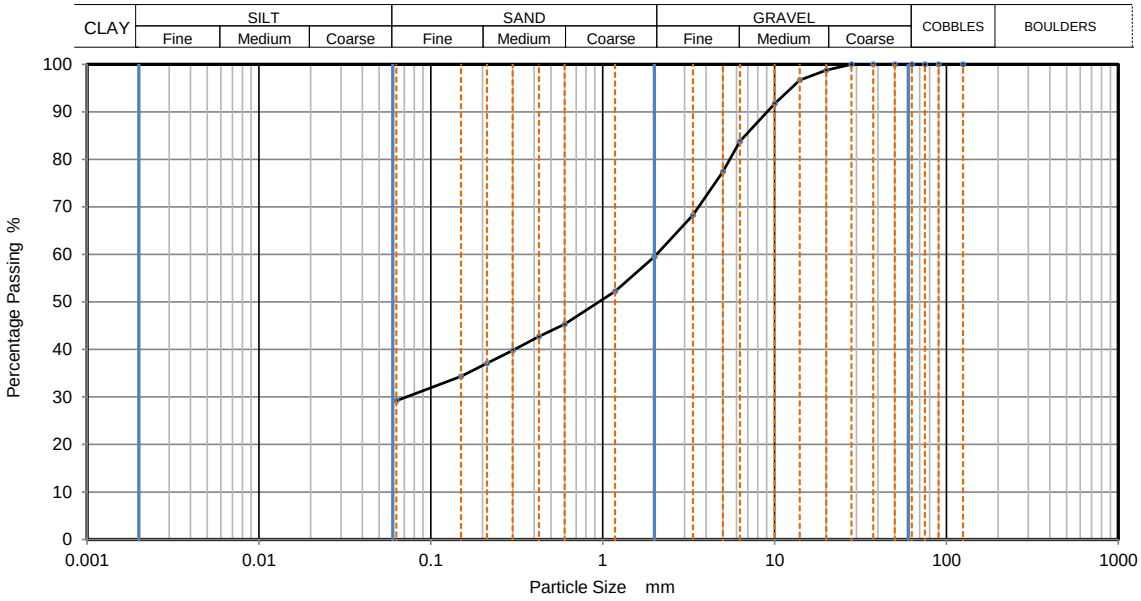
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85302
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.20 m
Soil Description	Grey silty clayey very sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	97		
10	92		
6.3	84		
5	77		
3.35	68		
2	60		
1.18	52		
0.6	45		
0.425	43		
0.3	40		
0.212	37		
0.15	34		
0.063	29		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	40.5
Sand	30.3
Fines <0.063mm	29.2

Grading Analysis		
D100	mm	
D60	mm	2.06
D30	mm	0.072
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 14/11/2022

UKAS TESTING

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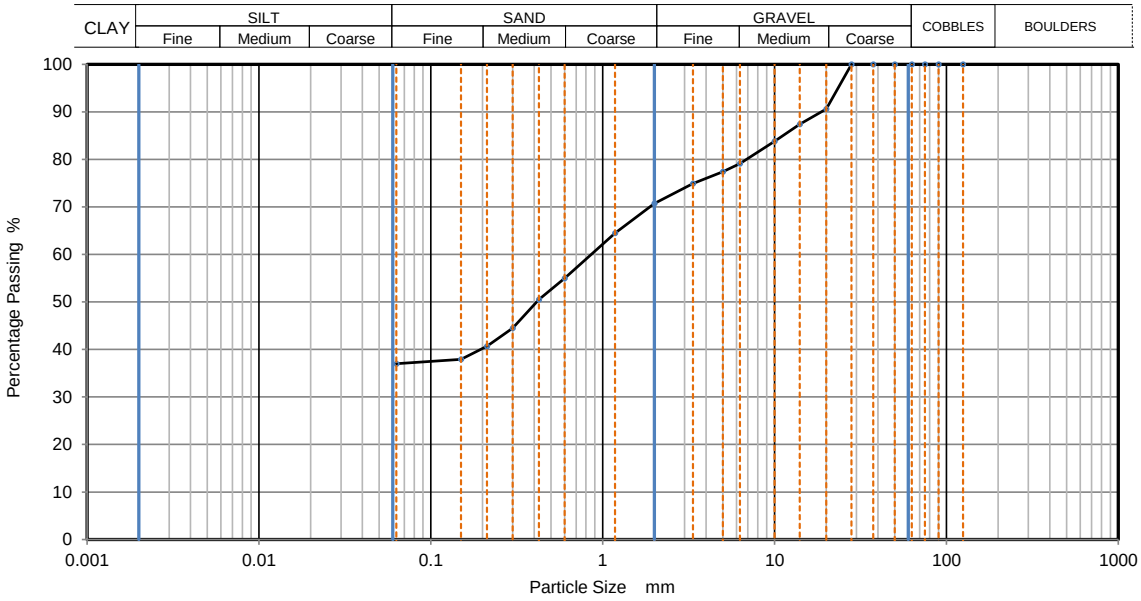
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	87		
10	84		
6.3	79		
5	77		
3.35	75		
2	71		
1.18	65		
0.6	55		
0.425	51		
0.3	45		
0.212	41		
0.15	38		
0.063	37		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.3
Sand	33.7
Fines <0.063mm	37.0

Grading Analysis		
D100	mm	
D60	mm	0.858
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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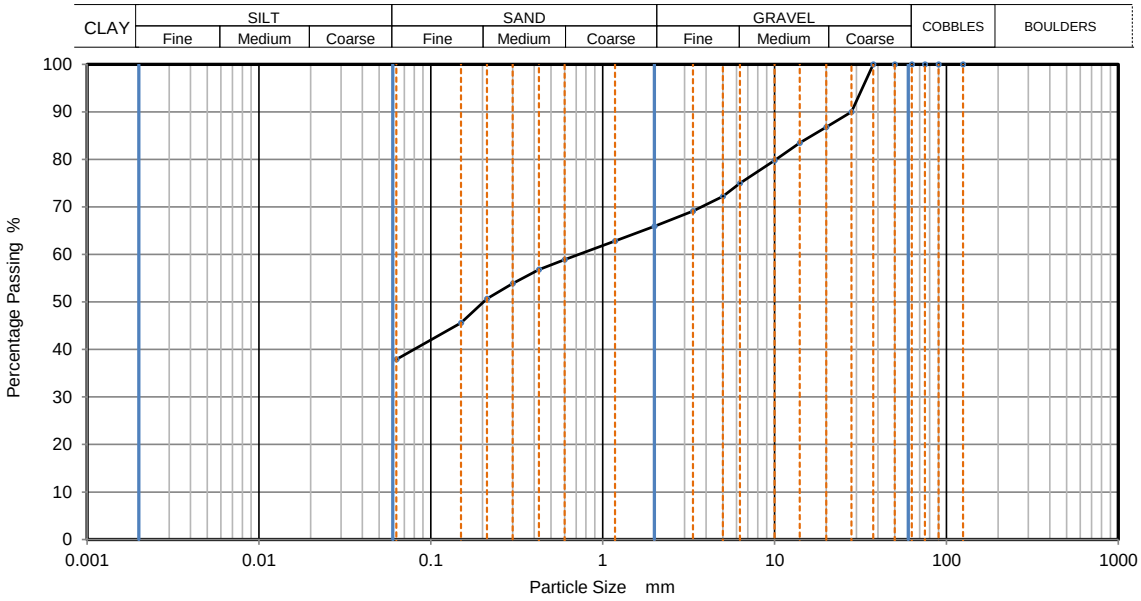
Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-85383
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	87		
14	84		
10	80		
6.3	75		
5	72		
3.35	69		
2	66		
1.18	63		
0.6	59		
0.425	57		
0.3	54		
0.212	51		
0.15	46		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.1
Sand	28.1
Fines <0.063mm	37.9

Grading Analysis		
D100	mm	
D60	mm	0.732
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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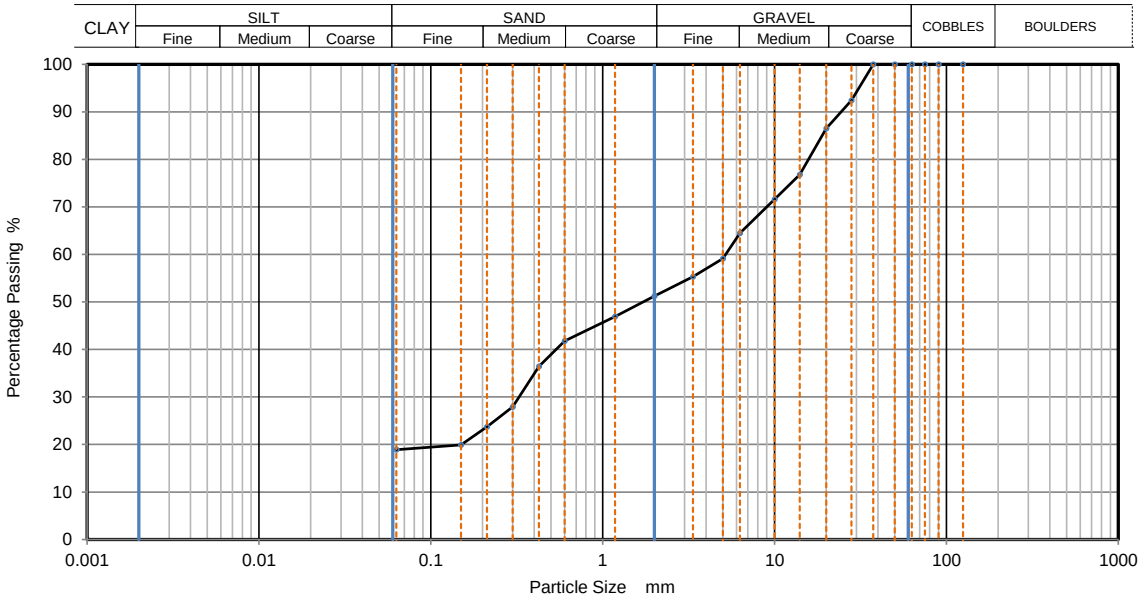
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-86302
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	87		
14	77		
10	72		
6.3	65		
5	59		
3.35	55		
2	51		
1.18	47		
0.6	42		
0.425	36		
0.3	28		
0.212	24		
0.15	20		
0.063	19		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	48.8
Sand	32.3
Fines <0.063mm	18.9

Grading Analysis		
D100	mm	
D60	mm	5.21
D30	mm	0.327
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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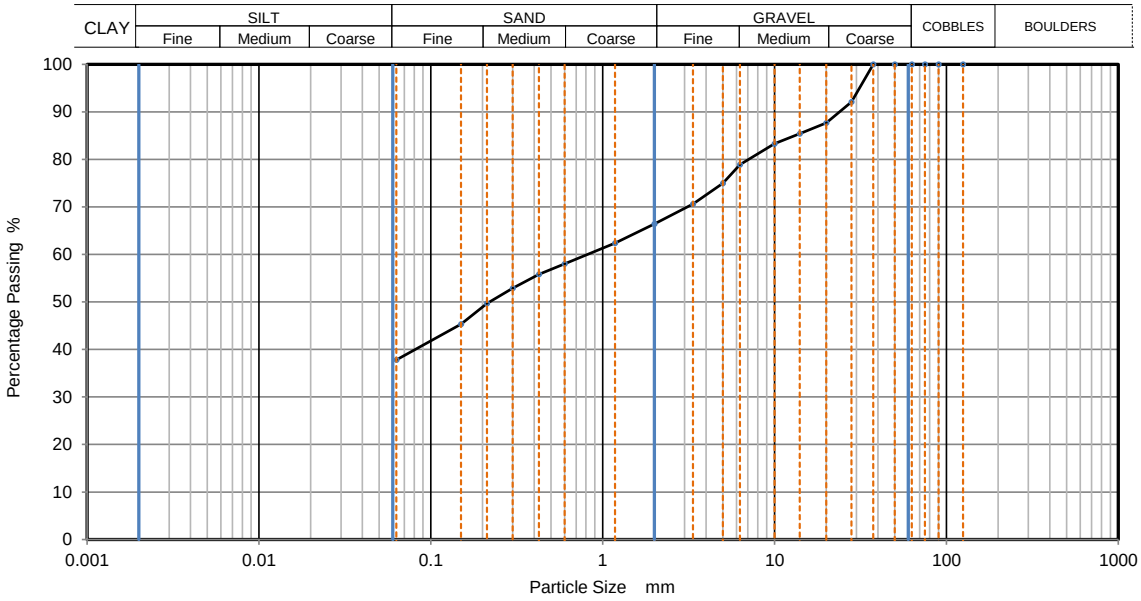
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87206
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	88		
14	85		
10	83		
6.3	79		
5	75		
3.35	71		
2	66		
1.18	62		
0.6	58		
0.425	56		
0.3	53		
0.212	50		
0.15	45		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.6
Sand	28.5
Fines <0.063mm	37.9

Grading Analysis		
D100	mm	
D60	mm	0.814
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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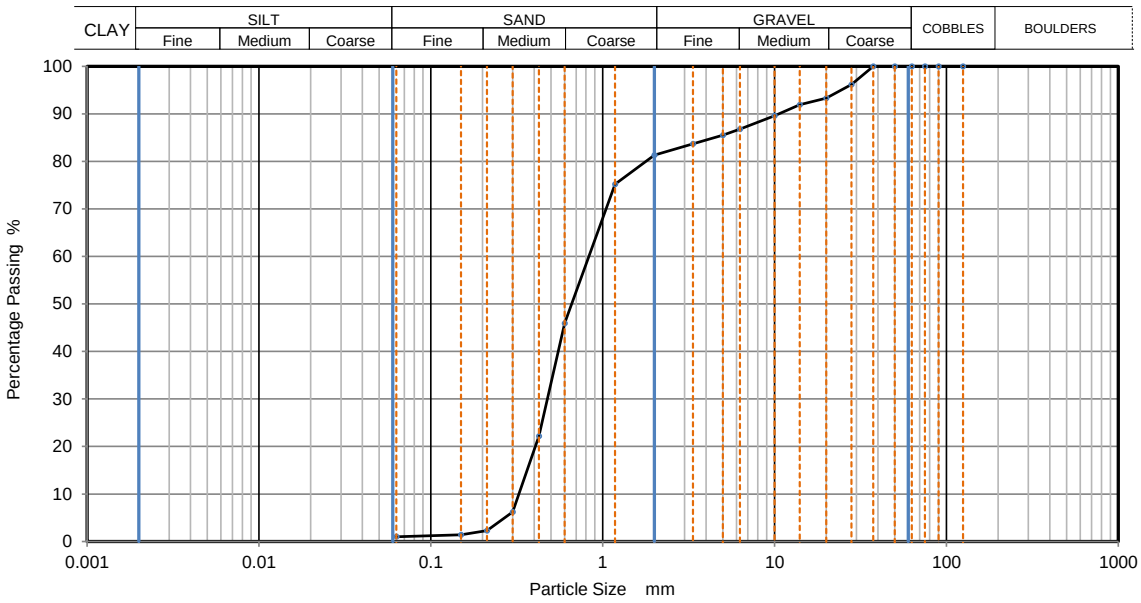
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87206
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Dark grey gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	93		
14	92		
10	90		
6.3	87		
5	86		
3.35	84		
2	81		
1.18	75		
0.6	46		
0.425	22		
0.3	6		
0.212	2		
0.15	1		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	18.7
Sand	80.3
Fines <0.063mm	1.0

Grading Analysis		
D100	mm	
D60	mm	0.831
D30	mm	0.476
D10	mm	0.326
Uniformity Coefficient		2.5
Curvature Coefficient		0.84

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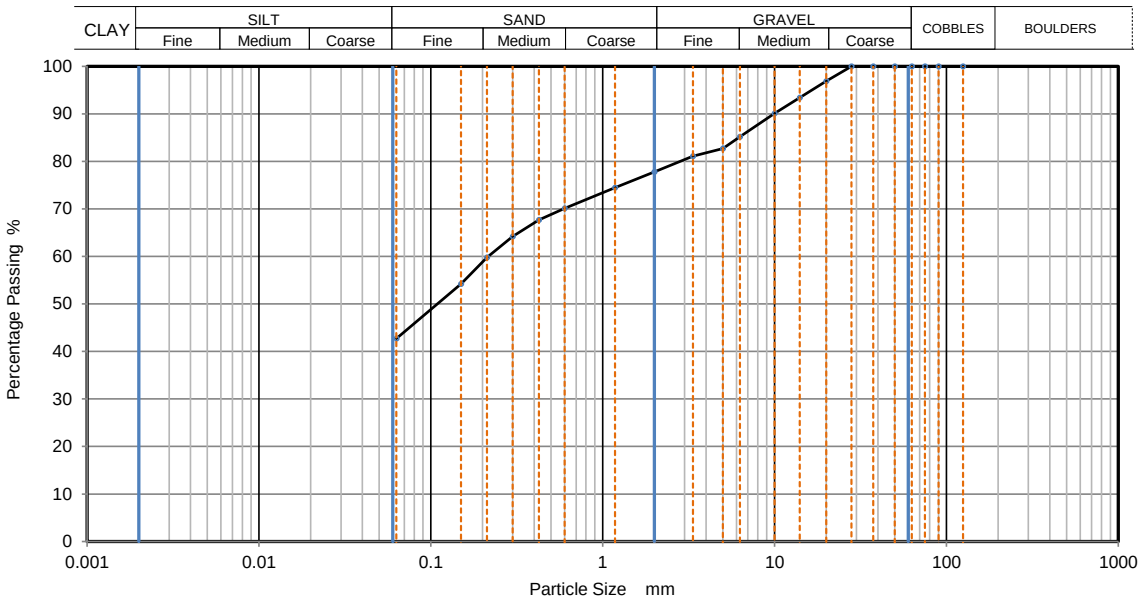
Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87304
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	93		
10	90		
6.3	85		
5	83		
3.35	81		
2	78		
1.18	75		
0.6	70		
0.425	68		
0.3	64		
0.212	60		
0.15	54		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.2
Sand	35.1
Fines <0.063mm	42.7

Grading Analysis		
D100	mm	
D60	mm	0.215
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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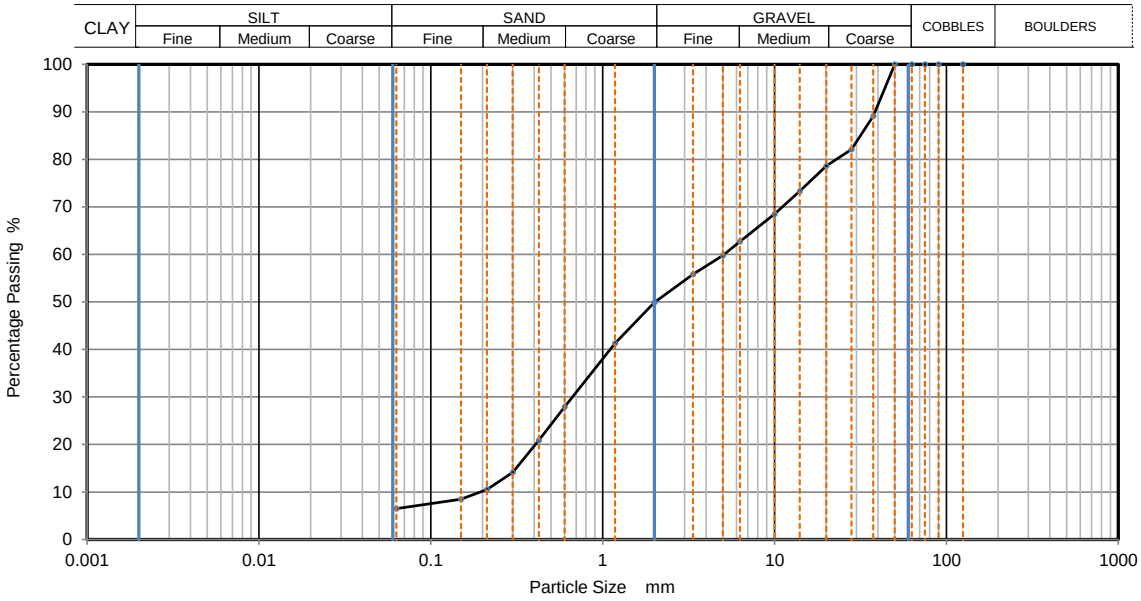
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87304
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Dark grey slightly clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	89		
28	82		
20	79		
14	73		
10	69		
6.3	63		
5	60		
3.35	56		
2	50		
1.18	41		
0.6	28		
0.425	21		
0.3	14		
0.212	11		
0.15	9		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	50.1
Sand	43.4
Fines <0.063mm	6.5

Grading Analysis		
D100	mm	
D60	mm	5.1
D30	mm	0.667
D10	mm	0.195
Uniformity Coefficient		26
Curvature Coefficient		0.45

Remarks

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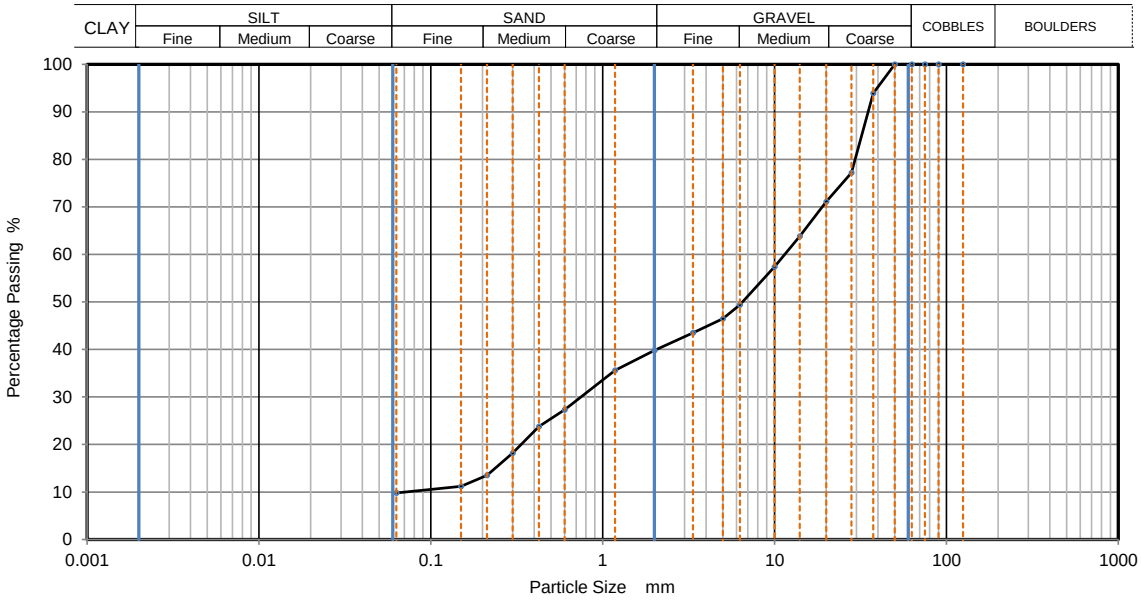
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87706
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Dark grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	77		
20	71		
14	64		
10	57		
6.3	49		
5	47		
3.35	44		
2	40		
1.18	36		
0.6	27		
0.425	24		
0.3	18		
0.212	14		
0.15	11		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	60.2
Sand	30.0
Fines <0.063mm	9.8

Grading Analysis		
D100	mm	
D60	mm	11.5
D30	mm	0.748
D10	mm	0.07
Uniformity Coefficient		160
Curvature Coefficient		0.7

Remarks

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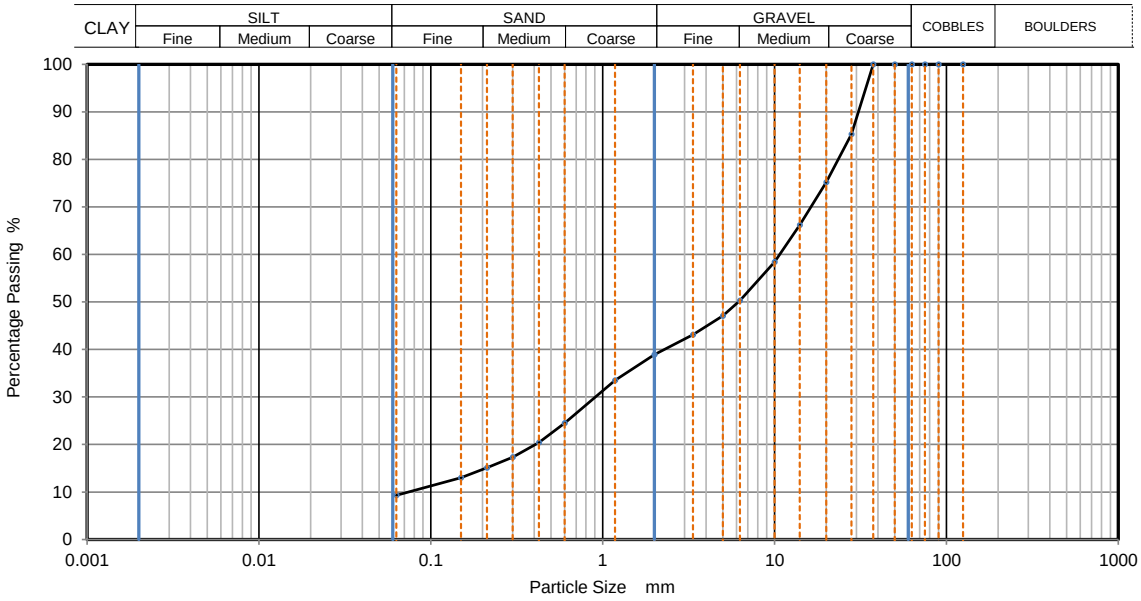
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87706
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey slightly silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	85		
20	75		
14	66		
10	58		
6.3	50		
5	47		
3.35	43		
2	39		
1.18	34		
0.6	25		
0.425	20		
0.3	17		
0.212	15		
0.15	13		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	61.1
Sand	29.6
Fines <0.063mm	9.3

Grading Analysis		
D100	mm	
D60	mm	10.7
D30	mm	0.907
D10	mm	0.0743
Uniformity Coefficient		140
Curvature Coefficient		1

Remarks

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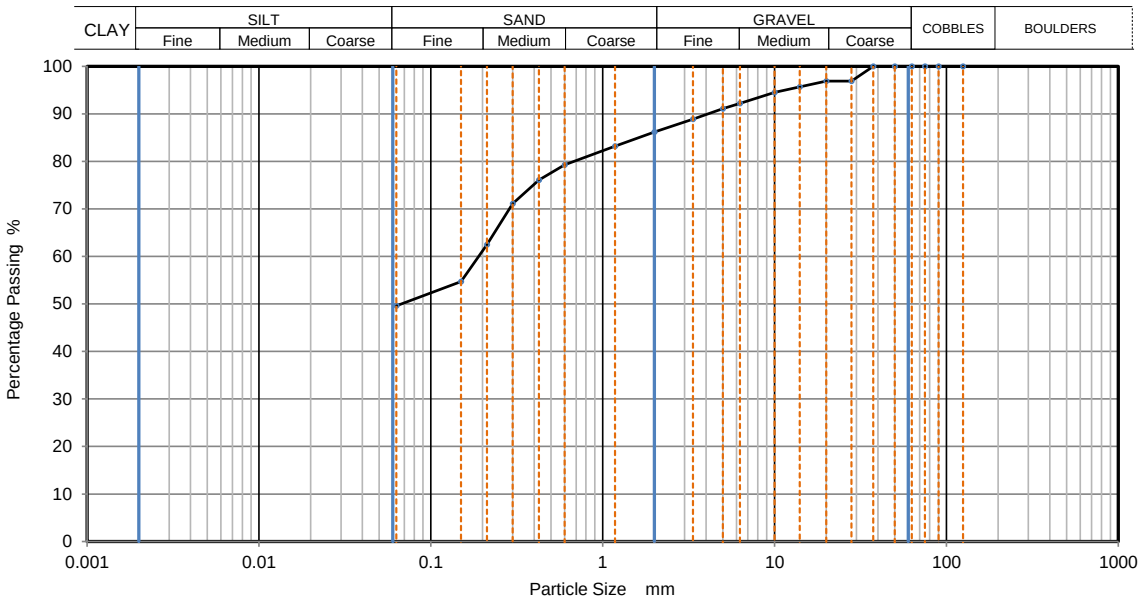
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87803
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	97		
14	96		
10	95		
6.3	92		
5	91		
3.35	89		
2	86		
1.18	83		
0.6	79		
0.425	76		
0.3	71		
0.212	63		
0.15	55		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	13.8
Sand	36.5
Fines <0.063mm	49.7

Grading Analysis		
D100	mm	
D60	mm	0.19
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/11/2022

UKAS TESTING

2519

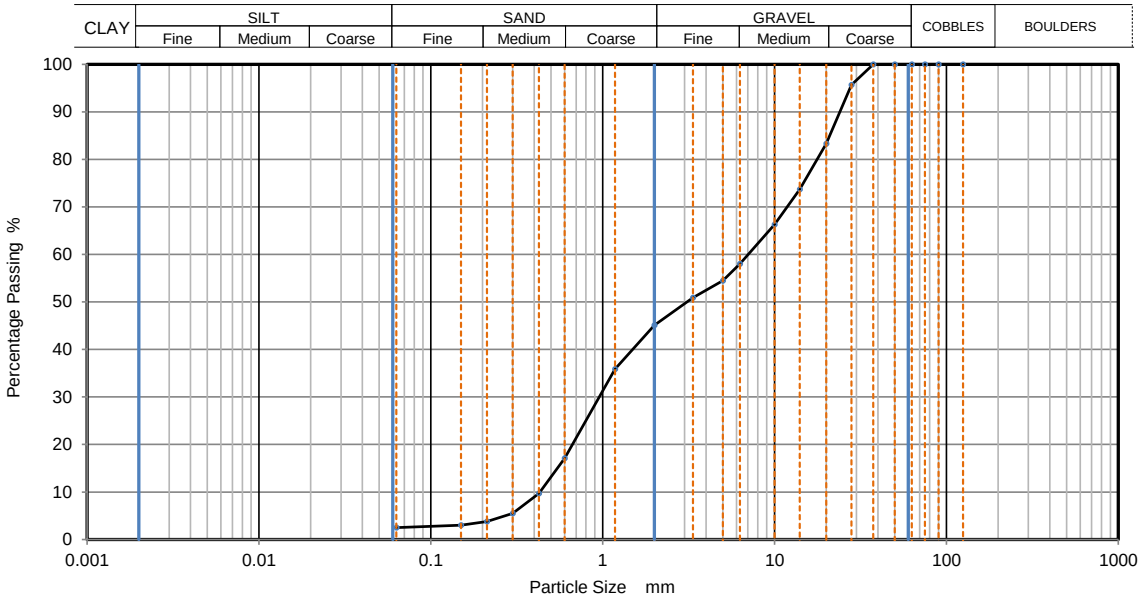
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87803
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Grey slightly clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	83		
14	74		
10	66		
6.3	58		
5	55		
3.35	51		
2	45		
1.18	36		
0.6	17		
0.425	10		
0.3	6		
0.212	4		
0.15	3		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	54.9
Sand	42.7
Fines <0.063mm	2.5

Grading Analysis		
D100	mm	
D60	mm	7.03
D30	mm	0.954
D10	mm	0.431
Uniformity Coefficient		16
Curvature Coefficient		0.3

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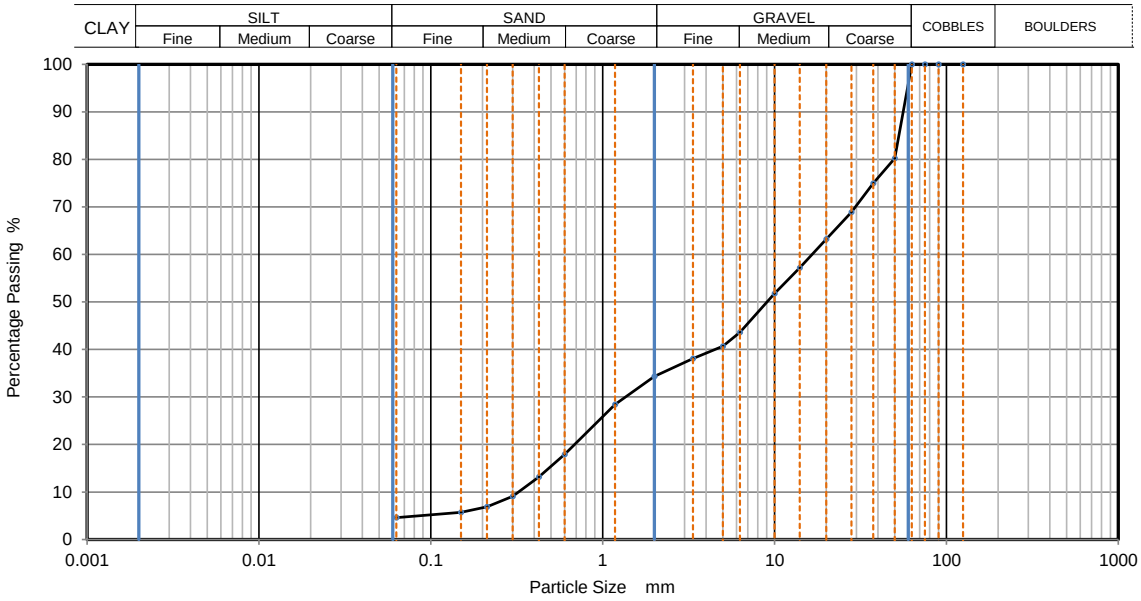
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-87905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Dark grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	80		
37.5	75		
28	69		
20	63		
14	57		
10	52		
6.3	44		
5	41		
3.35	38		
2	34		
1.18	28		
0.6	18		
0.425	13		
0.3	9		
0.212	7		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	65.7
Sand	29.7
Fines <0.063mm	4.6

Grading Analysis		
D100	mm	
D60	mm	16.5
D30	mm	1.36
D10	mm	0.323
Uniformity Coefficient		51
Curvature Coefficient		0.35

Remarks

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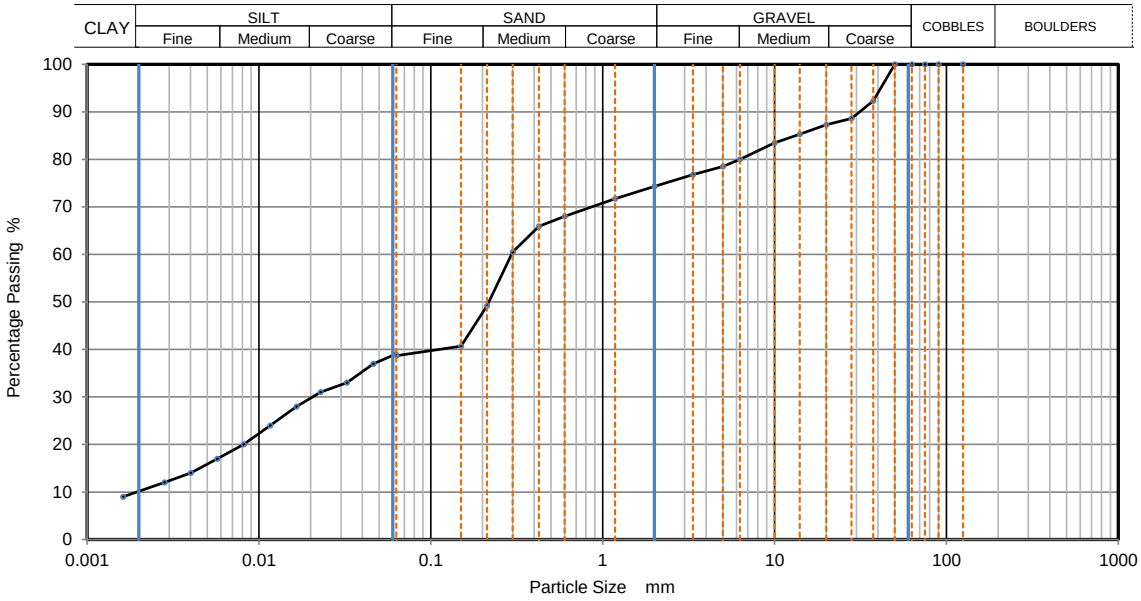
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88303
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	39
90	100	0.0463	37
75	100	0.0324	33
63	100	0.0228	31
50	100	0.0166	28
37.5	92	0.0116	24
28	89	0.0081	20
20	87	0.0057	17
14	85	0.0040	14
10	84	0.0028	12
6.3	80	0.0016	9
5	79		
3.35	77		
2	74		
1.18	72		
0.6	68	Particle density (assumed)	
0.425	66	2.70	Mg/m3
0.3	61		
0.212	49		
0.15	41		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.7
Sand	35.6
Silt	28.4
Clay	10.3

Grading Analysis		
D100	mm	
D60	mm	0.295
D30	mm	0.0212
D10	mm	0.00184
Uniformity Coefficient		160
Curvature Coefficient		0.83

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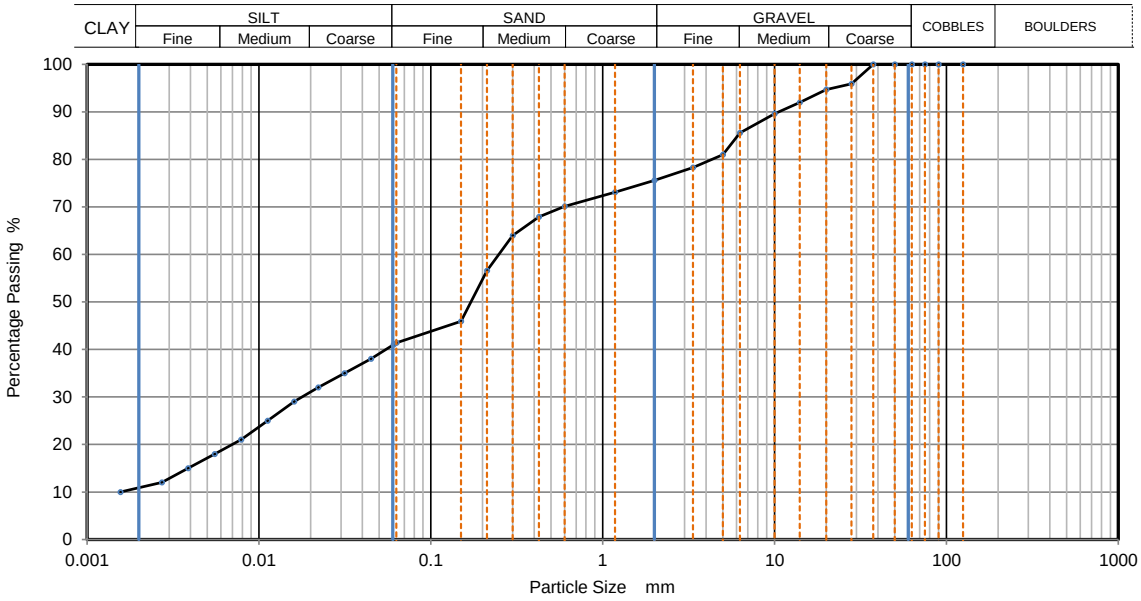
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88303
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0608	41
90	100	0.0449	38
75	100	0.0315	35
63	100	0.0221	32
50	100	0.0160	29
37.5	100	0.0112	25
28	96	0.0079	21
20	95	0.0055	18
14	92	0.0039	15
10	90	0.0027	12
6.3	86	0.0016	10
5	81		
3.35	78		
2	76		
1.18	73		
0.6	70	Particle density	(assumed)
0.425	68	2.70	Mg/m3
0.3	64		
0.212	57		
0.15	46		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.4
Sand	34.1
Silt	30.9
Clay	10.6

Grading Analysis		
D100	mm	
D60	mm	0.249
D30	mm	0.018
D10	mm	0.00166
Uniformity Coefficient		150
Curvature Coefficient		0.79

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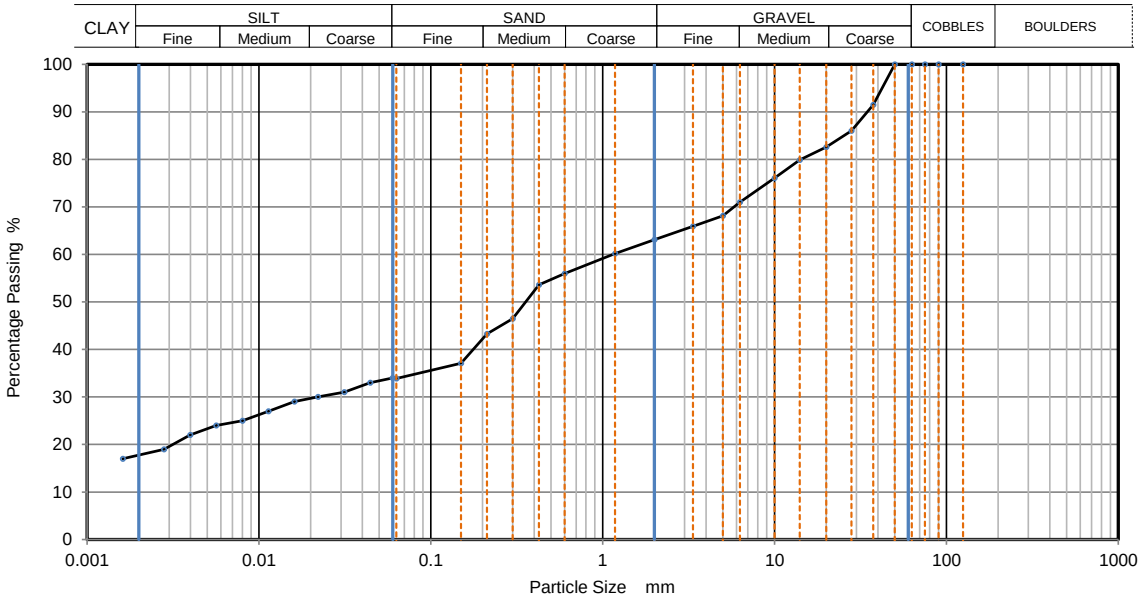
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88303
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0598	34
90	100	0.0444	33
75	100	0.0313	31
63	100	0.0221	30
50	100	0.0161	29
37.5	92	0.0114	27
28	86	0.0080	25
20	83	0.0056	24
14	80	0.0040	22
10	76	0.0028	19
6.3	71	0.0016	17
5	68		
3.35	66		
2	63		
1.18	60		
0.6	56	Particle density (assumed)	
0.425	54	2.70 Mg/m3	
0.3	47		
0.212	43		
0.15	37		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	36.9
Sand	29.3
Silt	16.1
Clay	17.7

Grading Analysis		
D100	mm	
D60	mm	1.14
D30	mm	0.0215
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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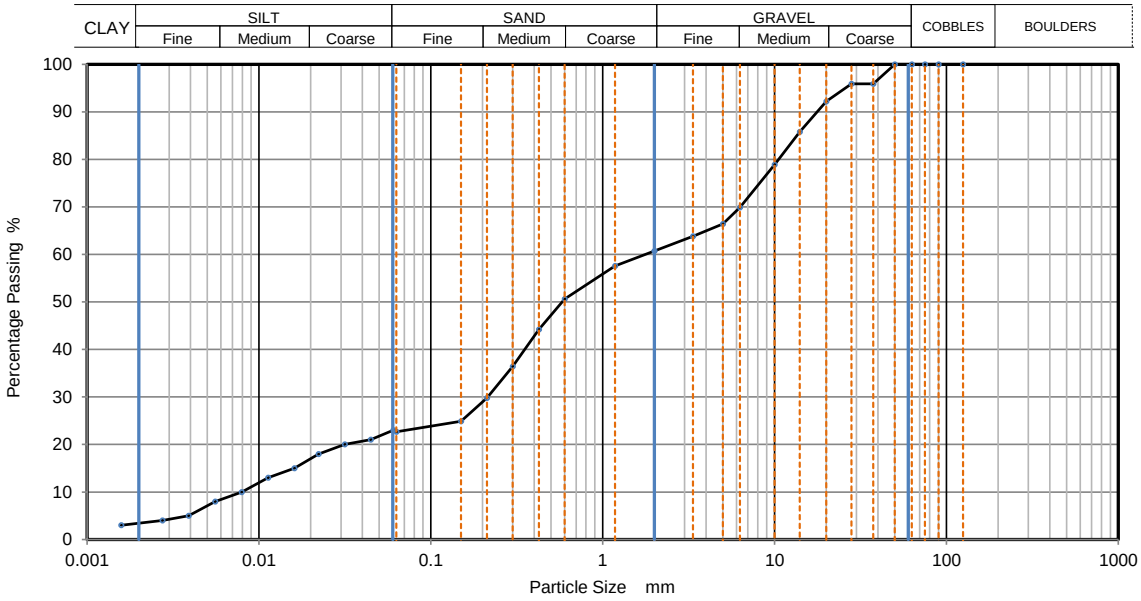
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88402
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Dark grey slightly clayey silty very sandy GRAVEL gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0604	23
90	100	0.0448	21
75	100	0.0315	20
63	100	0.0222	18
50	100	0.0161	15
37.5	96	0.0113	13
28	96	0.0079	10
20	92	0.0056	8
14	86	0.0039	5
10	79	0.0027	4
6.3	70	0.0016	3
5	66		
3.35	64		
2	61		
1.18	58		
0.6	51	Particle density (assumed)	
0.425	44	2.70 Mg/m3	
0.3	36		
0.212	30		
0.15	25		
0.063	23		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.3
Sand	38.1
Silt	19.6
Clay	3.0

Grading Analysis		
D100	mm	
D60	mm	1.77
D30	mm	0.214
D10	mm	0.00755
Uniformity Coefficient		230
Curvature Coefficient		3.4

Remarks

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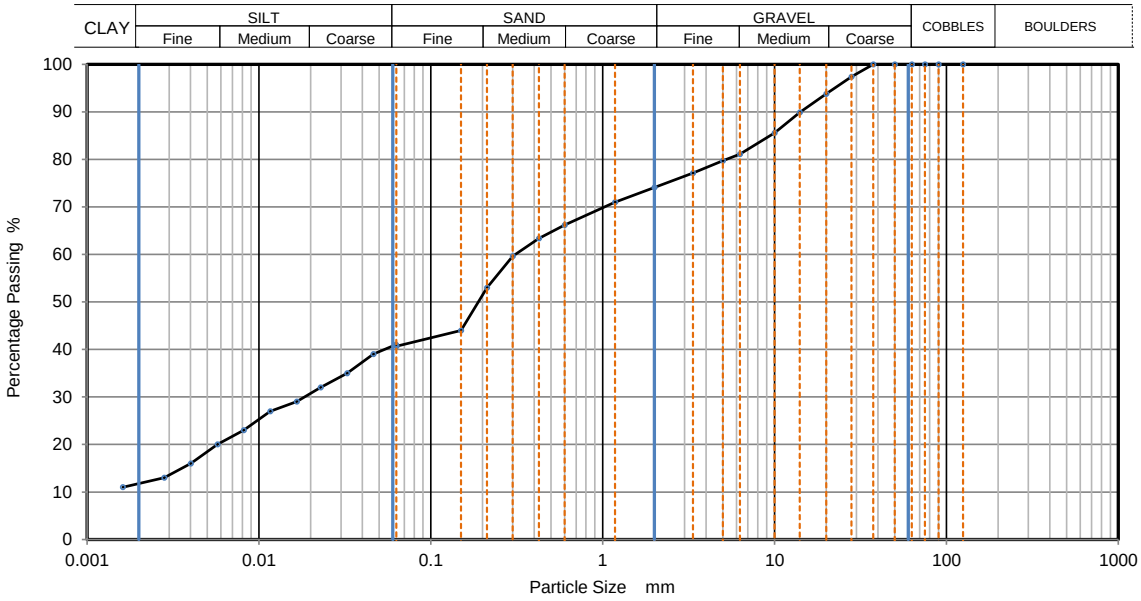
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88402
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0626	41
90	100	0.0464	39
75	100	0.0325	35
63	100	0.0228	32
50	100	0.0166	29
37.5	100	0.0116	27
28	97	0.0082	23
20	94	0.0057	20
14	90	0.0040	16
10	86	0.0028	13
6.3	81	0.0016	11
5	80		
3.35	77		
2	74		
1.18	71		
0.6	66	Particle density (assumed)	
0.425	63	2.70	Mg/m3
0.3	60		
0.212	53		
0.15	44		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.9
Sand	33.4
Silt	29.1
Clay	11.6

Grading Analysis		
D100	mm	
D60	mm	0.311
D30	mm	0.0177
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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2519

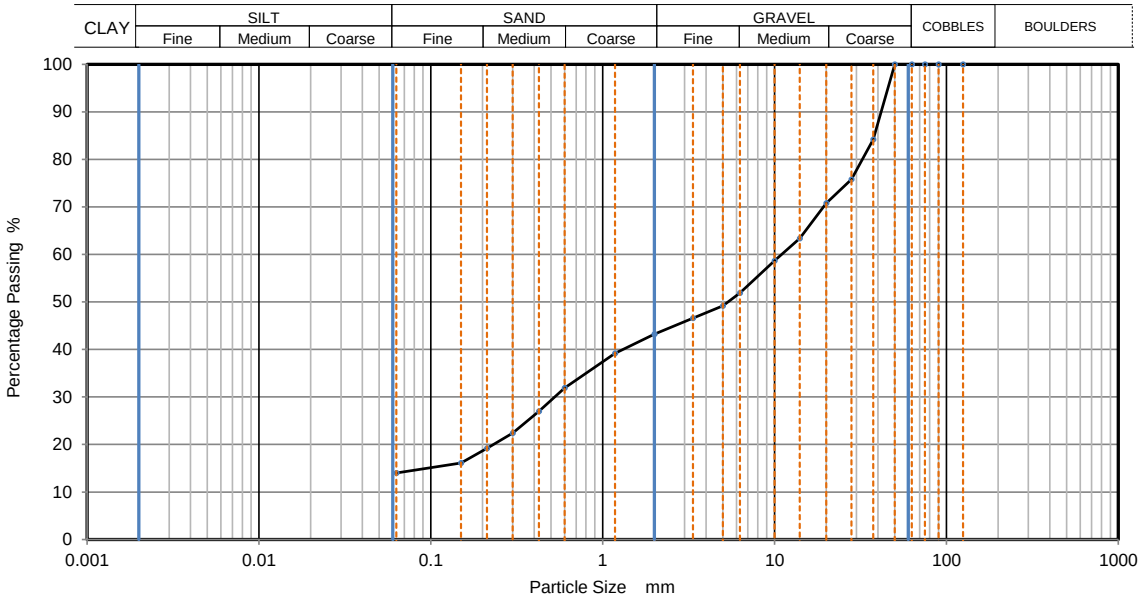
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88503
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	84		
28	76		
20	71		
14	63		
10	59		
6.3	52		
5	49		
3.35	47		
2	43		
1.18	39		
0.6	32		
0.425	27		
0.3	22		
0.212	19		
0.15	16		
0.063	14		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	56.8
Sand	29.1
Fines <0.063mm	14.0

Grading Analysis		
D100	mm	
D60	mm	11
D30	mm	0.523
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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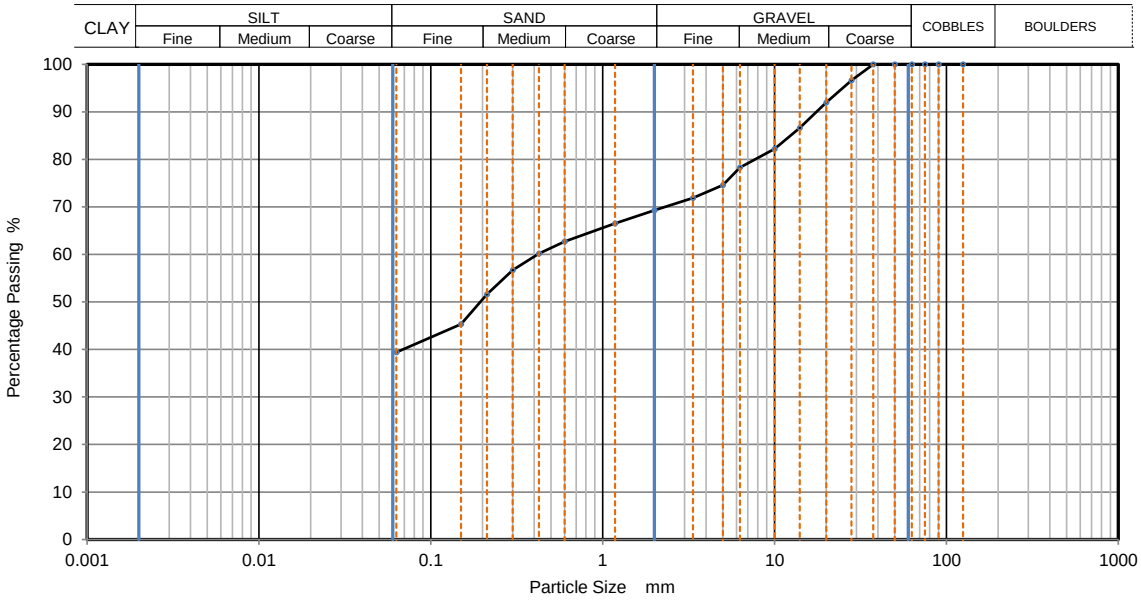
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88503
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	92		
14	87		
10	82		
6.3	78		
5	75		
3.35	72		
2	69		
1.18	67		
0.6	63		
0.425	60		
0.3	57		
0.212	52		
0.15	45		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.7
Sand	29.9
Fines <0.063mm	39.4

Grading Analysis		
D100	mm	
D60	mm	0.417
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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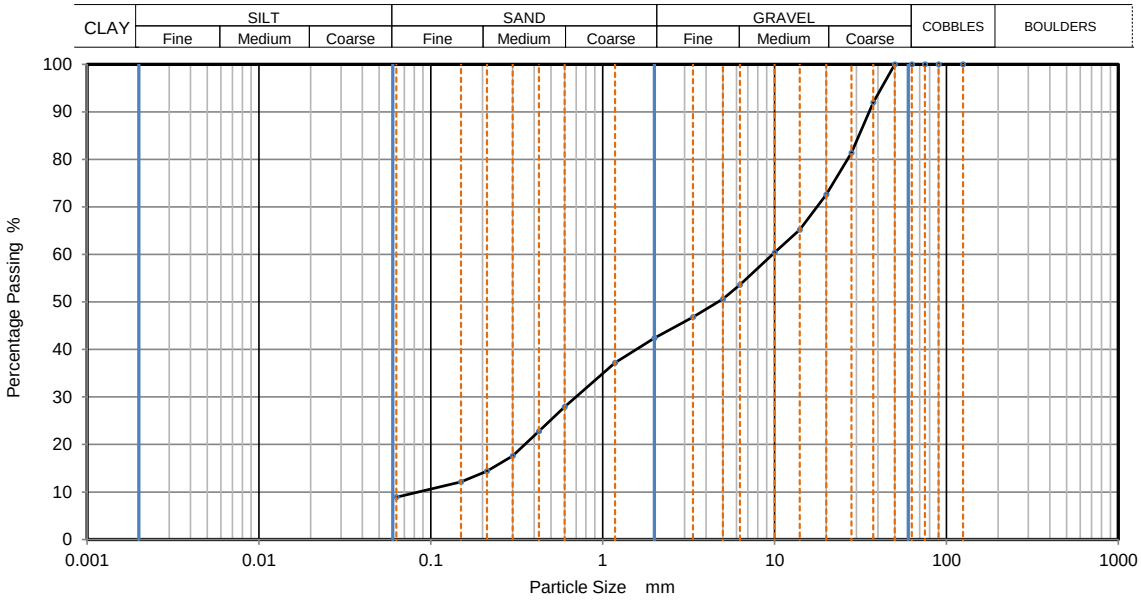
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88601
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey slightly clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	81		
20	73		
14	65		
10	60		
6.3	54		
5	51		
3.35	47		
2	42		
1.18	37		
0.6	28		
0.425	23		
0.3	18		
0.212	14		
0.15	12		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	57.6
Sand	33.6
Fines <0.063mm	8.9

Grading Analysis		
D100	mm	
D60	mm	9.74
D30	mm	0.699
D10	mm	0.0859
Uniformity Coefficient		110
Curvature Coefficient		0.58

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Checked and Approved

Initials: **J.P**

Date: 14/11/2022

UKAS TESTING

2519

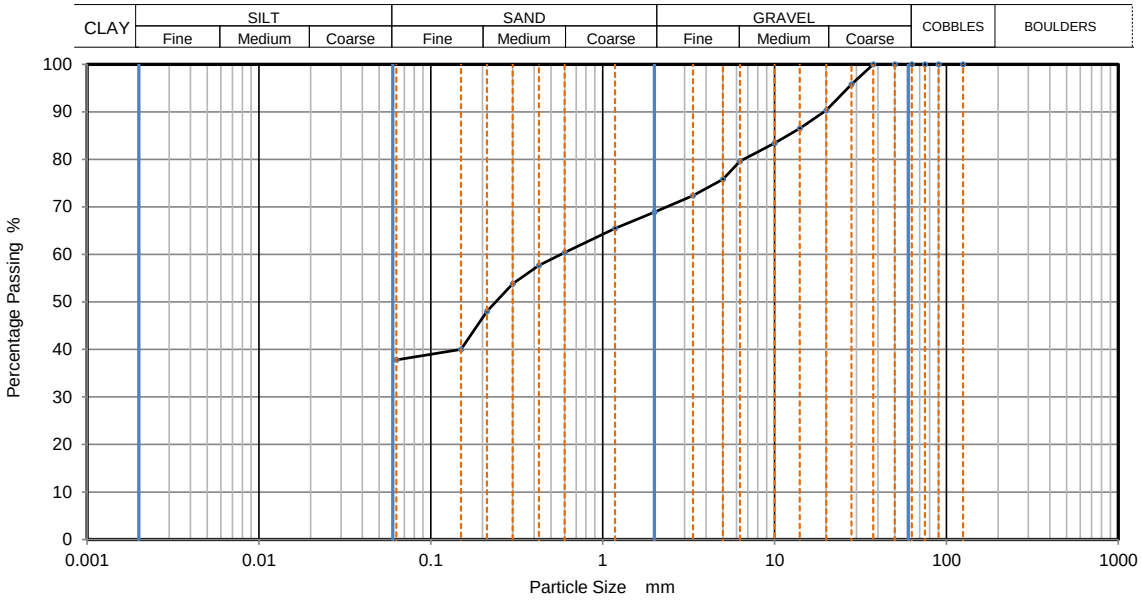
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88703
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	90		
14	87		
10	83		
6.3	80		
5	76		
3.35	72		
2	69		
1.18	66		
0.6	60		
0.425	58		
0.3	54		
0.212	48		
0.15	40		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	31.1
Sand	31.2
Fines <0.063mm	37.8

Grading Analysis		
D100	mm	
D60	mm	0.568
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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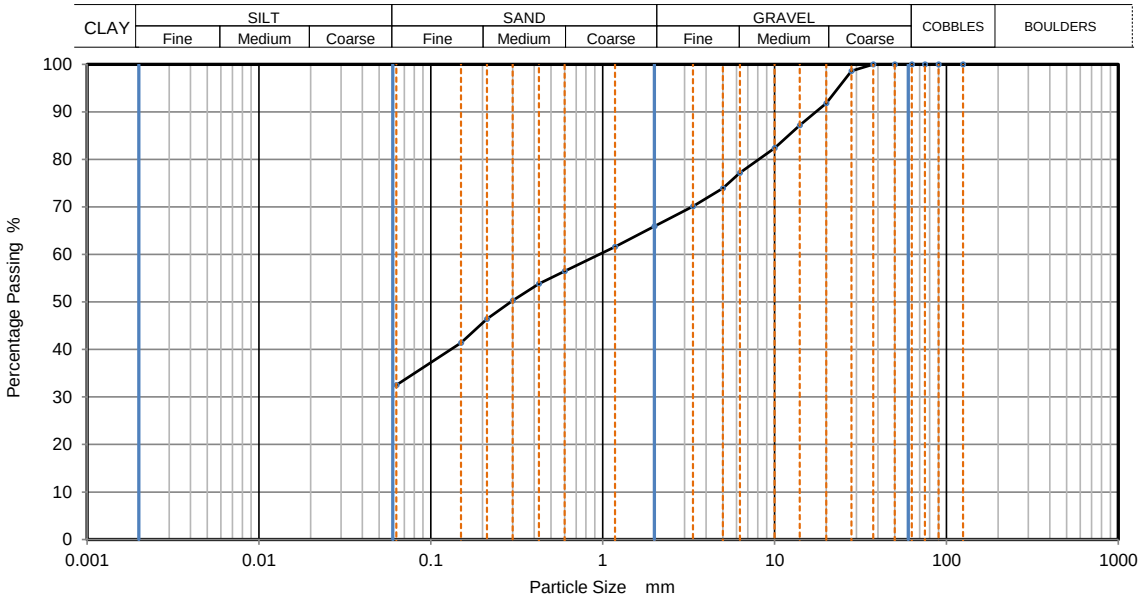
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88703
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	92		
14	87		
10	82		
6.3	77		
5	74		
3.35	70		
2	66		
1.18	62		
0.6	57		
0.425	54		
0.3	50		
0.212	46		
0.15	41		
0.063	33		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.1
Sand	33.4
Fines <0.063mm	32.5

Grading Analysis		
D100	mm	
D60	mm	0.956
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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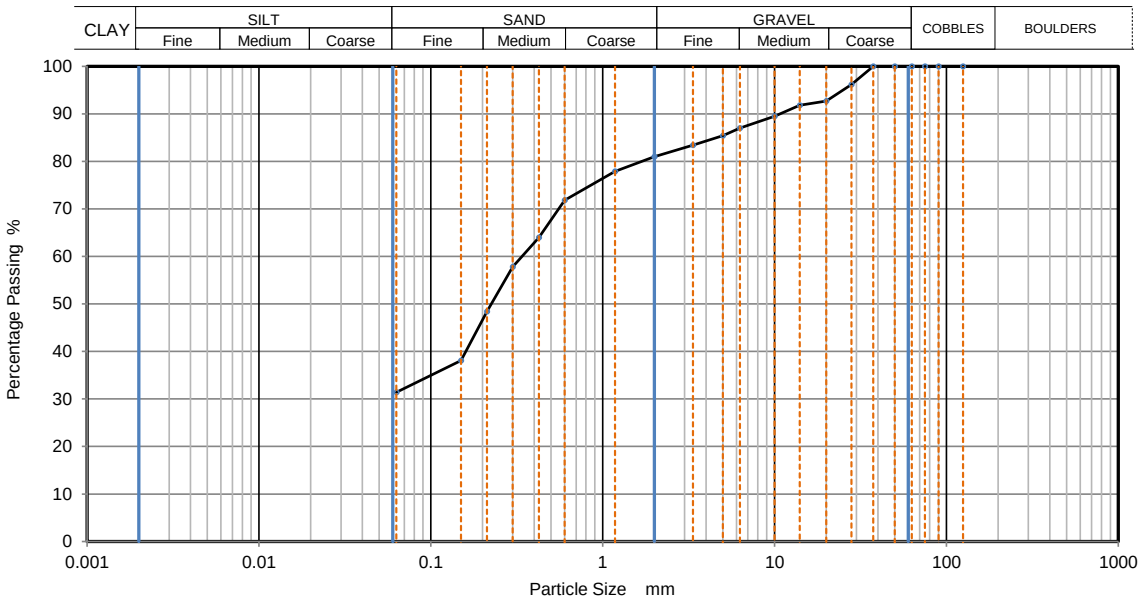
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown silty clayey gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	93		
14	92		
10	90		
6.3	87		
5	85		
3.35	83		
2	81		
1.18	78		
0.6	72		
0.425	64		
0.3	58		
0.212	48		
0.15	38		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.0
Sand	49.6
Fines <0.063mm	31.4

Grading Analysis		
D100	mm	
D60	mm	0.34
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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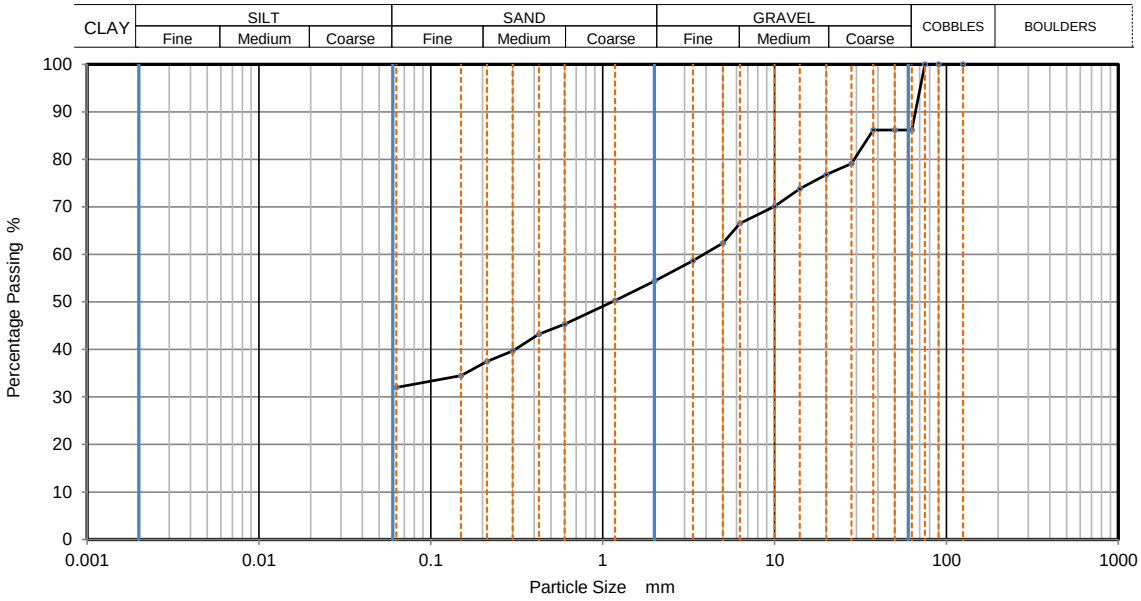
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	86		
50	86		
37.5	86		
28	79		
20	77		
14	74		
10	70		
6.3	67		
5	62		
3.35	59		
2	54		
1.18	50		
0.6	45		
0.425	43		
0.3	40		
0.212	38		
0.15	35		
0.063	32		

Sample Proportions	% dry mass
Very coarse	13.8
Gravel	31.8
Sand	22.4
Fines <0.063mm	32.0

Grading Analysis		
D100	mm	
D60	mm	3.84
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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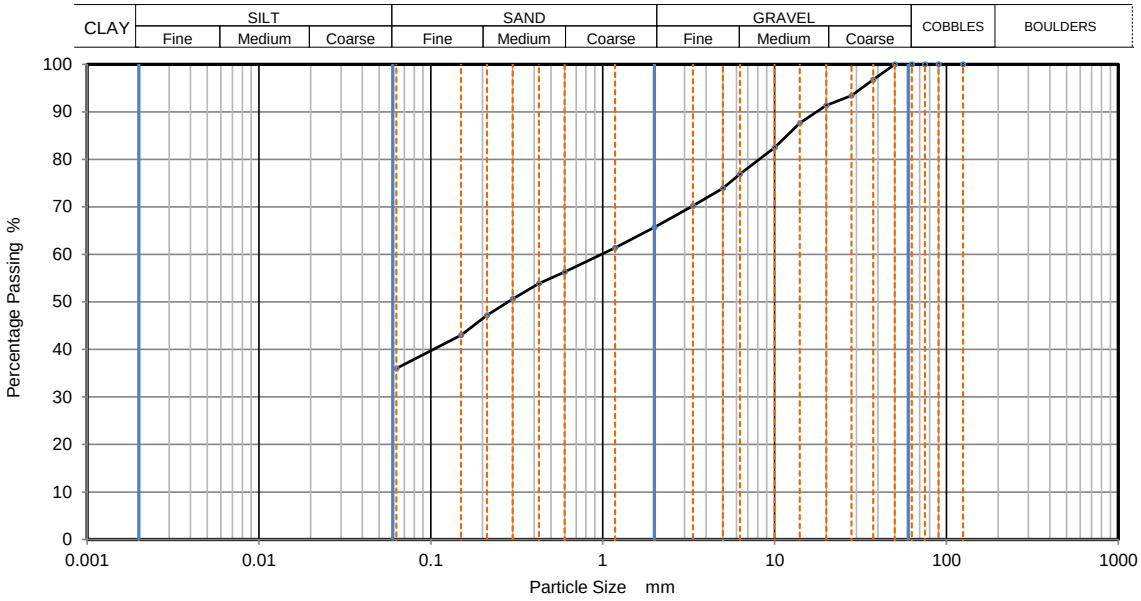
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88802
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	93		
20	91		
14	88		
10	83		
6.3	77		
5	74		
3.35	70		
2	66		
1.18	61		
0.6	56		
0.425	54		
0.3	51		
0.212	47		
0.15	43		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.3
Sand	29.7
Fines <0.063mm	36.0

Grading Analysis		
D100	mm	
D60	mm	0.977
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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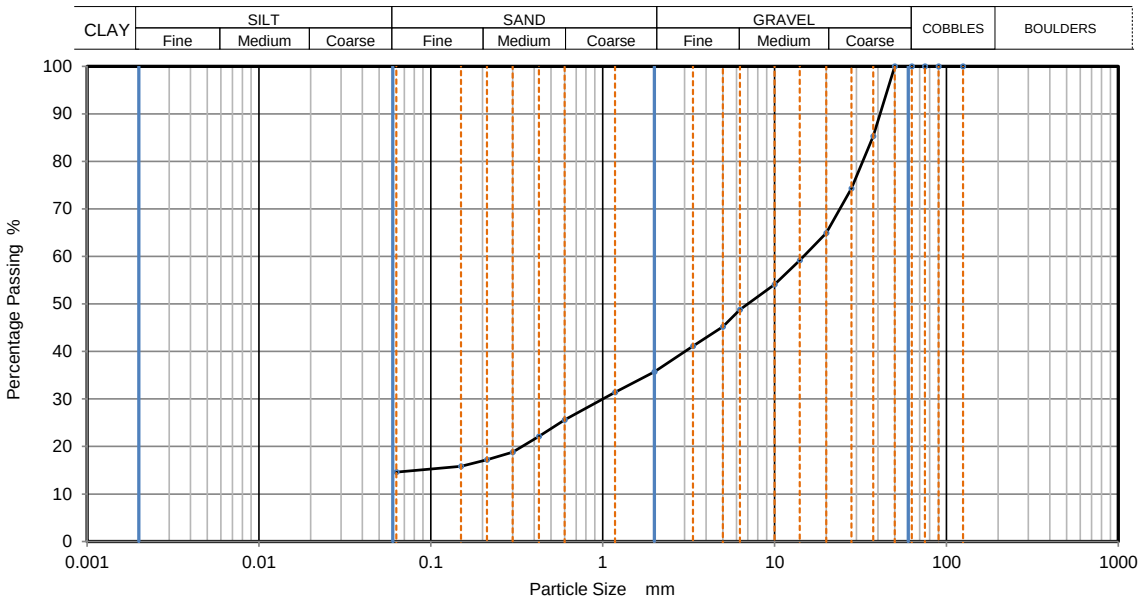
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88904
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	24/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	85		
28	74		
20	65		
14	59		
10	54		
6.3	49		
5	45		
3.35	41		
2	36		
1.18	31		
0.6	26		
0.425	22		
0.3	19		
0.212	17		
0.15	16		
0.063	15		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	64.3
Sand	21.1
Fines <0.063mm	14.6

Grading Analysis		
D100	mm	
D60	mm	14.7
D30	mm	1
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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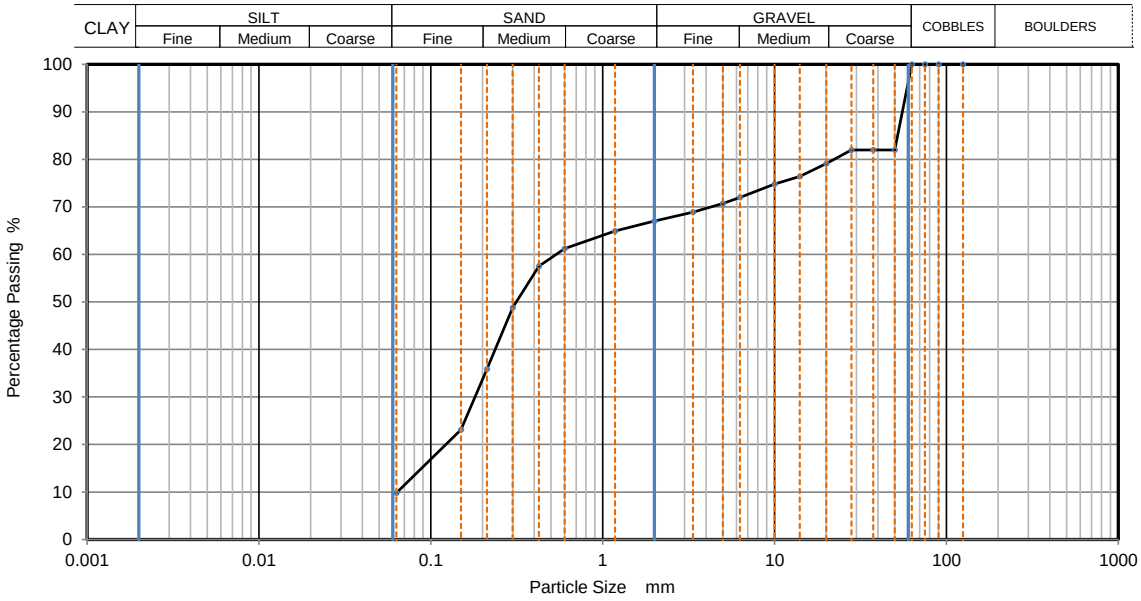
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88904
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Grey slightly clayey silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	1.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	82		
37.5	82		
28	82		
20	79		
14	76		
10	75		
6.3	72		
5	71		
3.35	69		
2	67		
1.18	65		
0.6	61		
0.425	58		
0.3	49		
0.212	36		
0.15	23		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.0
Sand	57.2
Fines <0.063mm	9.8

Grading Analysis		
D100	mm	
D60	mm	0.537
D30	mm	0.181
D10	mm	0.064
Uniformity Coefficient		8.4
Curvature Coefficient		0.95

Remarks

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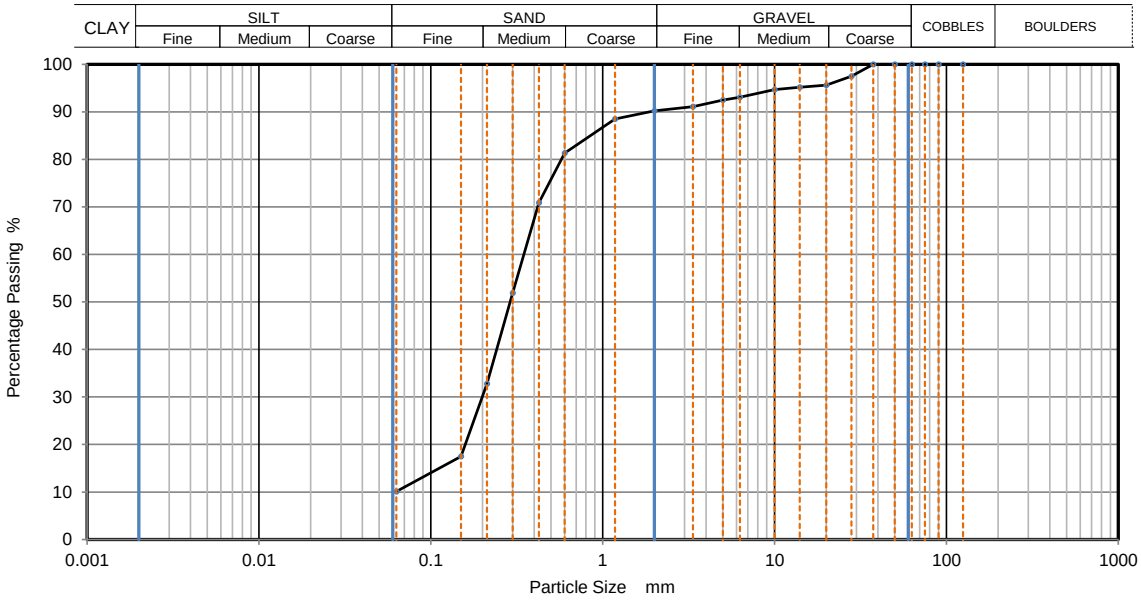
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-88904
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Grey slightly clayey silty gravelly SAND (gravel is fmc and angular to sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	95		
10	95		
6.3	93		
5	93		
3.35	91		
2	90		
1.18	89		
0.6	81		
0.425	71		
0.3	52		
0.212	33		
0.15	18		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	9.8
Sand	80.1
Fines <0.063mm	10.1

Grading Analysis		
D100	mm	
D60	mm	0.348
D30	mm	0.199
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Date: 14/11/2022

UKAS TESTING

2519

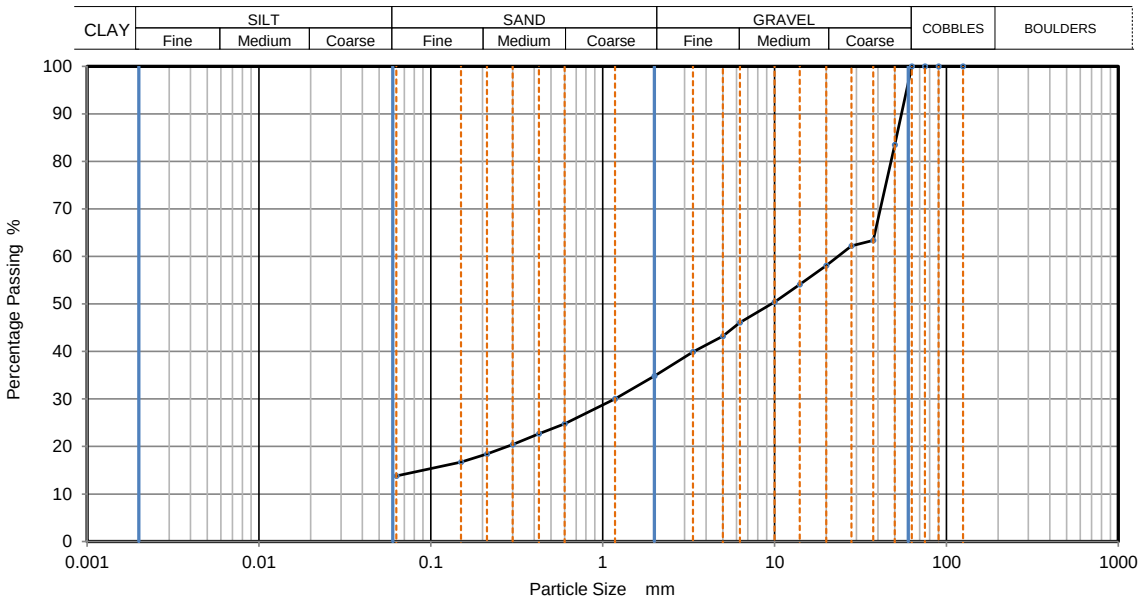
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89003
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	84		
37.5	63		
28	62		
20	58		
14	54		
10	50		
6.3	46		
5	43		
3.35	40		
2	35		
1.18	30		
0.6	25		
0.425	23		
0.3	20		
0.212	18		
0.15	17		
0.063	14		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	65.2
Sand	21.0
Fines <0.063mm	13.8

Grading Analysis		
D100	mm	
D60	mm	23.4
D30	mm	1.18
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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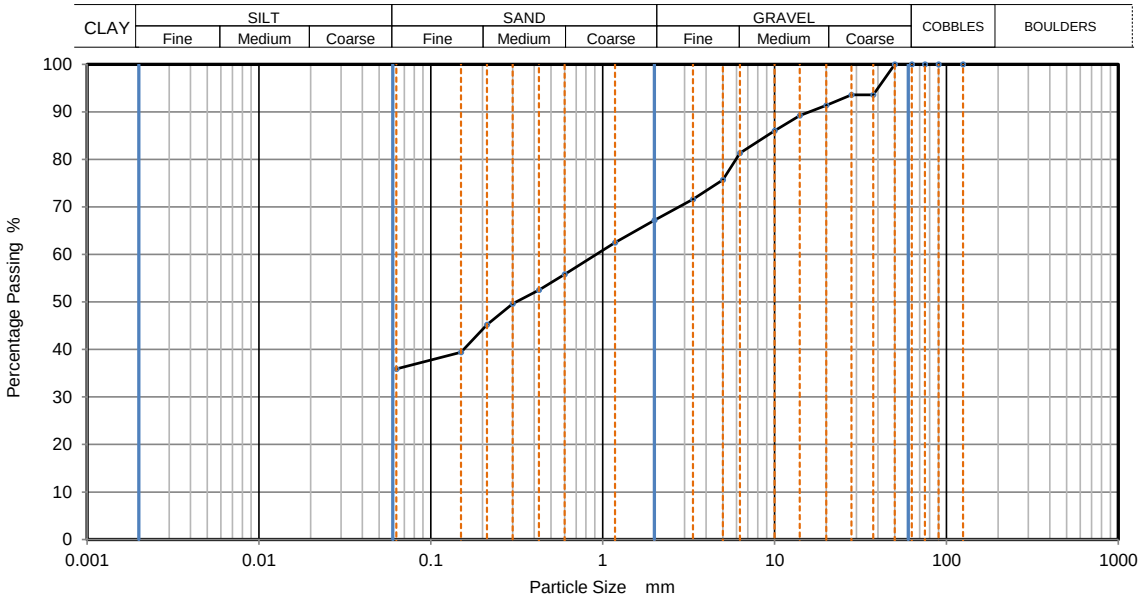
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89003
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	94		
20	91		
14	89		
10	86		
6.3	81		
5	76		
3.35	72		
2	67		
1.18	63		
0.6	56		
0.425	53		
0.3	50		
0.212	45		
0.15	39		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.8
Sand	31.3
Fines <0.063mm	35.9

Grading Analysis		
D100	mm	
D60	mm	0.914
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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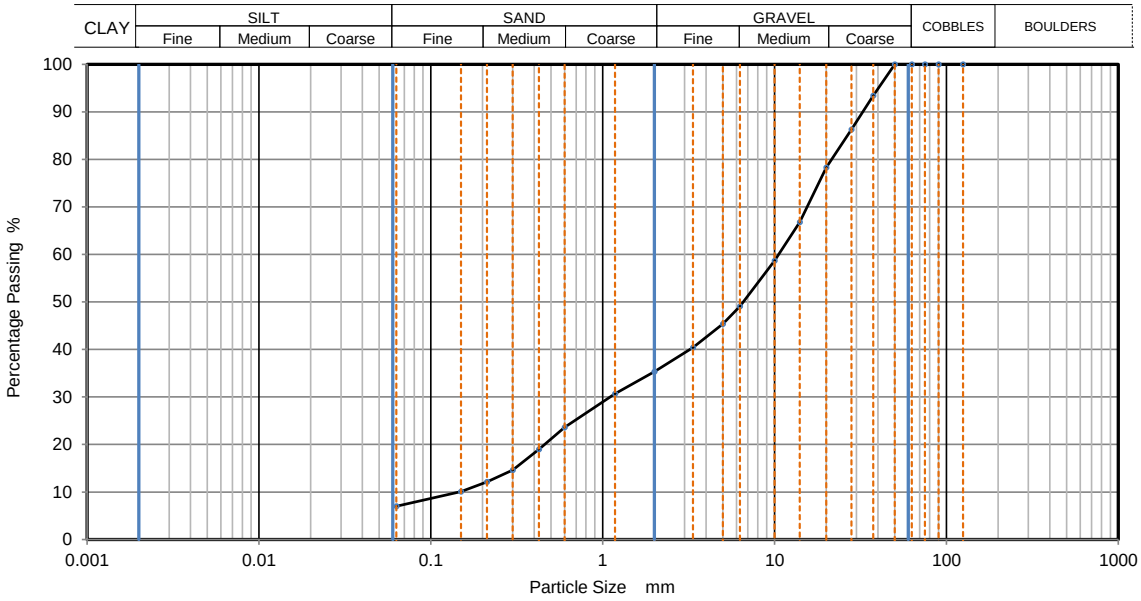
Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89003
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Brownish grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	86		
20	78		
14	67		
10	59		
6.3	49		
5	45		
3.35	40		
2	35		
1.18	31		
0.6	24		
0.425	19		
0.3	15		
0.212	12		
0.15	10		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	64.7
Sand	28.3
Fines <0.063mm	7.0

Grading Analysis		
D100	mm	
D60	mm	10.6
D30	mm	1.11
D10	mm	0.144
Uniformity Coefficient		73
Curvature Coefficient		0.81

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/11/2022

UKAS TESTING

2519

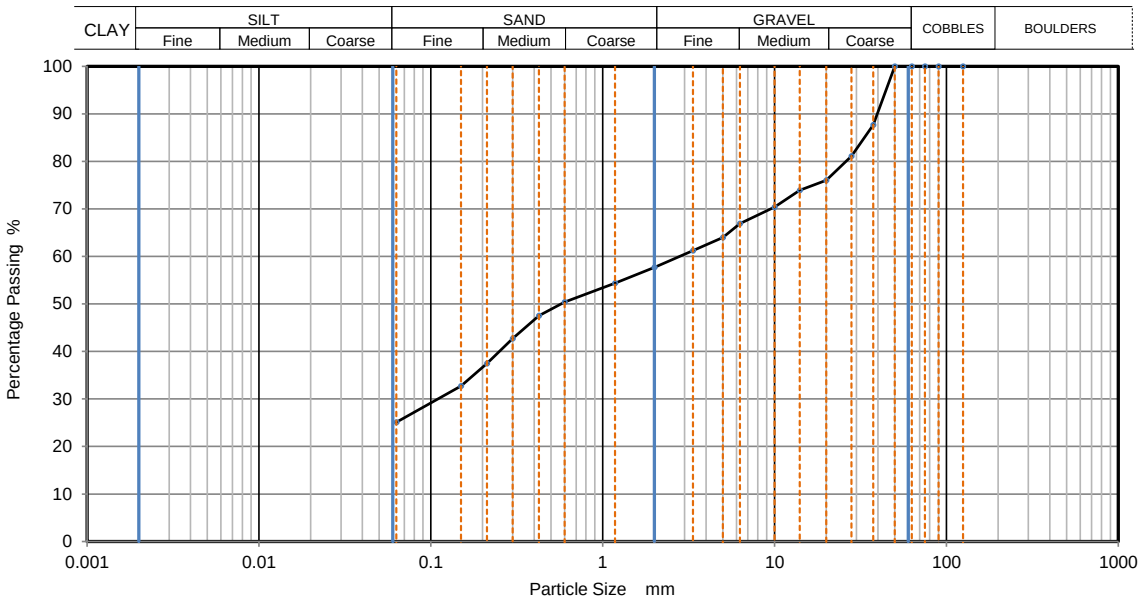
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89104
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	88		
28	81		
20	76		
14	74		
10	70		
6.3	67		
5	64		
3.35	61		
2	58		
1.18	54		
0.6	50		
0.425	48		
0.3	43		
0.212	38		
0.15	33		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	42.3
Sand	32.6
Fines <0.063mm	25.1

Grading Analysis		
D100	mm	
D60	mm	2.79
D30	mm	0.11
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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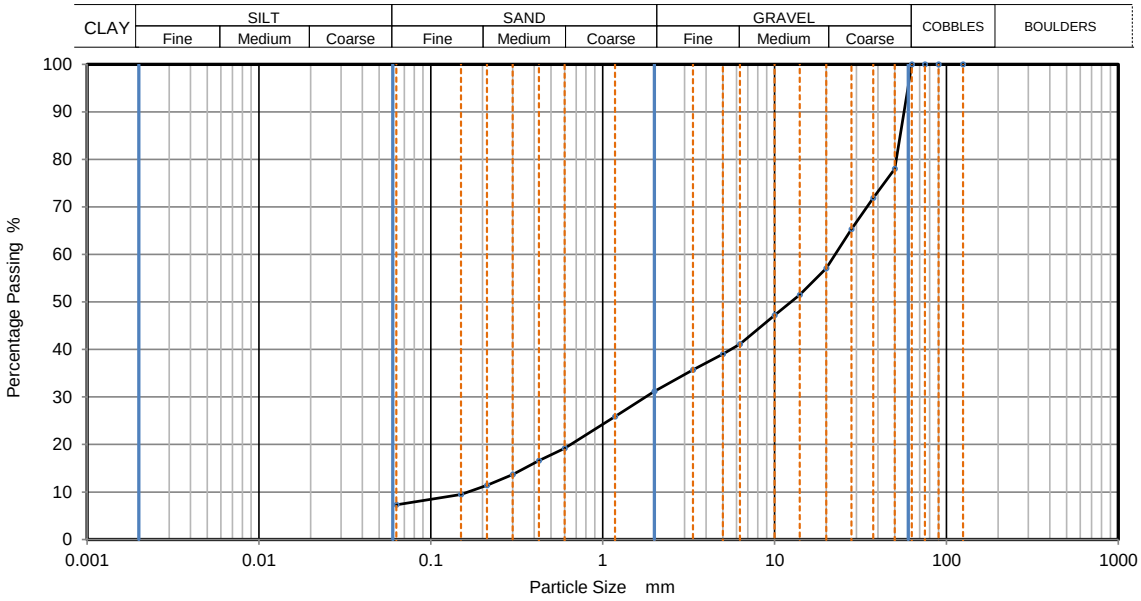
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89104
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	78		
37.5	72		
28	65		
20	57		
14	52		
10	47		
6.3	41		
5	39		
3.35	36		
2	31		
1.18	26		
0.6	19		
0.425	17		
0.3	14		
0.212	11		
0.15	10		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	68.8
Sand	23.9
Fines <0.063mm	7.3

Grading Analysis		
D100	mm	
D60	mm	22.5
D30	mm	1.77
D10	mm	0.166
Uniformity Coefficient		140
Curvature Coefficient		0.84

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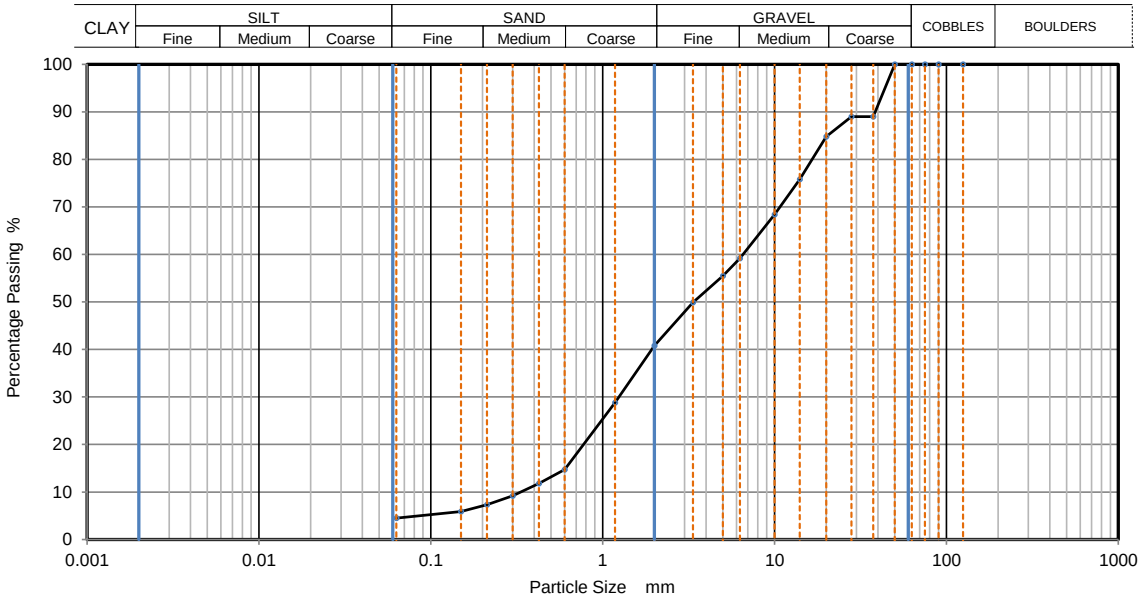
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89205
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	89		
28	89		
20	85		
14	76		
10	68		
6.3	59		
5	56		
3.35	50		
2	41		
1.18	29		
0.6	15		
0.425	12		
0.3	9		
0.212	7		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	59.2
Sand	36.3
Fines <0.063mm	4.5

Grading Analysis		
D100	mm	
D60	mm	6.55
D30	mm	1.24
D10	mm	0.334
Uniformity Coefficient		20
Curvature Coefficient		0.71

Remarks

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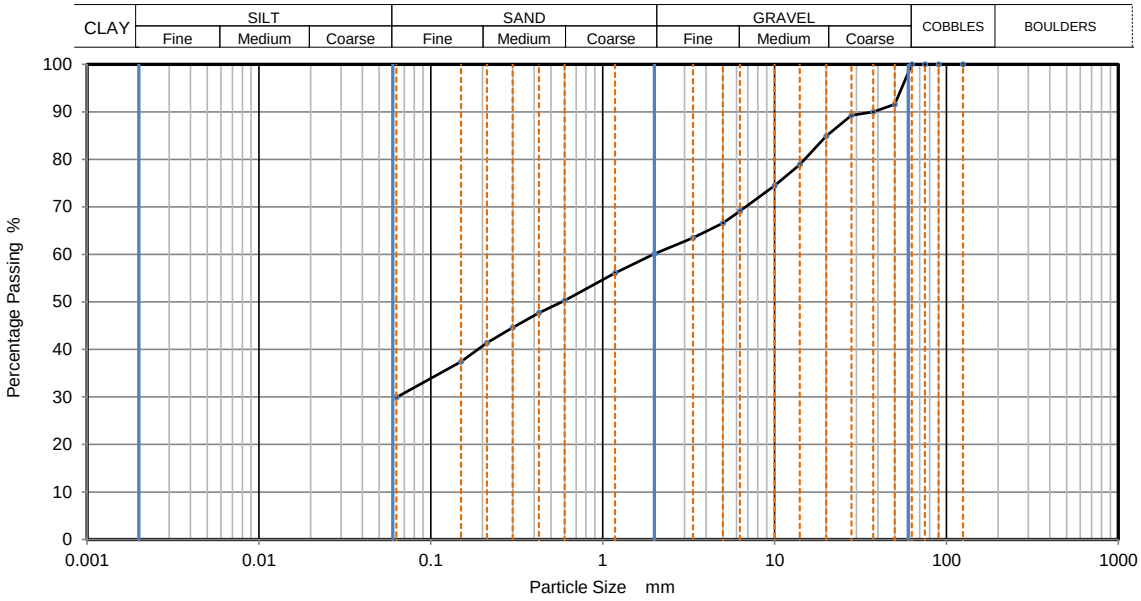
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89205
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	92		
37.5	90		
28	89		
20	85		
14	79		
10	75		
6.3	69		
5	67		
3.35	64		
2	60		
1.18	56		
0.6	50		
0.425	48		
0.3	45		
0.212	41		
0.15	37		
0.063	30		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.9
Sand	30.2
Fines <0.063mm	29.9

Grading Analysis		
D100	mm	
D60	mm	1.99
D30	mm	0.0638
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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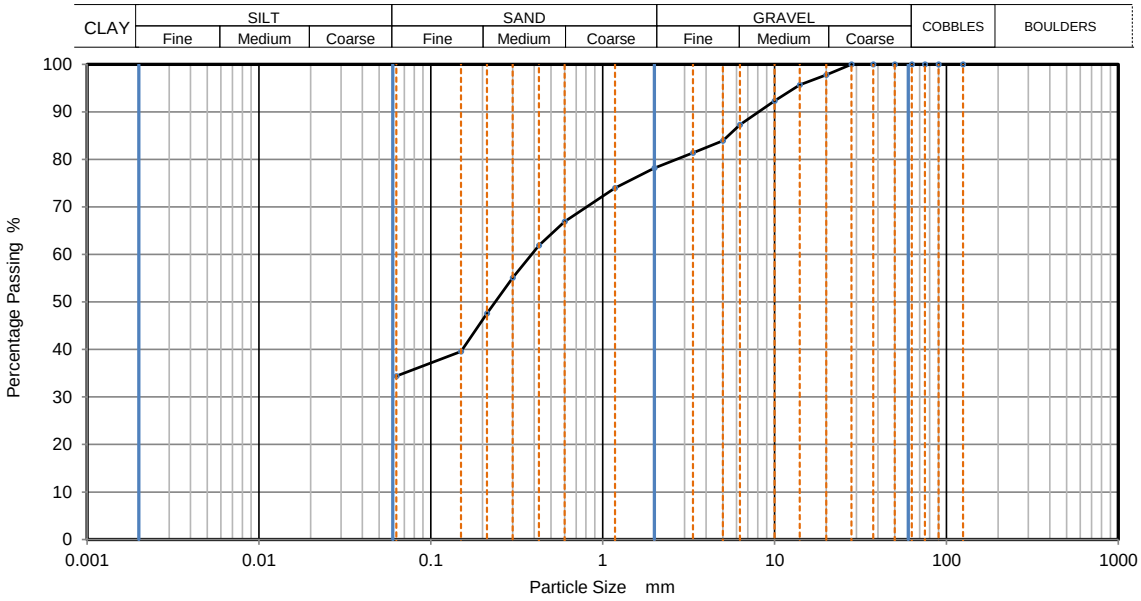
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-89303
Project No.	2021OY102	Client	Irish Drilling	Sample No.	1
Soil Description	Brown clayey silty very gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Top	0.30 m
				Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	96		
10	92		
6.3	87		
5	84		
3.35	81		
2	78		
1.18	74		
0.6	67		
0.425	62		
0.3	55		
0.212	48		
0.15	40		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.8
Sand	43.8
Fines <0.063mm	34.4

Grading Analysis		
D100	mm	
D60	mm	0.385
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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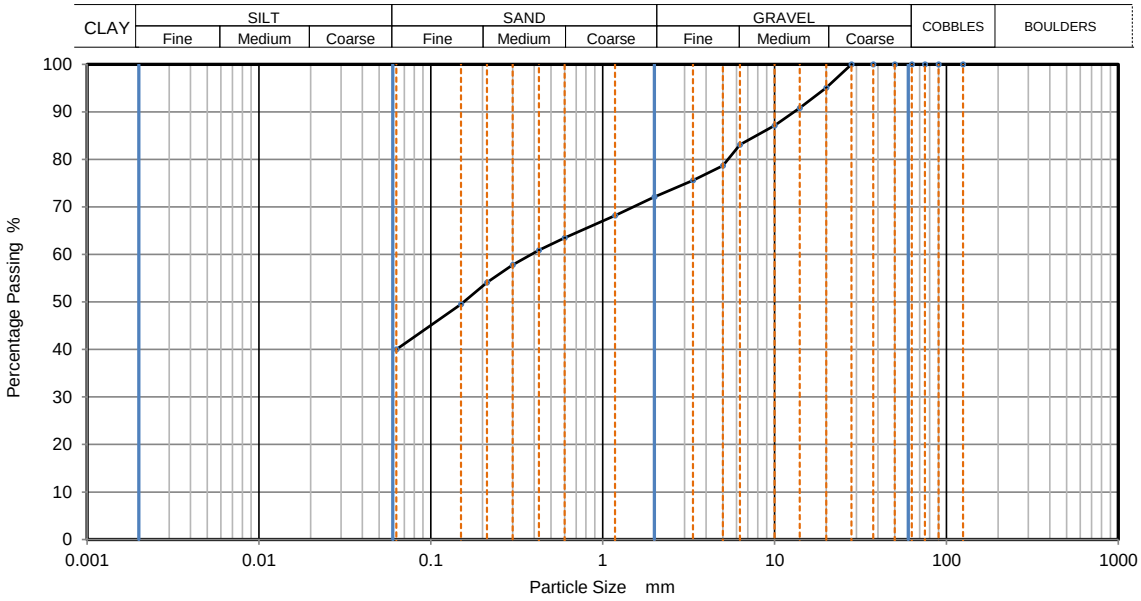
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89303
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	91		
10	87		
6.3	83		
5	79		
3.35	76		
2	72		
1.18	68		
0.6	64		
0.425	61		
0.3	58		
0.212	54		
0.15	50		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	27.9
Sand	32.1
Fines <0.063mm	40.0

Grading Analysis		
D100	mm	
D60	mm	0.383
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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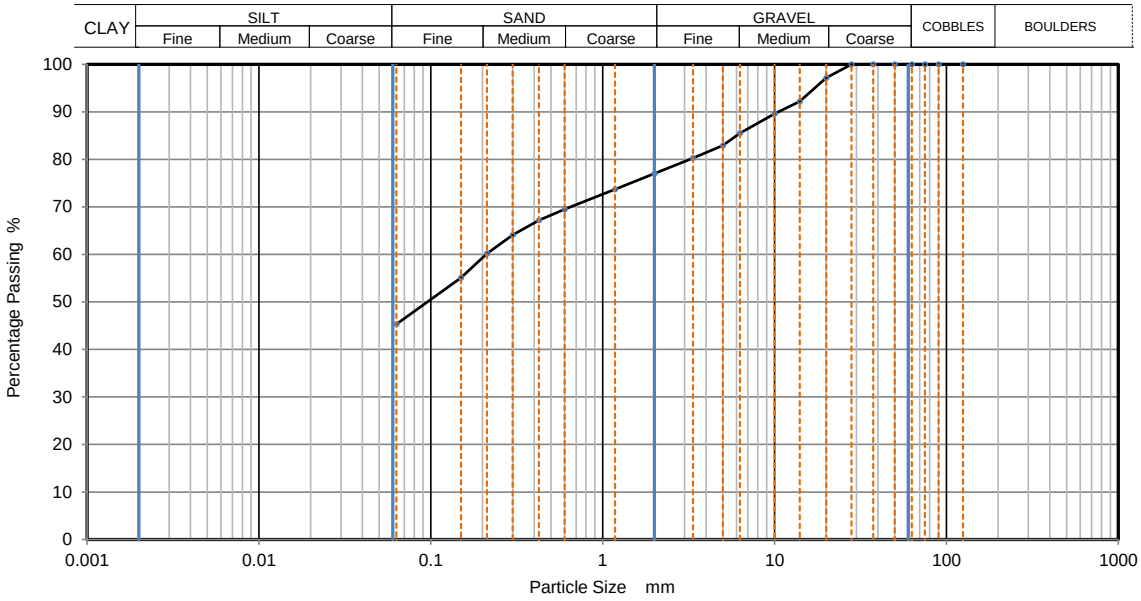
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89405
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	92		
10	90		
6.3	86		
5	83		
3.35	80		
2	77		
1.18	74		
0.6	70		
0.425	67		
0.3	64		
0.212	60		
0.15	55		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.0
Sand	31.7
Fines <0.063mm	45.3

Grading Analysis		
D100	mm	
D60	mm	0.209
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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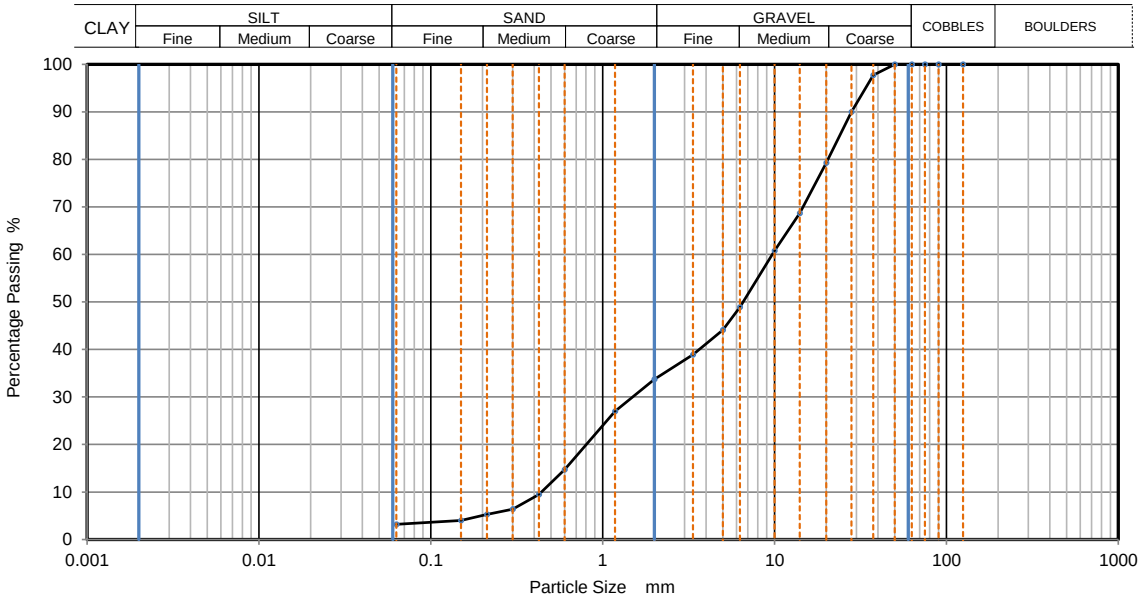
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89405
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	90		
20	79		
14	69		
10	61		
6.3	49		
5	44		
3.35	39		
2	34		
1.18	27		
0.6	15		
0.425	10		
0.3	6		
0.212	5		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	66.3
Sand	30.5
Fines <0.063mm	3.2

Grading Analysis		
D100	mm	
D60	mm	9.69
D30	mm	1.49
D10	mm	0.439
Uniformity Coefficient		22
Curvature Coefficient		0.52

Remarks

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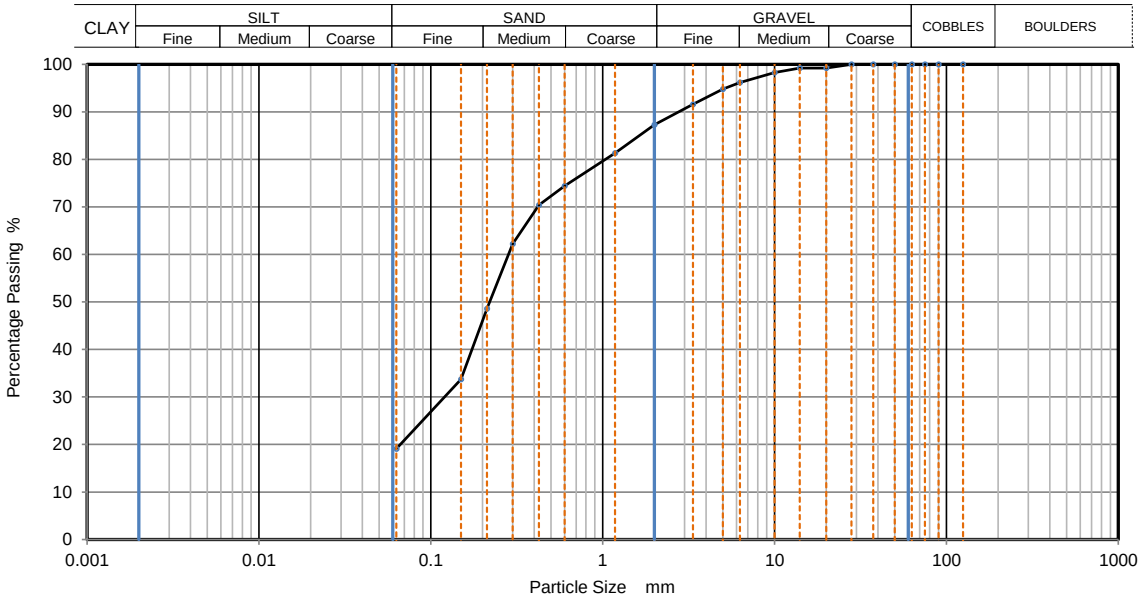
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89504
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Grey gravelly silty SAND (gravel is fmc and sub-angular)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	99		
10	98		
6.3	96		
5	95		
3.35	92		
2	87		
1.18	81		
0.6	74		
0.425	70		
0.3	62		
0.212	49		
0.15	34		
0.063	19		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	12.7
Sand	68.2
Fines <0.063mm	19.1

Grading Analysis		
D100	mm	
D60	mm	0.284
D30	mm	0.12
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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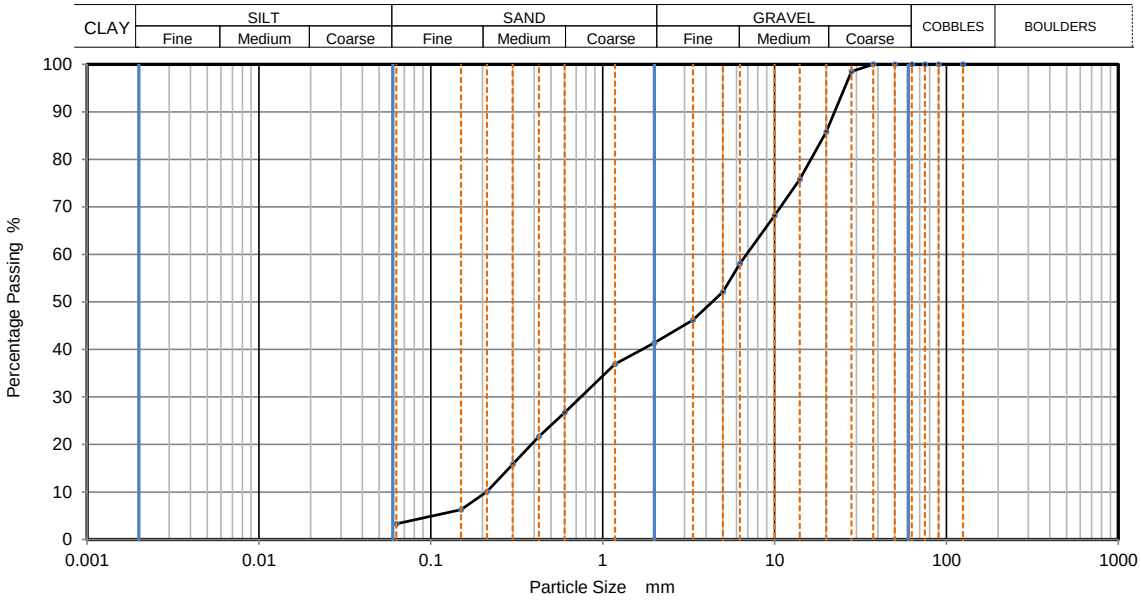
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89504
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Brownish grey slightly clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	86		
14	76		
10	68		
6.3	58		
5	52		
3.35	46		
2	41		
1.18	37		
0.6	27		
0.425	22		
0.3	16		
0.212	10		
0.15	6		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	58.6
Sand	38.1
Fines <0.063mm	3.3

Grading Analysis		
D100	mm	
D60	mm	6.87
D30	mm	0.747
D10	mm	0.21
Uniformity Coefficient		33
Curvature Coefficient		0.39

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

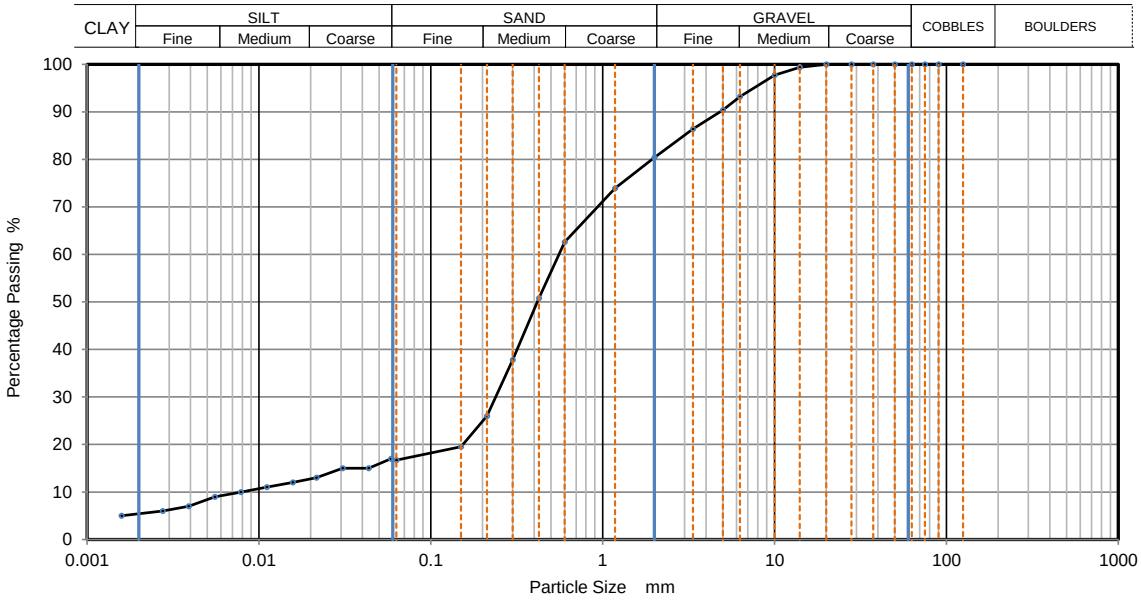
Initials: **J.P**

Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89555
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Grey clayey silty gravelly SAND (gravel is fm and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0585	17
90	100	0.0434	15
75	100	0.0306	15
63	100	0.0216	13
50	100	0.0158	12
37.5	100	0.0111	11
28	100	0.0078	10
20	100	0.0055	9
14	99	0.0039	7
10	98	0.0027	6
6.3	93	0.0016	5
5	90		
3.35	86		
2	80		
1.18	74		
0.6	63	Particle density (assumed)	
0.425	51	2.70	Mg/m3
0.3	38		
0.212	26		
0.15	20		
0.063	17		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.6
Sand	63.6
Silt	11.6
Clay	5.2

Grading Analysis		
D100	mm	
D60	mm	0.556
D30	mm	0.238
D10	mm	0.00762
Uniformity Coefficient		73
Curvature Coefficient		13

Remarks

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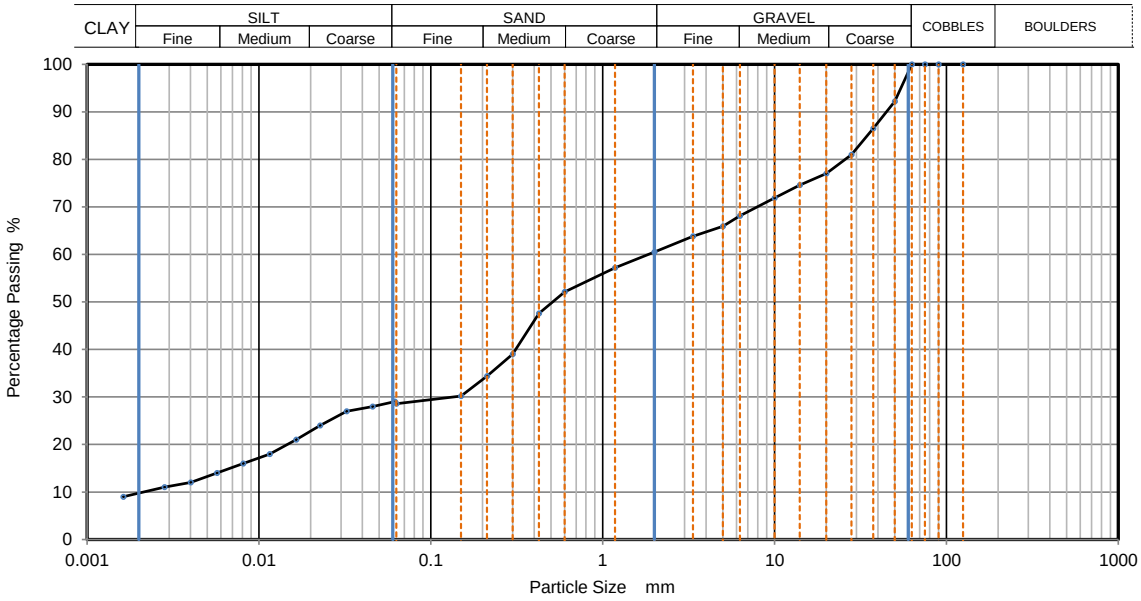
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89555
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0618	29
90	100	0.0459	28
75	100	0.0323	27
63	100	0.0227	24
50	92	0.0164	21
37.5	87	0.0115	18
28	81	0.0081	16
20	77	0.0057	14
14	75	0.0040	12
10	72	0.0028	11
6.3	68	0.0016	9
5	66		
3.35	64		
2	61		
1.18	57		
0.6	52	Particle density (assumed)	
0.425	48	2.70	Mg/m3
0.3	39		
0.212	34		
0.15	30		
0.063	29		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.5
Sand	31.9
Silt	18.8
Clay	9.8

Grading Analysis		
D100	mm	
D60	mm	1.84
D30	mm	0.137
D10	mm	0.00216
Uniformity Coefficient		850
Curvature Coefficient		4.7

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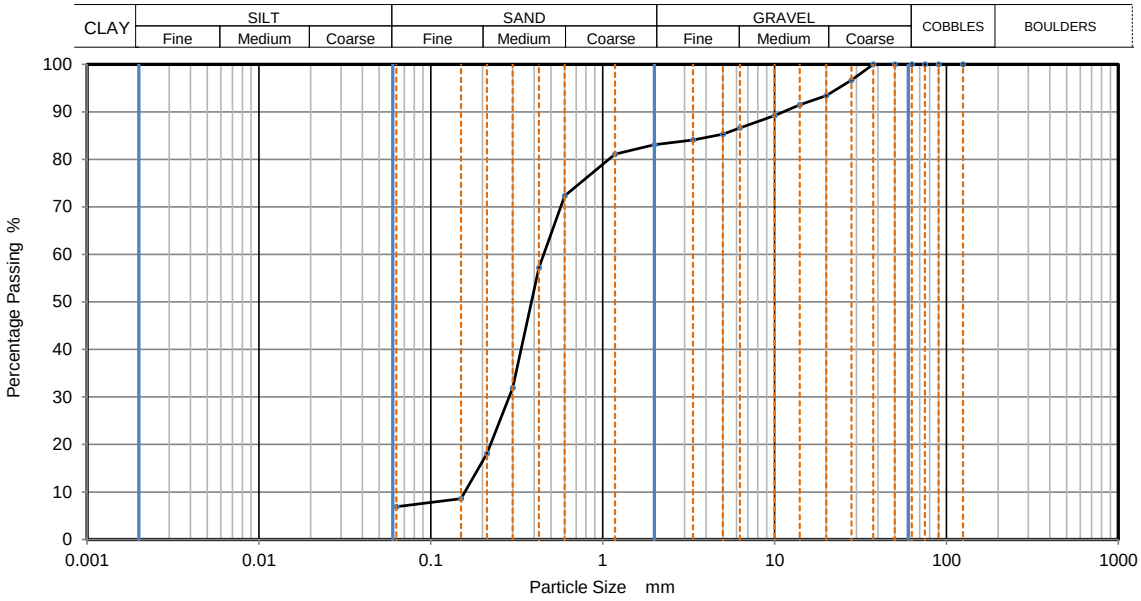
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-89555
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Dark grey clayey gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	93		
14	92		
10	89		
6.3	87		
5	85		
3.35	84		
2	83		
1.18	81		
0.6	72	Particle density (assumed)	
0.425	57	2.70	Mg/m3
0.3	32		
0.212	18		
0.15	9		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	16.9
Sand	76.2
Fines <0.063mm	6.9

Grading Analysis		
D100	mm	
D60	mm	0.453
D30	mm	0.286
D10	mm	0.158
Uniformity Coefficient		2.9
Curvature Coefficient		1.1

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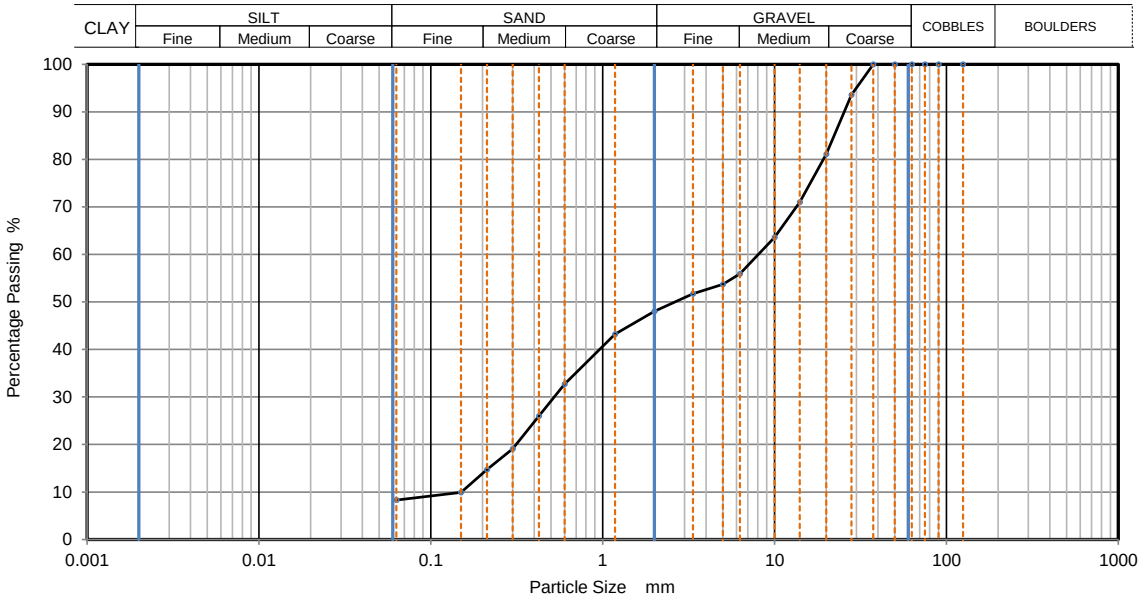
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-89555
Project No.	2021OY102	Client	Irish Drilling	Sample No.	5
				Depth Top	2.20 m
Soil Description	Dark grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	81		
14	71		
10	64		
6.3	56		
5	54		
3.35	52		
2	48		
1.18	43		
0.6	33	Particle density (assumed)	
0.425	26	2.70	Mg/m3
0.3	19		
0.212	15		
0.15	10		
0.063	8		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	52.0
Sand	39.7
Fines <0.063mm	8.3

Grading Analysis		
D100	mm	
D60	mm	8.05
D30	mm	0.521
D10	mm	0.151
Uniformity Coefficient		53
Curvature Coefficient		0.22

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Date: 14/11/2022

UKAS TESTING

2519

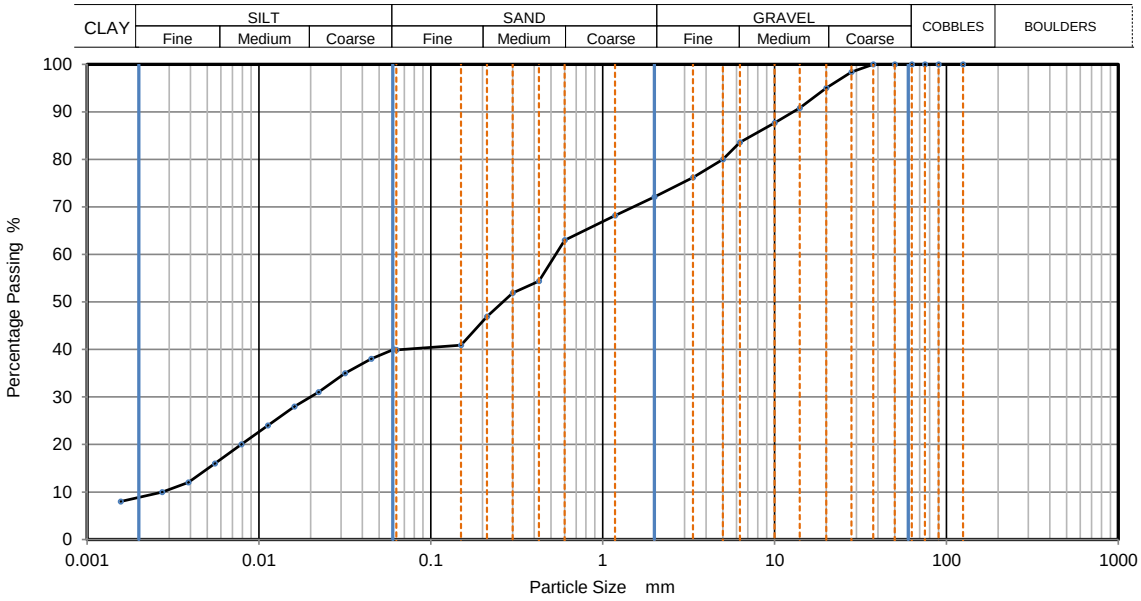
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90401
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brownish grey slightly gravelly slightly sandy very silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0609	40
90	100	0.0451	38
75	100	0.0316	35
63	100	0.0222	31
50	100	0.0161	28
37.5	100	0.0113	24
28	98	0.0079	20
20	95	0.0055	16
14	91	0.0039	12
10	88	0.0027	10
6.3	84	0.0016	8
5	80		
3.35	76		
2	72		
1.18	68		
0.6	63	Particle density (assumed)	
0.425	54	2.70 Mg/m3	
0.3	52		
0.212	47		
0.15	41		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	27.9
Sand	32.2
Silt	31.0
Clay	8.9

Grading Analysis		
D100	mm	
D60	mm	0.531
D30	mm	0.0201
D10	mm	0.00277
Uniformity Coefficient		190
Curvature Coefficient		0.27

Remarks

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Checked and Approved

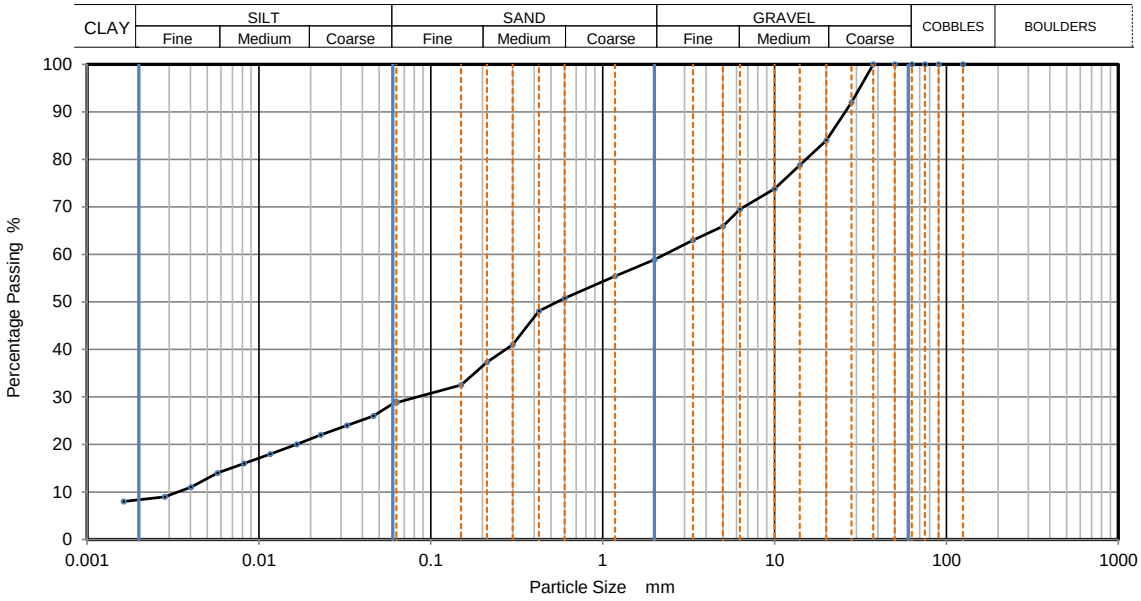
Initials: **J.P**

Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90401
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0628	29
90	100	0.0463	26
75	100	0.0325	24
63	100	0.0229	22
50	100	0.0166	20
37.5	100	0.0116	18
28	92	0.0082	16
20	84	0.0057	14
14	79	0.0040	11
10	74	0.0028	9
6.3	70	0.0016	8
5	66		
3.35	63		
2	59		
1.18	55		
0.6	51	Particle density (assumed)	
0.425	48	2.70	Mg/m3
0.3	41		
0.212	37		
0.15	33		
0.063	29		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	41.1
Sand	30.2
Silt	19.9
Clay	8.8

Grading Analysis		
D100	mm	
D60	mm	2.29
D30	mm	0.0834
D10	mm	0.00317
Uniformity Coefficient		720
Curvature Coefficient		0.96

Remarks

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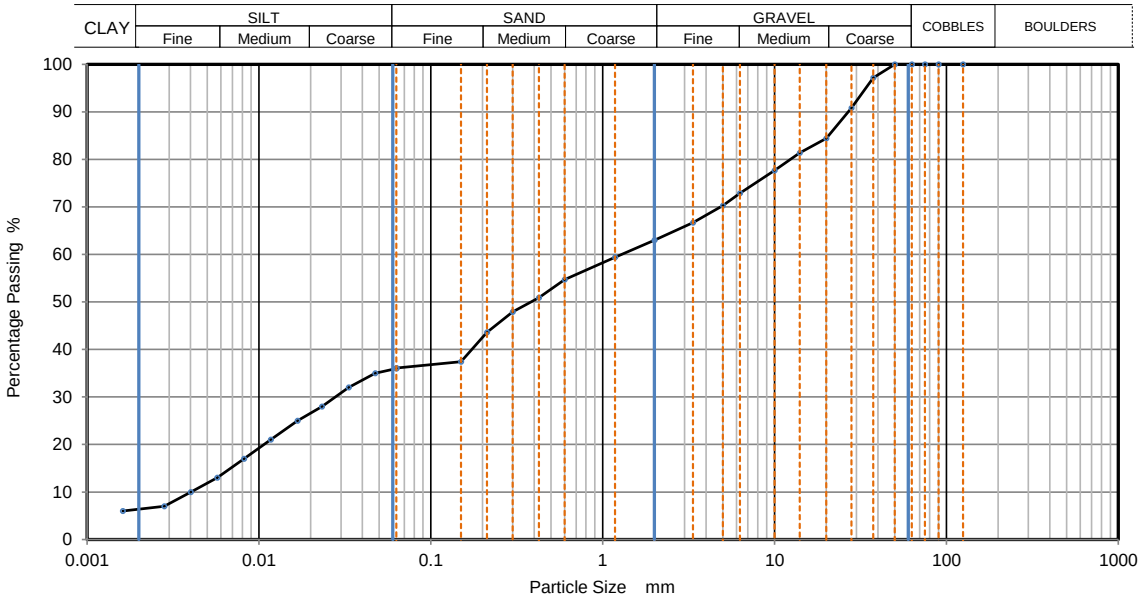
Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90503
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	36
90	100	0.0474	35
75	100	0.0333	32
63	100	0.0233	28
50	100	0.0168	25
37.5	97	0.0117	21
28	91	0.0082	17
20	84	0.0057	13
14	81	0.0040	10
10	78	0.0028	7
6.3	73	0.0016	6
5	70		
3.35	67		
2	63		
1.18	59		
0.6	55	Particle density (assumed)	
0.425	51	2.70	Mg/m3
0.3	48		
0.212	44		
0.15	37		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	37.0
Sand	26.8
Silt	29.6
Clay	6.6

Grading Analysis		
D100	mm	
D60	mm	1.3
D30	mm	0.0269
D10	mm	0.00401
Uniformity Coefficient		320
Curvature Coefficient		0.14

Remarks

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Initials: **J.P**

Date: 14/11/2022

UKAS TESTING

2519

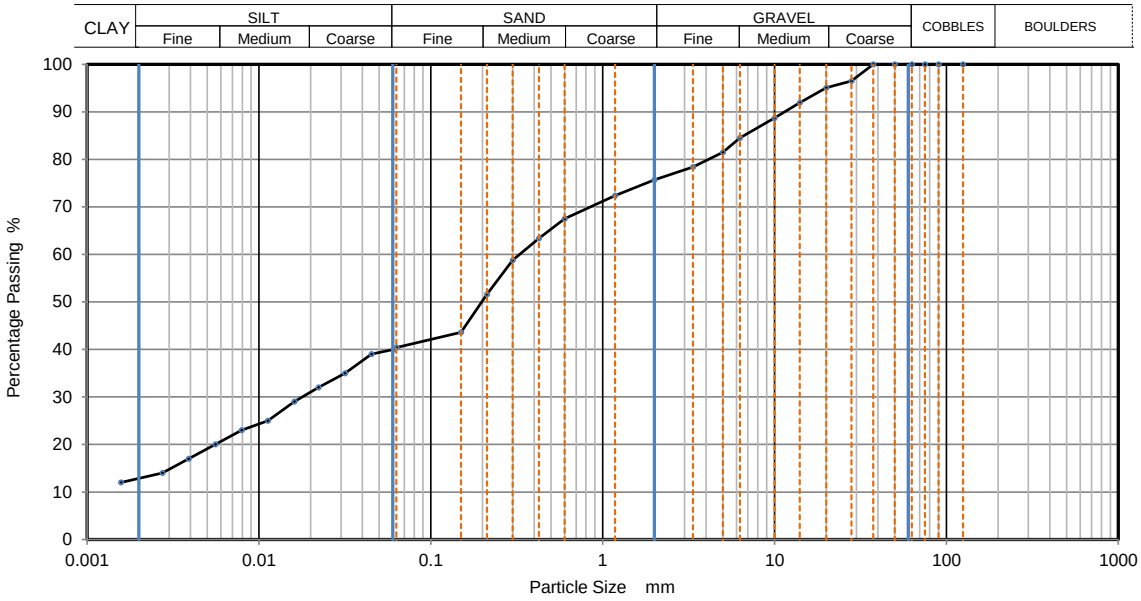
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0610	40
90	100	0.0452	39
75	100	0.0317	35
63	100	0.0222	32
50	100	0.0161	29
37.5	100	0.0113	25
28	97	0.0079	23
20	95	0.0056	20
14	92	0.0039	17
10	89	0.0027	14
6.3	85	0.0016	12
5	82		
3.35	78		
2	76		
1.18	72		
0.6	68	Particle density (assumed)	
0.425	63	2.70	Mg/m3
0.3	59		
0.212	52		
0.15	44		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.3
Sand	35.3
Silt	27.5
Clay	12.9

Grading Analysis		
D100	mm	
D60	mm	0.329
D30	mm	0.0185
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Date: 14/11/2022

UKAS TESTING

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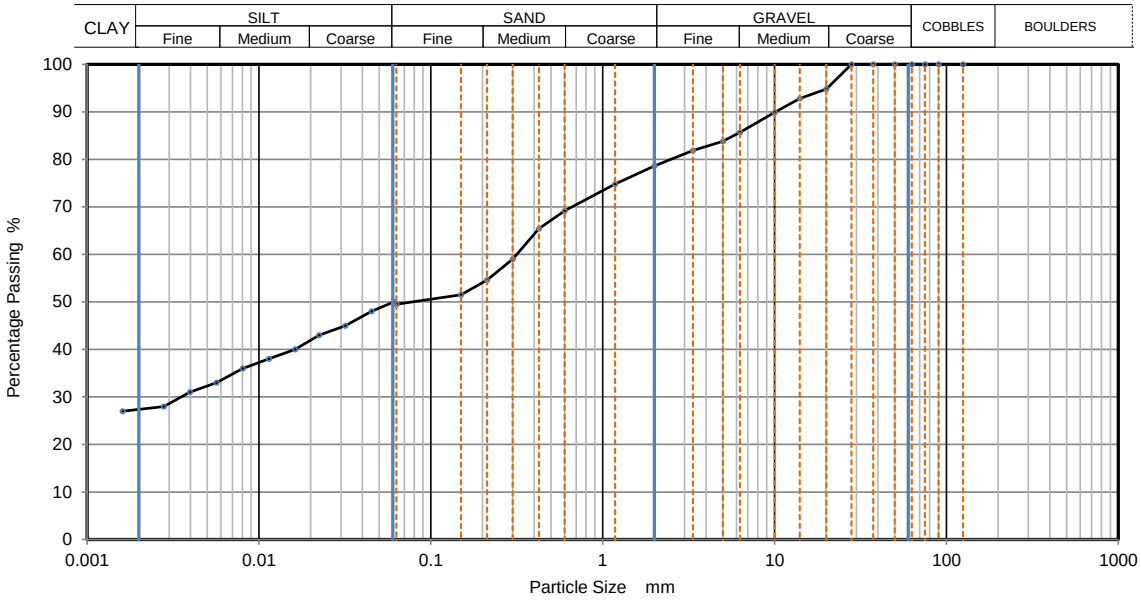
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90604
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0609	50
90	100	0.0451	48
75	100	0.0318	45
63	100	0.0223	43
50	100	0.0162	40
37.5	100	0.0114	38
28	100	0.0080	36
20	95	0.0057	33
14	93	0.0040	31
10	90	0.0028	28
6.3	86	0.0016	27
5	84		
3.35	82		
2	79		
1.18	75		
0.6	69	Particle density	(assumed)
0.425	65	2.70	Mg/m3
0.3	59		
0.212	55		
0.15	52		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.4
Sand	29.1
Silt	21.9
Clay	27.6

Grading Analysis		
D100	mm	
D60	mm	0.317
D30	mm	0.00352
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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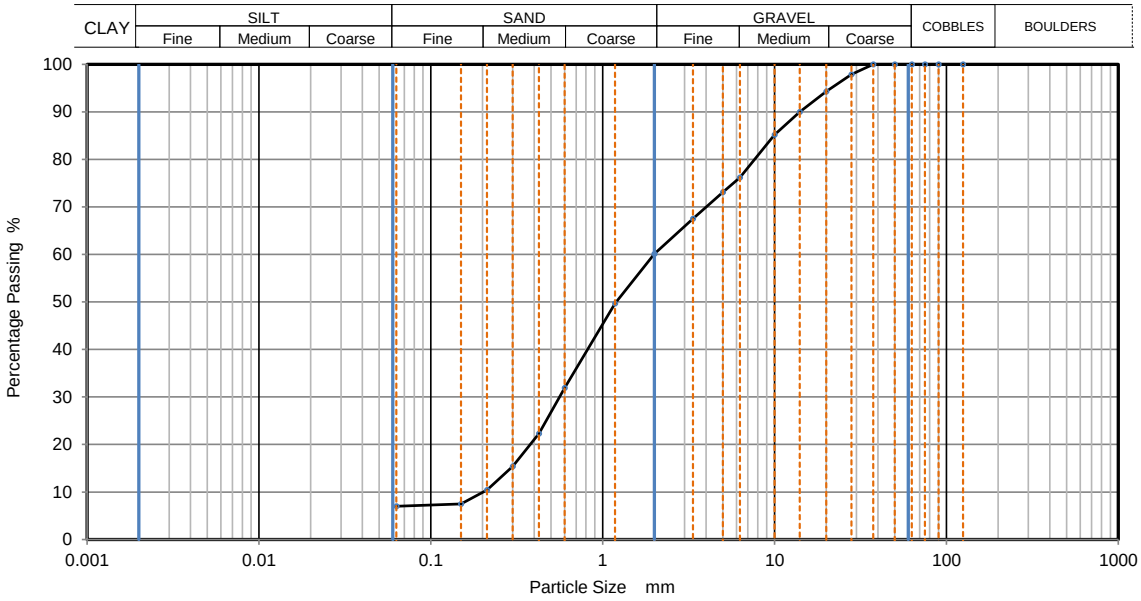
Initials: **J.P**

Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90604
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Dark grey clayey very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	94		
14	90		
10	85		
6.3	76		
5	73		
3.35	68		
2	60		
1.18	50		
0.6	32	Particle density (assumed)	
0.425	22	2.70	Mg/m3
0.3	15		
0.212	10		
0.15	8		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.9
Sand	53.1
Fines <0.063mm	7.0

Grading Analysis		
D100	mm	
D60	mm	1.99
D30	mm	0.56
D10	mm	0.202
Uniformity Coefficient		9.9
Curvature Coefficient		0.78

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Checked and Approved

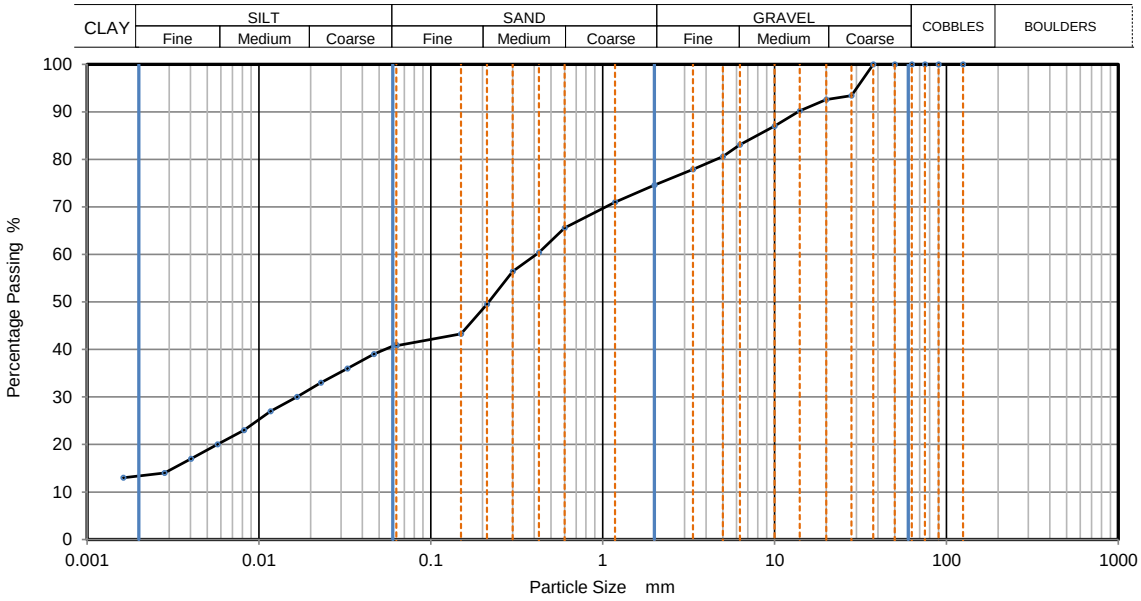
Initials: **J.P**

Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90604
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	28/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0629	41
90	100	0.0466	39
75	100	0.0327	36
63	100	0.0229	33
50	100	0.0166	30
37.5	100	0.0117	27
28	93	0.0082	23
20	93	0.0057	20
14	90	0.0040	17
10	87	0.0028	14
6.3	83	0.0016	13
5	81		
3.35	78		
2	75		
1.18	71		
0.6	66	Particle density	(assumed)
0.425	60	2.70	Mg/m3
0.3	56		
0.212	50		
0.15	43		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.4
Sand	33.8
Silt	27.4
Clay	13.4

Grading Analysis		
D100	mm	
D60	mm	0.412
D30	mm	0.0161
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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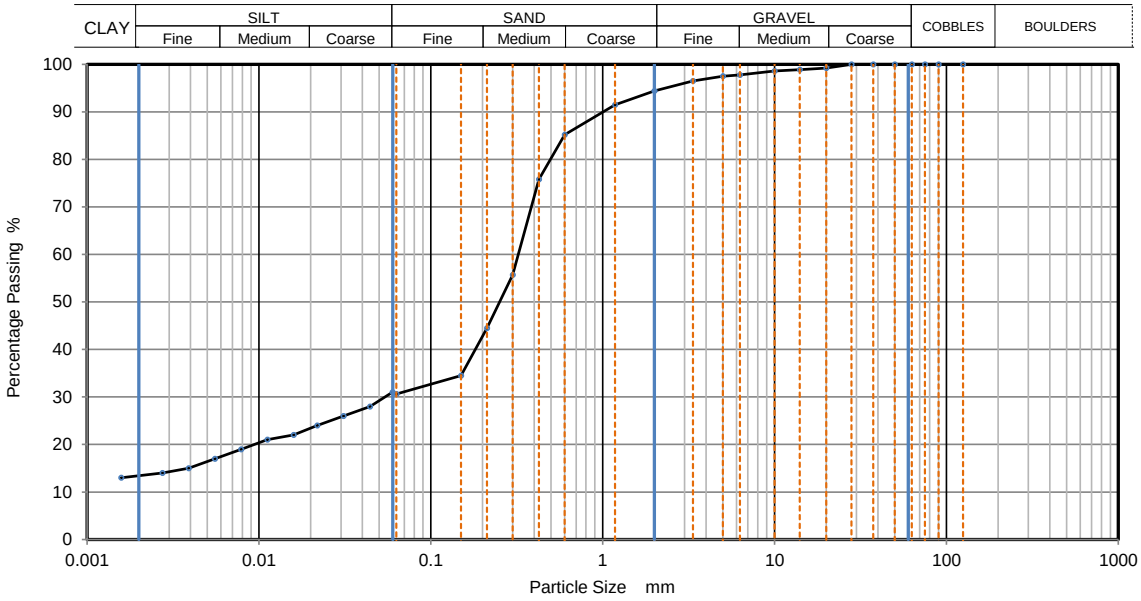
Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90704
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.20 m
Soil Description	Brown gravelly silty clayey SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0598	31
90	100	0.0442	28
75	100	0.0310	26
63	100	0.0219	24
50	100	0.0159	22
37.5	100	0.0112	21
28	100	0.0079	19
20	99	0.0055	17
14	99	0.0039	15
10	99	0.0027	14
6.3	98	0.0016	13
5	98		
3.35	97		
2	94		
1.18	92		
0.6	85	Particle density (assumed)	
0.425	76	2.70	Mg/m3
0.3	56		
0.212	45		
0.15	35		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	5.6
Sand	63.7
Silt	17.4
Clay	13.3

Grading Analysis		
D100	mm	
D60	mm	0.323
D30	mm	0.0552
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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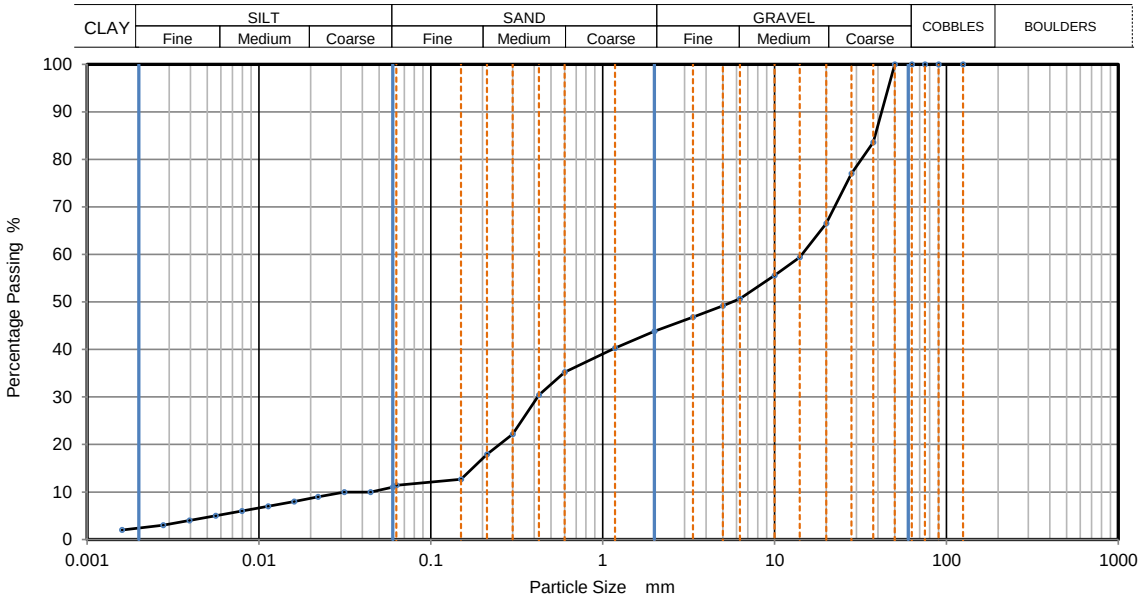
Date: 14/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90704
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey slightly clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0601	11
90	100	0.0445	10
75	100	0.0314	10
63	100	0.0221	9
50	100	0.0160	8
37.5	84	0.0113	7
28	77	0.0079	6
20	67	0.0056	5
14	59	0.0039	4
10	56	0.0028	3
6.3	51	0.0016	2
5	49		
3.35	47		
2	44		
1.18	40		
0.6	35	Particle density (assumed)	
0.425	30	2.70 Mg/m3	
0.3	22		
0.212	18		
0.15	13		
0.063	11		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	56.2
Sand	32.4
Silt	8.7
Clay	2.7

Grading Analysis		
D100	mm	
D60	mm	14.5
D30	mm	0.419
D10	mm	0.0333
Uniformity Coefficient		430
Curvature Coefficient		0.36

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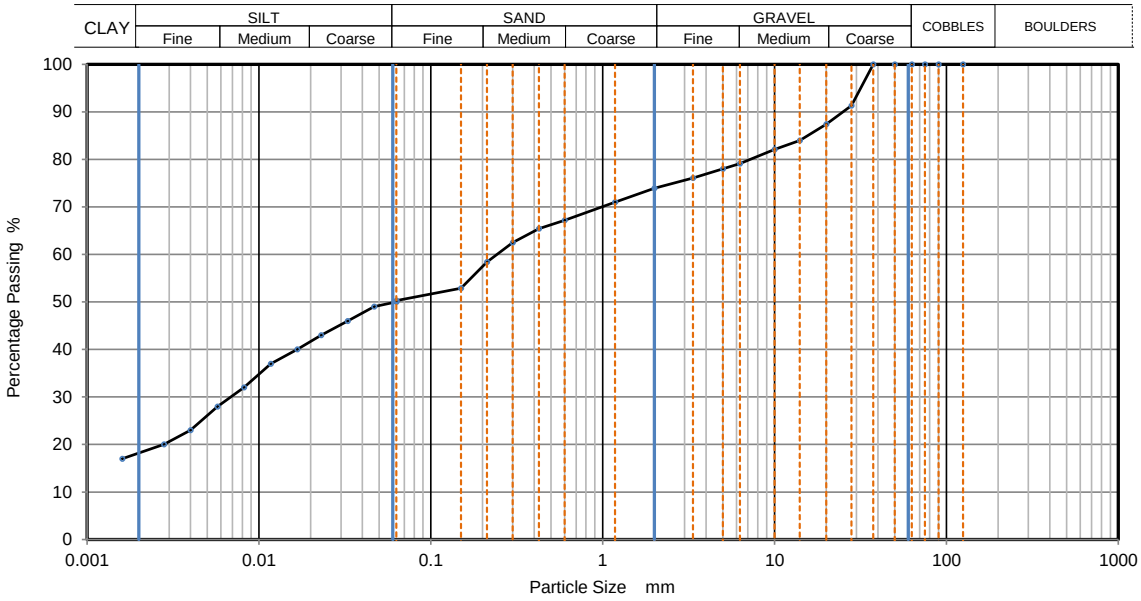
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90704
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	50
90	100	0.0468	49
75	100	0.0328	46
63	100	0.0230	43
50	100	0.0167	40
37.5	100	0.0117	37
28	91	0.0082	32
20	87	0.0057	28
14	84	0.0040	23
10	82	0.0028	20
6.3	79	0.0016	17
5	78		
3.35	76		
2	74		
1.18	71		
0.6	67	Particle density (assumed)	
0.425	65	2.70	Mg/m3
0.3	63		
0.212	58		
0.15	53		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.1
Sand	23.6
Silt	32.5
Clay	17.8

Grading Analysis		
D100	mm	
D60	mm	0.243
D30	mm	0.00681
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Initials: **J.P**

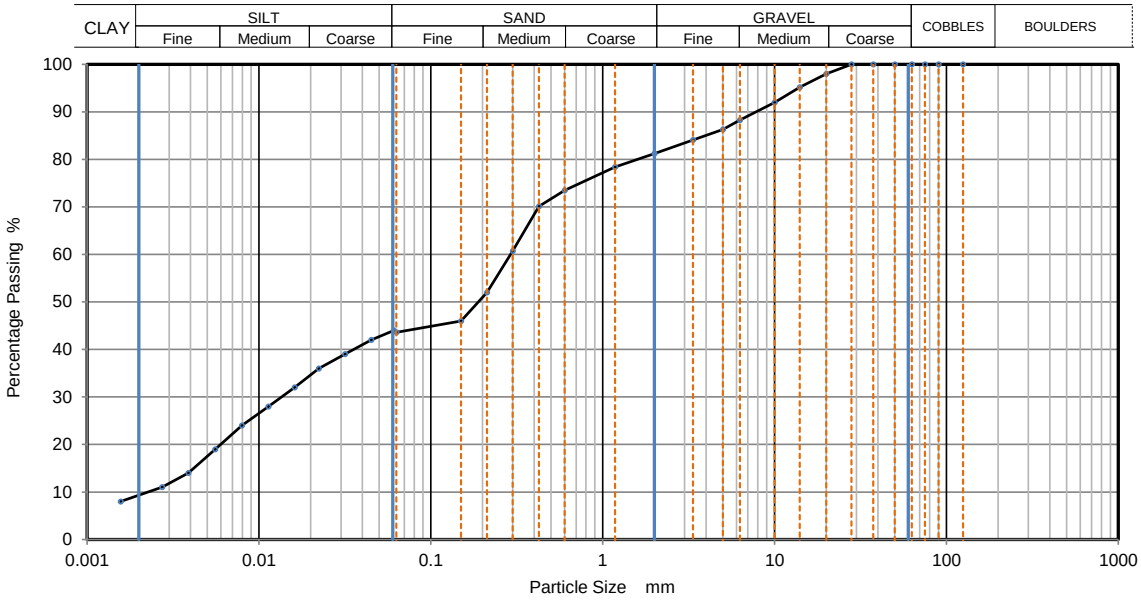
Date: 14/11/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90800
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly sandy very silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0609	44
90	100	0.0451	42
75	100	0.0317	39
63	100	0.0223	36
50	100	0.0161	32
37.5	100	0.0113	28
28	100	0.0079	24
20	98	0.0056	19
14	95	0.0039	14
10	92	0.0027	11
6.3	88	0.0016	8
5	86		
3.35	84		
2	81		
1.18	78		
0.6	74	Particle density (assumed)	
0.425	70	2.70	Mg/m3
0.3	61		
0.212	52		
0.15	46		
0.063	44		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	18.8
Sand	37.6
Silt	34.3
Clay	9.3

Grading Analysis		
D100	mm	
D60	mm	0.291
D30	mm	0.0134
D10	mm	0.00231
Uniformity Coefficient		130
Curvature Coefficient		0.27

Remarks

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Initials: **J.P**

Date: 14/11/2022

UKAS TESTING

2519

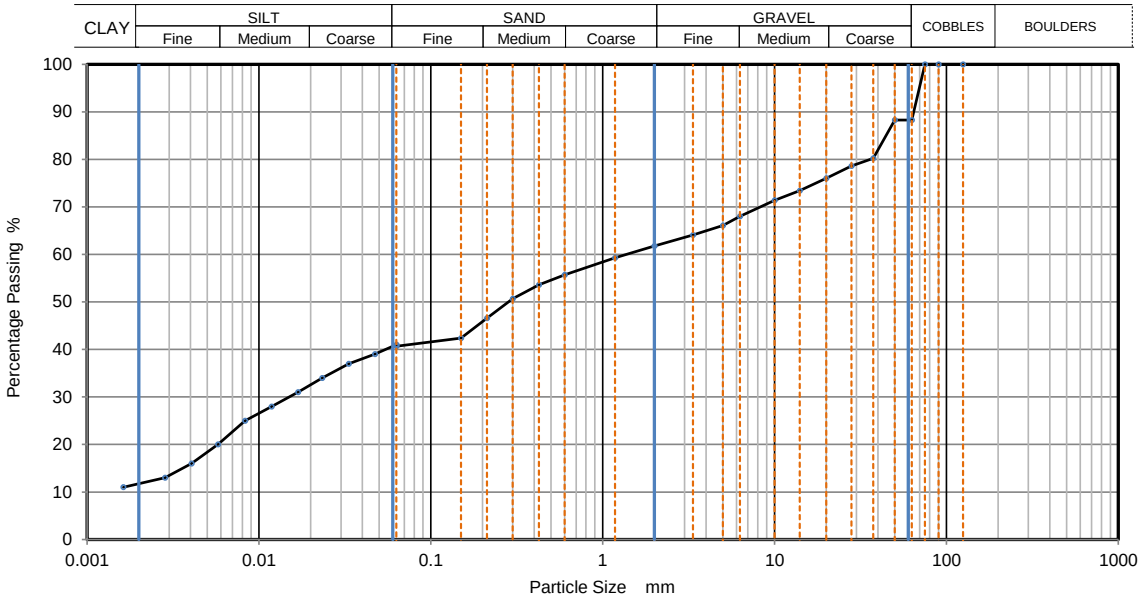
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90800
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brownish grey sligthly sandy slightly gravelly silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	41
90	100	0.0474	39
75	100	0.0333	37
63	88	0.0234	34
50	88	0.0169	31
37.5	80	0.0119	28
28	79	0.0083	25
20	76	0.0058	20
14	73	0.0040	16
10	71	0.0028	13
6.3	68	0.0016	11
5	66		
3.35	64		
2	62		
1.18	59		
0.6	56	Particle density (assumed)	
0.425	54	2.70	Mg/m3
0.3	51		
0.212	47		
0.15	42		
0.063	41		

Sample Proportions	% dry mass
Very coarse	11.7
Gravel	26.5
Sand	21.1
Silt	28.7
Clay	12.0

Grading Analysis		
D100	mm	
D60	mm	1.38
D30	mm	0.0154
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/11/2022

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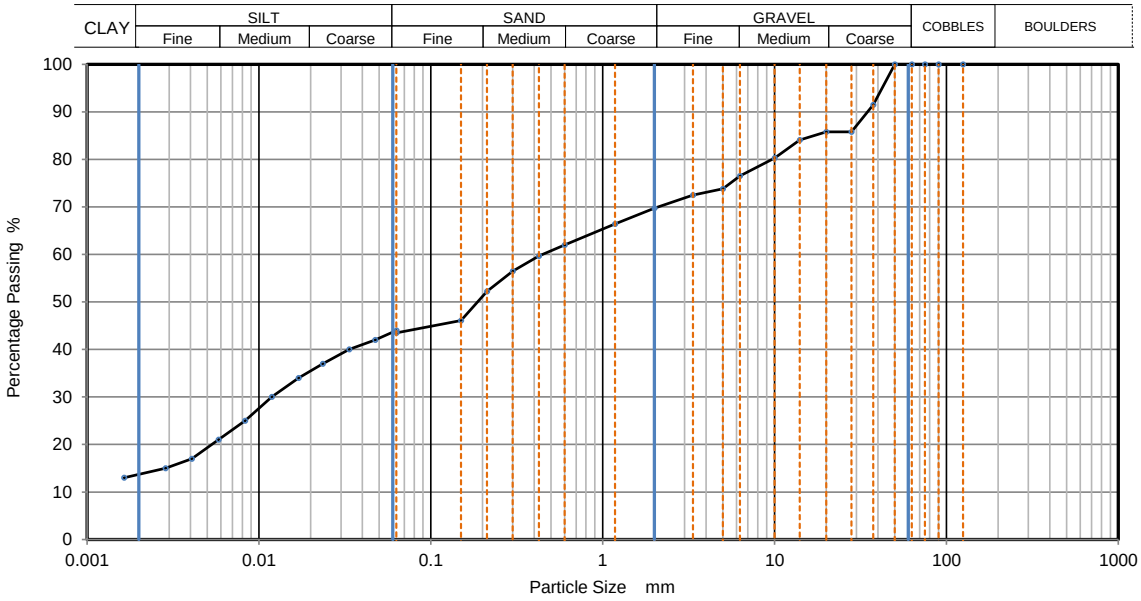
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90800
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	44
90	100	0.0475	42
75	100	0.0335	40
63	100	0.0235	37
50	100	0.0170	34
37.5	92	0.0119	30
28	86	0.0083	25
20	86	0.0058	21
14	84	0.0041	17
10	80	0.0029	15
6.3	77	0.0016	13
5	74		
3.35	73		
2	70		
1.18	66		
0.6	62	Particle density (assumed)	
0.425	60	2.70 Mg/m3	
0.3	57		
0.212	52		
0.15	46		
0.063	44		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.3
Sand	26.2
Silt	30.2
Clay	13.3

Grading Analysis		
D100	mm	
D60	mm	0.446
D30	mm	0.0123
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/11/2022

UKAS TESTING

2519

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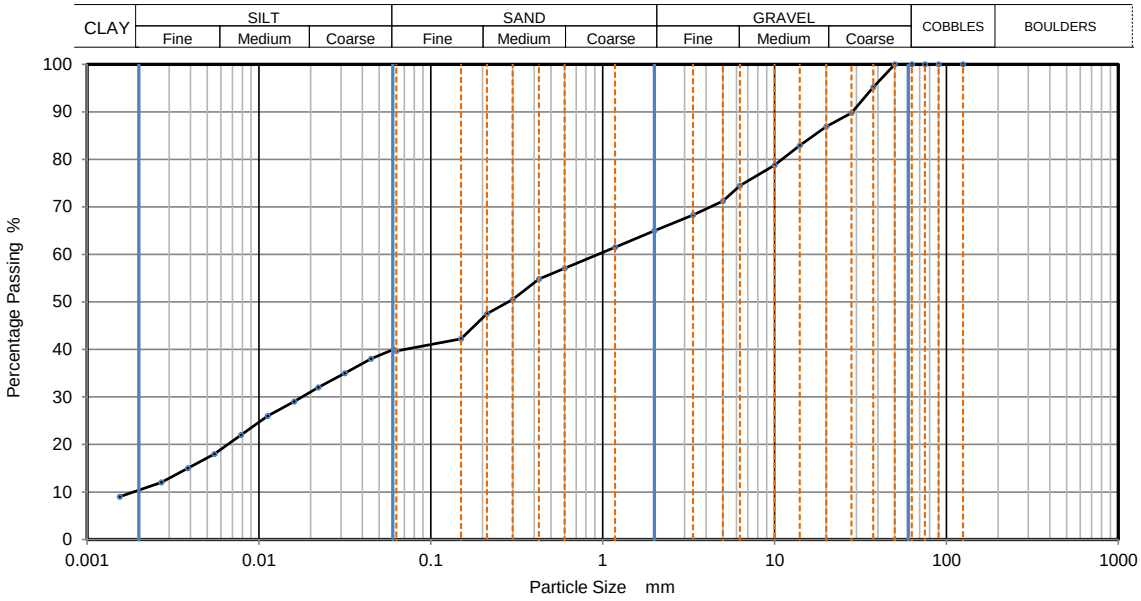
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90894
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0607	40
90	100	0.0449	38
75	100	0.0315	35
63	100	0.0221	32
50	100	0.0160	29
37.5	95	0.0112	26
28	90	0.0079	22
20	87	0.0055	18
14	83	0.0039	15
10	79	0.0027	12
6.3	75	0.0015	9
5	71		
3.35	68		
2	65		
1.18	62		
0.6	57	Particle density	(assumed)
0.425	55	2.70	Mg/m3
0.3	51		
0.212	48		
0.15	42		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.0
Sand	25.3
Silt	29.6
Clay	10.1

Grading Analysis		
D100	mm	
D60	mm	0.933
D30	mm	0.0177
D10	mm	0.00196
Uniformity Coefficient		480
Curvature Coefficient		0.17

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

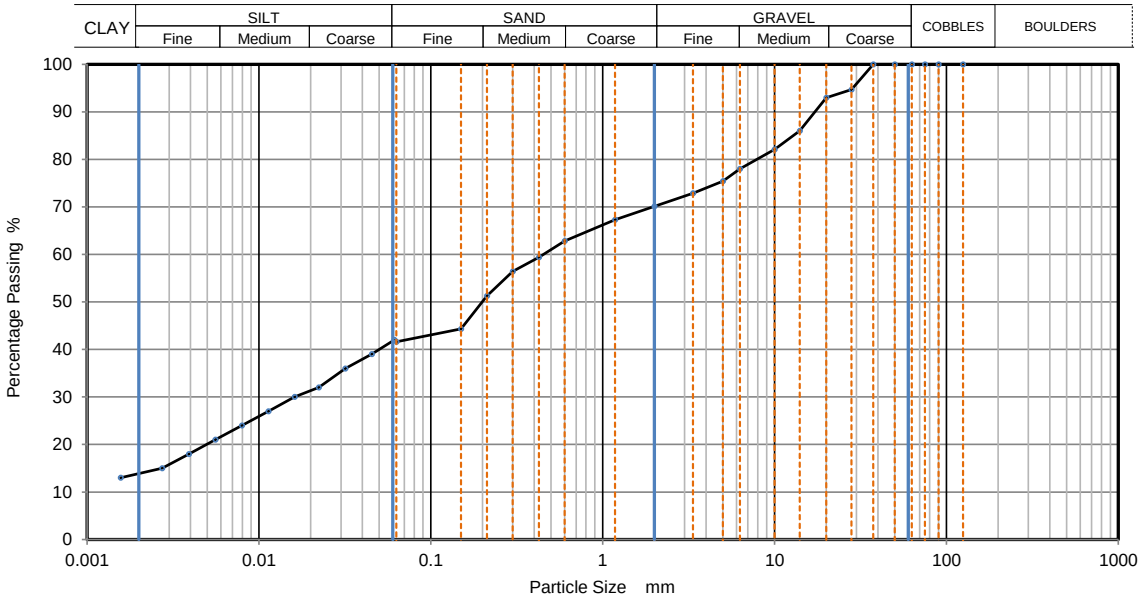
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90894
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0614	42
90	100	0.0453	39
75	100	0.0318	36
63	100	0.0223	32
50	100	0.0162	30
37.5	100	0.0113	27
28	95	0.0079	24
20	93	0.0056	21
14	86	0.0039	18
10	82	0.0027	15
6.3	78	0.0016	13
5	75		
3.35	73		
2	70		
1.18	67		
0.6	63	Particle density	(assumed)
0.425	59	2.70	Mg/m3
0.3	56		
0.212	51		
0.15	44		
0.063	42		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.9
Sand	28.5
Silt	27.9
Clay	13.7

Grading Analysis		
D100	mm	
D60	mm	0.452
D30	mm	0.0162
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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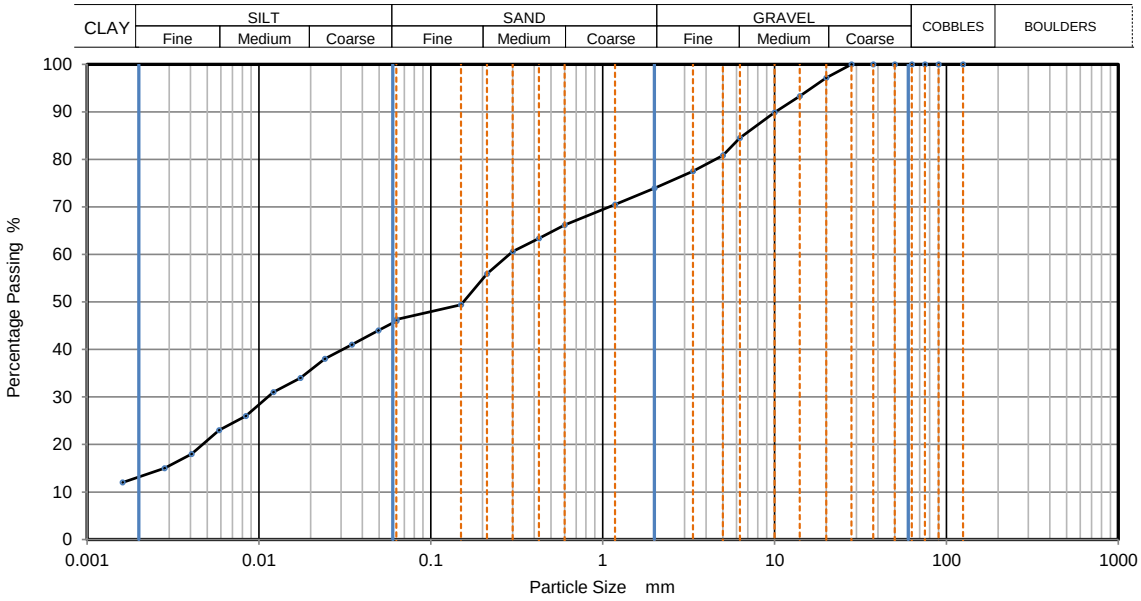
Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-90894
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.10 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	46
90	100	0.0495	44
75	100	0.0347	41
63	100	0.0242	38
50	100	0.0174	34
37.5	100	0.0121	31
28	100	0.0084	26
20	97	0.0058	23
14	93	0.0041	18
10	90	0.0028	15
6.3	85	0.0016	12
5	81		
3.35	78		
2	74		
1.18	71		
0.6	66	Particle density (assumed)	
0.425	63	2.70	Mg/m3
0.3	61		
0.212	56		
0.15	49		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.1
Sand	27.6
Silt	33.1
Clay	13.2

Grading Analysis		
D100	mm	
D60	mm	0.287
D30	mm	0.0113
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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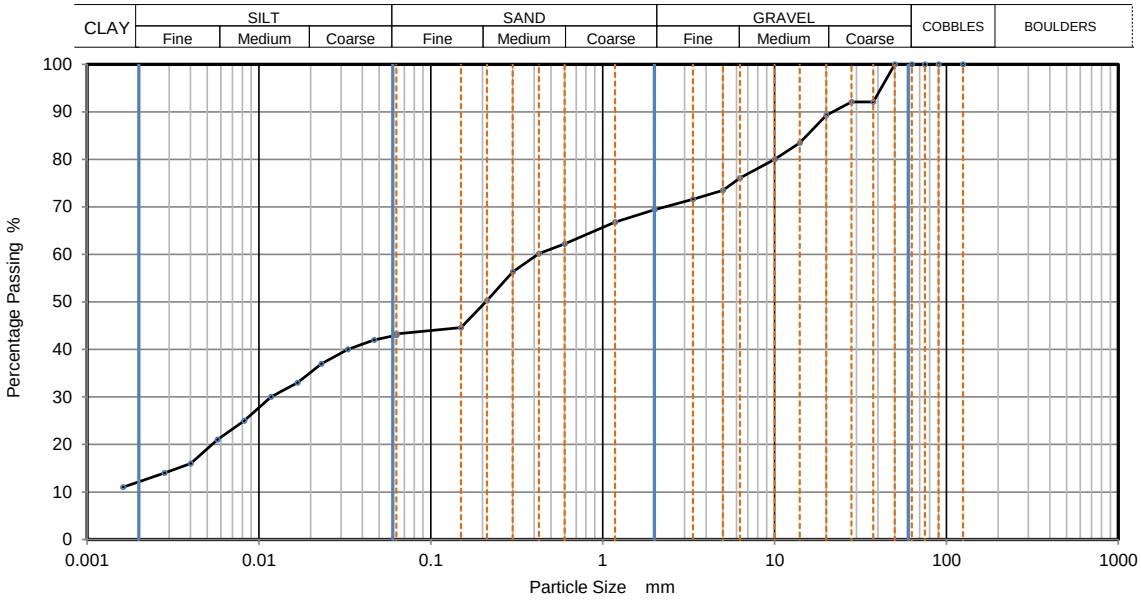
Checked and Approved

Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91012
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	26/10/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	43
90	100	0.0467	42
75	100	0.0329	40
63	100	0.0231	37
50	100	0.0167	33
37.5	92	0.0117	30
28	92	0.0082	25
20	89	0.0057	21
14	84	0.0040	16
10	80	0.0028	14
6.3	76	0.0016	11
5	74		
3.35	72		
2	69		
1.18	67		
0.6	62	Particle density (assumed)	
0.425	60	2.70 Mg/m3	
0.3	56		
0.212	50		
0.15	45		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.6
Sand	26.1
Silt	30.9
Clay	12.4

Grading Analysis		
D100	mm	
D60	mm	0.419
D30	mm	0.0116
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

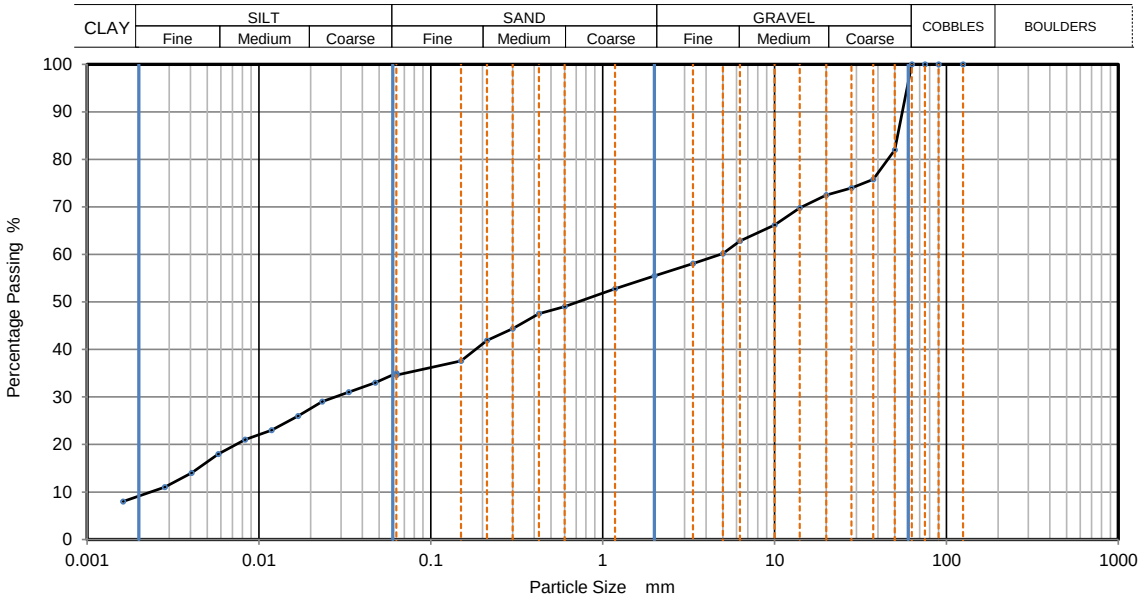
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91012
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.90 m
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular)			Depth Base	4.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	01/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	35
90	100	0.0474	33
75	100	0.0333	31
63	100	0.0234	29
50	82	0.0169	26
37.5	76	0.0118	23
28	74	0.0083	21
20	73	0.0058	18
14	70	0.0041	14
10	66	0.0028	11
6.3	63	0.0016	8
5	60		
3.35	58		
2	56		
1.18	53		
0.6	49	Particle density (assumed)	
0.425	48	2.70 Mg/m3	
0.3	44		
0.212	42		
0.15	38		
0.063	35		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	44.5
Sand	20.9
Silt	25.1
Clay	9.5

Grading Analysis		
D100	mm	
D60	mm	4.77
D30	mm	0.0277
D10	mm	0.00224
Uniformity Coefficient		2100
Curvature Coefficient		0.072

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UKAS TESTING

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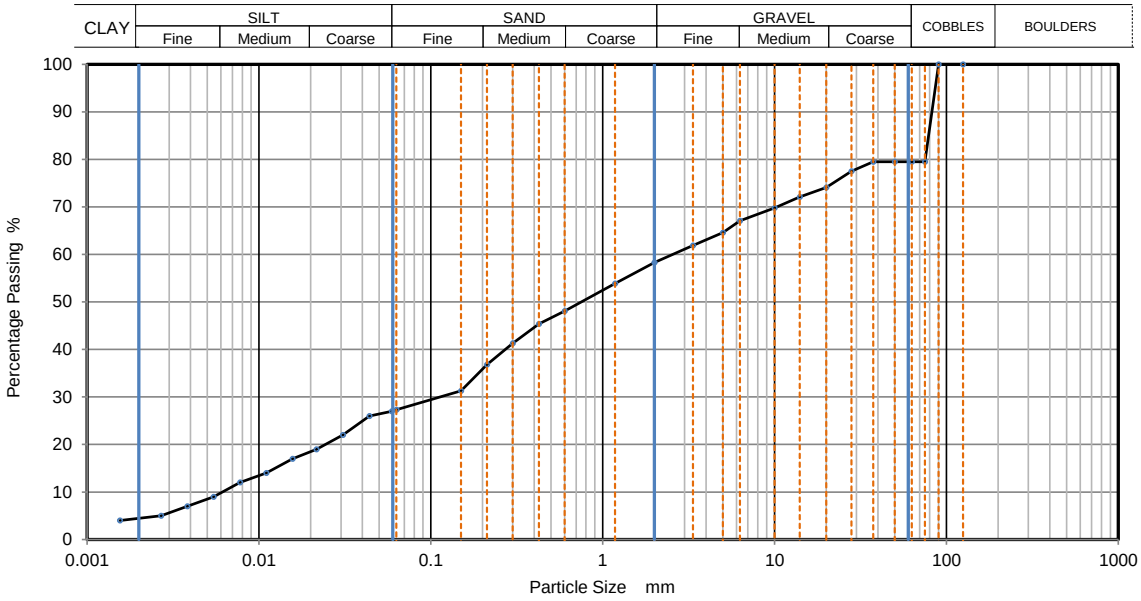
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91104
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Dark brownish grey clayey very gravelly very silty SAND with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0592	27
90	100	0.0439	26
75	80	0.0308	22
63	80	0.0216	19
50	80	0.0157	17
37.5	80	0.0110	14
28	78	0.0078	12
20	74	0.0054	9
14	72	0.0038	7
10	70	0.0027	5
6.3	67	0.0016	4
5	65		
3.35	62		
2	58		
1.18	54		
0.6	48	Particle density (assumed)	
0.425	45	2.70	Mg/m3
0.3	41		
0.212	37		
0.15	31		
0.063	27		

Sample Proportions	% dry mass
Very coarse	20.5
Gravel	21.2
Sand	31.0
Silt	23.0
Clay	4.3

Grading Analysis		
D100	mm	
D60	mm	2.56
D30	mm	0.112
D10	mm	0.00611
Uniformity Coefficient		420
Curvature Coefficient		0.8

Remarks

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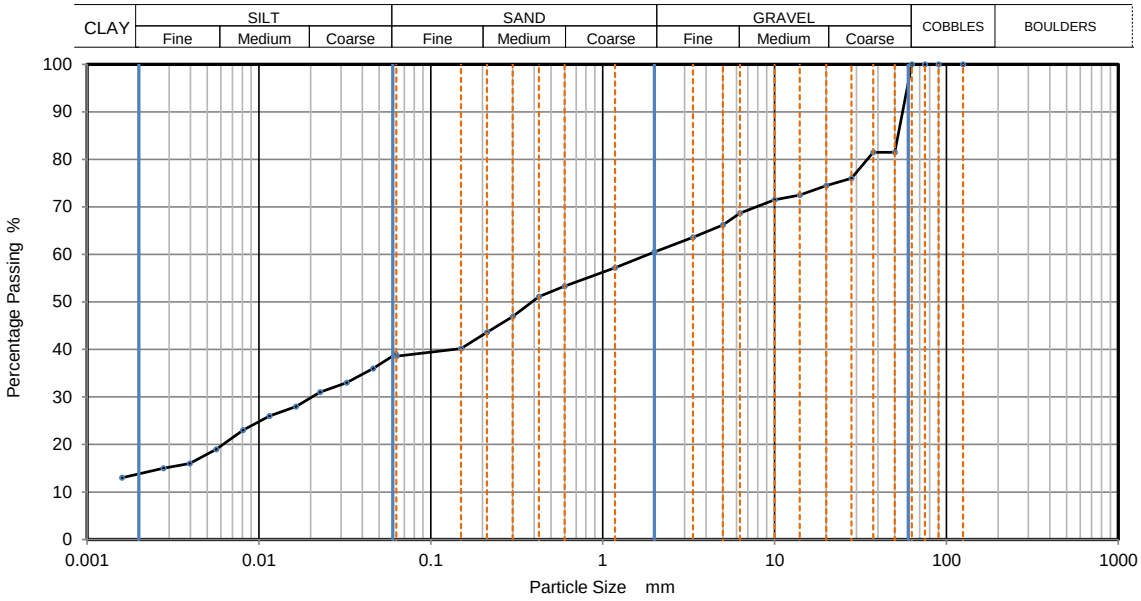
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91104
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	39
90	100	0.0461	36
75	100	0.0323	33
63	100	0.0227	31
50	82	0.0164	28
37.5	82	0.0115	26
28	76	0.0081	23
20	75	0.0056	19
14	73	0.0039	16
10	72	0.0028	15
6.3	69	0.0016	13
5	66		
3.35	64		
2	61		
1.18	57		
0.6	53	Particle density (assumed)	
0.425	51	2.70	Mg/m3
0.3	47		
0.212	44		
0.15	40		
0.063	39		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.5
Sand	21.8
Silt	25.1
Clay	13.6

Grading Analysis		
D100	mm	
D60	mm	1.85
D30	mm	0.0205
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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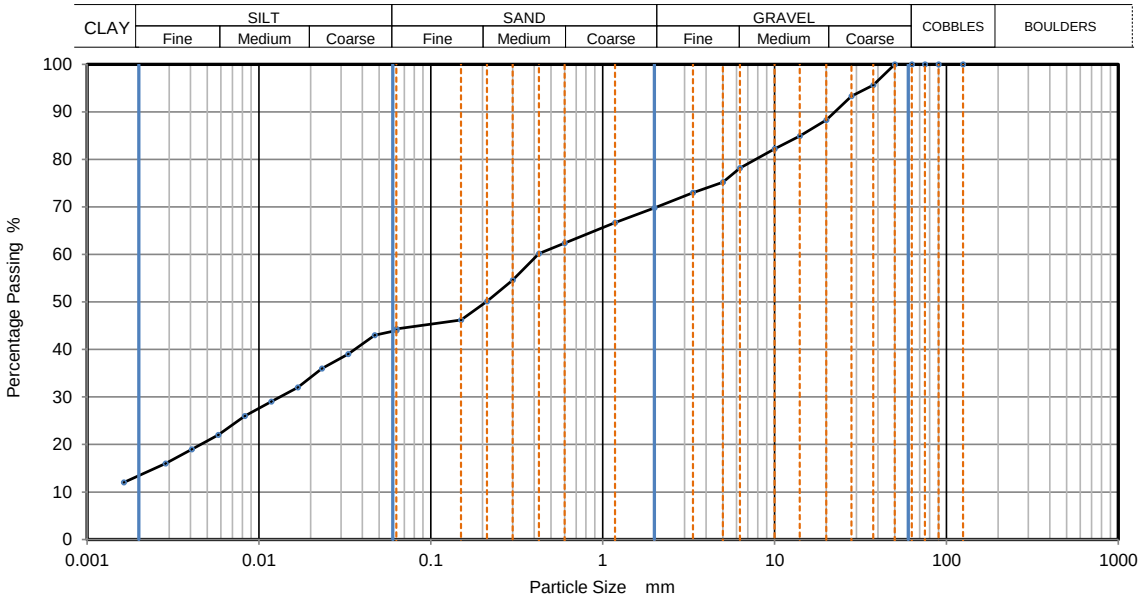
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91193
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	44
90	100	0.0471	43
75	100	0.0331	39
63	100	0.0232	36
50	100	0.0168	32
37.5	96	0.0118	29
28	93	0.0083	26
20	88	0.0058	22
14	85	0.0041	19
10	82	0.0029	16
6.3	78	0.0016	12
5	75		
3.35	73		
2	70		
1.18	67		
0.6	62	Particle density (assumed)	
0.425	60	2.70	Mg/m3
0.3	55		
0.212	50		
0.15	46		
0.063	44		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.2
Sand	25.5
Silt	31.1
Clay	13.2

Grading Analysis		
D100	mm	
D60	mm	0.42
D30	mm	0.013
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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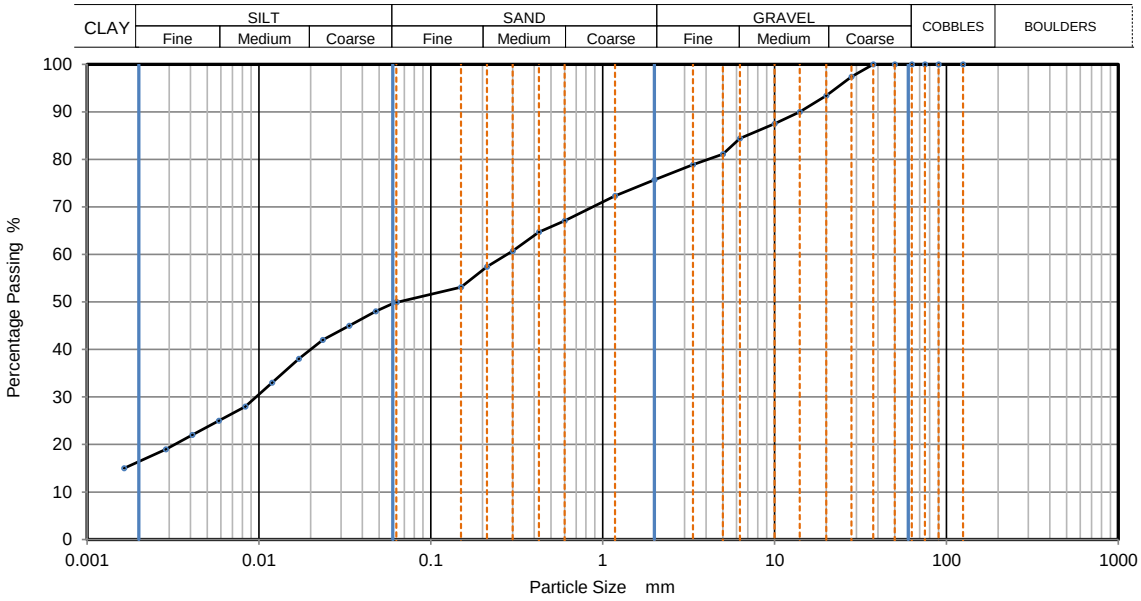
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91193
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	09/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	50
90	100	0.0477	48
75	100	0.0335	45
63	100	0.0235	42
50	100	0.0170	38
37.5	100	0.0119	33
28	97	0.0083	28
20	93	0.0058	25
14	90	0.0041	22
10	88	0.0029	19
6.3	84	0.0016	15
5	81		
3.35	79		
2	76		
1.18	72		
0.6	67	Particle density (assumed)	
0.425	65	2.70	Mg/m3
0.3	61		
0.212	57		
0.15	53		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.3
Sand	25.8
Silt	33.7
Clay	16.2

Grading Analysis		
D100	mm	
D60	mm	0.279
D30	mm	0.00933
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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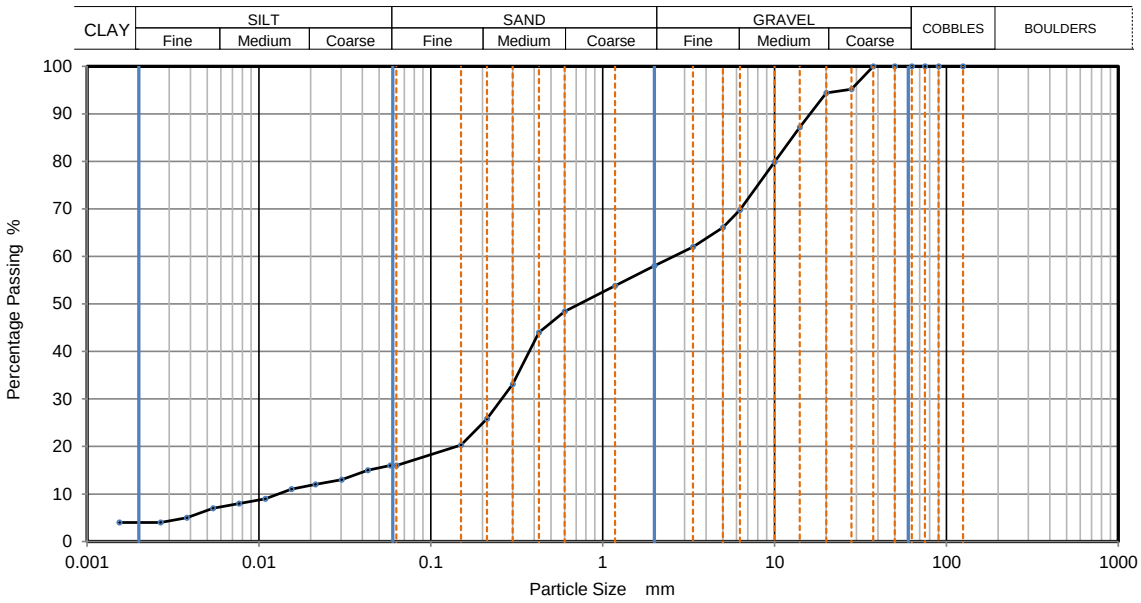
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brownish grey slightly clayey silty SAND and GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0580	16
90	100	0.0430	15
75	100	0.0302	13
63	100	0.0213	12
50	100	0.0155	11
37.5	100	0.0109	9
28	95	0.0077	8
20	94	0.0054	7
14	87	0.0038	5
10	80	0.0027	4
6.3	70	0.0015	4
5	66		
3.35	62		
2	58		
1.18	54		
0.6	48	Particle density (assumed)	
0.425	44	2.70	Mg/m3
0.3	33		
0.212	26		
0.15	20		
0.063	16		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	42.0
Sand	42.0
Silt	12.2
Clay	3.8

Grading Analysis		
D100	mm	
D60	mm	2.6
D30	mm	0.258
D10	mm	0.0133
Uniformity Coefficient		190
Curvature Coefficient		1.9

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

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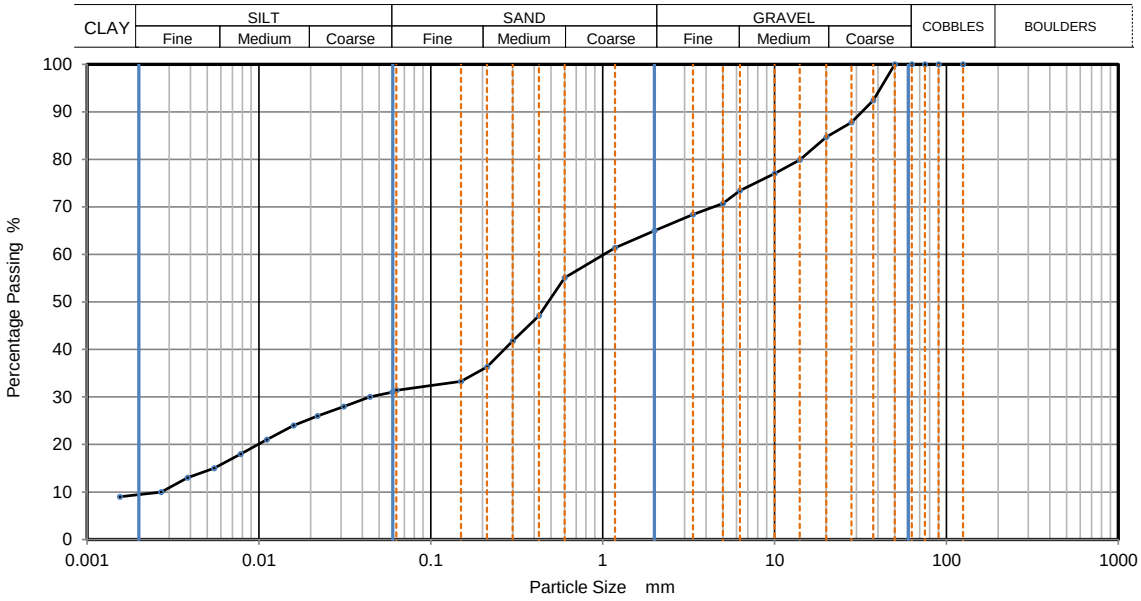
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brownish grey clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0597	31
90	100	0.0442	30
75	100	0.0312	28
63	100	0.0219	26
50	100	0.0159	24
37.5	92	0.0111	21
28	88	0.0078	18
20	85	0.0055	15
14	80	0.0038	13
10	77	0.0027	10
6.3	73	0.0015	9
5	71		
3.35	68		
2	65		
1.18	61		
0.6	55	Particle density (assumed)	
0.425	47	2.70 Mg/m3	
0.3	42		
0.212	36		
0.15	33		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.0
Sand	33.6
Silt	22.0
Clay	9.4

Grading Analysis		
D100	mm	
D60	mm	1.02
D30	mm	0.0447
D10	mm	0.00273
Uniformity Coefficient		370
Curvature Coefficient		0.72

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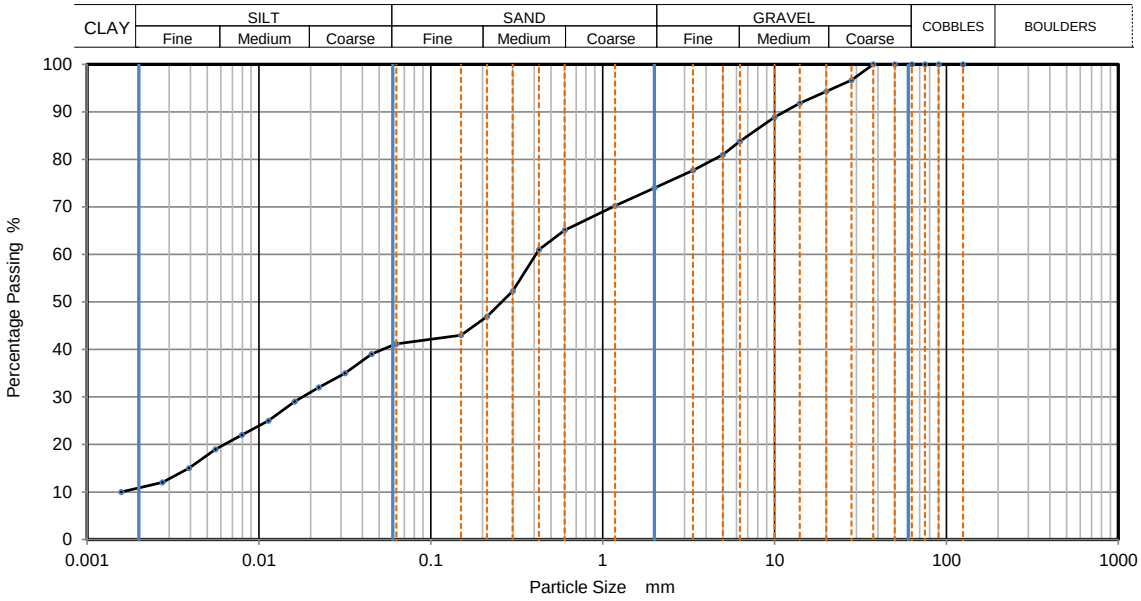
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0611	41
90	100	0.0452	39
75	100	0.0317	35
63	100	0.0223	32
50	100	0.0161	29
37.5	100	0.0113	25
28	97	0.0079	22
20	94	0.0056	19
14	92	0.0039	15
10	89	0.0027	12
6.3	84	0.0016	10
5	81		
3.35	78		
2	74		
1.18	70		
0.6	65	Particle density	(assumed)
0.425	61	2.70	Mg/m3
0.3	52		
0.212	47		
0.15	43		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.0
Sand	32.8
Silt	30.1
Clay	11.1

Grading Analysis		
D100	mm	
D60	mm	0.408
D30	mm	0.0177
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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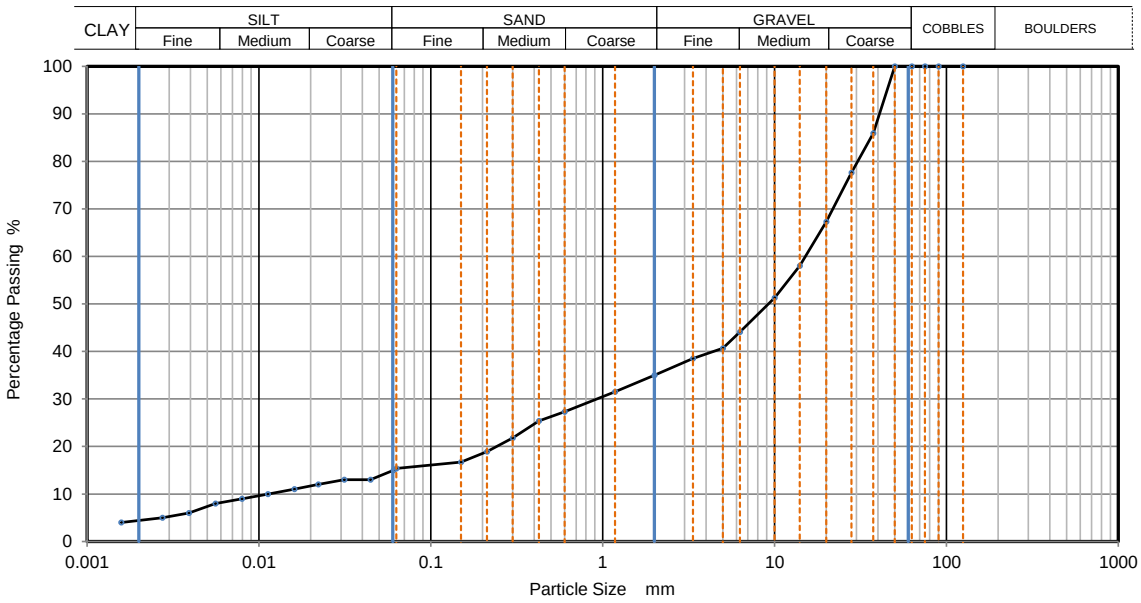
Checked and Approved

Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.20 m
Soil Description	Grey clayey silty sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	13/12/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0606	15
90	100	0.0446	13
75	100	0.0314	13
63	100	0.0221	12
50	100	0.0161	11
37.5	86	0.0113	10
28	78	0.0079	9
20	67	0.0056	8
14	58	0.0039	6
10	51	0.0027	5
6.3	44	0.0016	4
5	41		
3.35	39		
2	35		
1.18	32		
0.6	27	Particle density (assumed)	
0.425	25	2.70	Mg/m3
0.3	22		
0.212	19		
0.15	17		
0.063	15		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	65.0
Sand	19.6
Silt	10.9
Clay	4.5

Grading Analysis		
D100	mm	
D60	mm	15.1
D30	mm	0.927
D10	mm	0.0122
Uniformity Coefficient		1200
Curvature Coefficient		4.7

Remarks

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Initials: **J.P**

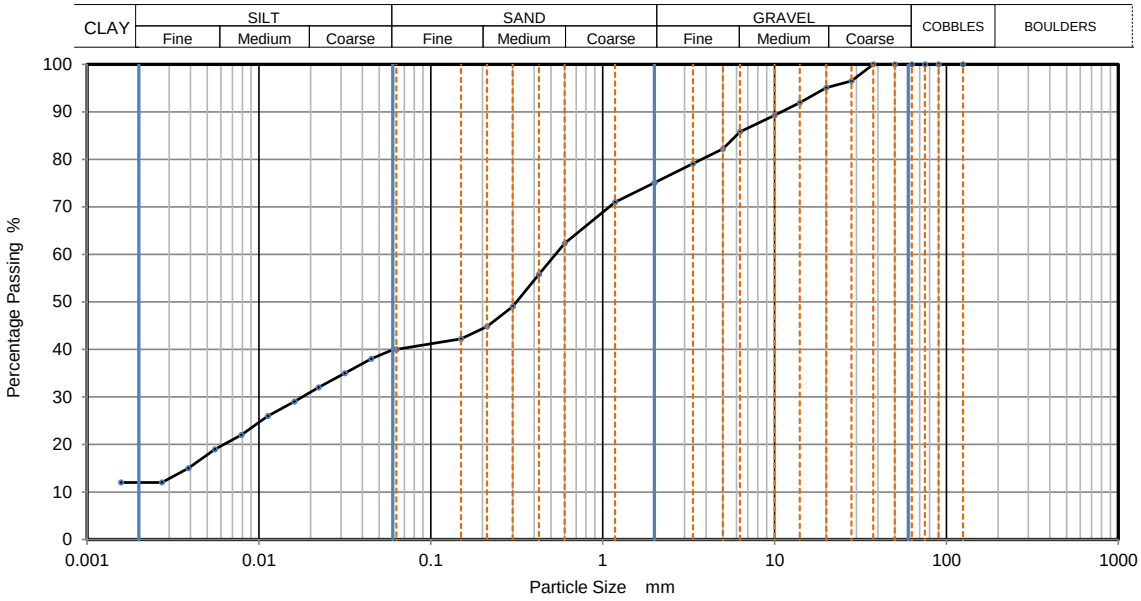
Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91406
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.20 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0608	40
90	100	0.0450	38
75	100	0.0316	35
63	100	0.0222	32
50	100	0.0161	29
37.5	100	0.0113	26
28	97	0.0079	22
20	95	0.0055	19
14	92	0.0039	15
10	89	0.0027	12
6.3	86	0.0016	12
5	82		
3.35	79		
2	75		
1.18	71		
0.6	62	Particle density	(assumed)
0.425	56	2.70	Mg/m3
0.3	49		
0.212	45		
0.15	42		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.9
Sand	35.1
Silt	28.1
Clay	11.9

Grading Analysis		
D100	mm	
D60	mm	0.53
D30	mm	0.0171
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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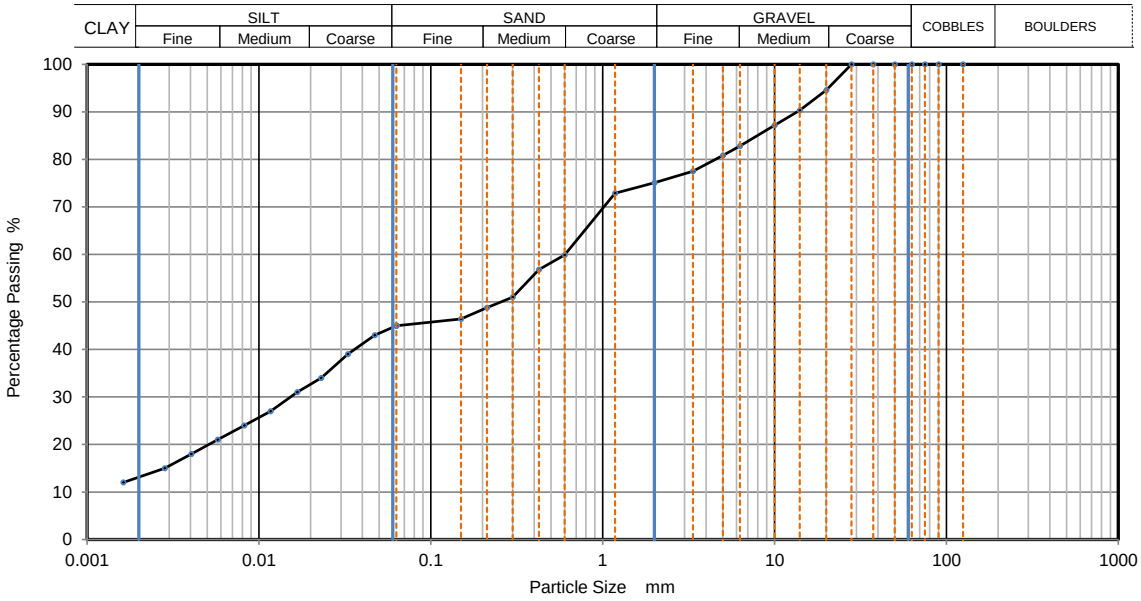
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91406
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0471	43
75	100	0.0329	39
63	100	0.0230	34
50	100	0.0167	31
37.5	100	0.0117	27
28	100	0.0082	24
20	95	0.0058	21
14	90	0.0040	18
10	87	0.0028	15
6.3	83	0.0016	12
5	81		
3.35	78		
2	75		
1.18	73		
0.6	60	Particle density	(assumed)
0.425	57	2.70	Mg/m3
0.3	51		
0.212	49		
0.15	46		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.9
Sand	30.1
Silt	32.0
Clay	13.0

Grading Analysis		
D100	mm	
D60	mm	0.604
D30	mm	0.0154
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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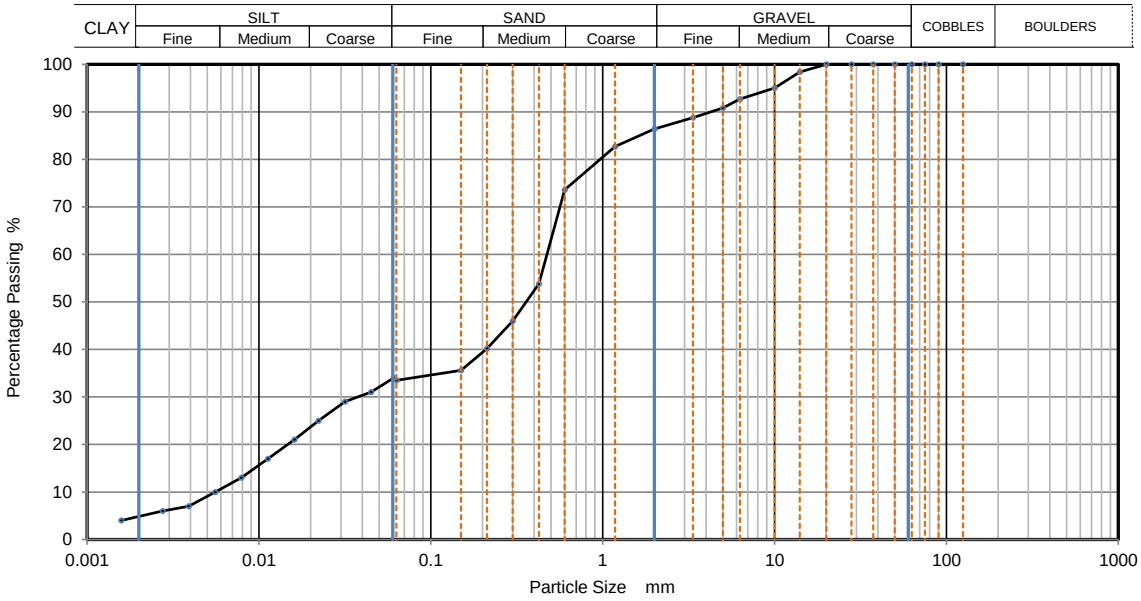
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91504
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown clayey gravelly very silty SAND (gravel is fm and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0607	34
90	100	0.0449	31
75	100	0.0316	29
63	100	0.0222	25
50	100	0.0161	21
37.5	100	0.0113	17
28	100	0.0079	13
20	100	0.0056	10
14	98	0.0039	7
10	95	0.0027	6
6.3	93	0.0016	4
5	91		
3.35	89		
2	86		
1.18	83		
0.6	74	Particle density (assumed)	
0.425	54	2.70	Mg/m3
0.3	46		
0.212	40		
0.15	36		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	13.6
Sand	52.8
Silt	28.8
Clay	4.8

Grading Analysis		
D100	mm	
D60	mm	0.473
D30	mm	0.035
D10	mm	0.00542
Uniformity Coefficient		87
Curvature Coefficient		0.48

Remarks

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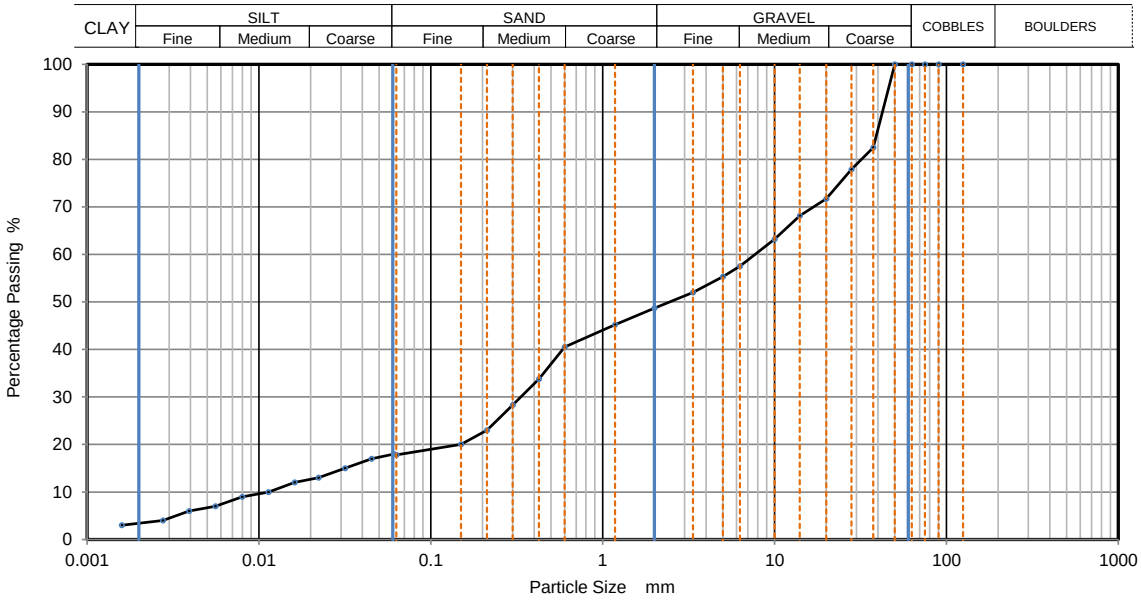
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91504
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0609	18
90	100	0.0451	17
75	100	0.0316	15
63	100	0.0222	13
50	100	0.0161	12
37.5	83	0.0114	10
28	78	0.0080	9
20	72	0.0056	7
14	68	0.0039	6
10	63	0.0028	4
6.3	58	0.0016	3
5	55		
3.35	52		
2	49		
1.18	45		
0.6	41	Particle density (assumed)	
0.425	34	2.70	Mg/m3
0.3	28		
0.212	23		
0.15	20		
0.063	18		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	51.3
Sand	30.9
Silt	14.0
Clay	3.8

Grading Analysis		
D100	mm	
D60	mm	7.73
D30	mm	0.334
D10	mm	0.01
Uniformity Coefficient		770
Curvature Coefficient		1.4

Remarks

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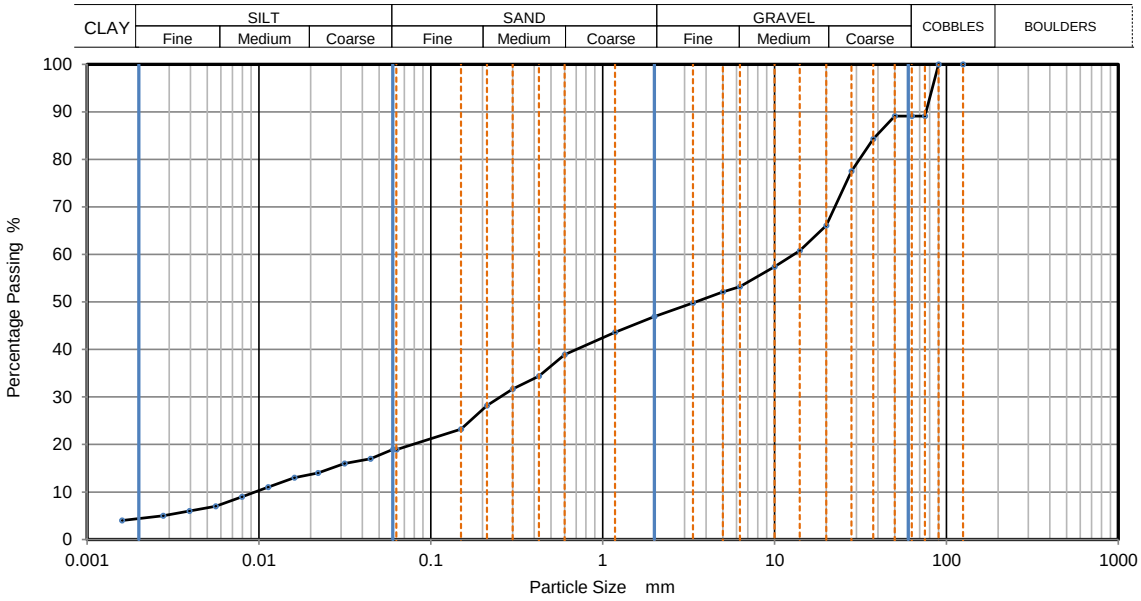
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-91504
Project No.	2021OY102	Client	Irish Drilling	Sample No.	5
				Depth Top	2.00 m
Soil Description	Brownish grey clayey silty very sandy GRAVEL with occasional cobbles (gravel is fmc and angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0602	19
90	100	0.0446	17
75	89	0.0314	16
63	89	0.0221	14
50	89	0.0161	13
37.5	84	0.0113	11
28	78	0.0079	9
20	66	0.0056	7
14	61	0.0039	6
10	57	0.0028	5
6.3	53	0.0016	4
5	52		
3.35	50		
2	47		
1.18	44		
0.6	39	Particle density (assumed)	
0.425	34	2.70 Mg/m3	
0.3	32		
0.212	28		
0.15	23		
0.063	19		

Sample Proportions	% dry mass
Very coarse	10.9
Gravel	42.1
Sand	28.0
Silt	14.8
Clay	4.2

Grading Analysis		
D100	mm	
D60	mm	12.9
D30	mm	0.254
D10	mm	0.00943
Uniformity Coefficient		1400
Curvature Coefficient		0.53

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

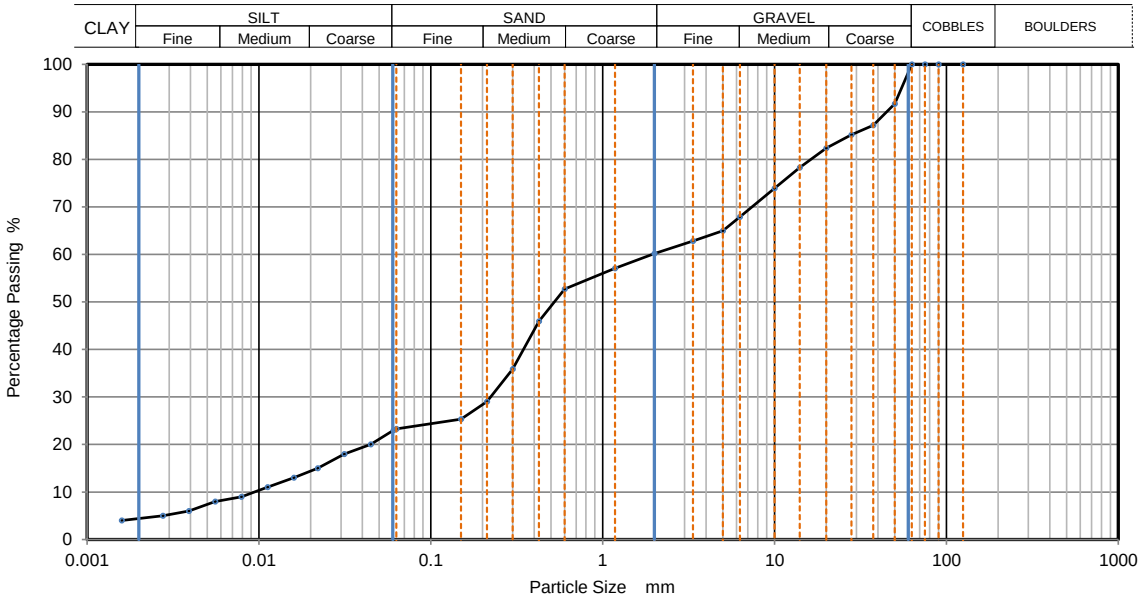
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91603
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0607	23
90	100	0.0448	20
75	100	0.0314	18
63	100	0.0220	15
50	92	0.0160	13
37.5	87	0.0112	11
28	85	0.0079	9
20	82	0.0056	8
14	78	0.0039	6
10	74	0.0028	5
6.3	68	0.0016	4
5	65		
3.35	63		
2	60		
1.18	57		
0.6	53	Particle density (assumed)	
0.425	46	2.70 Mg/m3	
0.3	36		
0.212	29		
0.15	25		
0.063	23		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.8
Sand	37.0
Silt	18.5
Clay	4.7

Grading Analysis		
D100	mm	
D60	mm	1.93
D30	mm	0.223
D10	mm	0.00988
Uniformity Coefficient		200
Curvature Coefficient		2.6

Remarks

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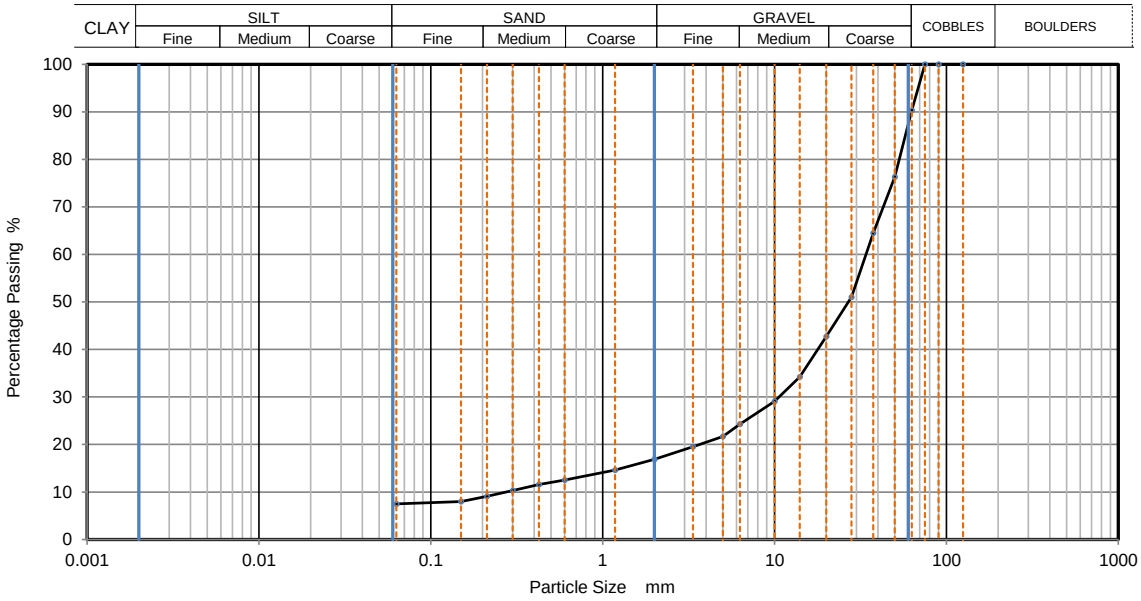
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91603
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Dark grey slightly silty clayey sandy GRAVEL with rare cobbles (gravel is fmc and angular to sub-angular)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	01/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	90		
50	76		
37.5	65		
28	51		
20	43		
14	34		
10	29		
6.3	24		
5	22		
3.35	20		
2	17		
1.18	15		
0.6	13		
0.425	12		
0.3	10		
0.212	9		
0.15	8		
0.063	8		

Sample Proportions	% dry mass
Very coarse	9.7
Gravel	73.4
Sand	9.4
Fines <0.063mm	7.5

Grading Analysis		
D100	mm	
D60	mm	34
D30	mm	10.6
D10	mm	0.274
Uniformity Coefficient		120
Curvature Coefficient		12

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

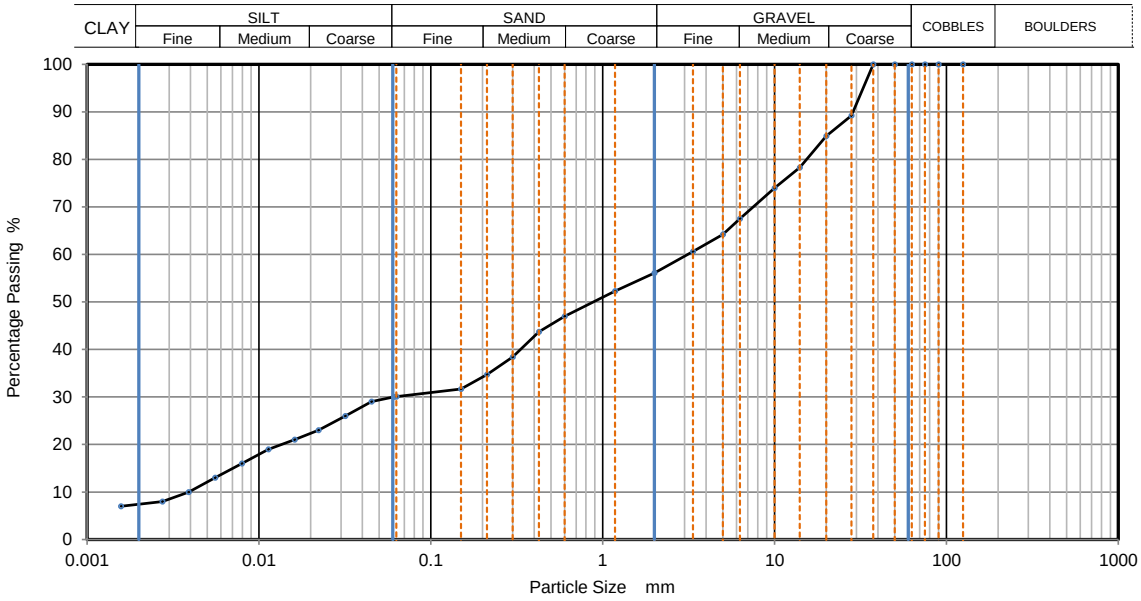
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91705
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown slightly clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0611	30
90	100	0.0453	29
75	100	0.0318	26
63	100	0.0222	23
50	100	0.0161	21
37.5	100	0.0113	19
28	89	0.0079	16
20	85	0.0056	13
14	78	0.0039	10
10	74	0.0027	8
6.3	68	0.0016	7
5	64		
3.35	61		
2	56		
1.18	52		
0.6	47	Particle density (assumed)	
0.425	44	2.70 Mg/m3	
0.3	38		
0.212	35		
0.15	32		
0.063	30		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	43.9
Sand	26.0
Silt	22.4
Clay	7.7

Grading Analysis		
D100	mm	
D60	mm	3.12
D30	mm	0.0597
D10	mm	0.00361
Uniformity Coefficient		860
Curvature Coefficient		0.32

Remarks

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Checked and Approved

Initials: **J.P**

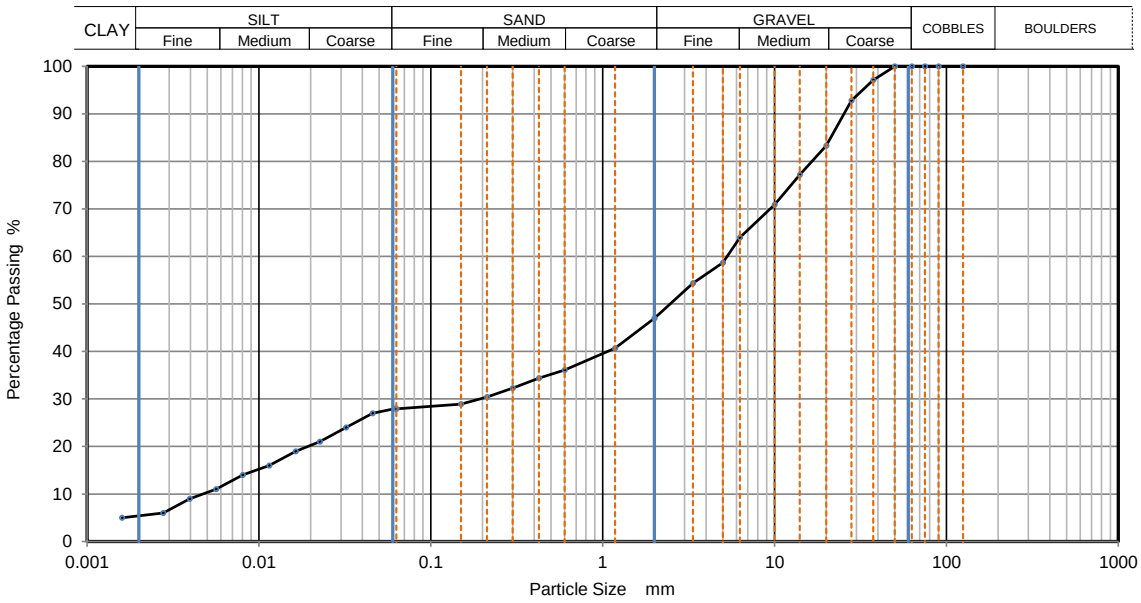
Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91705
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Brownish grey clayey sandy very silty GRAVEL (gravel is fmc and angular to sub-angular shale fragments)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0619	28
90	100	0.0459	27
75	100	0.0322	24
63	100	0.0226	21
50	100	0.0164	19
37.5	97	0.0115	16
28	93	0.0080	14
20	83	0.0056	11
14	77	0.0040	9
10	71	0.0028	6
6.3	64	0.0016	5
5	59		
3.35	54		
2	47		
1.18	41		
0.6	36	Particle density (assumed)	
0.425	34	2.70 Mg/m3	
0.3	32		
0.212	30		
0.15	29		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	53.0
Sand	19.1
Silt	22.2
Clay	5.7

Grading Analysis		
D100	mm	
D60	mm	5.29
D30	mm	0.192
D10	mm	0.00484
Uniformity Coefficient		1100
Curvature Coefficient		1.4

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

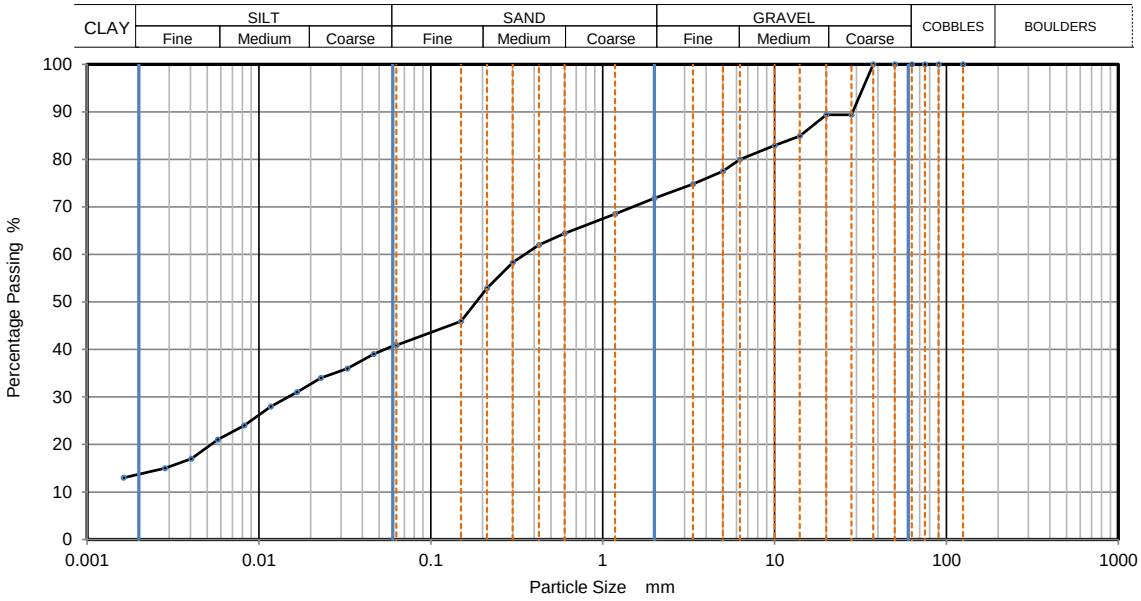
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91805
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0627	41
90	100	0.0464	39
75	100	0.0327	36
63	100	0.0229	34
50	100	0.0167	31
37.5	100	0.0117	28
28	89	0.0082	24
20	89	0.0058	21
14	85	0.0040	17
10	83	0.0028	15
6.3	80	0.0016	13
5	78		
3.35	75		
2	72		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	62	2.70	Mg/m3
0.3	58		
0.212	53		
0.15	46		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.2
Sand	30.9
Silt	27.6
Clay	13.3

Grading Analysis		
D100	mm	
D60	mm	0.352
D30	mm	0.0149
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

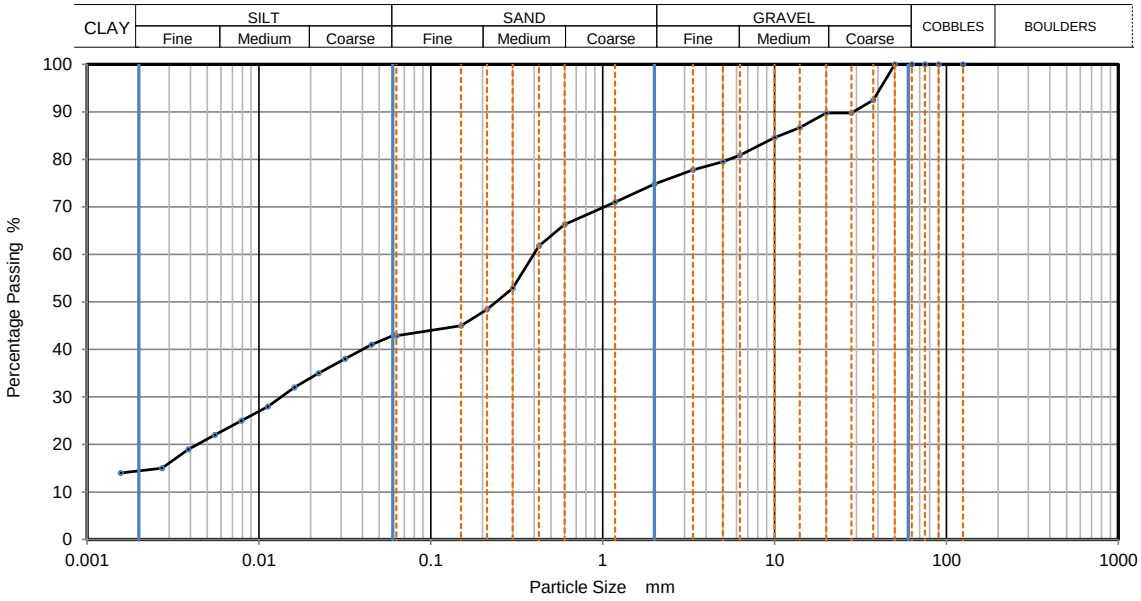
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91805
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Brownish grey slightly gravelly slighlty sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0609	43
90	100	0.0451	41
75	100	0.0317	38
63	100	0.0222	35
50	100	0.0161	32
37.5	93	0.0113	28
28	90	0.0079	25
20	90	0.0055	22
14	87	0.0039	19
10	85	0.0027	15
6.3	81	0.0016	14
5	80		
3.35	78		
2	75		
1.18	71		
0.6	66	Particle density (assumed)	
0.425	62	2.70	Mg/m3
0.3	53		
0.212	48		
0.15	45		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.2
Sand	31.8
Silt	28.4
Clay	14.6

Grading Analysis		
D100	mm	
D60	mm	0.397
D30	mm	0.0135
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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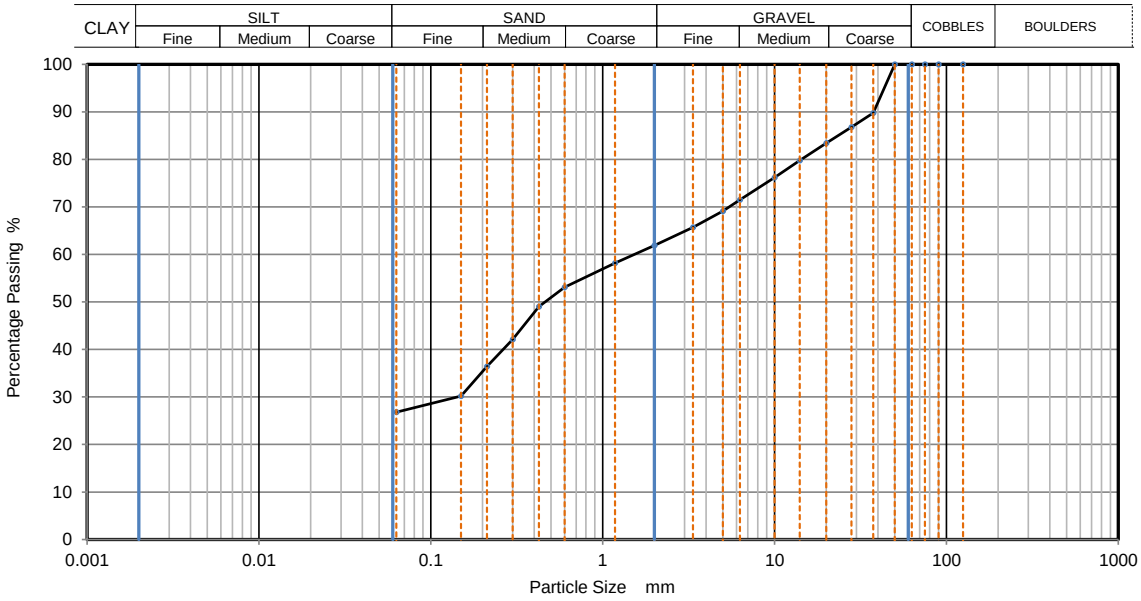
Initials: **J.P**

Date: 15/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91905
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	90		
28	87		
20	83		
14	80		
10	76		
6.3	72		
5	69		
3.35	66		
2	62		
1.18	58		
0.6	53		
0.425	49		
0.3	42		
0.212	36		
0.15	30		
0.063	27		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	38.1
Sand	35.1
Fines <0.063mm	26.8

Grading Analysis		
D100	mm	
D60	mm	1.52
D30	mm	0.142
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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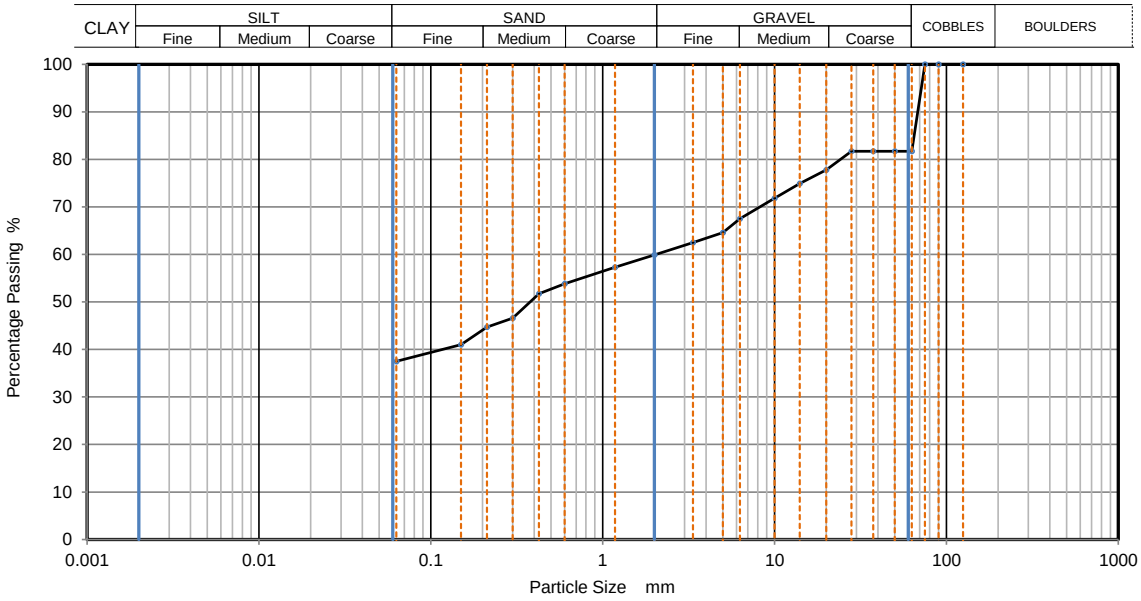
Date: 28/09/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-91905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and angular to sub-angular)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	82		
50	82		
37.5	82		
28	82		
20	78		
14	75		
10	72		
6.3	68		
5	65		
3.35	63		
2	60		
1.18	57		
0.6	54		
0.425	52		
0.3	47		
0.212	45		
0.15	41		
0.063	38		

Sample Proportions	% dry mass
Very coarse	18.3
Gravel	21.8
Sand	22.4
Fines <0.063mm	37.5

Grading Analysis		
D100	mm	
D60	mm	2.04
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 28/09/2022

UKAS TESTING

2519

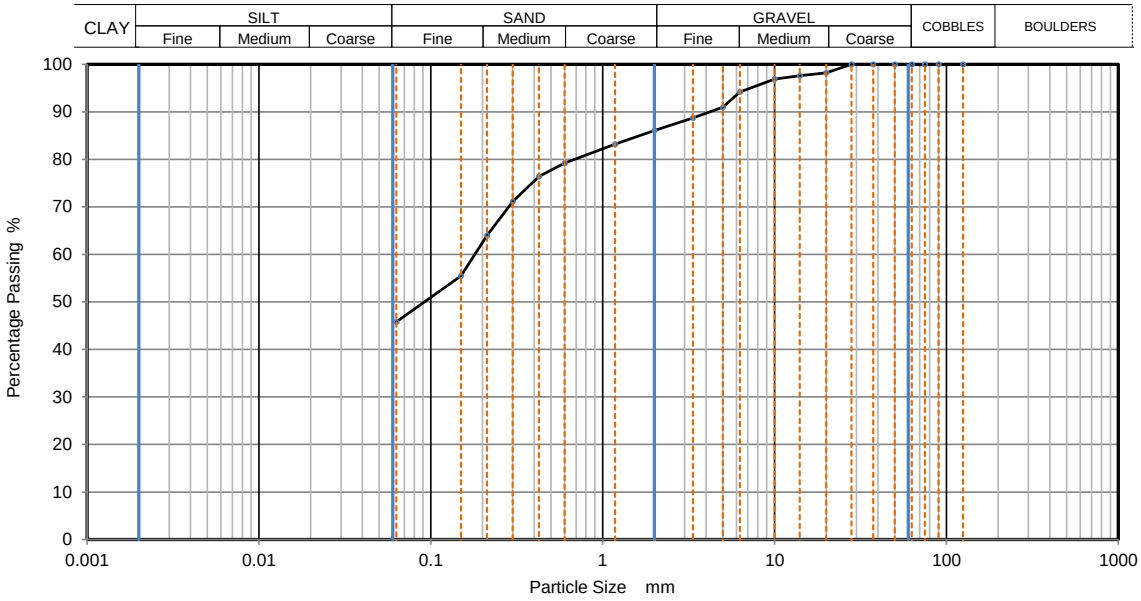
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92029
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	98		
10	97		
6.3	94		
5	91		
3.35	89		
2	86		
1.18	83		
0.6	79		
0.425	76		
0.3	71		
0.212	64		
0.15	56		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	13.9
Sand	40.3
Fines <0.063mm	45.8

Grading Analysis		
D100	mm	
D60	mm	0.18
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 28/10/2022

UKAS TESTING

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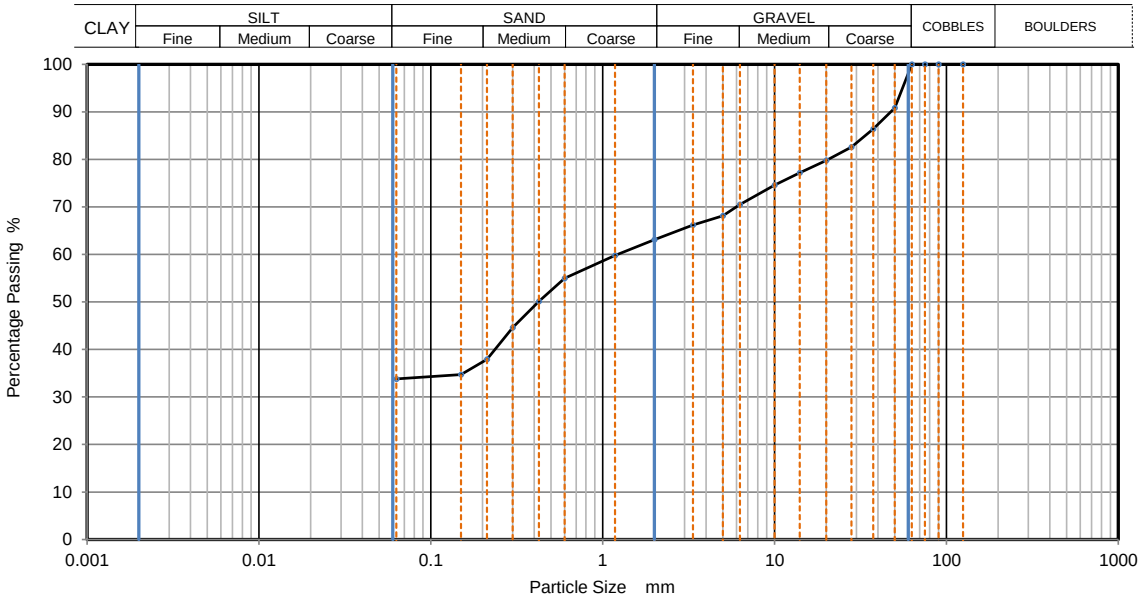
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92029
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	86		
28	83		
20	80		
14	77		
10	75		
6.3	71		
5	68		
3.35	66		
2	63		
1.18	60		
0.6	55		
0.425	50		
0.3	45		
0.212	38		
0.15	35		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	36.9
Sand	29.3
Fines <0.063mm	33.8

Grading Analysis		
D100	mm	
D60	mm	1.21
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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UKAS TESTING

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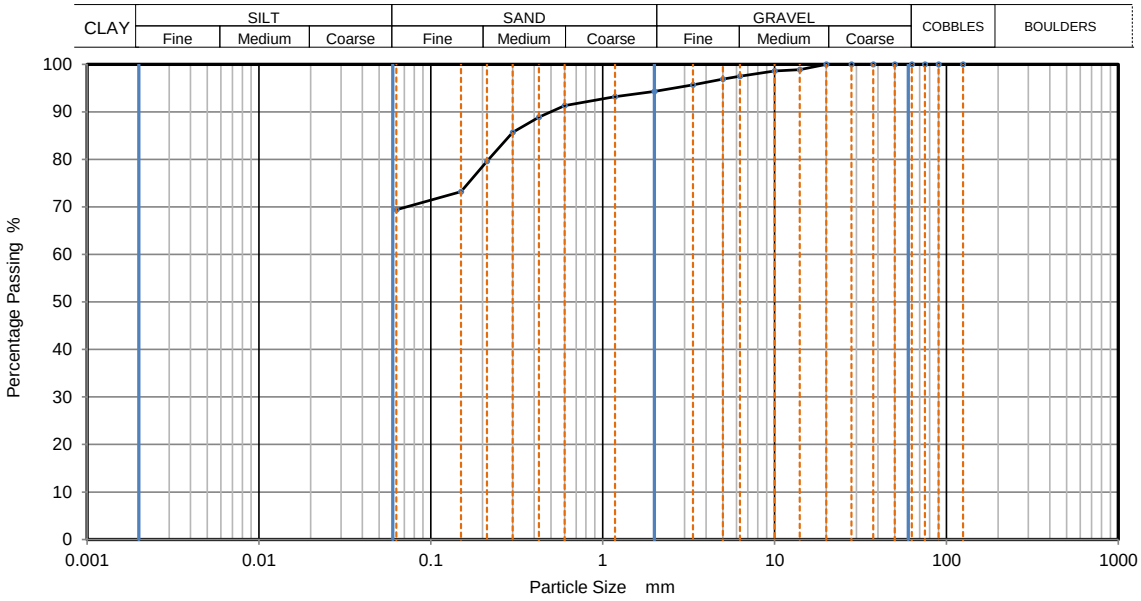
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92106
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Orangish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	98		
5	97		
3.35	96		
2	94		
1.18	93		
0.6	91		
0.425	89		
0.3	86		
0.212	80		
0.15	73		
0.063	69		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	5.7
Sand	24.9
Fines <0.063mm	69.4

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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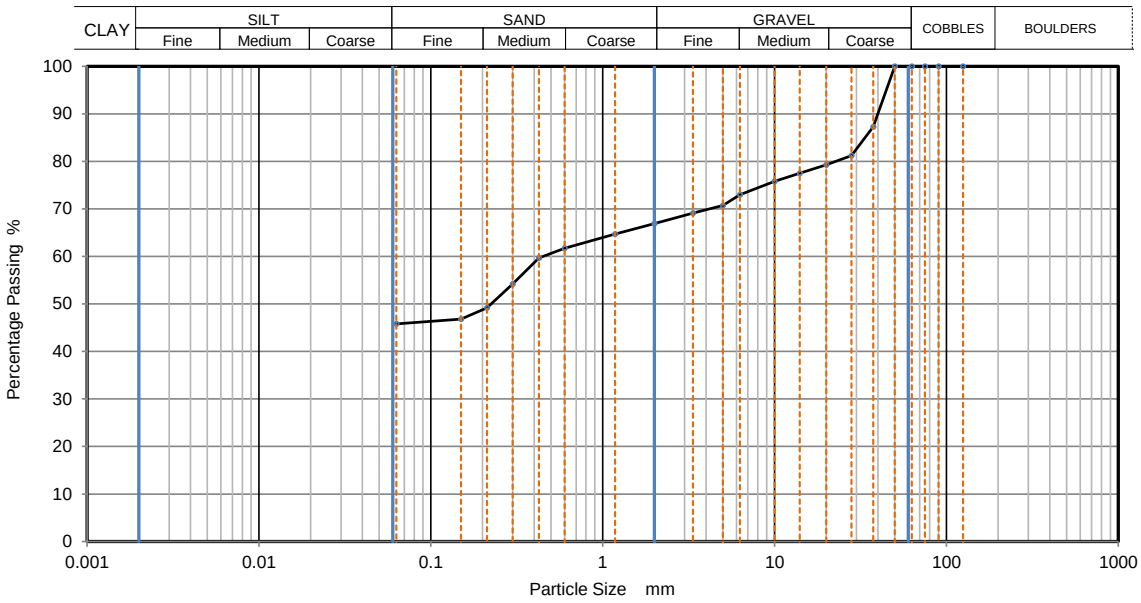
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92106
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	87		
28	81		
20	79		
14	78		
10	76		
6.3	73		
5	71		
3.35	69		
2	67		
1.18	65		
0.6	62		
0.425	60		
0.3	54		
0.212	49		
0.15	47		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.1
Sand	21.1
Fines <0.063mm	45.8

Grading Analysis		
D100	mm	
D60	mm	0.448
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 28/09/2022

UKAS TESTING

2519

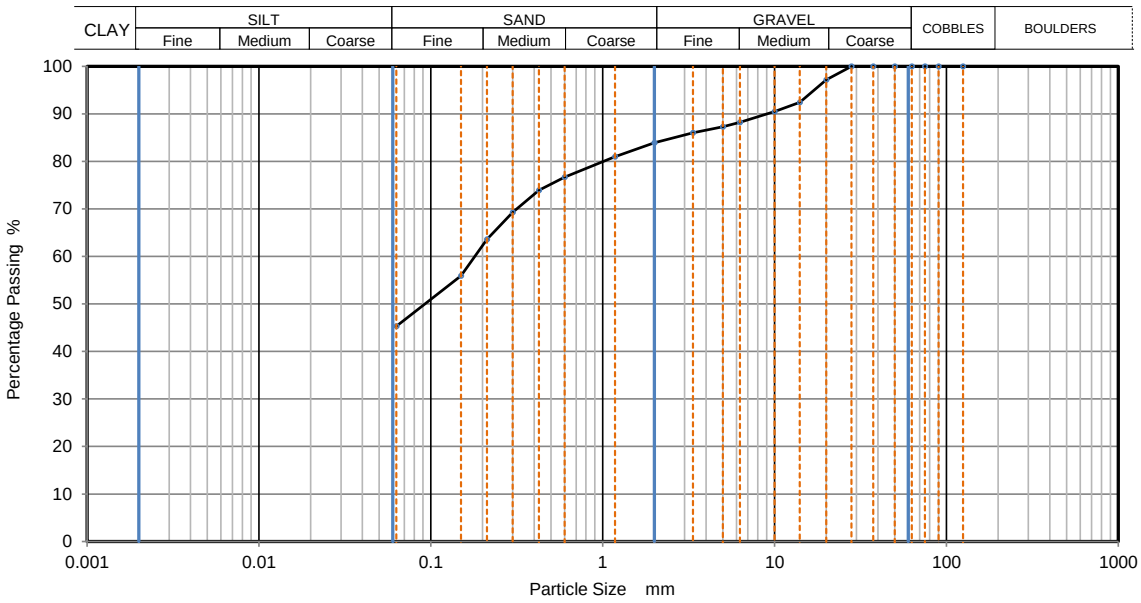
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	92		
10	91		
6.3	88		
5	87		
3.35	86		
2	84		
1.18	81		
0.6	77		
0.425	74		
0.3	69		
0.212	64		
0.15	56		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	16.1
Sand	38.6
Fines <0.063mm	45.3

Grading Analysis		
D100	mm	
D60	mm	0.18
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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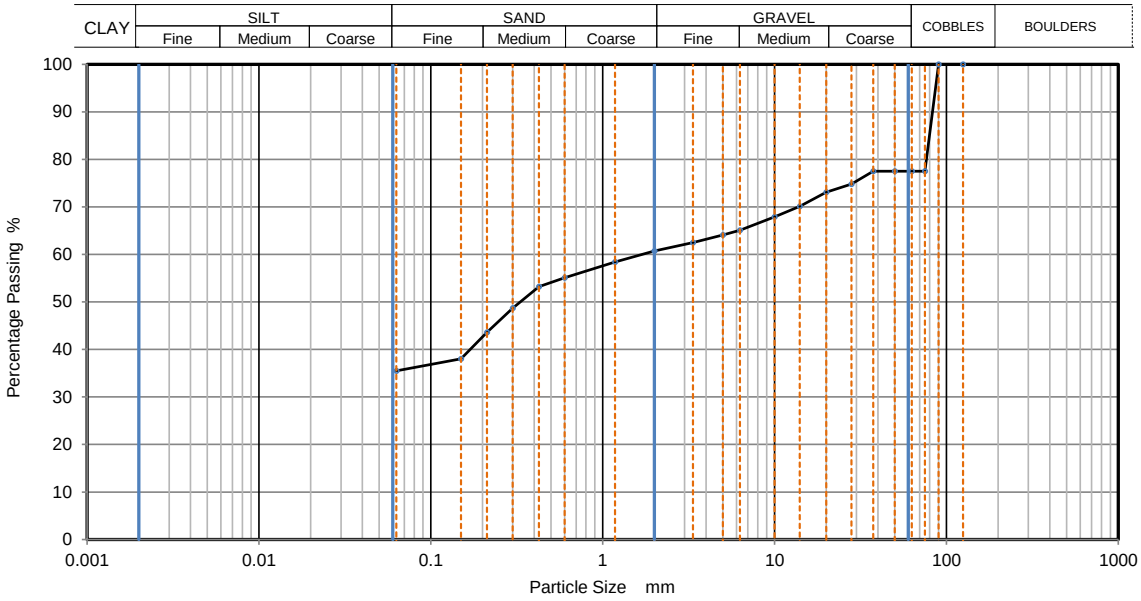
Date: 28/09/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greenish brown slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-rounded)			Depth Base	1.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	78		
63	78		
50	78		
37.5	78		
28	75		
20	73		
14	70		
10	68		
6.3	65		
5	64		
3.35	63		
2	61		
1.18	58		
0.6	55		
0.425	53		
0.3	49		
0.212	44		
0.15	38		
0.063	36		

Sample Proportions	% dry mass
Very coarse	22.5
Gravel	16.8
Sand	25.2
Fines <0.063mm	35.5

Grading Analysis		
D100	mm	
D60	mm	1.71
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 28/10/2022

UKAS TESTING

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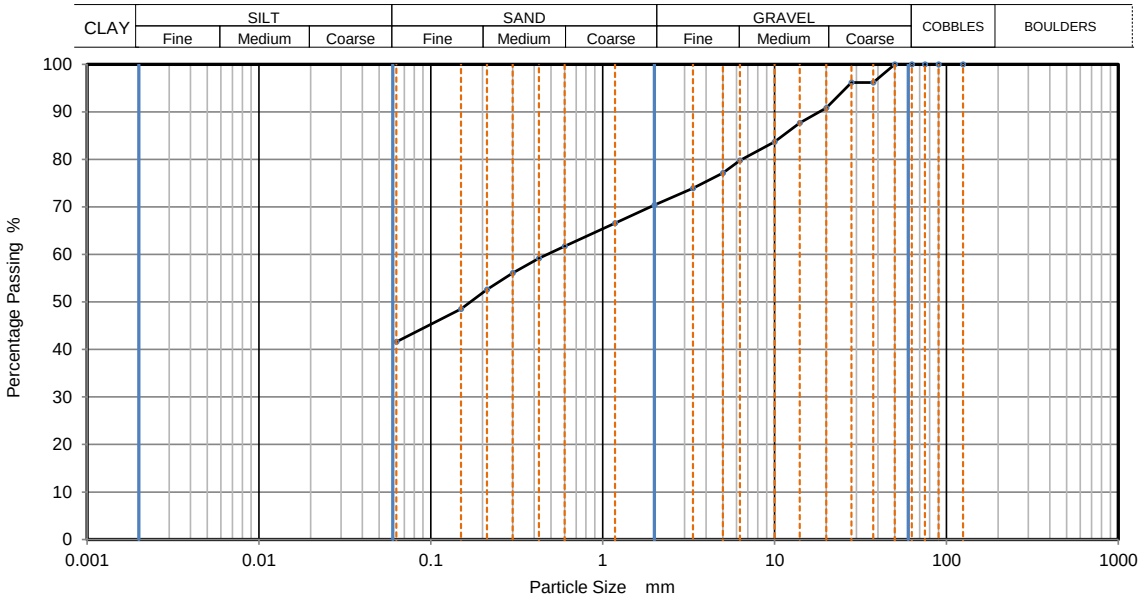
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92209
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	2.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	96		
20	91		
14	88		
10	84		
6.3	80		
5	77		
3.35	74		
2	70		
1.18	67		
0.6	62		
0.425	59		
0.3	56		
0.212	53		
0.15	49		
0.063	42		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.6
Sand	28.8
Fines <0.063mm	41.6

Grading Analysis		
D100	mm	
D60	mm	0.474
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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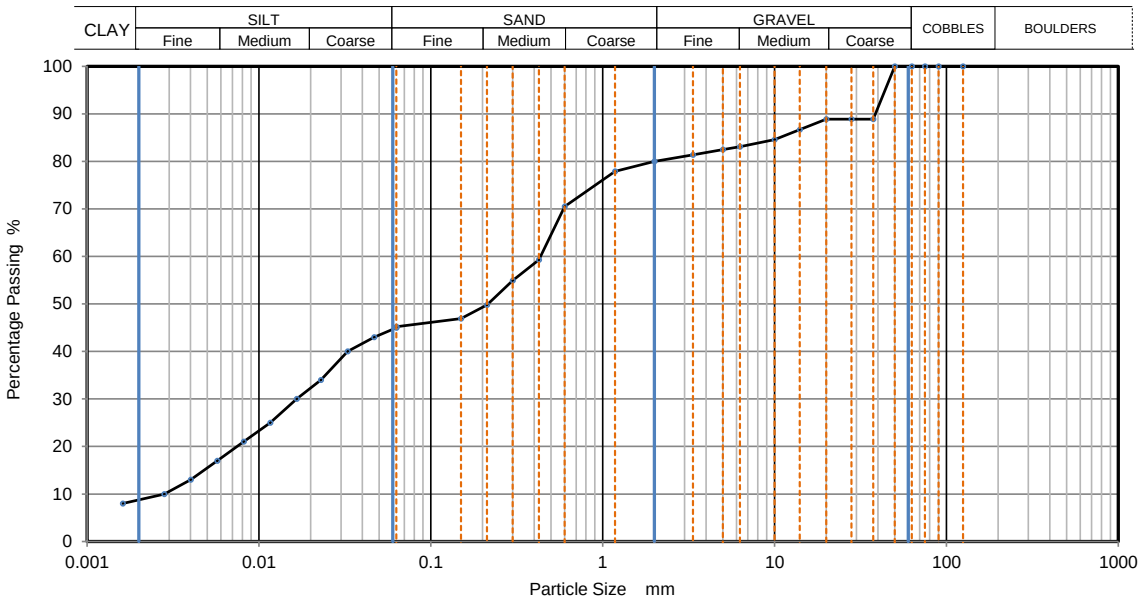
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92306
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.20 m
Soil Description	Brown slightly gravelly clayey sandy SILT with occasional roots and rootlets (gravel is fmc and sub-angular to rounded)			Depth Base	0.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0468	43
75	100	0.0328	40
63	100	0.0229	34
50	100	0.0166	30
37.5	89	0.0116	25
28	89	0.0081	21
20	89	0.0057	17
14	87	0.0040	13
10	85	0.0028	10
6.3	83	0.0016	8
5	83		
3.35	81		
2	80		
1.18	78		
0.6	71	Particle density (assumed)	
0.425	59	2.70 Mg/m3	
0.3	55		
0.212	50		
0.15	47		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.0
Sand	34.8
Silt	36.6
Clay	8.6

Grading Analysis		
D100	mm	
D60	mm	0.434
D30	mm	0.0172
D10	mm	0.00288
Uniformity Coefficient		150
Curvature Coefficient		0.24

Remarks

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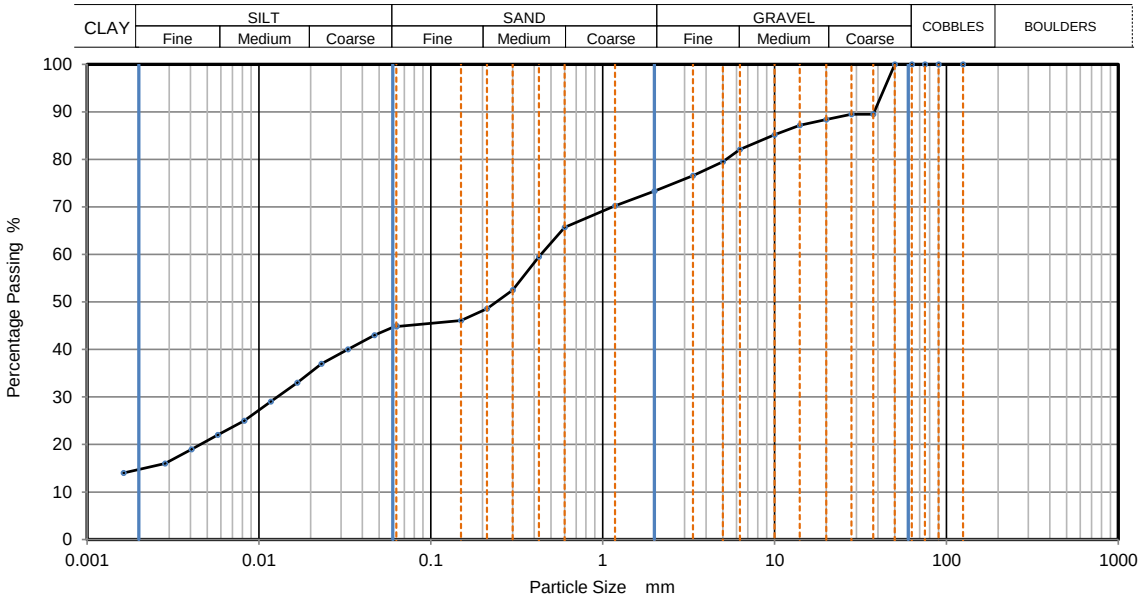
Date: 15/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92306
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0469	43
75	100	0.0329	40
63	100	0.0231	37
50	100	0.0167	33
37.5	90	0.0117	29
28	90	0.0082	25
20	88	0.0058	22
14	87	0.0040	19
10	85	0.0028	16
6.3	82	0.0016	14
5	80		
3.35	77		
2	73		
1.18	70		
0.6	66	Particle density (assumed)	
0.425	60	2.70 Mg/m3	
0.3	53		
0.212	49		
0.15	46		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.7
Sand	28.6
Silt	30.2
Clay	14.5

Grading Analysis		
D100	mm	
D60	mm	0.437
D30	mm	0.0127
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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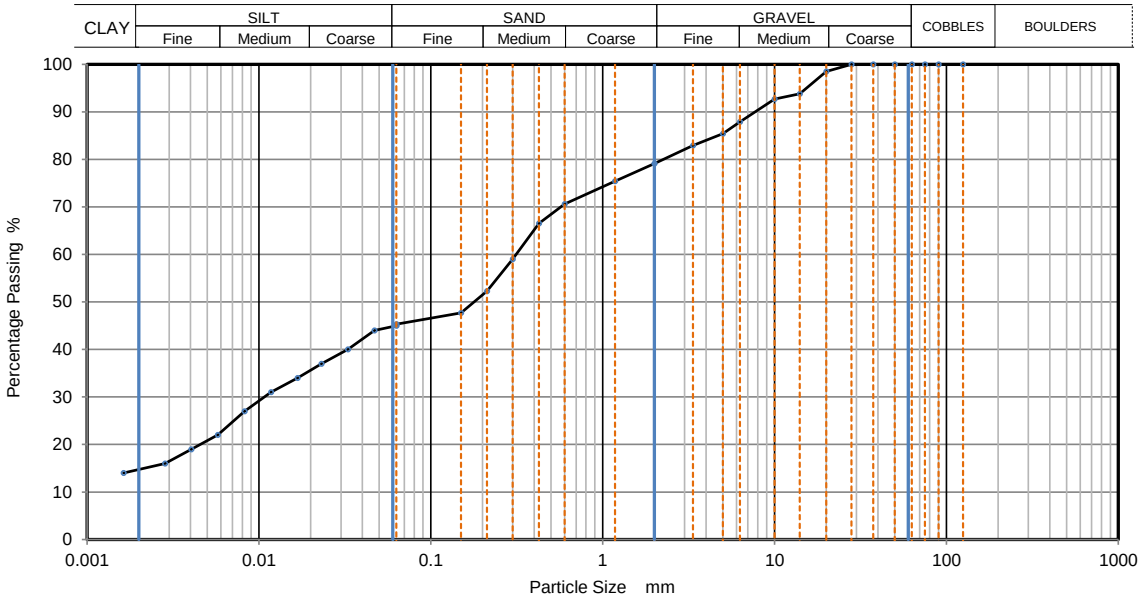
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92306
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0469	44
75	100	0.0329	40
63	100	0.0231	37
50	100	0.0167	34
37.5	100	0.0118	31
28	100	0.0082	27
20	99	0.0058	22
14	94	0.0040	19
10	93	0.0028	16
6.3	88	0.0016	14
5	85		
3.35	83		
2	79		
1.18	75		
0.6	71	Particle density	(assumed)
0.425	67	2.70	Mg/m3
0.3	59		
0.212	52		
0.15	48		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.9
Sand	33.8
Silt	30.5
Clay	14.8

Grading Analysis		
D100	mm	
D60	mm	0.315
D30	mm	0.0112
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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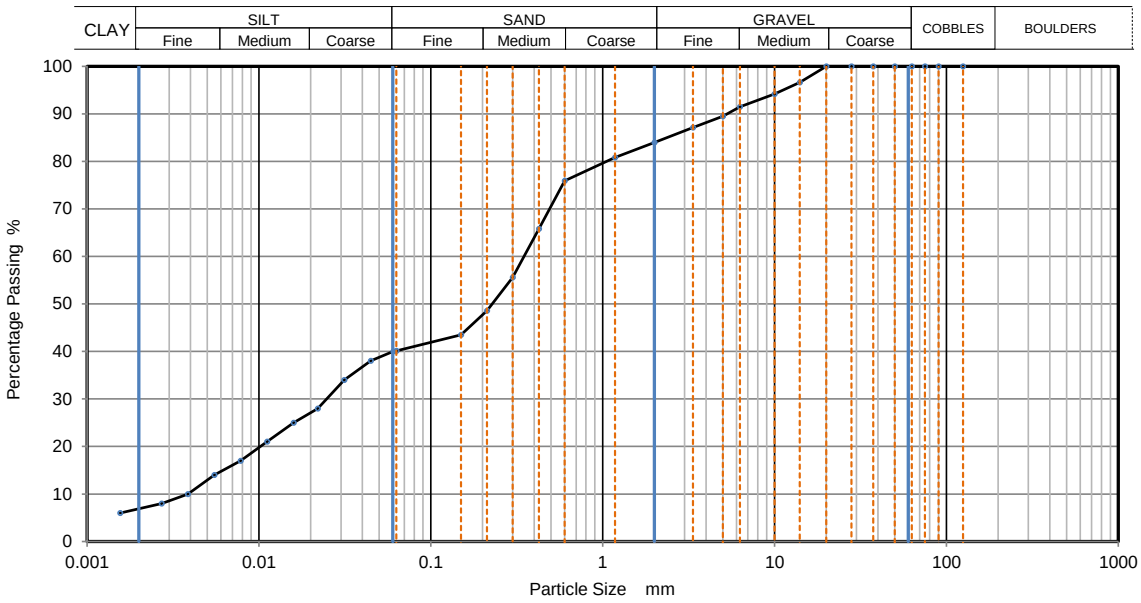
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly sandy clayey SILT (gravel is fm and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0604	40
90	100	0.0447	38
75	100	0.0314	34
63	100	0.0219	28
50	100	0.0159	25
37.5	100	0.0111	21
28	100	0.0078	17
20	100	0.0055	14
14	97	0.0039	10
10	94	0.0027	8
6.3	92	0.0016	6
5	90		
3.35	87		
2	84		
1.18	81		
0.6	76	Particle density (assumed)	
0.425	66	2.70 Mg/m3	
0.3	56		
0.212	49		
0.15	44		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	16.0
Sand	43.9
Silt	33.4
Clay	6.7

Grading Analysis		
D100	mm	
D60	mm	0.349
D30	mm	0.0242
D10	mm	0.00395
Uniformity Coefficient		88
Curvature Coefficient		0.42

Remarks

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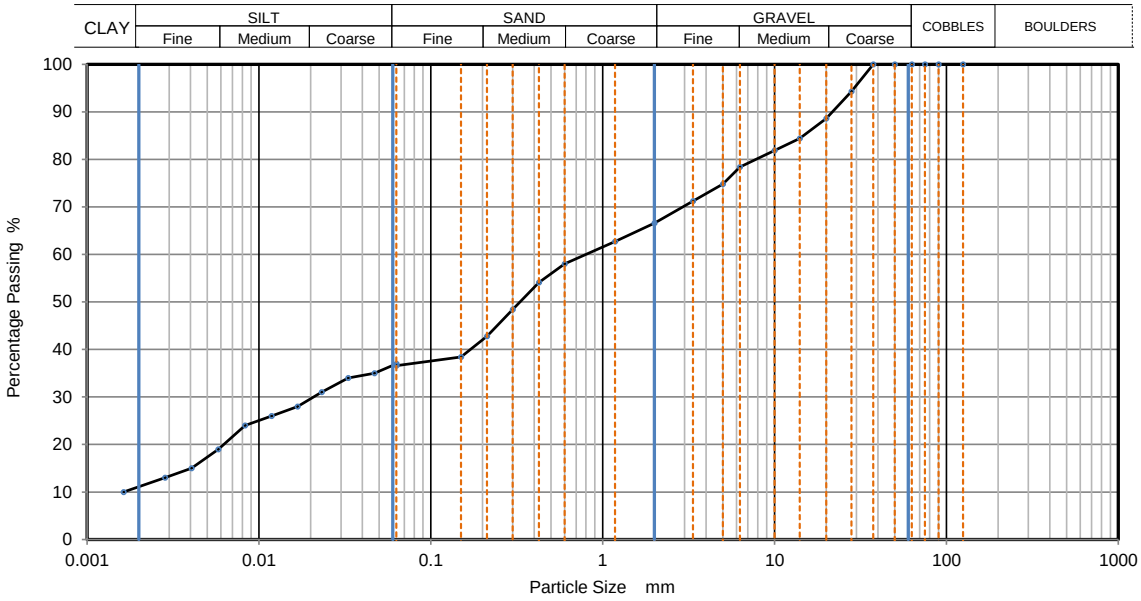
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	37
90	100	0.0469	35
75	100	0.0330	34
63	100	0.0232	31
50	100	0.0168	28
37.5	100	0.0118	26
28	94	0.0083	24
20	89	0.0058	19
14	84	0.0040	15
10	82	0.0028	13
6.3	78	0.0016	10
5	75		
3.35	71		
2	67		
1.18	63		
0.6	58	Particle density (assumed)	
0.425	54	2.70	Mg/m3
0.3	48		
0.212	43		
0.15	38		
0.063	37		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.4
Sand	30.0
Silt	25.2
Clay	11.4

Grading Analysis		
D100	mm	
D60	mm	0.801
D30	mm	0.0212
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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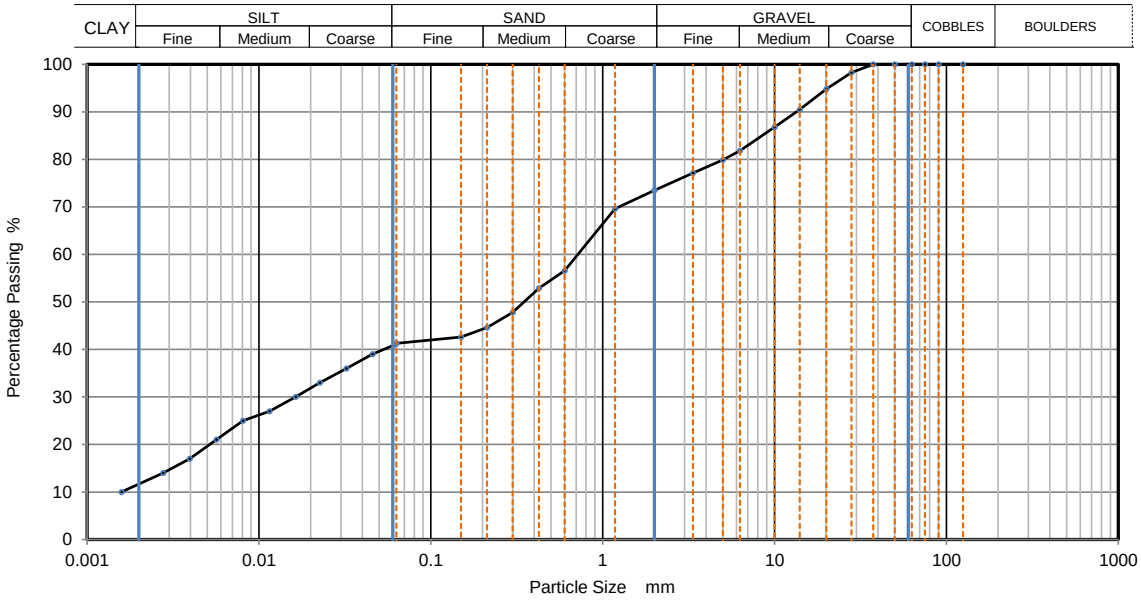
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92407
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0620	41
90	100	0.0459	39
75	100	0.0322	36
63	100	0.0226	33
50	100	0.0164	30
37.5	100	0.0115	27
28	98	0.0081	25
20	95	0.0057	21
14	91	0.0040	17
10	87	0.0028	14
6.3	82	0.0016	10
5	80		
3.35	77		
2	74		
1.18	70		
0.6	57	Particle density (assumed)	
0.425	53	2.70	Mg/m3
0.3	48		
0.212	45		
0.15	43		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.5
Sand	32.2
Silt	29.8
Clay	11.5

Grading Analysis		
D100	mm	
D60	mm	0.717
D30	mm	0.0159
D10	mm	0.00161
Uniformity Coefficient		440
Curvature Coefficient		0.22

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UKAS TESTING

2519

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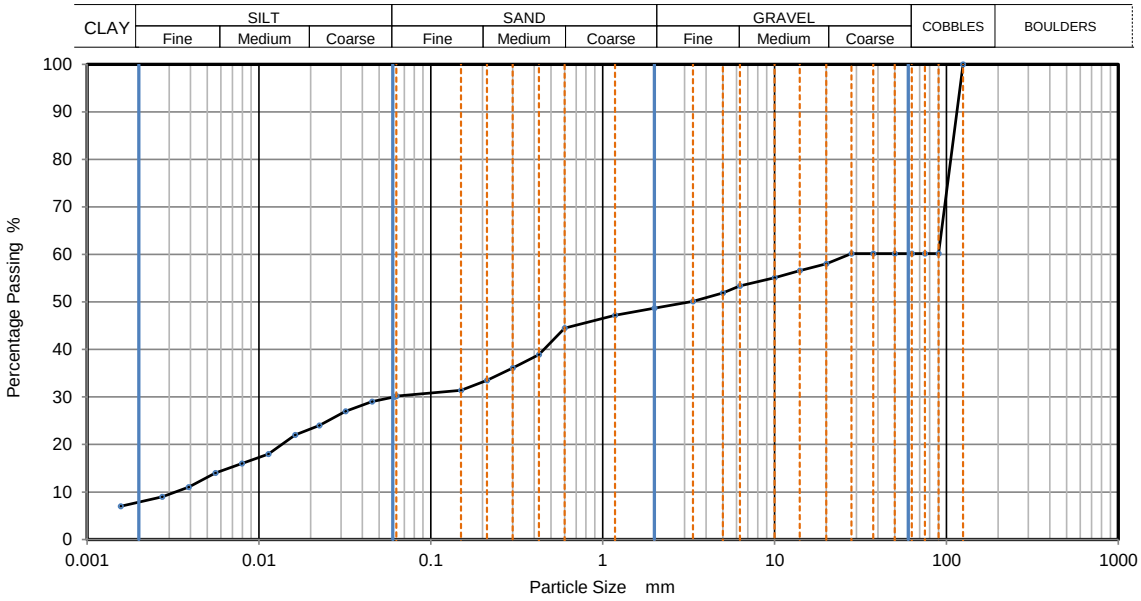
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92506
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0615	30
90	60	0.0455	29
75	60	0.0319	27
63	60	0.0224	24
50	60	0.0162	22
37.5	60	0.0113	18
28	60	0.0079	16
20	58	0.0056	14
14	57	0.0039	11
10	55	0.0027	9
6.3	53	0.0016	7
5	52		
3.35	50		
2	49		
1.18	47		
0.6	45	Particle density (assumed)	
0.425	39	2.70	Mg/m3
0.3	36		
0.212	34		
0.15	31		
0.063	30		

Sample Proportions	% dry mass
Very coarse	39.8
Gravel	11.6
Sand	18.5
Silt	22.2
Clay	7.9

Grading Analysis		
D100	mm	125
D60	mm	27.1
D30	mm	0.0584
D10	mm	0.00324
Uniformity Coefficient		8400
Curvature Coefficient		0.039

Remarks

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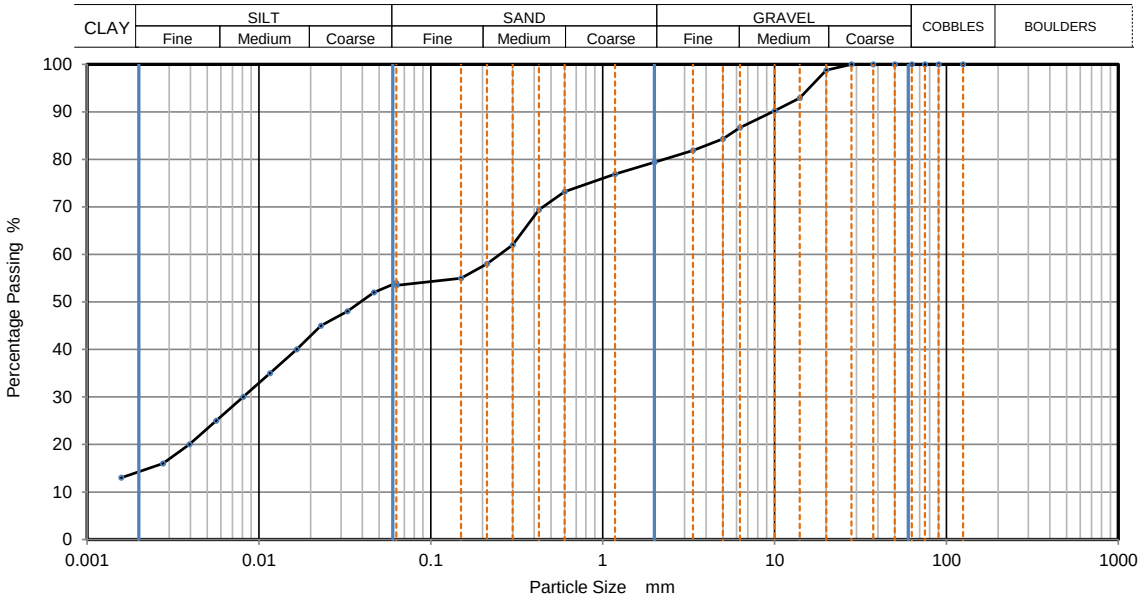
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92506
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0629	54
90	100	0.0466	52
75	100	0.0327	48
63	100	0.0229	45
50	100	0.0166	40
37.5	100	0.0116	35
28	100	0.0081	30
20	99	0.0056	25
14	93	0.0039	20
10	90	0.0028	16
6.3	87	0.0016	13
5	84		
3.35	82		
2	79		
1.18	77		
0.6	73	Particle density	(assumed)
0.425	69	2.70	Mg/m3
0.3	62		
0.212	58		
0.15	55		
0.063	54		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.6
Sand	25.9
Silt	39.0
Clay	14.5

Grading Analysis		
D100	mm	
D60	mm	0.253
D30	mm	0.00794
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 15/11/2022

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2519

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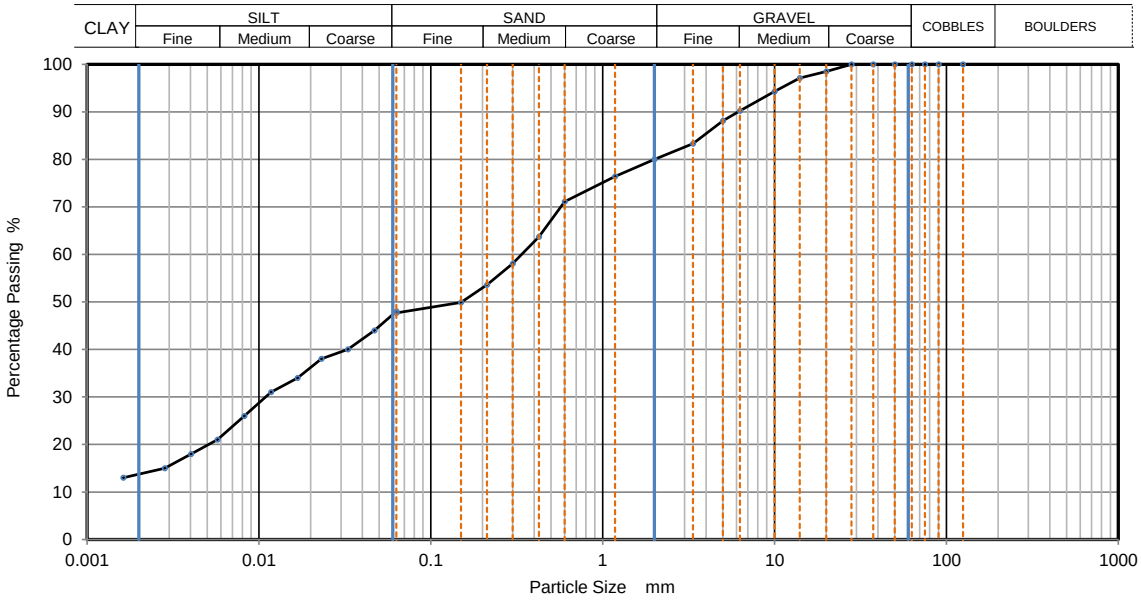
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92506
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	48
90	100	0.0469	44
75	100	0.0329	40
63	100	0.0231	38
50	100	0.0167	34
37.5	100	0.0118	31
28	100	0.0082	26
20	99	0.0057	21
14	97	0.0040	18
10	94	0.0028	15
6.3	90	0.0016	13
5	88		
3.35	83		
2	80		
1.18	76		
0.6	71	Particle density (assumed)	
0.425	64	2.70 Mg/m3	
0.3	58		
0.212	54		
0.15	50		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.0
Sand	32.3
Silt	34.0
Clay	13.7

Grading Analysis		
D100	mm	
D60	mm	0.337
D30	mm	0.0109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

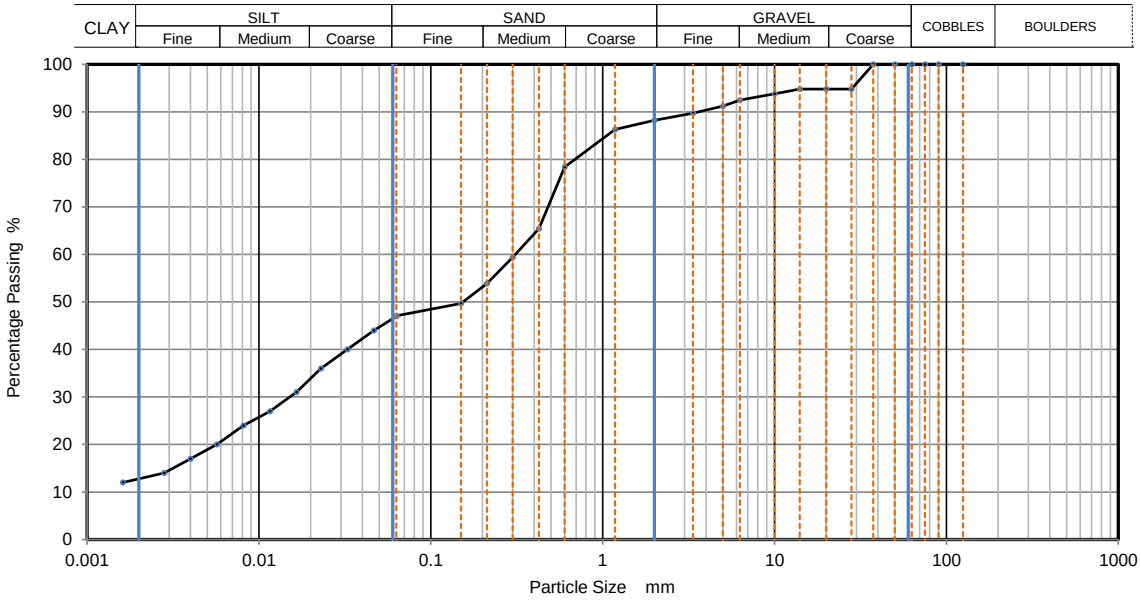
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

Job Ref: 32282

Borehole/Pit No.: TP-92587

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	47
90	100	0.0466	44
75	100	0.0327	40
63	100	0.0229	36
50	100	0.0165	31
37.5	100	0.0116	27
28	95	0.0081	24
20	95	0.0057	20
14	95	0.0040	17
10	94	0.0028	14
6.3	93	0.0016	12
5	91		
3.35	90		
2	88		
1.18	86		
0.6	78	Particle density (assumed)	
0.425	65	2.70	Mg/m3
0.3	59		
0.212	54		
0.15	50		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	11.8
Sand	41.1
Silt	34.1
Clay	13.0

Grading Analysis		
D100	mm	
D60	mm	0.311
D30	mm	0.0149
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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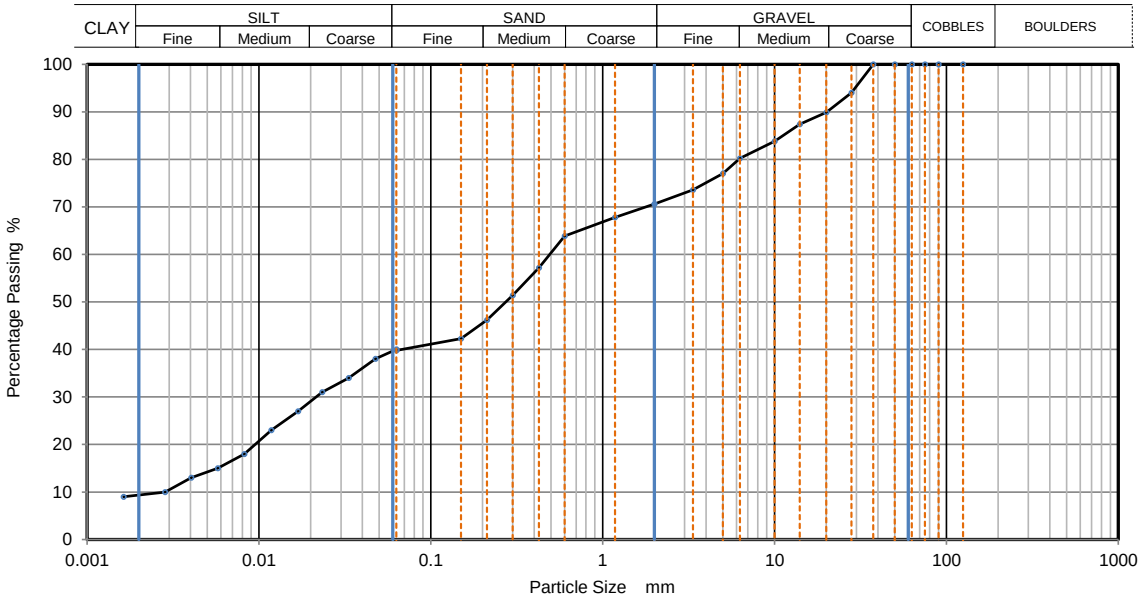
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	40
90	100	0.0476	38
75	100	0.0333	34
63	100	0.0233	31
50	100	0.0169	27
37.5	100	0.0118	23
28	94	0.0082	18
20	90	0.0058	15
14	87	0.0040	13
10	84	0.0028	10
6.3	80	0.0016	9
5	77		
3.35	74		
2	71		
1.18	68		
0.6	64	Particle density (assumed)	
0.425	57	2.70	Mg/m3
0.3	51		
0.212	46		
0.15	42		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.4
Sand	30.8
Silt	30.3
Clay	9.5

Grading Analysis		
D100	mm	
D60	mm	0.491
D30	mm	0.0222
D10	mm	0.00245
Uniformity Coefficient		200
Curvature Coefficient		0.41

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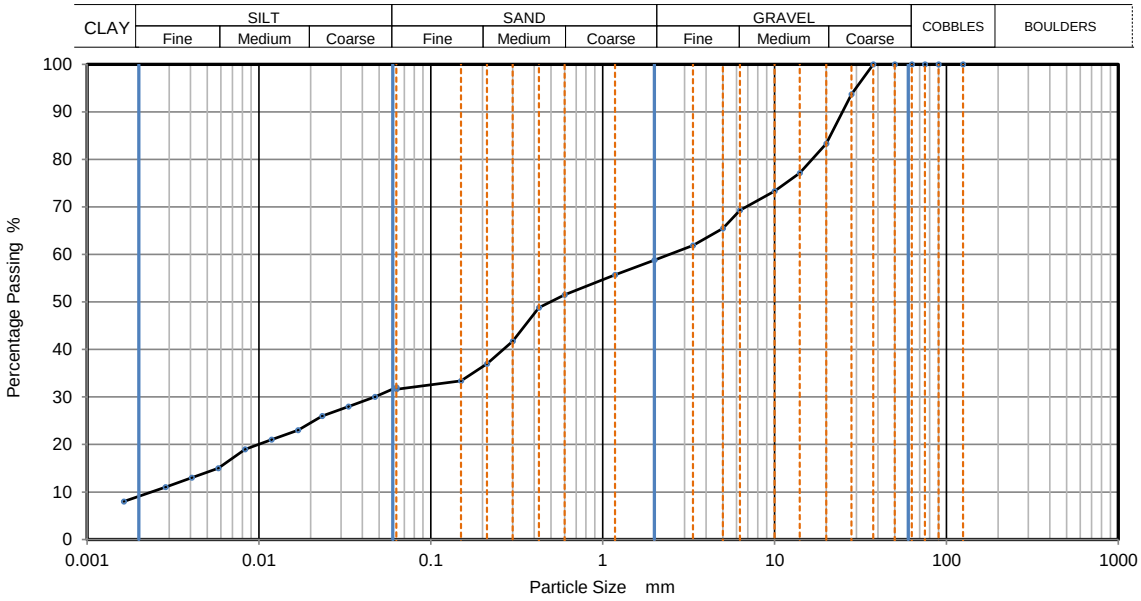
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92587
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0473	30
75	100	0.0332	28
63	100	0.0233	26
50	100	0.0169	23
37.5	100	0.0118	21
28	94	0.0083	19
20	83	0.0058	15
14	77	0.0041	13
10	73	0.0029	11
6.3	69	0.0016	8
5	66		
3.35	62		
2	59		
1.18	56		
0.6	52	Particle density (assumed)	
0.425	49	2.70	Mg/m3
0.3	42		
0.212	37		
0.15	33		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	41.2
Sand	27.2
Silt	22.4
Clay	9.2

Grading Analysis		
D100	mm	
D60	mm	2.44
D30	mm	0.0443
D10	mm	0.00242
Uniformity Coefficient		1000
Curvature Coefficient		0.33

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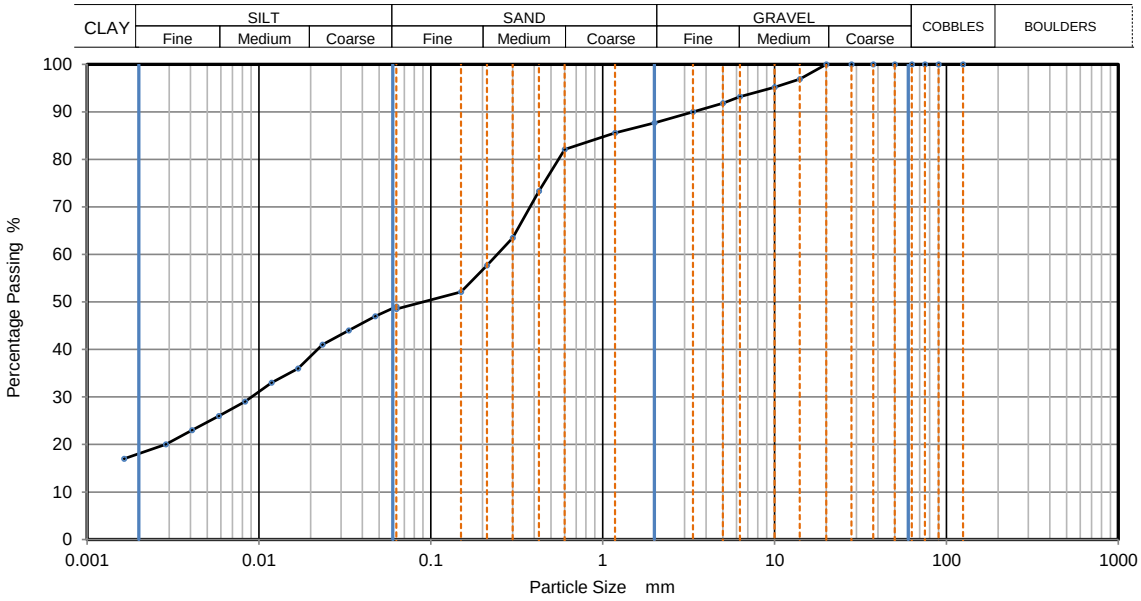
Date: 15/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92706
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	49
90	100	0.0474	47
75	100	0.0333	44
63	100	0.0234	41
50	100	0.0169	36
37.5	100	0.0118	33
28	100	0.0083	29
20	100	0.0058	26
14	97	0.0041	23
10	95	0.0029	20
6.3	93	0.0016	17
5	92		
3.35	90		
2	88		
1.18	86		
0.6	82	Particle density (assumed)	
0.425	73	2.70	Mg/m3
0.3	64		
0.212	58		
0.15	52		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	12.3
Sand	39.2
Silt	30.6
Clay	17.9

Grading Analysis		
D100	mm	
D60	mm	0.244
D30	mm	0.00881
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Initials: **J.P**

Date: 15/11/2022

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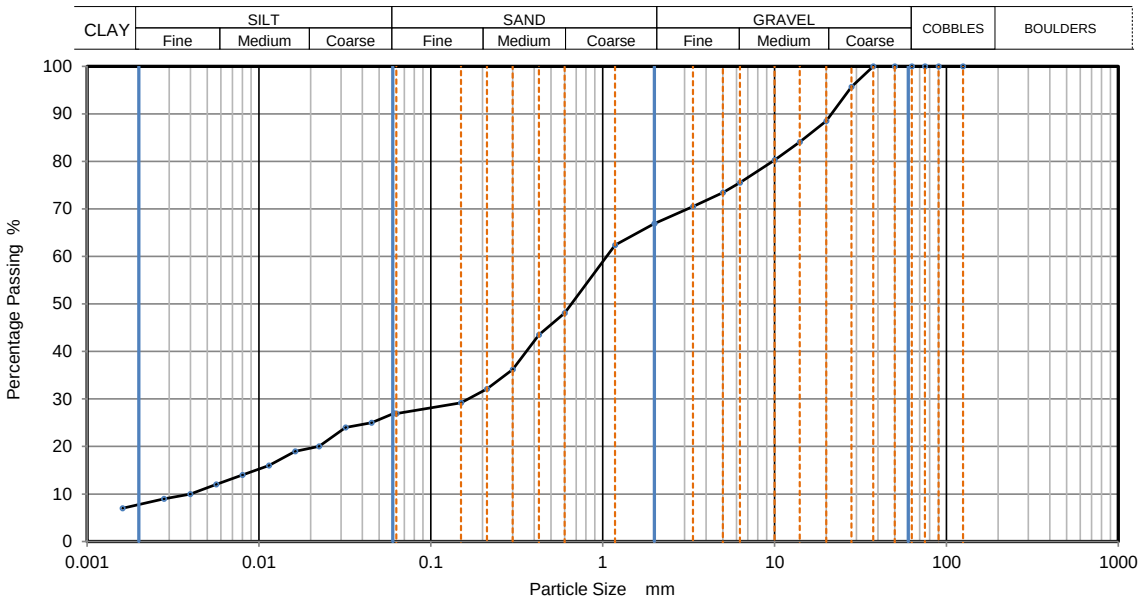
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-92706
Project No.	2021OY102	Client	Irish Drilling	Sample No.	3
				Depth Top	1.30 m
Soil Description	Greyish brown clayey silty very gravelly SAND (gravel is fmc and sub-angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0611	27
90	100	0.0452	25
75	100	0.0319	24
63	100	0.0223	20
50	100	0.0162	19
37.5	100	0.0114	16
28	96	0.0080	14
20	89	0.0056	12
14	84	0.0040	10
10	80	0.0028	9
6.3	76	0.0016	7
5	73		
3.35	71		
2	67		
1.18	62		
0.6	48	Particle density (assumed)	
0.425	44	2.70	Mg/m3
0.3	36		
0.212	32		
0.15	29		
0.063	27		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.1
Sand	40.0
Silt	19.3
Clay	7.6

Grading Analysis		
D100	mm	
D60	mm	1.05
D30	mm	0.165
D10	mm	0.00373
Uniformity Coefficient		280
Curvature Coefficient		6.9

Remarks

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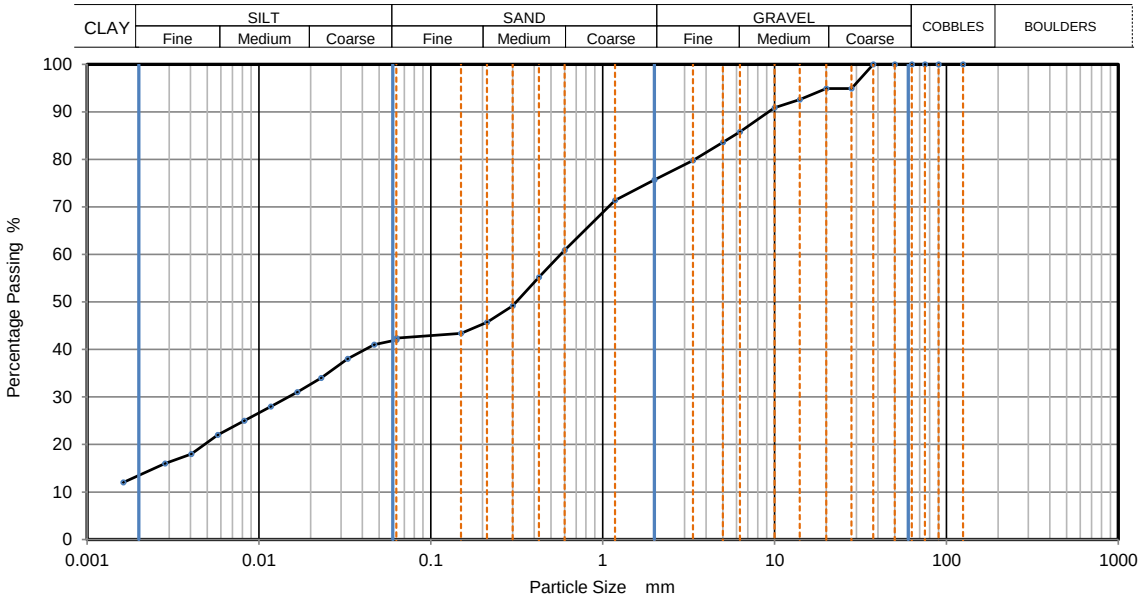
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92706
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	42
90	100	0.0467	41
75	100	0.0328	38
63	100	0.0230	34
50	100	0.0167	31
37.5	100	0.0117	28
28	95	0.0082	25
20	95	0.0058	22
14	93	0.0040	18
10	91	0.0028	16
6.3	86	0.0016	12
5	84		
3.35	80		
2	76		
1.18	71		
0.6	61	Particle density (assumed)	
0.425	55	2.70	Mg/m3
0.3	49		
0.212	46		
0.15	43		
0.063	42		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.3
Sand	33.3
Silt	29.0
Clay	13.4

Grading Analysis		
D100	mm	
D60	mm	0.567
D30	mm	0.0145
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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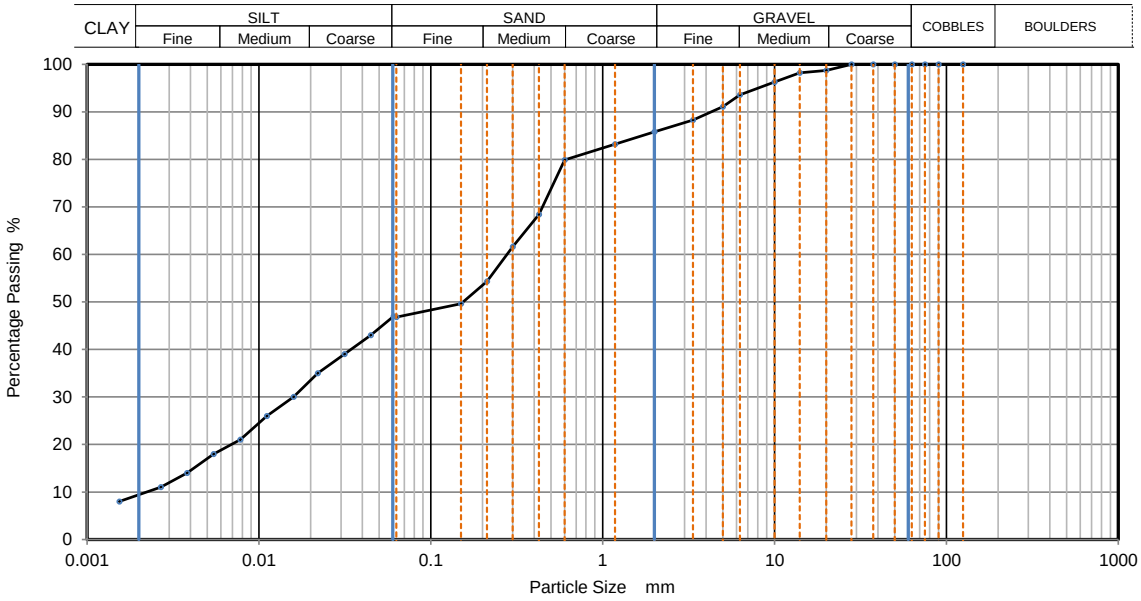
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92804
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0607	47
90	100	0.0448	43
75	100	0.0314	39
63	100	0.0220	35
50	100	0.0159	30
37.5	100	0.0111	26
28	100	0.0078	21
20	99	0.0055	18
14	98	0.0038	14
10	96	0.0027	11
6.3	94	0.0015	8
5	91		
3.35	88		
2	86		
1.18	83		
0.6	80	Particle density	(assumed)
0.425	68	2.70	Mg/m3
0.3	62		
0.212	54		
0.15	50		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	14.2
Sand	39.0
Silt	37.2
Clay	9.6

Grading Analysis		
D100	mm	
D60	mm	0.278
D30	mm	0.0154
D10	mm	0.00217
Uniformity Coefficient		130
Curvature Coefficient		0.4

Remarks

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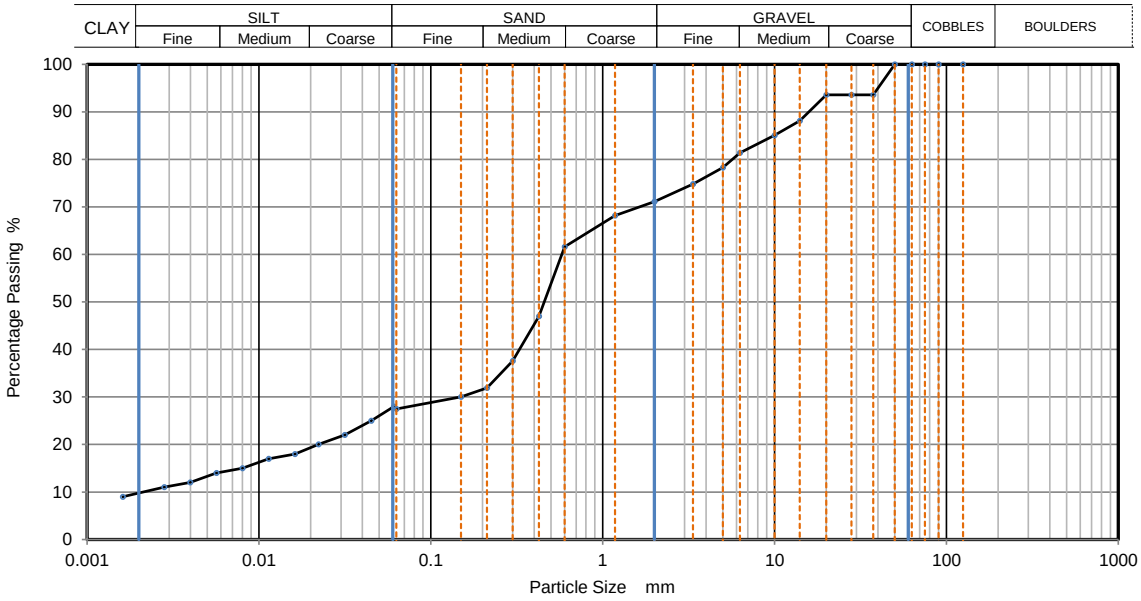
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92804
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brownish grey clayey silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0608	28
90	100	0.0450	25
75	100	0.0316	22
63	100	0.0222	20
50	100	0.0162	18
37.5	94	0.0114	17
28	94	0.0080	15
20	94	0.0057	14
14	88	0.0040	12
10	85	0.0028	11
6.3	81	0.0016	9
5	78		
3.35	75		
2	71		
1.18	68		
0.6	62	Particle density (assumed)	
0.425	47	2.70	Mg/m3
0.3	38		
0.212	32		
0.15	30		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.9
Sand	43.6
Silt	18.0
Clay	9.5

Grading Analysis		
D100	mm	
D60	mm	0.578
D30	mm	0.151
D10	mm	0.00226
Uniformity Coefficient		260
Curvature Coefficient		17

Remarks

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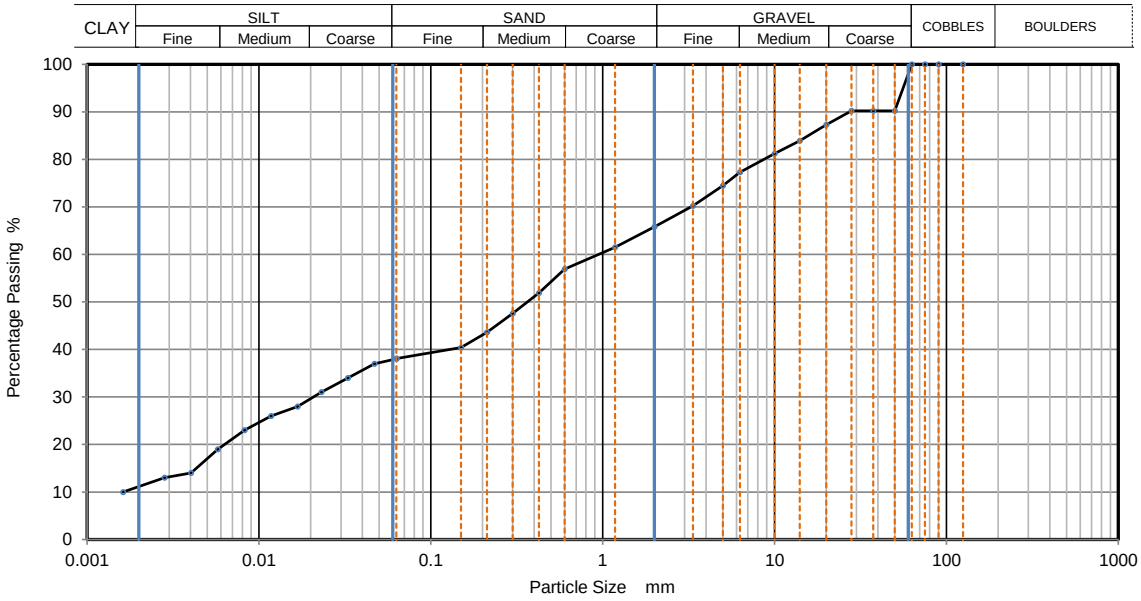
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92804
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	38
90	100	0.0469	37
75	100	0.0329	34
63	100	0.0231	31
50	90	0.0167	28
37.5	90	0.0117	26
28	90	0.0082	23
20	87	0.0058	19
14	84	0.0040	14
10	81	0.0028	13
6.3	77	0.0016	10
5	75		
3.35	70		
2	66		
1.18	62		
0.6	57	Particle density (assumed)	
0.425	52	2.70 Mg/m3	
0.3	48		
0.212	44		
0.15	40		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.2
Sand	27.6
Silt	27.1
Clay	11.1

Grading Analysis		
D100	mm	
D60	mm	0.95
D30	mm	0.0202
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

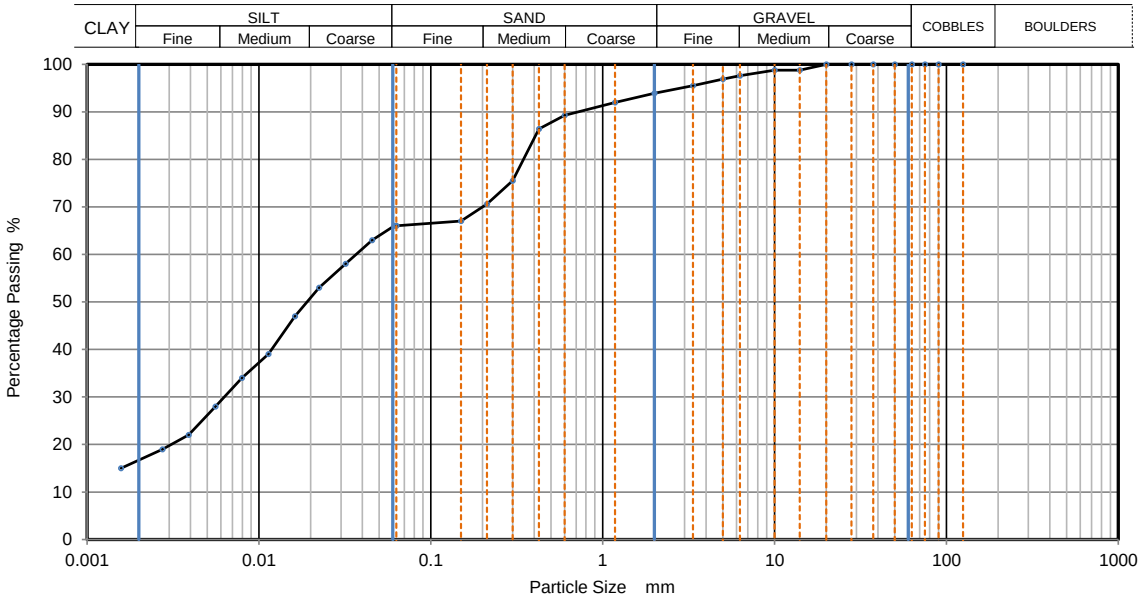
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-92904
Project No.	2021OY102	Client	Irish Drilling	Sample No.	1
				Depth Top	0.30 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0613	66
90	100	0.0454	63
75	100	0.0319	58
63	100	0.0224	53
50	100	0.0162	47
37.5	100	0.0113	39
28	100	0.0079	34
20	100	0.0056	28
14	99	0.0039	22
10	99	0.0027	19
6.3	98	0.0016	15
5	97		
3.35	96		
2	94		
1.18	92		
0.6	89	Particle density (assumed)	
0.425	86	2.70 Mg/m3	
0.3	76		
0.212	71		
0.15	67		
0.063	66		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	6.1
Sand	28.0
Silt	49.3
Clay	16.6

Grading Analysis		
D100	mm	
D60	mm	0.0365
D30	mm	0.00618
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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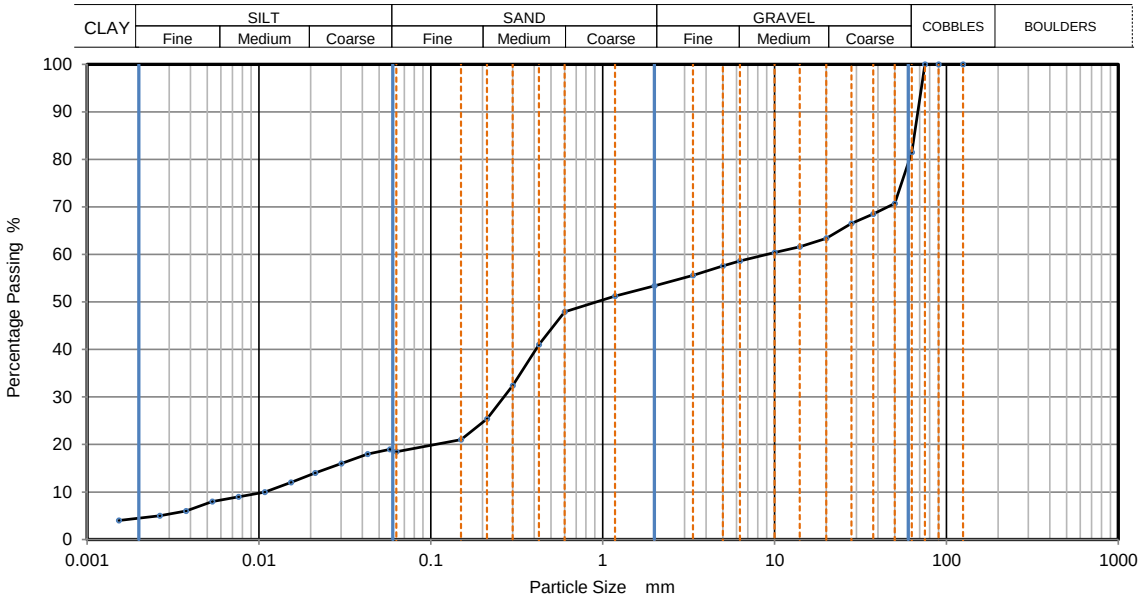
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92904
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown clayey silty very gravelly SAND with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0578	19
90	100	0.0429	18
75	100	0.0301	16
63	82	0.0212	14
50	71	0.0153	12
37.5	69	0.0108	10
28	67	0.0076	9
20	63	0.0054	8
14	62	0.0038	6
10	60	0.0027	5
6.3	59	0.0015	4
5	58		
3.35	56		
2	53		
1.18	51		
0.6	48	Particle density (assumed)	
0.425	41	2.70 Mg/m3	
0.3	32		
0.212	25		
0.15	21		
0.063	19		

Sample Proportions	% dry mass
Very coarse	18.5
Gravel	28.1
Sand	34.9
Silt	13.9
Clay	4.6

Grading Analysis		
D100	mm	
D60	mm	9.08
D30	mm	0.267
D10	mm	0.0099
Uniformity Coefficient		920
Curvature Coefficient		0.79

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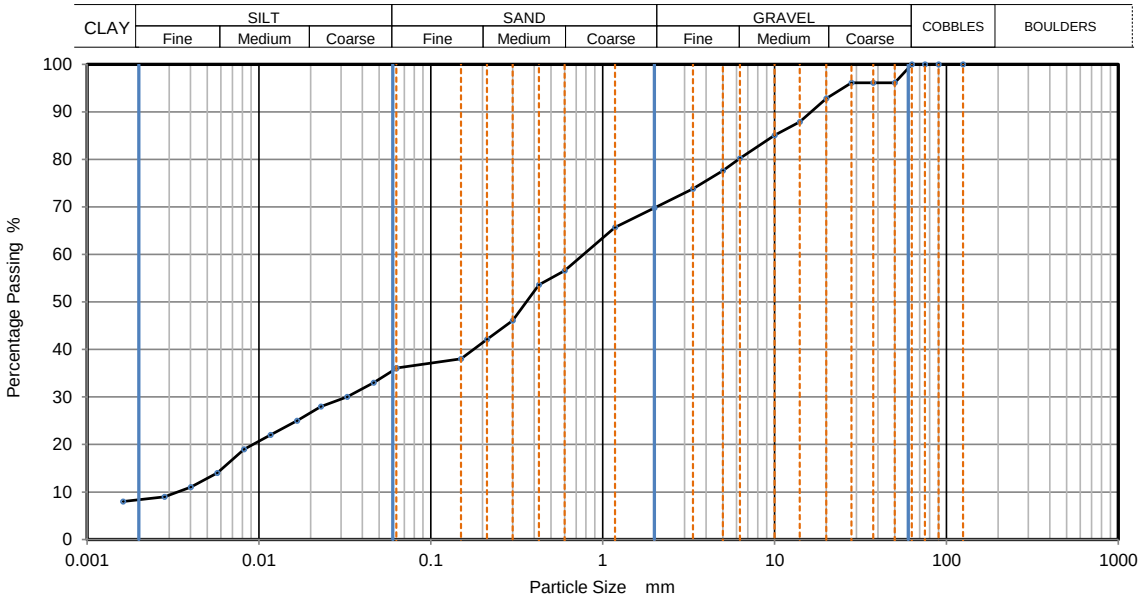
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-92904
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greysih brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0629	36
90	100	0.0464	33
75	100	0.0326	30
63	100	0.0229	28
50	96	0.0166	25
37.5	96	0.0117	22
28	96	0.0082	19
20	93	0.0057	14
14	88	0.0040	11
10	85	0.0028	9
6.3	80	0.0016	8
5	78		
3.35	74		
2	70		
1.18	66		
0.6	57	Particle density (assumed)	
0.425	54	2.70 Mg/m3	
0.3	46		
0.212	42		
0.15	38		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.2
Sand	33.7
Silt	27.5
Clay	8.6

Grading Analysis		
D100	mm	
D60	mm	0.774
D30	mm	0.033
D10	mm	0.00319
Uniformity Coefficient		240
Curvature Coefficient		0.44

Remarks

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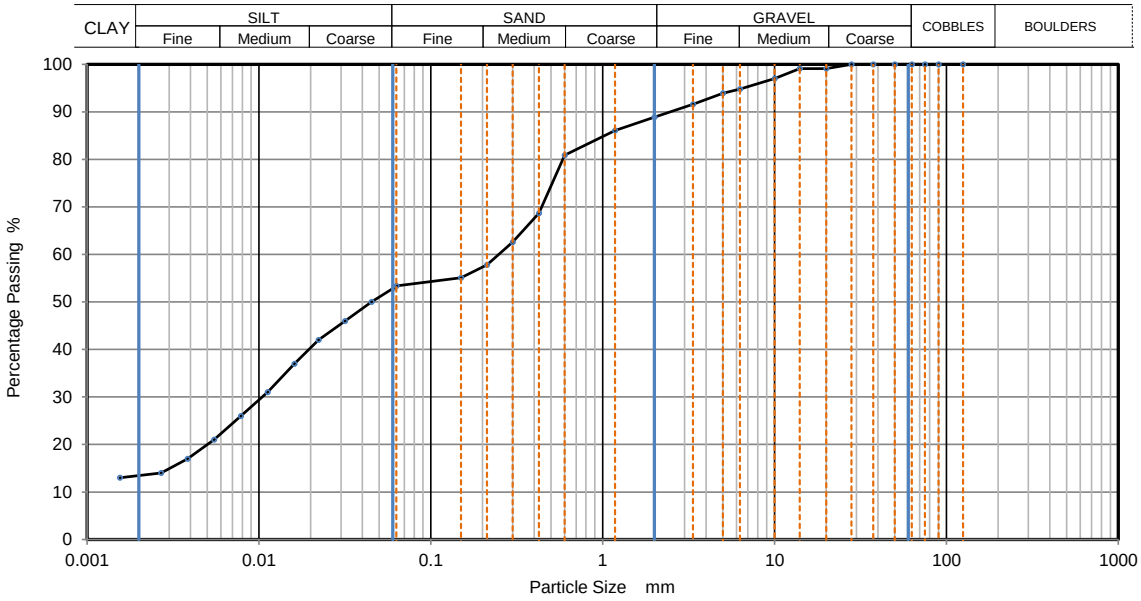
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93003
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0612	53
90	100	0.0452	50
75	100	0.0317	46
63	100	0.0222	42
50	100	0.0161	37
37.5	100	0.0112	31
28	100	0.0078	26
20	99	0.0055	21
14	99	0.0038	17
10	97	0.0027	14
6.3	95	0.0016	13
5	94		
3.35	92		
2	89		
1.18	86		
0.6	81	Particle density (assumed)	
0.425	69	2.70 Mg/m3	
0.3	63		
0.212	58		
0.15	55		
0.063	53		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	11.1
Sand	35.5
Silt	39.9
Clay	13.5

Grading Analysis		
D100	mm	
D60	mm	0.249
D30	mm	0.0102
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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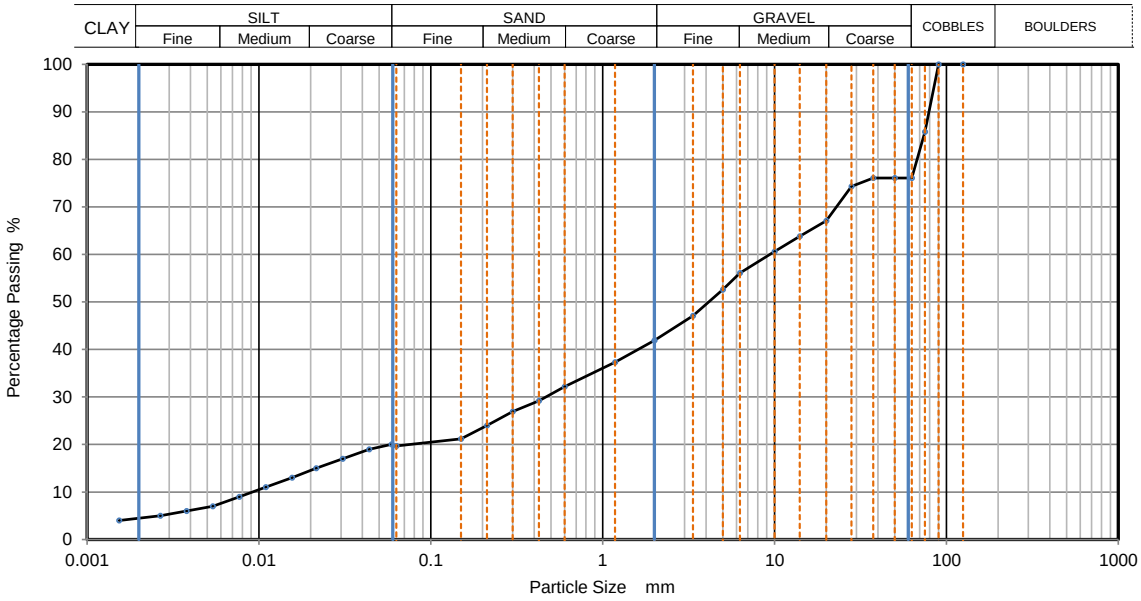
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93003
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown clayey silty very sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0590	20
90	100	0.0437	19
75	86	0.0306	17
63	76	0.0215	15
50	76	0.0156	13
37.5	76	0.0109	11
28	74	0.0077	9
20	67	0.0054	7
14	64	0.0038	6
10	61	0.0027	5
6.3	56	0.0015	4
5	53		
3.35	47		
2	42		
1.18	37		
0.6	32	Particle density (assumed)	
0.425	29	2.70 Mg/m3	
0.3	27		
0.212	24		
0.15	21		
0.063	20		

Sample Proportions	% dry mass
Very coarse	23.9
Gravel	34.2
Sand	22.3
Silt	14.7
Clay	4.9

Grading Analysis		
D100	mm	
D60	mm	9.41
D30	mm	0.468
D10	mm	0.00872
Uniformity Coefficient		1100
Curvature Coefficient		2.7

Remarks

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Date: 15/11/2022

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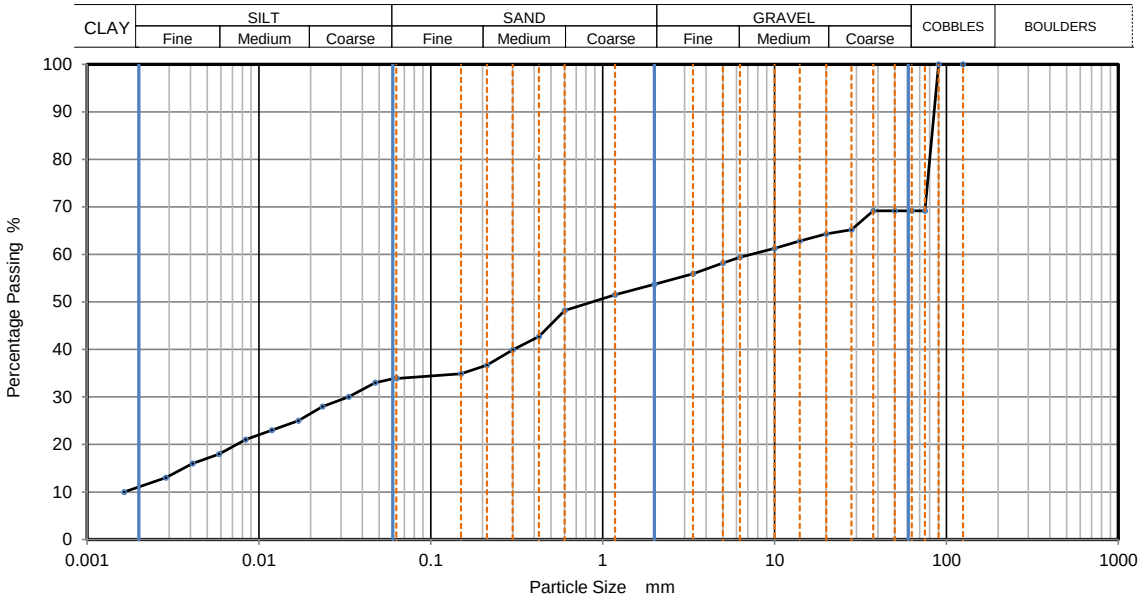
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93003
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.30 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	3.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	34
90	100	0.0475	33
75	69	0.0333	30
63	69	0.0234	28
50	69	0.0170	25
37.5	69	0.0119	23
28	65	0.0083	21
20	64	0.0059	18
14	63	0.0041	16
10	61	0.0029	13
6.3	59	0.0016	10
5	58		
3.35	56		
2	54		
1.18	52		
0.6	48	Particle density (assumed)	
0.425	43	2.70	Mg/m3
0.3	40		
0.212	37		
0.15	35		
0.063	34		

Sample Proportions	% dry mass
Very coarse	30.8
Gravel	15.5
Sand	19.8
Silt	23.1
Clay	10.8

Grading Analysis		
D100	mm	
D60	mm	7.32
D30	mm	0.0318
D10	mm	0.00169
Uniformity Coefficient		4300
Curvature Coefficient		0.082

Remarks

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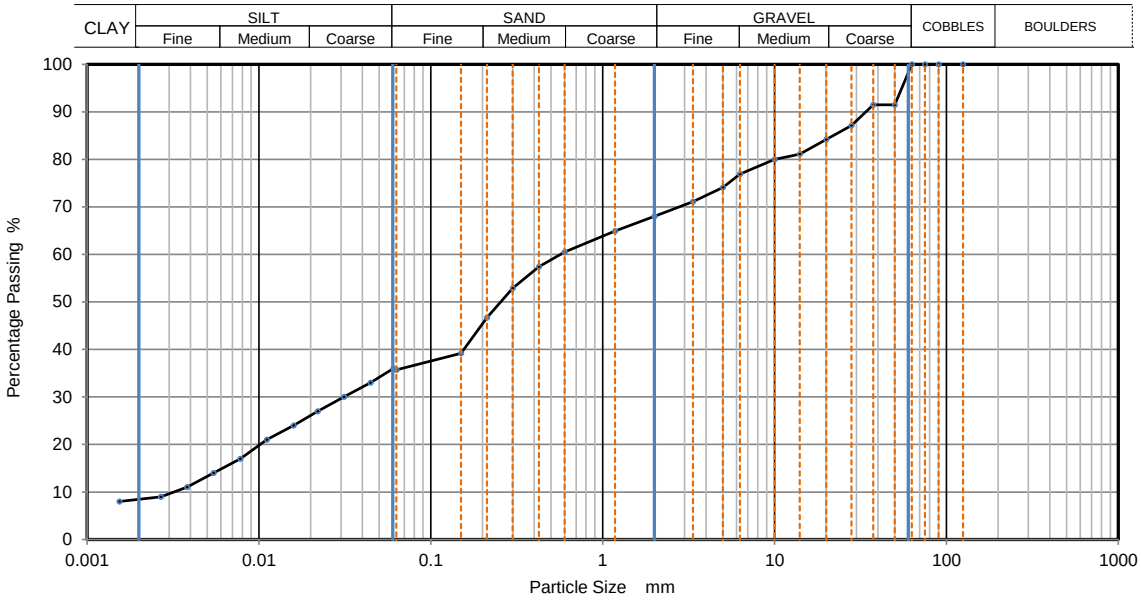
Date: 15/11/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-93106
Project No.	2021OY102	Client	Irish Drilling	Sample No.	1
				Depth Top	0.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0605	36
90	100	0.0446	33
75	100	0.0313	30
63	100	0.0220	27
50	92	0.0159	24
37.5	92	0.0111	21
28	87	0.0078	17
20	84	0.0055	14
14	81	0.0038	11
10	80	0.0027	9
6.3	77	0.0015	8
5	74		
3.35	71		
2	68		
1.18	65		
0.6	61	Particle density	(assumed)
0.425	57	2.70	Mg/m3
0.3	53		
0.212	47		
0.15	39		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.0
Sand	32.3
Silt	27.5
Clay	8.2

Grading Analysis		
D100	mm	
D60	mm	0.565
D30	mm	0.0317
D10	mm	0.00319
Uniformity Coefficient		180
Curvature Coefficient		0.56

Remarks

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Date: 15/11/2022

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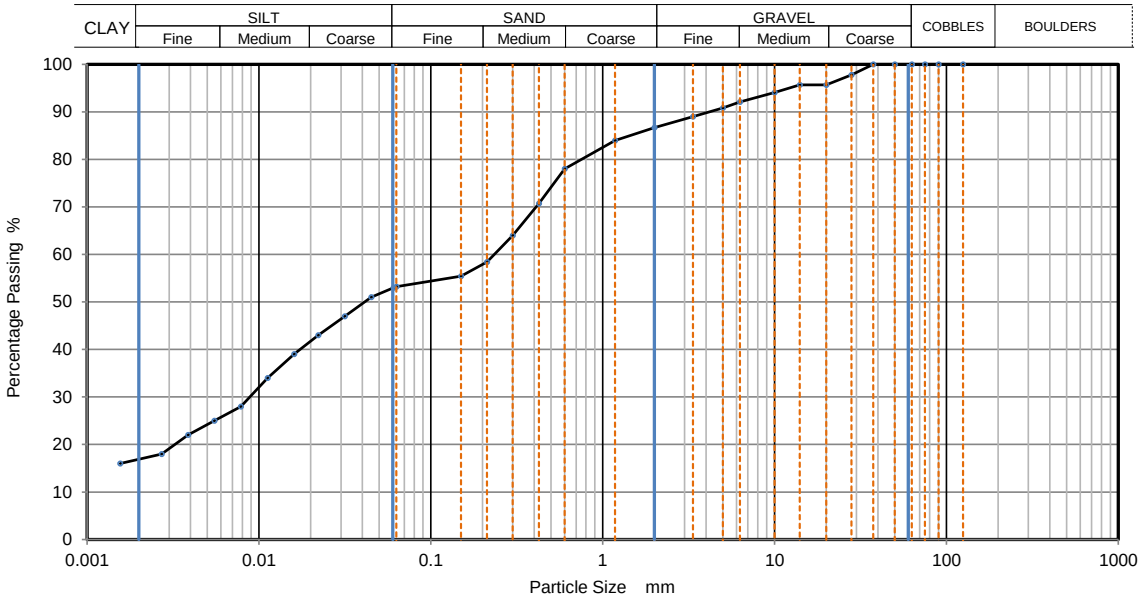
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93106
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0607	53
90	100	0.0450	51
75	100	0.0315	47
63	100	0.0221	43
50	100	0.0160	39
37.5	100	0.0112	34
28	98	0.0078	28
20	96	0.0055	25
14	96	0.0039	22
10	94	0.0027	18
6.3	92	0.0016	16
5	91		
3.35	89		
2	87		
1.18	84		
0.6	78	Particle density (assumed)	
0.425	71	2.70 Mg/m3	
0.3	64		
0.212	58		
0.15	55		
0.063	53		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	13.3
Sand	33.5
Silt	36.3
Clay	16.9

Grading Analysis		
D100	mm	
D60	mm	0.234
D30	mm	0.00867
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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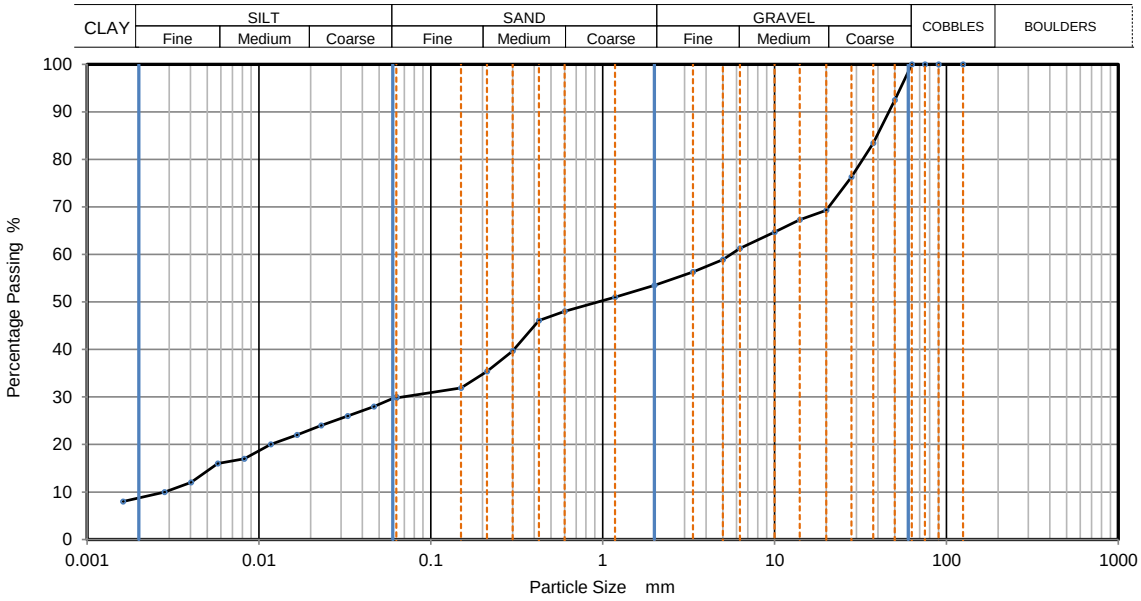
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93106
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.80 m
Soil Description	Greyish brown clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	4.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	30
90	100	0.0466	28
75	100	0.0328	26
63	100	0.0230	24
50	93	0.0167	22
37.5	83	0.0117	20
28	76	0.0082	17
20	69	0.0058	16
14	67	0.0040	12
10	65	0.0028	10
6.3	61	0.0016	8
5	59		
3.35	56		
2	54		
1.18	51		
0.6	48	Particle density (assumed)	
0.425	46	2.70 Mg/m3	
0.3	40		
0.212	35		
0.15	32		
0.063	30		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	46.5
Sand	23.7
Silt	20.9
Clay	8.9

Grading Analysis		
D100	mm	
D60	mm	5.55
D30	mm	0.0695
D10	mm	0.00294
Uniformity Coefficient		1900
Curvature Coefficient		0.3

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Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

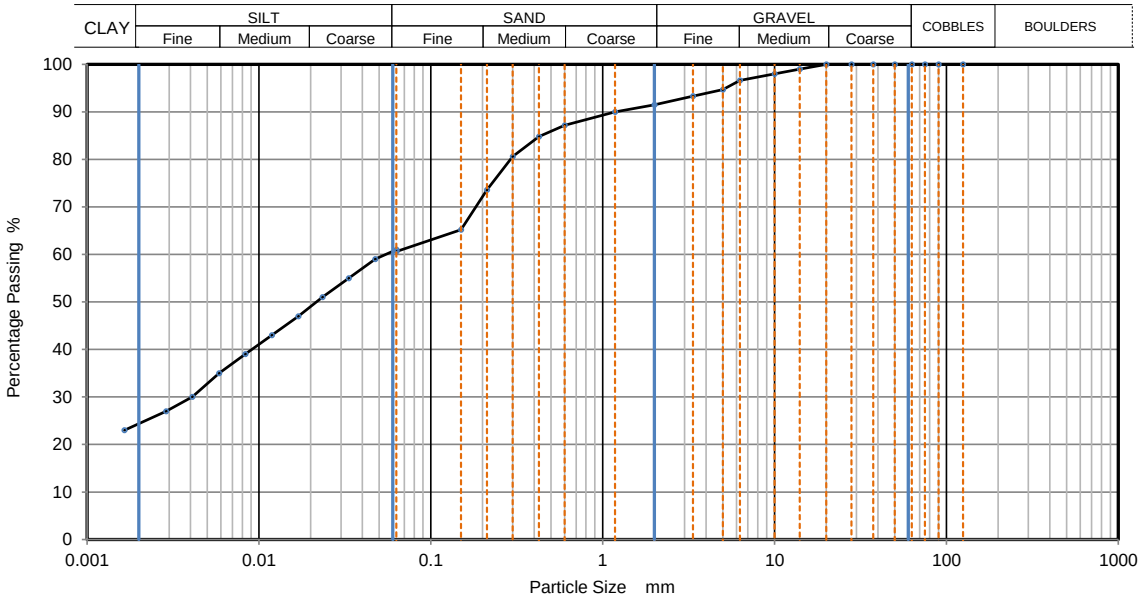
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93174
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Orangish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	61
90	100	0.0474	59
75	100	0.0333	55
63	100	0.0234	51
50	100	0.0169	47
37.5	100	0.0119	43
28	100	0.0083	39
20	100	0.0059	35
14	99	0.0041	30
10	98	0.0029	27
6.3	97	0.0016	23
5	95		
3.35	93		
2	92		
1.18	90		
0.6	87	Particle density (assumed)	
0.425	85	2.70	Mg/m3
0.3	81		
0.212	74		
0.15	65		
0.063	61		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	8.5
Sand	30.9
Silt	36.4
Clay	24.2

Grading Analysis		
D100	mm	
D60	mm	0.0577
D30	mm	0.00418
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Date: 15/11/2022

UKAS TESTING

2519

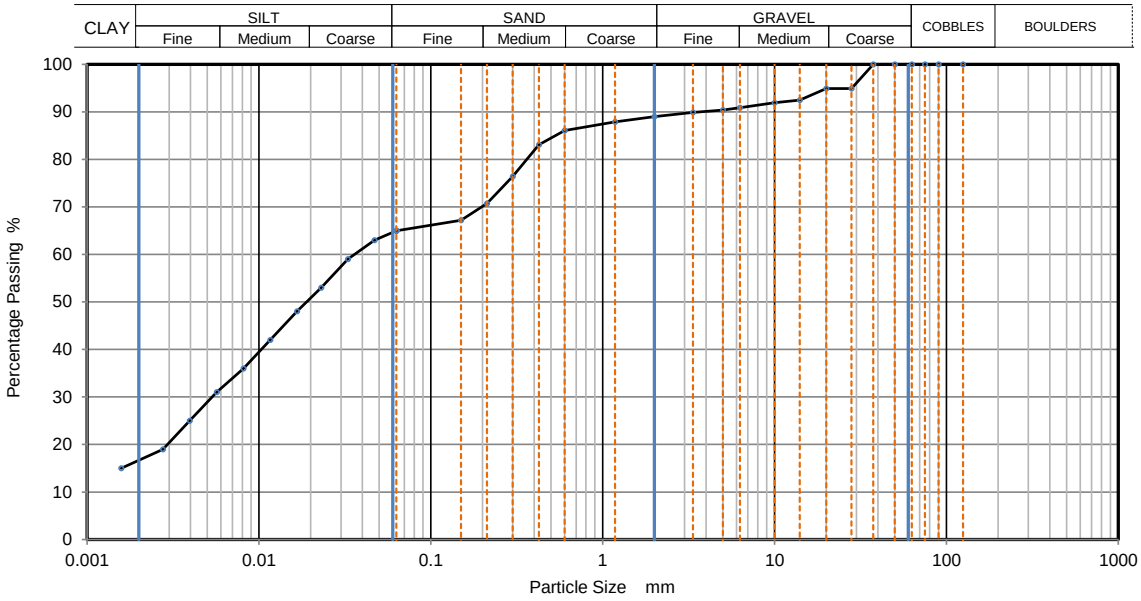
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-93174
Project No.	2021OY102	Client	Irish Drilling	Sample No.	3
				Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	65
90	100	0.0470	63
75	100	0.0330	59
63	100	0.0230	53
50	100	0.0167	48
37.5	100	0.0116	42
28	95	0.0081	36
20	95	0.0057	31
14	93	0.0040	25
10	92	0.0028	19
6.3	91	0.0016	15
5	90		
3.35	90		
2	89		
1.18	88		
0.6	86	Particle density (assumed)	
0.425	83	2.70 Mg/m3	
0.3	76		
0.212	71		
0.15	67		
0.063	65		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	11.0
Sand	23.9
Silt	48.1
Clay	17.0

Grading Analysis		
D100	mm	
D60	mm	0.0354
D30	mm	0.00542
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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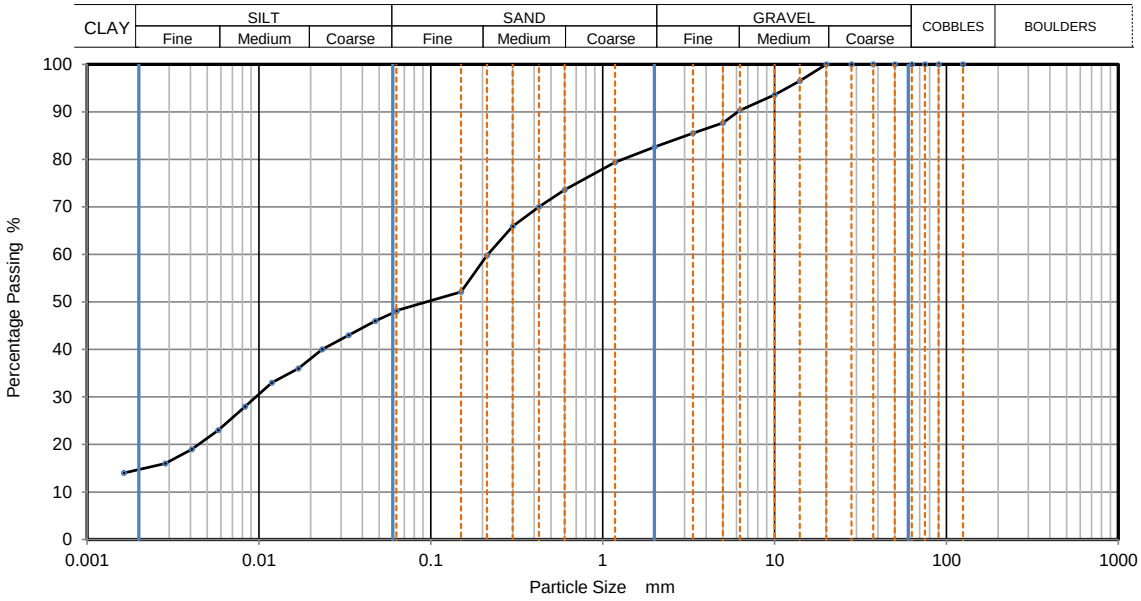
Date: 15/11/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93174
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	3.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	48
90	100	0.0474	46
75	100	0.0333	43
63	100	0.0233	40
50	100	0.0169	36
37.5	100	0.0119	33
28	100	0.0083	28
20	100	0.0058	23
14	97	0.0041	19
10	94	0.0028	16
6.3	90	0.0016	14
5	88		
3.35	86		
2	83		
1.18	79		
0.6	74	Particle density (assumed)	
0.425	70	2.70	Mg/m3
0.3	66		
0.212	60		
0.15	52		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	17.4
Sand	34.4
Silt	33.6
Clay	14.6

Grading Analysis		
D100	mm	
D60	mm	0.215
D30	mm	0.00975
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Date: 15/11/2022

UKAS TESTING

2519

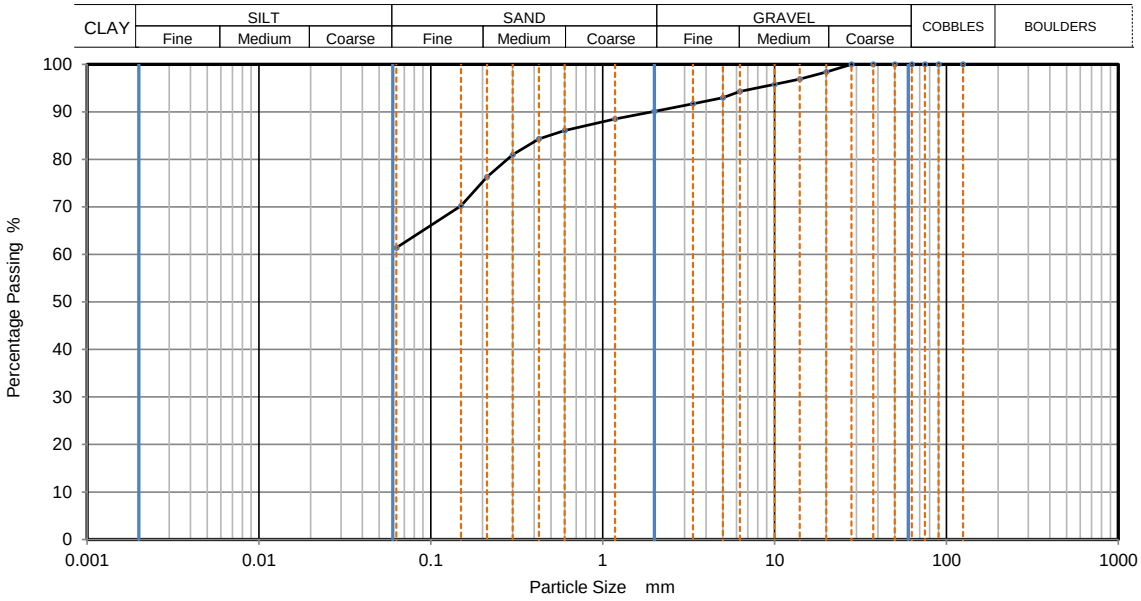
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	97		
10	96		
6.3	94		
5	93		
3.35	92		
2	90		
1.18	89		
0.6	86		
0.425	84		
0.3	81		
0.212	76		
0.15	70		
0.063	61		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	9.9
Sand	28.7
Fines <0.063mm	61.4

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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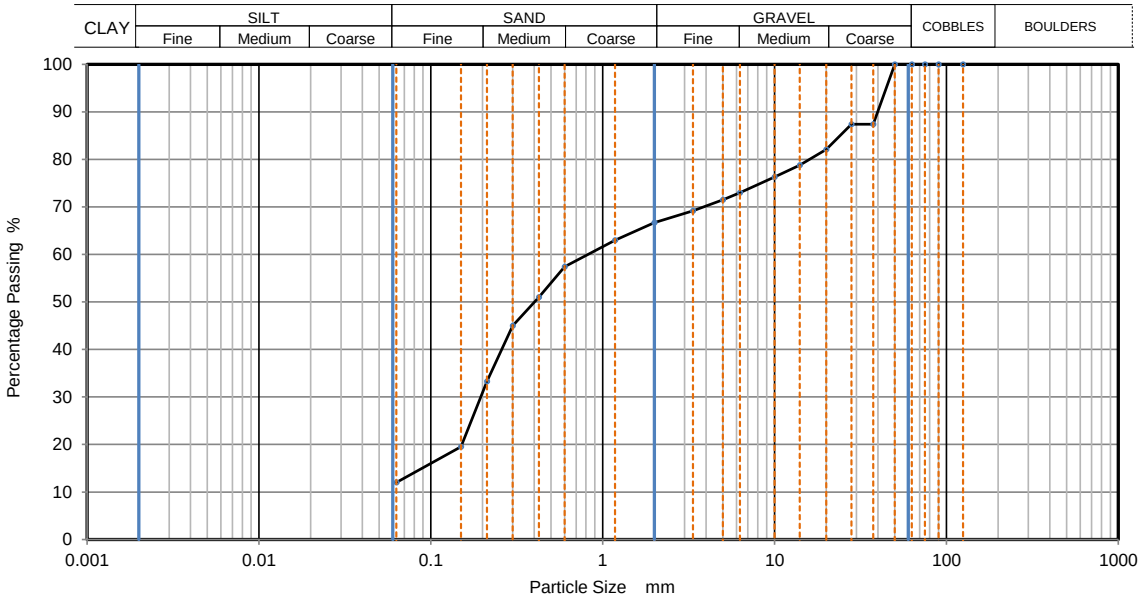
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown silty clayey very gravelly SAND (gravel is fmc and sub-rounded)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	87		
28	87		
20	82		
14	79		
10	76		
6.3	73		
5	72		
3.35	69		
2	67		
1.18	63		
0.6	57		
0.425	51		
0.3	45		
0.212	33		
0.15	20		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.3
Sand	54.7
Fines <0.063mm	12.0

Grading Analysis		
D100	mm	
D60	mm	0.821
D30	mm	0.195
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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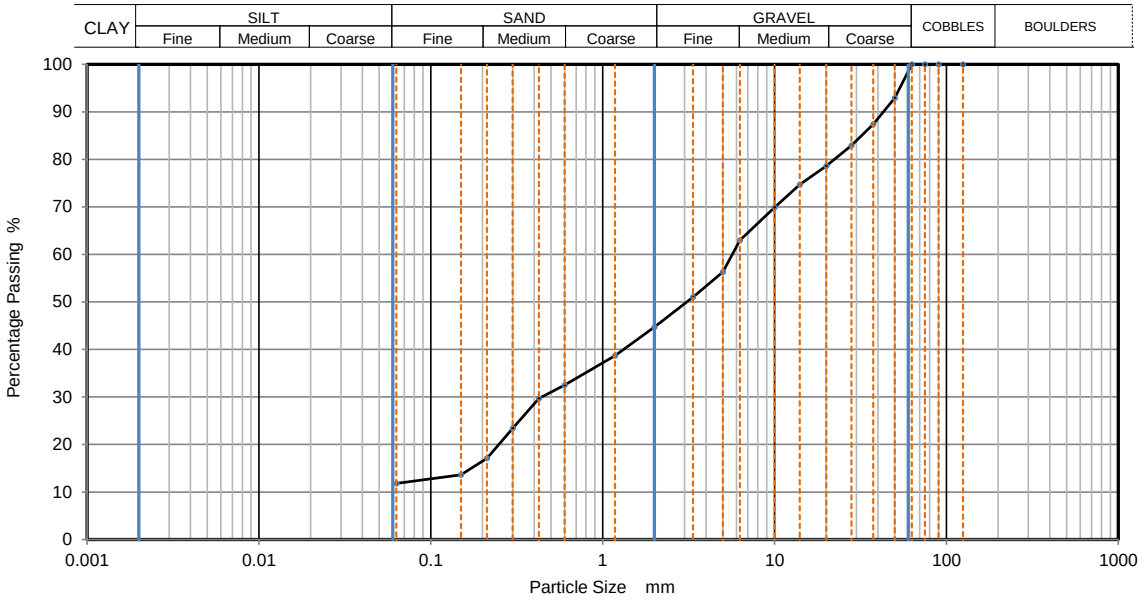
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Greyish brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	93		
37.5	87		
28	83		
20	79		
14	75		
10	70		
6.3	63		
5	56		
3.35	51		
2	45		
1.18	39		
0.6	33		
0.425	30		
0.3	23		
0.212	17		
0.15	14		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	55.3
Sand	32.9
Fines <0.063mm	11.8

Grading Analysis		
D100	mm	
D60	mm	5.68
D30	mm	0.44
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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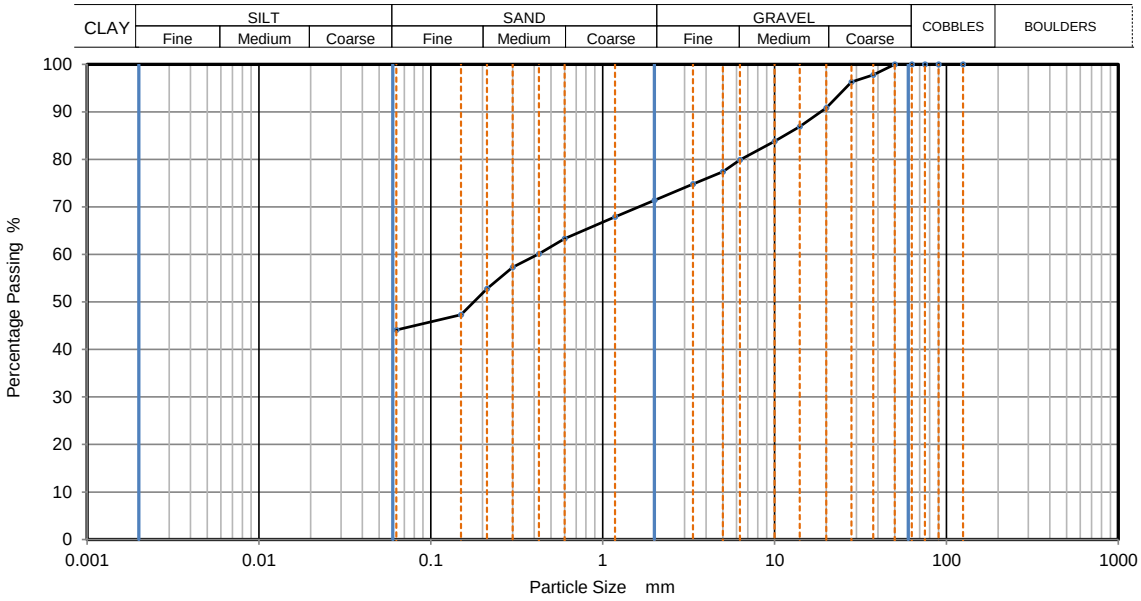
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93352
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greenish grey and brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	96		
20	91		
14	87		
10	84		
6.3	80		
5	77		
3.35	75		
2	71		
1.18	68		
0.6	63		
0.425	60		
0.3	57		
0.212	53		
0.15	47		
0.063	44		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.6
Sand	27.3
Fines <0.063mm	44.1

Grading Analysis		
D100	mm	
D60	mm	0.419
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 28/10/2022

UKAS TESTING

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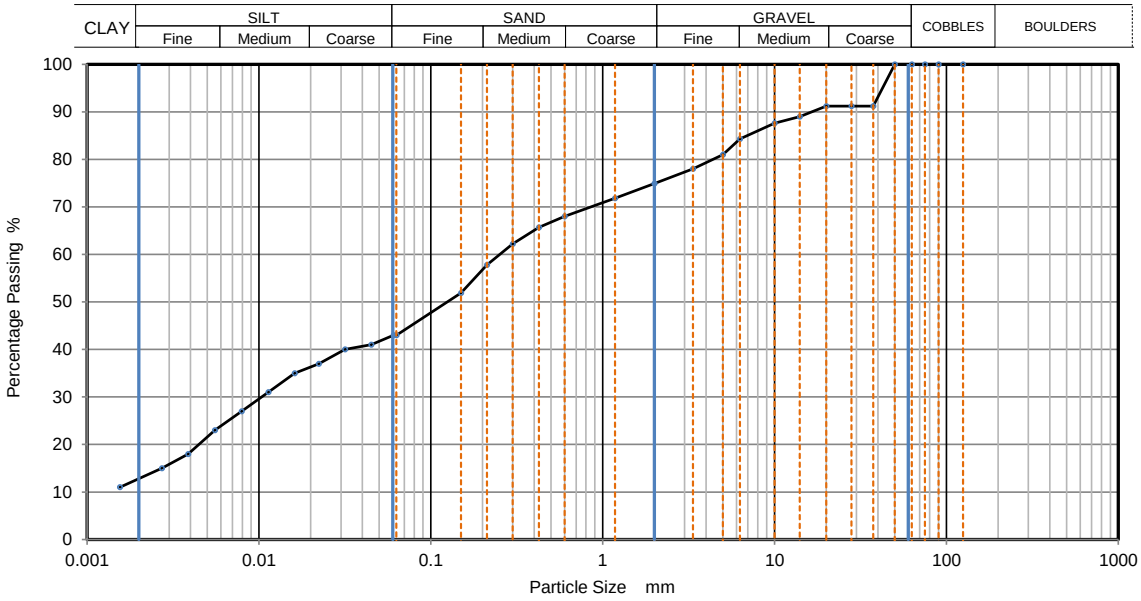
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93505
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0607	43
90	100	0.0450	41
75	100	0.0317	40
63	100	0.0223	37
50	100	0.0162	35
37.5	91	0.0113	31
28	91	0.0079	27
20	91	0.0055	23
14	89	0.0039	18
10	88	0.0027	15
6.3	84	0.0016	11
5	81		
3.35	78		
2	75		
1.18	72		
0.6	68	Particle density (assumed)	
0.425	66	2.70 Mg/m3	
0.3	62		
0.212	58		
0.15	52		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.1
Sand	31.8
Silt	30.0
Clay	13.1

Grading Analysis		
D100	mm	
D60	mm	0.252
D30	mm	0.0102
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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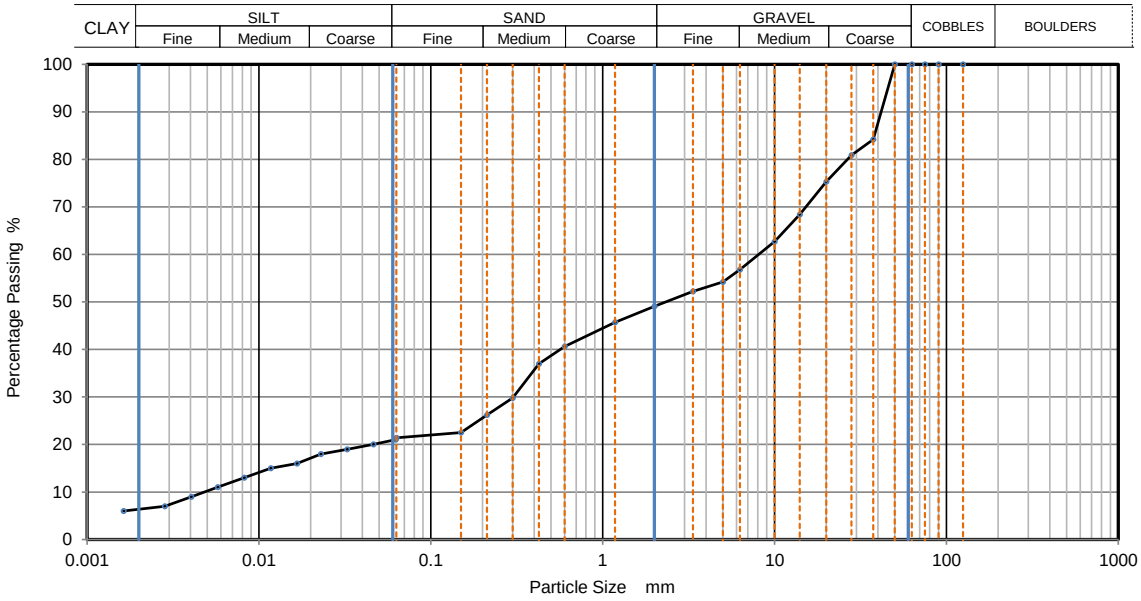
Date: 12/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93505
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greenish grey and brown clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	21
90	100	0.0463	20
75	100	0.0326	19
63	100	0.0229	18
50	100	0.0166	16
37.5	84	0.0117	15
28	81	0.0082	13
20	75	0.0058	11
14	68	0.0040	9
10	63	0.0028	7
6.3	57	0.0016	6
5	54		
3.35	52		
2	49		
1.18	46		
0.6	41	Particle density (assumed)	
0.425	37	2.70 Mg/m3	
0.3	30		
0.212	26		
0.15	23		
0.063	21		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	50.9
Sand	27.7
Silt	14.8
Clay	6.6

Grading Analysis		
D100	mm	
D60	mm	8.11
D30	mm	0.302
D10	mm	0.00458
Uniformity Coefficient		1800
Curvature Coefficient		2.5

Remarks

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Initials: **J.P**

Date: 28/10/2022

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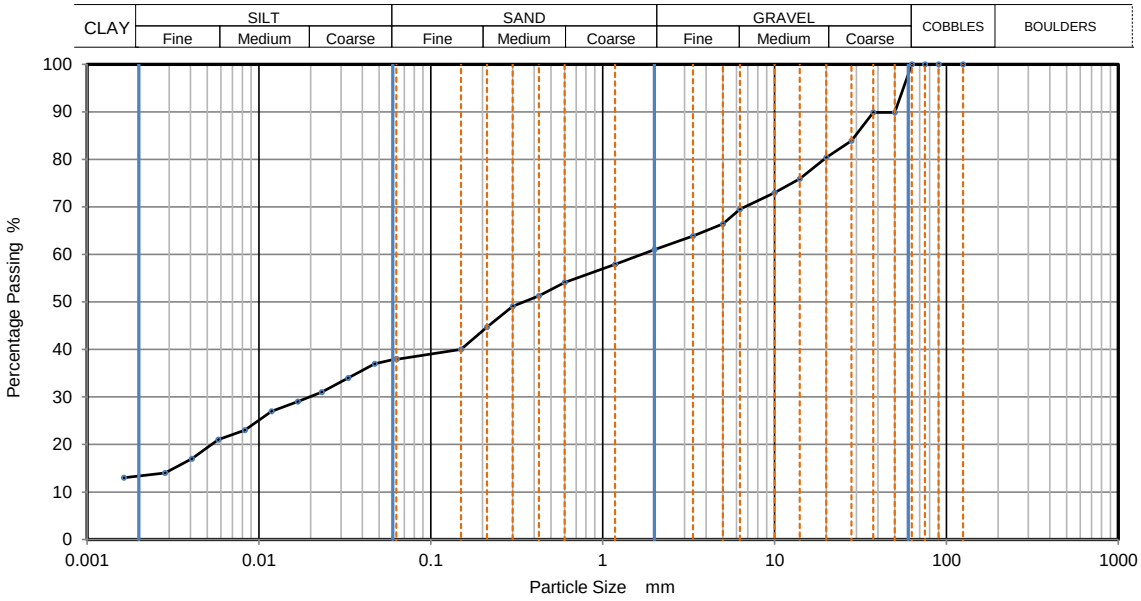
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93602
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greenish grey and brown slightly sandy gravelly clayey SILT (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	20/09/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	38
90	100	0.0471	37
75	100	0.0331	34
63	100	0.0232	31
50	90	0.0168	29
37.5	90	0.0118	27
28	84	0.0083	23
20	80	0.0058	21
14	76	0.0041	17
10	73	0.0028	14
6.3	70	0.0016	13
5	66		
3.35	64		
2	61		
1.18	58		
0.6	54	Particle density (assumed)	
0.425	51	2.70	Mg/m3
0.3	49		
0.212	45		
0.15	40		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.0
Sand	23.1
Silt	24.7
Clay	13.2

Grading Analysis		
D100	mm	
D60	mm	1.7
D30	mm	0.0191
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

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Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

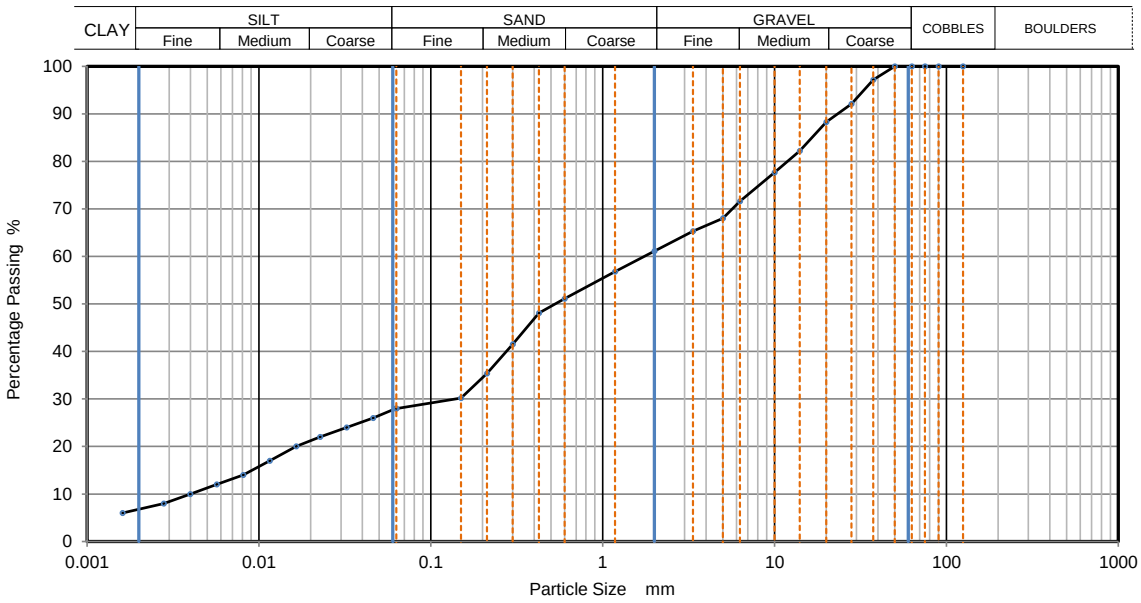
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93703
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greenish grey and brown clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	28
90	100	0.0461	26
75	100	0.0324	24
63	100	0.0227	22
50	100	0.0165	20
37.5	97	0.0115	17
28	92	0.0081	14
20	88	0.0057	12
14	82	0.0040	10
10	78	0.0028	8
6.3	72	0.0016	6
5	68		
3.35	65		
2	61		
1.18	57		
0.6	51	Particle density (assumed)	
0.425	48	2.70	Mg/m3
0.3	42		
0.212	35		
0.15	30		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	38.9
Sand	33.1
Silt	21.0
Clay	7.0

Grading Analysis		
D100	mm	
D60	mm	1.74
D30	mm	0.137
D10	mm	0.00395
Uniformity Coefficient		440
Curvature Coefficient		2.7

Remarks

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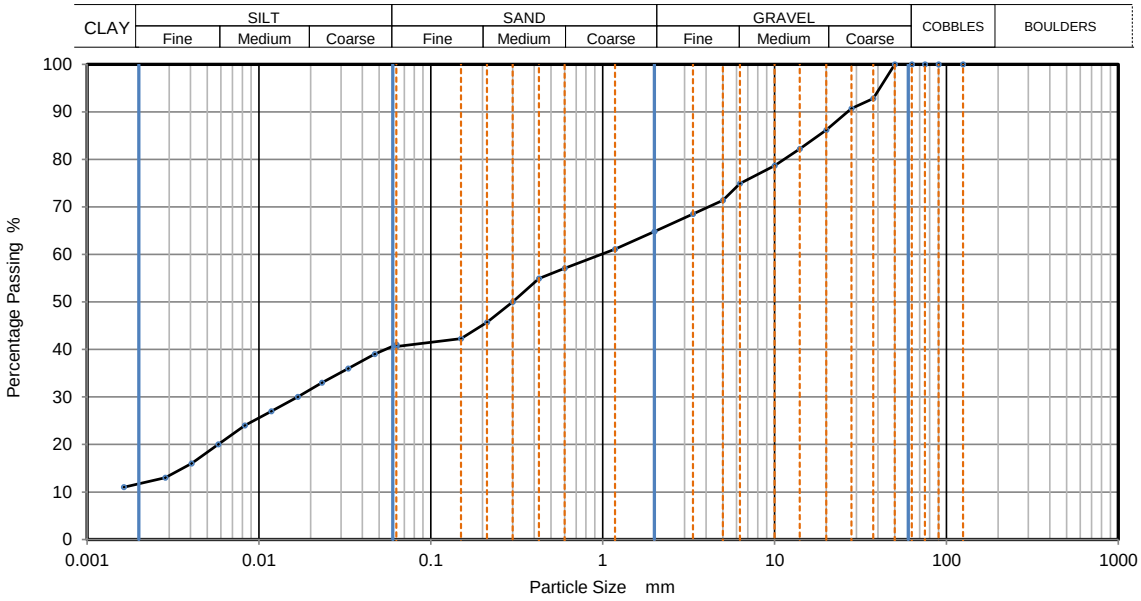
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-93703
Project No.	2021OY102	Client	Irish Drilling	Sample No.	4
				Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	41
90	100	0.0471	39
75	100	0.0331	36
63	100	0.0232	33
50	100	0.0168	30
37.5	93	0.0118	27
28	91	0.0083	24
20	86	0.0058	20
14	82	0.0041	16
10	79	0.0028	13
6.3	75	0.0016	11
5	71		
3.35	69		
2	65		
1.18	61		
0.6	57	Particle density	(assumed)
0.425	55	2.70	Mg/m3
0.3	50		
0.212	46		
0.15	42		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.2
Sand	24.2
Silt	28.8
Clay	11.8

Grading Analysis		
D100	mm	
D60	mm	0.977
D30	mm	0.0173
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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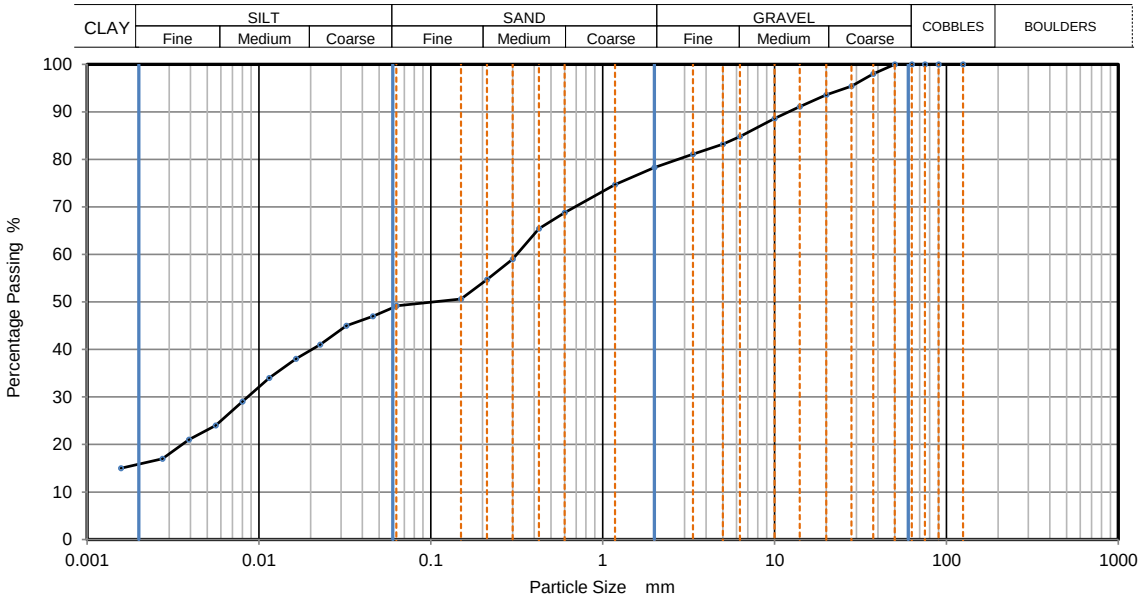
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93803
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greenish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0621	49
90	100	0.0459	47
75	100	0.0323	45
63	100	0.0227	41
50	100	0.0164	38
37.5	98	0.0115	34
28	95	0.0080	29
20	94	0.0056	24
14	91	0.0039	21
10	89	0.0027	17
6.3	85	0.0016	15
5	83		
3.35	81		
2	78		
1.18	75		
0.6	69	Particle density (assumed)	
0.425	65	2.70	Mg/m3
0.3	59		
0.212	55		
0.15	51		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.7
Sand	29.1
Silt	33.4
Clay	15.8

Grading Analysis		
D100	mm	
D60	mm	0.316
D30	mm	0.00883
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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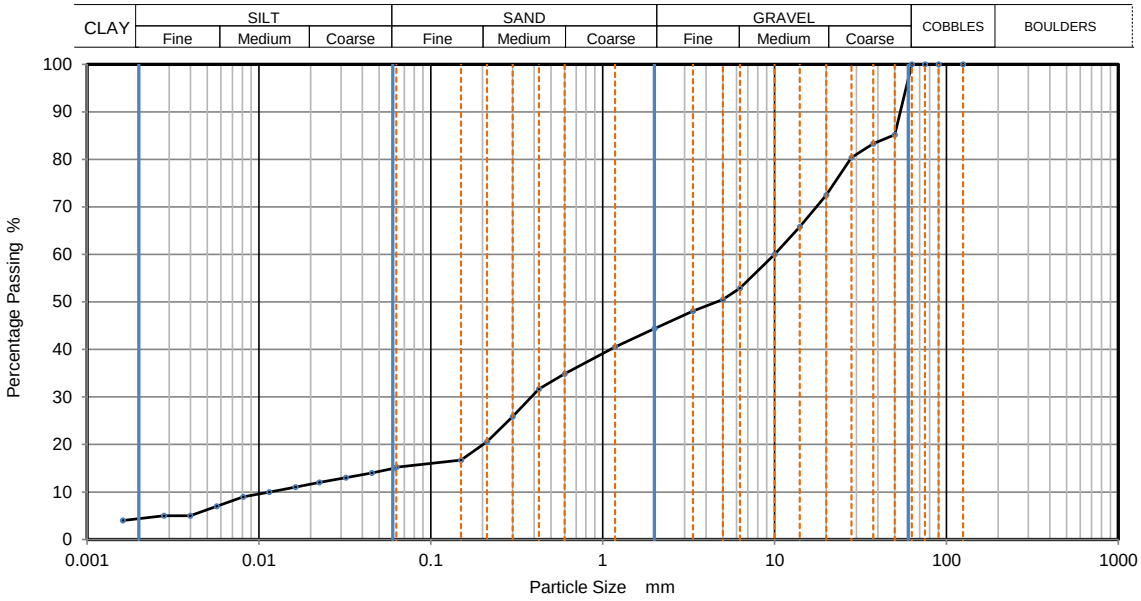
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93902
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0613	15
90	100	0.0454	14
75	100	0.0320	13
63	100	0.0224	12
50	85	0.0163	11
37.5	83	0.0115	10
28	80	0.0081	9
20	73	0.0057	7
14	66	0.0040	5
10	60	0.0028	5
6.3	53	0.0016	4
5	51		
3.35	48		
2	44		
1.18	41		
0.6	35	Particle density	(assumed)
0.425	32	2.70	Mg/m3
0.3	26		
0.212	21		
0.15	17		
0.063	15		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	55.6
Sand	29.2
Silt	10.8
Clay	4.4

Grading Analysis		
D100	mm	
D60	mm	10
D30	mm	0.385
D10	mm	0.012
Uniformity Coefficient		840
Curvature Coefficient		1.2

Remarks

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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

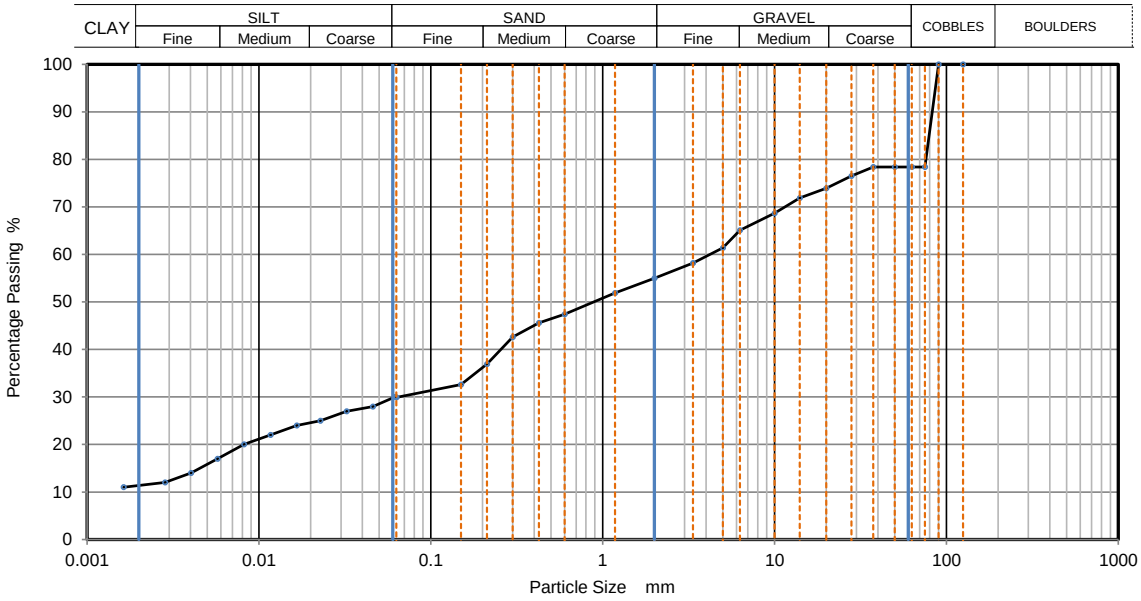
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-93902
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0621	30
90	100	0.0460	28
75	78	0.0324	27
63	78	0.0228	25
50	78	0.0166	24
37.5	78	0.0117	22
28	77	0.0082	20
20	74	0.0057	17
14	72	0.0040	14
10	69	0.0028	12
6.3	65	0.0016	11
5	61		
3.35	58		
2	55		
1.18	52		
0.6	47	Particle density (assumed)	
0.425	46	2.70	Mg/m3
0.3	43		
0.212	37		
0.15	33		
0.063	30		

Sample Proportions	% dry mass
Very coarse	21.6
Gravel	23.4
Sand	25.1
Silt	18.6
Clay	11.3

Grading Analysis		
D100	mm	
D60	mm	4.2
D30	mm	0.0659
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

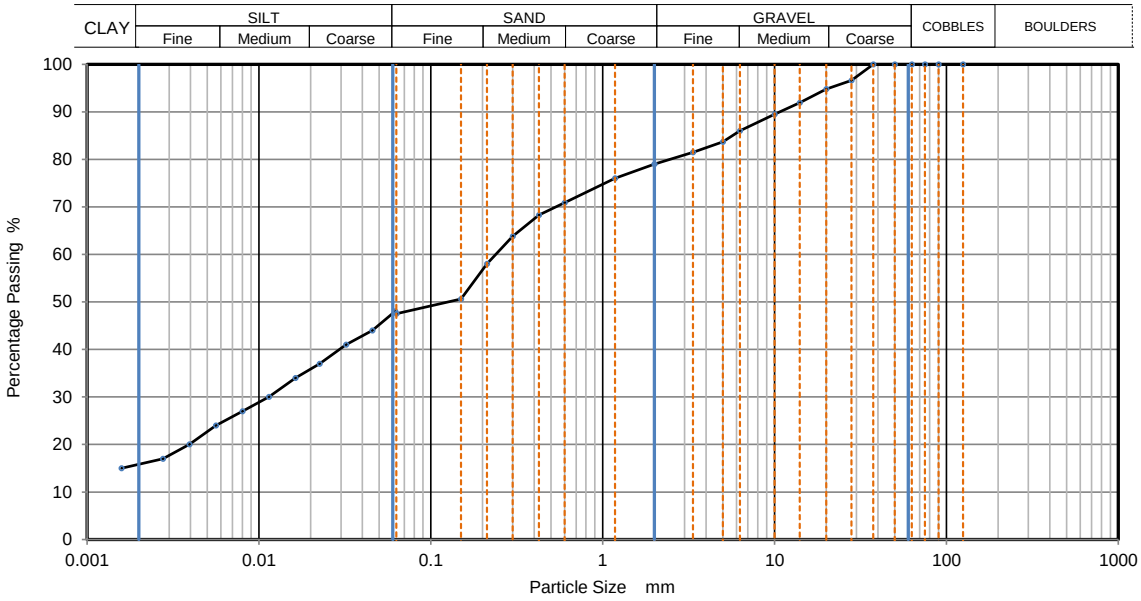
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94015
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Bluish grey slightly mottled orangish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0620	48
90	100	0.0457	44
75	100	0.0321	41
63	100	0.0225	37
50	100	0.0163	34
37.5	100	0.0114	30
28	97	0.0080	27
20	95	0.0056	24
14	92	0.0039	20
10	90	0.0028	17
6.3	86	0.0016	15
5	84		
3.35	82		
2	79		
1.18	76		
0.6	71	Particle density (assumed)	
0.425	68	2.70 Mg/m3	
0.3	64		
0.212	58		
0.15	51		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.0
Sand	31.6
Silt	31.6
Clay	15.8

Grading Analysis		
D100	mm	
D60	mm	0.239
D30	mm	0.0109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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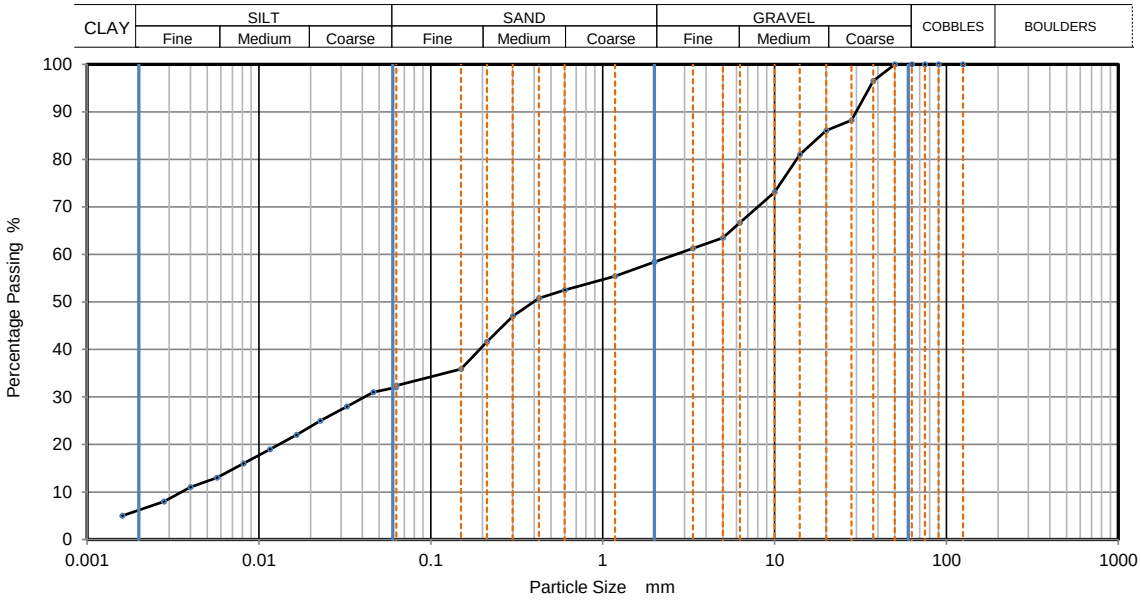
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94015
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Light grey clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0625	32
90	100	0.0463	31
75	100	0.0325	28
63	100	0.0228	25
50	100	0.0165	22
37.5	97	0.0116	19
28	88	0.0081	16
20	86	0.0057	13
14	81	0.0040	11
10	73	0.0028	8
6.3	67	0.0016	5
5	64		
3.35	61		
2	58		
1.18	55		
0.6	53	Particle density (assumed)	
0.425	51	2.70	Mg/m3
0.3	47		
0.212	42		
0.15	36		
0.063	32		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	41.6
Sand	26.0
Silt	26.2
Clay	6.2

Grading Analysis		
D100	mm	
D60	mm	2.67
D30	mm	0.0413
D10	mm	0.00375
Uniformity Coefficient		710
Curvature Coefficient		0.17

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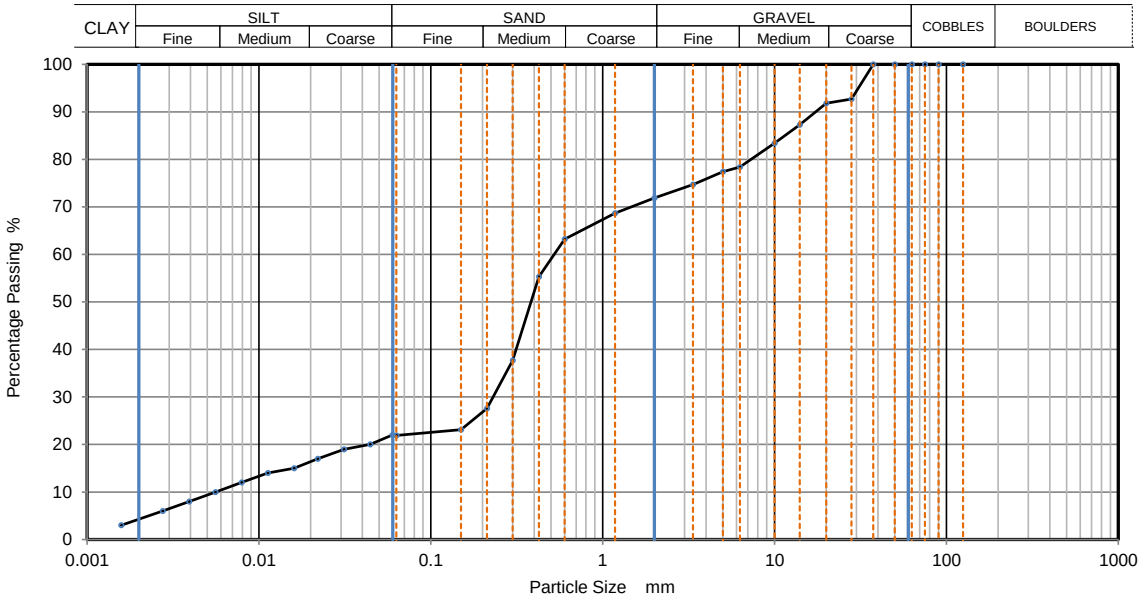
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94103
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey silty clayey very gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0599	22
90	100	0.0444	20
75	100	0.0313	19
63	100	0.0220	17
50	100	0.0160	15
37.5	100	0.0113	14
28	93	0.0079	12
20	92	0.0056	10
14	87	0.0039	8
10	83	0.0028	6
6.3	78	0.0016	3
5	77		
3.35	75		
2	72		
1.18	69		
0.6	63	Particle density	(assumed)
0.425	55	2.70	Mg/m3
0.3	38		
0.212	28		
0.15	23		
0.063	22		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.1
Sand	50.0
Silt	17.7
Clay	4.2

Grading Analysis		
D100	mm	
D60	mm	0.522
D30	mm	0.23
D10	mm	0.00525
Uniformity Coefficient		99
Curvature Coefficient		19

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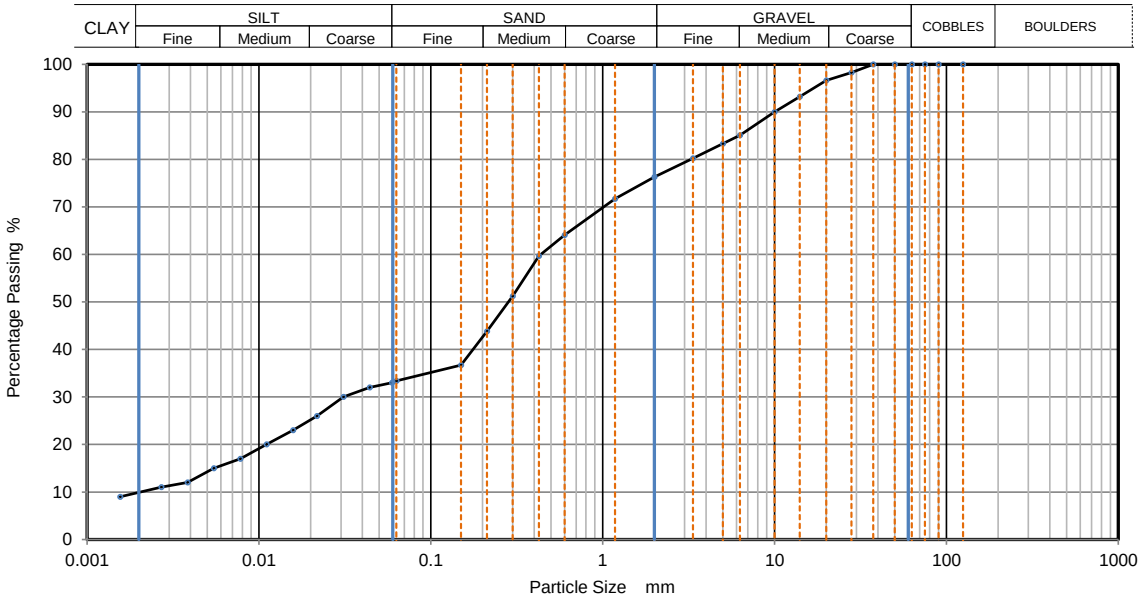
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94198
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greenish grey and brown clayey very gravelly very silty SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0595	33
90	100	0.0441	32
75	100	0.0310	30
63	100	0.0218	26
50	100	0.0158	23
37.5	100	0.0111	20
28	98	0.0078	17
20	97	0.0055	15
14	93	0.0038	12
10	90	0.0027	11
6.3	85	0.0016	9
5	83		
3.35	80		
2	76		
1.18	72		
0.6	64	Particle density (assumed)	
0.425	60	2.70	Mg/m3
0.3	51		
0.212	44		
0.15	37		
0.063	33		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.7
Sand	42.9
Silt	23.7
Clay	9.7

Grading Analysis		
D100	mm	
D60	mm	0.434
D30	mm	0.0332
D10	mm	0.00225
Uniformity Coefficient		190
Curvature Coefficient		1.1

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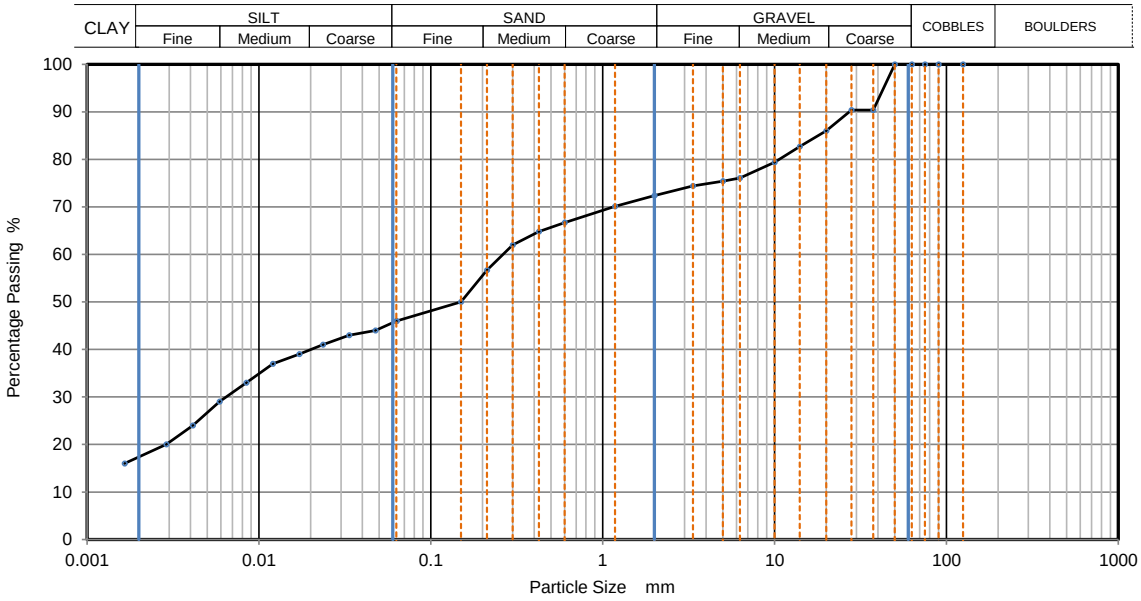
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94198
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	46
90	100	0.0476	44
75	100	0.0335	43
63	100	0.0236	41
50	100	0.0172	39
37.5	90	0.0121	37
28	90	0.0084	33
20	86	0.0059	29
14	83	0.0041	24
10	79	0.0029	20
6.3	76	0.0017	16
5	75		
3.35	74		
2	72		
1.18	70		
0.6	67	Particle density	(assumed)
0.425	65	2.70	Mg/m3
0.3	62		
0.212	57		
0.15	50		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	27.6
Sand	26.4
Silt	28.5
Clay	17.5

Grading Analysis		
D100	mm	
D60	mm	0.264
D30	mm	0.00664
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

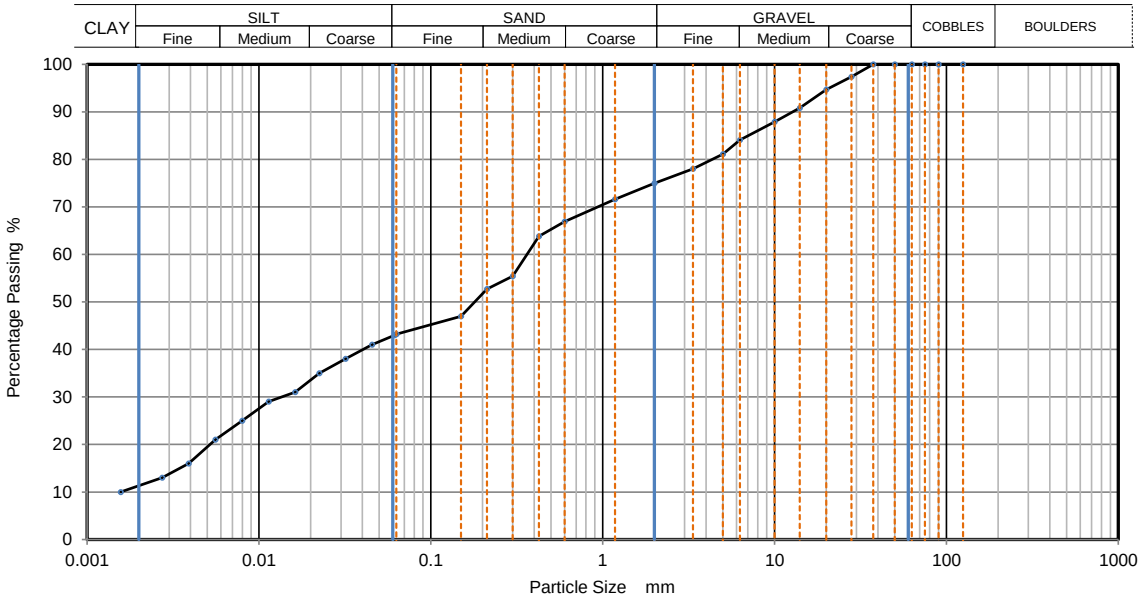
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94401
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy clayey SILT (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0615	43
90	100	0.0454	41
75	100	0.0319	38
63	100	0.0224	35
50	100	0.0162	31
37.5	100	0.0114	29
28	97	0.0080	25
20	95	0.0056	21
14	91	0.0039	16
10	88	0.0027	13
6.3	84	0.0016	10
5	81		
3.35	78		
2	75		
1.18	72		
0.6	67	Particle density	(assumed)
0.425	64	2.70	Mg/m3
0.3	55		
0.212	53		
0.15	47		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.0
Sand	31.8
Silt	32.0
Clay	11.2

Grading Analysis		
D100	mm	
D60	mm	0.363
D30	mm	0.0134
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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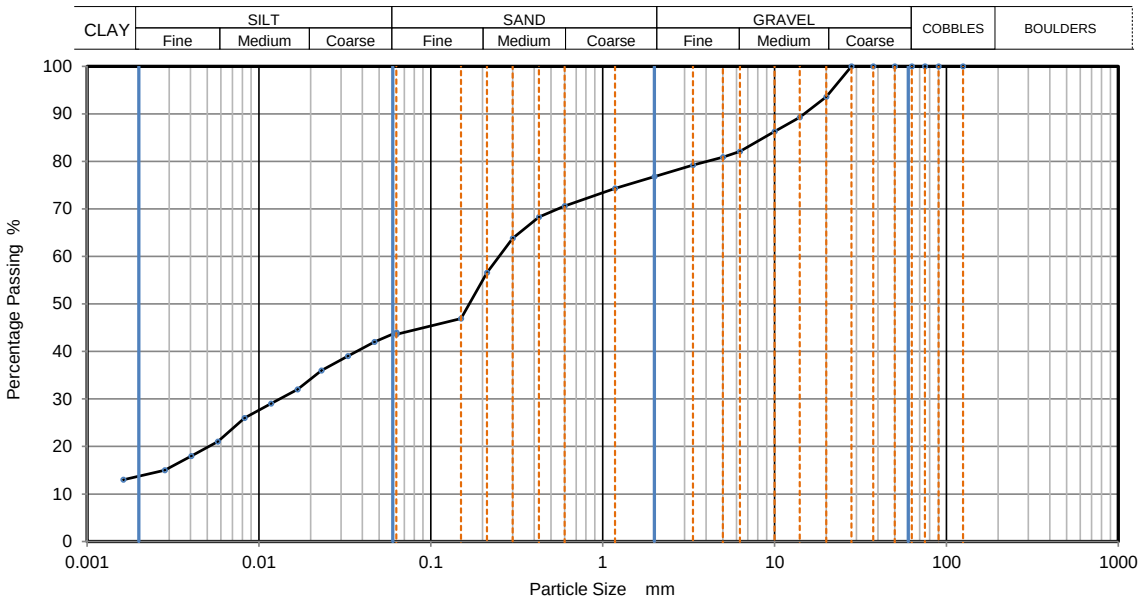
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94401
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy clayey SILT (gravel is fmc and sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	44
90	100	0.0469	42
75	100	0.0329	39
63	100	0.0231	36
50	100	0.0167	32
37.5	100	0.0117	29
28	100	0.0082	26
20	94	0.0058	21
14	89	0.0040	18
10	86	0.0028	15
6.3	82	0.0016	13
5	81		
3.35	79		
2	77		
1.18	74		
0.6	71	Particle density (assumed)	
0.425	68	2.70 Mg/m3	
0.3	64		
0.212	57		
0.15	47		
0.063	44		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.2
Sand	33.2
Silt	29.6
Clay	14.0

Grading Analysis		
D100	mm	
D60	mm	0.249
D30	mm	0.0127
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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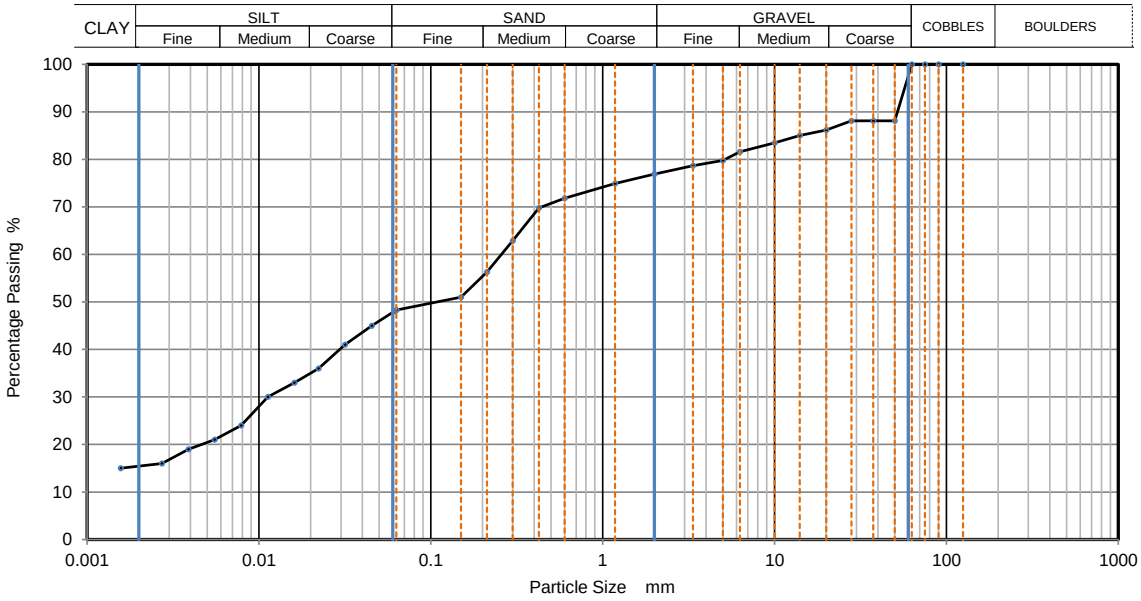
Date: 28/10/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0614	48
90	100	0.0453	45
75	100	0.0317	41
63	100	0.0222	36
50	88	0.0161	33
37.5	88	0.0113	30
28	88	0.0079	24
20	86	0.0055	21
14	85	0.0039	19
10	84	0.0027	16
6.3	82	0.0016	15
5	80		
3.35	79		
2	77		
1.18	75		
0.6	72	Particle density	(assumed)
0.425	70	2.70	Mg/m3
0.3	63		
0.212	56		
0.15	51		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.1
Sand	28.5
Silt	33.1
Clay	15.3

Grading Analysis		
D100	mm	
D60	mm	0.257
D30	mm	0.0116
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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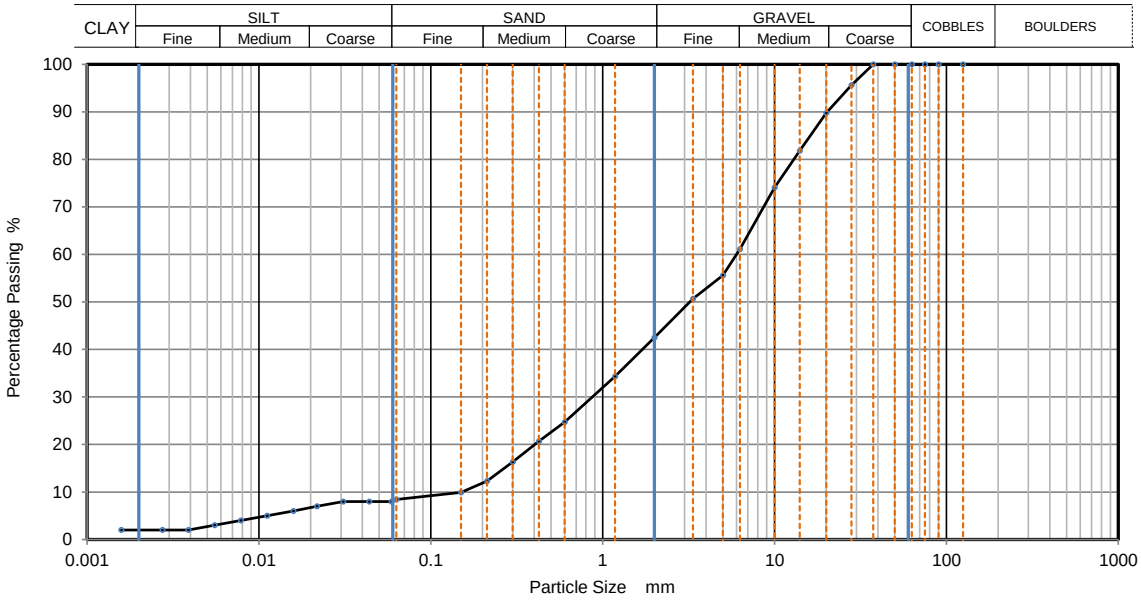
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0590	8
90	100	0.0438	8
75	100	0.0309	8
63	100	0.0218	7
50	100	0.0158	6
37.5	100	0.0111	5
28	96	0.0078	4
20	90	0.0055	3
14	82	0.0039	2
10	74	0.0027	2
6.3	61	0.0016	2
5	56		
3.35	51		
2	43		
1.18	34		
0.6	25	Particle density	(assumed)
0.425	21	2.70	Mg/m3
0.3	16		
0.212	12		
0.15	10		
0.063	8		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	57.5
Sand	34.2
Silt	6.6
Clay	1.7

Grading Analysis		
D100	mm	
D60	mm	6.01
D30	mm	0.87
D10	mm	0.152
Uniformity Coefficient		40
Curvature Coefficient		0.83

Remarks

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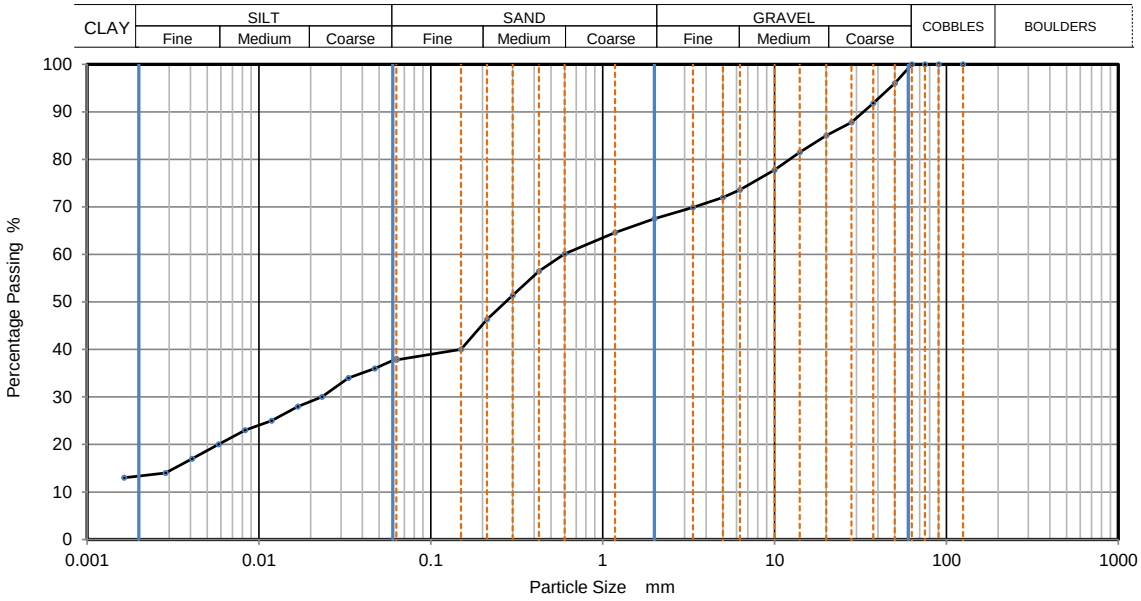
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94504
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Greenish grey and brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	38
90	100	0.0471	36
75	100	0.0331	34
63	100	0.0232	30
50	96	0.0169	28
37.5	92	0.0118	25
28	88	0.0083	23
20	85	0.0058	20
14	82	0.0041	17
10	78	0.0029	14
6.3	74	0.0016	13
5	72		
3.35	70		
2	68		
1.18	65		
0.6	60	Particle density	(assumed)
0.425	57	2.70	Mg/m3
0.3	51		
0.212	46		
0.15	40		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.5
Sand	29.7
Silt	24.5
Clay	13.3

Grading Analysis		
D100	mm	
D60	mm	0.597
D30	mm	0.0222
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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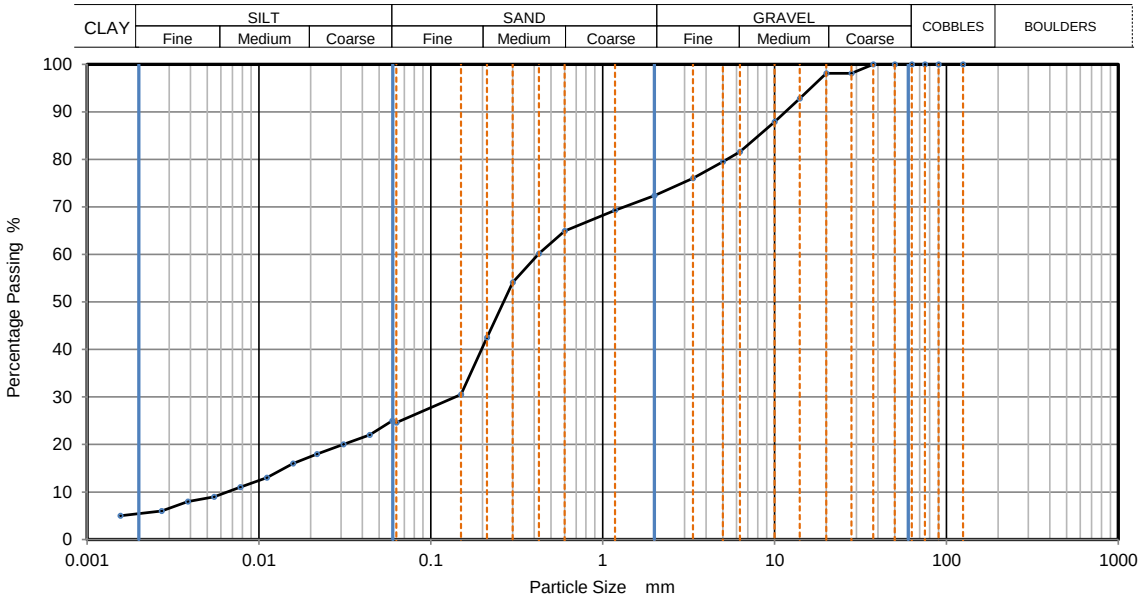
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94608
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.20 m
Soil Description	Grey clayey silty very gravelly SAND (gravel is fmc and sub-rounded)			Depth Base	0.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0597	25
90	100	0.0441	22
75	100	0.0310	20
63	100	0.0218	18
50	100	0.0158	16
37.5	100	0.0111	13
28	98	0.0078	11
20	98	0.0055	9
14	93	0.0039	8
10	88	0.0027	6
6.3	82	0.0016	5
5	80		
3.35	76		
2	72		
1.18	69		
0.6	65	Particle density (assumed)	
0.425	60	2.70	Mg/m3
0.3	54		
0.212	43		
0.15	31		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	27.6
Sand	47.7
Silt	19.3
Clay	5.4

Grading Analysis		
D100	mm	
D60	mm	0.419
D30	mm	0.138
D10	mm	0.00683
Uniformity Coefficient		61
Curvature Coefficient		6.7

Remarks

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Initials: **J.P**

Date: 28/10/2022

UKAS TESTING

2519

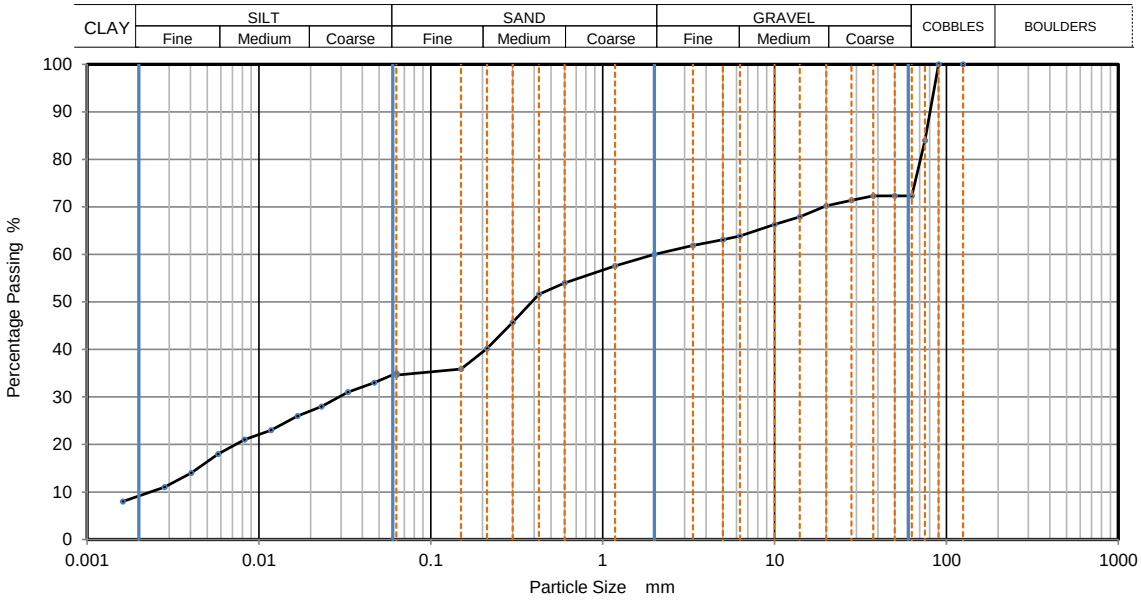
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94608
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greenish grey and brown slightly gravelly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	35
90	100	0.0468	33
75	84	0.0329	31
63	72	0.0231	28
50	72	0.0167	26
37.5	72	0.0117	23
28	71	0.0082	21
20	70	0.0058	18
14	68	0.0040	14
10	66	0.0028	11
6.3	64	0.0016	8
5	63		
3.35	62		
2	60		
1.18	58		
0.6	54	Particle density (assumed)	
0.425	52	2.70	Mg/m3
0.3	46		
0.212	40		
0.15	36		
0.063	35		

Sample Proportions	% dry mass
Very coarse	27.7
Gravel	12.3
Sand	25.4
Silt	25.2
Clay	9.4

Grading Analysis		
D100	mm	
D60	mm	2.02
D30	mm	0.0294
D10	mm	0.00226
Uniformity Coefficient		900
Curvature Coefficient		0.19

Remarks

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Checked and Approved

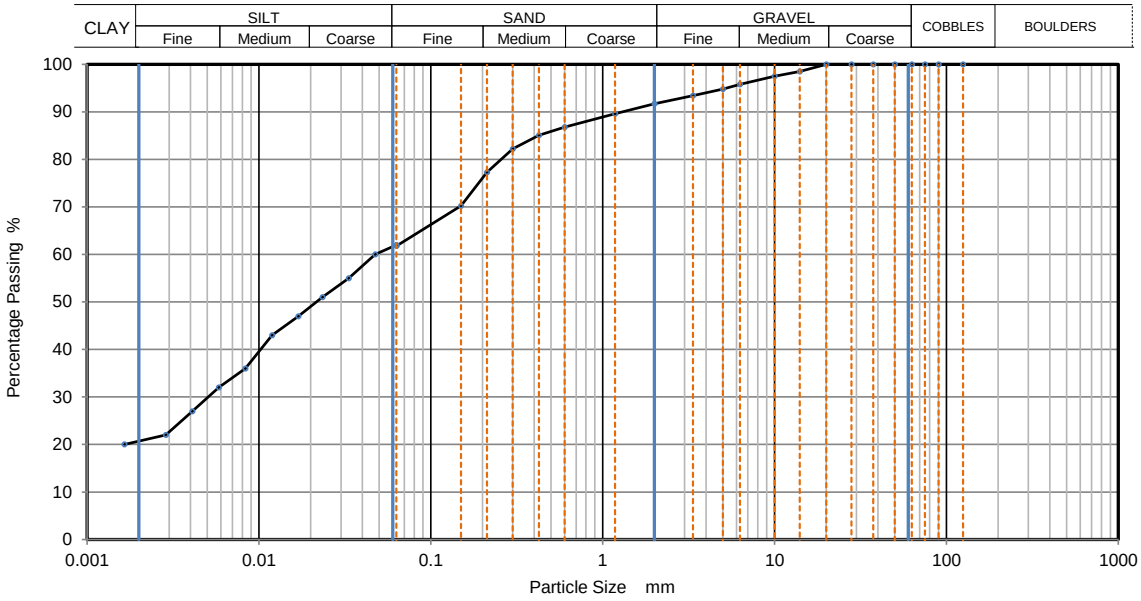
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94704
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy clayey SILT (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	16/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	62
90	100	0.0475	60
75	100	0.0333	55
63	100	0.0234	51
50	100	0.0170	47
37.5	100	0.0119	43
28	100	0.0083	36
20	100	0.0058	32
14	99	0.0041	27
10	98	0.0029	22
6.3	96	0.0016	20
5	95		
3.35	93		
2	92		
1.18	90		
0.6	87	Particle density (assumed)	
0.425	85	2.70	Mg/m3
0.3	82		
0.212	77		
0.15	70		
0.063	62		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	8.3
Sand	29.9
Silt	40.9
Clay	20.9

Grading Analysis		
D100	mm	
D60	mm	0.0499
D30	mm	0.0052
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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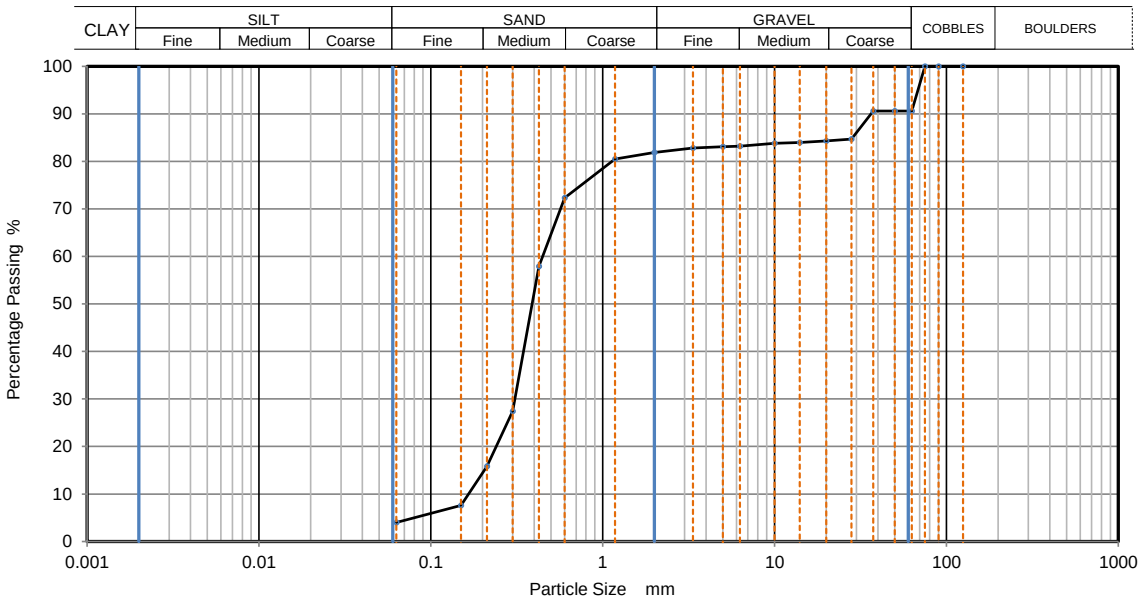
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94704
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Dark grey silty gravelly SAND with rare cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	91		
50	91		
37.5	91		
28	85		
20	84		
14	84		
10	84		
6.3	83		
5	83		
3.35	83		
2	82		
1.18	81		
0.6	72		
0.425	58		
0.3	27		
0.212	16		
0.15	8		
0.063	4		

Sample Proportions	% dry mass
Very coarse	9.4
Gravel	8.7
Sand	77.9
Fines <0.063mm	4.0

Grading Analysis		
D100	mm	
D60	mm	0.447
D30	mm	0.309
D10	mm	0.166
Uniformity Coefficient		2.7
Curvature Coefficient		1.3

Remarks

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Initials: **J.P**

Date: 28/10/2022

UKAS TESTING

2519

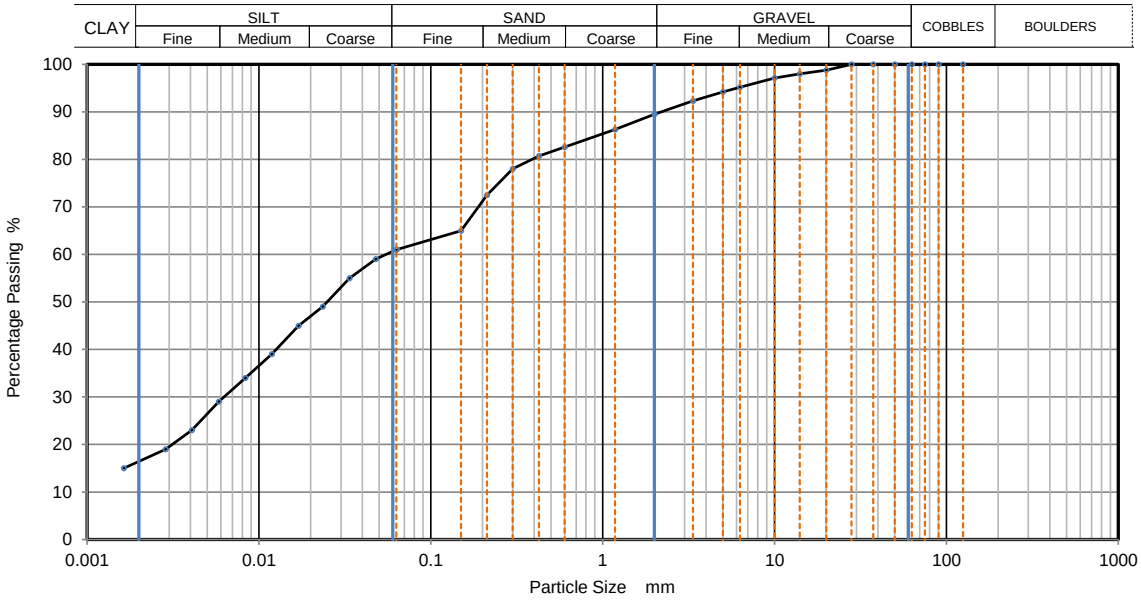
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94809
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy clayey SILT (gravel is fmc and sub-rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	15/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	61
90	100	0.0478	59
75	100	0.0336	55
63	100	0.0235	49
50	100	0.0170	45
37.5	100	0.0119	39
28	100	0.0083	34
20	99	0.0058	29
14	98	0.0041	23
10	97	0.0029	19
6.3	95	0.0016	15
5	94		
3.35	92		
2	90		
1.18	86		
0.6	83	Particle density (assumed)	
0.425	81	2.70 Mg/m3	
0.3	78		
0.212	73		
0.15	65		
0.063	61		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	10.5
Sand	28.6
Silt	44.9
Clay	16.0

Grading Analysis		
D100	mm	
D60	mm	0.0551
D30	mm	0.00638
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Tel: 01923 711288

Checked and Approved

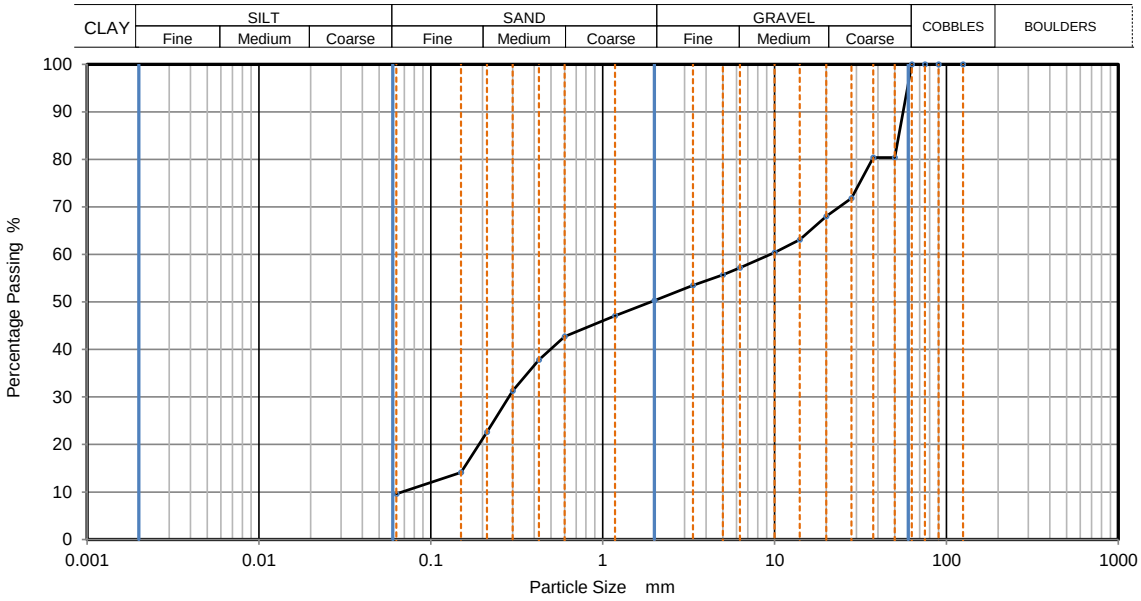
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94809
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	80		
37.5	80		
28	72		
20	68		
14	63		
10	60		
6.3	57		
5	56		
3.35	54		
2	50		
1.18	47		
0.6	43		
0.425	38		
0.3	31		
0.212	23		
0.15	14		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	49.7
Sand	40.8
Fines <0.063mm	9.6

Grading Analysis		
D100	mm	
D60	mm	9.44
D30	mm	0.285
D10	mm	0.0686
Uniformity Coefficient		140
Curvature Coefficient		0.13

Remarks

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Initials: **J.P**

Date: 28/10/2022

UKAS TESTING

2519

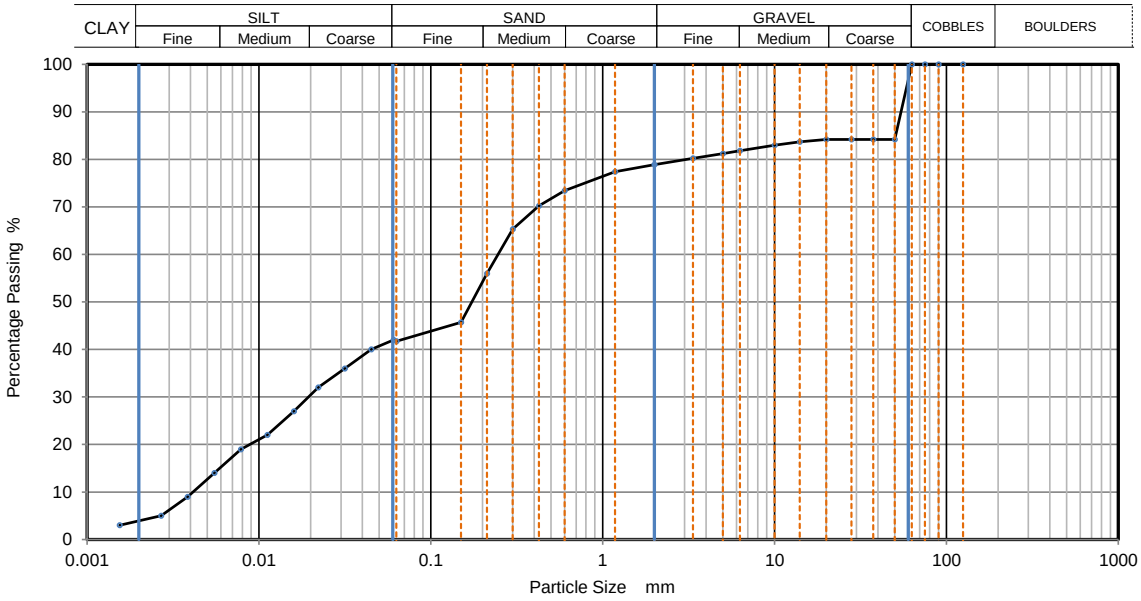
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94905
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown slightly gravelly sandy clayey SILT (gravel is fmc and angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0606	42
90	100	0.0449	40
75	100	0.0315	36
63	100	0.0221	32
50	84	0.0160	27
37.5	84	0.0112	22
28	84	0.0079	19
20	84	0.0055	14
14	84	0.0038	9
10	83	0.0027	5
6.3	82	0.0015	3
5	81		
3.35	80		
2	79		
1.18	77		
0.6	73	Particle density (assumed)	
0.425	70	2.70 Mg/m3	
0.3	65		
0.212	56		
0.15	46		
0.063	42		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.1
Sand	37.2
Silt	37.7
Clay	4.0

Grading Analysis		
D100	mm	
D60	mm	0.246
D30	mm	0.0194
D10	mm	0.00416
Uniformity Coefficient		59
Curvature Coefficient		0.37

Remarks

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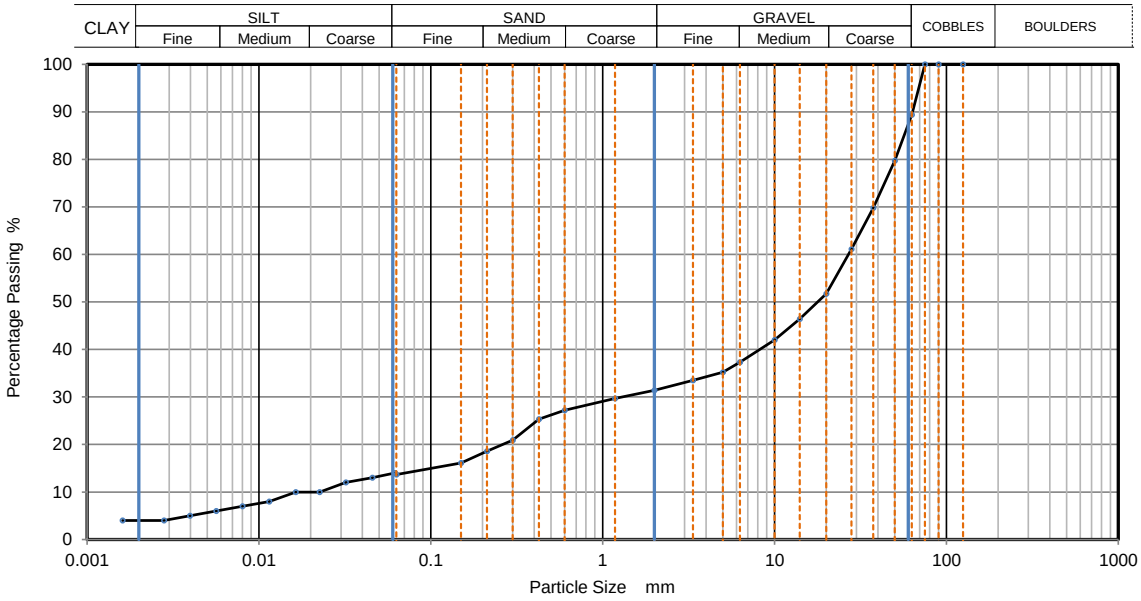
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-94905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown clayey silty sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	15/09/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0617	14
90	100	0.0457	13
75	100	0.0321	12
63	89	0.0225	10
50	80	0.0164	10
37.5	70	0.0115	8
28	61	0.0080	7
20	52	0.0056	6
14	46	0.0040	5
10	42	0.0028	4
6.3	37	0.0016	4
5	35		
3.35	34		
2	31		
1.18	30		
0.6	27	Particle density (assumed)	
0.425	25	2.70	Mg/m3
0.3	21		
0.212	19		
0.15	16		
0.063	14		

Sample Proportions	% dry mass
Very coarse	10.6
Gravel	58.0
Sand	17.7
Silt	9.7
Clay	4.0

Grading Analysis		
D100	mm	
D60	mm	26.9
D30	mm	1.28
D10	mm	0.0188
Uniformity Coefficient		1400
Curvature Coefficient		3.2

Remarks

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Date: 28/10/2022

UKAS TESTING

2519

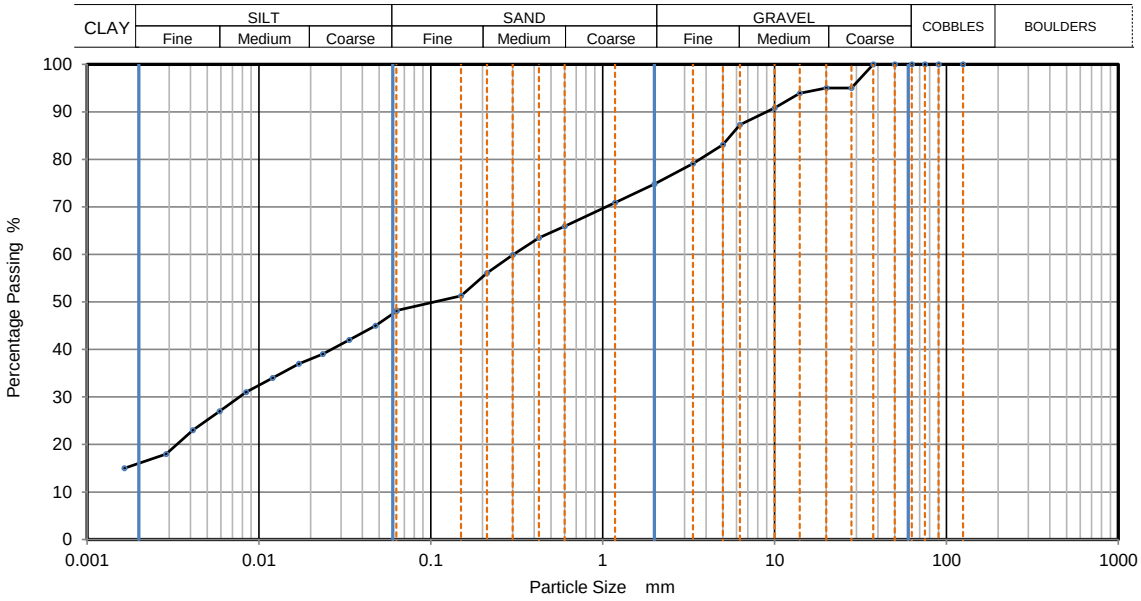
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95003
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/12/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	48
90	100	0.0477	45
75	100	0.0335	42
63	100	0.0235	39
50	100	0.0171	37
37.5	100	0.0120	34
28	95	0.0084	31
20	95	0.0059	27
14	94	0.0041	23
10	91	0.0029	18
6.3	87	0.0016	15
5	83		
3.35	79		
2	75		
1.18	71		
0.6	66	Particle density (assumed)	
0.425	64	2.70	Mg/m3
0.3	60		
0.212	56		
0.15	51		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.2
Sand	26.6
Silt	32.4
Clay	15.8

Grading Analysis		
D100	mm	
D60	mm	0.304
D30	mm	0.00783
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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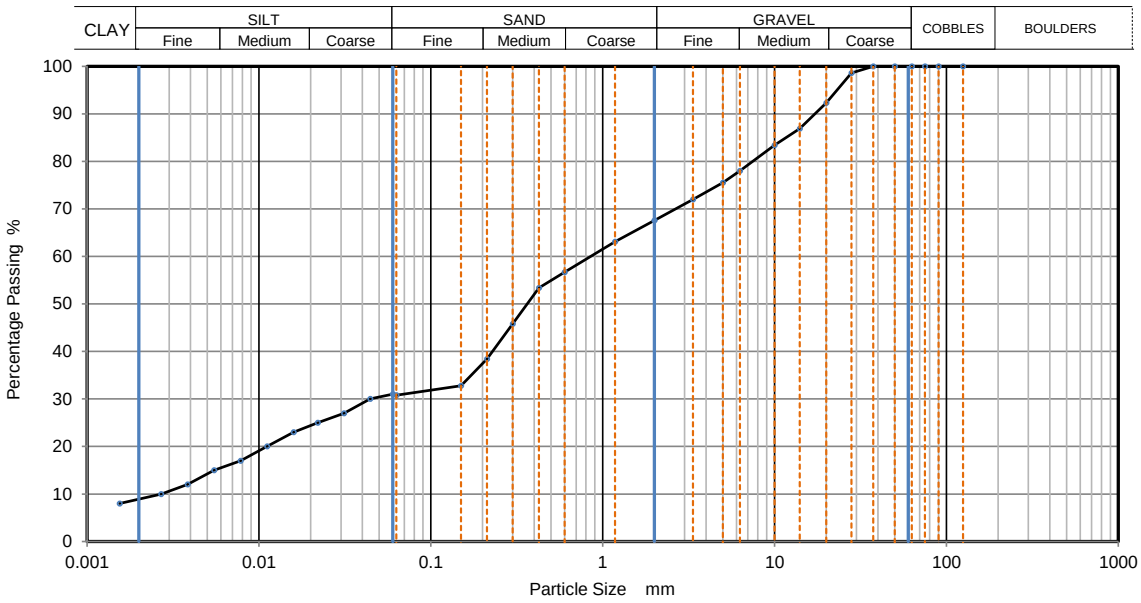
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95003
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greenish grey and brown clayey very silty very gravelly SAND (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	20/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0600	31
90	100	0.0445	30
75	100	0.0312	27
63	100	0.0219	25
50	100	0.0159	23
37.5	100	0.0111	20
28	99	0.0078	17
20	92	0.0055	15
14	87	0.0038	12
10	83	0.0027	10
6.3	78	0.0015	8
5	76		
3.35	72		
2	68		
1.18	63		
0.6	57	Particle density	(assumed)
0.425	53	2.70	Mg/m3
0.3	46		
0.212	38		
0.15	33		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.4
Sand	36.8
Silt	22.1
Clay	8.7

Grading Analysis		
D100	mm	
D60	mm	0.851
D30	mm	0.0482
D10	mm	0.0029
Uniformity Coefficient		290
Curvature Coefficient		0.94

Remarks

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Date: 28/10/2022

UKAS TESTING

2519

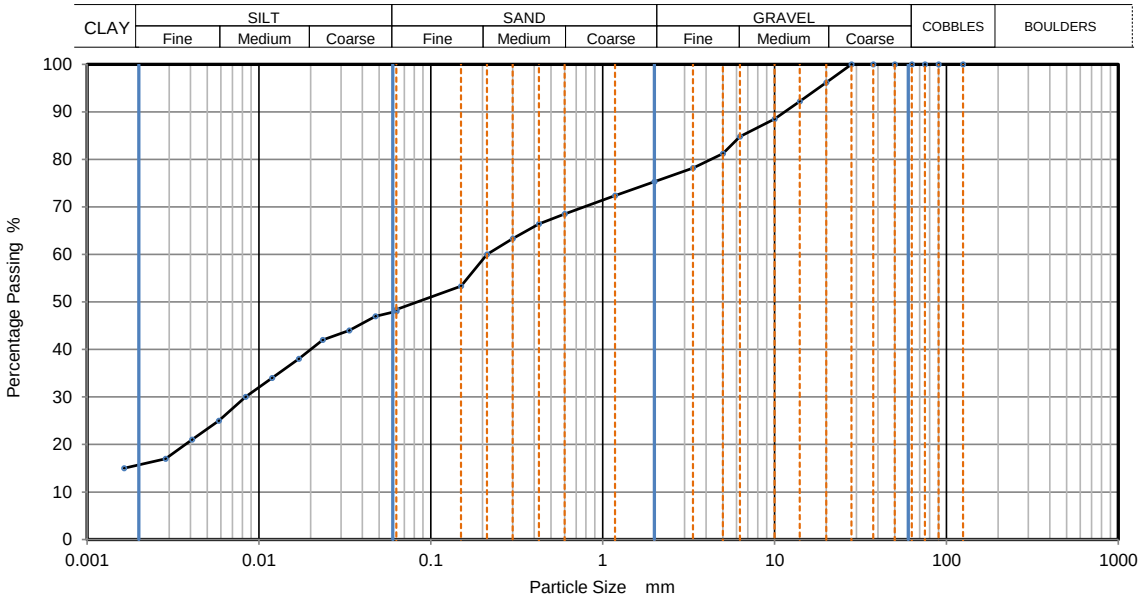
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greenish brown and greenish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	48
90	100	0.0476	47
75	100	0.0335	44
63	100	0.0235	42
50	100	0.0170	38
37.5	100	0.0119	34
28	100	0.0084	30
20	96	0.0058	25
14	92	0.0041	21
10	89	0.0029	17
6.3	85	0.0016	15
5	81		
3.35	78		
2	75		
1.18	72		
0.6	69	Particle density	(assumed)
0.425	66	2.70	Mg/m3
0.3	63		
0.212	60		
0.15	53		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.7
Sand	27.0
Silt	32.9
Clay	15.4

Grading Analysis		
D100	mm	
D60	mm	0.212
D30	mm	0.00827
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 12/10/2022

UKAS TESTING

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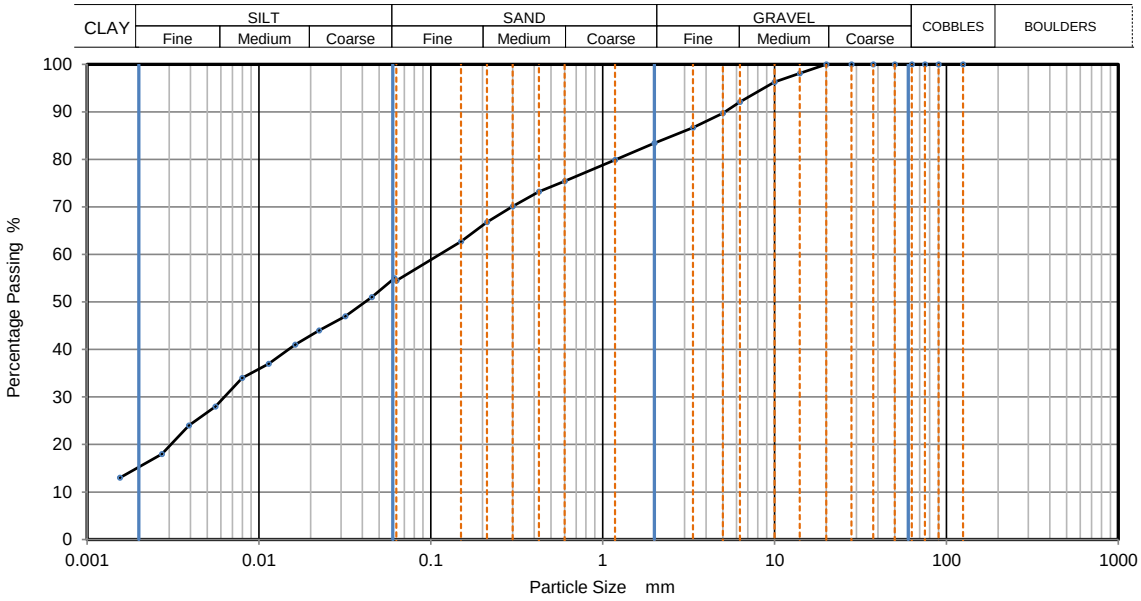
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95408
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0614	55
90	100	0.0453	51
75	100	0.0318	47
63	100	0.0224	44
50	100	0.0162	41
37.5	100	0.0114	37
28	100	0.0080	34
20	100	0.0056	28
14	98	0.0039	24
10	96	0.0027	18
6.3	92	0.0016	13
5	90		
3.35	87		
2	83		
1.18	80		
0.6	75	Particle density (assumed)	
0.425	73	2.70	Mg/m3
0.3	70		
0.212	67		
0.15	63		
0.063	55		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	16.6
Sand	29.0
Silt	39.2
Clay	15.2

Grading Analysis		
D100	mm	
D60	mm	0.112
D30	mm	0.00639
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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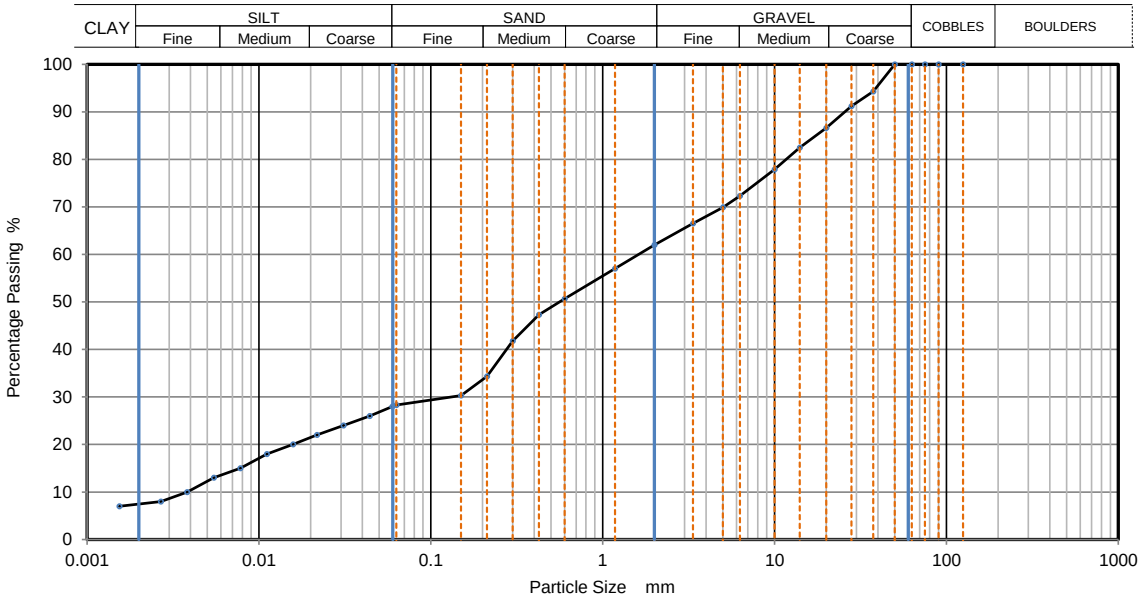
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95504
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greenish brown and greenish grey clayey silty very sandy GRAVEL (gravel is fmc and angular)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0597	28
90	100	0.0441	26
75	100	0.0310	24
63	100	0.0218	22
50	100	0.0158	20
37.5	94	0.0111	18
28	91	0.0078	15
20	87	0.0055	13
14	83	0.0038	10
10	78	0.0027	8
6.3	72	0.0015	7
5	70		
3.35	67		
2	62		
1.18	57		
0.6	51	Particle density (assumed)	
0.425	47	2.70 Mg/m3	
0.3	42		
0.212	34		
0.15	30		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	38.0
Sand	33.7
Silt	21.0
Clay	7.3

Grading Analysis		
D100	mm	
D60	mm	1.62
D30	mm	0.132
D10	mm	0.00384
Uniformity Coefficient		420
Curvature Coefficient		2.8

Remarks

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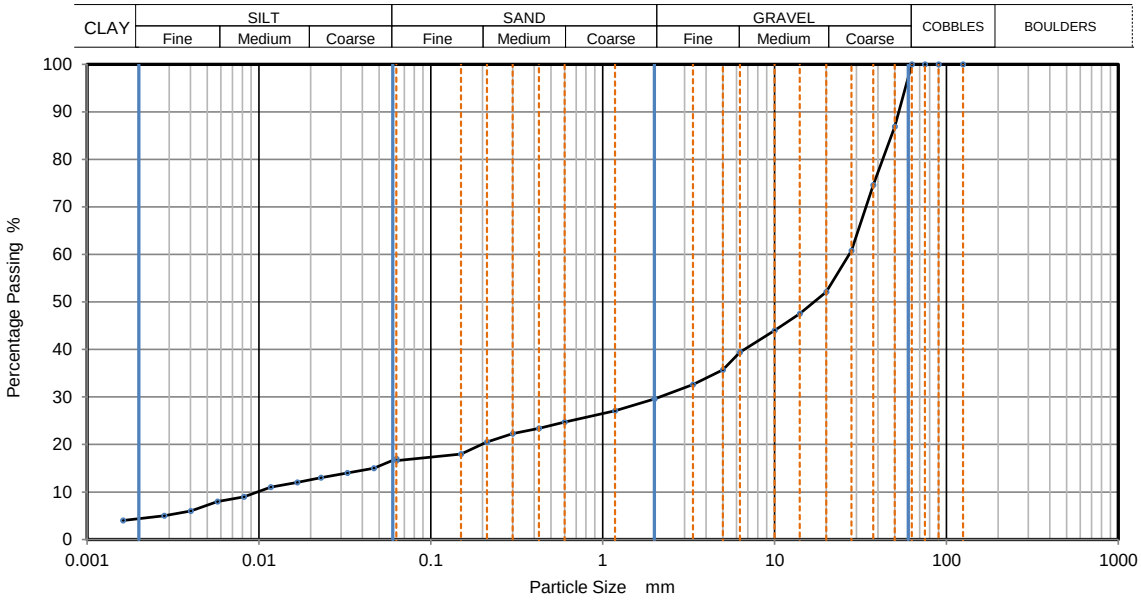
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95504
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown clayey silty sandy GRAVEL (gravel is fmc and sub-angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	17
90	100	0.0466	15
75	100	0.0327	14
63	100	0.0230	13
50	87	0.0167	12
37.5	75	0.0117	11
28	61	0.0082	9
20	52	0.0057	8
14	48	0.0040	6
10	44	0.0028	5
6.3	39	0.0016	4
5	36		
3.35	33		
2	30		
1.18	27		
0.6	25	Particle density	(assumed)
0.425	23	2.70	Mg/m3
0.3	22		
0.212	21		
0.15	18		
0.063	17		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	70.4
Sand	13.0
Silt	12.1
Clay	4.5

Grading Analysis		
D100	mm	
D60	mm	27.1
D30	mm	2.14
D10	mm	0.0097
Uniformity Coefficient		2800
Curvature Coefficient		17

Remarks

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Initials: **J.P**

Date: 28/10/2022

UKAS TESTING

2519

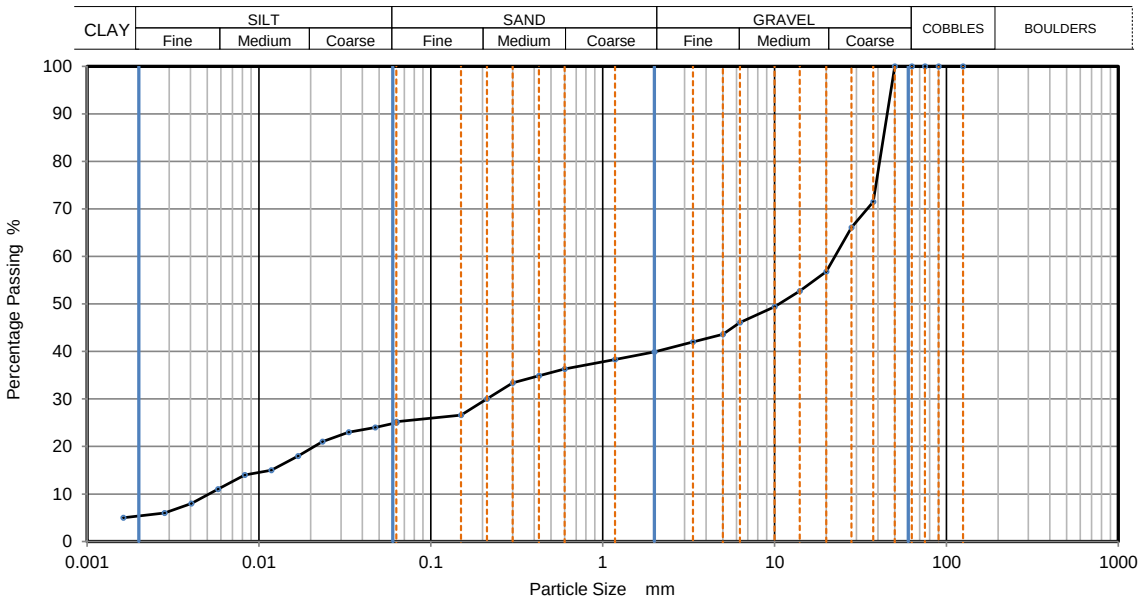
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95600
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brown clayey silty sandy GRAVEL (gravel is fmc and sub-angular)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	25
90	100	0.0475	24
75	100	0.0333	23
63	100	0.0234	21
50	100	0.0169	18
37.5	72	0.0118	15
28	66	0.0083	14
20	57	0.0058	11
14	53	0.0040	8
10	49	0.0028	6
6.3	46	0.0016	5
5	44		
3.35	42		
2	40		
1.18	38		
0.6	36	Particle density (assumed)	
0.425	35	2.70	Mg/m3
0.3	33		
0.212	30		
0.15	27		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	60.1
Sand	14.7
Silt	19.7
Clay	5.5

Grading Analysis		
D100	mm	
D60	mm	22.4
D30	mm	0.211
D10	mm	0.00531
Uniformity Coefficient		4200
Curvature Coefficient		0.38

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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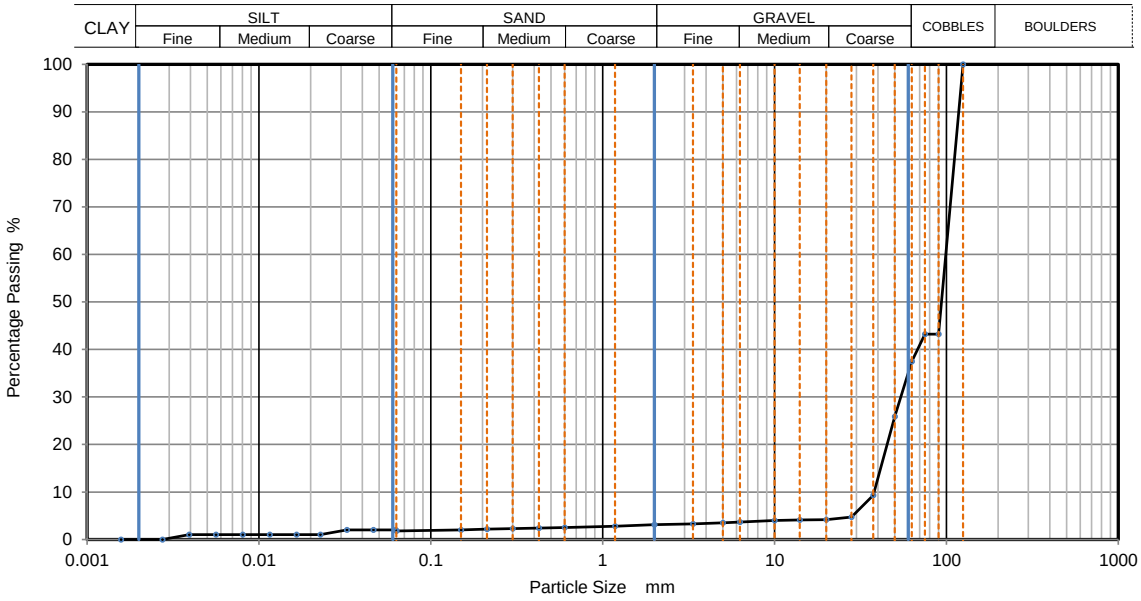
Date: 12/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95705
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown slightly clayey slightly silty slightly sandy GRAVEL with numerous cobbles (gravel is fmc and sub-rounded to elongated)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	28/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	2
90	43	0.0463	2
75	43	0.0325	2
63	38	0.0228	1
50	26	0.0165	1
37.5	9	0.0116	1
28	5	0.0080	1
20	4	0.0056	1
14	4	0.0039	1
10	4	0.0027	0
6.3	4	0.0016	0
5	4		
3.35	3		
2	3		
1.18	3		
0.6	3	Particle density (assumed)	
0.425	2	2.70	Mg/m3
0.3	2		
0.212	2		
0.15	2		
0.063	2		

Sample Proportions	% dry mass
Very coarse	62.5
Gravel	34.4
Sand	1.2
Silt	1.5
Clay	0.4

Grading Analysis		
D100	mm	125
D60	mm	99.2
D30	mm	54.2
D10	mm	38
Uniformity Coefficient		2.6
Curvature Coefficient		0.78

Remarks

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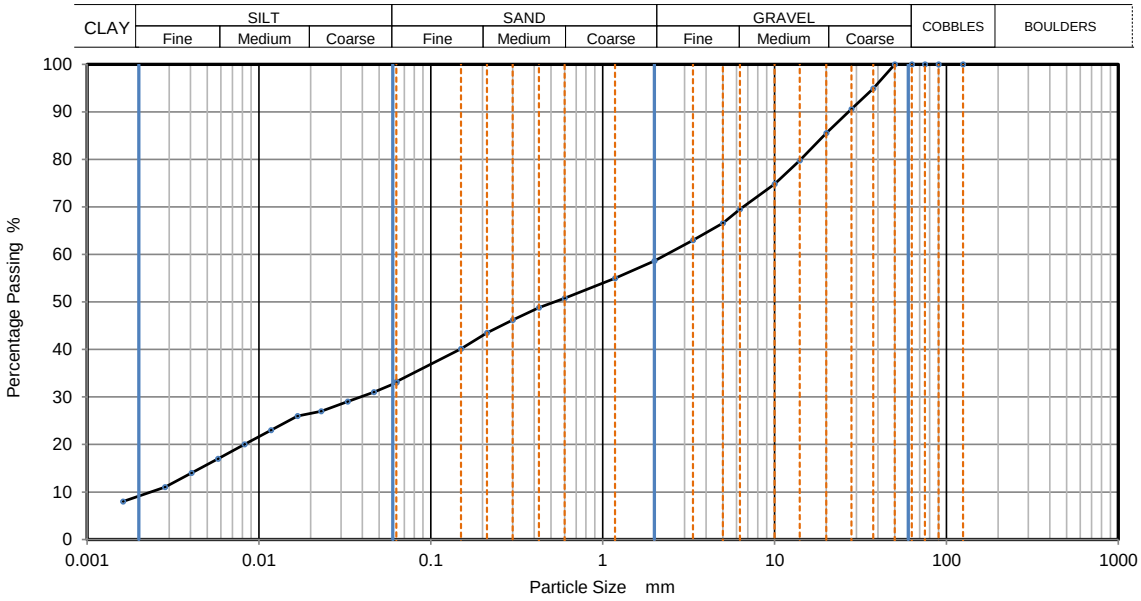
Date: 12/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	33
90	100	0.0466	31
75	100	0.0328	29
63	100	0.0230	27
50	100	0.0167	26
37.5	95	0.0118	23
28	91	0.0082	20
20	86	0.0058	17
14	80	0.0040	14
10	75	0.0028	11
6.3	70	0.0016	8
5	67		
3.35	63		
2	59		
1.18	55		
0.6	51	Particle density (assumed)	
0.425	49	2.70	Mg/m3
0.3	46		
0.212	44		
0.15	40		
0.063	33		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	41.4
Sand	25.4
Silt	24.2
Clay	9.0

Grading Analysis		
D100	mm	
D60	mm	2.35
D30	mm	0.0387
D10	mm	0.00233
Uniformity Coefficient		1000
Curvature Coefficient		0.27

Remarks

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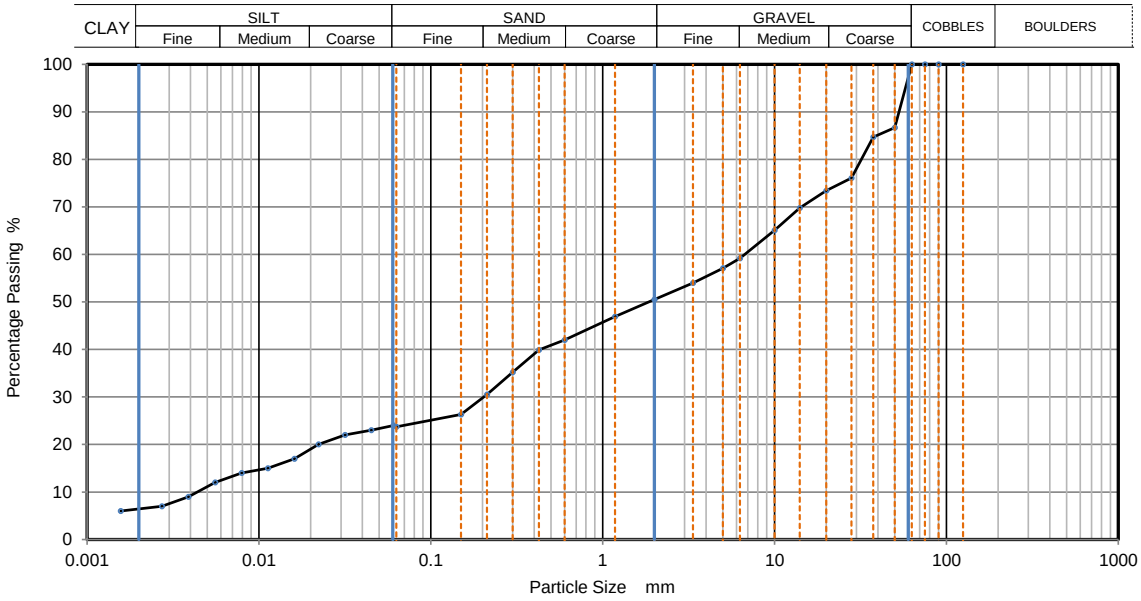
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95806
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.10 m
Soil Description	Greenish grey and brown clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0608	24
90	100	0.0451	23
75	100	0.0317	22
63	100	0.0222	20
50	87	0.0161	17
37.5	85	0.0113	15
28	76	0.0079	14
20	73	0.0056	12
14	70	0.0039	9
10	65	0.0027	7
6.3	59	0.0016	6
5	57		
3.35	54		
2	51		
1.18	47		
0.6	42	Particle density (assumed)	
0.425	40	2.70	Mg/m3
0.3	35		
0.212	31		
0.15	26		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	49.5
Sand	26.8
Silt	16.9
Clay	6.8

Grading Analysis		
D100	mm	
D60	mm	6.72
D30	mm	0.204
D10	mm	0.00439
Uniformity Coefficient		1500
Curvature Coefficient		1.4

Remarks

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Date: 12/10/2022

UKAS TESTING

2519

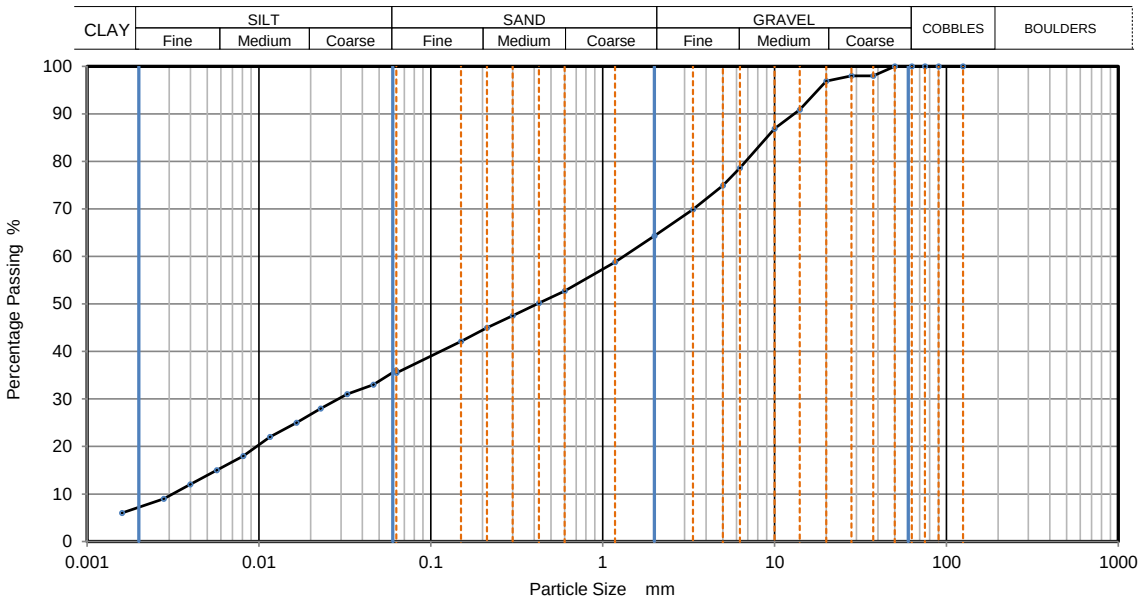
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0626	36
90	100	0.0463	33
75	100	0.0325	31
63	100	0.0228	28
50	100	0.0165	25
37.5	98	0.0116	22
28	98	0.0081	18
20	97	0.0057	15
14	91	0.0040	12
10	87	0.0028	9
6.3	79	0.0016	6
5	75		
3.35	70		
2	64		
1.18	59		
0.6	53	Particle density (assumed)	
0.425	50	2.70 Mg/m3	
0.3	48		
0.212	45		
0.15	42		
0.063	36		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.7
Sand	28.8
Silt	28.6
Clay	6.9

Grading Analysis		
D100	mm	
D60	mm	1.32
D30	mm	0.0283
D10	mm	0.00319
Uniformity Coefficient		410
Curvature Coefficient		0.19

Remarks

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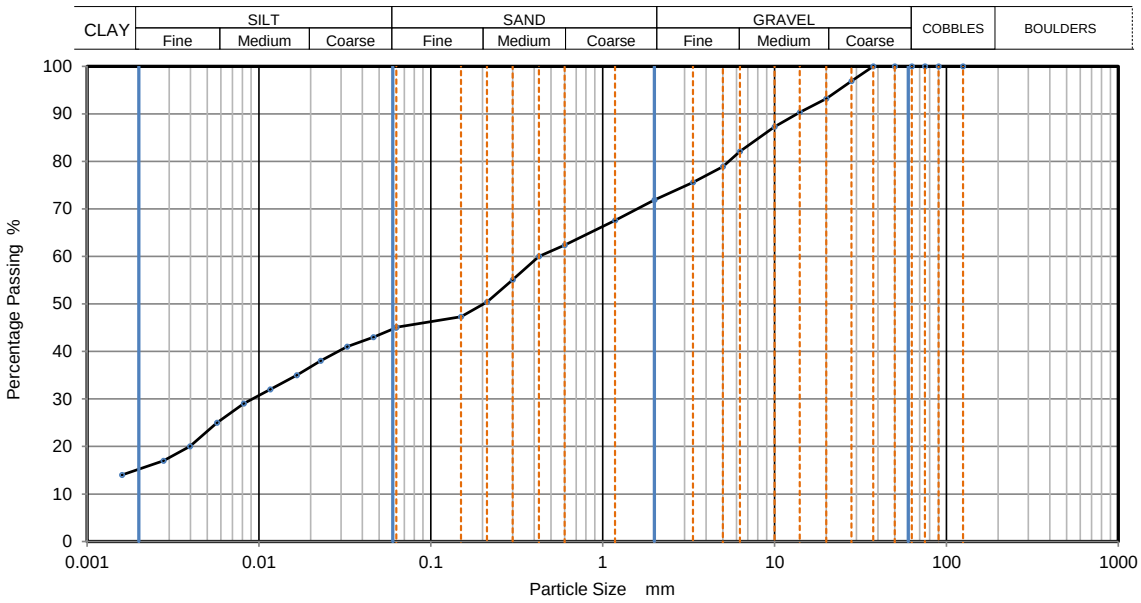
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95999
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greenish grey and brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0627	45
90	100	0.0463	43
75	100	0.0326	41
63	100	0.0229	38
50	100	0.0166	35
37.5	100	0.0116	32
28	97	0.0081	29
20	93	0.0057	25
14	90	0.0040	20
10	87	0.0028	17
6.3	82	0.0016	14
5	79		
3.35	76		
2	72		
1.18	68		
0.6	62	Particle density (assumed)	
0.425	60	2.70	Mg/m3
0.3	55		
0.212	50		
0.15	47		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.1
Sand	26.8
Silt	29.7
Clay	15.4

Grading Analysis		
D100	mm	
D60	mm	0.428
D30	mm	0.00921
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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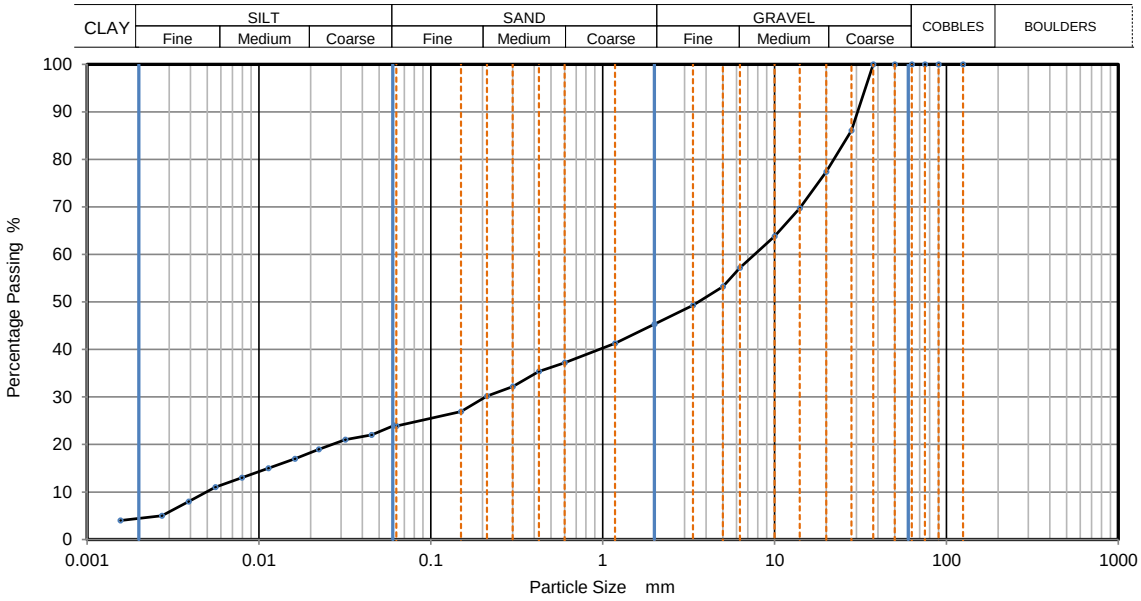
Date: 12/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-95999
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Light brown silty clayey very sandy GRAVEL (gravel is fmc and sub-angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	28/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0611	24
90	100	0.0452	22
75	100	0.0318	21
63	100	0.0223	19
50	100	0.0162	17
37.5	100	0.0113	15
28	86	0.0079	13
20	77	0.0056	11
14	70	0.0039	8
10	64	0.0027	5
6.3	57	0.0016	4
5	53		
3.35	49		
2	45		
1.18	41		
0.6	37	Particle density	(assumed)
0.425	35	2.70	Mg/m3
0.3	32		
0.212	30		
0.15	27		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	54.7
Sand	21.4
Silt	19.4
Clay	4.5

Grading Analysis		
D100	mm	
D60	mm	7.67
D30	mm	0.207
D10	mm	0.00511
Uniformity Coefficient		1500
Curvature Coefficient		1.1

Remarks

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Date: 12/10/2022

UKAS TESTING

2519

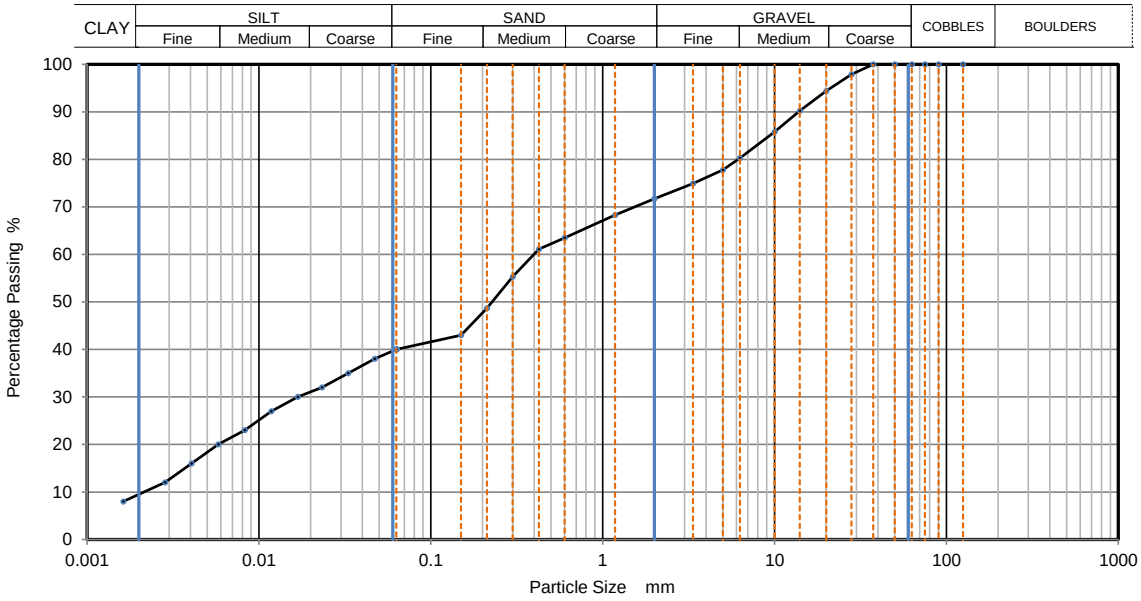
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-96105
Project No.	2021OY102	Client	Irish Drilling	Sample No.	3
				Depth Top	1.00 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.32 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	40
90	100	0.0471	38
75	100	0.0331	35
63	100	0.0232	32
50	100	0.0168	30
37.5	100	0.0118	27
28	98	0.0083	23
20	94	0.0058	20
14	90	0.0041	16
10	86	0.0028	12
6.3	80	0.0016	8
5	78		
3.35	75		
2	72		
1.18	68		
0.6	64	Particle density (assumed)	
0.425	61	2.70	Mg/m3
0.3	55		
0.212	49		
0.15	43		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.3
Sand	31.8
Silt	30.3
Clay	9.6

Grading Analysis		
D100	mm	
D60	mm	0.398
D30	mm	0.017
D10	mm	0.00212
Uniformity Coefficient		190
Curvature Coefficient		0.34

Remarks

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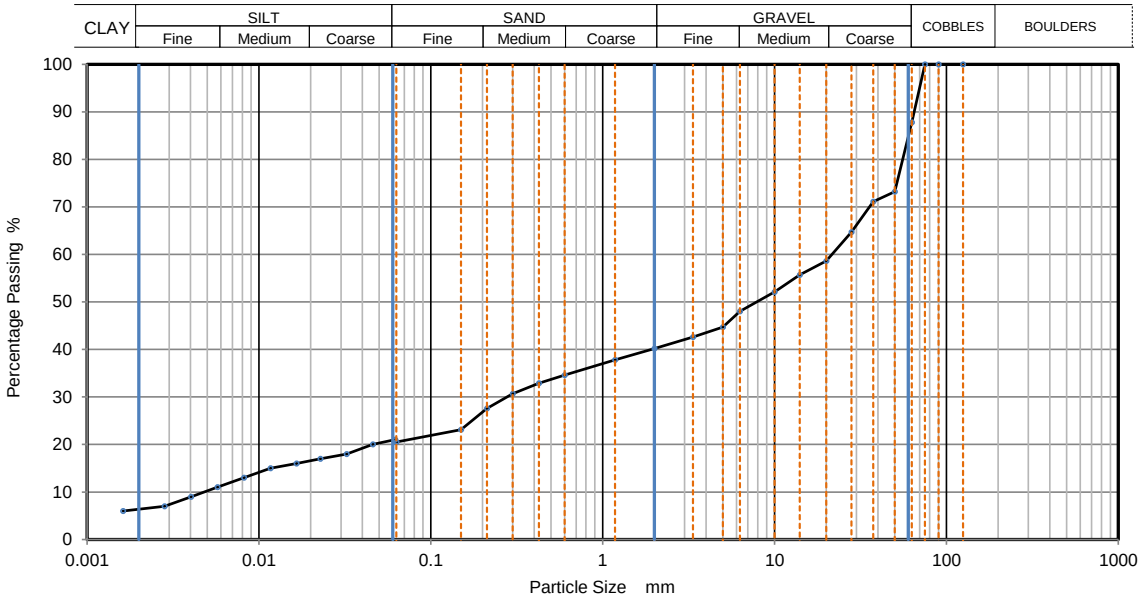
Date: 12/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96105
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown clayey silty very sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0620	21
90	100	0.0459	20
75	100	0.0323	18
63	88	0.0228	17
50	73	0.0166	16
37.5	71	0.0117	15
28	65	0.0082	13
20	59	0.0057	11
14	56	0.0040	9
10	52	0.0028	7
6.3	48	0.0016	6
5	45		
3.35	43		
2	40		
1.18	38		
0.6	35	Particle density (assumed)	
0.425	33	2.70	Mg/m3
0.3	31		
0.212	28		
0.15	23		
0.063	21		

Sample Proportions	% dry mass
Very coarse	12.2
Gravel	47.6
Sand	19.7
Silt	14.5
Clay	6.0

Grading Analysis		
D100	mm	
D60	mm	21.6
D30	mm	0.277
D10	mm	0.00495
Uniformity Coefficient		4400
Curvature Coefficient		0.72

Remarks

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Date: 12/10/2022

UKAS TESTING

2519

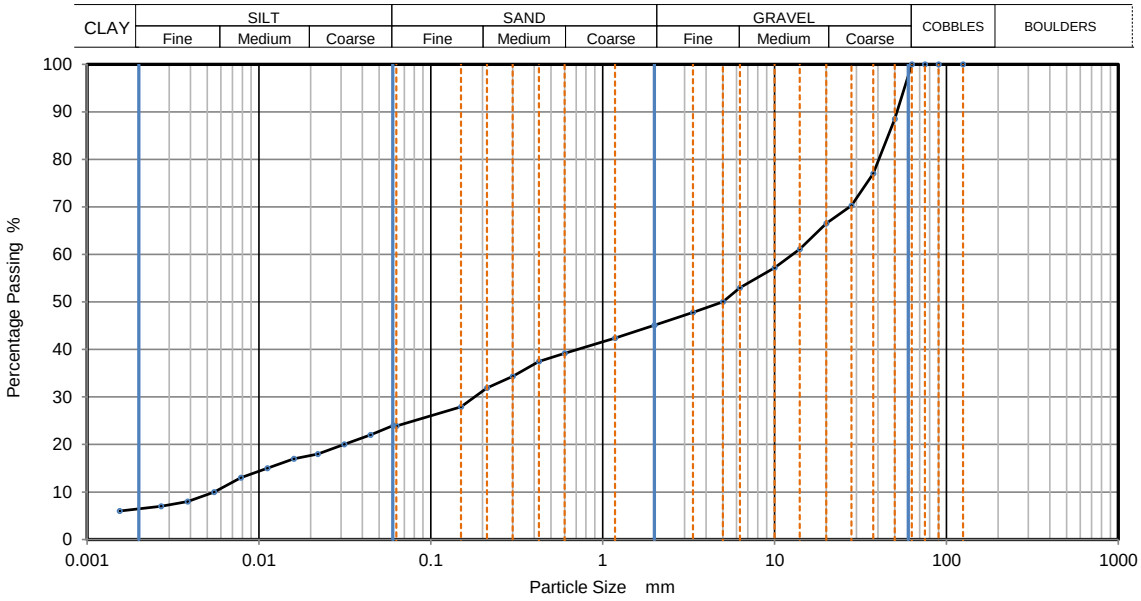
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-96204
Project No.	2021OY102	Client	Irish Drilling	Sample No.	3
				Depth Top	1.30 m
Soil Description	Brown clayey silty very sandy GRAVEL (gravel is fmc and sub-rounded to angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0605	24
90	100	0.0446	22
75	100	0.0313	20
63	100	0.0220	18
50	89	0.0160	17
37.5	77	0.0112	15
28	70	0.0078	13
20	67	0.0055	10
14	61	0.0038	8
10	57	0.0027	7
6.3	53	0.0015	6
5	50		
3.35	48		
2	45		
1.18	42		
0.6	39	Particle density (assumed)	
0.425	38	2.70	Mg/m3
0.3	34		
0.212	32		
0.15	28		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	54.9
Sand	21.3
Silt	17.4
Clay	6.4

Grading Analysis		
D100	mm	
D60	mm	12.8
D30	mm	0.18
D10	mm	0.00518
Uniformity Coefficient		2500
Curvature Coefficient		0.49

Remarks

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Tel: 01923 711288

Checked and Approved

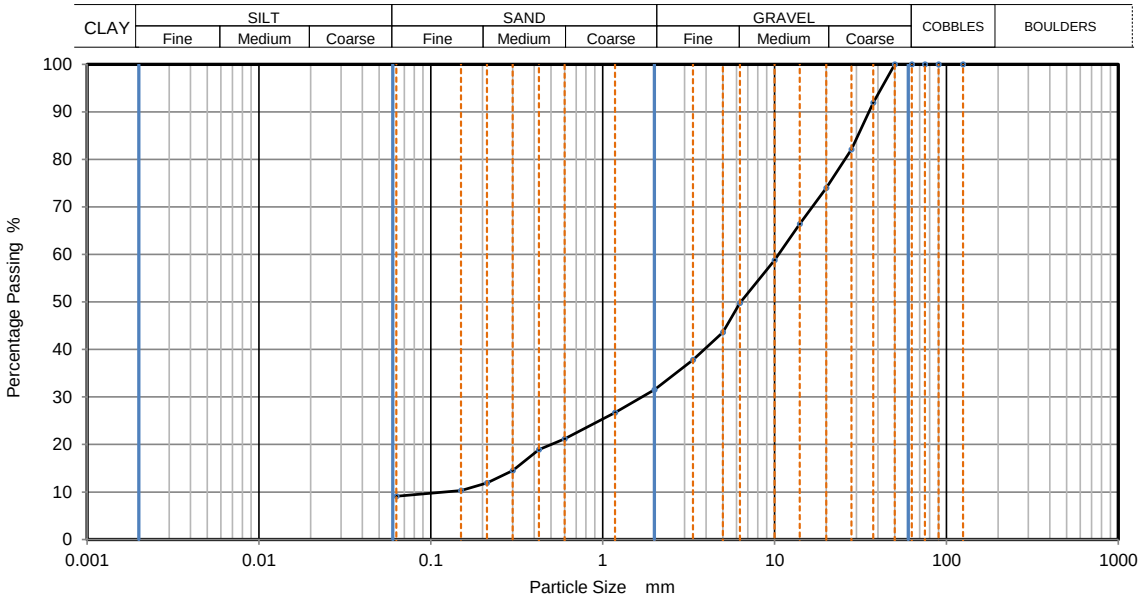
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-96304
Project No.	2021OY102	Client	Irish Drilling	Sample No.	1
				Depth Top	0.40 m
Soil Description	Grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	82		
20	74		
14	66		
10	59		
6.3	50		
5	44		
3.35	38		
2	32		
1.18	27		
0.6	21		
0.425	19		
0.3	15		
0.212	12		
0.15	10		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	68.5
Sand	22.5
Fines <0.063mm	9.1

Grading Analysis		
D100	mm	
D60	mm	10.5
D30	mm	1.69
D10	mm	0.118
Uniformity Coefficient		89
Curvature Coefficient		2.3

Remarks

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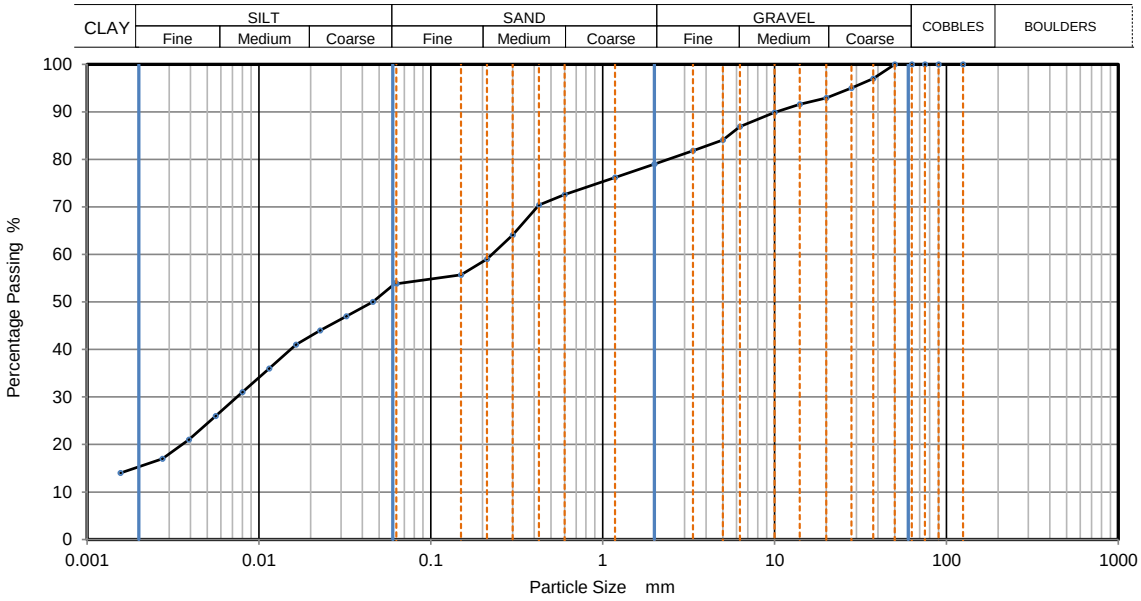
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96304
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0623	54
90	100	0.0460	50
75	100	0.0323	47
63	100	0.0227	44
50	100	0.0164	41
37.5	97	0.0115	36
28	95	0.0080	31
20	93	0.0056	26
14	92	0.0039	21
10	90	0.0027	17
6.3	87	0.0016	14
5	84		
3.35	82		
2	79		
1.18	76		
0.6	73	Particle density	(assumed)
0.425	70	2.70	Mg/m3
0.3	64		
0.212	59		
0.15	56		
0.063	54		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.0
Sand	25.2
Silt	38.3
Clay	15.5

Grading Analysis		
D100	mm	
D60	mm	0.226
D30	mm	0.00762
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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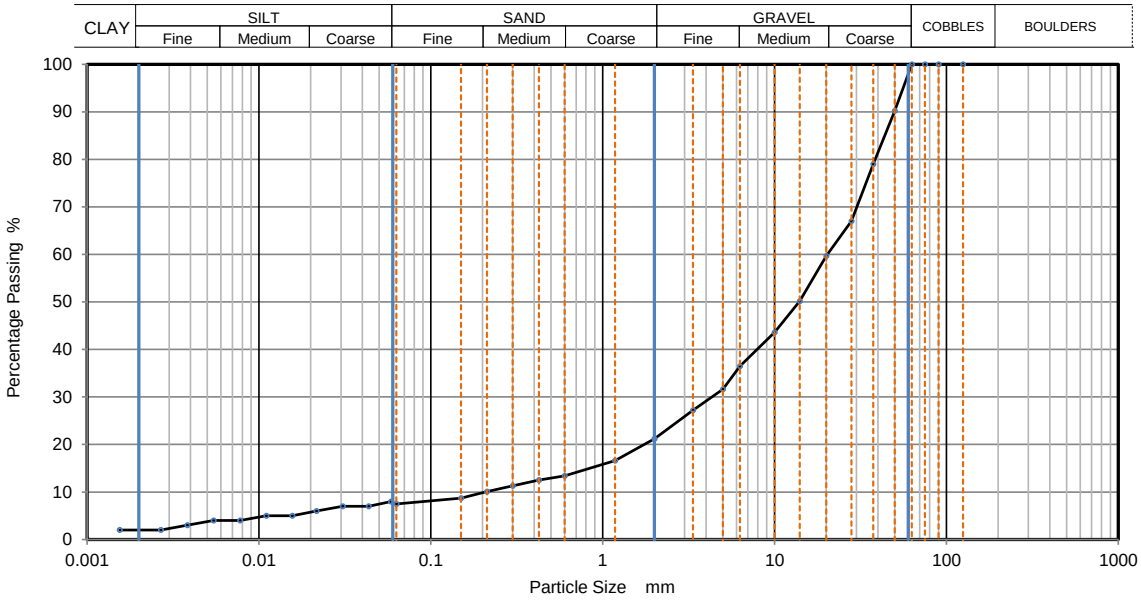
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96304
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly clayey silty sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0586	8
90	100	0.0435	7
75	100	0.0306	7
63	100	0.0216	6
50	90	0.0156	5
37.5	79	0.0110	5
28	67	0.0078	4
20	60	0.0054	4
14	50	0.0038	3
10	44	0.0027	2
6.3	37	0.0015	2
5	32		
3.35	27		
2	21		
1.18	17		
0.6	13	Particle density (assumed)	
0.425	13	2.70	Mg/m3
0.3	11		
0.212	10		
0.15	9		
0.063	8		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	78.8
Sand	13.8
Silt	5.5
Clay	1.9

Grading Analysis		
D100	mm	
D60	mm	20.3
D30	mm	4.32
D10	mm	0.206
Uniformity Coefficient		98
Curvature Coefficient		4.5

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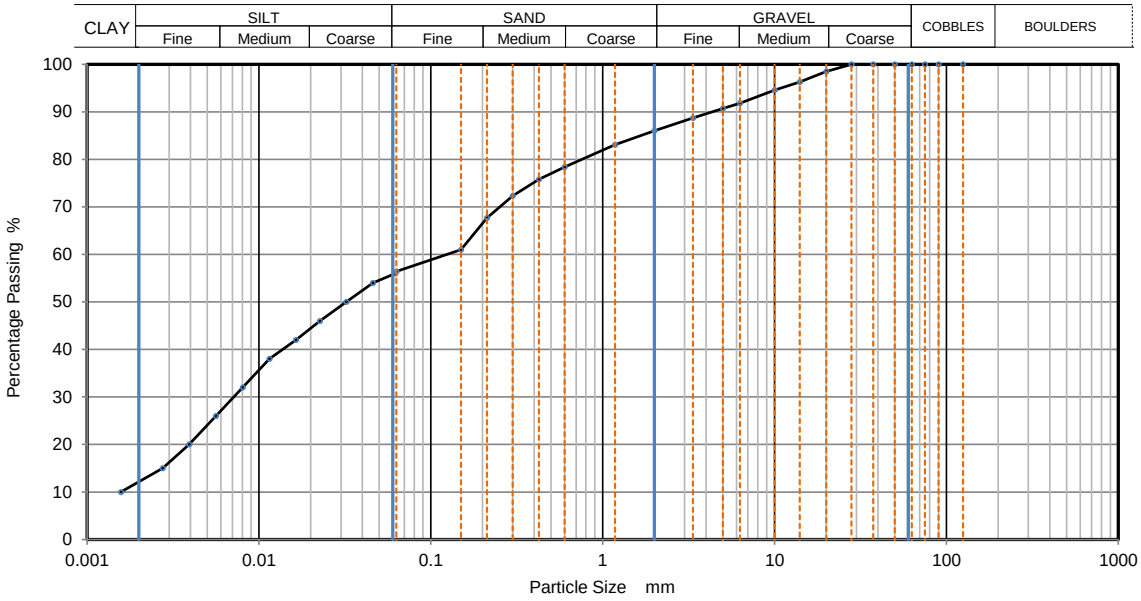
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96387
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0620	56
90	100	0.0459	54
75	100	0.0322	50
63	100	0.0226	46
50	100	0.0164	42
37.5	100	0.0115	38
28	100	0.0080	32
20	99	0.0056	26
14	96	0.0039	20
10	95	0.0028	15
6.3	92	0.0016	10
5	91		
3.35	89		
2	86		
1.18	83		
0.6	78	Particle density	(assumed)
0.425	76	2.70	Mg/m3
0.3	72		
0.212	68		
0.15	61		
0.063	56		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	14.0
Sand	29.6
Silt	44.1
Clay	12.3

Grading Analysis		
D100	mm	
D60	mm	0.124
D30	mm	0.00721
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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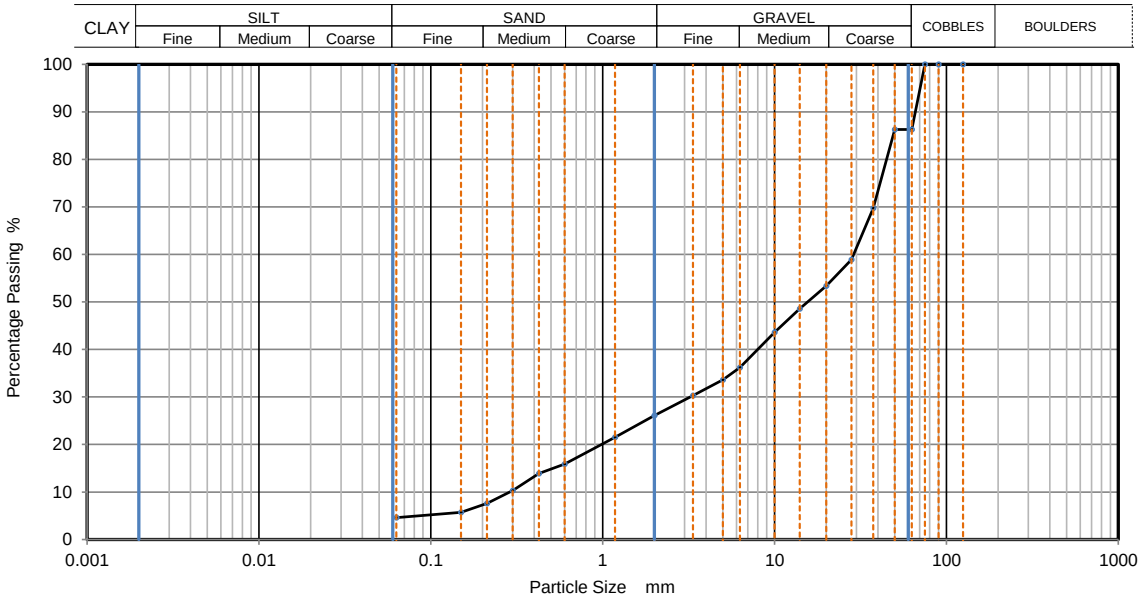
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96387
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey and light grey clayey very sandy GRAVEL with occasional cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	86		
50	86		
37.5	70		
28	59		
20	53		
14	49		
10	44		
6.3	36		
5	34		
3.35	30		
2	26		
1.18	22		
0.6	16		
0.425	14		
0.3	10		
0.212	8		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Very coarse	13.7
Gravel	60.2
Sand	21.6
Fines <0.063mm	4.6

Grading Analysis		
D100	mm	
D60	mm	28.8
D30	mm	3.22
D10	mm	0.289
Uniformity Coefficient		100
Curvature Coefficient		1.2

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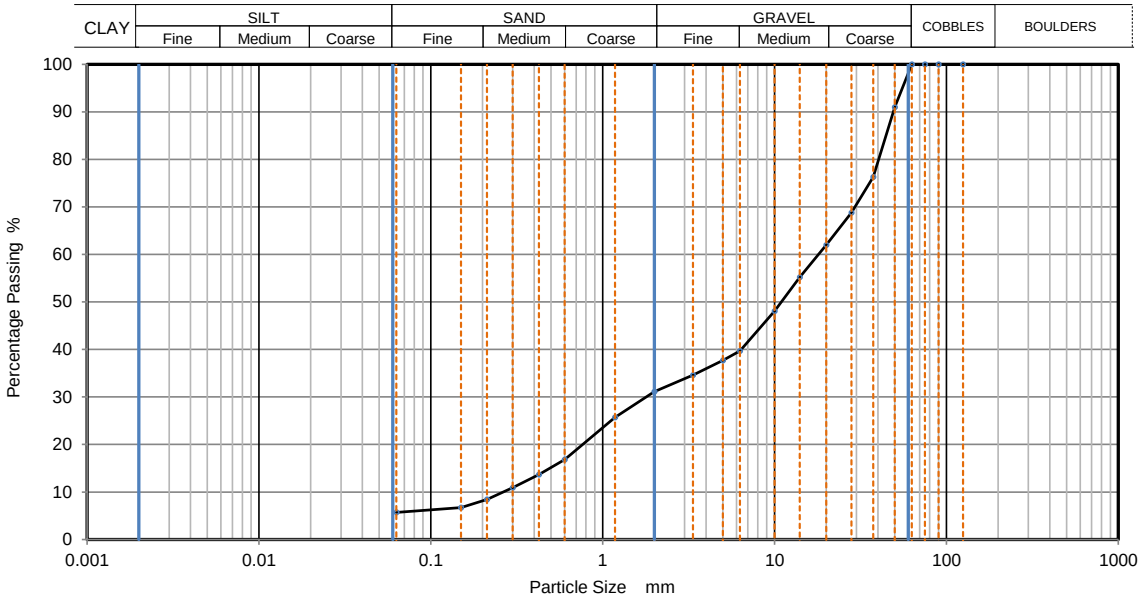
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-96505
Project No.	2021OY102	Client	Irish Drilling	Sample No.	4
				Depth Top	1.10 m
Soil Description	Greyish brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	76		
28	69		
20	62		
14	55		
10	48		
6.3	40		
5	38		
3.35	35		
2	31		
1.18	26		
0.6	17		
0.425	14		
0.3	11		
0.212	8		
0.15	7		
0.063	6		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	68.9
Sand	25.5
Fines <0.063mm	5.7

Grading Analysis		
D100	mm	
D60	mm	18
D30	mm	1.79
D10	mm	0.265
Uniformity Coefficient		68
Curvature Coefficient		0.67

Remarks

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Date: 28/10/2022

UKAS TESTING

2519

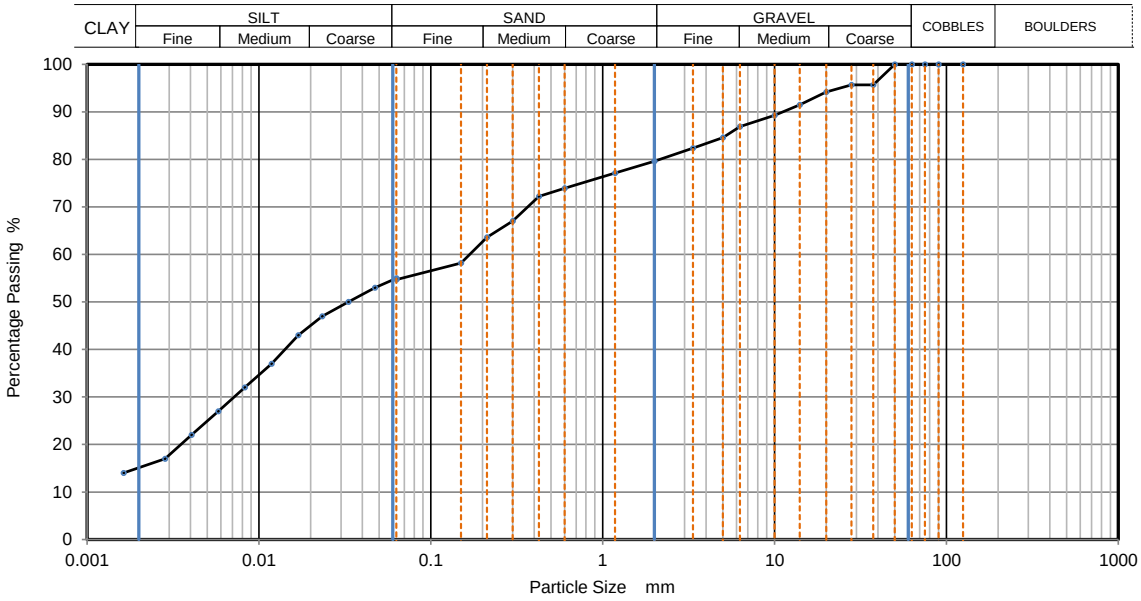
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96608
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	55
90	100	0.0472	53
75	100	0.0332	50
63	100	0.0233	47
50	100	0.0169	43
37.5	96	0.0118	37
28	96	0.0083	32
20	94	0.0058	27
14	92	0.0041	22
10	89	0.0028	17
6.3	87	0.0016	14
5	85		
3.35	82		
2	80		
1.18	77		
0.6	74	Particle density (assumed)	
0.425	72	2.70	Mg/m3
0.3	67		
0.212	64		
0.15	58		
0.063	55		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.4
Sand	24.9
Silt	39.7
Clay	15.0

Grading Analysis		
D100	mm	
D60	mm	0.169
D30	mm	0.00733
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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UKAS TESTING

2519

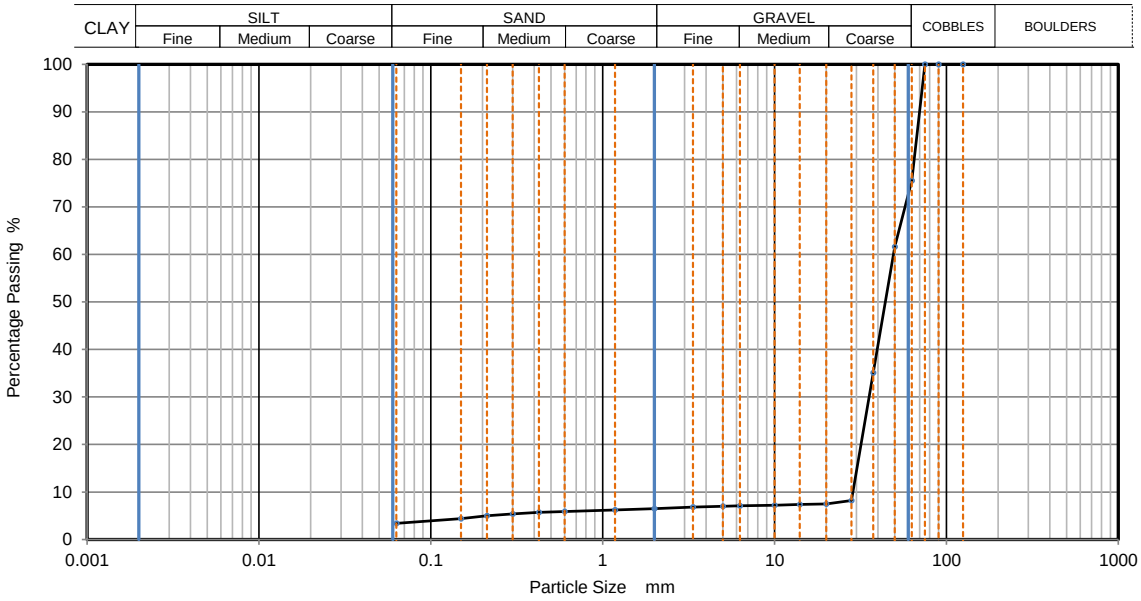
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96608
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Greyish brown slightly silty slightly clayey slightly sandy GRAVEL with numerous cobbles (gravel is fmc and sub-angular and elongated)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	76		
50	62		
37.5	35		
28	8		
20	8		
14	7		
10	7		
6.3	7		
5	7		
3.35	7		
2	7		
1.18	6		
0.6	6		
0.425	6		
0.3	5		
0.212	5		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	24.5
Gravel	69.0
Sand	3.1
Fines <0.063mm	3.5

Grading Analysis		
D100	mm	
D60	mm	49.1
D30	mm	35.5
D10	mm	28.6
Uniformity Coefficient		1.7
Curvature Coefficient		0.9

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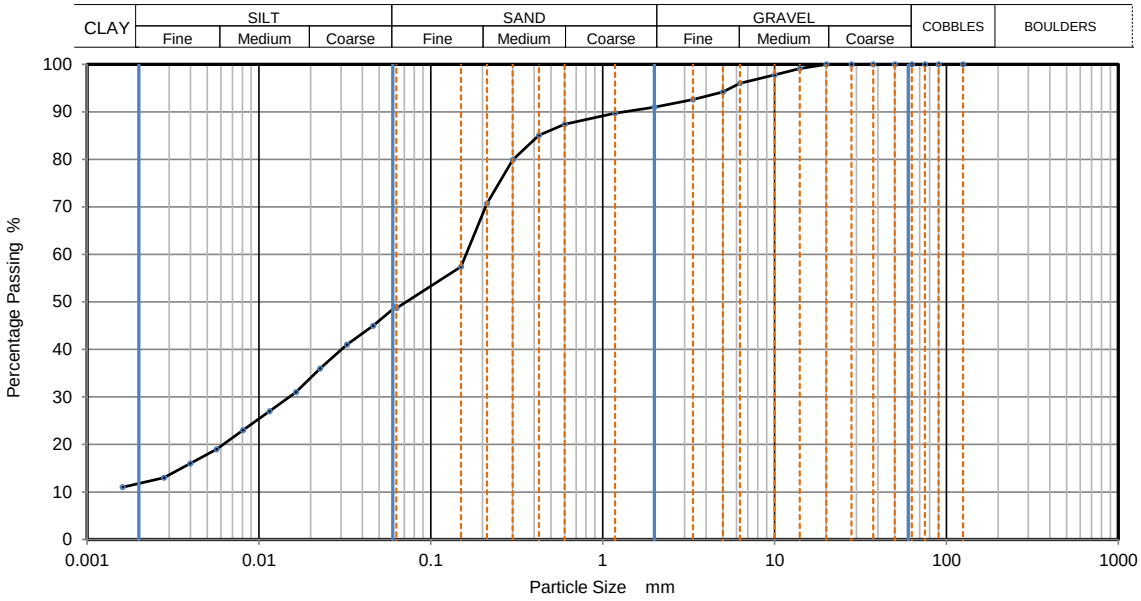
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96705
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greenish grey slightly gravelly sandy silty CLAY (gravel is fm and sub-angular)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0626	49
90	100	0.0462	45
75	100	0.0324	41
63	100	0.0227	36
50	100	0.0164	31
37.5	100	0.0115	27
28	100	0.0081	23
20	100	0.0057	19
14	99	0.0040	16
10	98	0.0028	13
6.3	96	0.0016	11
5	94		
3.35	93		
2	91		
1.18	90		
0.6	87	Particle density	(assumed)
0.425	85	2.70	Mg/m3
0.3	80		
0.212	71		
0.15	57		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	9.0
Sand	42.3
Silt	36.4
Clay	12.3

Grading Analysis		
D100	mm	
D60	mm	0.16
D30	mm	0.0148
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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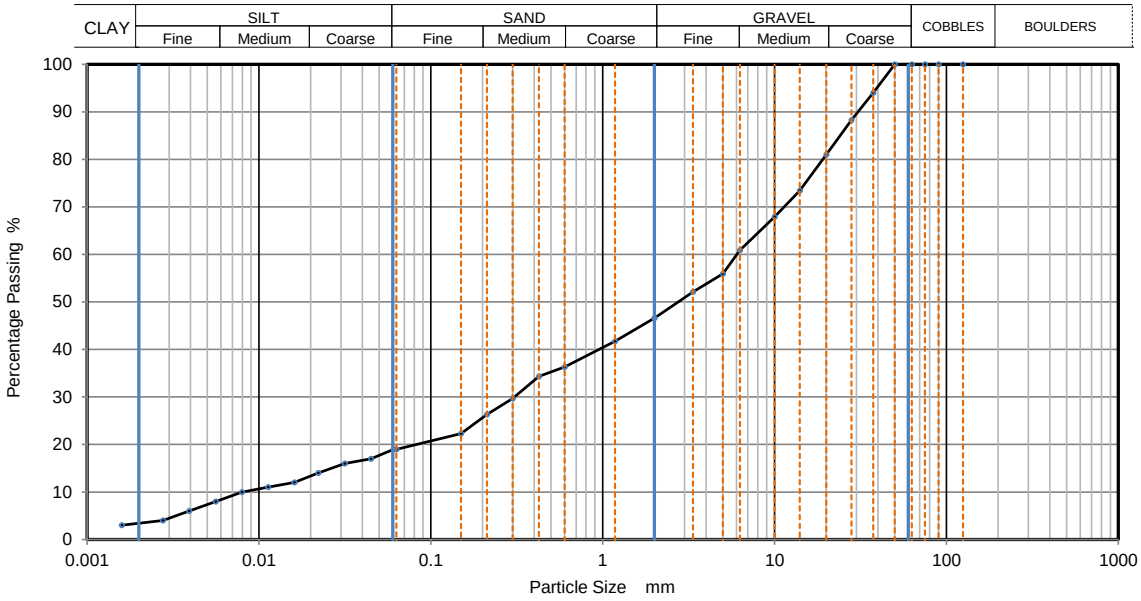
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-96705
Project No.	2021OY102	Client	Irish Drilling	Sample No.	3
				Depth Top	1.30 m
Soil Description	Greenish grey and brown slightly clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0607	19
90	100	0.0449	17
75	100	0.0315	16
63	100	0.0222	14
50	100	0.0161	12
37.5	94	0.0113	11
28	88	0.0080	10
20	81	0.0056	8
14	73	0.0039	6
10	68	0.0028	4
6.3	61	0.0016	3
5	56		
3.35	52		
2	47		
1.18	42		
0.6	36	Particle density (assumed)	
0.425	34	2.70	Mg/m3
0.3	30		
0.212	26		
0.15	22		
0.063	19		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	53.4
Sand	27.7
Silt	15.1
Clay	3.8

Grading Analysis		
D100	mm	
D60	mm	6.05
D30	mm	0.306
D10	mm	0.00903
Uniformity Coefficient		670
Curvature Coefficient		1.7

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Checked and Approved

Initials: **J.P**

Date: 28/10/2022

UKAS TESTING

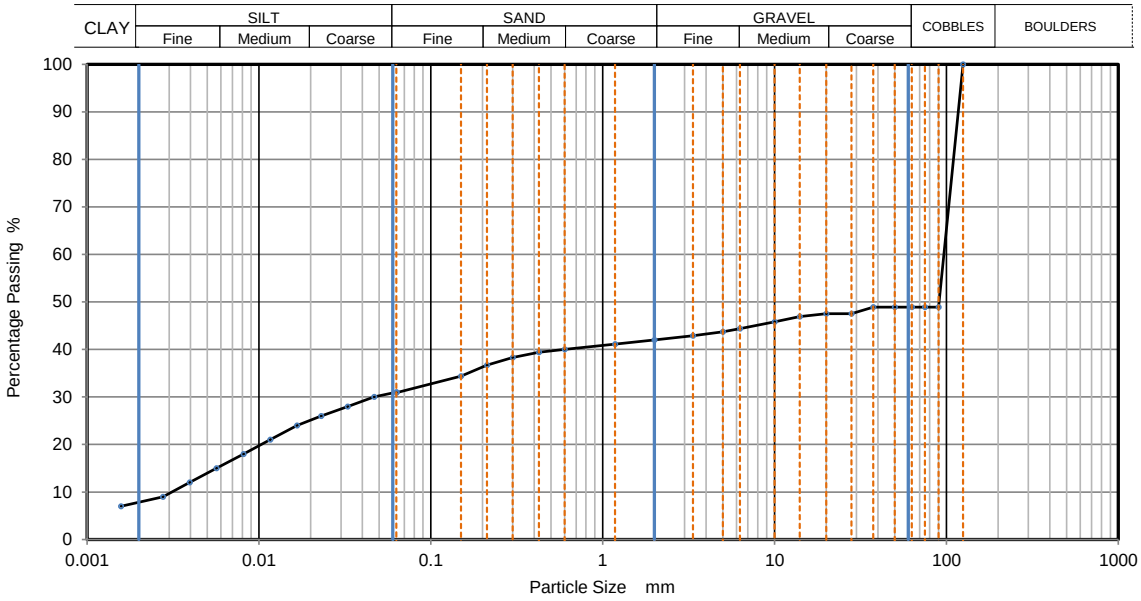
2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96831
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Orangish brown slightly gravelly slightly sandy clayey SILT with numerous cobbles (gravel is fmc and sub-rounded)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	23/09/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	31
90	49	0.0467	30
75	49	0.0328	28
63	49	0.0230	26
50	49	0.0166	24
37.5	49	0.0116	21
28	48	0.0081	18
20	48	0.0057	15
14	47	0.0040	12
10	46	0.0028	9
6.3	44	0.0016	7
5	44		
3.35	43		
2	42		
1.18	41		
0.6	40	Particle density (assumed)	
0.425	39	2.70	Mg/m3
0.3	38		
0.212	37		
0.15	34		
0.063	31		

Sample Proportions	% dry mass
Very coarse	51.1
Gravel	6.9
Sand	11.1
Silt	23.2
Clay	7.7

Grading Analysis		
D100	mm	125
D60	mm	96.7
D30	mm	0.0497
D10	mm	0.00309
Uniformity Coefficient		31000
Curvature Coefficient		0.0083

Remarks

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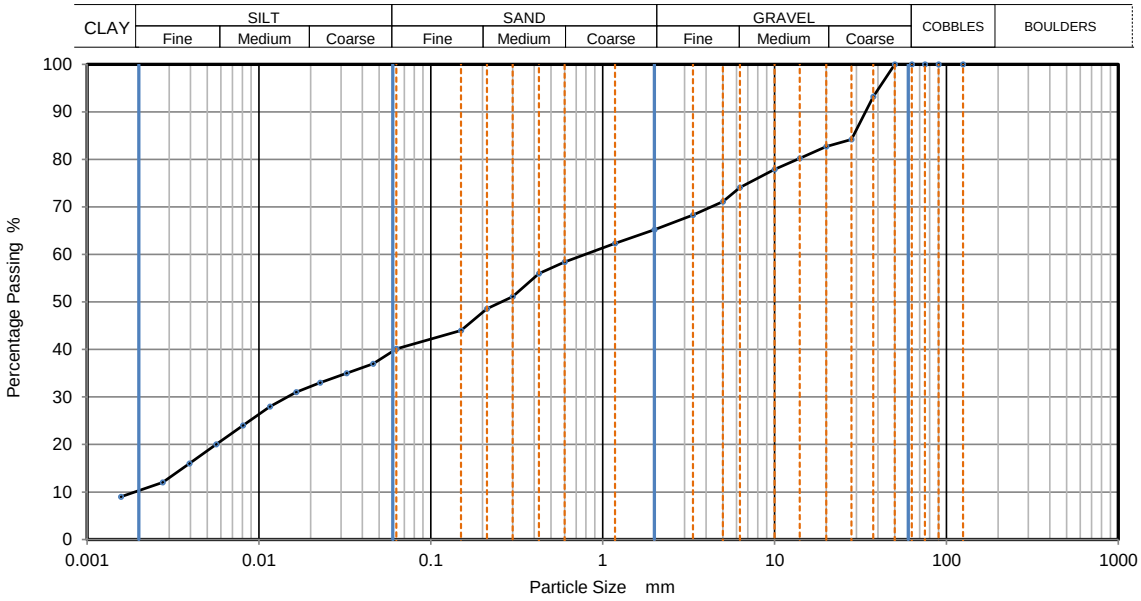
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96831
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0624	40
90	100	0.0461	37
75	100	0.0323	35
63	100	0.0227	33
50	100	0.0165	31
37.5	93	0.0116	28
28	84	0.0081	24
20	83	0.0056	20
14	80	0.0039	16
10	78	0.0028	12
6.3	74	0.0016	9
5	71		
3.35	68		
2	65		
1.18	62		
0.6	58	Particle density (assumed)	
0.425	56	2.70	Mg/m3
0.3	51		
0.212	49		
0.15	44		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.8
Sand	25.2
Silt	29.3
Clay	10.7

Grading Analysis		
D100	mm	
D60	mm	0.79
D30	mm	0.0151
D10	mm	0.00176
Uniformity Coefficient		450
Curvature Coefficient		0.16

Remarks

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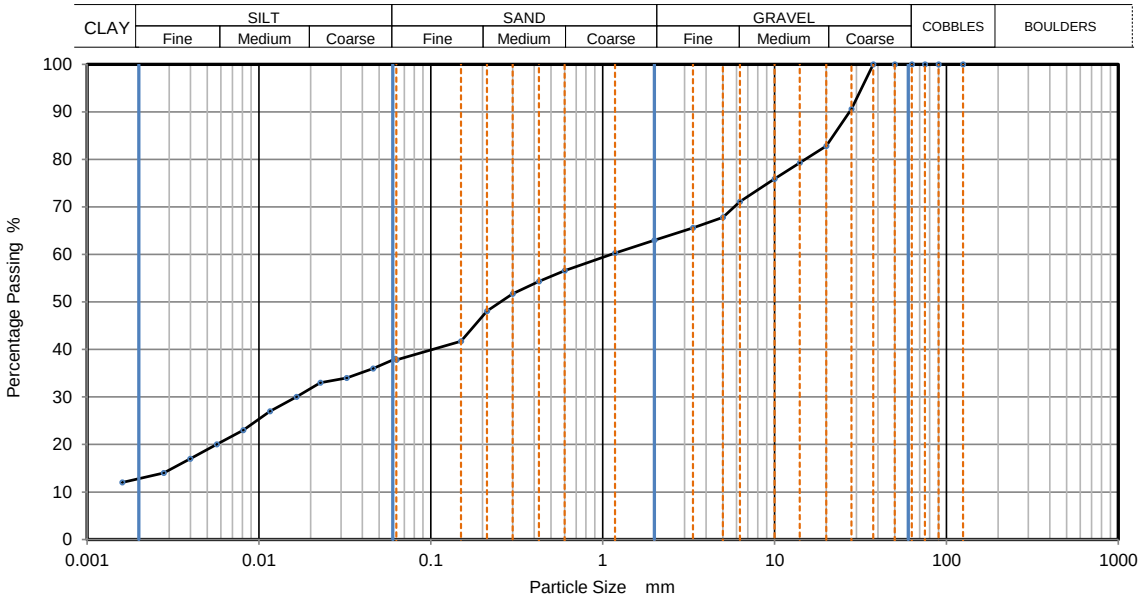
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-96905
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0622	38
90	100	0.0461	36
75	100	0.0324	34
63	100	0.0228	33
50	100	0.0165	30
37.5	100	0.0116	27
28	91	0.0081	23
20	83	0.0057	20
14	79	0.0040	17
10	76	0.0028	14
6.3	71	0.0016	12
5	68		
3.35	66		
2	63		
1.18	60		
0.6	57	Particle density (assumed)	
0.425	54	2.70	Mg/m3
0.3	52		
0.212	48		
0.15	42		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	37.0
Sand	25.3
Silt	25.0
Clay	12.7

Grading Analysis		
D100	mm	
D60	mm	1.11
D30	mm	0.0168
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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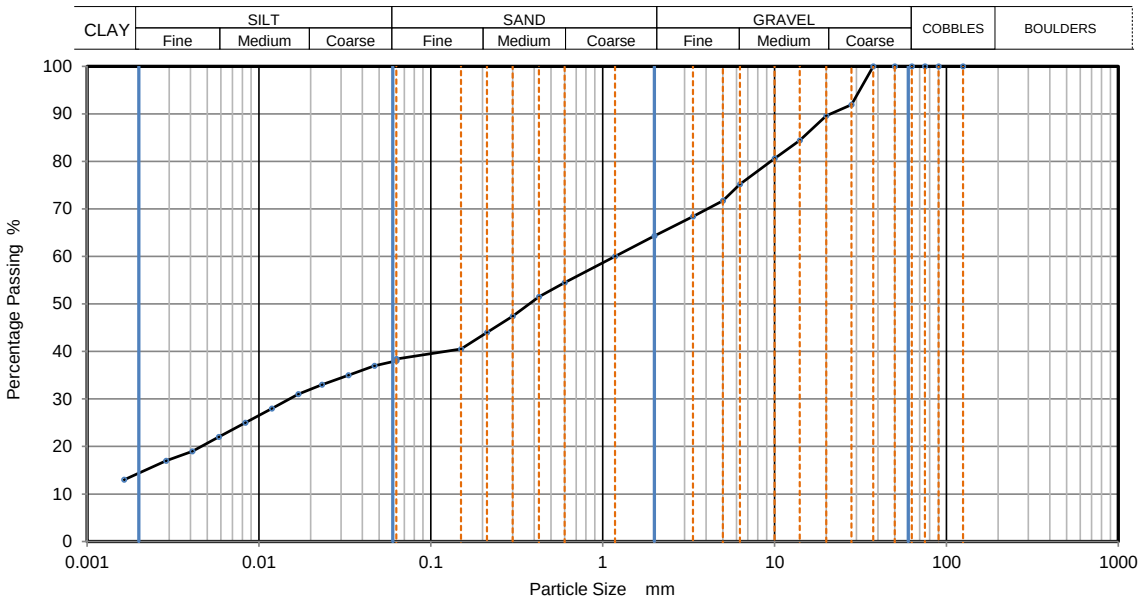
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97009
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greenish grey and brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	38
90	100	0.0470	37
75	100	0.0331	35
63	100	0.0233	33
50	100	0.0169	31
37.5	100	0.0119	28
28	92	0.0083	25
20	90	0.0058	22
14	84	0.0041	19
10	81	0.0029	17
6.3	75	0.0016	13
5	72		
3.35	68		
2	64		
1.18	60		
0.6	55	Particle density (assumed)	
0.425	52	2.70	Mg/m3
0.3	47		
0.212	44		
0.15	41		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.7
Sand	25.9
Silt	23.7
Clay	14.7

Grading Analysis		
D100	mm	
D60	mm	1.19
D30	mm	0.0149
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

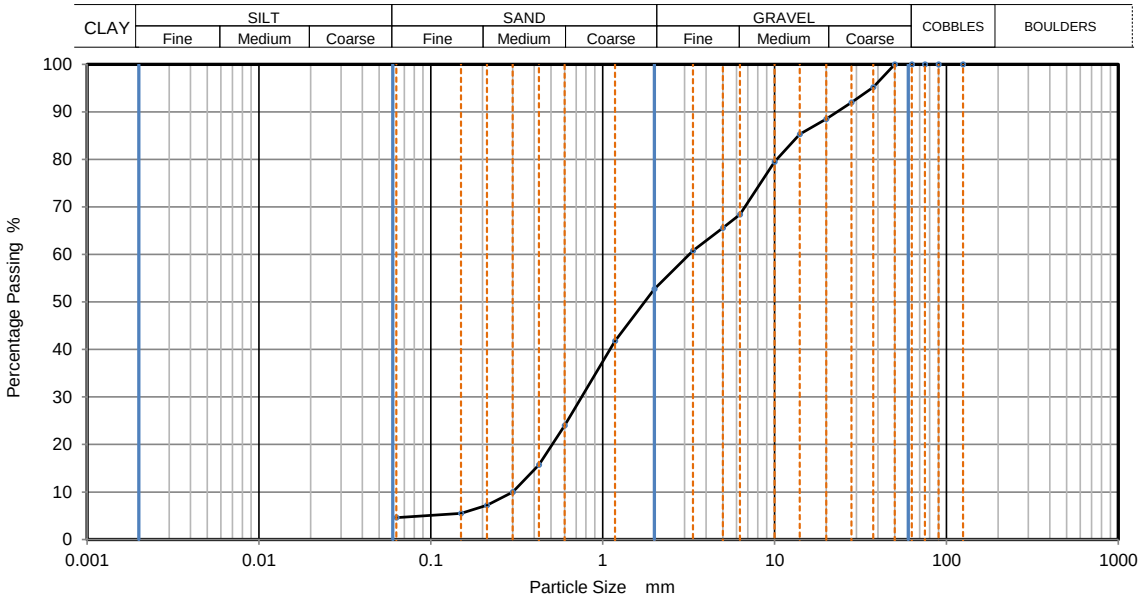
Date: 14/12/2022

2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97009
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly clayey slightly silty very gravelly SAND (gravel is fmc and sub-angular)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	92		
20	89		
14	85		
10	80		
6.3	68		
5	66		
3.35	61		
2	53		
1.18	42		
0.6	24		
0.425	16		
0.3	10		
0.212	7		
0.15	6		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	47.3
Sand	48.1
Fines <0.063mm	4.6

Grading Analysis		
D100	mm	
D60	mm	3.18
D30	mm	0.753
D10	mm	0.301
Uniformity Coefficient		11
Curvature Coefficient		0.59

Remarks

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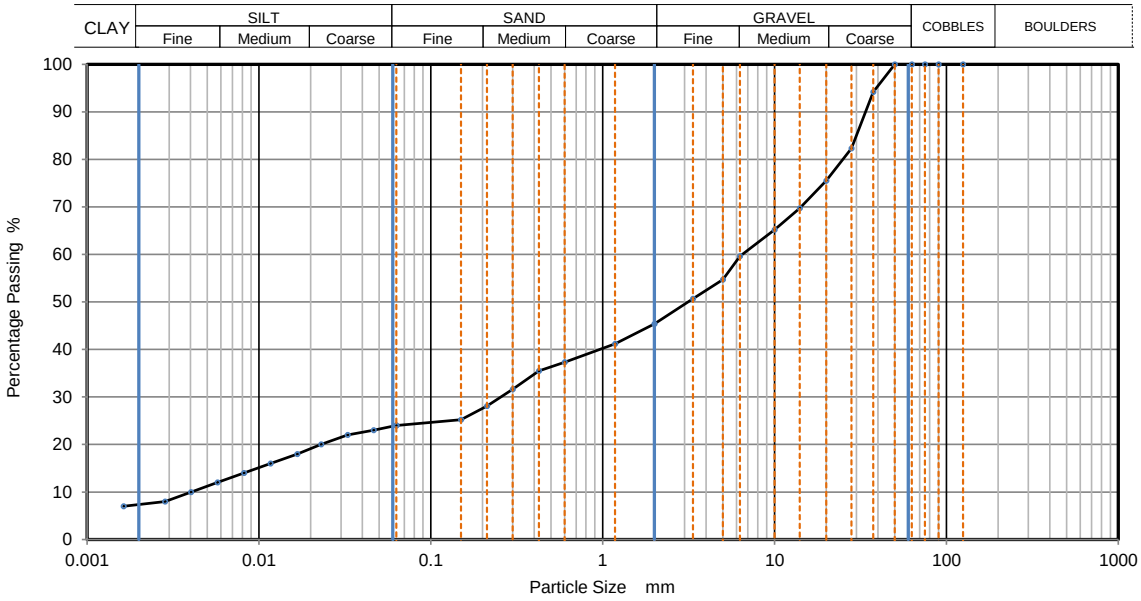
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97108
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Orangish brown clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0628	24
90	100	0.0465	23
75	100	0.0328	22
63	100	0.0230	20
50	100	0.0167	18
37.5	94	0.0117	16
28	82	0.0082	14
20	76	0.0057	12
14	70	0.0040	10
10	65	0.0028	8
6.3	60	0.0016	7
5	55		
3.35	51		
2	45		
1.18	41		
0.6	37	Particle density (assumed)	
0.425	36	2.70	Mg/m3
0.3	32		
0.212	28		
0.15	25		
0.063	24		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	54.6
Sand	21.4
Silt	16.2
Clay	7.8

Grading Analysis		
D100	mm	
D60	mm	6.53
D30	mm	0.256
D10	mm	0.00437
Uniformity Coefficient		1500
Curvature Coefficient		2.3

Remarks

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Date: 14/12/2022

UKAS TESTING

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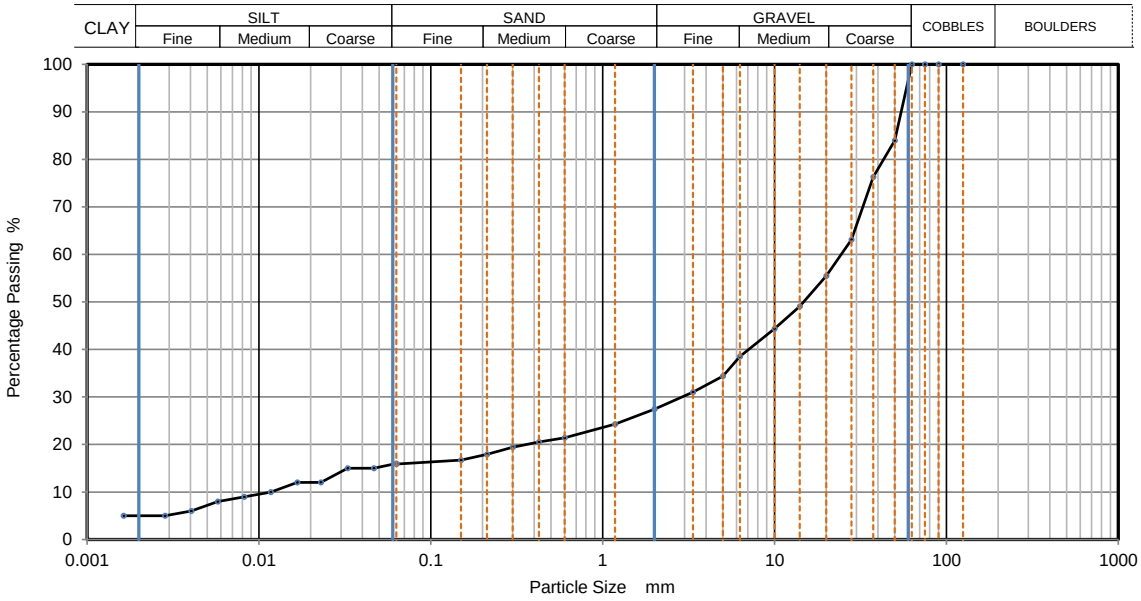
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97108
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown clayey silty sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0629	16
90	100	0.0467	15
75	100	0.0328	15
63	100	0.0229	12
50	84	0.0167	12
37.5	76	0.0117	10
28	63	0.0082	9
20	56	0.0058	8
14	49	0.0040	6
10	44	0.0028	5
6.3	39	0.0016	5
5	34		
3.35	31		
2	27		
1.18	24		
0.6	21	Particle density (assumed)	
0.425	21	2.70	Mg/m3
0.3	19		
0.212	18		
0.15	17		
0.063	16		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	72.6
Sand	11.5
Silt	11.1
Clay	4.8

Grading Analysis		
D100	mm	
D60	mm	24.4
D30	mm	2.91
D10	mm	0.0105
Uniformity Coefficient		2300
Curvature Coefficient		33

Remarks

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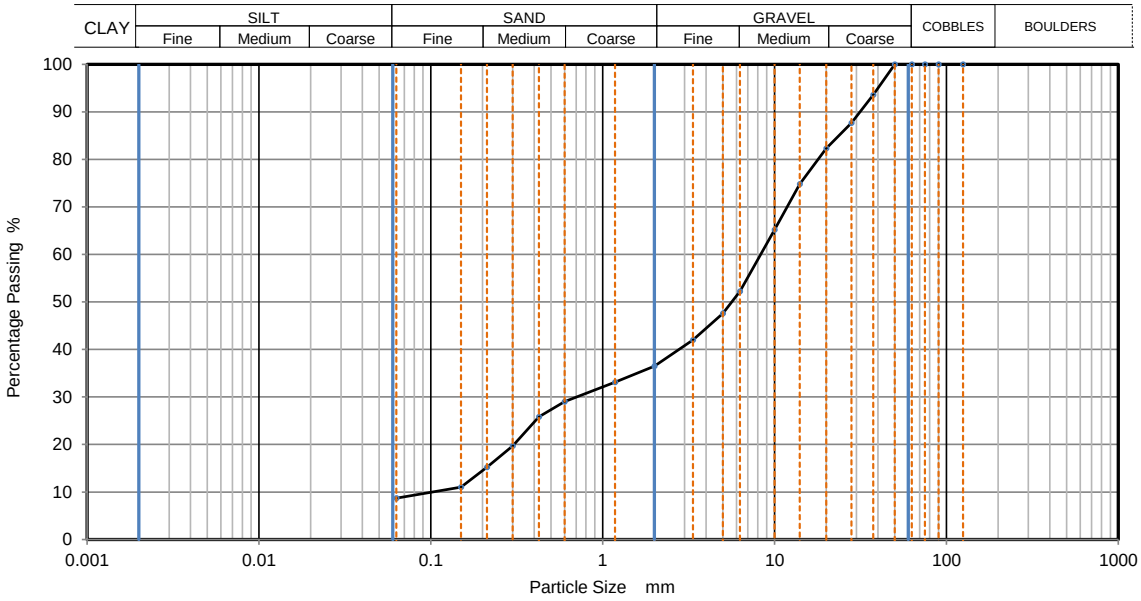
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97206
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Grey slightly clayey slightly silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	88		
20	82		
14	75		
10	65		
6.3	52		
5	48		
3.35	42		
2	37		
1.18	33		
0.6	29		
0.425	26		
0.3	20		
0.212	15		
0.15	11		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	63.5
Sand	27.8
Fines <0.063mm	8.7

Grading Analysis		
D100	mm	
D60	mm	8.3
D30	mm	0.707
D10	mm	0.103
Uniformity Coefficient		81
Curvature Coefficient		0.59

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

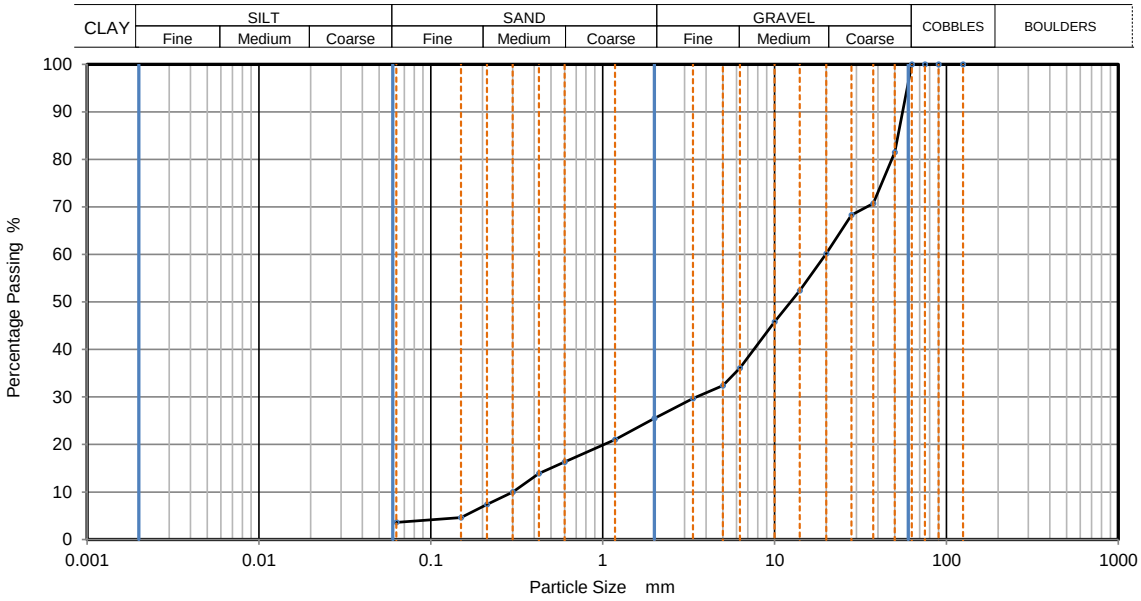
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97206
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly clayey slightly silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	28/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	82		
37.5	71		
28	68		
20	60		
14	52		
10	46		
6.3	36		
5	32		
3.35	30		
2	26		
1.18	21		
0.6	16		
0.425	14		
0.3	10		
0.212	7		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	74.5
Sand	21.9
Fines <0.063mm	3.6

Grading Analysis		
D100	mm	
D60	mm	19.9
D30	mm	3.51
D10	mm	0.299
Uniformity Coefficient		66
Curvature Coefficient		2.1

Remarks

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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

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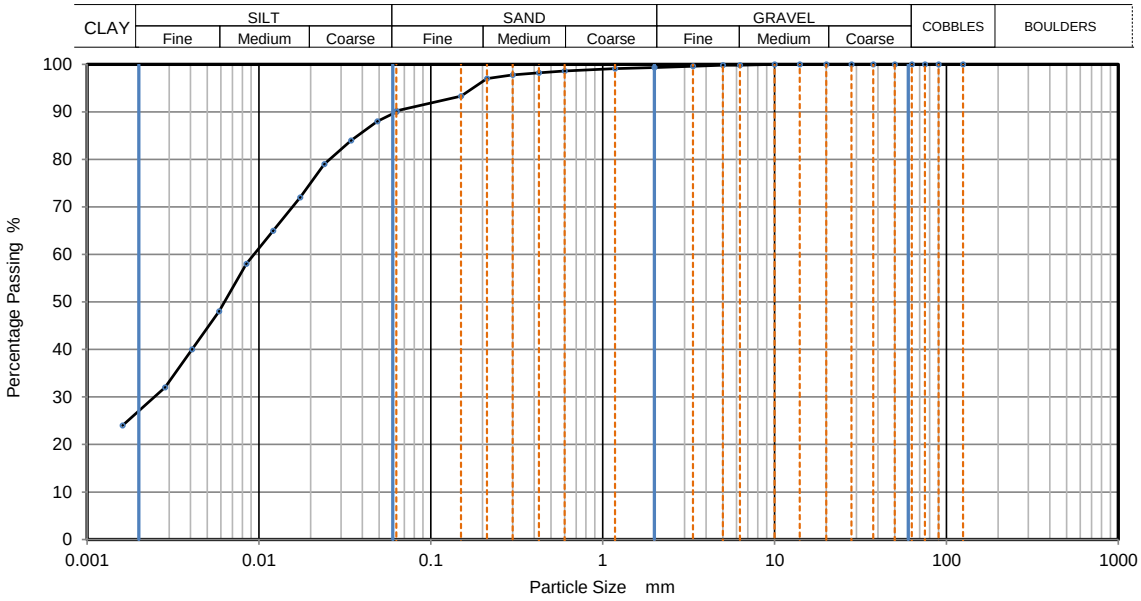
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brown slightly sandy silty CLAY with rare fine angular gravel			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	90
90	100	0.0488	88
75	100	0.0343	84
63	100	0.0240	79
50	100	0.0173	72
37.5	100	0.0121	65
28	100	0.0084	58
20	100	0.0059	48
14	100	0.0041	40
10	100	0.0028	32
6.3	100	0.0016	24
5	100		
3.35	100		
2	99		
1.18	99		
0.6	99	Particle density	(assumed)
0.425	98	2.70	Mg/m3
0.3	98		
0.212	97		
0.15	93		
0.063	90		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.7
Sand	9.1
Silt	63.2
Clay	27.0

Grading Analysis		
D100	mm	
D60	mm	0.00933
D30	mm	0.00244
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Tel: 01923 711288

Checked and Approved

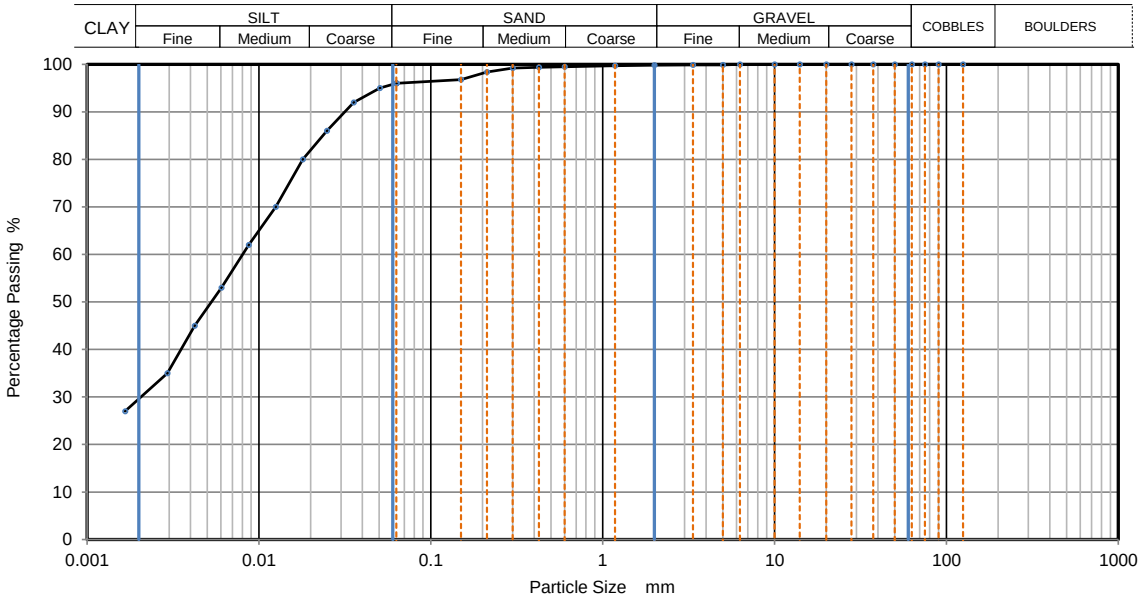
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97309
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Dark greenish grey slightly sandy silty CLAY			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	96
90	100	0.0505	95
75	100	0.0355	92
63	100	0.0249	86
50	100	0.0180	80
37.5	100	0.0125	70
28	100	0.0087	62
20	100	0.0061	53
14	100	0.0042	45
10	100	0.0029	35
6.3	100	0.0017	27
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density	(assumed)
0.425	99	2.70	Mg/m3
0.3	99		
0.212	98		
0.15	97		
0.063	96		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.2
Sand	3.8
Silt	66.4
Clay	29.6

Grading Analysis		
D100	mm	
D60	mm	0.00798
D30	mm	0.00206
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

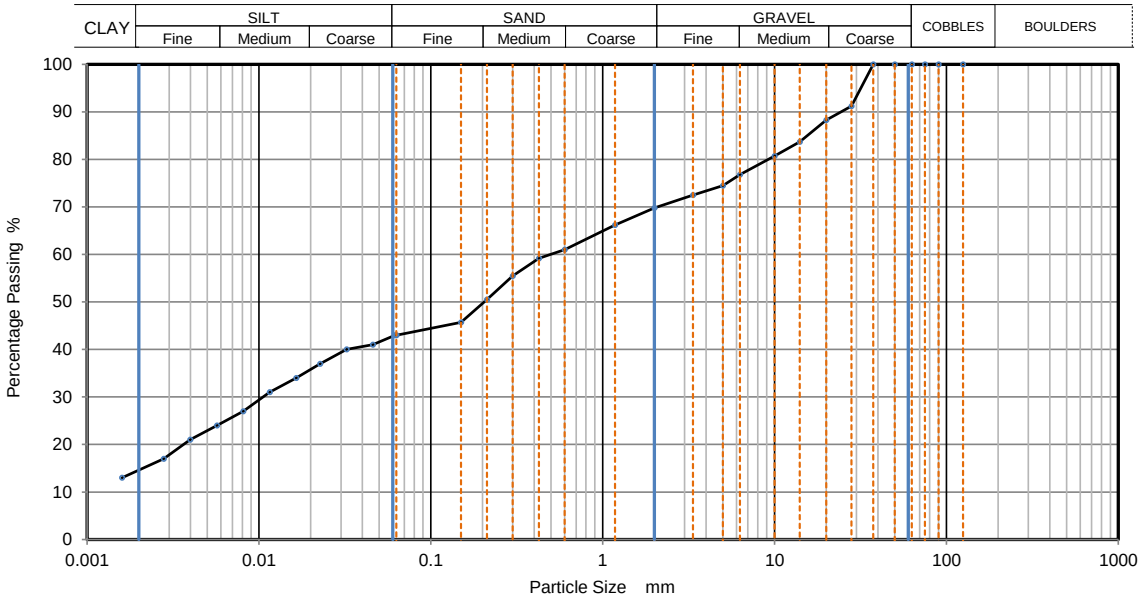
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0620	43
90	100	0.0459	41
75	100	0.0324	40
63	100	0.0227	37
50	100	0.0165	34
37.5	100	0.0116	31
28	91	0.0081	27
20	88	0.0057	24
14	84	0.0040	21
10	81	0.0028	17
6.3	77	0.0016	13
5	75		
3.35	73		
2	70		
1.18	66		
0.6	61	Particle density	(assumed)
0.425	59	2.70	Mg/m3
0.3	56		
0.212	51		
0.15	46		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.2
Sand	26.7
Silt	28.3
Clay	14.8

Grading Analysis		
D100	mm	
D60	mm	0.494
D30	mm	0.0109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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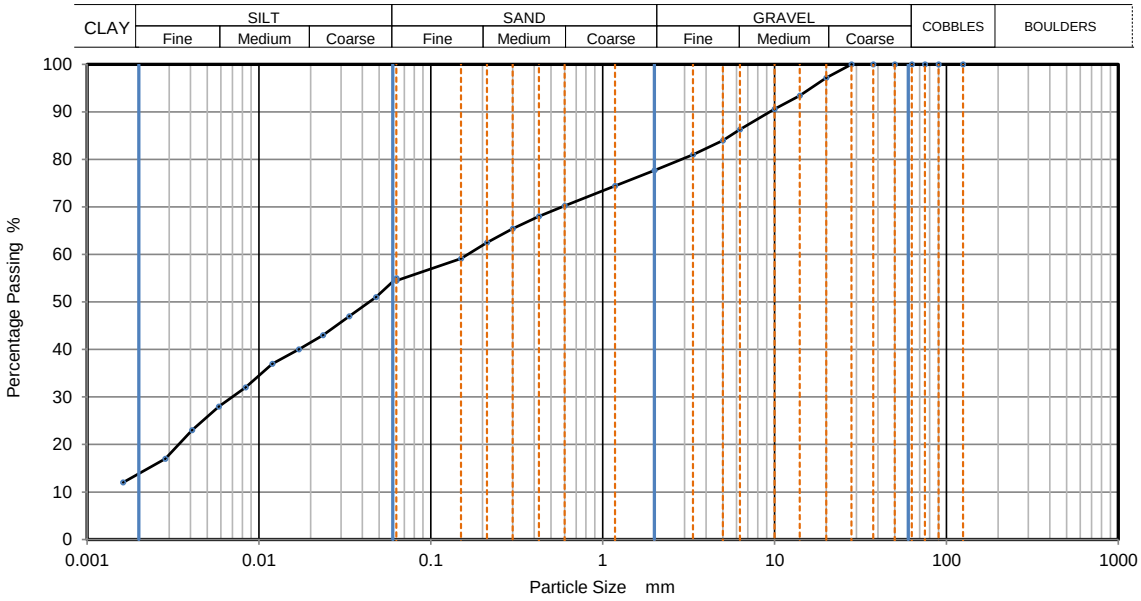
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97383
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy clayey SILT (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	55
90	100	0.0479	51
75	100	0.0335	47
63	100	0.0235	43
50	100	0.0171	40
37.5	100	0.0120	37
28	100	0.0084	32
20	97	0.0058	28
14	93	0.0041	23
10	91	0.0028	17
6.3	86	0.0016	12
5	84		
3.35	81		
2	78		
1.18	74		
0.6	70	Particle density (assumed)	
0.425	68	2.70	Mg/m3
0.3	65		
0.212	63		
0.15	59		
0.063	55		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.3
Sand	23.3
Silt	40.7
Clay	13.7

Grading Analysis		
D100	mm	
D60	mm	0.164
D30	mm	0.00703
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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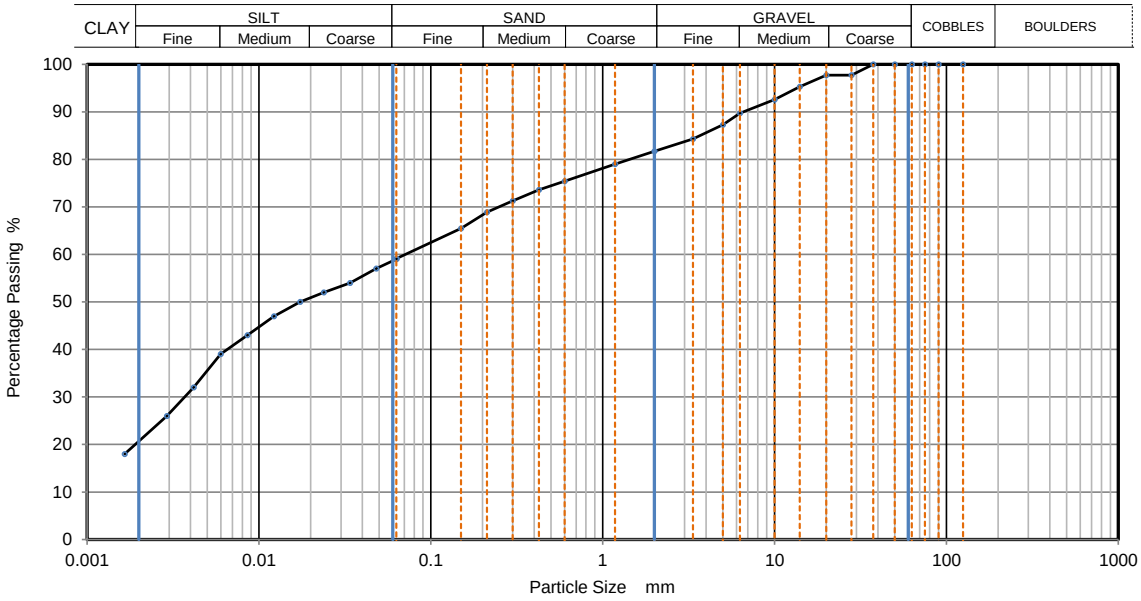
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97505
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	59
90	100	0.0481	57
75	100	0.0339	54
63	100	0.0238	52
50	100	0.0173	50
37.5	100	0.0122	47
28	98	0.0086	43
20	98	0.0060	39
14	95	0.0042	32
10	93	0.0029	26
6.3	90	0.0017	18
5	87		
3.35	84		
2	82		
1.18	79		
0.6	75	Particle density (assumed)	
0.425	74	2.70	Mg/m3
0.3	71		
0.212	69		
0.15	66		
0.063	59		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	18.3
Sand	22.6
Silt	38.3
Clay	20.8

Grading Analysis		
D100	mm	
D60	mm	0.0712
D30	mm	0.00379
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

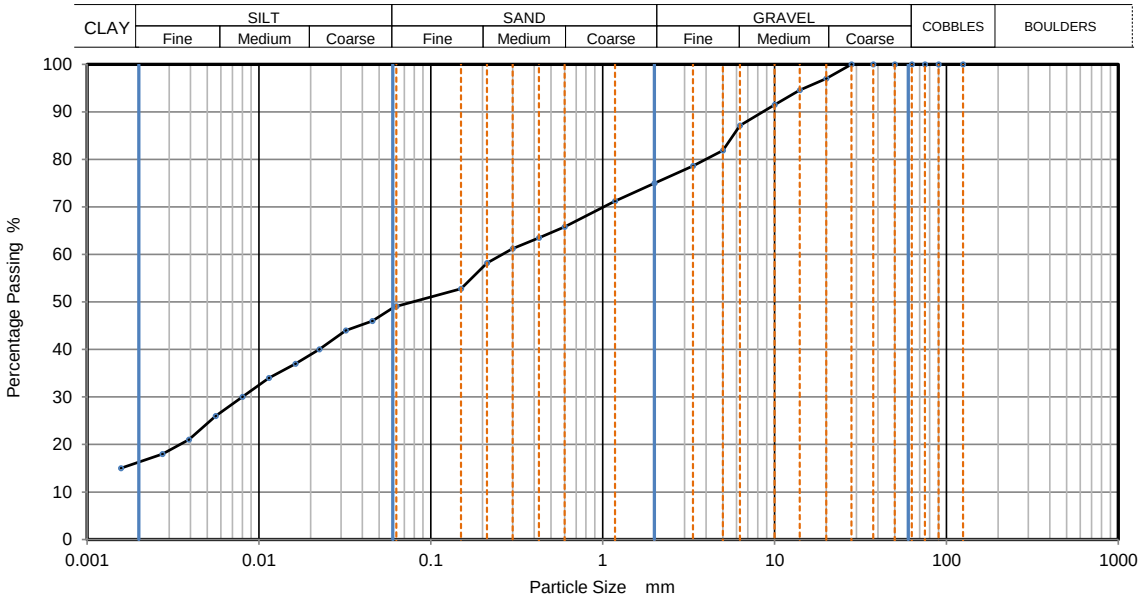
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	27/09/2022

Job Ref: 32282

Borehole/Pit No.: TP-97505

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0617	49
90	100	0.0456	46
75	100	0.0320	44
63	100	0.0225	40
50	100	0.0163	37
37.5	100	0.0114	34
28	100	0.0080	30
20	97	0.0056	26
14	95	0.0039	21
10	92	0.0027	18
6.3	87	0.0016	15
5	82		
3.35	79		
2	75		
1.18	71		
0.6	66	Particle density (assumed)	
0.425	64	2.70	Mg/m3
0.3	61		
0.212	58		
0.15	53		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.0
Sand	25.9
Silt	32.9
Clay	16.2

Grading Analysis		
D100	mm	
D60	mm	0.262
D30	mm	0.00815
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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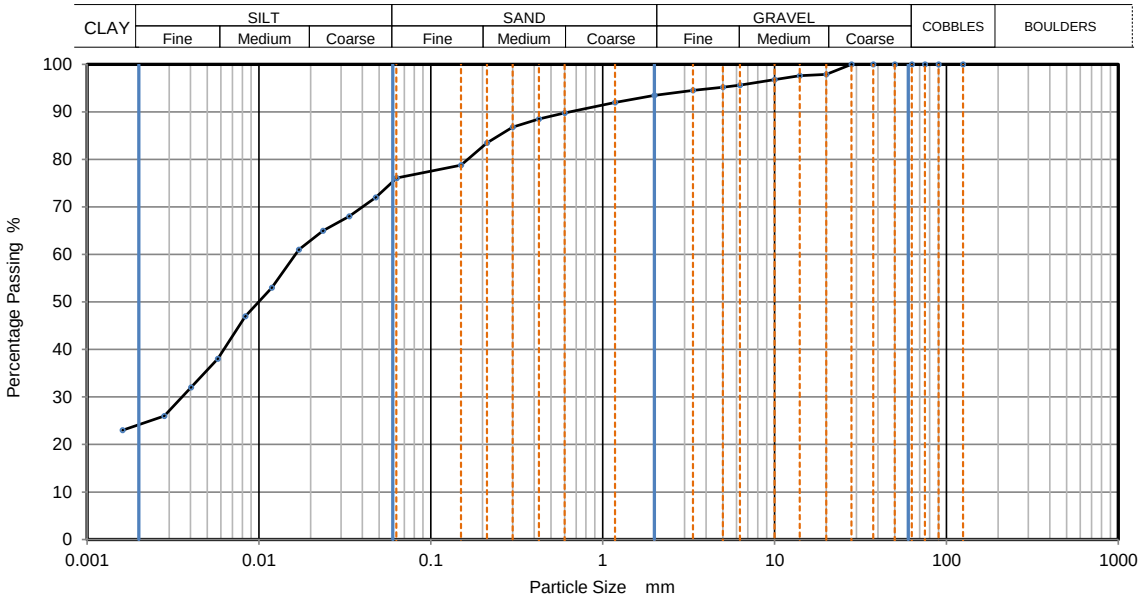
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97602
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greenish grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-rounded)			Depth Base	1.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	76
90	100	0.0478	72
75	100	0.0336	68
63	100	0.0236	65
50	100	0.0171	61
37.5	100	0.0119	53
28	100	0.0083	47
20	98	0.0058	38
14	98	0.0040	32
10	97	0.0028	26
6.3	96	0.0016	23
5	95		
3.35	95		
2	94		
1.18	92		
0.6	90	Particle density (assumed)	
0.425	89	2.70	Mg/m3
0.3	87		
0.212	84		
0.15	79		
0.063	76		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	6.5
Sand	17.4
Silt	52.0
Clay	24.1

Grading Analysis		
D100	mm	
D60	mm	0.0164
D30	mm	0.00352
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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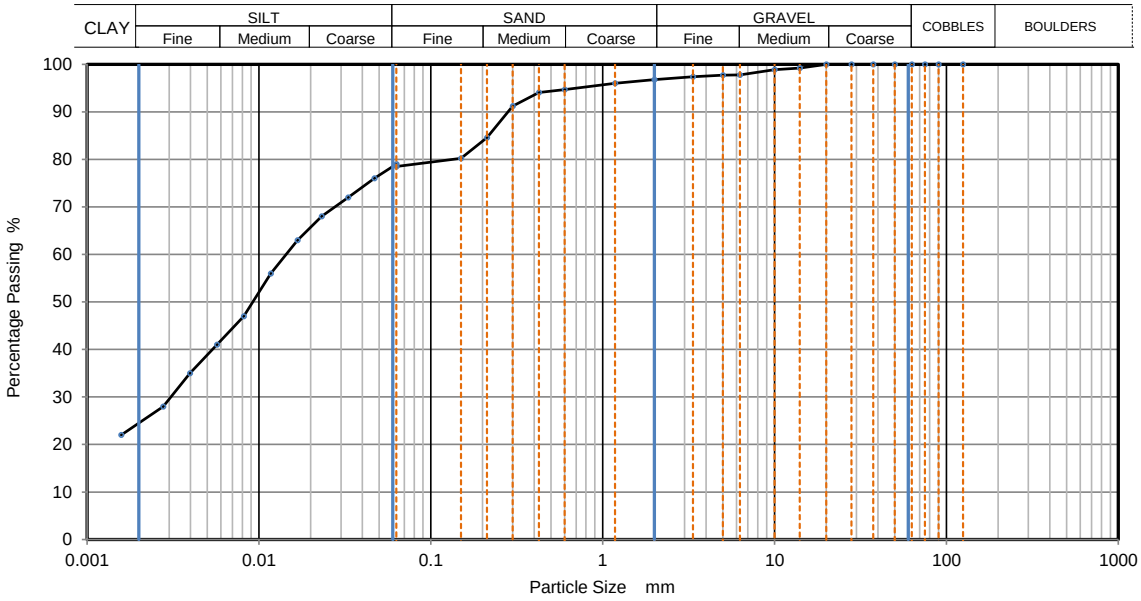
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97602
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.50 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-rounded)			Depth Base	2.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	79
90	100	0.0470	76
75	100	0.0330	72
63	100	0.0232	68
50	100	0.0168	63
37.5	100	0.0117	56
28	100	0.0081	47
20	100	0.0057	41
14	99	0.0040	35
10	99	0.0028	28
6.3	98	0.0016	22
5	98		
3.35	97		
2	97		
1.18	96		
0.6	95	Particle density	(assumed)
0.425	94	2.70	Mg/m3
0.3	91		
0.212	85		
0.15	80		
0.063	79		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	3.2
Sand	18.3
Silt	53.7
Clay	24.8

Grading Analysis		
D100	mm	
D60	mm	0.0147
D30	mm	0.00304
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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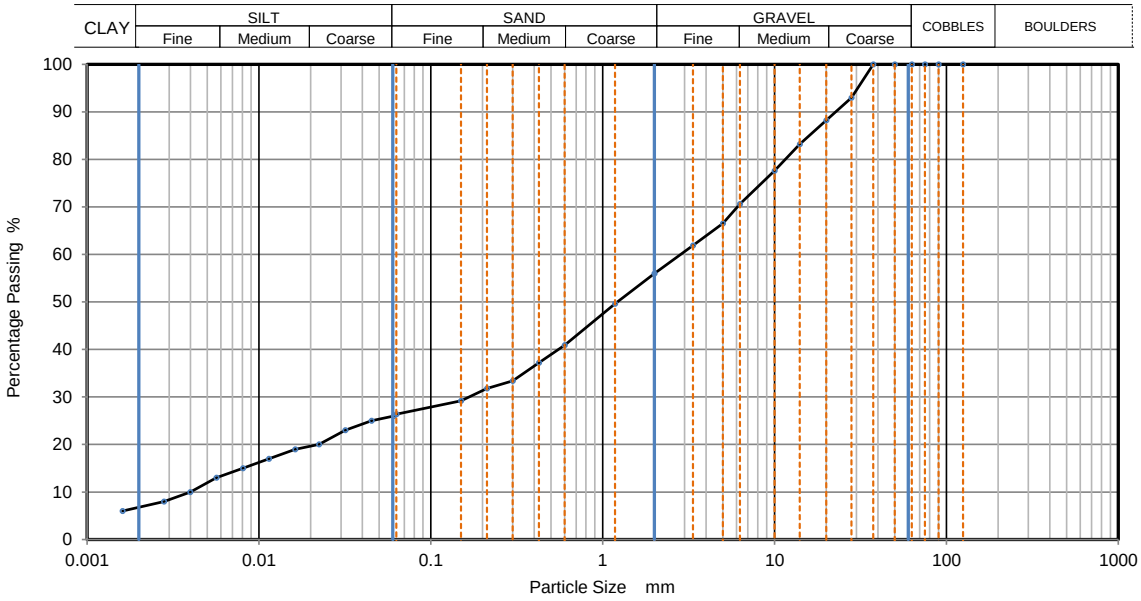
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97602
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.30 m
Soil Description	Greyish brown clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	4.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	29/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0610	26
90	100	0.0452	25
75	100	0.0318	23
63	100	0.0224	20
50	100	0.0163	19
37.5	100	0.0114	17
28	93	0.0081	15
20	88	0.0057	13
14	83	0.0040	10
10	78	0.0028	8
6.3	71	0.0016	6
5	67		
3.35	62		
2	56		
1.18	50		
0.6	41	Particle density	(assumed)
0.425	37	2.70	Mg/m3
0.3	33		
0.212	32		
0.15	29		
0.063	26		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	44.0
Sand	29.6
Silt	19.8
Clay	6.6

Grading Analysis		
D100	mm	
D60	mm	2.83
D30	mm	0.168
D10	mm	0.00394
Uniformity Coefficient		720
Curvature Coefficient		2.5

Remarks

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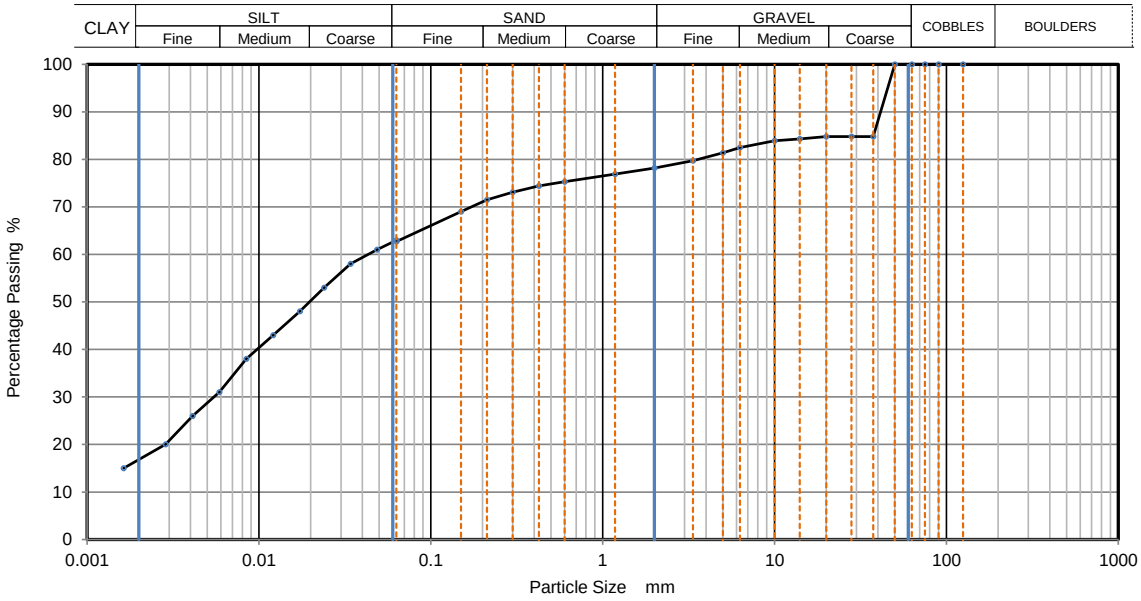
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	63
90	100	0.0486	61
75	100	0.0341	58
63	100	0.0239	53
50	100	0.0173	48
37.5	85	0.0121	43
28	85	0.0084	38
20	85	0.0059	31
14	84	0.0041	26
10	84	0.0029	20
6.3	83	0.0016	15
5	81		
3.35	80		
2	78		
1.18	77		
0.6	75	Particle density (assumed)	
0.425	74	2.70 Mg/m3	
0.3	73		
0.212	72		
0.15	69		
0.063	63		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.8
Sand	15.5
Silt	45.8
Clay	16.9

Grading Analysis		
D100	mm	
D60	mm	0.0436
D30	mm	0.00546
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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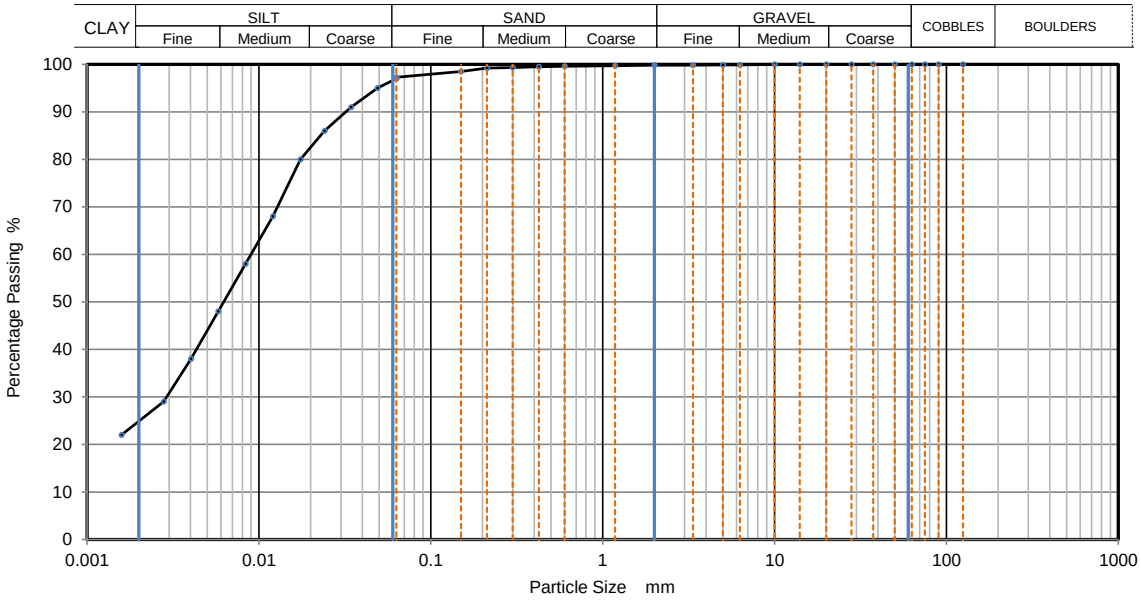
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Dark grey silty CLAY			Depth Base	3.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	97
90	100	0.0490	95
75	100	0.0344	91
63	100	0.0241	86
50	100	0.0174	80
37.5	100	0.0121	68
28	100	0.0084	58
20	100	0.0058	48
14	100	0.0040	38
10	100	0.0028	29
6.3	100	0.0016	22
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100	Particle density (assumed)	
0.425	100	2.70 Mg/m3	
0.3	99		
0.212	99		
0.15	99		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.2
Sand	2.5
Silt	72.5
Clay	24.8

Grading Analysis		
D100	mm	
D60	mm	0.00899
D30	mm	0.00286
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

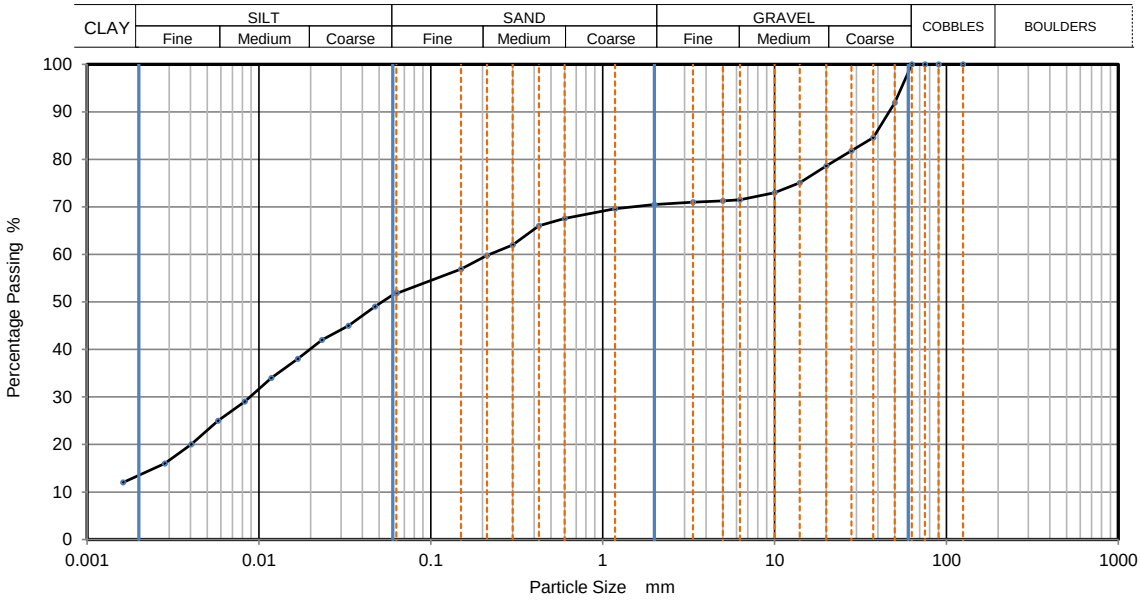
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97704
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.80 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	23/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	52
90	100	0.0473	49
75	100	0.0332	45
63	100	0.0233	42
50	92	0.0169	38
37.5	85	0.0118	34
28	82	0.0083	29
20	79	0.0058	25
14	75	0.0040	20
10	73	0.0028	16
6.3	72	0.0016	12
5	71		
3.35	71		
2	71		
1.18	70		
0.6	68	Particle density (assumed)	
0.425	66	2.70 Mg/m3	
0.3	62		
0.212	60		
0.15	57		
0.063	52		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.5
Sand	18.7
Silt	38.1
Clay	13.7

Grading Analysis		
D100	mm	
D60	mm	0.218
D30	mm	0.00888
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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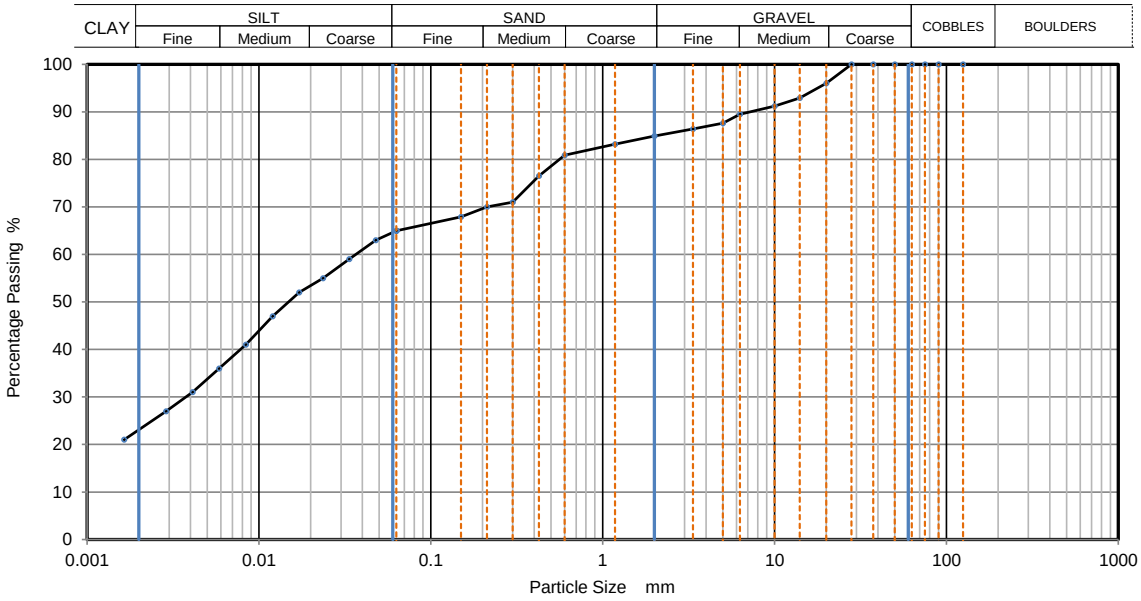
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97777
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	26/09/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	65
90	100	0.0477	63
75	100	0.0335	59
63	100	0.0236	55
50	100	0.0171	52
37.5	100	0.0120	47
28	100	0.0084	41
20	96	0.0059	36
14	93	0.0041	31
10	91	0.0029	27
6.3	90	0.0016	21
5	88		
3.35	86		
2	85		
1.18	83		
0.6	81	Particle density	(assumed)
0.425	77	2.70	Mg/m3
0.3	71		
0.212	70		
0.15	68		
0.063	65		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	15.1
Sand	19.9
Silt	41.8
Clay	23.2

Grading Analysis		
D100	mm	
D60	mm	0.0369
D30	mm	0.00372
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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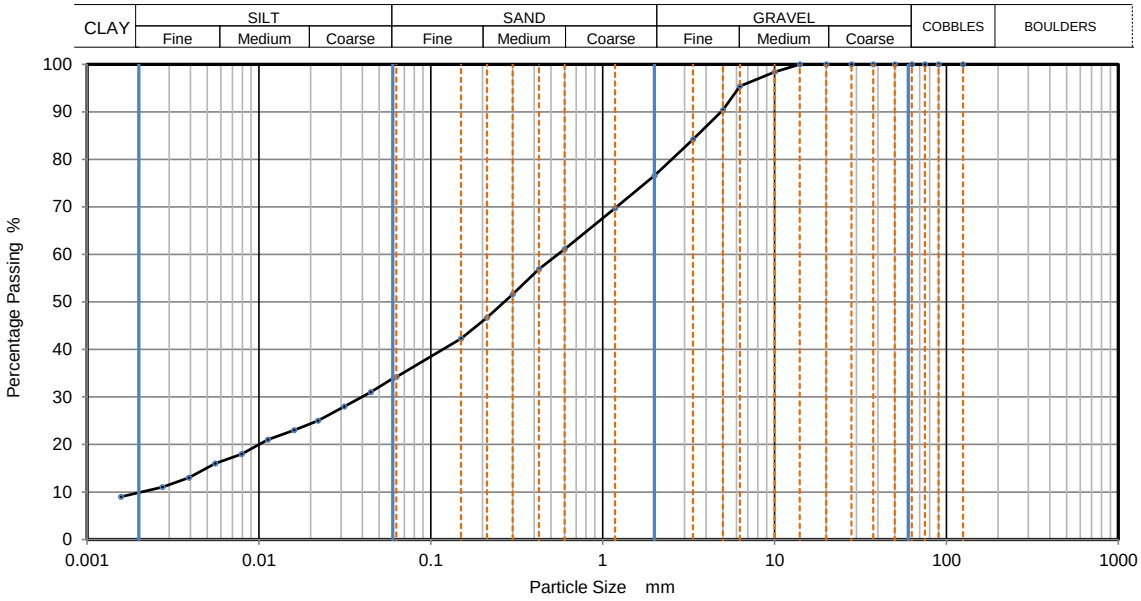
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-97998
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Grey clayey very gravelly very silty SAND (gravel is fm and sub-angular to sub-rounded)			Depth Base	m
				Sample Type	D
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	10/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0606	34
90	100	0.0447	31
75	100	0.0314	28
63	100	0.0220	25
50	100	0.0160	23
37.5	100	0.0113	21
28	100	0.0079	18
20	100	0.0056	16
14	100	0.0039	13
10	98	0.0027	11
6.3	95	0.0016	9
5	90		
3.35	84		
2	77		
1.18	70		
0.6	61	Particle density	(assumed)
0.425	57	2.70	Mg/m3
0.3	52		
0.212	47		
0.15	42		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.4
Sand	42.4
Silt	24.4
Clay	9.8

Grading Analysis		
D100	mm	
D60	mm	0.547
D30	mm	0.0399
D10	mm	0.00209
Uniformity Coefficient		260
Curvature Coefficient		1.4

Remarks

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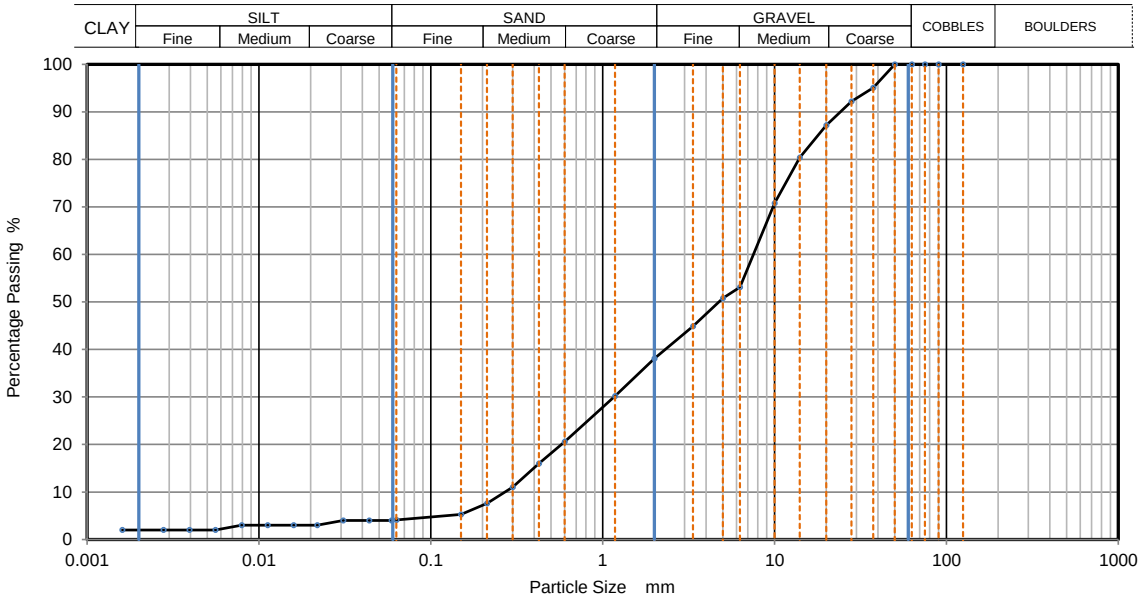
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-97998
Project No.	2021OY102	Client	Irish Drilling	Sample No.	3
				Depth Top	0.70 m
Soil Description	Grey slightly clayey slightly silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	11/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0591	4
90	100	0.0438	4
75	100	0.0310	4
63	100	0.0218	3
50	100	0.0159	3
37.5	95	0.0112	3
28	92	0.0079	3
20	87	0.0056	2
14	80	0.0039	2
10	71	0.0028	2
6.3	53	0.0016	2
5	51		
3.35	45		
2	38		
1.18	30		
0.6	21	Particle density (assumed)	
0.425	16	2.70 Mg/m3	
0.3	11		
0.212	8		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	61.9
Sand	34.0
Silt	2.2
Clay	1.9

Grading Analysis		
D100	mm	
D60	mm	7.54
D30	mm	1.16
D10	mm	0.271
Uniformity Coefficient		28
Curvature Coefficient		0.66

Remarks

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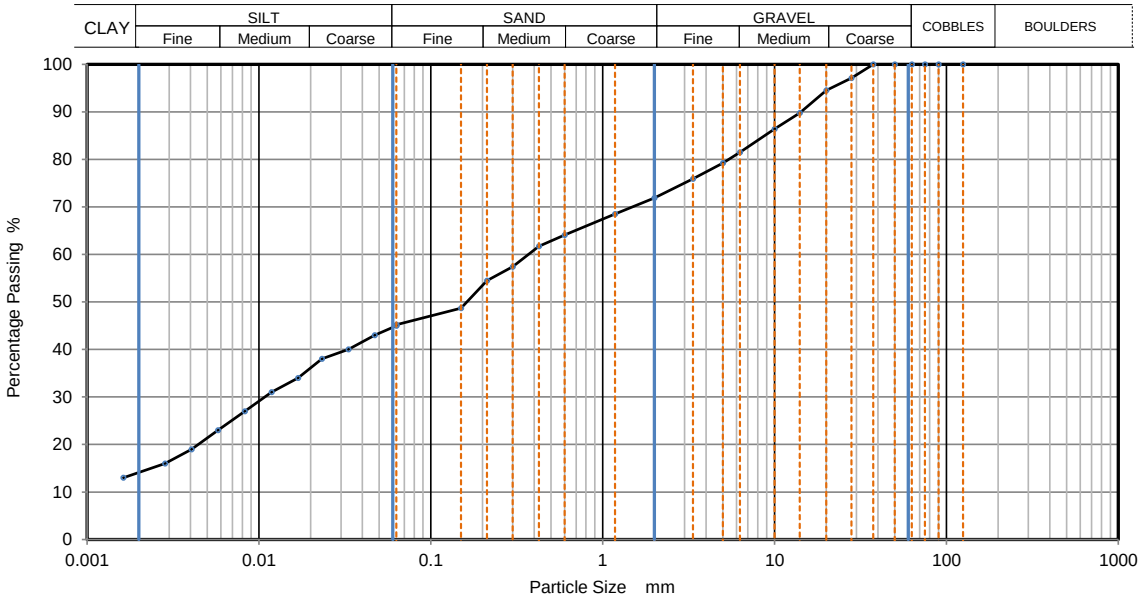
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-98105
Project No.	2021OY102	Client	Irish Drilling	Sample No.	1
				Depth Top	0.30 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
These results only apply to the items tested				Date tested	12/10/2022



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0472	43
75	100	0.0331	40
63	100	0.0233	38
50	100	0.0169	34
37.5	100	0.0118	31
28	97	0.0083	27
20	95	0.0058	23
14	90	0.0041	19
10	86	0.0028	16
6.3	82	0.0016	13
5	79		
3.35	76		
2	72		
1.18	69		
0.6	64	Particle density (assumed)	
0.425	62	2.70	Mg/m3
0.3	57		
0.212	55		
0.15	49		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.1
Sand	26.8
Silt	31.2
Clay	13.9

Grading Analysis		
D100	mm	
D60	mm	0.371
D30	mm	0.0105
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Date: 14/12/2022

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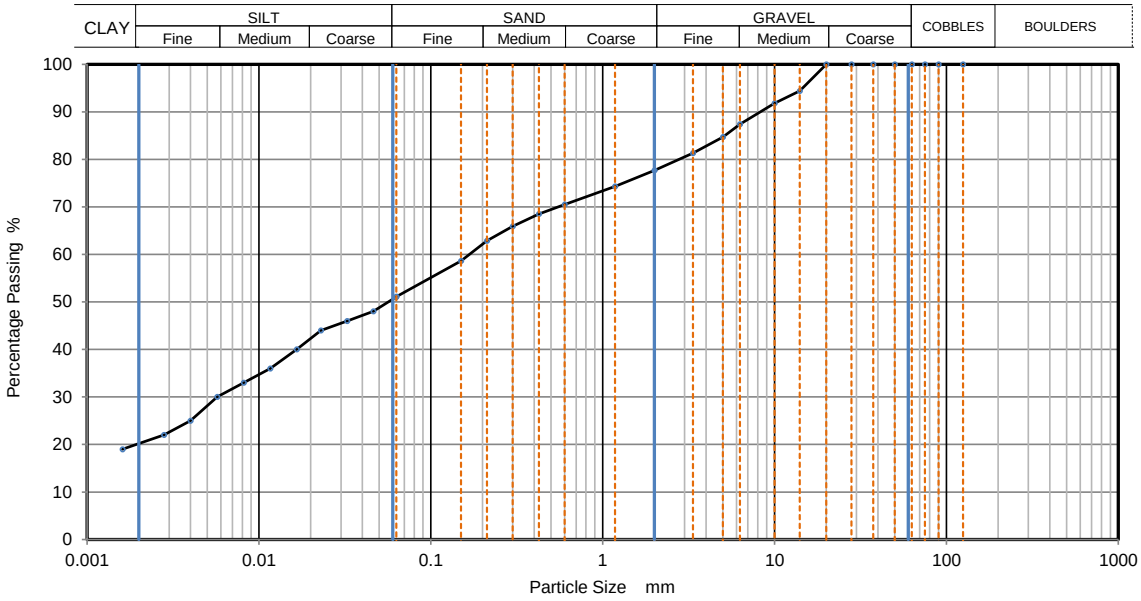
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98105
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0627	51
90	100	0.0463	48
75	100	0.0326	46
63	100	0.0229	44
50	100	0.0166	40
37.5	100	0.0116	36
28	100	0.0081	33
20	100	0.0057	30
14	94	0.0040	25
10	92	0.0028	22
6.3	87	0.0016	19
5	85		
3.35	81		
2	78		
1.18	74		
0.6	71	Particle density (assumed)	
0.425	69	2.70	Mg/m3
0.3	66		
0.212	63		
0.15	59		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.3
Sand	26.6
Silt	31.1
Clay	20.0

Grading Analysis		
D100	mm	
D60	mm	0.168
D30	mm	0.00601
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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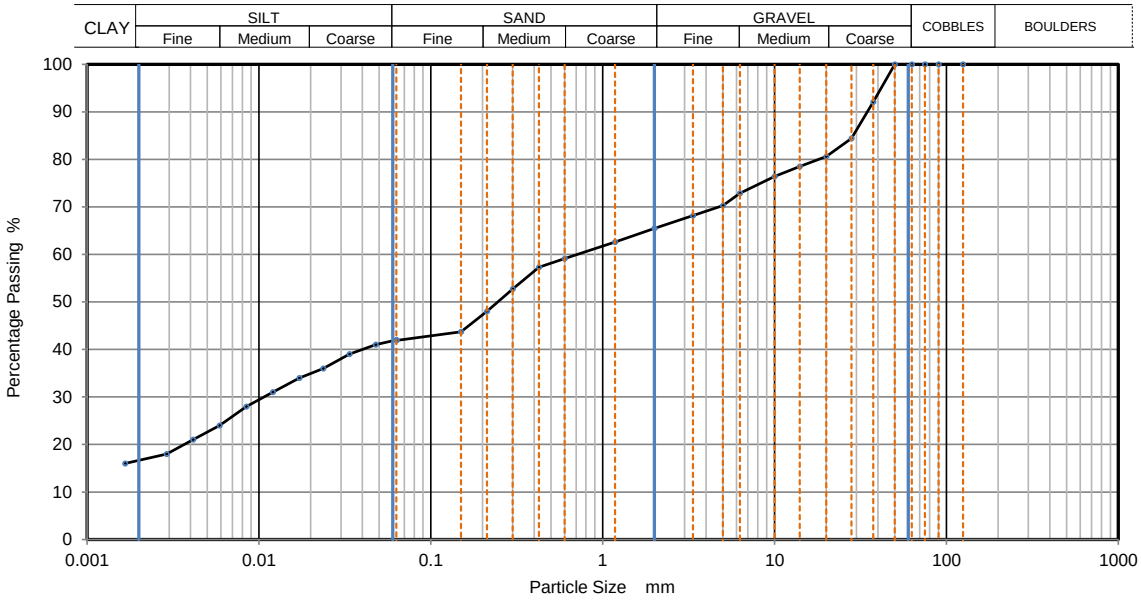
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98105
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	42
90	100	0.0478	41
75	100	0.0337	39
63	100	0.0237	36
50	100	0.0172	34
37.5	92	0.0120	31
28	84	0.0084	28
20	81	0.0059	24
14	79	0.0041	21
10	76	0.0029	18
6.3	73	0.0017	16
5	70		
3.35	68		
2	66		
1.18	63		
0.6	59	Particle density (assumed)	
0.425	57	2.70 Mg/m3	
0.3	53		
0.212	48		
0.15	44		
0.063	42		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.5
Sand	23.6
Silt	25.4
Clay	16.5

Grading Analysis		
D100	mm	
D60	mm	0.716
D30	mm	0.0109
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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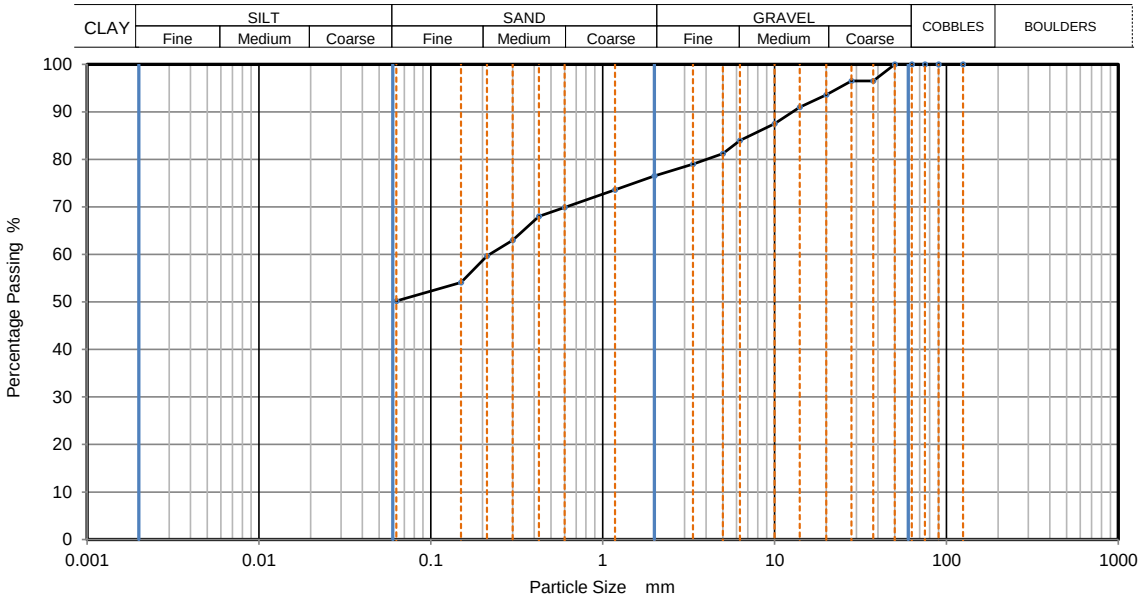
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98205
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.80 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	97		
20	94		
14	91		
10	88		
6.3	84		
5	81		
3.35	79		
2	77		
1.18	74		
0.6	70		
0.425	68		
0.3	63		
0.212	60		
0.15	54		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.5
Sand	26.3
Fines <0.063mm	50.2

Grading Analysis		
D100	mm	
D60	mm	0.218
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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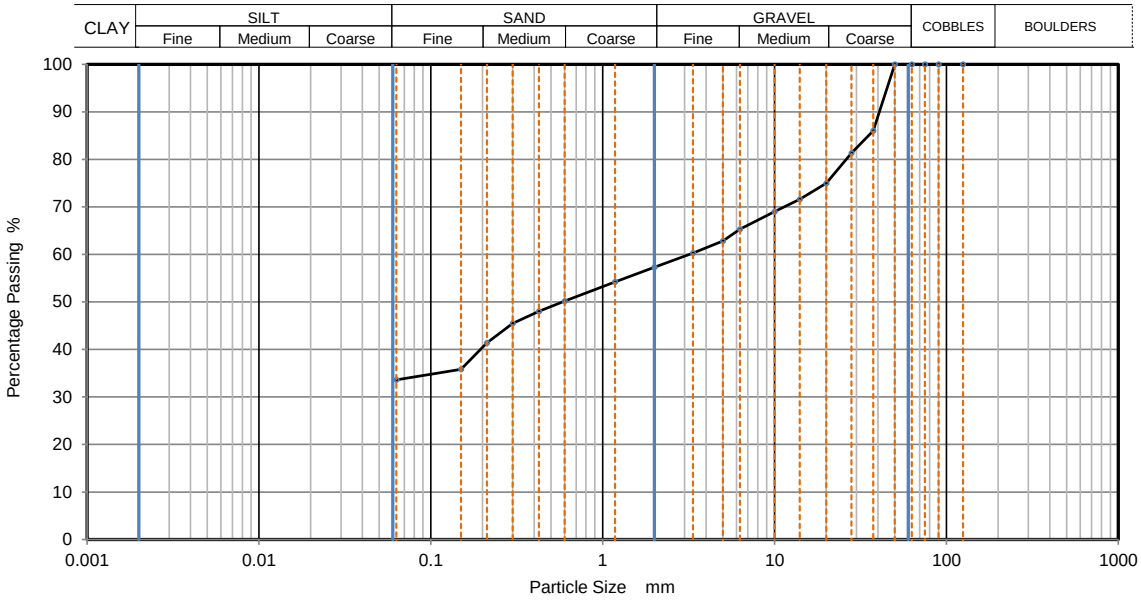
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98205
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey silty clayey very sandfy GRAVEL (gravel is fmc and sub-angular)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	86		
28	81		
20	75		
14	72		
10	69		
6.3	65		
5	63		
3.35	60		
2	57		
1.18	54		
0.6	50		
0.425	48		
0.3	46		
0.212	41		
0.15	36		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	42.7
Sand	23.7
Fines <0.063mm	33.6

Grading Analysis		
D100	mm	
D60	mm	3.17
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

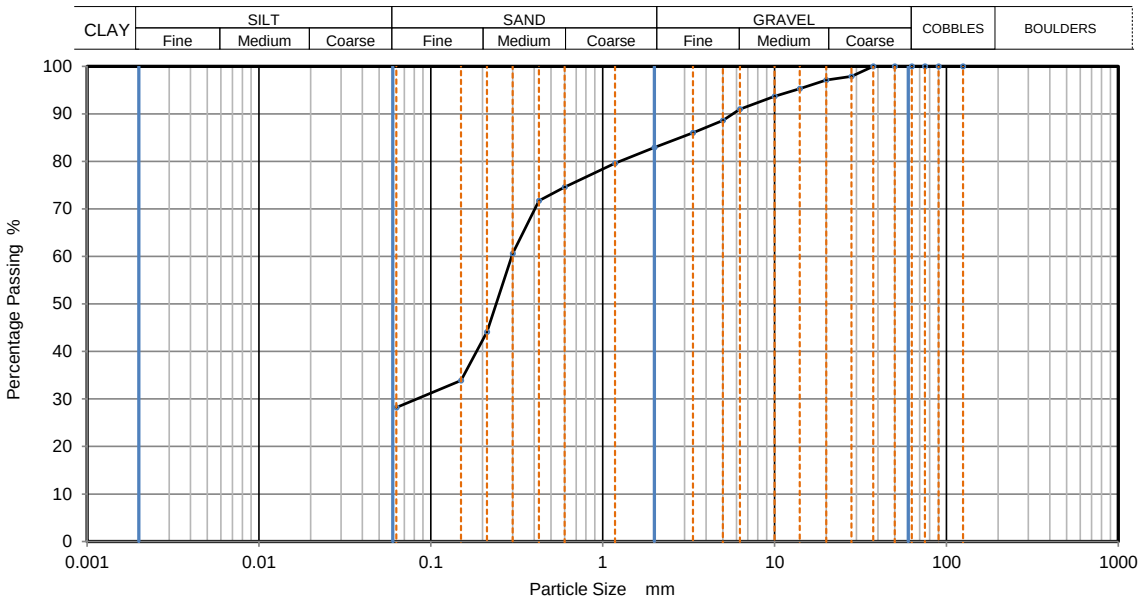
PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.20 m
Soil Description	Grey gravelly silty clayey SAND (gravel is fmc and sub-angular to rounded)			Depth Base	0.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

Job Ref: 32282

Borehole/Pit No.: TP-98271

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	97		
14	95		
10	94		
6.3	91		
5	89		
3.35	86		
2	83		
1.18	80		
0.6	75		
0.425	72		
0.3	61		
0.212	44		
0.15	34		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	17.1
Sand	54.7
Fines <0.063mm	28.2

Grading Analysis		
D100	mm	
D60	mm	0.296
D30	mm	0.083
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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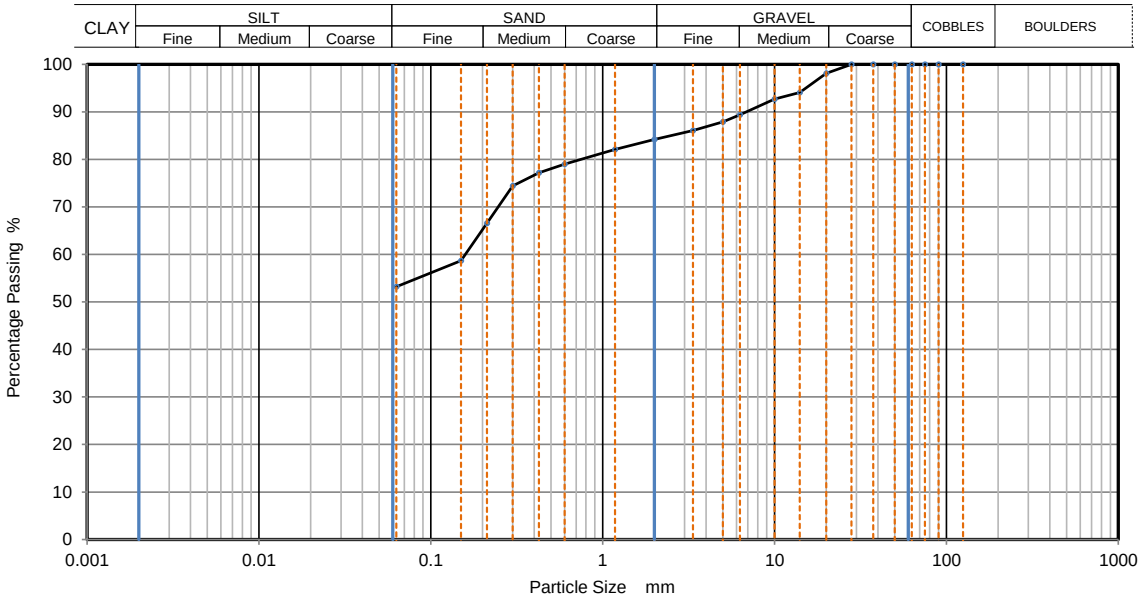
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98271
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	93		
6.3	89		
5	88		
3.35	86		
2	84		
1.18	82		
0.6	79		
0.425	77		
0.3	74		
0.212	67		
0.15	59		
0.063	53		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	15.8
Sand	31.0
Fines <0.063mm	53.2

Grading Analysis		
D100	mm	
D60	mm	0.159
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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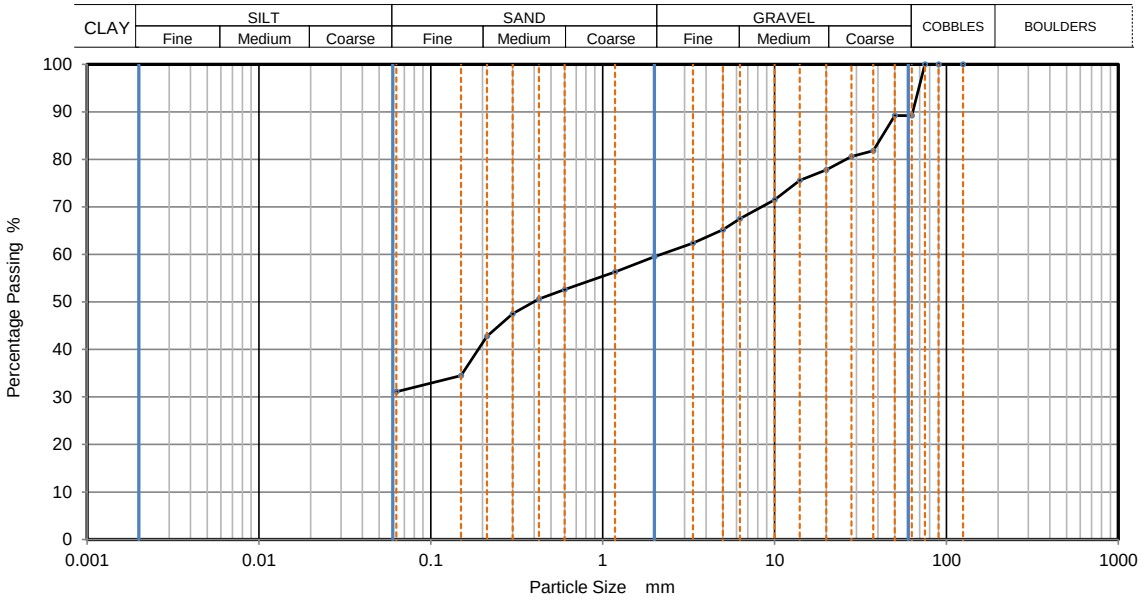
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98271
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.20 m
Soil Description	Dark grey slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	89		
50	89		
37.5	82		
28	81		
20	78		
14	76		
10	72		
6.3	68		
5	65		
3.35	62		
2	60		
1.18	56		
0.6	53		
0.425	51		
0.3	48		
0.212	43		
0.15	35		
0.063	31		

Sample Proportions	% dry mass
Very coarse	10.8
Gravel	29.7
Sand	28.4
Fines <0.063mm	31.1

Grading Analysis		
D100	mm	
D60	mm	2.19
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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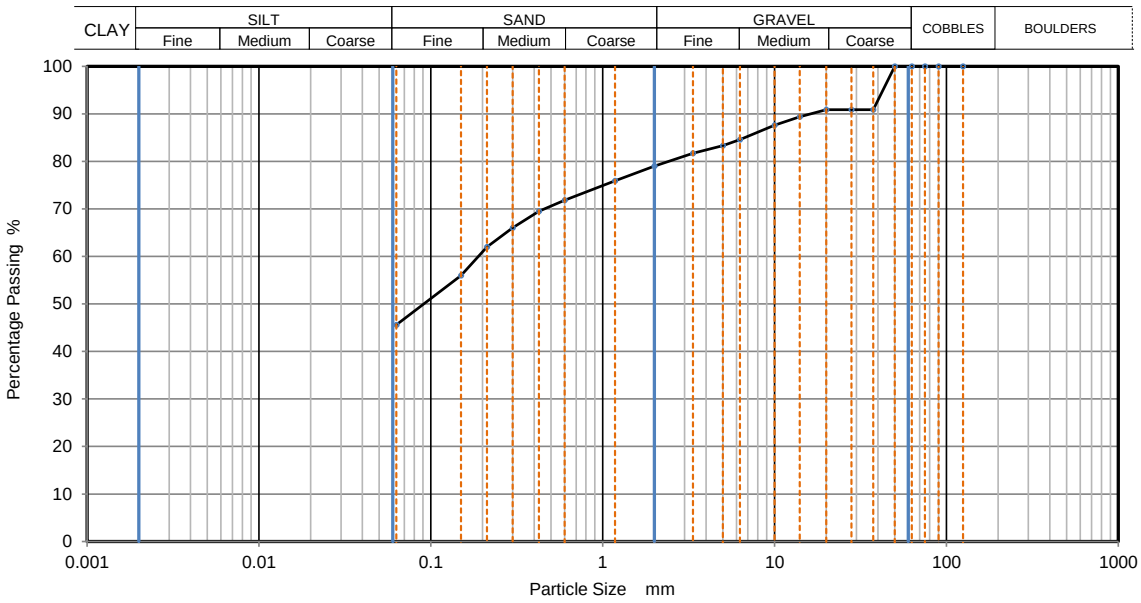
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	91		
28	91		
20	91		
14	89		
10	88		
6.3	85		
5	83		
3.35	82		
2	79		
1.18	76		
0.6	72		
0.425	70		
0.3	66		
0.212	62		
0.15	56		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.0
Sand	33.4
Fines <0.063mm	45.6

Grading Analysis		
D100	mm	
D60	mm	0.189
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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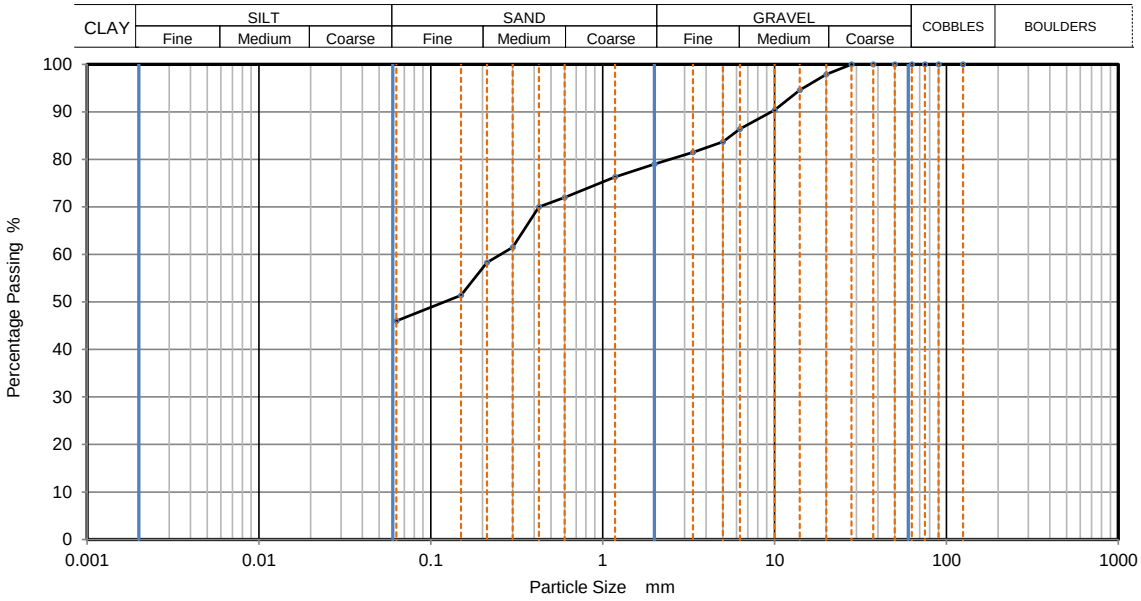
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey and dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	95		
10	90		
6.3	86		
5	84		
3.35	82		
2	79		
1.18	76		
0.6	72		
0.425	70		
0.3	62		
0.212	58		
0.15	51		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.0
Sand	33.0
Fines <0.063mm	46.1

Grading Analysis		
D100	mm	
D60	mm	0.256
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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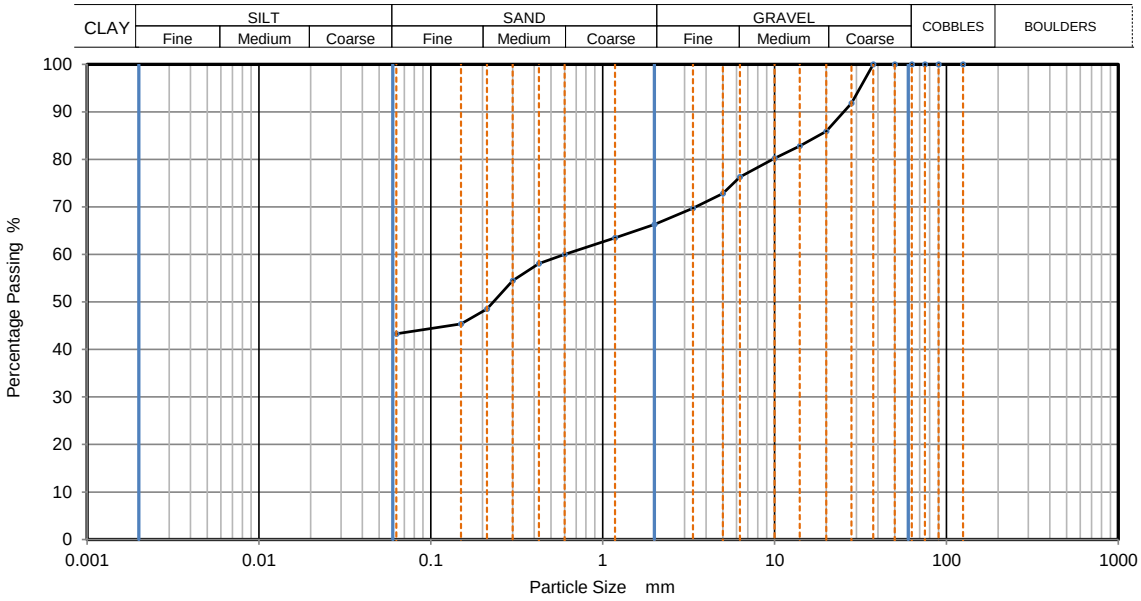
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98403
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Grey and dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	86		
14	83		
10	80		
6.3	76		
5	73		
3.35	70		
2	66		
1.18	64		
0.6	60		
0.425	58		
0.3	55		
0.212	49		
0.15	45		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	33.7
Sand	23.0
Fines <0.063mm	43.3

Grading Analysis		
D100	mm	
D60	mm	0.605
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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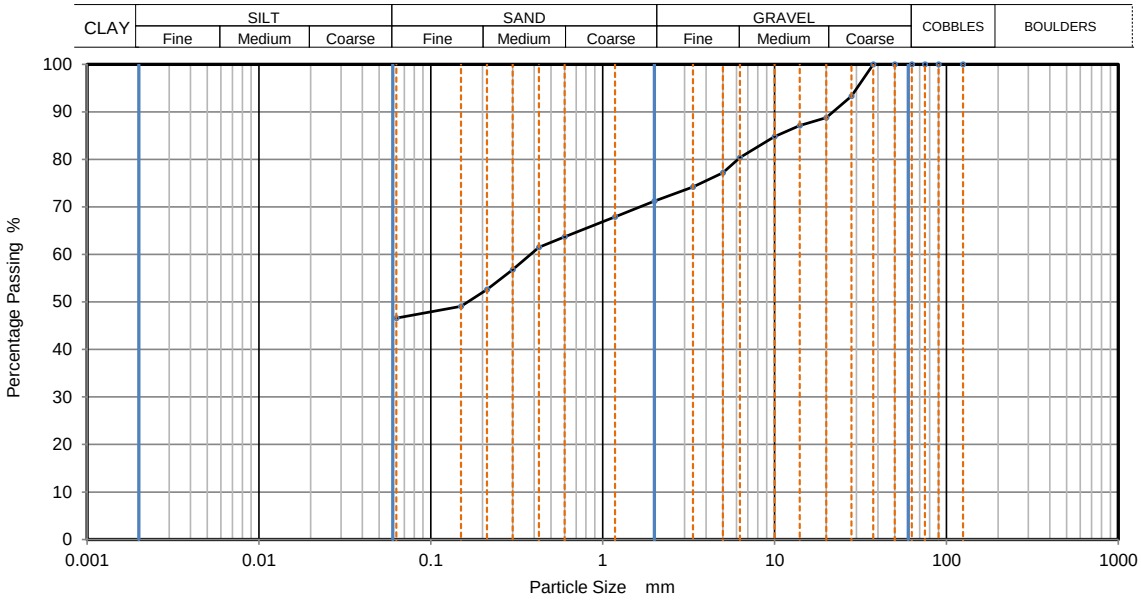
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98502
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	89		
14	87		
10	85		
6.3	80		
5	77		
3.35	74		
2	71		
1.18	68		
0.6	64		
0.425	62		
0.3	57		
0.212	53		
0.15	49		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.8
Sand	24.6
Fines <0.063mm	46.6

Grading Analysis		
D100	mm	
D60	mm	0.379
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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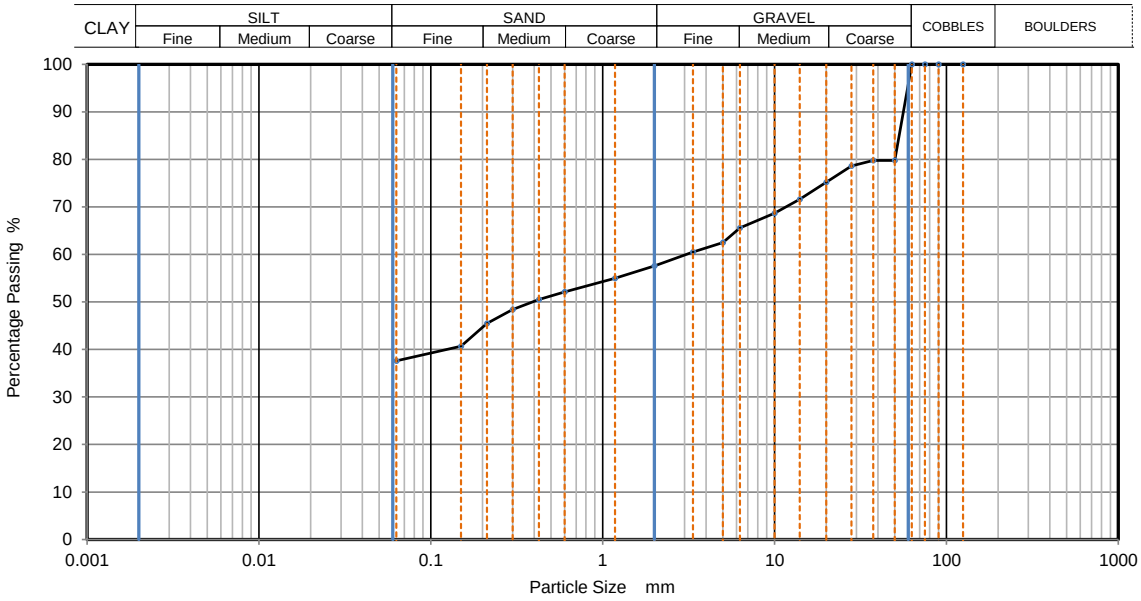
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98502
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	80		
37.5	80		
28	79		
20	75		
14	72		
10	69		
6.3	66		
5	63		
3.35	61		
2	58		
1.18	55		
0.6	52		
0.425	51		
0.3	48		
0.212	46		
0.15	41		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	42.4
Sand	19.9
Fines <0.063mm	37.6

Grading Analysis		
D100	mm	
D60	mm	3.08
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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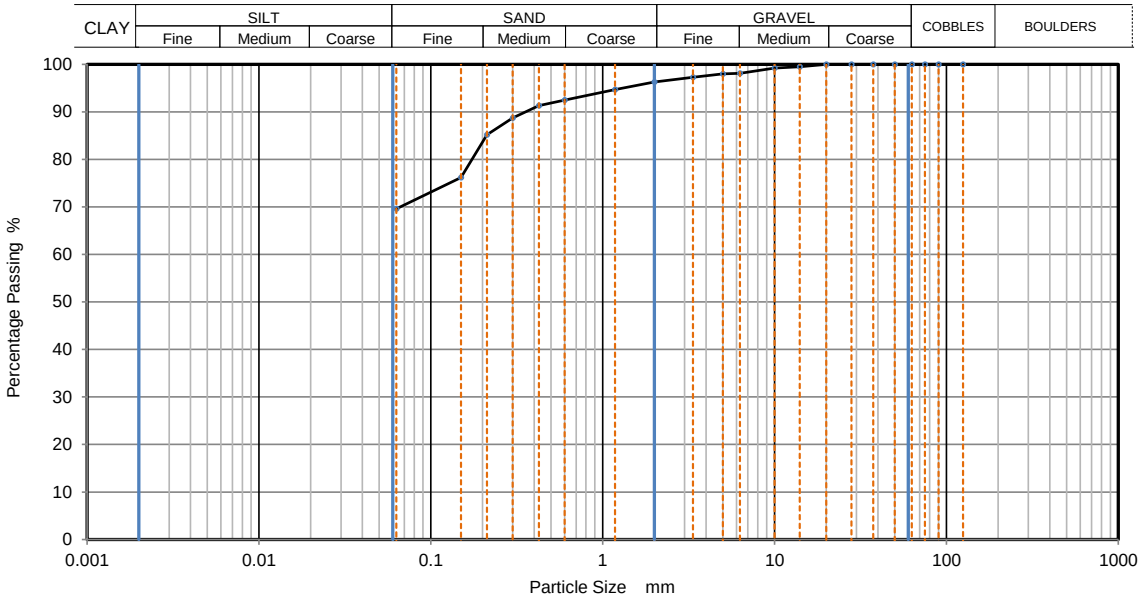
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	98		
3.35	97		
2	96		
1.18	95		
0.6	93		
0.425	91		
0.3	89		
0.212	85		
0.15	76		
0.063	70		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	3.7
Sand	26.7
Fines <0.063mm	69.6

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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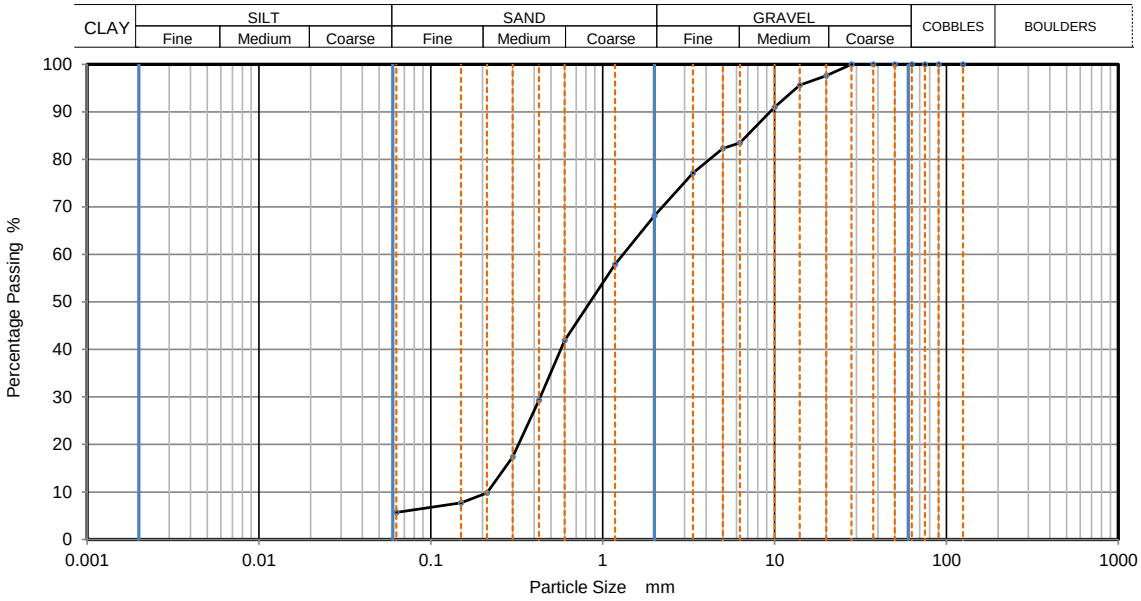
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98602
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Dark grey very gravelly SAND with occasional greyish brown slightly sandy silty clay lumps (gravel is fmc and sub-angular to rounded)			Depth Base	2.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	96		
10	91		
6.3	84		
5	82		
3.35	77		
2	68		
1.18	58		
0.6	42		
0.425	29		
0.3	17		
0.212	10		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	31.9
Sand	62.4
Fines <0.063mm	5.7

Grading Analysis		
D100	mm	
D60	mm	1.32
D30	mm	0.433
D10	mm	0.214
Uniformity Coefficient		6.2
Curvature Coefficient		0.66

Remarks

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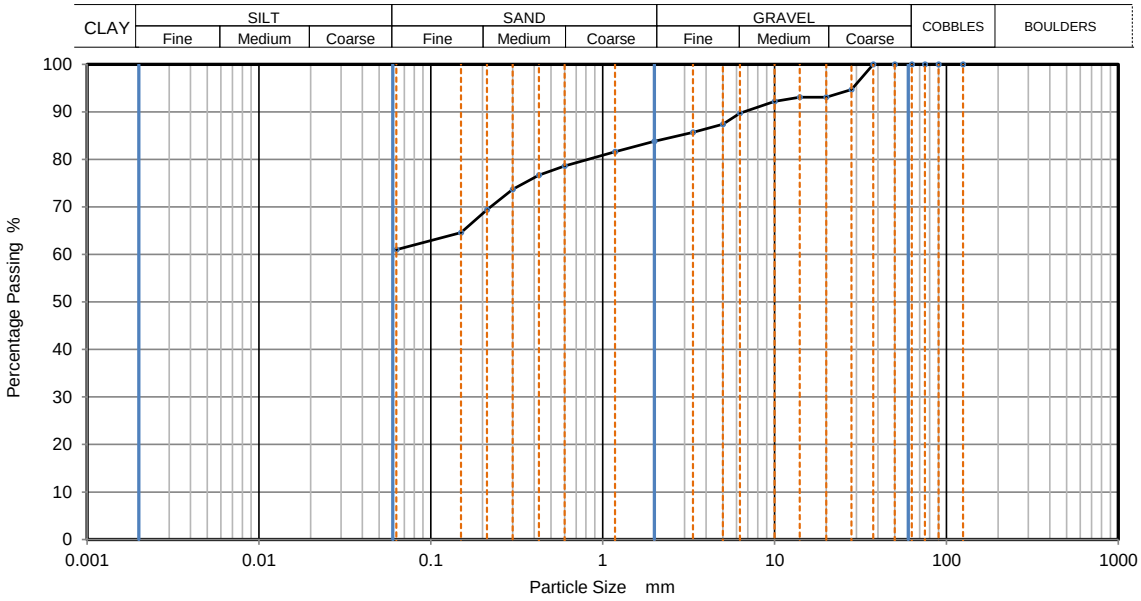
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98702
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	93		
14	93		
10	92		
6.3	90		
5	87		
3.35	86		
2	84		
1.18	82		
0.6	79		
0.425	77		
0.3	74		
0.212	69		
0.15	65		
0.063	61		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	16.2
Sand	22.9
Fines <0.063mm	61.0

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

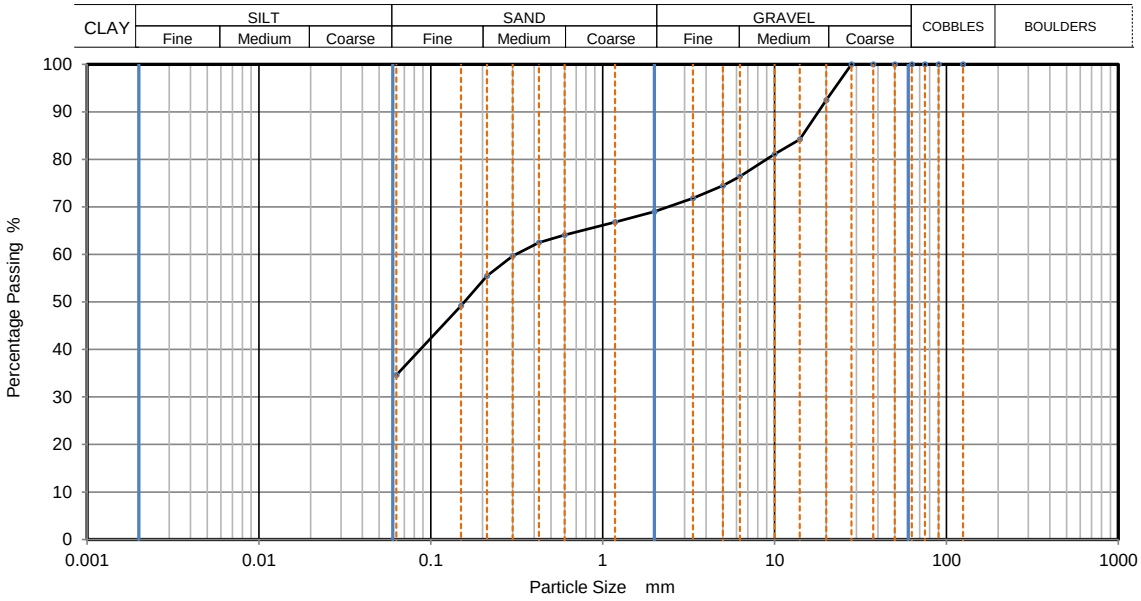
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98702
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	93		
14	84		
10	81		
6.3	76		
5	75		
3.35	72		
2	69		
1.18	67		
0.6	64		
0.425	63		
0.3	60		
0.212	56		
0.15	49		
0.063	35		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	31.0
Sand	34.3
Fines <0.063mm	34.6

Grading Analysis		
D100	mm	
D60	mm	0.312
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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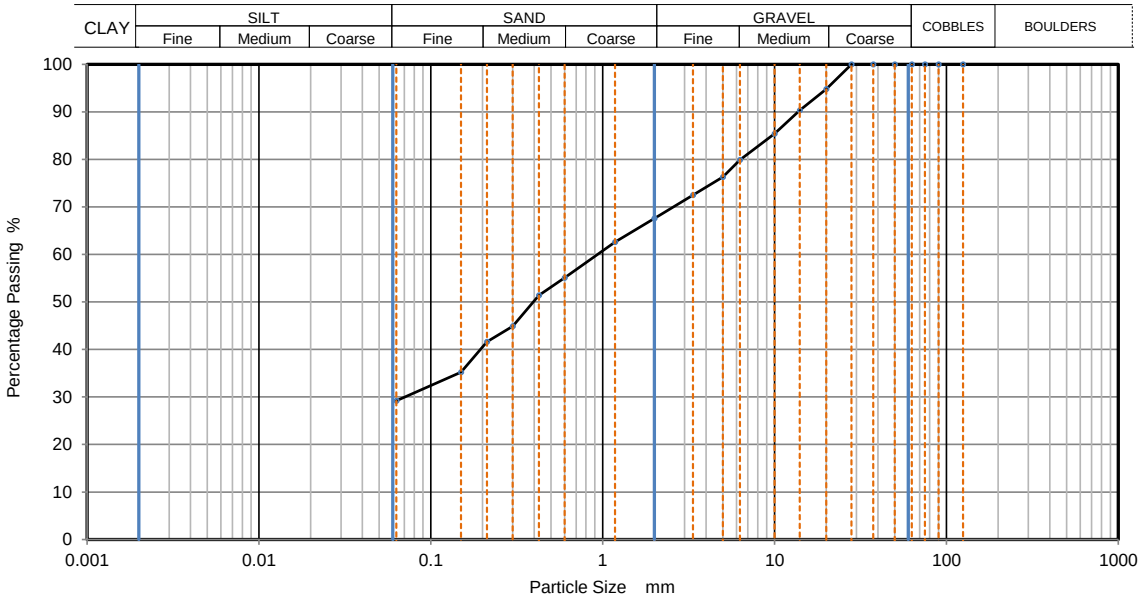
2519 Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr) MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98702
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.90 m
Soil Description	Greyish brown clayey silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	2.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	90		
10	85		
6.3	80		
5	76		
3.35	73		
2	68		
1.18	63		
0.6	55		
0.425	51		
0.3	45		
0.212	42		
0.15	35		
0.063	29		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.4
Sand	38.4
Fines <0.063mm	29.2

Grading Analysis		
D100	mm	
D60	mm	0.934
D30	mm	0.0711
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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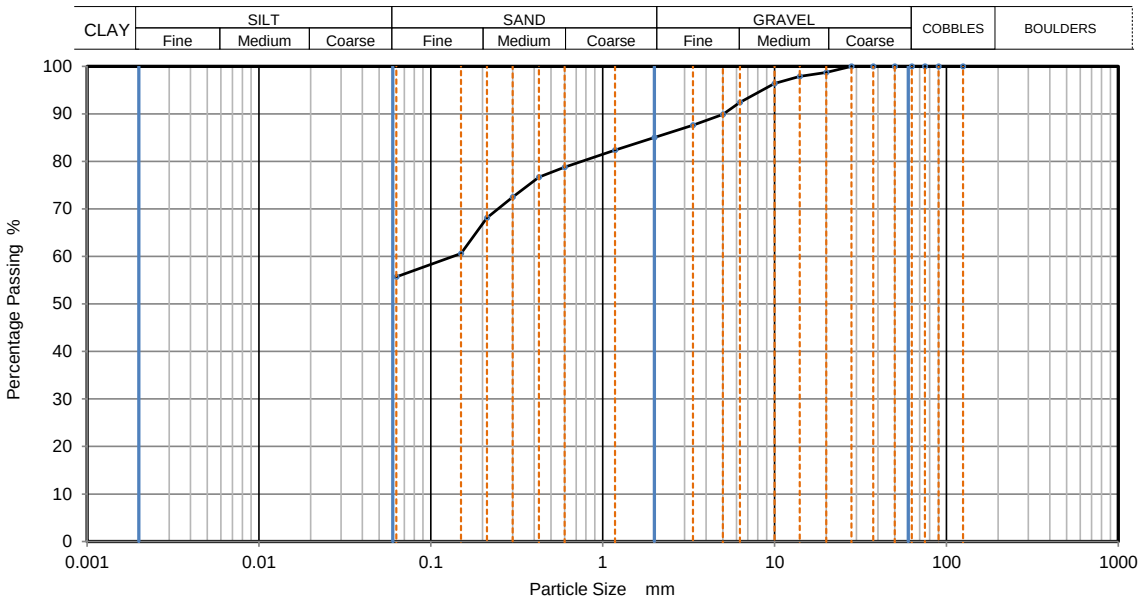
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98805
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	17/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	98		
10	96		
6.3	92		
5	90		
3.35	88		
2	85		
1.18	82		
0.6	79		
0.425	77		
0.3	73		
0.212	68		
0.15	61		
0.063	56		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	15.0
Sand	29.3
Fines <0.063mm	55.7

Grading Analysis		
D100	mm	
D60	mm	0.134
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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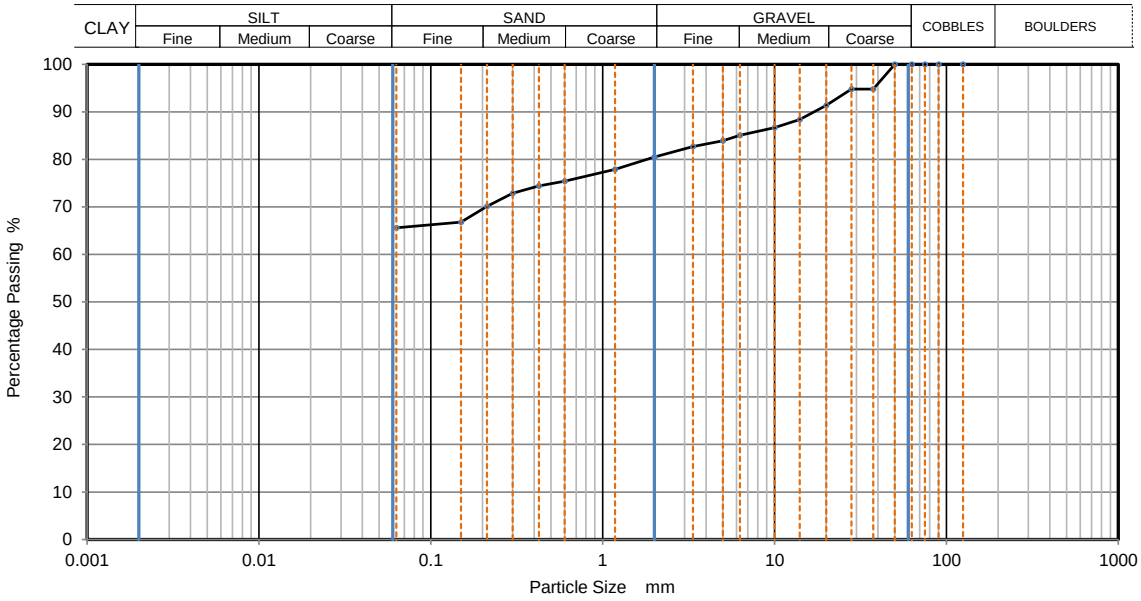
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98805
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	95		
20	91		
14	88		
10	87		
6.3	85		
5	84		
3.35	83		
2	81		
1.18	78		
0.6	75		
0.425	74		
0.3	73		
0.212	70		
0.15	67		
0.063	66		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.5
Sand	14.9
Fines <0.063mm	65.6

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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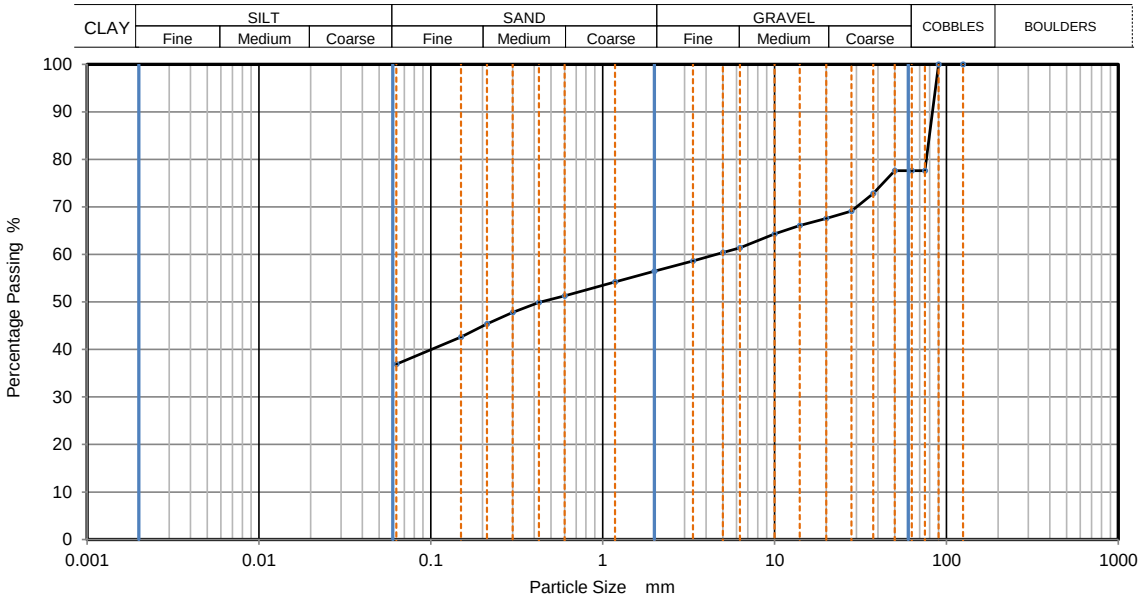
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-98904
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	78		
63	78		
50	78		
37.5	73		
28	69		
20	68		
14	66		
10	64		
6.3	61		
5	60		
3.35	59		
2	57		
1.18	54		
0.6	51		
0.425	50		
0.3	48		
0.212	45		
0.15	43		
0.063	37		

Sample Proportions	% dry mass
Very coarse	22.4
Gravel	21.1
Sand	19.6
Fines <0.063mm	36.9

Grading Analysis		
D100	mm	
D60	mm	4.6
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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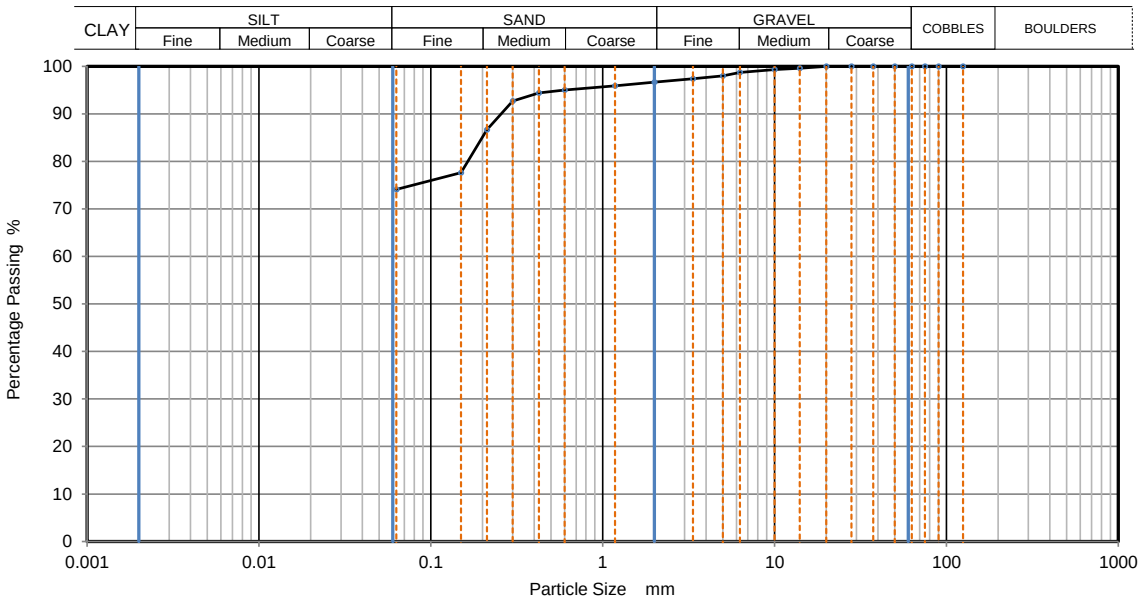
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly sandy slightly gravelly silty CLAY (gravel is fm and angular to sub-angular)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	99		
5	98		
3.35	97		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	93		
0.212	87		
0.15	78		
0.063	74		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	3.3
Sand	22.6
Fines <0.063mm	74.1

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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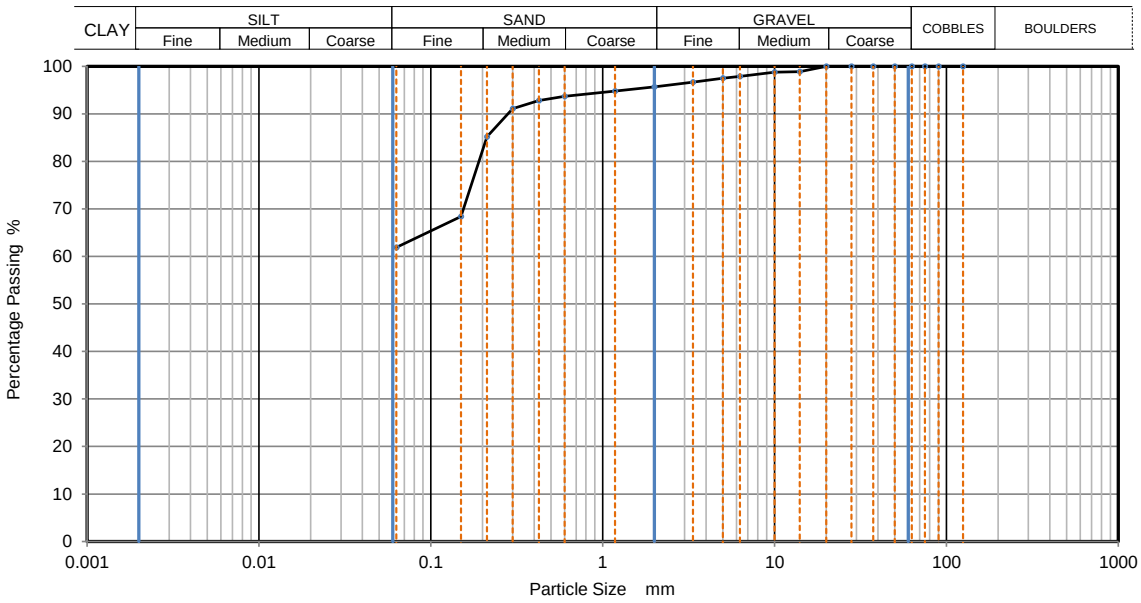
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	98		
5	98		
3.35	97		
2	96		
1.18	95		
0.6	94		
0.425	93		
0.3	91		
0.212	85		
0.15	68		
0.063	62		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	4.3
Sand	33.8
Fines <0.063mm	61.9

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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Date: 28/10/2022

UKAS TESTING

2519

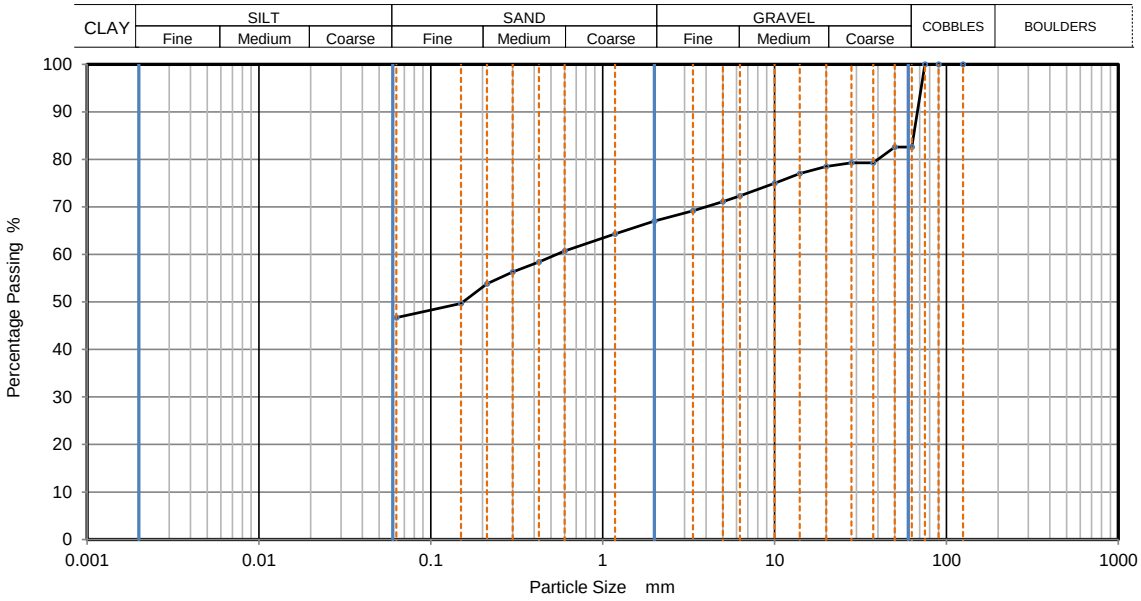
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99004
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	83		
50	83		
37.5	79		
28	79		
20	79		
14	77		
10	75		
6.3	72		
5	71		
3.35	69		
2	67		
1.18	64		
0.6	61		
0.425	58		
0.3	56		
0.212	54		
0.15	50		
0.063	47		

Sample Proportions	% dry mass
Very coarse	17.4
Gravel	15.7
Sand	20.2
Fines <0.063mm	46.7

Grading Analysis		
D100	mm	
D60	mm	0.537
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

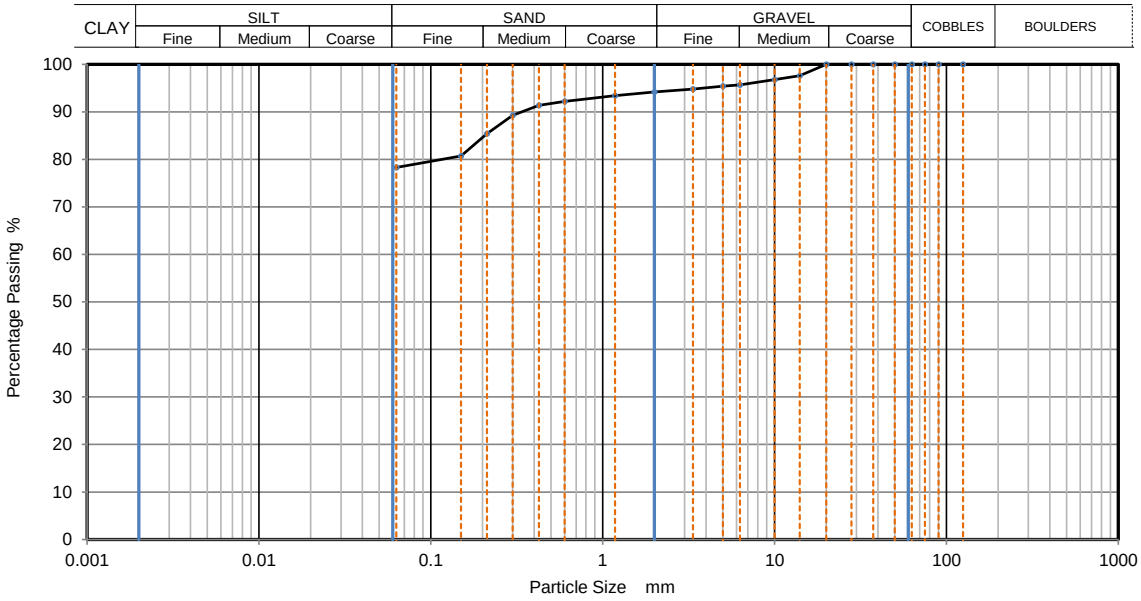
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99105
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Orangish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	08/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	96		
5	95		
3.35	95		
2	94		
1.18	93		
0.6	92		
0.425	91		
0.3	89		
0.212	85		
0.15	81		
0.063	78		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	5.8
Sand	15.9
Fines <0.063mm	78.3

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

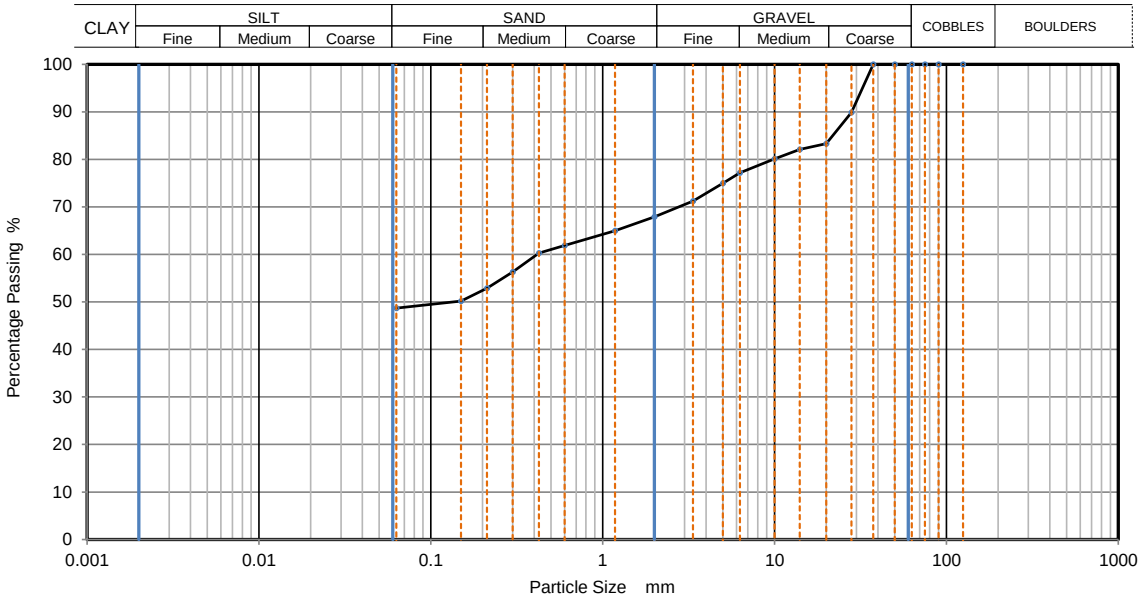
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99105
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	03/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	83		
14	82		
10	80		
6.3	77		
5	75		
3.35	71		
2	68		
1.18	65		
0.6	62		
0.425	60		
0.3	56		
0.212	53		
0.15	50		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	32.1
Sand	19.3
Fines <0.063mm	48.7

Grading Analysis		
D100	mm	
D60	mm	0.415
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 15/11/2022

UKAS TESTING

2519

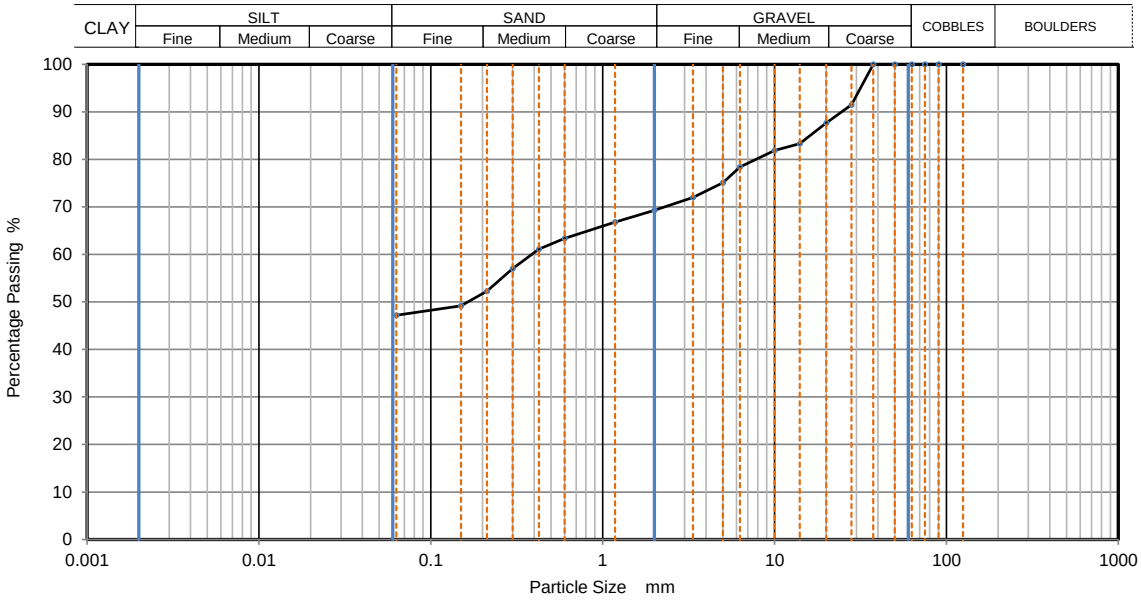
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99206
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	04/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	88		
14	83		
10	82		
6.3	78		
5	75		
3.35	72		
2	69		
1.18	67		
0.6	63		
0.425	61		
0.3	57		
0.212	52		
0.15	49		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.7
Sand	22.2
Fines <0.063mm	47.2

Grading Analysis		
D100	mm	
D60	mm	0.387
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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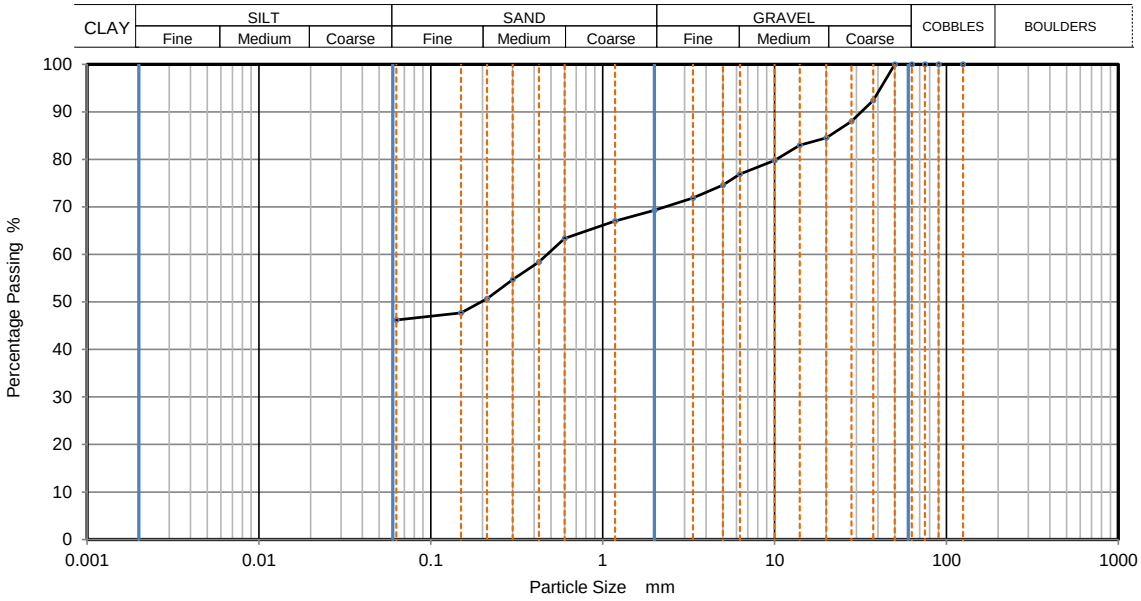
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99206
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	02/11/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	88		
20	85		
14	83		
10	80		
6.3	77		
5	75		
3.35	72		
2	69		
1.18	67		
0.6	63		
0.425	58		
0.3	55		
0.212	51		
0.15	48		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	30.7
Sand	23.2
Fines <0.063mm	46.2

Grading Analysis		
D100	mm	
D60	mm	0.474
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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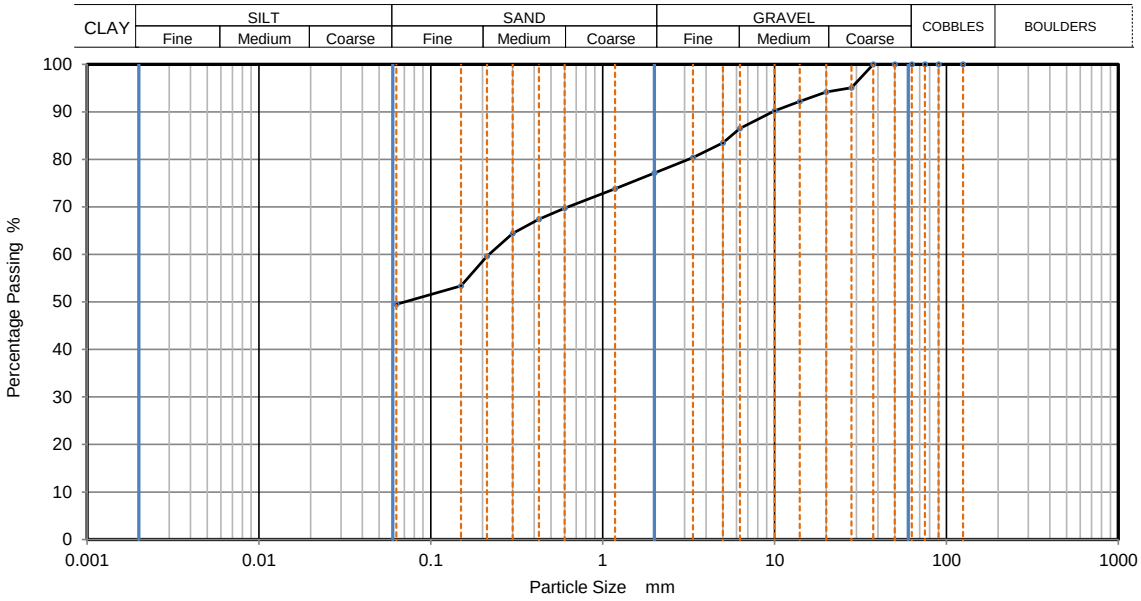
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99304
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	94		
14	92		
10	90		
6.3	87		
5	84		
3.35	80		
2	77		
1.18	74		
0.6	70		
0.425	67		
0.3	64		
0.212	60		
0.15	53		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.9
Sand	27.6
Fines <0.063mm	49.5

Grading Analysis		
D100	mm	
D60	mm	0.219
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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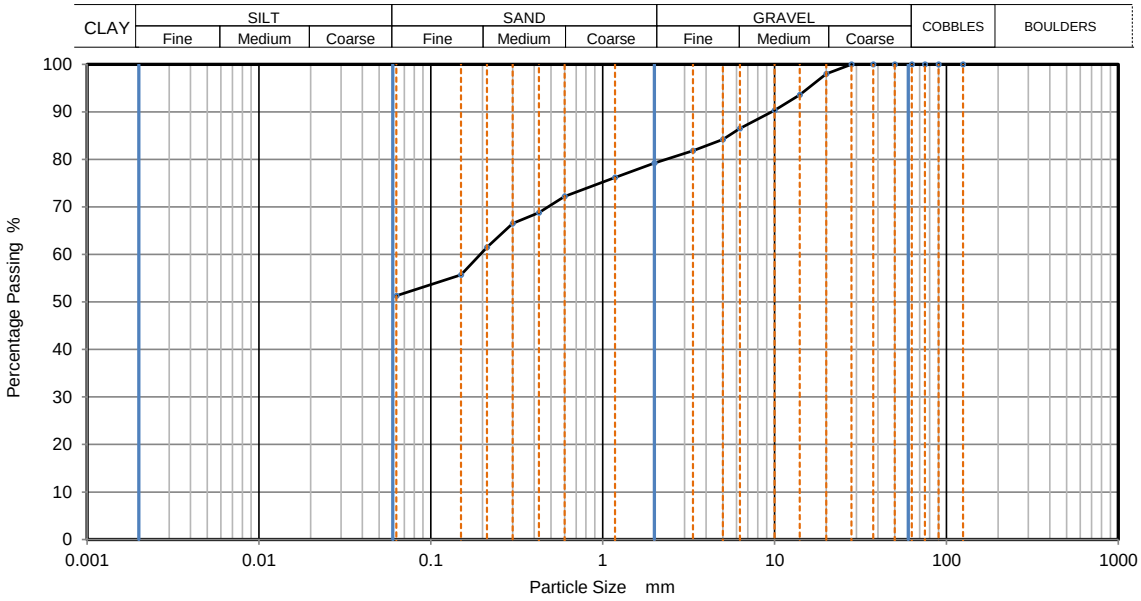
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99304
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	90		
6.3	87		
5	84		
3.35	82		
2	79		
1.18	76		
0.6	72		
0.425	69		
0.3	67		
0.212	62		
0.15	56		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.8
Sand	27.9
Fines <0.063mm	51.3

Grading Analysis		
D100	mm	
D60	mm	0.194
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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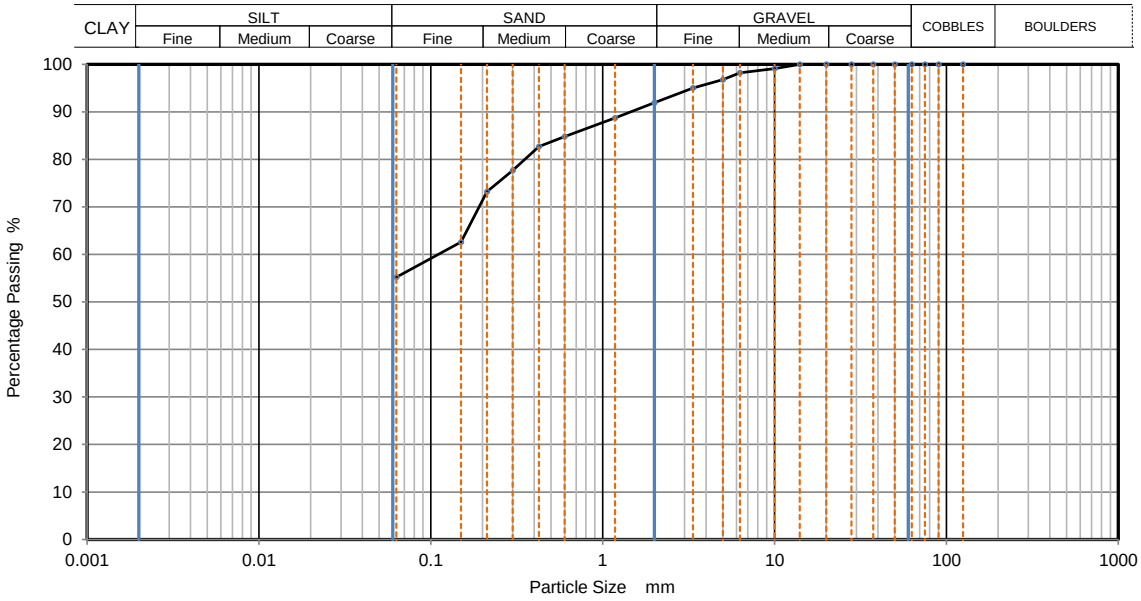
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99400
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	98		
5	97		
3.35	95		
2	92		
1.18	89		
0.6	85		
0.425	83		
0.3	78		
0.212	73		
0.15	63		
0.063	55		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	8.1
Sand	36.7
Fines <0.063mm	55.2

Grading Analysis		
D100	mm	
D60	mm	0.11
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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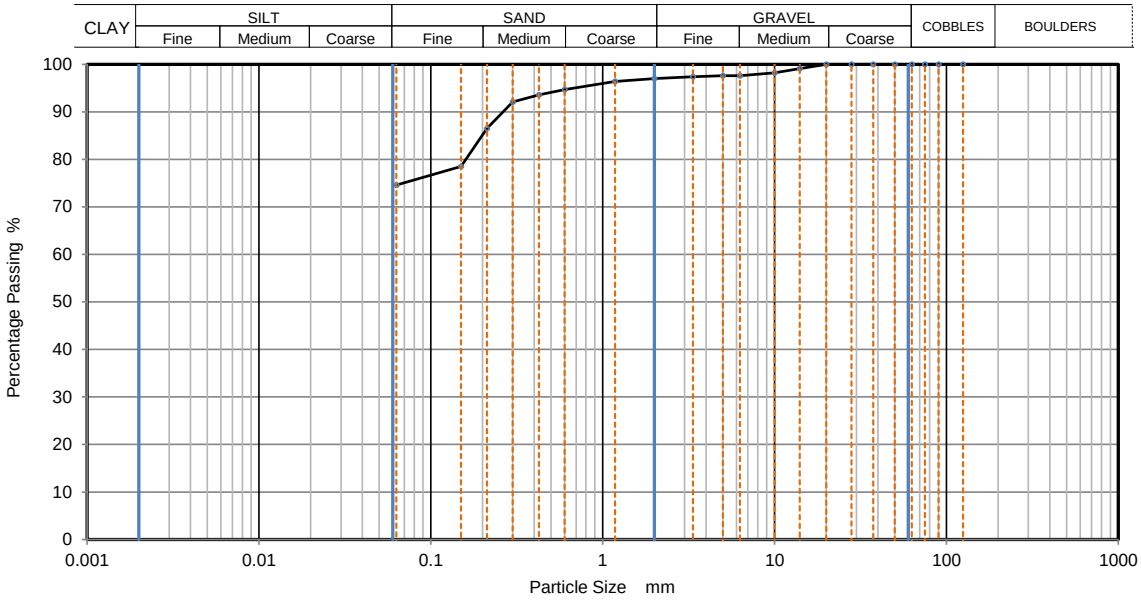
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99400
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	98		
5	98		
3.35	97		
2	97		
1.18	96		
0.6	95		
0.425	94		
0.3	92		
0.212	87		
0.15	79		
0.063	75		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	3.0
Sand	22.5
Fines <0.063mm	74.6

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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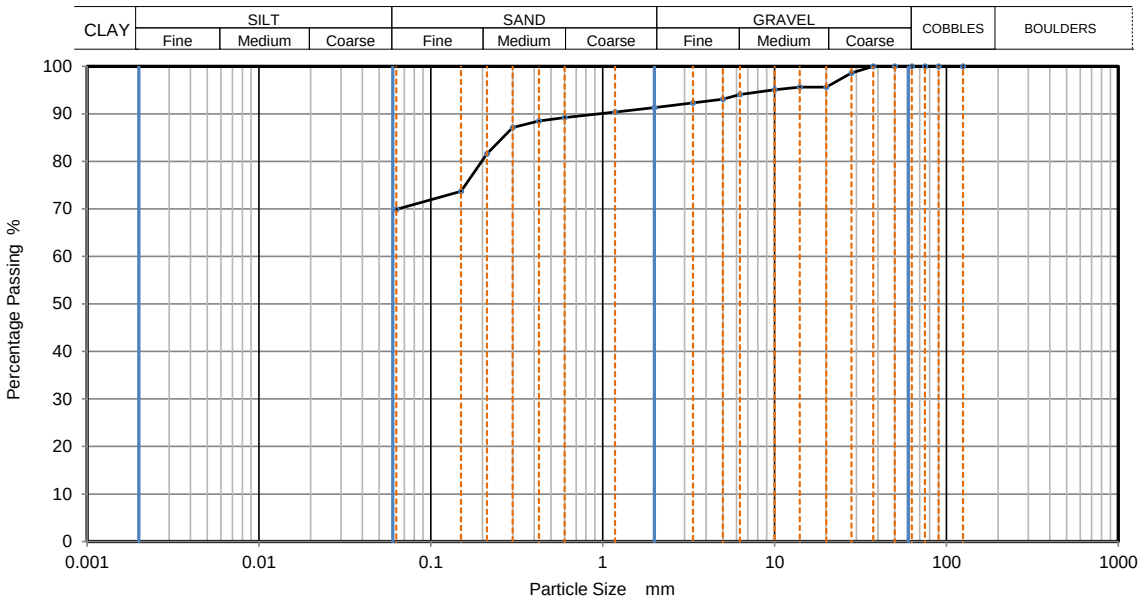
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99505
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	96		
14	96		
10	95		
6.3	94		
5	93		
3.35	92		
2	91		
1.18	90		
0.6	89		
0.425	89		
0.3	87		
0.212	82		
0.15	74		
0.063	70		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	8.7
Sand	21.4
Fines <0.063mm	69.9

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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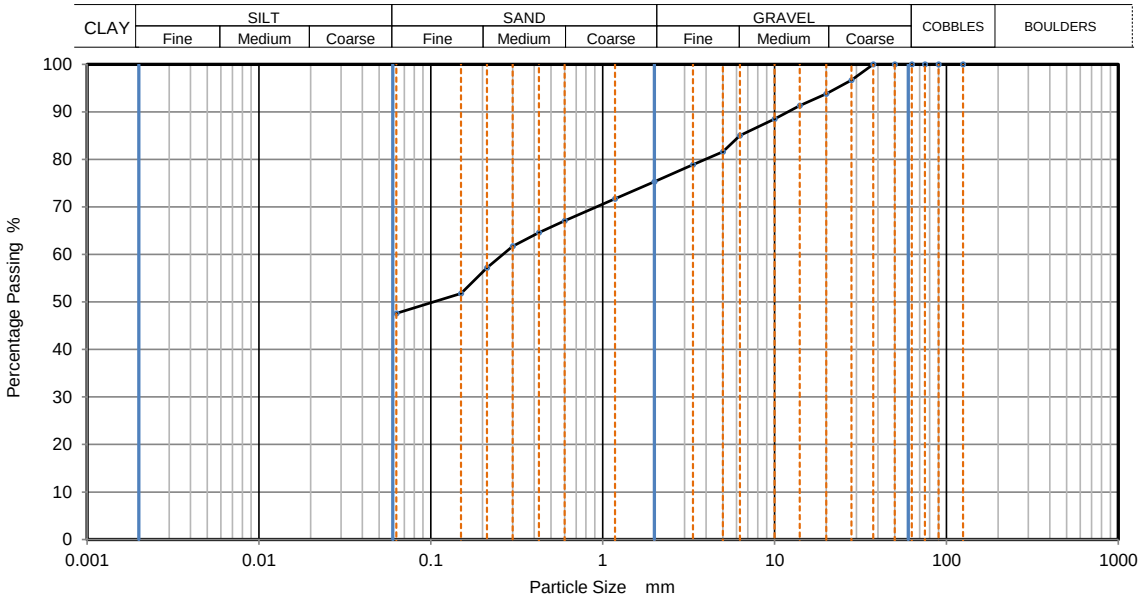
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99505
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	94		
14	91		
10	89		
6.3	85		
5	82		
3.35	79		
2	75		
1.18	72		
0.6	67		
0.425	65		
0.3	62		
0.212	57		
0.15	52		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.7
Sand	27.7
Fines <0.063mm	47.6

Grading Analysis		
D100	mm	
D60	mm	0.263
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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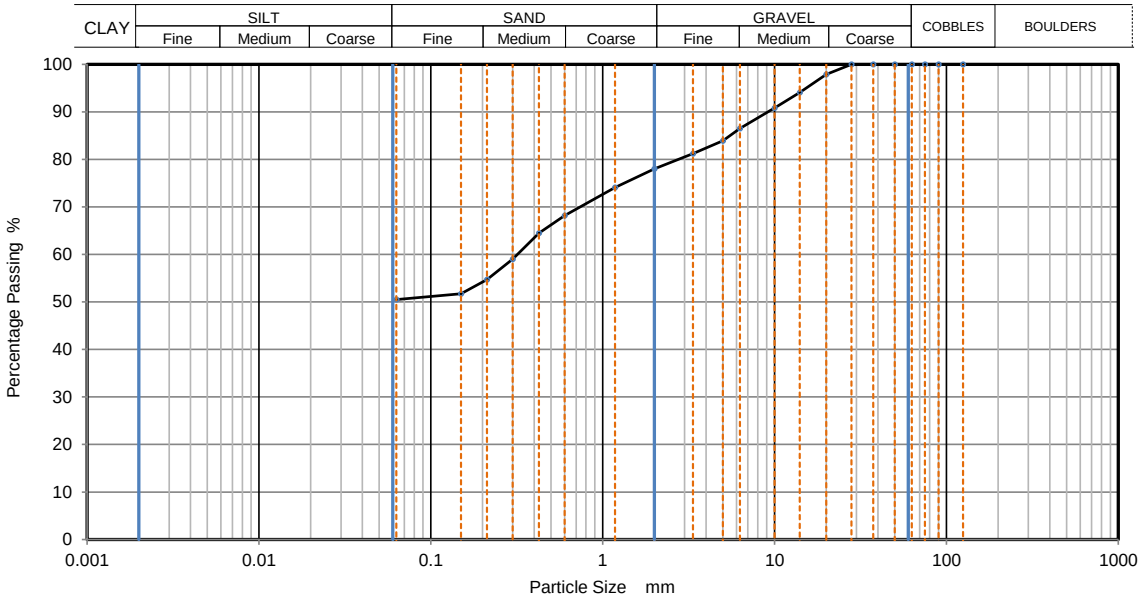
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99599
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	17/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	91		
6.3	87		
5	84		
3.35	81		
2	78		
1.18	74		
0.6	68		
0.425	65		
0.3	59		
0.212	55		
0.15	52		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.0
Sand	27.5
Fines <0.063mm	50.5

Grading Analysis		
D100	mm	
D60	mm	0.32
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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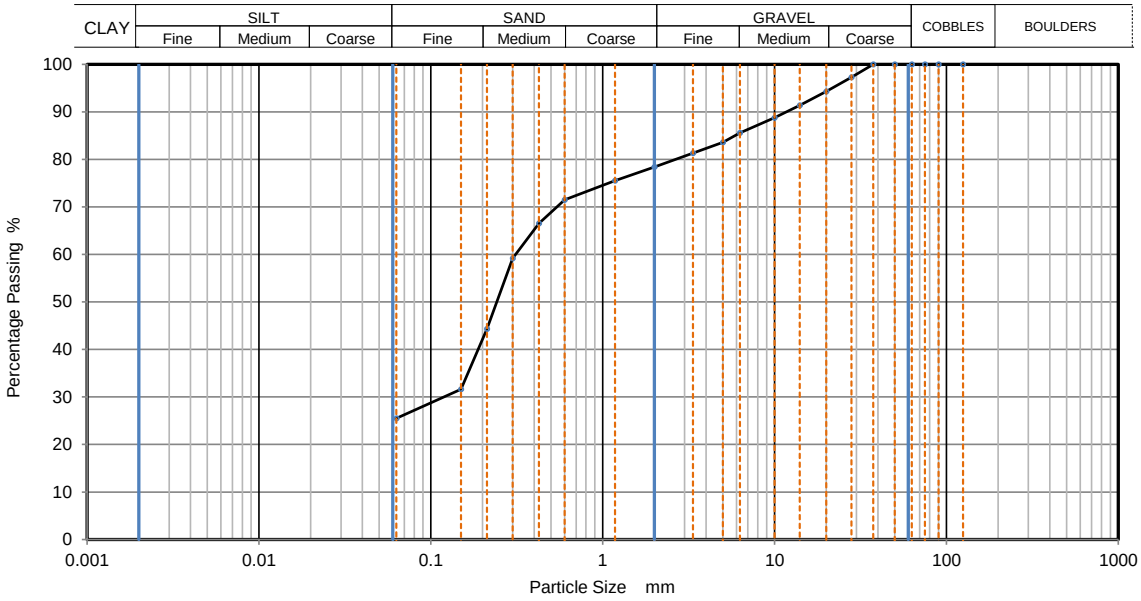
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99599
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Grey and dark grey silty clayey very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	94		
14	91		
10	89		
6.3	86		
5	84		
3.35	81		
2	78		
1.18	76		
0.6	72		
0.425	67		
0.3	59		
0.212	44		
0.15	32		
0.063	26		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.6
Sand	52.9
Fines <0.063mm	25.5

Grading Analysis		
D100	mm	
D60	mm	0.311
D30	mm	0.119
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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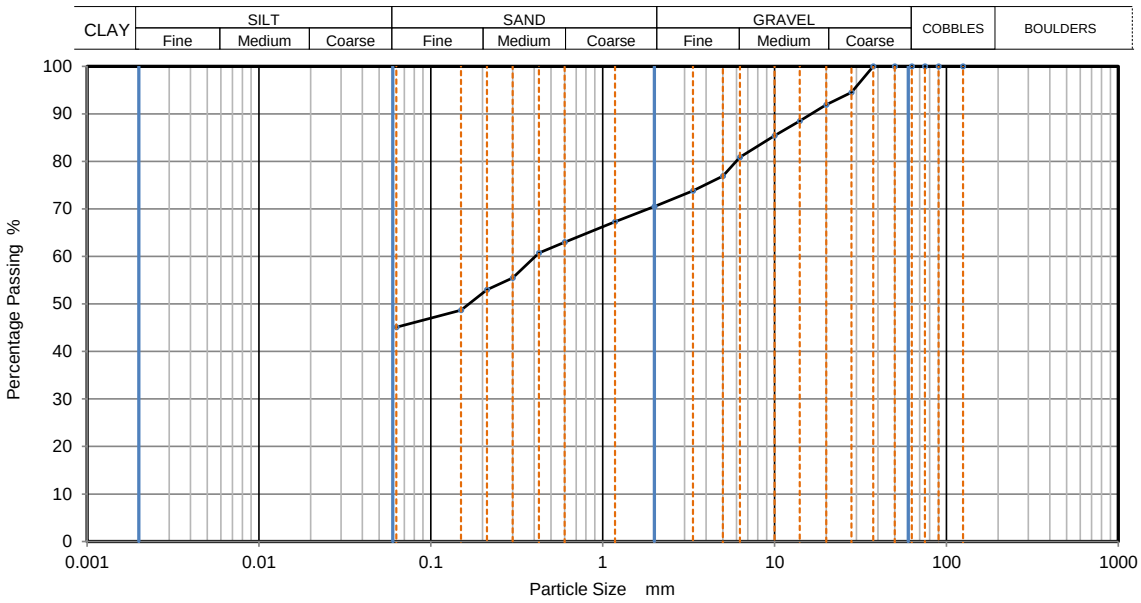
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99599
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.20 m
Soil Description	Brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	92		
14	89		
10	85		
6.3	81		
5	77		
3.35	74		
2	71		
1.18	67		
0.6	63		
0.425	61		
0.3	56		
0.212	53		
0.15	49		
0.063	45		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.5
Sand	25.4
Fines <0.063mm	45.1

Grading Analysis		
D100	mm	
D60	mm	0.406
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

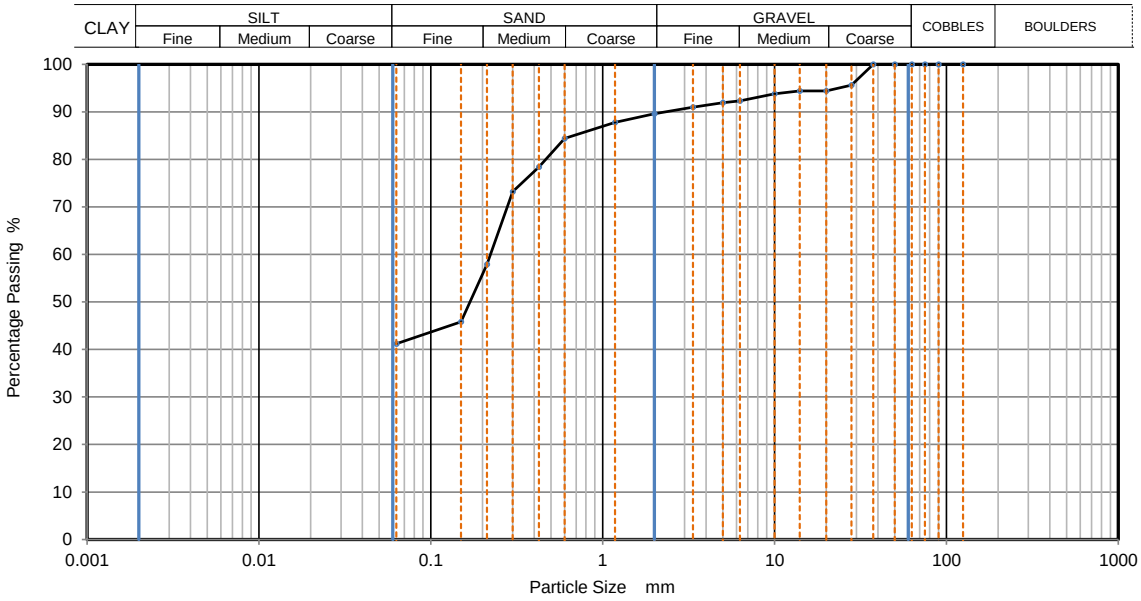
Initials: **J.P**

Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

Site Name	WSP Eastern & Midlands Region			Job Ref	32282
				Borehole/Pit No.	TP-99701
Project No.	2021OY102	Client	Irish Drilling	Sample No.	3
Soil Description	Brownish grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Top	0.70 m
				Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	17/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	94		
14	94		
10	94		
6.3	92		
5	92		
3.35	91		
2	90		
1.18	88		
0.6	84		
0.425	78		
0.3	73		
0.212	58		
0.15	46		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	10.4
Sand	48.4
Fines <0.063mm	41.2

Grading Analysis		
D100	mm	
D60	mm	0.222
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Initials: **J.P**

Date: 28/10/2022

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

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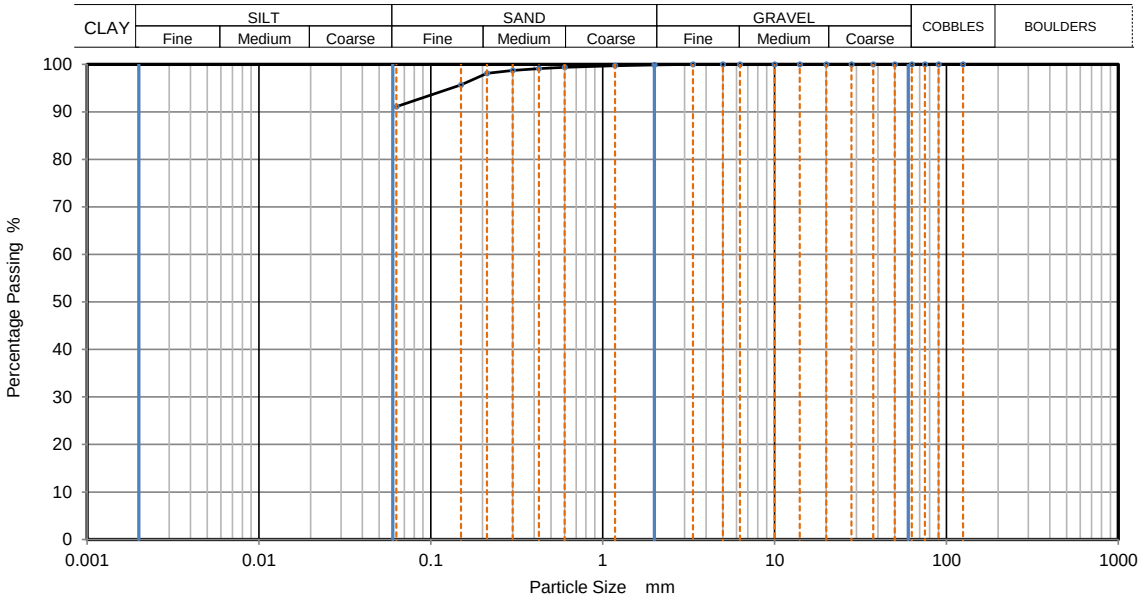
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-99701
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Grey slightly sandy silty CLAY			Depth Base	3.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	98		
0.15	96		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.1
Sand	8.7
Fines <0.063mm	91.1

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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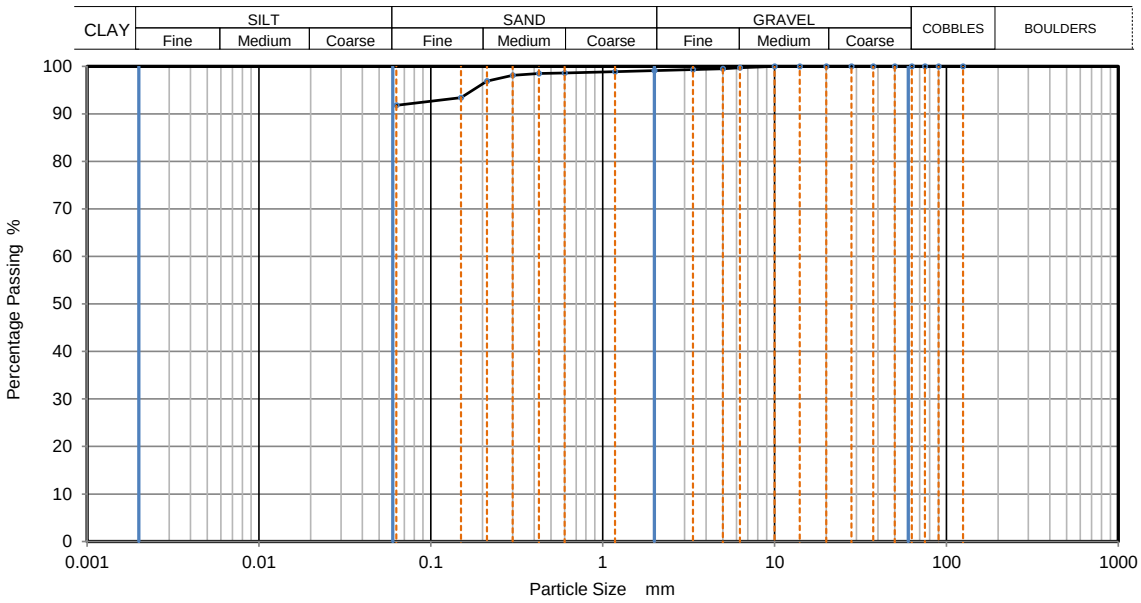
Date: 28/10/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100304
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey slightly fine sandy silty CLAY with rare fine angular gravel			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	97		
0.15	93		
0.063	92		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.9
Sand	7.4
Fines <0.063mm	91.8

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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UKAS TESTING

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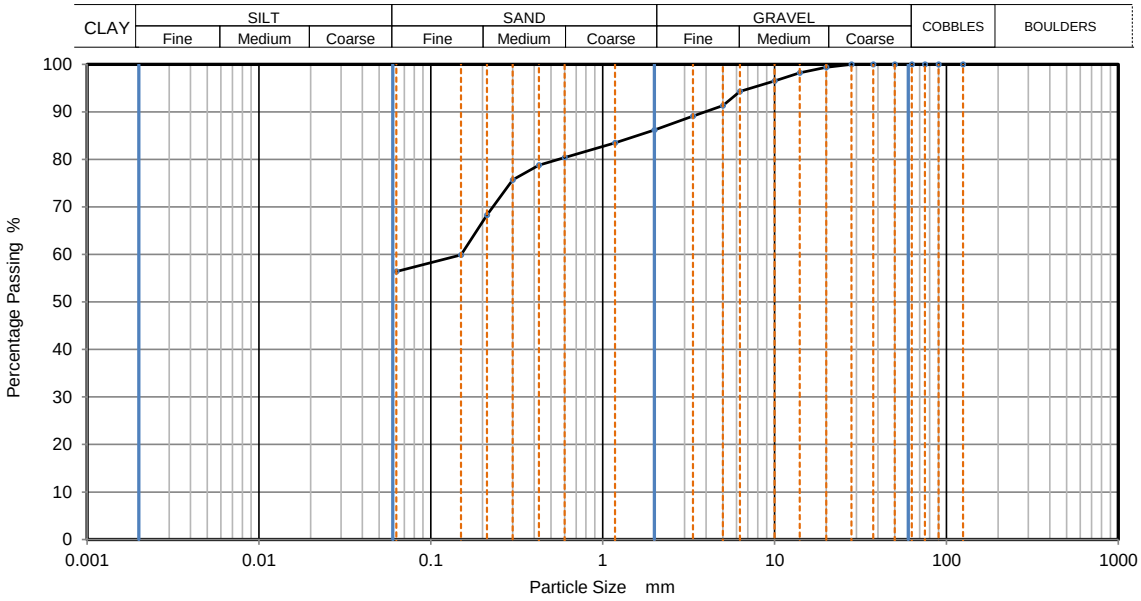
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100304
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	98		
10	97		
6.3	94		
5	91		
3.35	89		
2	86		
1.18	84		
0.6	80		
0.425	79		
0.3	76		
0.212	68		
0.15	60		
0.063	56		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	13.8
Sand	29.9
Fines <0.063mm	56.4

Grading Analysis		
D100	mm	
D60	mm	0.15
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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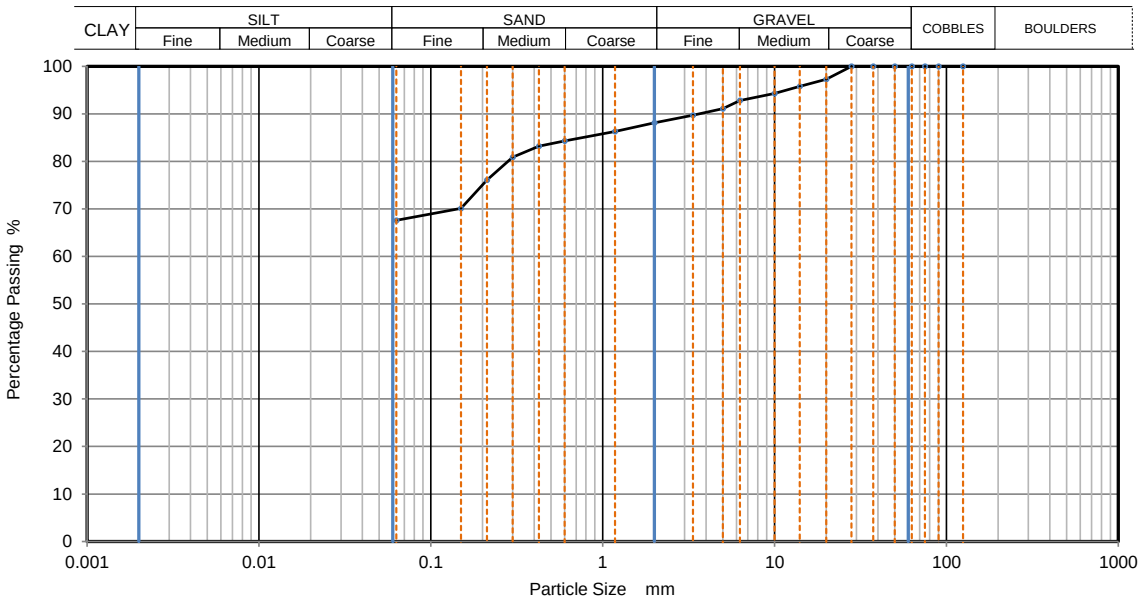
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100304
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Dark grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	96		
10	94		
6.3	93		
5	91		
3.35	90		
2	88		
1.18	86		
0.6	84		
0.425	83		
0.3	81		
0.212	76		
0.15	70		
0.063	68		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	11.9
Sand	20.5
Fines <0.063mm	67.6

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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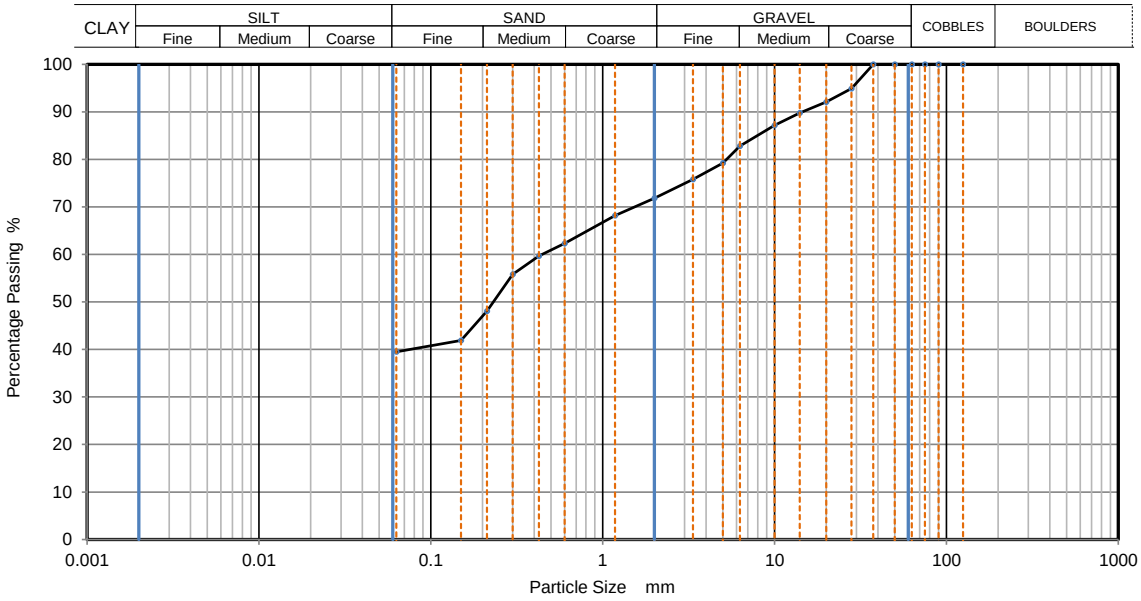
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100407
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-anguar to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	92		
14	90		
10	87		
6.3	83		
5	79		
3.35	76		
2	72		
1.18	68		
0.6	62		
0.425	60		
0.3	56		
0.212	48		
0.15	42		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	28.2
Sand	32.3
Fines <0.063mm	39.5

Grading Analysis		
D100	mm	
D60	mm	0.443
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

UKAS TESTING

2519

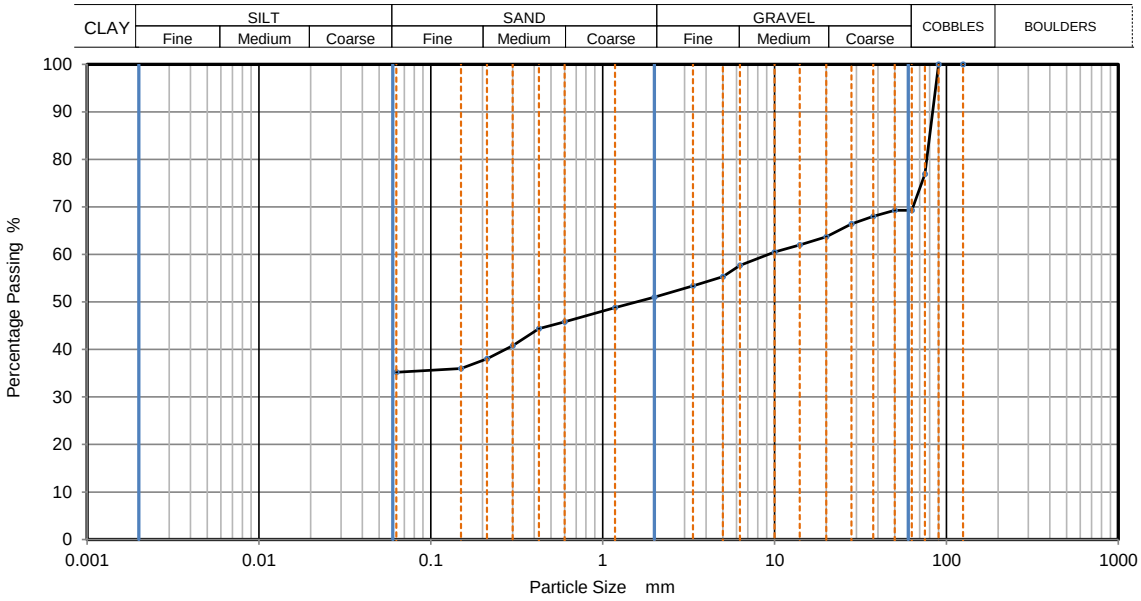
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100407
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	77		
63	69		
50	69		
37.5	68		
28	66		
20	64		
14	62		
10	61		
6.3	58		
5	55		
3.35	53		
2	51		
1.18	49		
0.6	46		
0.425	44		
0.3	41		
0.212	38		
0.15	36		
0.063	35		

Sample Proportions	% dry mass
Very coarse	30.7
Gravel	18.3
Sand	15.8
Fines <0.063mm	35.2

Grading Analysis		
D100	mm	
D60	mm	9.21
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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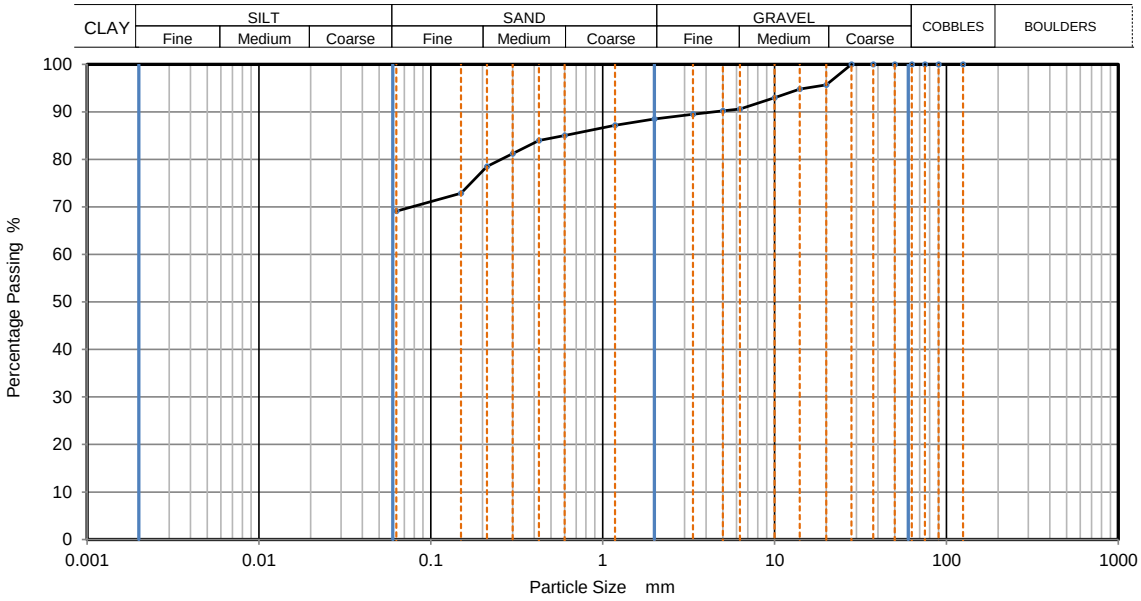
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100449
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown and grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	95		
10	93		
6.3	91		
5	90		
3.35	90		
2	89		
1.18	87		
0.6	85		
0.425	84		
0.3	81		
0.212	79		
0.15	73		
0.063	69		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	11.5
Sand	19.5
Fines <0.063mm	69.1

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Date: 14/12/2022

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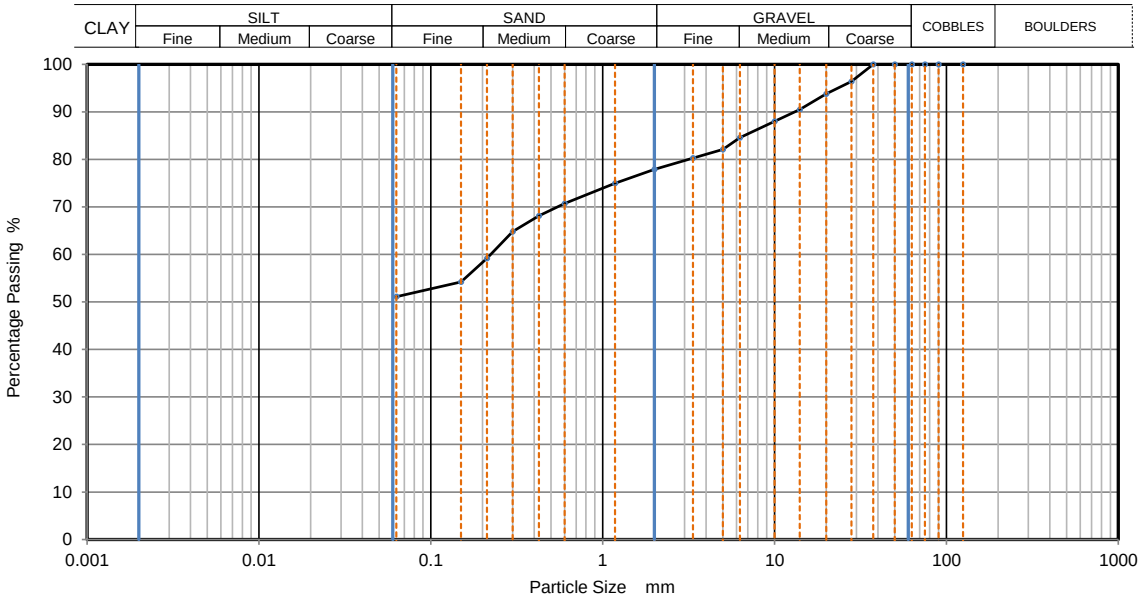
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100449
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	94		
14	91		
10	88		
6.3	85		
5	82		
3.35	80		
2	78		
1.18	75		
0.6	71		
0.425	68		
0.3	65		
0.212	59		
0.15	54		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.1
Sand	26.8
Fines <0.063mm	51.1

Grading Analysis		
D100	mm	
D60	mm	0.223
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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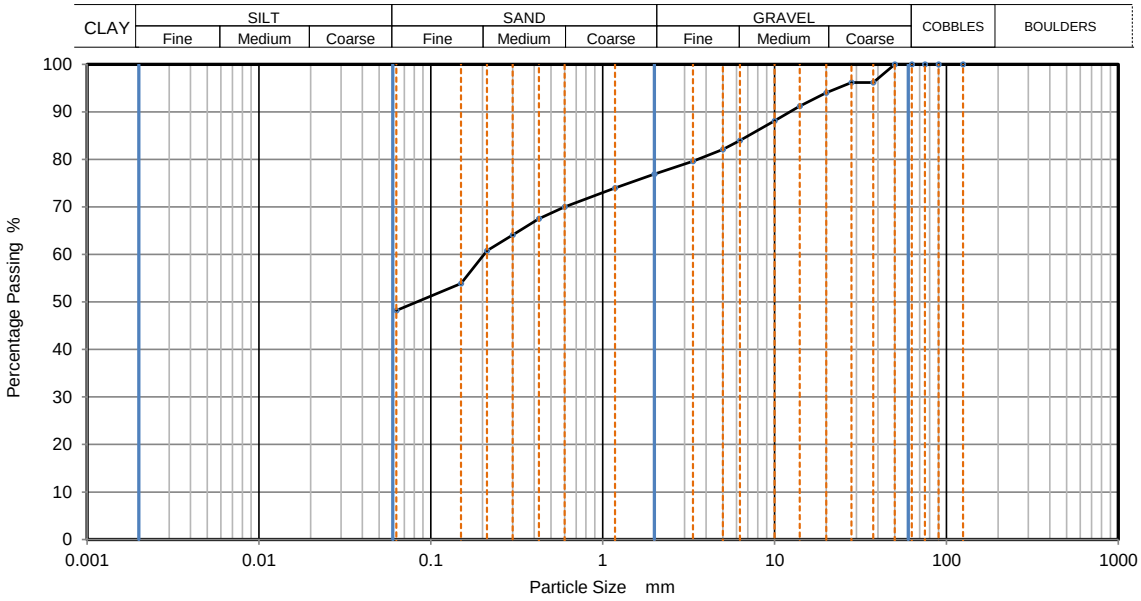
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100449
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.80 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular)			Depth Base	3.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	96		
20	94		
14	91		
10	88		
6.3	84		
5	82		
3.35	80		
2	77		
1.18	74		
0.6	70		
0.425	68		
0.3	64		
0.212	61		
0.15	54		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	23.1
Sand	28.7
Fines <0.063mm	48.2

Grading Analysis		
D100	mm	
D60	mm	0.204
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

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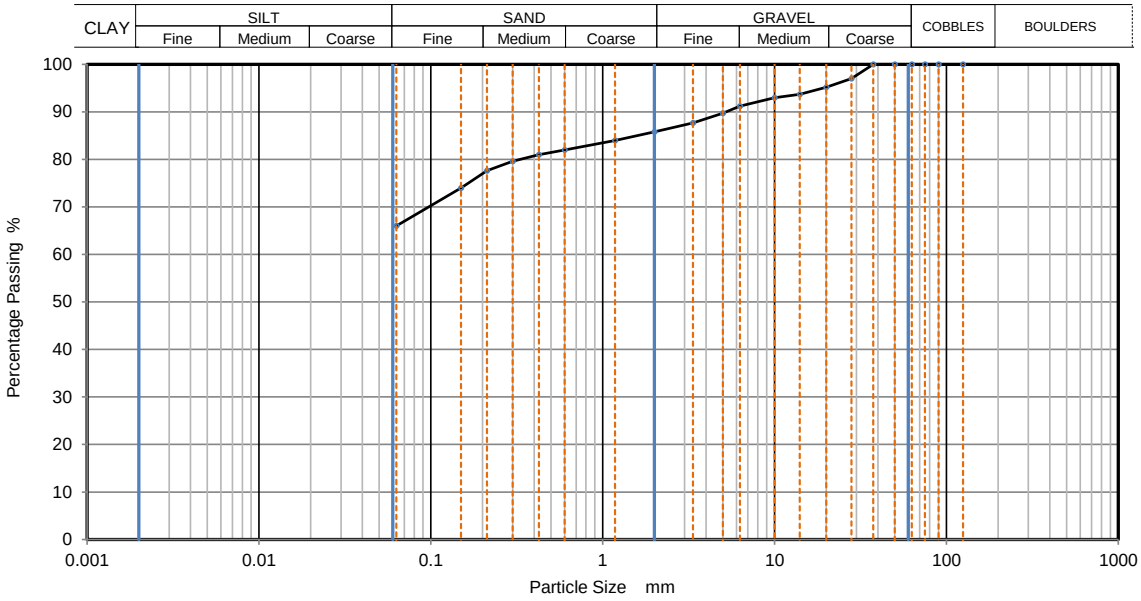
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100485
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	95		
14	94		
10	93		
6.3	91		
5	90		
3.35	88		
2	86		
1.18	84		
0.6	82		
0.425	81		
0.3	80		
0.212	78		
0.15	74		
0.063	66		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	14.2
Sand	19.8
Fines <0.063mm	66.0

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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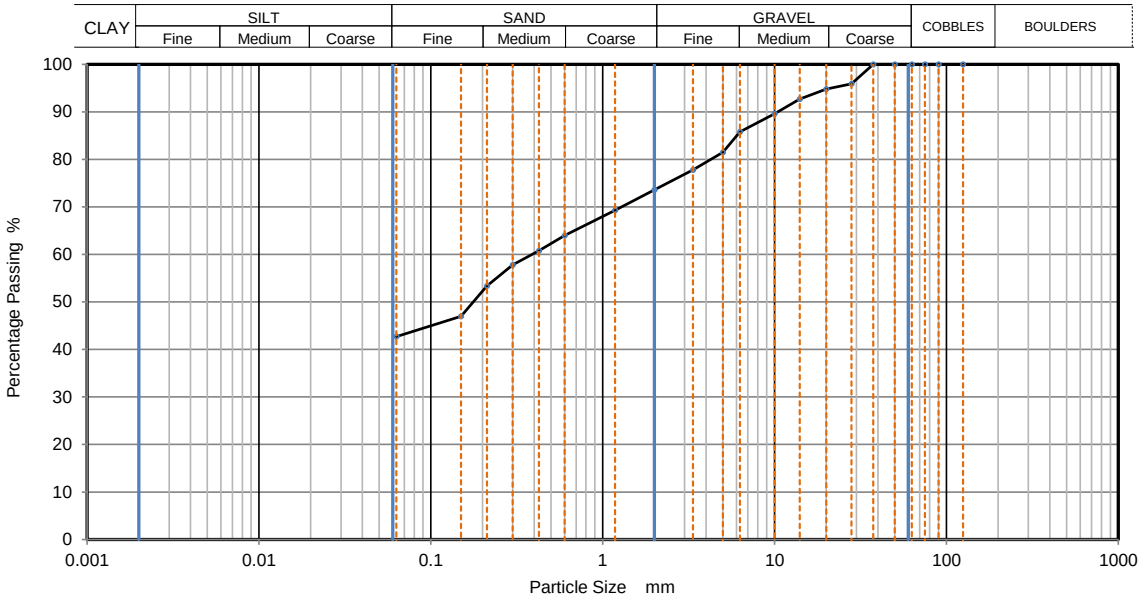
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100503
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	95		
14	93		
10	90		
6.3	86		
5	82		
3.35	78		
2	74		
1.18	69		
0.6	64		
0.425	61		
0.3	58		
0.212	53		
0.15	47		
0.063	43		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.4
Sand	31.0
Fines <0.063mm	42.7

Grading Analysis		
D100	mm	
D60	mm	0.388
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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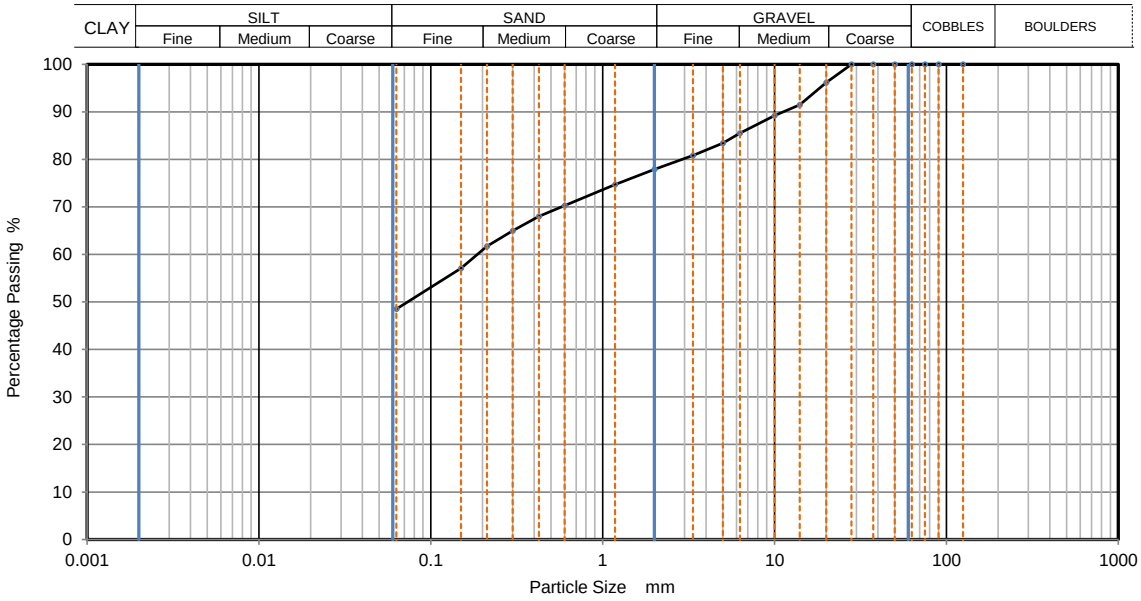
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	21/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	92		
10	89		
6.3	86		
5	83		
3.35	81		
2	78		
1.18	75		
0.6	70		
0.425	68		
0.3	65		
0.212	62		
0.15	57		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	22.1
Sand	29.4
Fines <0.063mm	48.5

Grading Analysis		
D100	mm	
D60	mm	0.187
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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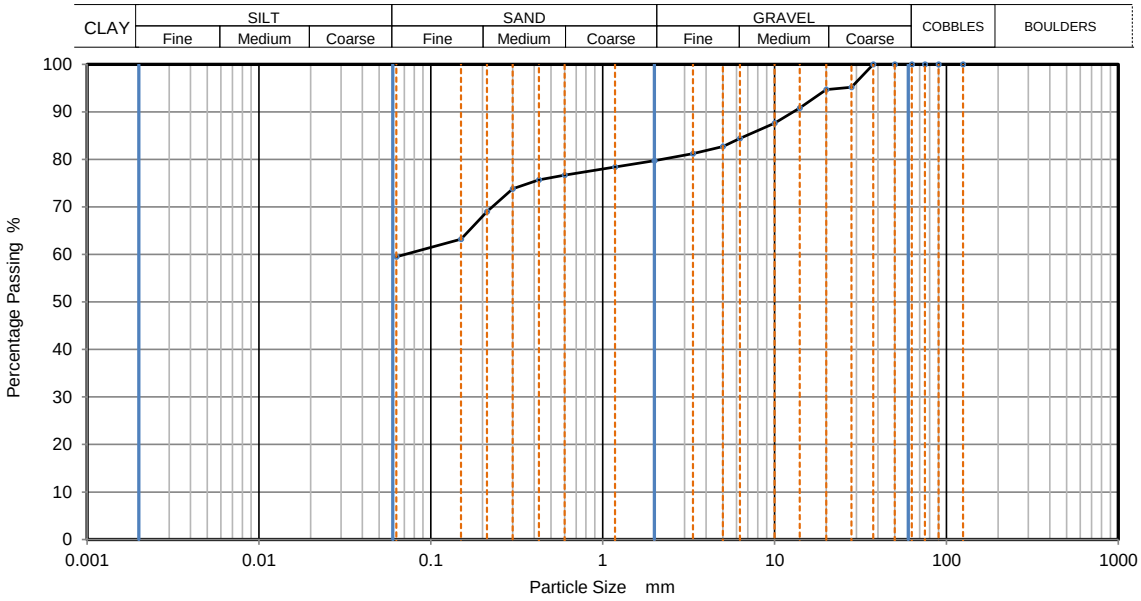
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100517
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	95		
14	91		
10	88		
6.3	84		
5	83		
3.35	81		
2	80		
1.18	78		
0.6	77		
0.425	76		
0.3	74		
0.212	69		
0.15	63		
0.063	60		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.3
Sand	20.2
Fines <0.063mm	59.5

Grading Analysis		
D100	mm	
D60	mm	0.071
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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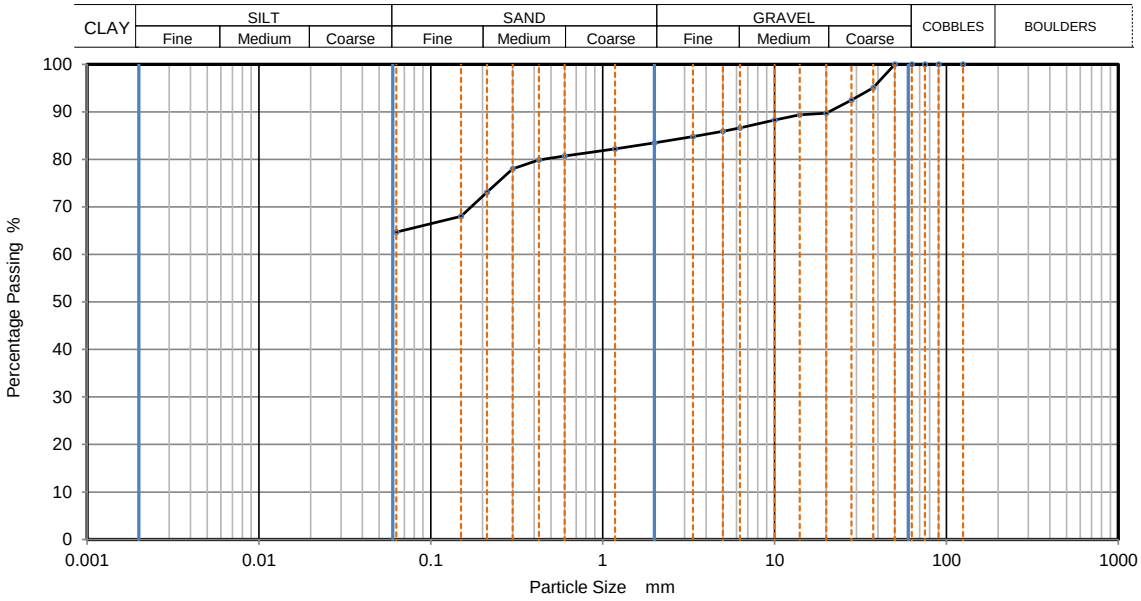
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100517
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	93		
20	90		
14	89		
10	88		
6.3	87		
5	86		
3.35	85		
2	84		
1.18	82		
0.6	81		
0.425	80		
0.3	78		
0.212	73		
0.15	68		
0.063	65		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	16.5
Sand	18.8
Fines <0.063mm	64.7

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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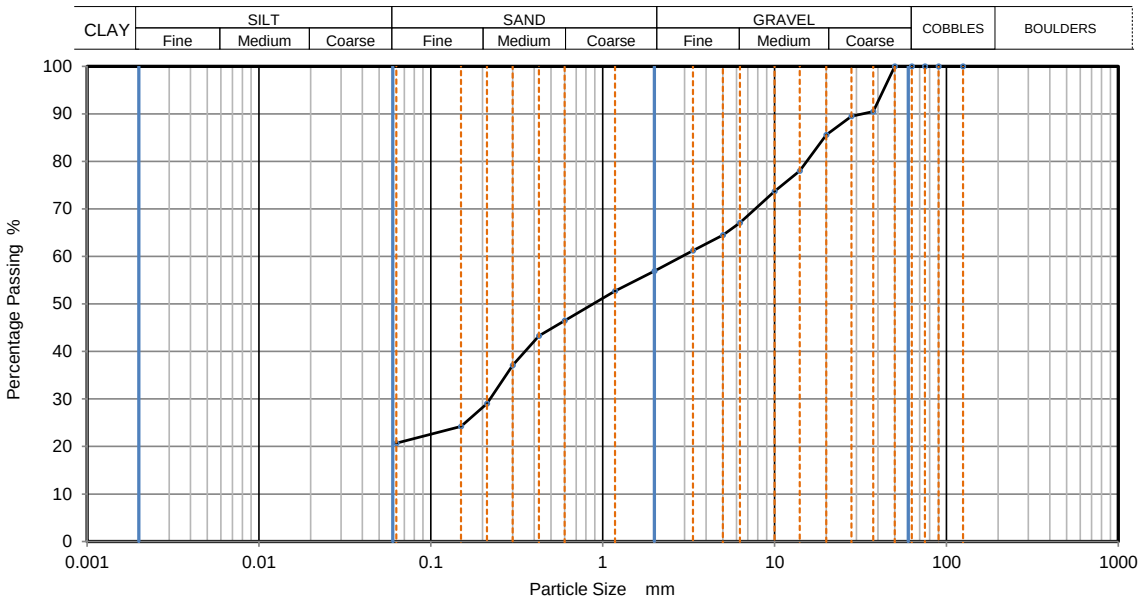
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100605
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	91		
28	90		
20	86		
14	78		
10	74		
6.3	67		
5	65		
3.35	61		
2	57		
1.18	53		
0.6	47		
0.425	43		
0.3	37		
0.212	29		
0.15	24		
0.063	21		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	43.1
Sand	36.3
Fines <0.063mm	20.7

Grading Analysis		
D100	mm	
D60	mm	2.9
D30	mm	0.221
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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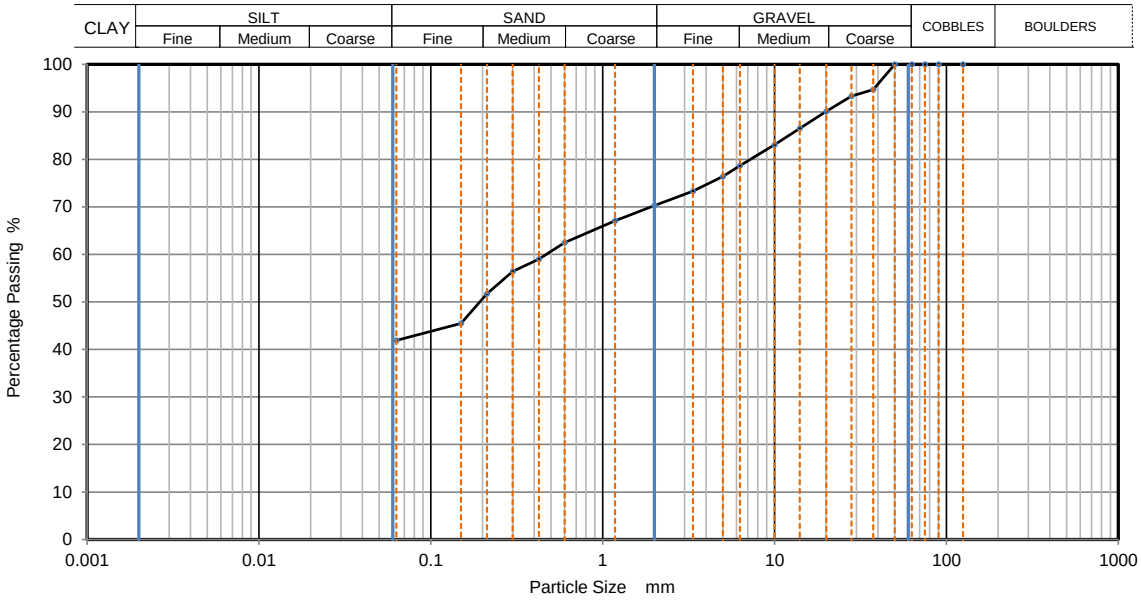
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100605
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.10 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.40 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	93		
20	90		
14	87		
10	83		
6.3	79		
5	76		
3.35	73		
2	70		
1.18	67		
0.6	63		
0.425	59		
0.3	56		
0.212	52		
0.15	46		
0.063	42		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.7
Sand	28.4
Fines <0.063mm	41.9

Grading Analysis		
D100	mm	
D60	mm	0.468
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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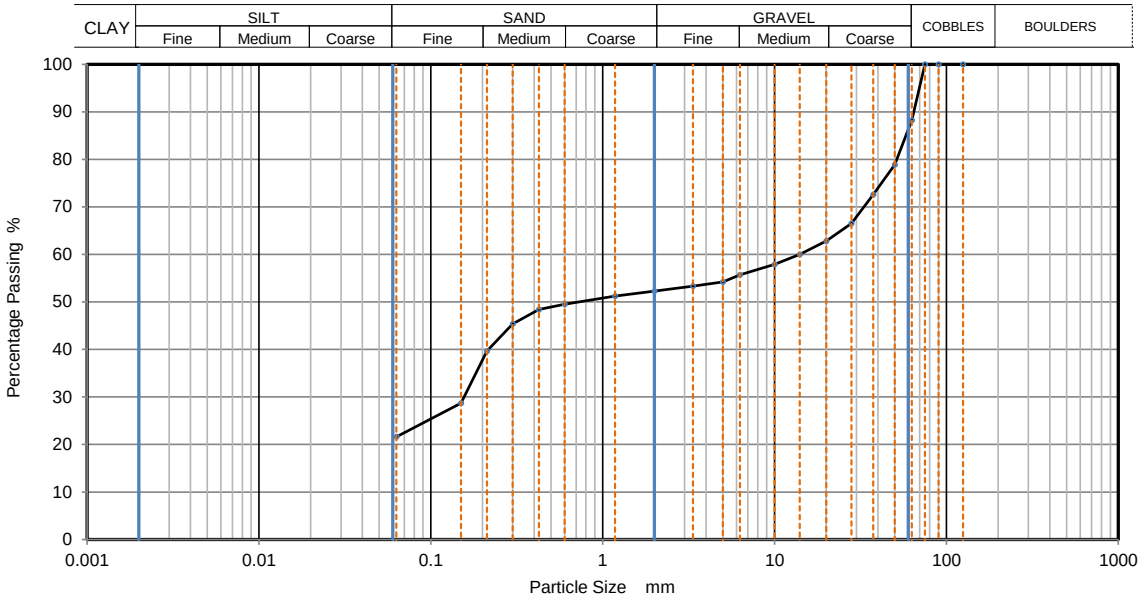
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-100605
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Brownish grey silty clayey very sandy GRAVEL with occasional cobbles (gravel is fmc and angular to sub-rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	88		
50	79		
37.5	73		
28	67		
20	63		
14	60		
10	58		
6.3	56		
5	54		
3.35	53		
2	52		
1.18	51		
0.6	50		
0.425	48		
0.3	45		
0.212	40		
0.15	29		
0.063	22		

Sample Proportions	% dry mass
Very coarse	11.8
Gravel	35.9
Sand	30.7
Fines <0.063mm	21.6

Grading Analysis		
D100	mm	
D60	mm	14.1
D30	mm	0.156
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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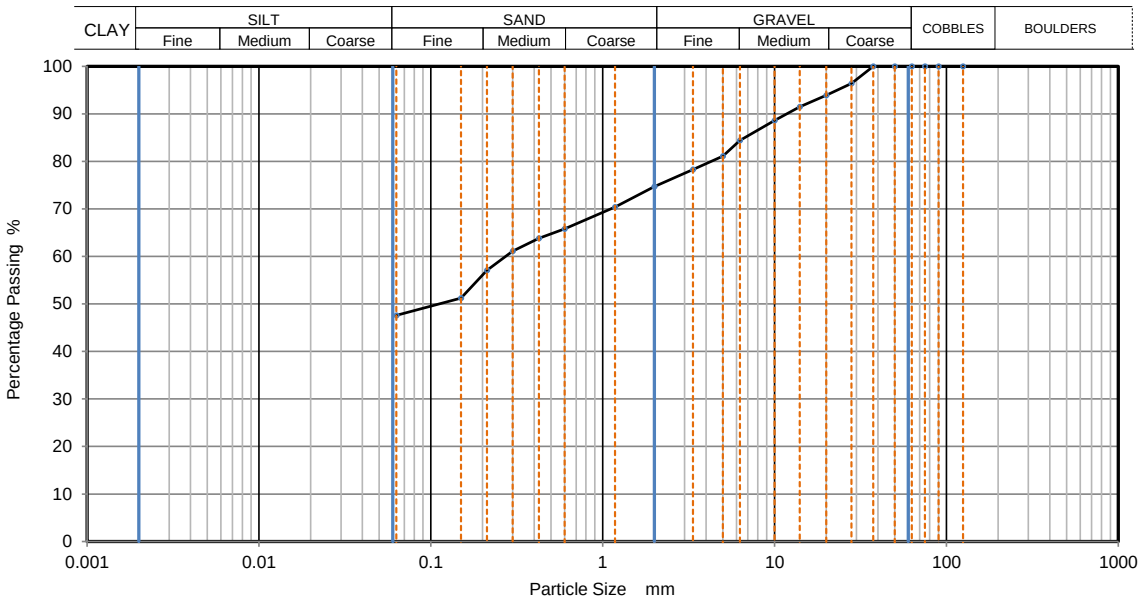
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101206
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	94		
14	92		
10	89		
6.3	84		
5	81		
3.35	78		
2	75		
1.18	70		
0.6	66		
0.425	64		
0.3	61		
0.212	57		
0.15	51		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	25.3
Sand	27.1
Fines <0.063mm	47.6

Grading Analysis		
D100	mm	
D60	mm	0.273
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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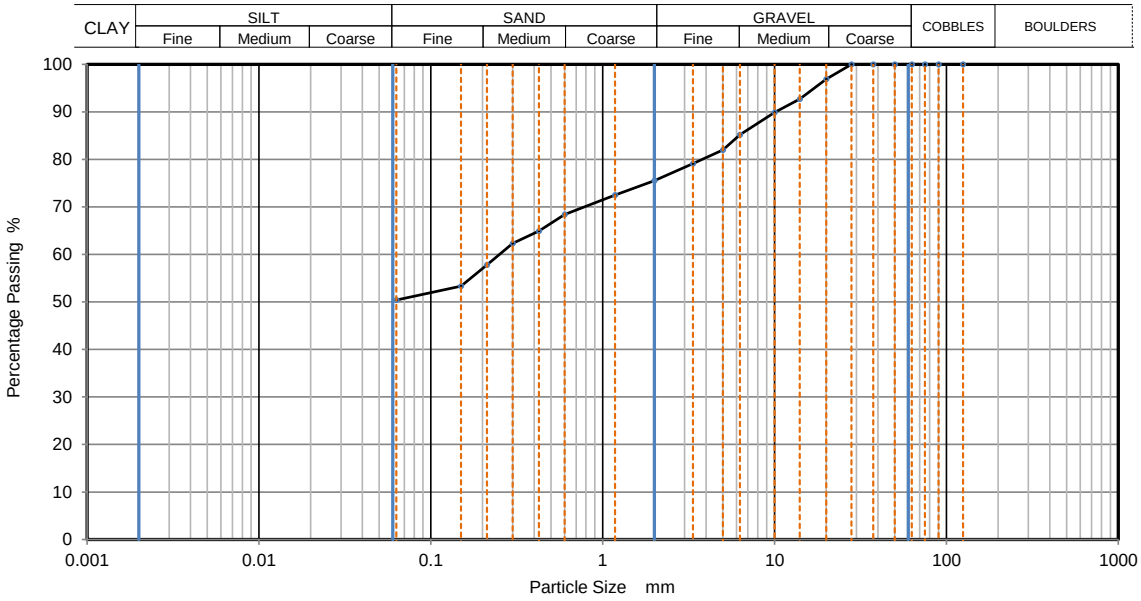
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101206
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	06/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	93		
10	90		
6.3	85		
5	82		
3.35	79		
2	76		
1.18	73		
0.6	68		
0.425	65		
0.3	62		
0.212	58		
0.15	53		
0.063	50		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.5
Sand	25.2
Fines <0.063mm	50.4

Grading Analysis		
D100	mm	
D60	mm	0.251
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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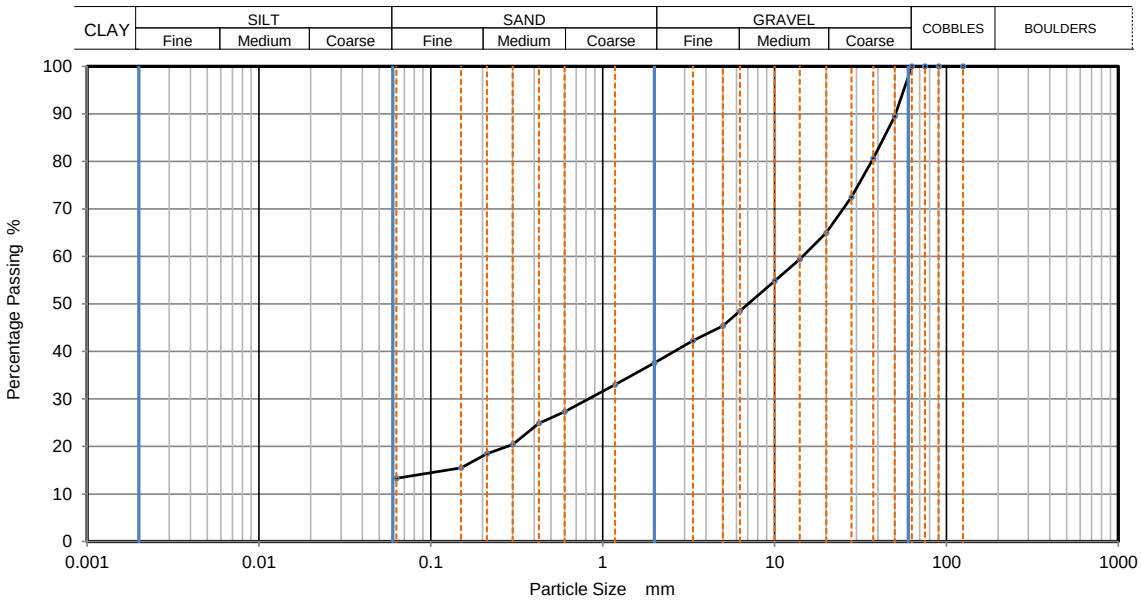
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101206
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.20 m
Soil Description	Brownish grey clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	90		
37.5	81		
28	73		
20	65		
14	59		
10	55		
6.3	49		
5	45		
3.35	42		
2	38		
1.18	33		
0.6	27		
0.425	25		
0.3	20		
0.212	19		
0.15	16		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	62.4
Sand	24.3
Fines <0.063mm	13.3

Grading Analysis		
D100	mm	
D60	mm	14.5
D30	mm	0.826
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

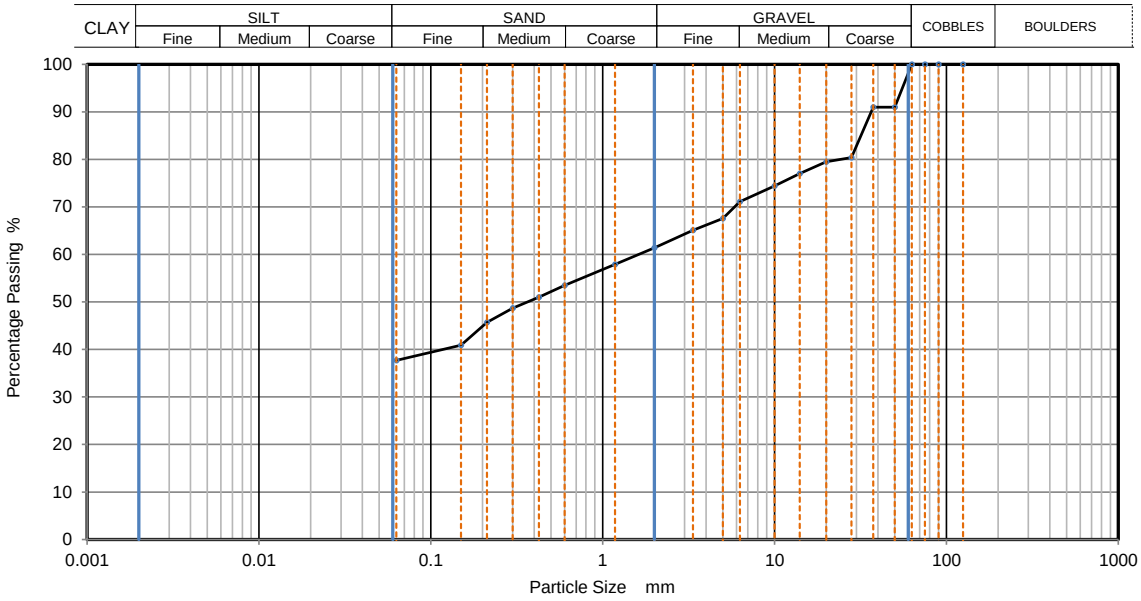
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101304
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	91		
28	80		
20	80		
14	77		
10	74		
6.3	71		
5	68		
3.35	65		
2	61		
1.18	58		
0.6	54		
0.425	51		
0.3	49		
0.212	46		
0.15	41		
0.063	38		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	38.6
Sand	23.7
Fines <0.063mm	37.7

Grading Analysis		
D100	mm	
D60	mm	1.62
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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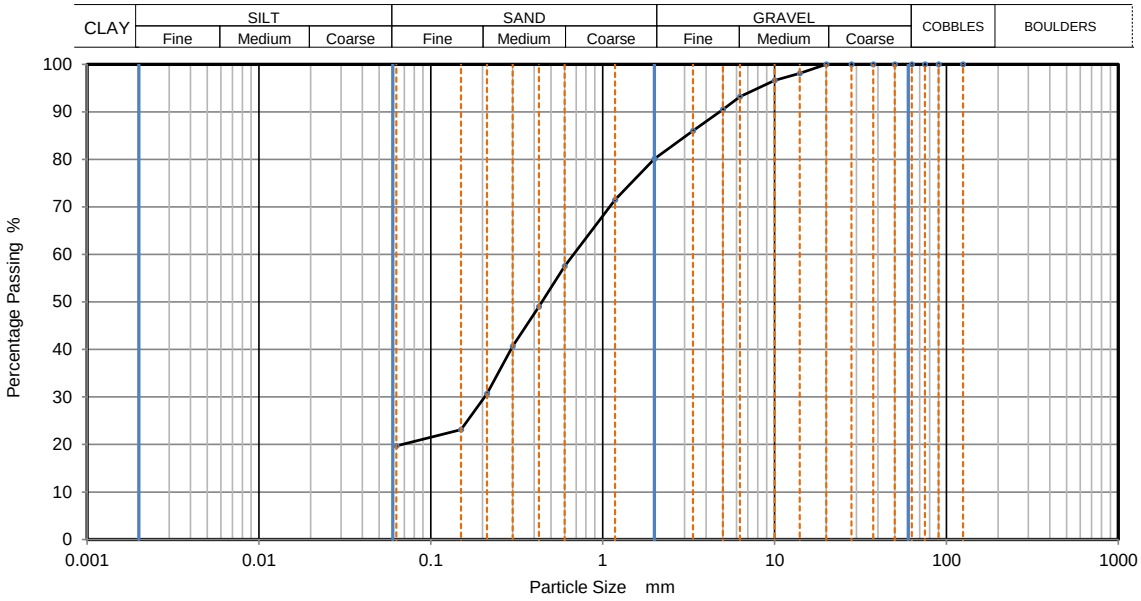
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101304
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey and greyish brown silty clayey gravelly SAND (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	07/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	93		
5	91		
3.35	86		
2	80		
1.18	72		
0.6	58		
0.425	49		
0.3	41		
0.212	31		
0.15	23		
0.063	20		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.9
Sand	60.4
Fines <0.063mm	19.7

Grading Analysis		
D100	mm	
D60	mm	0.678
D30	mm	0.205
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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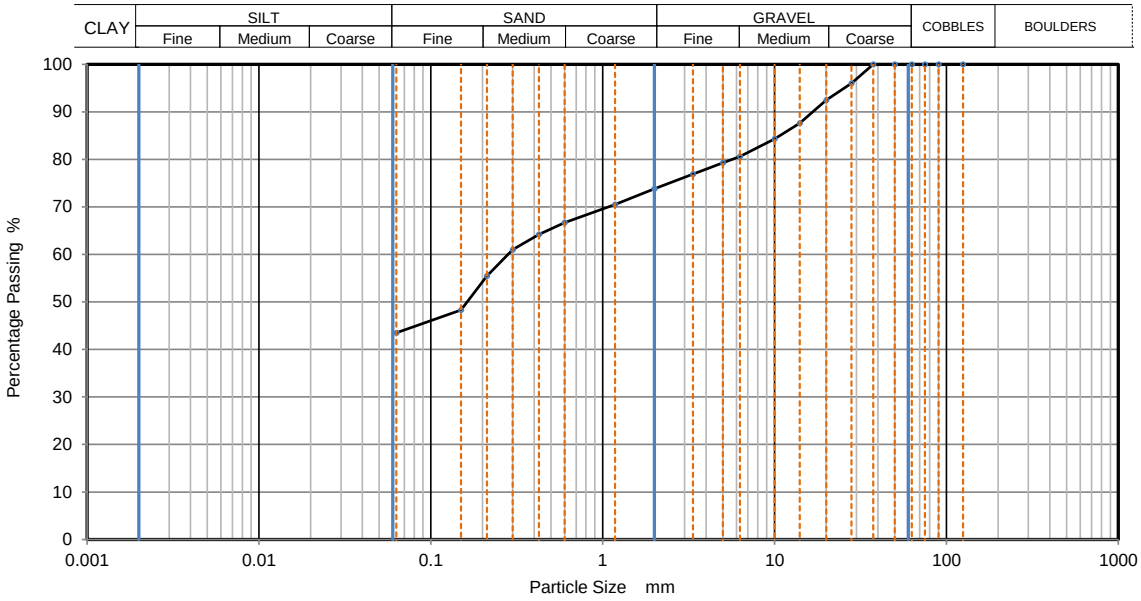
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101407
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	17/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	93		
14	88		
10	84		
6.3	81		
5	79		
3.35	77		
2	74		
1.18	71		
0.6	67		
0.425	64		
0.3	61		
0.212	56		
0.15	48		
0.063	44		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.2
Sand	30.3
Fines <0.063mm	43.5

Grading Analysis		
D100	mm	
D60	mm	0.281
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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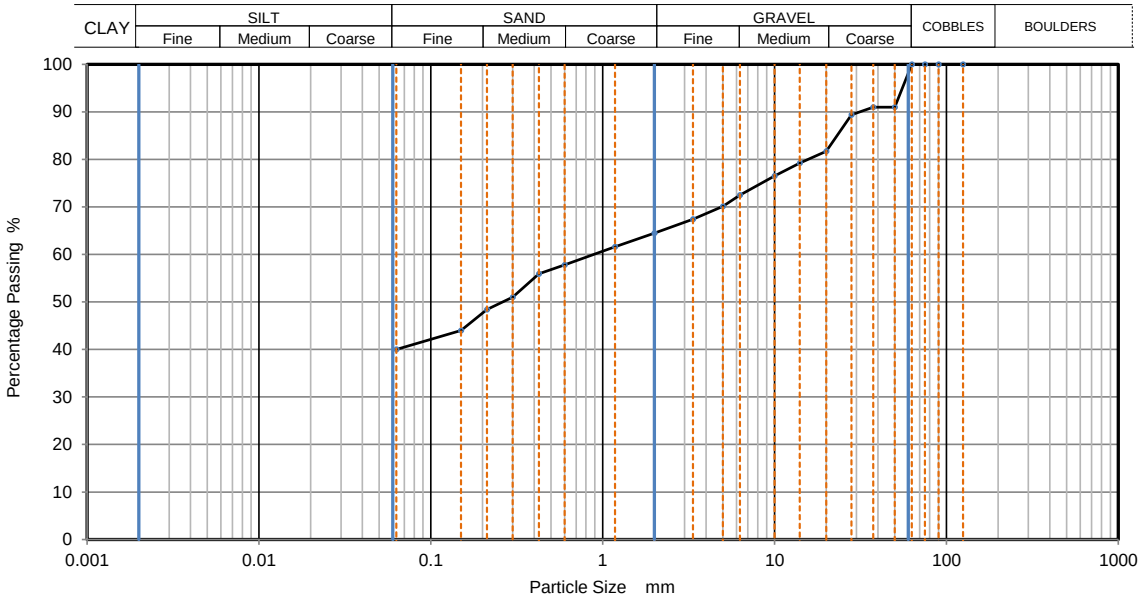
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101407
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	19/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	91		
28	89		
20	82		
14	79		
10	77		
6.3	73		
5	70		
3.35	67		
2	65		
1.18	62		
0.6	58		
0.425	56		
0.3	51		
0.212	48		
0.15	44		
0.063	40		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	35.5
Sand	24.5
Fines <0.063mm	40.0

Grading Analysis		
D100	mm	
D60	mm	0.883
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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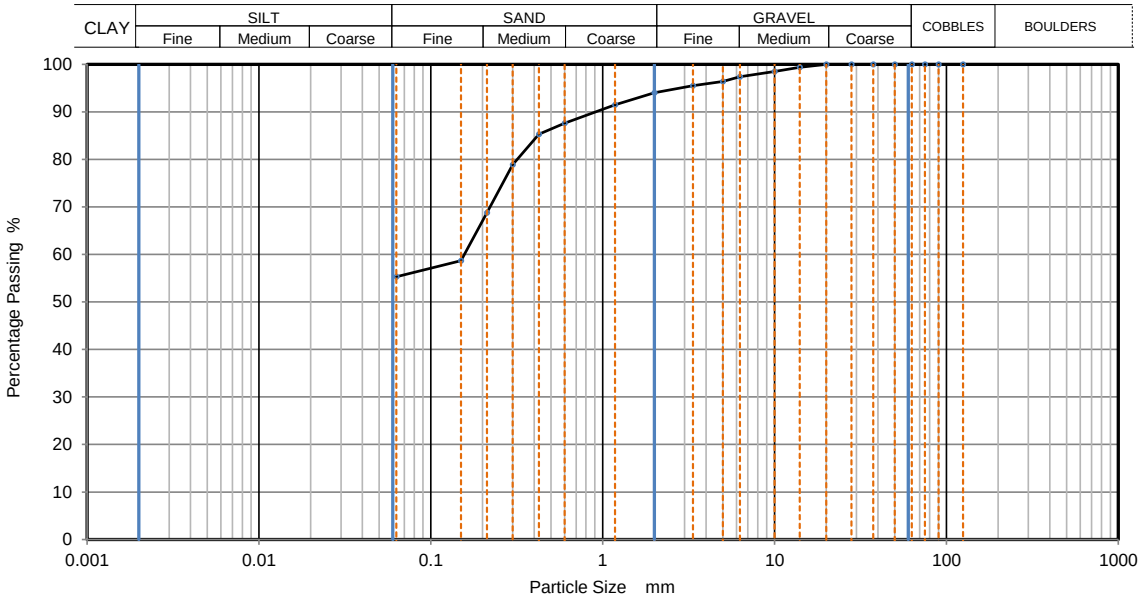
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101503
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.20 m
Soil Description	Brown slightly gravelly sandy silty CLAY with rootlets (gravel is fm and sub-angular to sub-rounded)			Depth Base	0.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	97		
5	96		
3.35	96		
2	94		
1.18	92		
0.6	88		
0.425	85		
0.3	79		
0.212	69		
0.15	59		
0.063	55		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	6.0
Sand	38.7
Fines <0.063mm	55.3

Grading Analysis		
D100	mm	
D60	mm	0.157
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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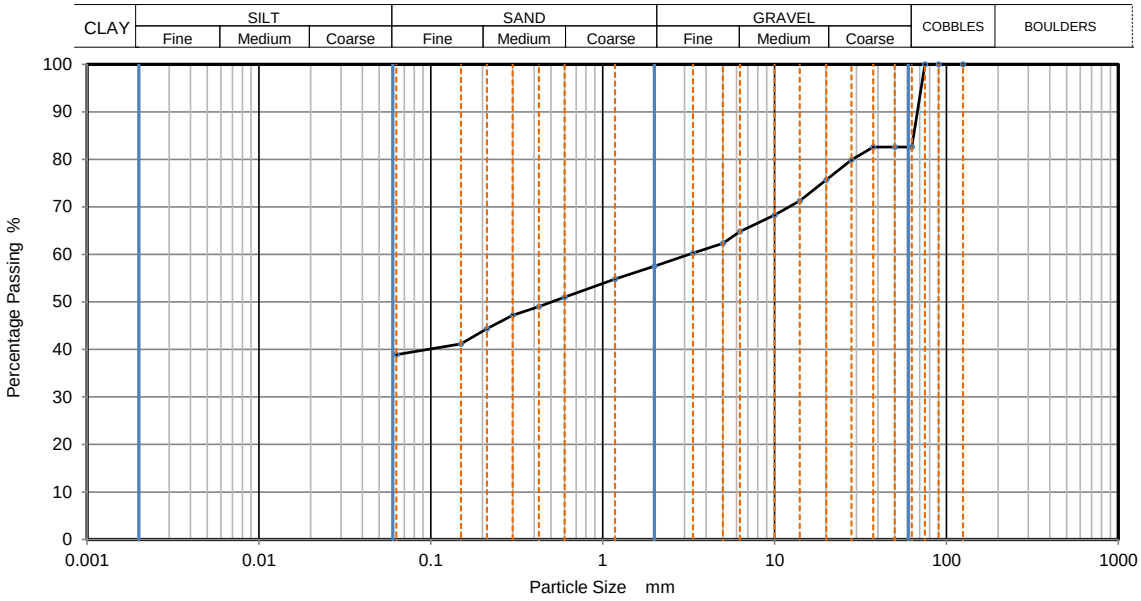
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101503
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY with occasional cobbles (gravel is fmc and sub-angular to rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	83		
50	83		
37.5	83		
28	80		
20	76		
14	71		
10	68		
6.3	65		
5	62		
3.35	60		
2	58		
1.18	55		
0.6	51		
0.425	49		
0.3	47		
0.212	44		
0.15	41		
0.063	39		

Sample Proportions	% dry mass
Very coarse	17.4
Gravel	25.1
Sand	18.6
Fines <0.063mm	38.9

Grading Analysis		
D100	mm	
D60	mm	3.18
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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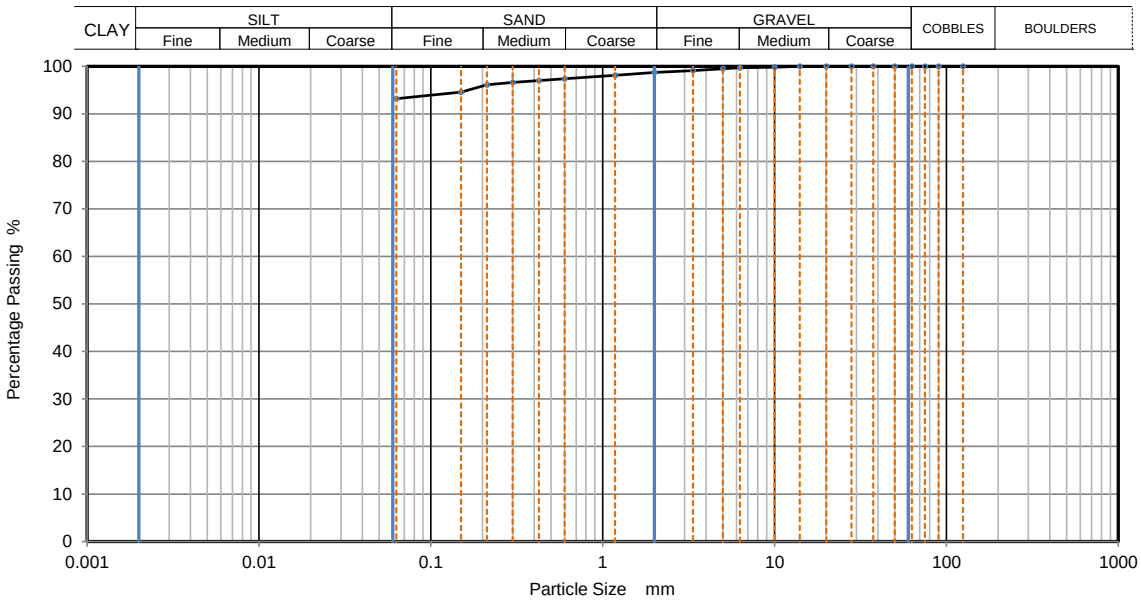
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101600
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	97		
0.425	97		
0.3	97		
0.212	96		
0.15	95		
0.063	93		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	1.3
Sand	5.5
Fines <0.063mm	93.2

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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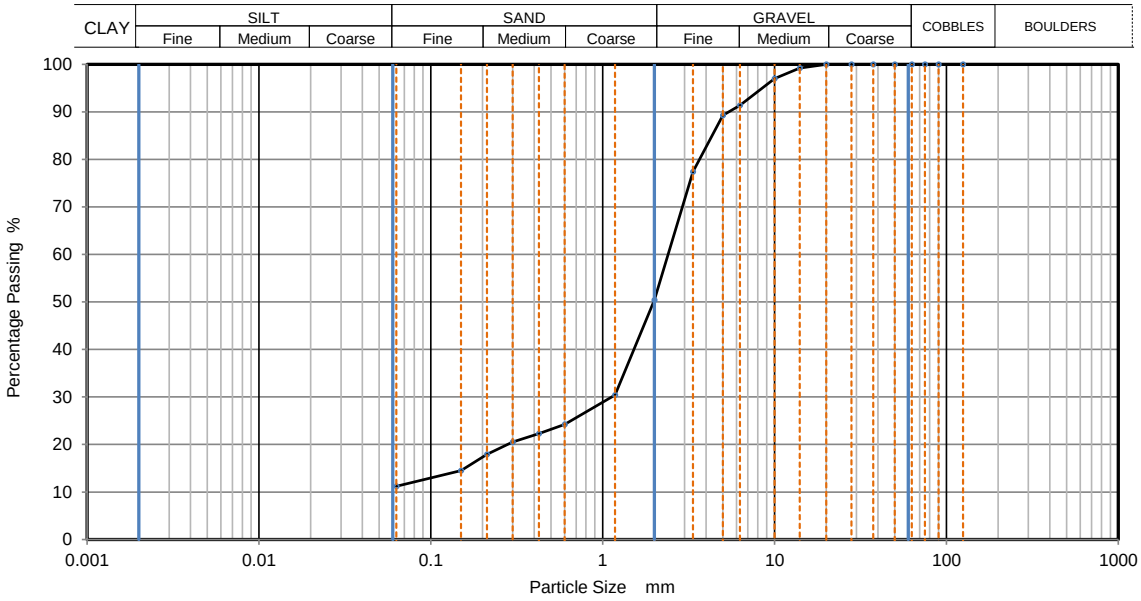
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101600
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.40 m
Soil Description	Greyish brown silty clayey very sandy GRAVEL (gravel is fm and sub-angular to sub-rounded)			Depth Base	3.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	97		
6.3	91		
5	89		
3.35	77		
2	50		
1.18	30		
0.6	24		
0.425	22		
0.3	21		
0.212	18		
0.15	15		
0.063	11		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	49.6
Sand	39.2
Fines <0.063mm	11.2

Grading Analysis		
D100	mm	
D60	mm	2.4
D30	mm	1.13
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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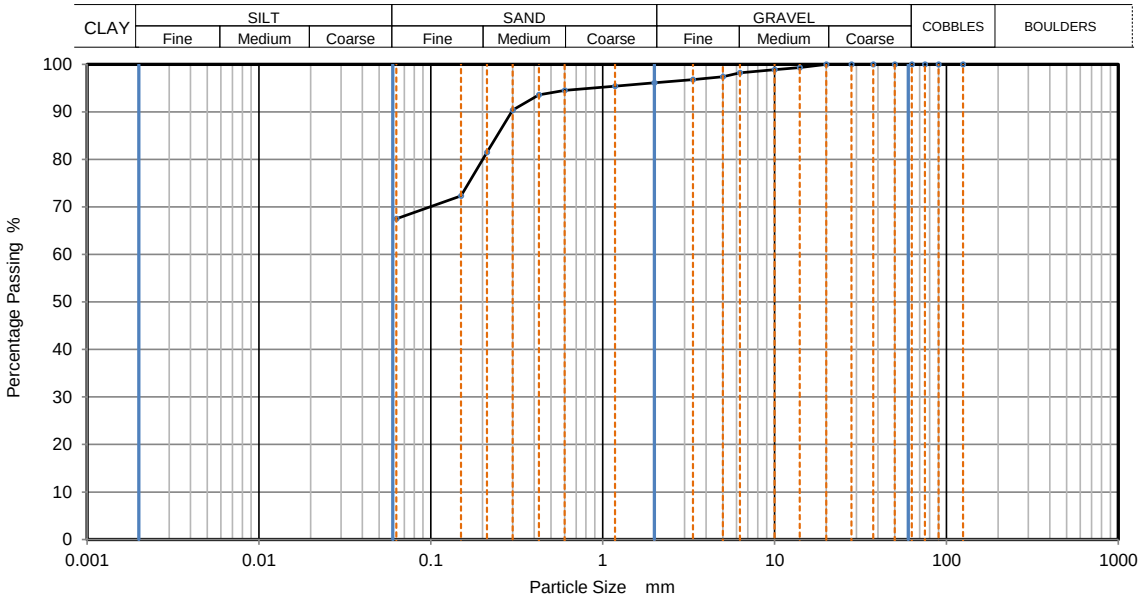
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101704
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	98		
5	97		
3.35	97		
2	96		
1.18	95		
0.6	95		
0.425	94		
0.3	90		
0.212	82		
0.15	72		
0.063	68		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	3.9
Sand	28.6
Fines <0.063mm	67.5

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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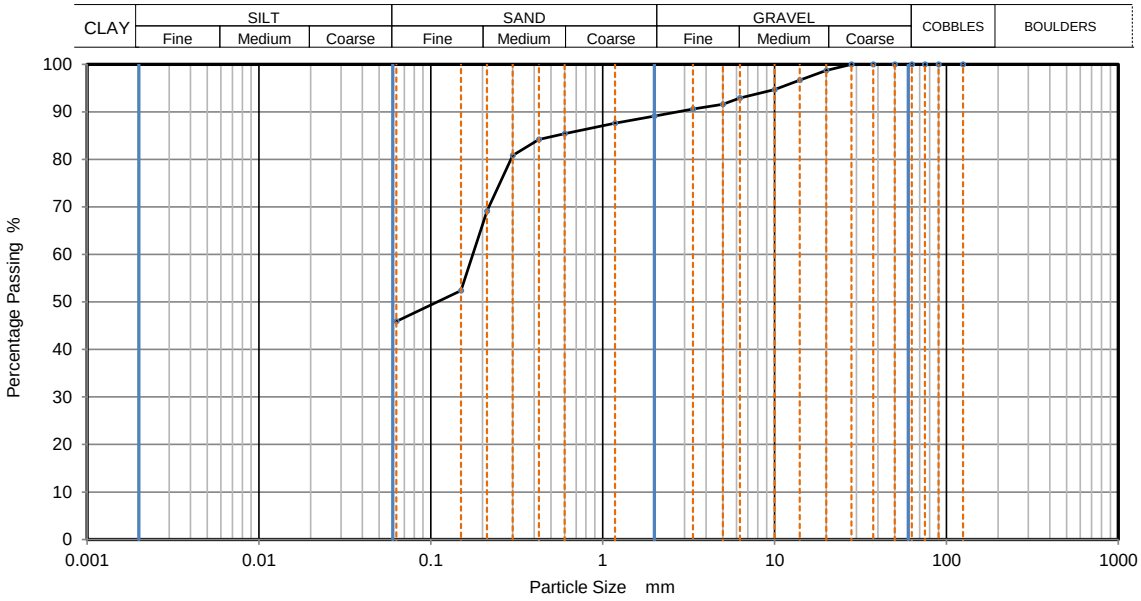
Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101704
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Greyish brown slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	97		
10	95		
6.3	93		
5	92		
3.35	91		
2	89		
1.18	88		
0.6	85		
0.425	84		
0.3	81		
0.212	69		
0.15	52		
0.063	46		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	10.9
Sand	43.2
Fines <0.063mm	45.9

Grading Analysis		
D100	mm	
D60	mm	0.176
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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K4 Soils Laboratory

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Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

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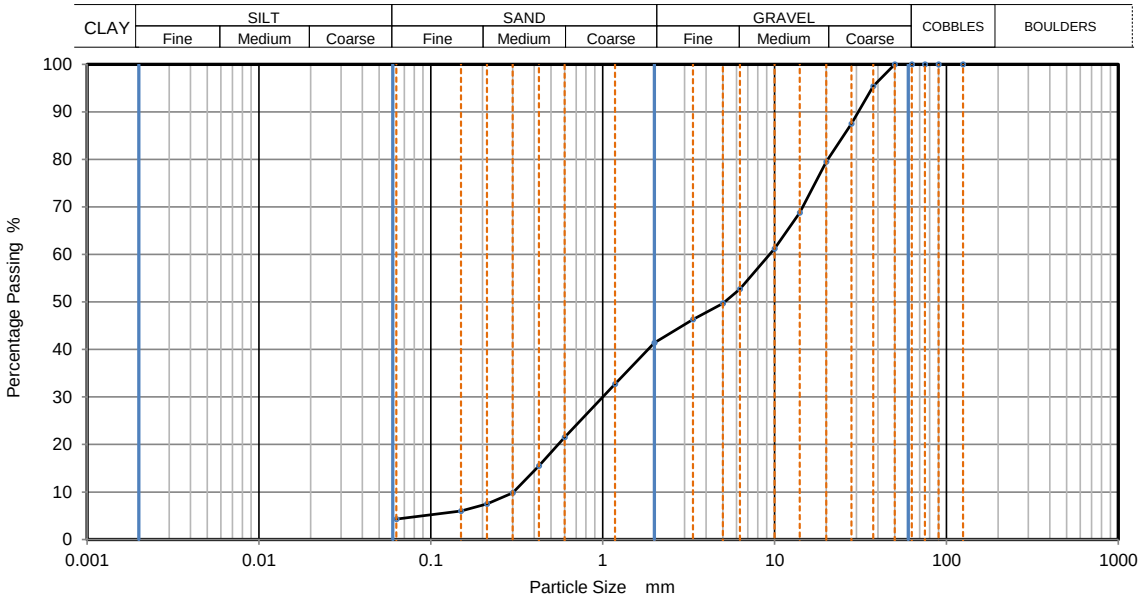
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101704
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark grey slightly clayey slightly silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	88		
20	80		
14	69		
10	61		
6.3	53		
5	50		
3.35	46		
2	41		
1.18	33		
0.6	22		
0.425	16		
0.3	10		
0.212	8		
0.15	6		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	58.6
Sand	37.1
Fines <0.063mm	4.3

Grading Analysis		
D100	mm	
D60	mm	9.39
D30	mm	1
D10	mm	0.303
Uniformity Coefficient		31
Curvature Coefficient		0.35

Remarks

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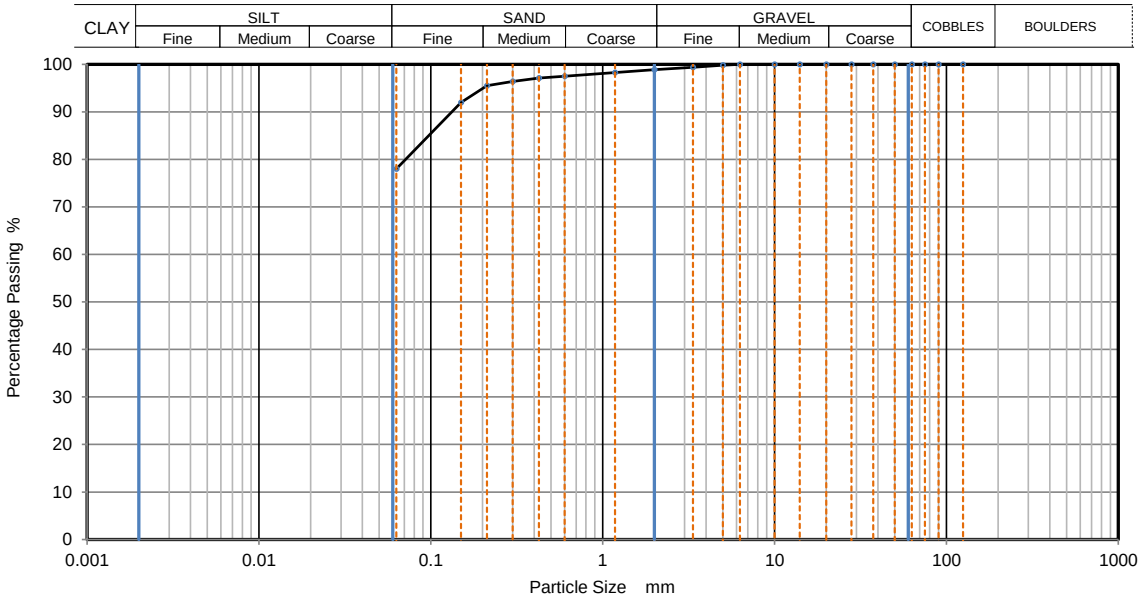
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101804
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey slightly sandy silty CLAY with rare fine gravel			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	97		
0.3	96		
0.212	96		
0.15	92		
0.063	78		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	1.1
Sand	20.9
Fines <0.063mm	78.0

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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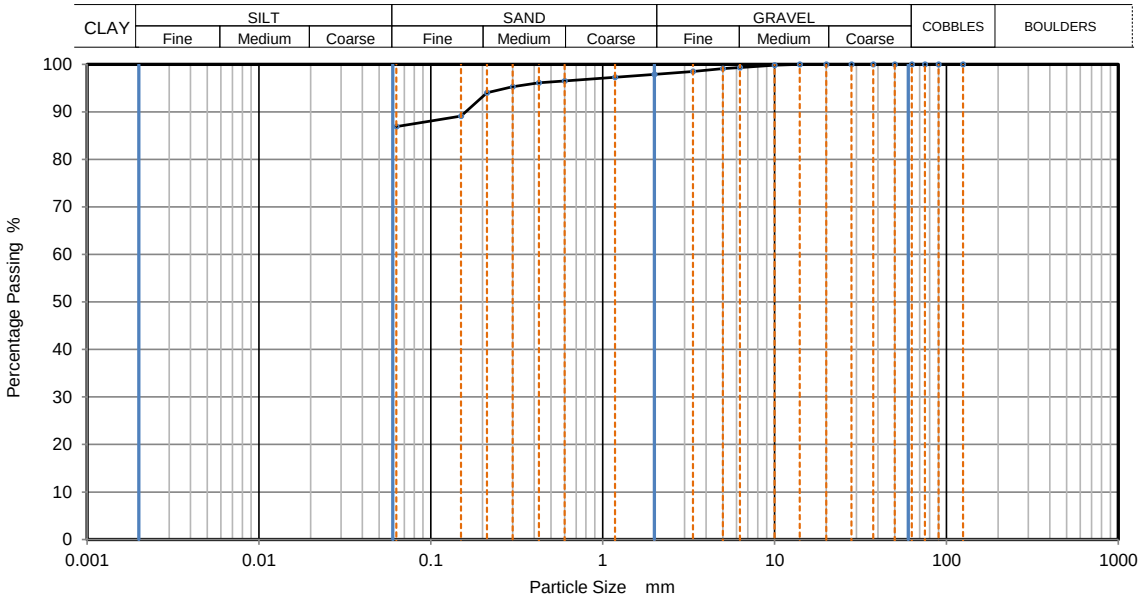
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-101804
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Dark grey slightly sandy silty CLAY with rare fm angular gravel			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	98		
1.18	97		
0.6	97		
0.425	96		
0.3	95		
0.212	94		
0.15	89		
0.063	87		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	2.1
Sand	11.0
Fines <0.063mm	86.9

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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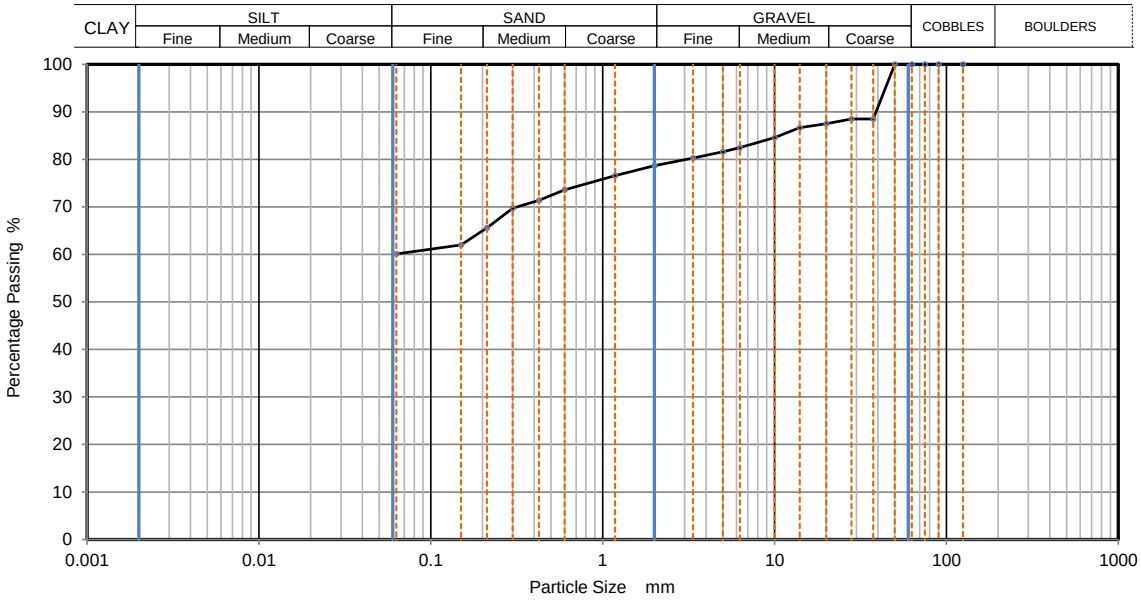
MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102105
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	89		
28	89		
20	88		
14	87		
10	85		
6.3	83		
5	82		
3.35	80		
2	79		
1.18	77		
0.6	74		
0.425	71		
0.3	70		
0.212	66		
0.15	62		
0.063	60		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	21.3
Sand	18.6
Fines <0.063mm	60.1

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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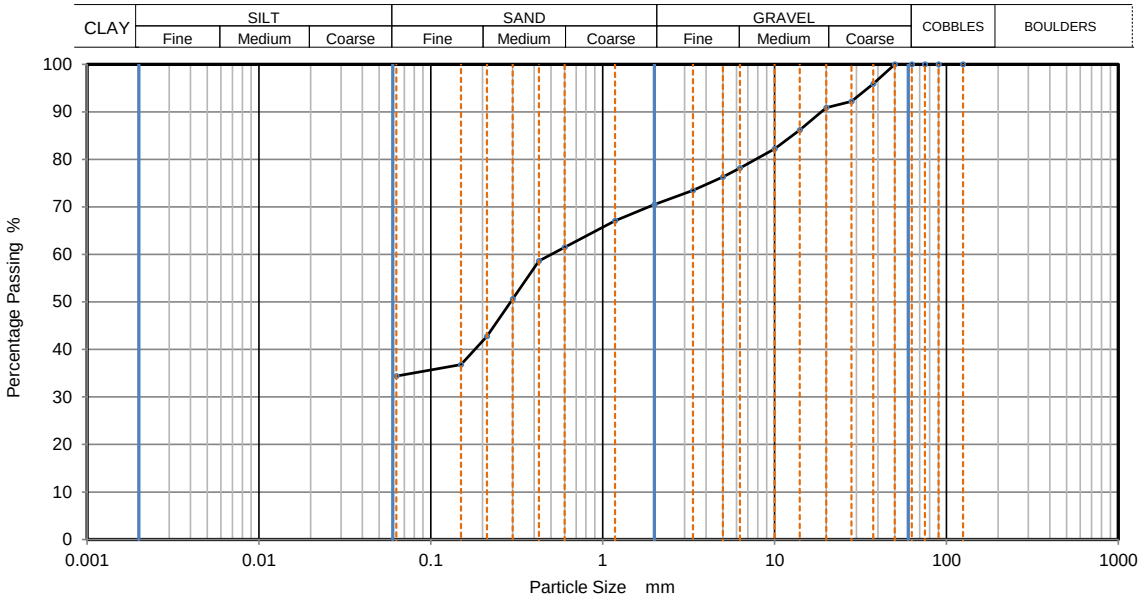
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102105
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Dark greyish brown clayey silty very gravelly SAND (gravel is fmc and sub-angular to rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	92		
20	91		
14	86		
10	82		
6.3	78		
5	76		
3.35	74		
2	71		
1.18	67		
0.6	62		
0.425	59		
0.3	51		
0.212	43		
0.15	37		
0.063	34		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	29.5
Sand	36.1
Fines <0.063mm	34.4

Grading Analysis		
D100	mm	
D60	mm	0.5
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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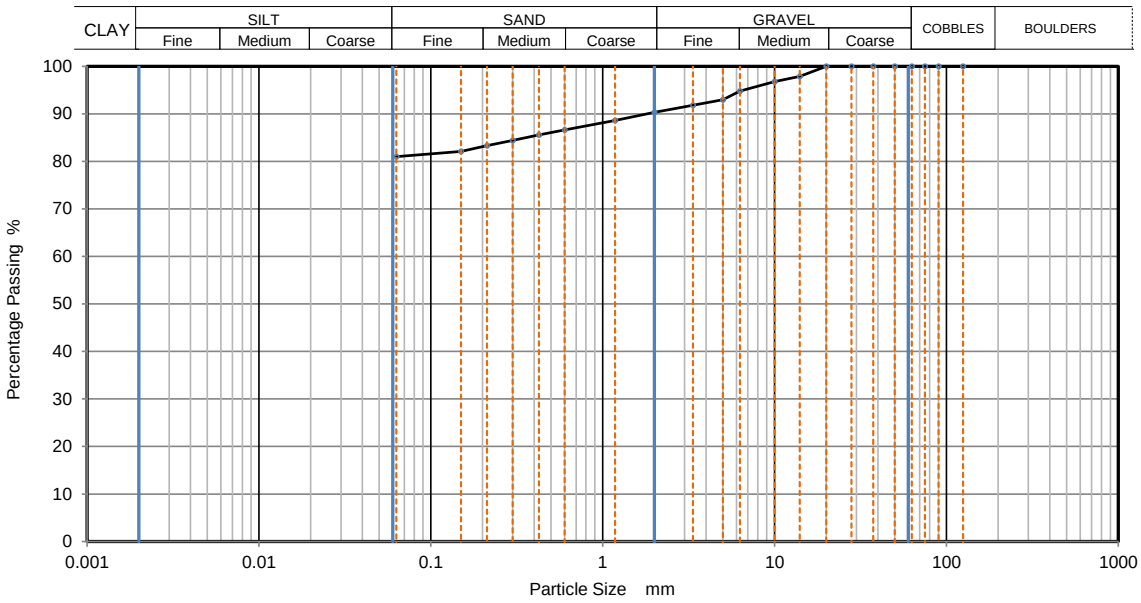
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102204
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.60 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	95		
5	93		
3.35	92		
2	90		
1.18	89		
0.6	87		
0.425	86		
0.3	84		
0.212	83		
0.15	82		
0.063	81		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	9.7
Sand	9.2
Fines <0.063mm	81.0

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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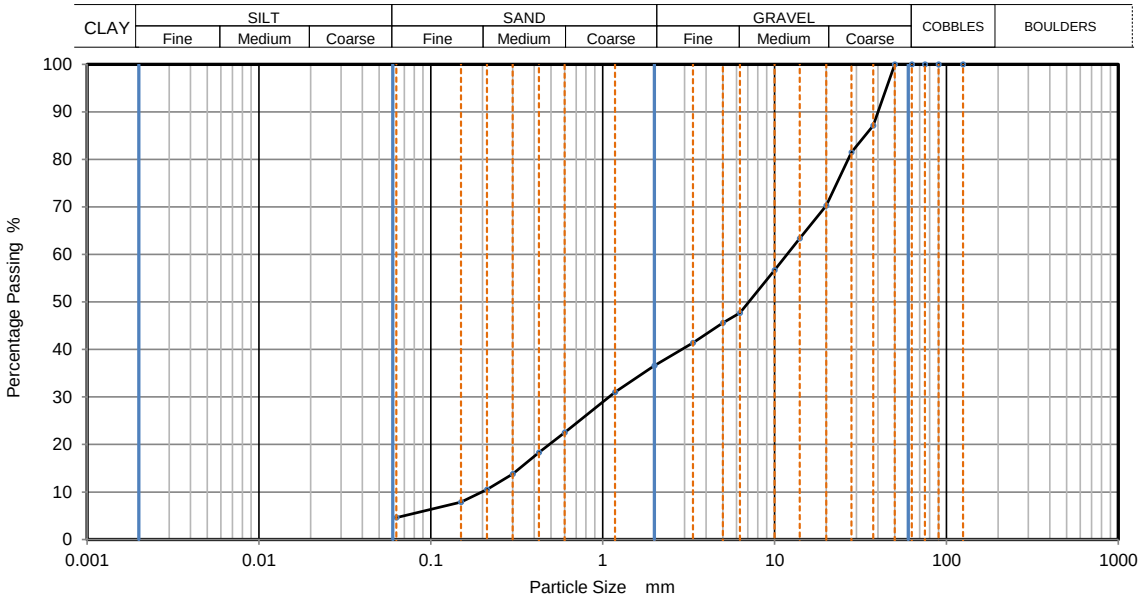
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102204
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Dark grey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	13/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	87		
28	82		
20	70		
14	63		
10	57		
6.3	48		
5	46		
3.35	41		
2	37		
1.18	31		
0.6	23		
0.425	18		
0.3	14		
0.212	11		
0.15	8		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	63.4
Sand	32.1
Fines <0.063mm	4.6

Grading Analysis		
D100	mm	
D60	mm	11.8
D30	mm	1.09
D10	mm	0.198
Uniformity Coefficient		60
Curvature Coefficient		0.51

Remarks

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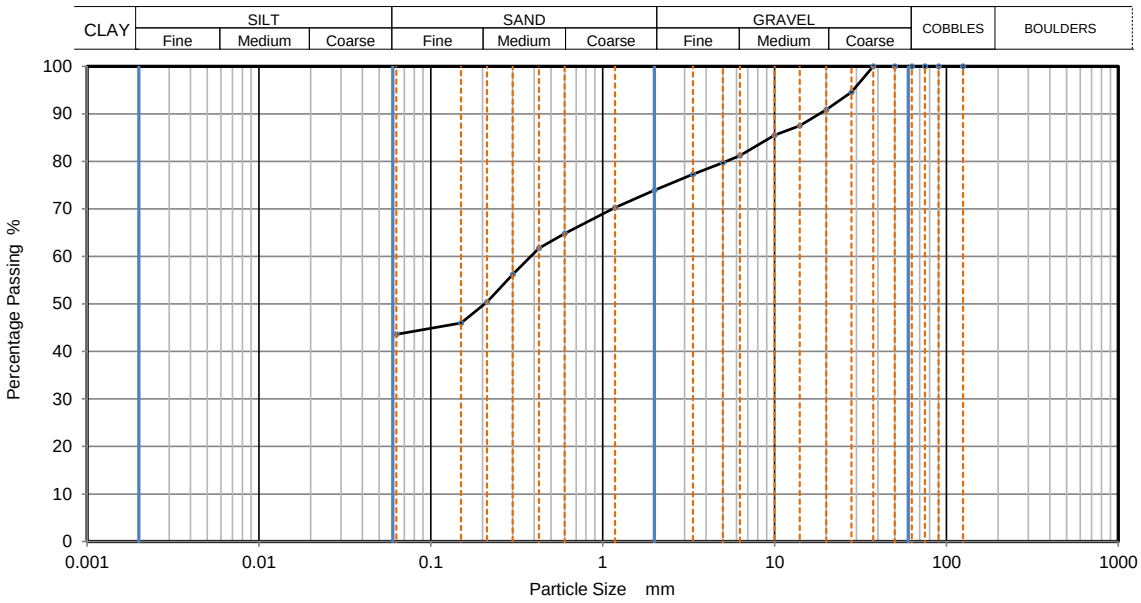
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102303
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	91		
14	88		
10	86		
6.3	81		
5	80		
3.35	77		
2	74		
1.18	70		
0.6	65		
0.425	62		
0.3	56		
0.212	50		
0.15	46		
0.063	44		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	26.1
Sand	30.3
Fines <0.063mm	43.6

Grading Analysis		
D100	mm	
D60	mm	0.382
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

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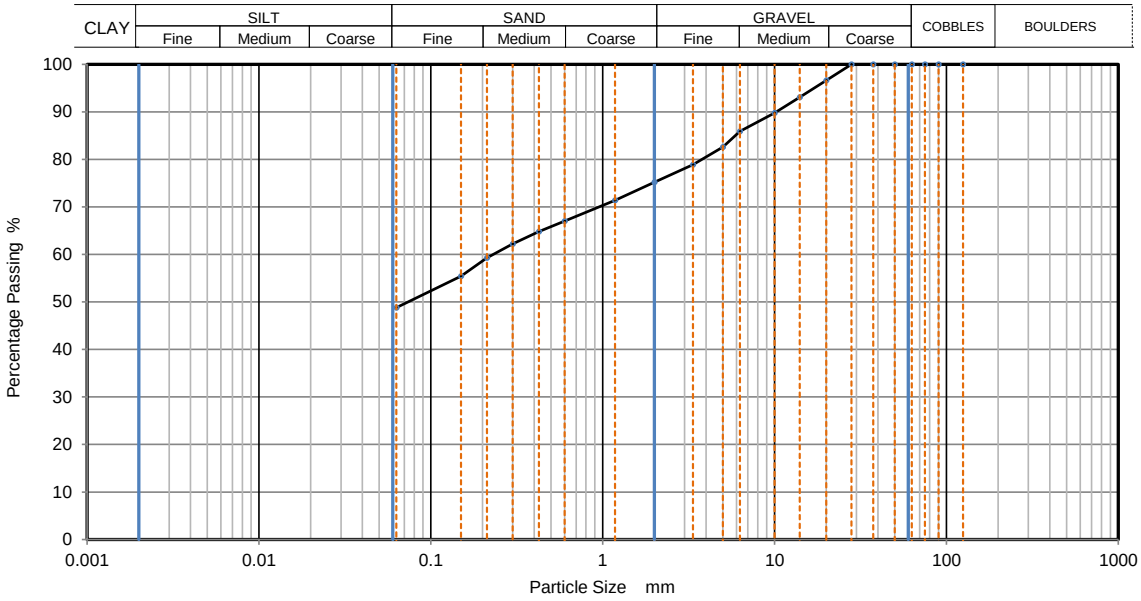
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102303
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	18/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	93		
10	90		
6.3	86		
5	83		
3.35	79		
2	75		
1.18	71		
0.6	67		
0.425	65		
0.3	62		
0.212	59		
0.15	55		
0.063	49		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	24.8
Sand	26.4
Fines <0.063mm	48.9

Grading Analysis		
D100	mm	
D60	mm	0.23
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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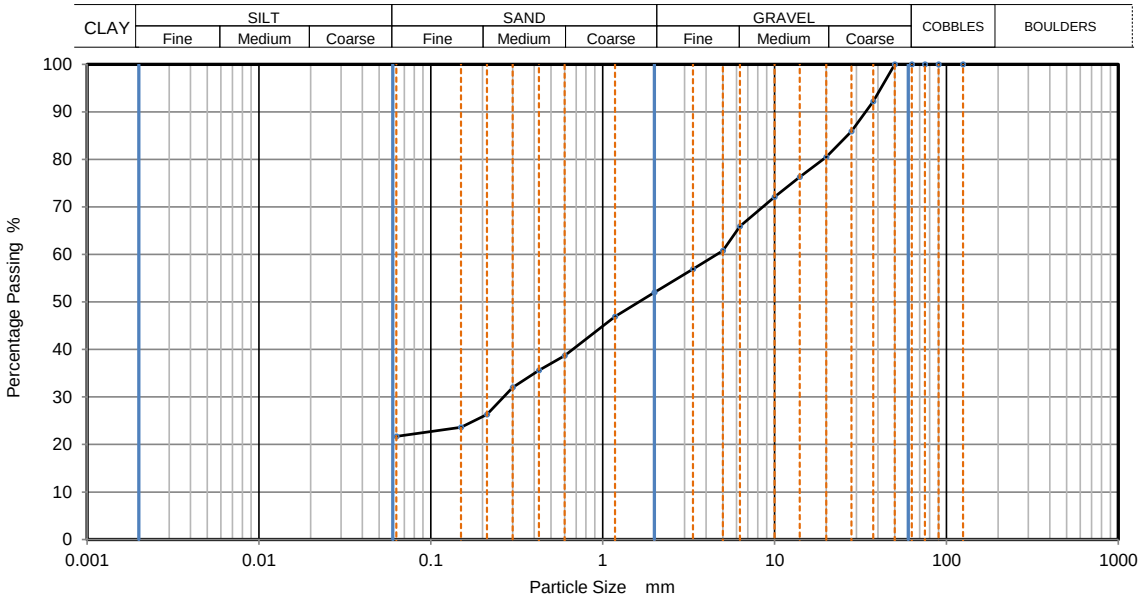
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102405
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.70 m
Soil Description	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	92		
28	86		
20	81		
14	76		
10	72		
6.3	66		
5	61		
3.35	57		
2	52		
1.18	47		
0.6	39		
0.425	36		
0.3	32		
0.212	26		
0.15	24		
0.063	22		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	48.0
Sand	30.3
Fines <0.063mm	21.7

Grading Analysis		
D100	mm	
D60	mm	4.61
D30	mm	0.265
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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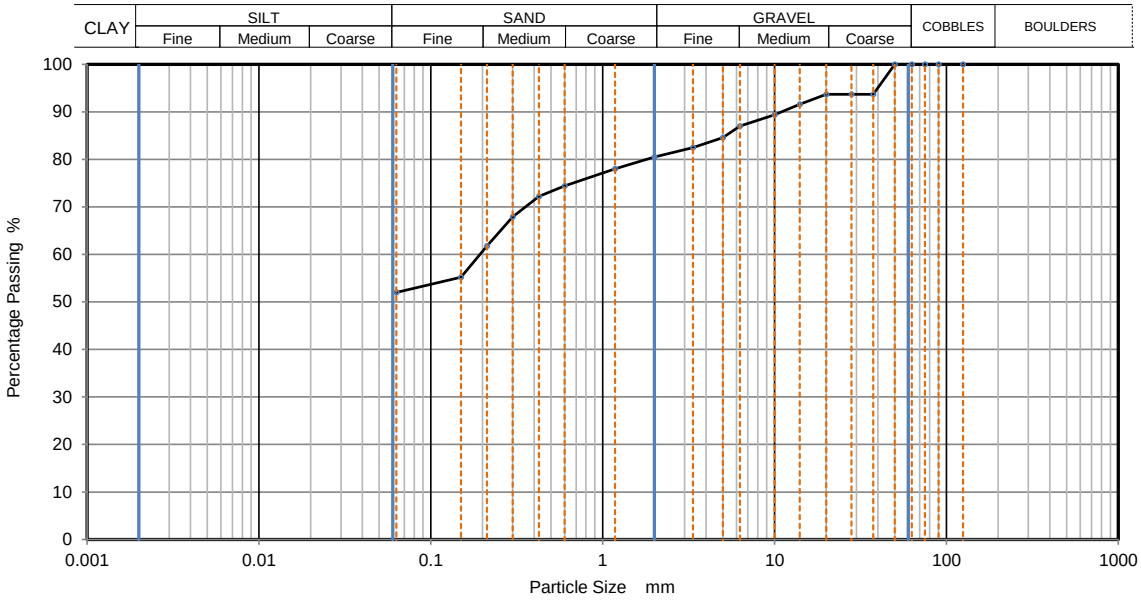
PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102488
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.50 m
Soil Description	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	94		
20	94		
14	92		
10	89		
6.3	87		
5	85		
3.35	83		
2	81		
1.18	78		
0.6	74		
0.425	72		
0.3	68		
0.212	62		
0.15	55		
0.063	52		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.5
Sand	28.4
Fines <0.063mm	52.0

Grading Analysis		
D100	mm	
D60	mm	0.193
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

NOTE: The report shall not be reproduced except in full without approval of the laboratory

K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

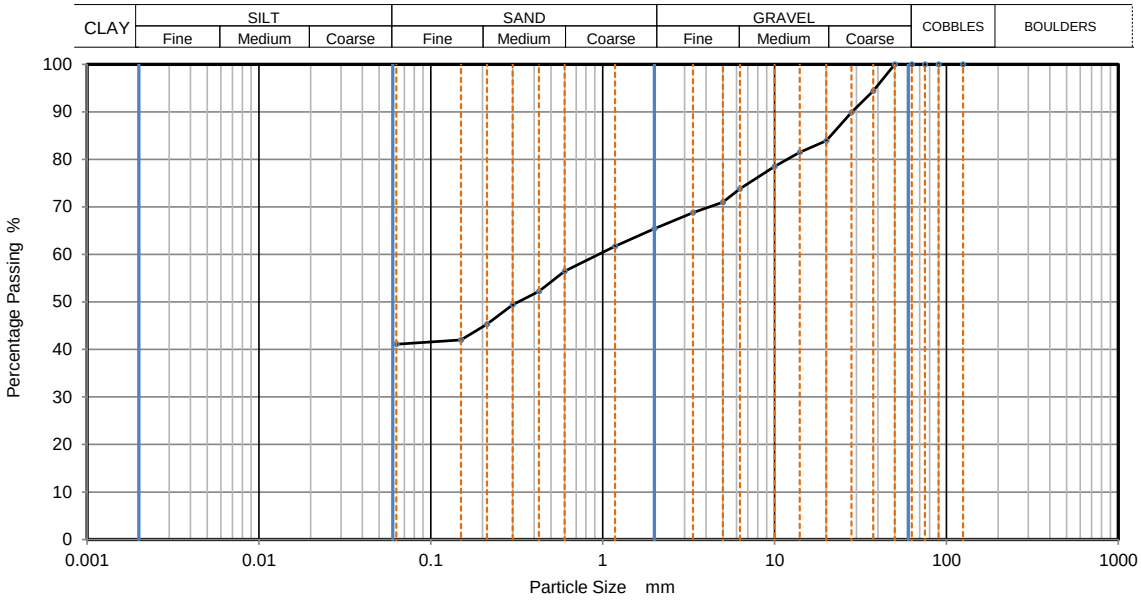
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102617
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.90 m
Soil Description	Greenish grey and greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.20 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	12/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	90		
20	84		
14	82		
10	79		
6.3	74		
5	71		
3.35	69		
2	65		
1.18	62		
0.6	57		
0.425	52		
0.3	49		
0.212	45		
0.15	42		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.6
Sand	24.3
Fines <0.063mm	41.1

Grading Analysis		
D100	mm	
D60	mm	0.944
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

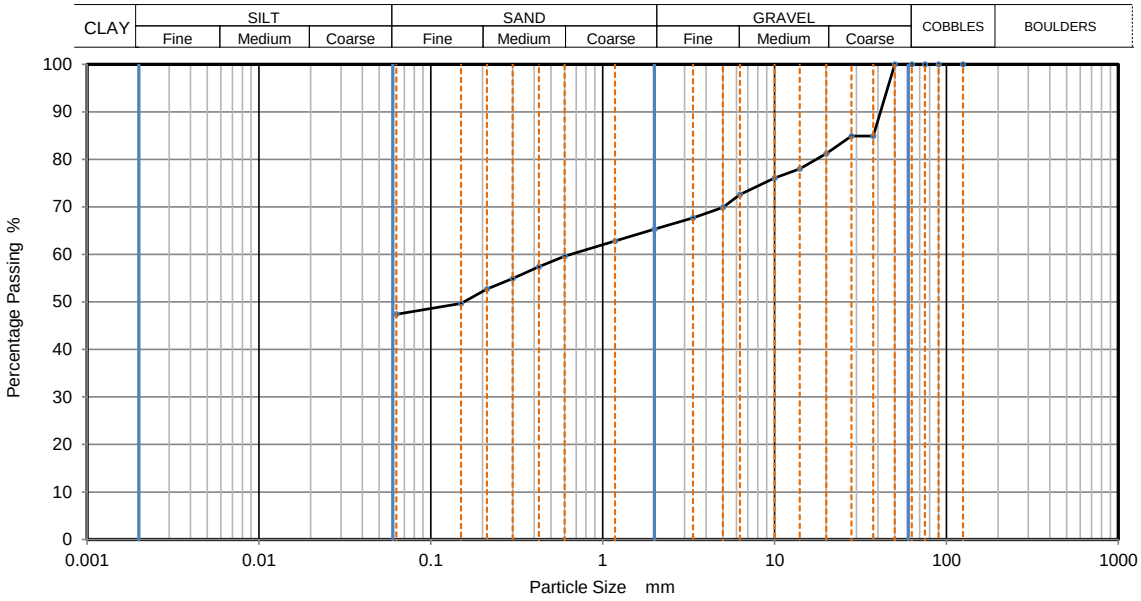
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102617
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	85		
28	85		
20	81		
14	78		
10	76		
6.3	73		
5	70		
3.35	68		
2	65		
1.18	63		
0.6	60		
0.425	57		
0.3	55		
0.212	53		
0.15	50		
0.063	47		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	34.7
Sand	17.9
Fines <0.063mm	47.4

Grading Analysis		
D100	mm	
D60	mm	0.652
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

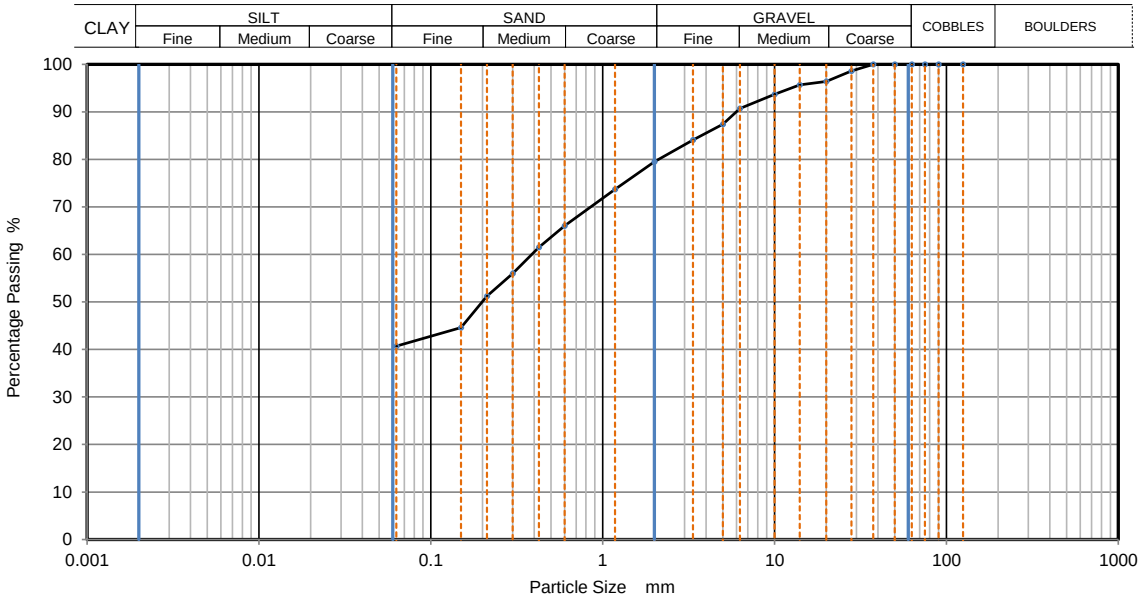
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102704
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Dark grey and grey sllightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	96		
14	96		
10	94		
6.3	91		
5	87		
3.35	84		
2	80		
1.18	74		
0.6	66		
0.425	62		
0.3	56		
0.212	51		
0.15	45		
0.063	41		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	20.5
Sand	38.8
Fines <0.063mm	40.7

Grading Analysis		
D100	mm	
D60	mm	0.387
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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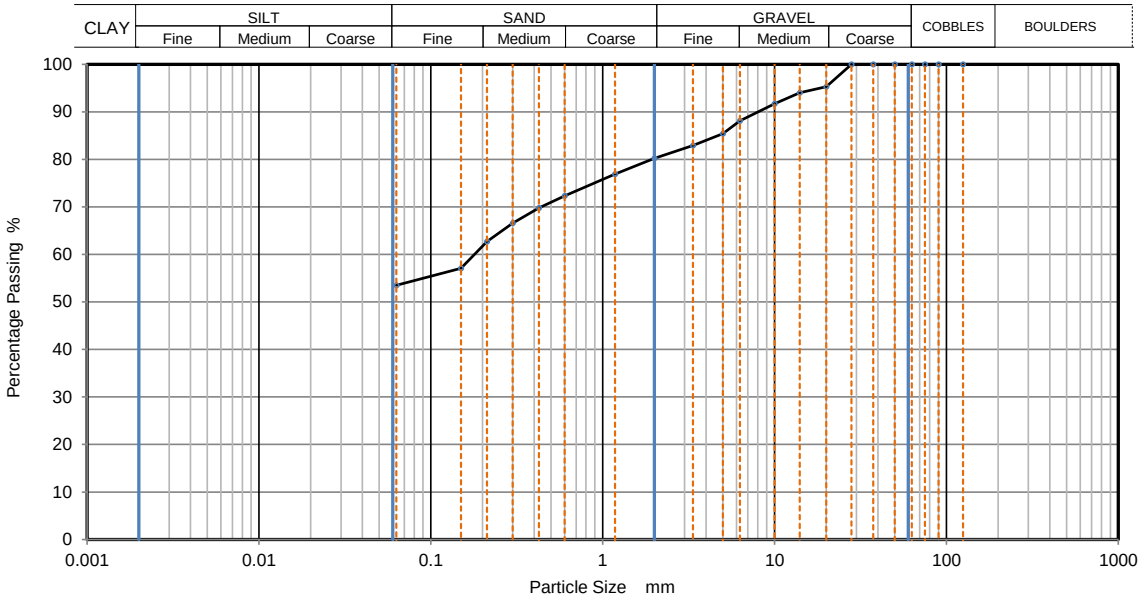
Initials: **J.P**

Date: 14/12/2022

PARTICLE SIZE DISTRIBUTION

				Job Ref	32282
				Borehole/Pit No.	TP-102704
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	17/08/2022
				Date tested	14/10/2022

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	94		
10	92		
6.3	88		
5	85		
3.35	83		
2	80		
1.18	77		
0.6	72		
0.425	70		
0.3	67		
0.212	63		
0.15	57		
0.063	54		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	19.8
Sand	26.7
Fines <0.063mm	53.5

Grading Analysis		
D100	mm	
D60	mm	0.179
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

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Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

Moisture Condition Value at Natural Moisture Content
Summary of Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type	Soil Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
BH-36879	10	3.00	3.40	B	Orangish-brown very sandy very silty medium GRAVEL.	9	13.3	9.0	Best fit line	
BH-40830	7	2.00	2.50	B	Grey slightly gravelly slightly sandy SILT.	8	13.2	2.7	Best fit line	
BH-44676	4	1.00	1.50	B	Light brown very silty SAND and GRAVEL.	0	16.3	6.0	Best fit line	
BH-46715A	8	2.50		D	Light brown slightly gravelly sandy SILT.	16	10.2	3.9	Best fit line	
BH-55944	4	1.00	1.50	B	Dark grey very silty SAND and GRAVEL.	24	10.6	3.5	Best fit line	
BH-56272	7	2.00	2.50	B	Brown and dark grey slightly gravelly sandy SILT.	16	11.8	7.8	Best fit line	
BH-57599	7	2.00	2.50	B	Brownish-grey very silty very sandy GRAVEL.	5	8.0	3.9	Best fit line	
BH-59932	7	2.00	2.50	B	Dark grey very silty medium SAND and coarse GRAVEL.	15	10.3	8.5	Best fit line	
BH-61136	7	2.00	2.50	B	Greyish-brown very sandy very silty GRAVEL.	9	10.9	2.3	Best fit line	
BH-62456	7	2.00	3.00	B	Dark bluish-grey sandy GRAVEL.	47	5.2	>18	Steepest straight line	
TP-37102	3	1.40	1.70	B	Brown slightly gravelly sandy SILT.	9	11.1	4.2	Best fit line	
TP-37698	3	1.20	1.50	B	Brown slightly gravelly slightly sandy SILT.	0	10.5	4.3	Best fit line	
TP-37778	5	2.10	2.40	B	Light brown slightly gravelly sandy SILT.	0	7.8	14.4	Best fit line	
TP-38205	5	2.00	2.30	B	Brown very sandy very silty GRAVEL.	15	7.5	12.0	Best fit line	
TP-38700	5	2.70	3.00	B	Brownish-grey very silty very sandy GRAVEL.	16	9.6	6.0	Best fit line	
TP-39218	1	0.40	0.70	B	Dark brown silty very sandy medium GRAVEL.	0	8.9	12.0	Best fit line	
TP-39503	3	1.70	2.00	B	Brown very silty very sandy medium GRAVEL.	7	8.7	10.2	Best fit line	
TP-40001	5	2.20	2.50	B	Grey very silty SAND and GRAVEL.	8	8.3	2.6	Best fit line	
TP-40305	4	1.70	2.00	B	Grey very silty very sandy GRAVEL.	0	9.6	7.8	Best fit line	
TP-40505	3	0.70	1.00	B	Grey slightly gravelly slightly sandy SILT.	0	9.9	9.0	Best fit line	
TP-40605	5	2.30	2.60	B	Grey slightly gravelly slightly sandy SILT.	6	7.8	3.7	Best fit line	
TP-43108	3	0.80	1.10	B	Grey slightly gravelly sandy SILT.	0	7.6	17.4	Best fit line	
TP-43308	5	1.70	2.00	B	Brown very sandy very silty medium and coarse GRAVEL.	17	10.9	9.9	Best fit line	
TP-43607	3	1.20	1.50	B	Brown slightly gravelly slightly sandy SILT.	3	11.5	7.1	Best fit line	
TP-43815	3	0.70	1.00	B	Brown slightly gravelly slightly sandy SILT.	0	19.6	8.2	Best fit line	

Key

Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise

Date Printed: 10/01/2023 00:00

Approved By: DCD

Table sheet

QC Form R6

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Moisture Condition Value at Natural Moisture Content
Summary of Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type	Soil Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
TP-43905	3	1.30	1.60	B	Light brown slightly gravelly sandy SILT.	0	11.6	9.0	Best fit line	
TP-44211	2	0.50	0.80	B	Grey slightly sandy gravelly SILT.	13	13.6	7.8	Best fit line	
TP-44508	3	1.20	1.50	B	Brown slightly gravelly slightly sandy SILT.	6	9.8	4.3	Best fit line	
TP-46303	3	0.70	1.00	B	Brown very silty very sandy medium GRAVEL.	0	11.4	7.5	Best fit line	
TP-47202	7	2.40	2.70	B	Light brown slightly sandy gravelly SILT.	9	11.2	9.0	Best fit line	
TP-48596	3	1.70	2.00	B	Light brown very sandy very silty GRAVEL.	18	6.3	9.9	Steepest straight line	
TP-49102	5	1.80	2.10	B	Brown sandy very silty medium GRAVEL.	46	11.1	3.9	Best fit line	
TP-50959	5	2.30	2.60	B	Yellowish-brown slighlty sandy slightly gravelly SILT.	19	17.2	4.6	Best fit line	
TP-50987	5	2.00	2.30	B	Cream-brown very sandy very silty medium GRAVEL.	28	8.5	11.6	Best fit line	
TP-51052	5	2.50	2.80	B	Light brown silty very sandy medium GRAVEL.	19	9.5	8.6	Best fit line	
TP-51138	3	2.00	2.30	B	Light brown slightly sandy gravelly SILT.	18	11.0	9.7	Best fit line	
TP-51705	5	3.00	3.30	B	Brownish-grey gravelly very silty medium SAND.	6	9.8	6.0	Best fit line	
TP-52400	3	1.30	1.60	B	Light grey slightly gravelly sandy SILT.	18	10.7	4.1	Best fit line	
TP-52910	3	1.90	2.20	B	Brown slightly gravelly sandy SILT.	4	9.4	4.2	Best fit line	
TP-53310	3	1.50	1.80	B	Light brown very silty very sandy GRAVEL.	23	9.3	13.8	Best fit line	
TP-53692	3	1.70	2.00	B	Light brown silty very sandy coarse GRAVEL.	14	15.0	3.5	Best fit line	
TP-54309	3	2.10	2.40	B	Light grey very silty SAND and GRAVEL.	23	8.5	4.2	Best fit line	
TP-54611	5	1.90	2.20	B	Light brown very silty very sandy coarse GRAVEL.	16	12.1	3.5	Best fit line	
TP-55109	5	1.30	1.60	B	Dark brown very silty SAND and GRAVEL. Gravel is predominantly medium.	11	10.6	9.0	Best fit line	
TP-55711	3	1.40	1.70	B	Light grey very silty sandy GRAVEL.	14	10.4	7.8	Best fit line	
TP-67630	3	1.80	2.10	B	Light brown slightly sandy gravelly SILT.	14	8.6	14.2	Best fit line	
TP-67908	5	2.30	2.60	B	Brown slightly gravelly sandy SILT.	38	9.5	9.7	Best fit line	
TP-68405	3	1.00	1.30	B	Light brown very sandy very silty medium and coarse GRAVEL.	19	10.0	7.1	Best fit line	
TP-70304	5	2.00	2.30	B	Light brown very sandy very silty GRAVEL.	20	9.6	5.5	Best fit line	
TP-72108	3	1.50	1.80	B	Brownish-grey very sandy very silty GRAVEL.	16	10.9	5.6	Best fit line	
TP-73704	3	1.30	1.60	B	Brown slightly sandy gravelly SILT.	7	10.4	4.1	Best fit line	

Key

Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise

Date Printed: 10/01/2023 00:00

Approved By: DCD

Table sheet

QC Form R6

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Moisture Condition Value at Natural Moisture Content
Summary of Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type	Soil Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
TP-74102	5	1.90	2.20	B	Dark grey very silty SAND and GRAVEL.	26	8.8	6.9	Best fit line	
TP-74601	5	2.00	2.30	B	Light grey slightly sandy slightly gravelly SILT.	14	8.8	8.4	Best fit line	
TP-74969	3	1.30	1.60	B	Grey and orange-brown slightly gravelly sandy SILT.	16	10.7	7.4	Best fit line	
TP-75104	3	0.80	1.10	B	Light brown slightly sandy gravelly SILT.	13	12.3	4.5	Best fit line	
TP-76087	3	2.00	2.30	B	Light brown slightly gravelly slightly sandy SILT.	9	9.2	6.0	Best fit line	
TP-76212	6	2.60		D	Light brown slightly gravelly slightly sandy SILT.	2	9.8	7.1	Best fit line	
TP-76707	3	1.30	1.50	B	Brown slightly gravelly slightly sandy SILT.	15	10.9	4.8	Best fit line	
TP-76805	3	1.30	1.60	B	Light brown slightly gravelly slightly sandy SILT.	18	9.8	8.4	Best fit line	
TP-77175	5	2.10	2.40	B	Light brown slightly gravelly slightly sandy SILT.	5	9.8	7.5	Best fit line	
TP-77705	3	0.90	1.20	B	Brown silty very sandy medium GRAVEL.	19	7.3	15.1	Best fit line	
TP-78784	3	1.20	1.50	B	Grey sandy SILT. Sand is fine.	0	19.9	7.8	Best fit line	
TP-79208	3	1.30	1.60	B	Light brown slightly gravelly slightly sandy SILT.	13	12.0	5.8	Best fit line	
TP-80306	3	0.80	1.10	B	Brownish-grey slightly gravelly slightly sandy SILT.	18	15.1	2.8	Best fit line	
TP-80634	3	2.00	2.50	B	Light brown slightly gravelly slightly sandy SILT.	17	11.1	6.5	Best fit line	
TP-80800	5	2.20	3.00	B	Light brown slighlty gravelly slightly sandy SILT.	12	10.4	7.4	Best fit line	
TP-80903	6	3.00	3.50	B	Grey sandy very silty medium GRAVEL.	8	11.2	5.1	Best fit line	
TP-81404	2	1.00	1.50	B	Brownish-grey slighlty gravelly sandy SILT.	15	12.8	7.1	Best fit line	
TP-81601	4	2.00	2.50	B	Dark grey silty very gravelly medium SAND.	10	11.0	6.5	Best fit line	
TP-82207	5	2.40	2.70	B	Light brown slightly gravelly slightly sandy SILT.	22	10.8	5.1	Best fit line	
TP-82400	1	0.30	0.60	B	Light brown slighlty gravelly sandy SILT.	18	11.7	0.5	Best fit line	
TP-82502	5	3.30	3.60	B	Light brown slightly gravelly sandy SILT.	20	9.9	2.2	Best fit line	

Key

Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise

Date Printed: 01/10/2023 00:00

Approved By: DCD

Table sheet

QC Form R6

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Moisture Condition Value at Natural Moisture Content
Summary of Results
Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	21/09/2022

Hole No.	Sample				Soil Description	Retained on 20mm sieve	Moisture Content <20mm	Moisture Condition Value	Method of Interpretation	Remarks
	Ref	Top m	Base m	Type		%	%			
BH-66007	4	1.00	1.50	B	Brow silty CLAY	0.0	22	too wet	Best fit line	
BH-69405	-	3.00	4.00	B	Grey sandy clayey GRAVEL (gravel is fmc and sub-angular to sub-rounded)	25	6.6	13	Best fit line	
BH-71397	6	2.00	2.50	B	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and angular to rounded)	31	11	too wet	Best fit line	
BH-74100	-	1.00	1.50	B	Grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	33	9.7	11	Best fit line	
BH-79026	-	2.00	2.50	B	Brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to rounded)	20	9.7	too wet	Best fit line	
BH-79595	-	2.00	2.50	B	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to rounded)	9.0	9.0	3.1	Best fit line	
BH-80024	13	4.00	5.00	B	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	1.0	9.2	4.2	Best fit line	
BH-80338	7	2.00	3.00	B	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and angular to sub-rounded)	38	14	too wet	Best fit line	
BH-80439	7	2.00	3.00	B	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	10	9.7	5.4	Best fit line	
TP-100449	5	2.80	3.10	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular)	2.0	11	too wet	Best fit line	
TP-101304	1	0.50	0.80	B	Brownish grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)	9.0	12	3.6	Steepest straight line	
TP-101600	3	1.30	1.60	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)	0.0	19	7.8	Steepest straight line	
TP-101804	5	3.20	3.50	B	Grey silty CLAY	0.0	23	2.4	Steepest straight line	
TP-102704	2	1.50	1.80	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular)	3.0	9.5	6.3	Steepest straight line	
TP-82979	3	1.70	2.00	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	8.8	4.8	Steepest straight line	
TP-84901	3	1.40	1.70	B	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to rounded)	18	7.9	10	Best fit line	
TP-85102	5	2.60	2.90	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	11	8.8	1.1	Steepest straight line	
TP-85383	3	1.40	1.70	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	15	9.7	6.9	Steepest straight line	
TP-87304	3	1.20	1.50	B	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	6.0	12	2.6	Steepest straight line	
TP-88303	5	2.00	2.30	B	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	15	9.7	too wet	Best fit line	
TP-90704	4	1.60	1.90	B	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	5.0	11	3.8	Steepest straight line	
TP-91406	3	1.50	1.80	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	5.0	11	5.3	Best fit line	
TP-92106	5	2.30	2.60	B	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to rounded)	10	9.3	7.1	Steepest straight line	

Test Report by K4 SOILS LABORATORY
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Date: 14/12/2022

Moisture Condition Value at Natural Moisture Content
Summary of Results
Test performed in accordance with BS1377:Part4:1990, clause 5.4 unless annotated otherwise

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples received	16/08/2022
		Schedule received	11/08/2022
Project No.	Client	Project started	17/08/2022
2021OY102	Irish Drilling	Testing Started	21/09/2022

Hole No.	Sample				Soil Description	Retained on 20mm sieve	Moisture Content <20mm	Moisture Condition Value	Method of Interpretation	Remarks
	Ref	Top m	Base m	Type		%	%			
TP-92706	3	1.30	1.60	B	Greyish brown clayey silty very gravelly SAND (gravel is fmc and sub-angular)	9.0	9.9	7.5	Best fit line	
TP-93106	3	1.70	2.00	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	1.0	11	4.2	Best fit line	
TP-93505	1	0.60	0.90	B	Brownish grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.0	11	5.2	Steepest straight line	
TP-93902	2	1.70	2.00	B	Brownish grey slightly gravelly slightly sandy silty CLAY with numerous cobbles (gravel is fmc and sub-angular to rounded)	9.0	8.4	6.5	Steepest straight line	
TP-94198	3	1.30	1.60	B	Brownish grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded to rounded)	15	11	4.2	Steepest straight line	
TP-95408	3	1.60	1.90	B	Grey slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)	4.0	10	7.5	Steepest straight line	
TP-95806	3	1.30	1.60	B	Grey clayey very silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	21	12	0.5	Steepest straight line	
TP-96831	5	2.80	3.10	B	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	6.0	10	5.3	Steepest straight line	
TP-96905	3	1.80	2.10	B	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	9.0	11	1.9	Steepest straight line	
TP-97309	2	0.80	1.10	B	Grey gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)	3.0	15	11	Steepest straight line	
TP-97704	3	2.00	2.30	B	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	8.0	13	3.8	Steepest straight line	
TP-98205	4	2.00	2.30	B	Grey silty clayey very sandfy GRAVEL (gravel is fmc and sub-angular)	11	8.4	8.3	Steepest straight line	
TP-98502	3	1.50	1.80	B	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular)	17	11	0.8	Steepest straight line	
TP-98805	5	2.00	2.30	B	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	5.0	16	3.8	Steepest straight line	
TP-99206	5	2.40	2.70	B	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)	18	10	4.1	Best fit line	
TP-99400	1	0.40	0.70	B	Brown slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)	1.0	19	7.7	Steepest straight line	
TP-99599	4	2.20	2.50	B	Brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to sub-angular)	15	9.4	8.3	Steepest straight line	
TP-99701	4	2.80	3.10	B	Grey slightly sandy silty CLAY	0.0	17	too wet	Steepest straight line	

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Date: 14/12/2022

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IDL	Moisture Condition Value / Moisture Content Relationship			Job Ref	2021OY102
				Borehole/Pit No.	TP-69106
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty very sandy GRAVEL.			Depth	1.3
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL120211206262
Test Method	BS1377:Part4:1990:clause 5.5			Date started	06/10/2022

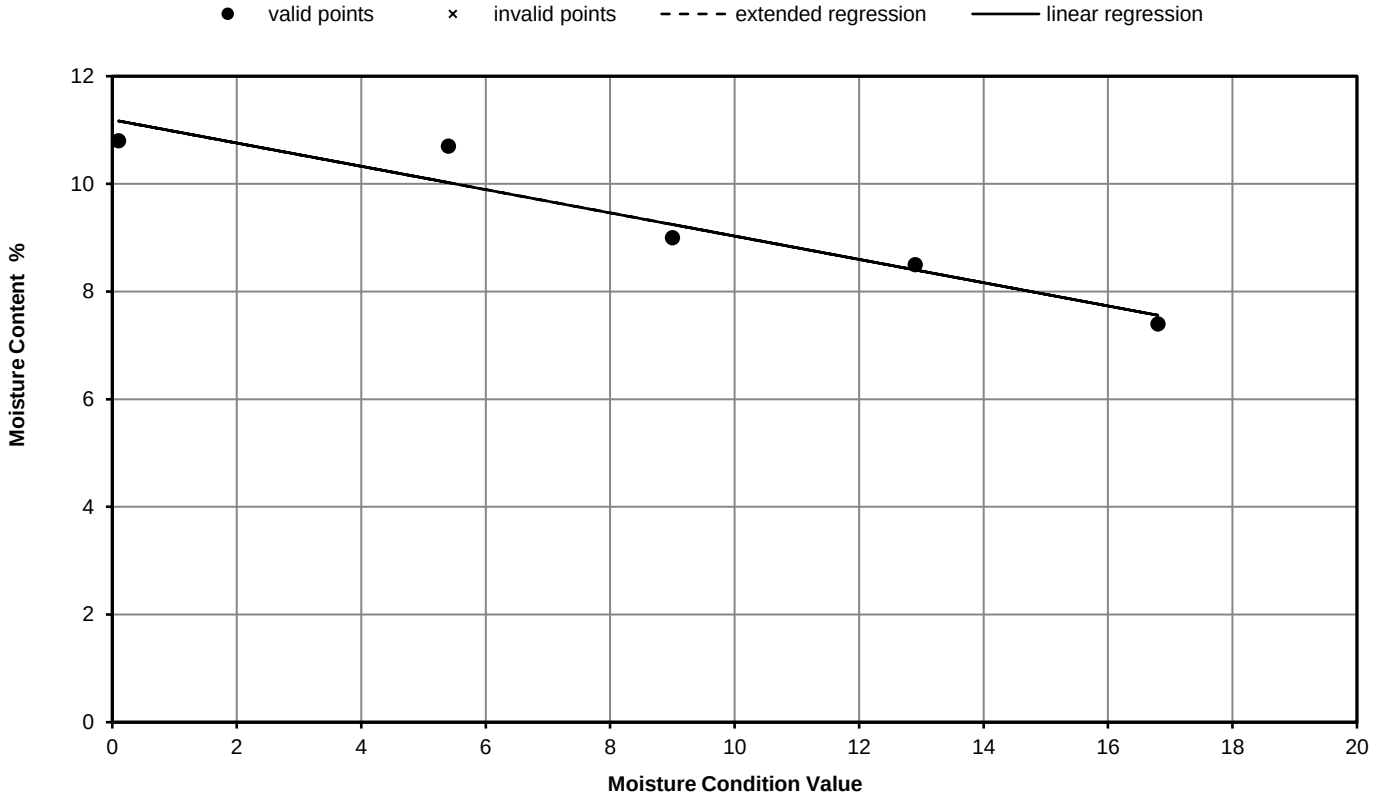
Sample preparation

Amount of material larger than 20mm sieve removed	21	%
Natural Moisture Content of sample		%
Initial Moisture Content of test sample below 20mm		%
Composite of fresh and reused material tested		

General remarks

Table of results

MCV Test Number	1	2	3	4	5
Moisture Content, %	10.7	10.8	8.5	7.4	9.0
Moisture Condition Value	5.4	0.1	12.9	16.8	9.0
MCV report	5.4	0.1	12.9	16.8	9
Effective / Valid data point	YES	YES	YES	YES	YES
Method of Interpretation	Best fit	Best fit	Best fit	Best fit	Best fit
Specimen remarks					



Tested	Checked	Approved

Lab Sheet Reference : QC Form R7

IDL	Moisture Condition Value / Moisture Content Relationship			Job Ref	2021OY102
				Borehole/Pit No.	TP-72801
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly sandy gravelly SILT.			Depth	2.4
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL120211221114
Test Method	BS1377:Part4:1990:clause 5.5			Date started	14/10/2022

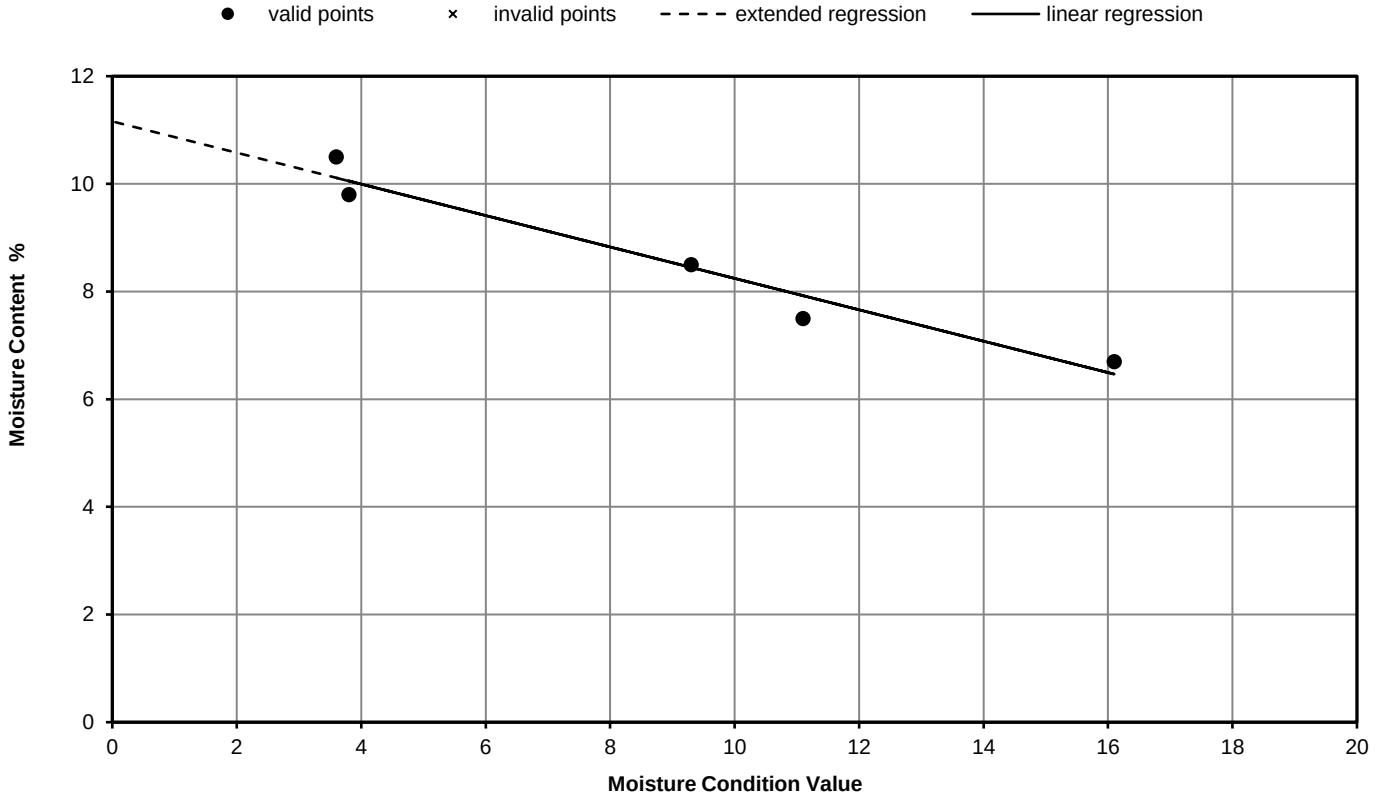
Sample preparation

Amount of material larger than 20mm sieve removed	20	%
Natural Moisture Content of sample		%
Initial Moisture Content of test sample below 20mm		%
Composite of fresh and reused material tested		

General remarks

Table of results

MCV Test Number	1	2	3	4	5
Moisture Content, %	9.8	7.5	6.7	8.5	10.5
Moisture Condition Value	3.8	11.1	16.1	9.3	3.6
MCV report	3.8	11.1	16.1	9.3	3.6
Effective / Valid data point	YES	YES	YES	YES	YES
Method of Interpretation	Steepest line	Steepest line	Steepest line	Steepest line	Steepest line
Specimen remarks					



Tested	Checked	Approved

Lab Sheet Reference : QC Form R7

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL	Moisture Condition Value / Moisture Content Relationship			Job Ref	2021OY102
				Borehole/Pit No.	TP-79309
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth	1.4
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022011445
Test Method	BS1377:Part4:1990:clause 5.5			Date started	14/11/2022

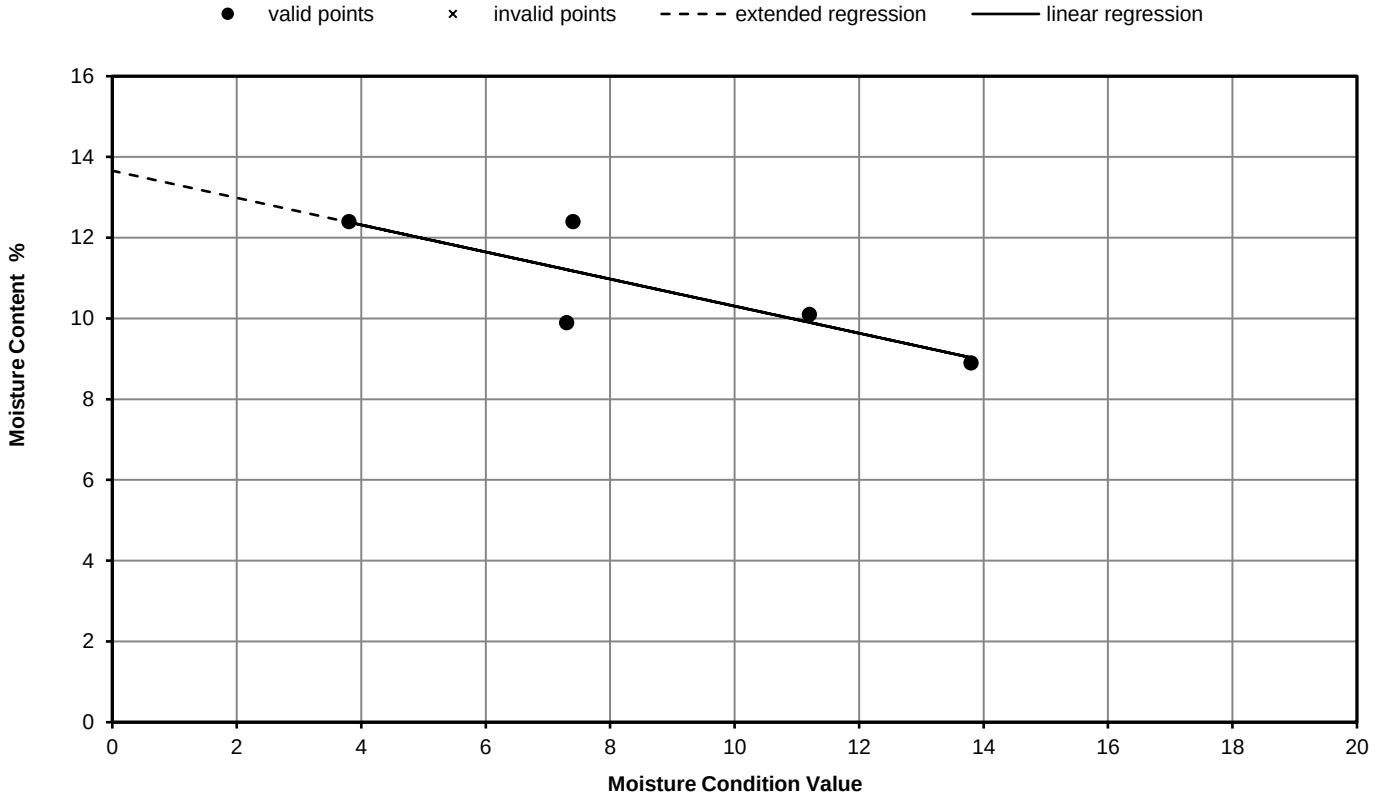
Sample preparation

Amount of material larger than 20mm sieve removed	9	%
Natural Moisture Content of sample		%
Initial Moisture Content of test sample below 20mm		%
Single sample tested		

General remarks

Table of results

MCV Test Number	1	2	3	4	5
Moisture Content, %	12.4	12.4	10.1	8.9	9.9
Moisture Condition Value	7.4	3.8	11.2	13.8	7.3
MCV report	7.4	3.8	11.2	13.8	7.3
Effective / Valid data point	YES	YES	YES	YES	YES
Method of Interpretation	Best fit	Best fit	Best fit	Best fit	Best fit
Specimen remarks					



Tested	Checked	Approved

Lab Sheet Reference : QC Form R7

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

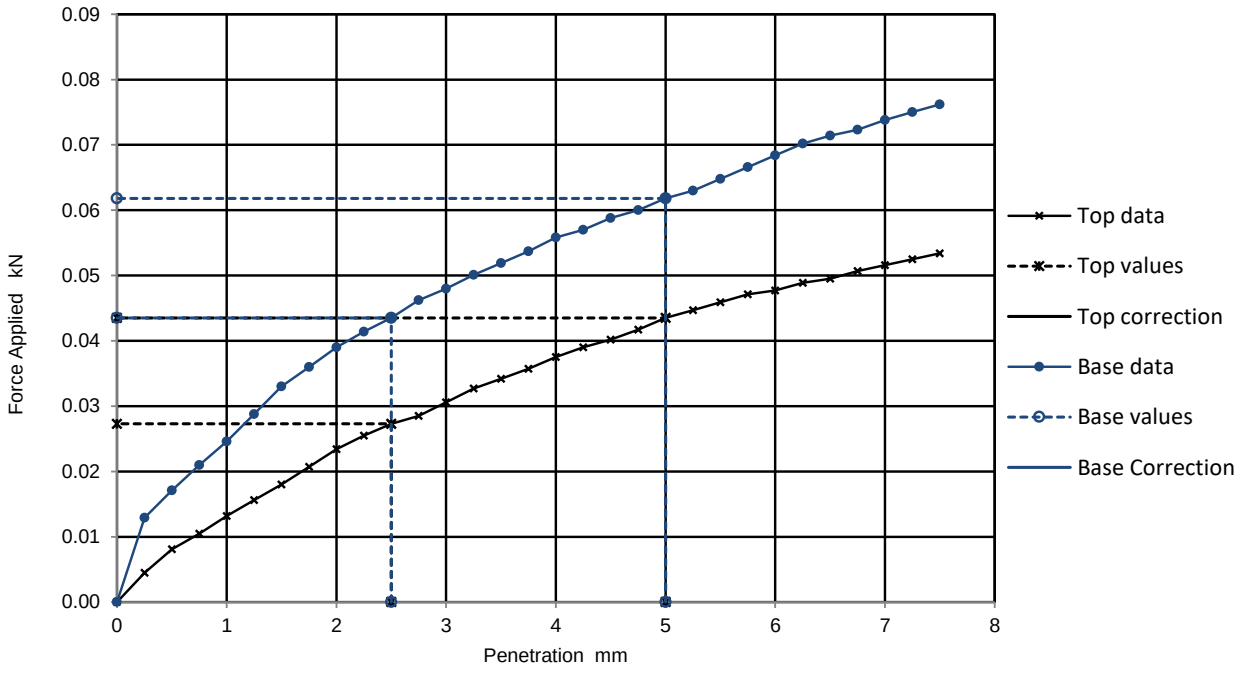
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-62806				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.00 m
Soil Description	Grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	1.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	05/12/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		1.0	%			
Initial Specimen details	Bulk density	1.74	Mg/m3	Surcharge applied	6	kg
	Dry density	1.21	Mg/m3		4	kPa
	Moisture content	44	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.21	0.22	0.22	N/A	41
BASE	No	0.33	0.31	0.33		39

Remarks

Test Report by K4 SOILS LABORATORY
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-67630				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy gravelly silty CLAY with occasional cobbles (gravel is fmc and angular to rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	17/11/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 37 %

Initial Specimen details:

Bulk density	2.33	Mg/m3
Dry density	2.10	Mg/m3
Moisture content	11	%

Soaking details: Not soaked

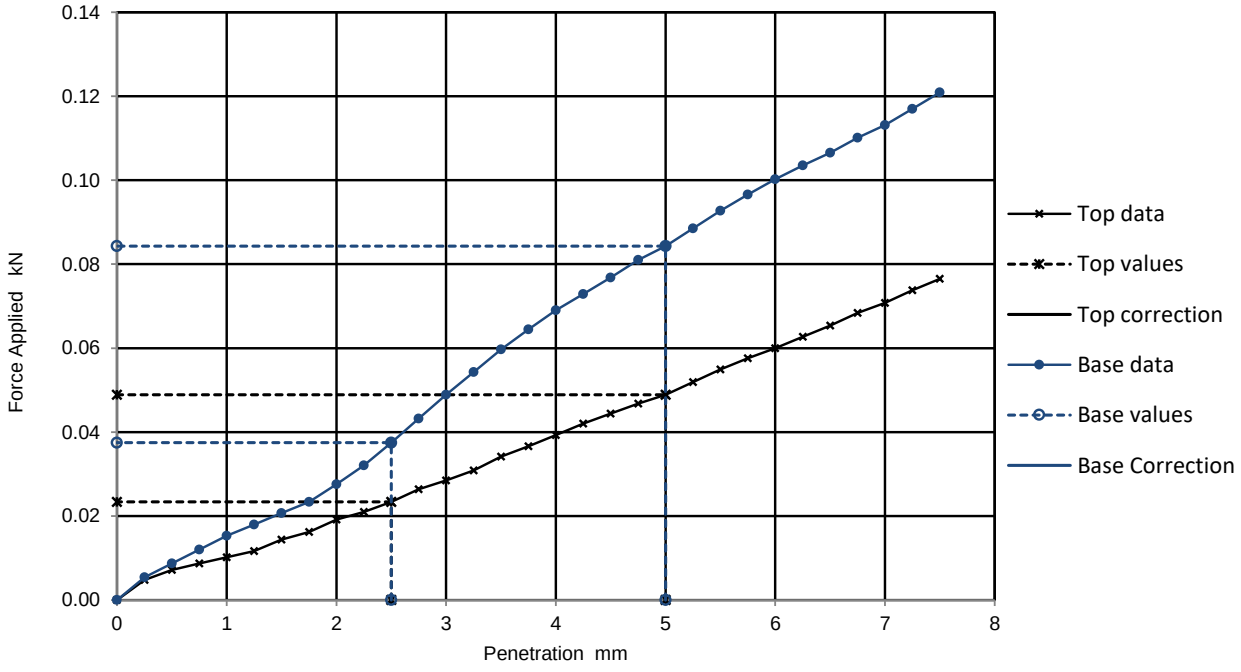
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 6 kg, 4 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.18	0.24	0.24	N/A	11
BASE	No	0.28	0.42	0.42		10

Remarks

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Date: 14/12/2022

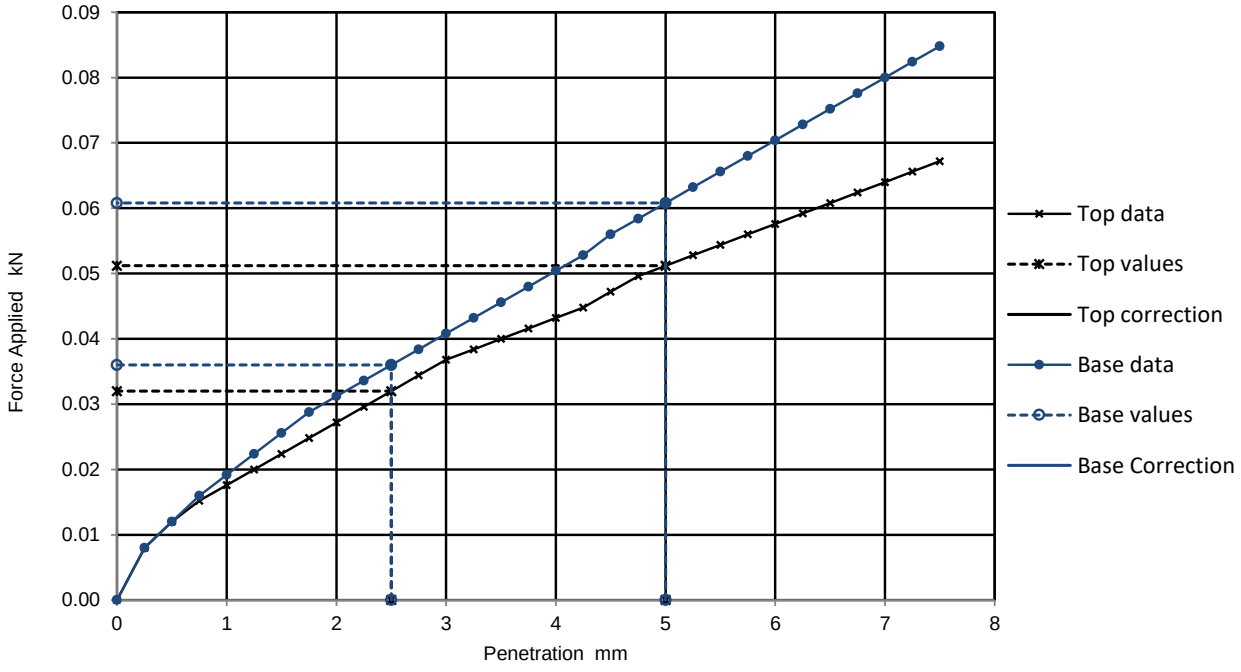
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-71124				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Dark grey slightly gravelly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	15/11/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	- days
				Time to surface	- days
				Amount of swell recorded	- mm
Material retained on 20mm sieve removed		4.9	%		
Initial Specimen details	Bulk density	1.87	Mg/m3	Surcharge applied	6 kg
	Dry density	1.38	Mg/m3		4 kPa
	Moisture content	36	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.24	0.26	0.26	0.28	30
BASE	No	0.27	0.30	0.30		29

Remarks

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

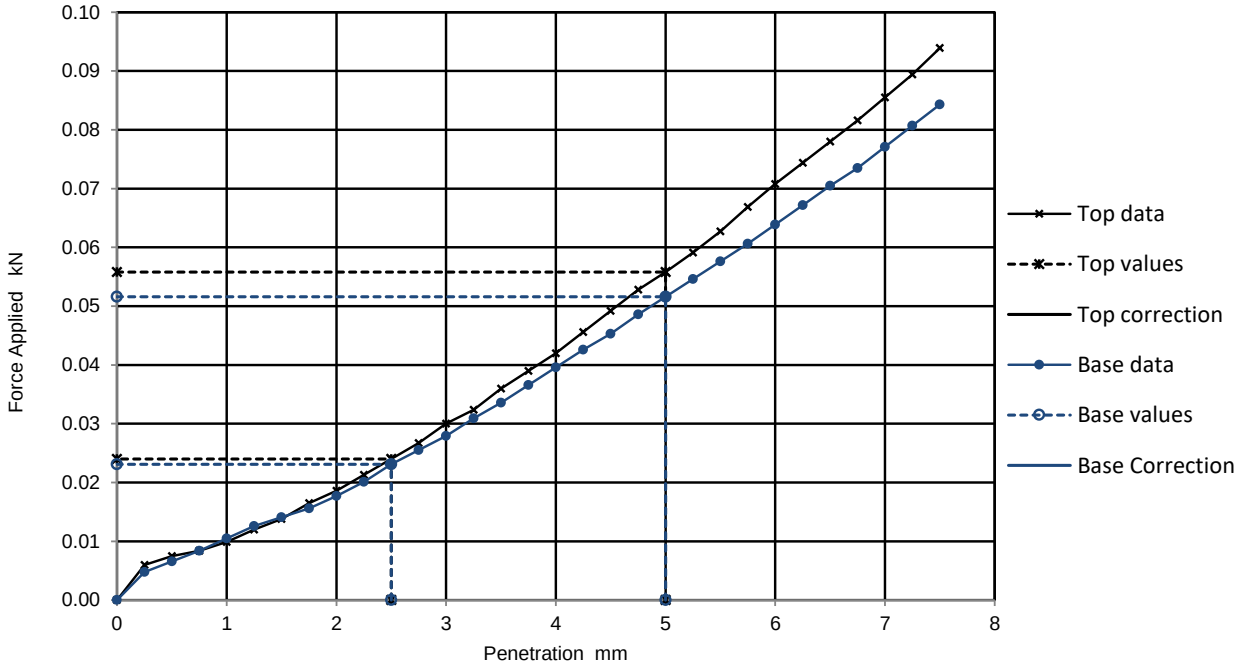
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-77631				
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Project No.	2021OY102	Client	Irish Drilling	Depth Top	4.00 m
Soil Description	Grey slightly sandy gravelly silty CLAY with occasional cobbles (gravel is fmc and angular to rounded)			Depth Base	5.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	17/11/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		18	%			
Initial Specimen details	Bulk density	2.30	Mg/m3	Surcharge applied	6	kg
	Dry density	2.09	Mg/m3		4	kPa
	Moisture content	10	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.18	0.28	0.28	0.27	11
BASE	No	0.18	0.26	0.26		11

Remarks

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Initials: **J.P**

Date: 14/12/2022

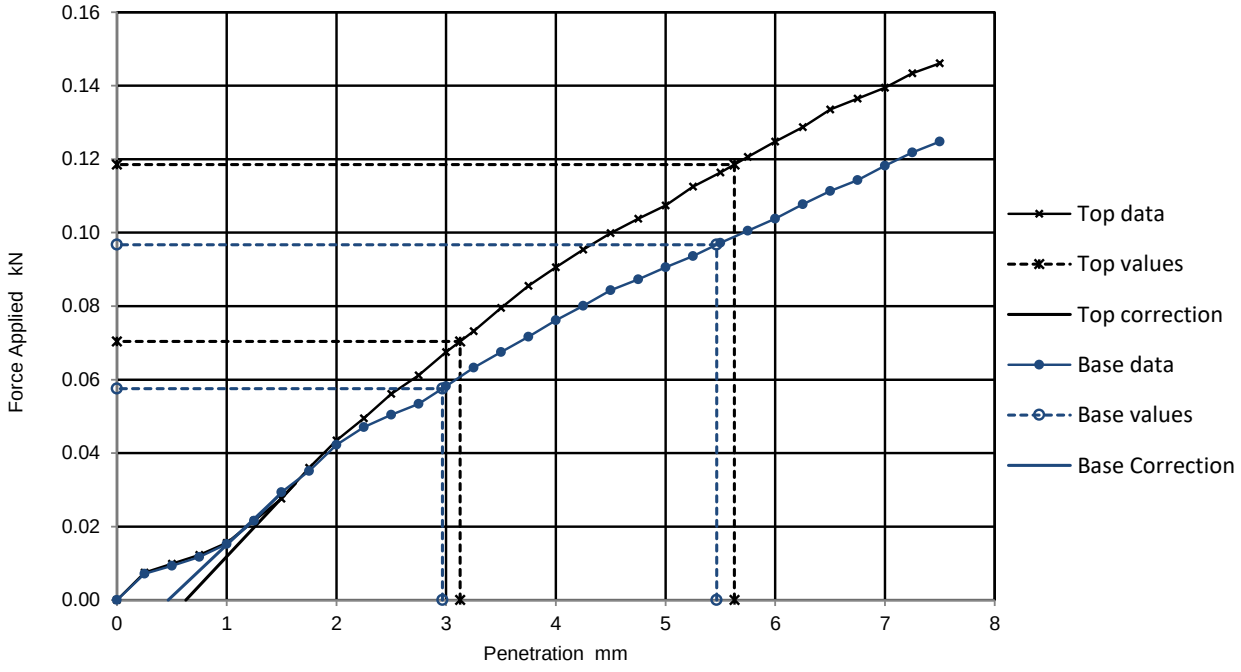
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-79273				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey gravelly sandy silty CLAY with cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	05/12/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	- days
				Time to surface	- days
				Amount of swell recorded	- mm
Material retained on 20mm sieve removed		22	%		
Initial Specimen details	Bulk density	2.29	Mg/m3	Surcharge applied	6 kg
	Dry density	2.09	Mg/m3		4 kPa
	Moisture content	9.6	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	Yes	0.53	0.59	0.59	N/A	10
BASE	Yes	0.44	0.48	0.48		10

Remarks

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Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

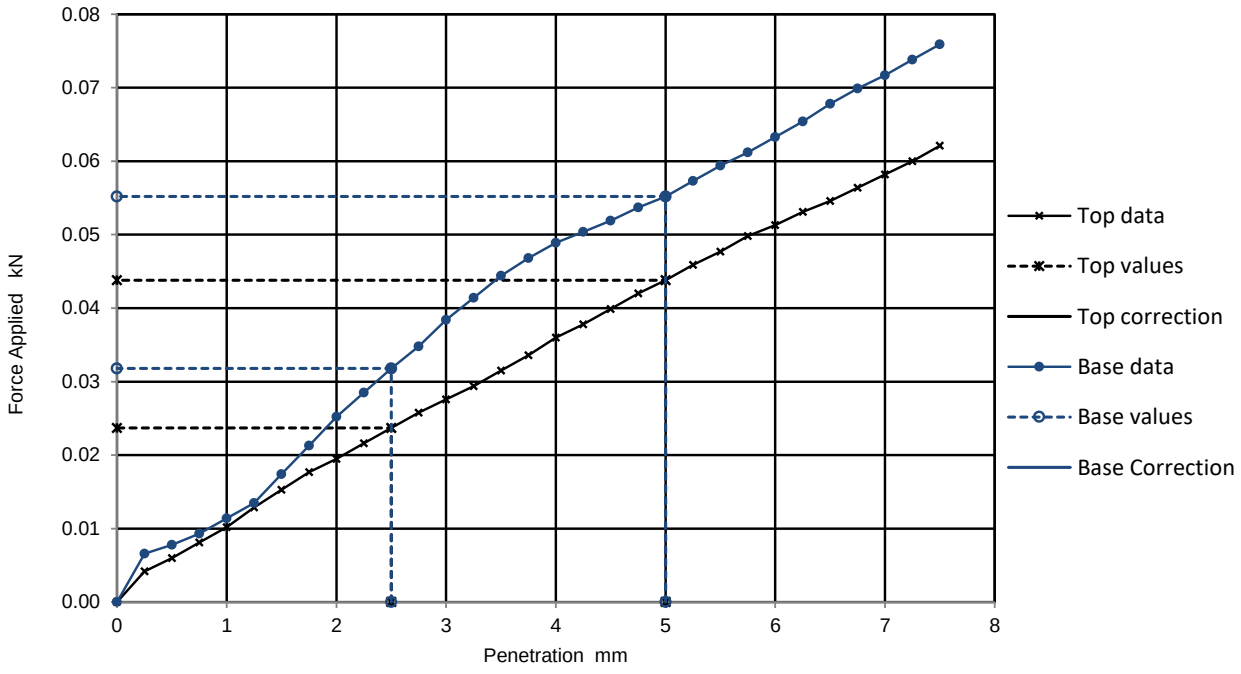
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-79441				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	02/12/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		16	%			
Initial Specimen details	Bulk density	2.21	Mg/m3	Surcharge applied	6	kg
	Dry density	1.94	Mg/m3		4	kPa
	Moisture content	14	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.18	0.22	0.22	N/A	14
BASE	No	0.24	0.28	0.28		14

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-79595				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	05/12/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 18 %

Initial Specimen details:

Bulk density	2.29	Mg/m3	
Dry density	2.07	Mg/m3	
Moisture content	11	%	

Soaking details: Not soaked

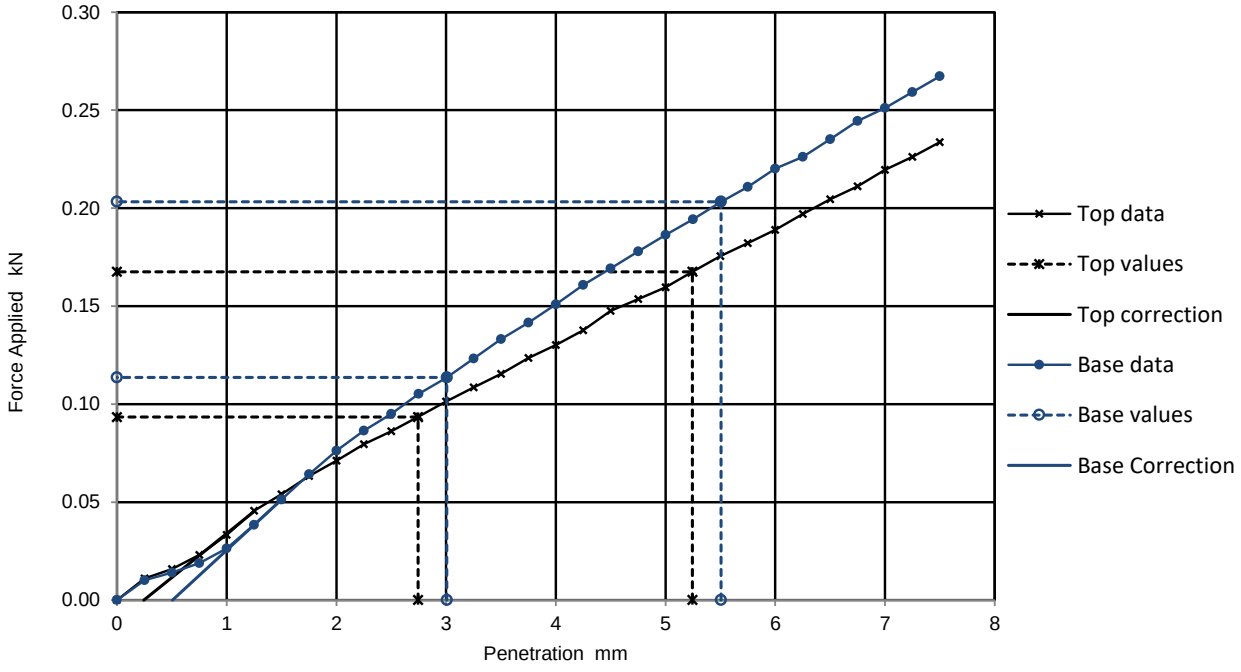
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 6 kg / 4 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	Yes	0.71	0.84	0.84	0.93	11
BASE	Yes	0.86	1.0	1.0		9.2

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

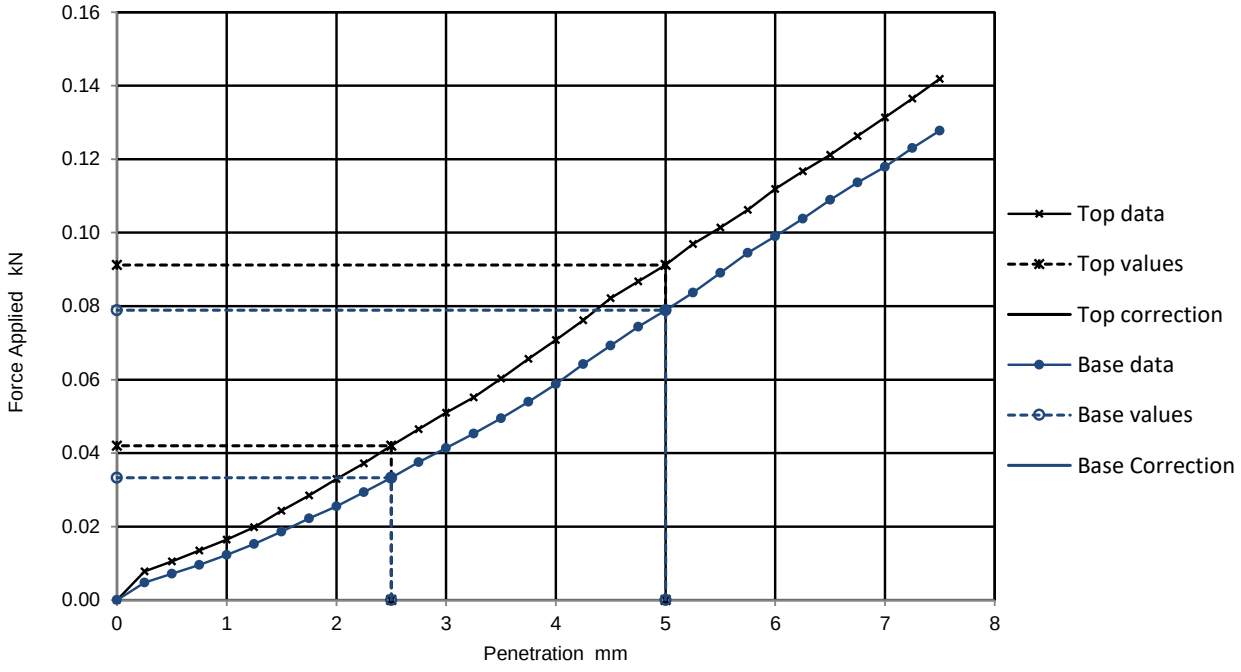
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-80439				
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Grey gravelly clayey SAND (gravel is fmc and sub-angular)			Depth Base	4.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	16/11/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		10	%			
Initial Specimen details	Bulk density	2.31	Mg/m3	Surcharge applied	4	kg
	Dry density	2.10	Mg/m3		2	kPa
	Moisture content	10	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.32	0.46	0.46	0.43	9.6
BASE	No	0.25	0.39	0.39		10

Remarks

Test Report by K4 SOILS LABORATORY
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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R16

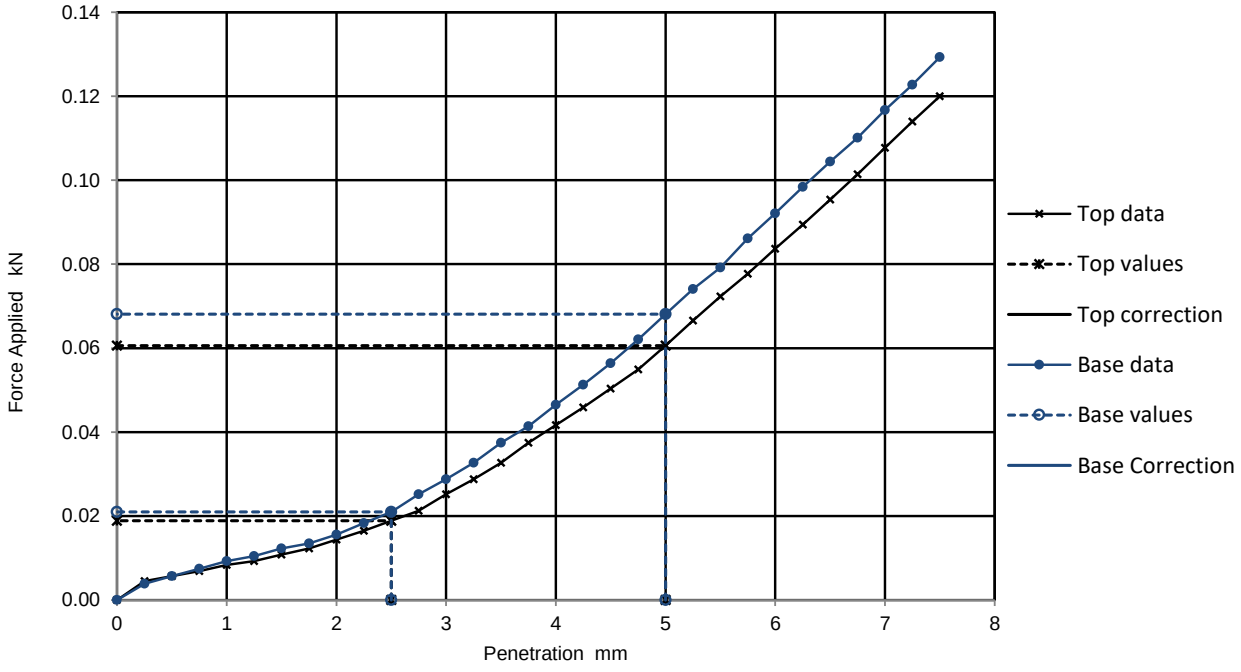
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-97837				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and angular to rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	21/11/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		3.8	%			
Initial Specimen details	Bulk density	2.17	Mg/m3	Surcharge applied	6	kg
	Dry density	1.98	Mg/m3		4	kPa
	Moisture content	9.8	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.14	0.30	0.30	0.32	15
BASE	No	0.16	0.34	0.34		16

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

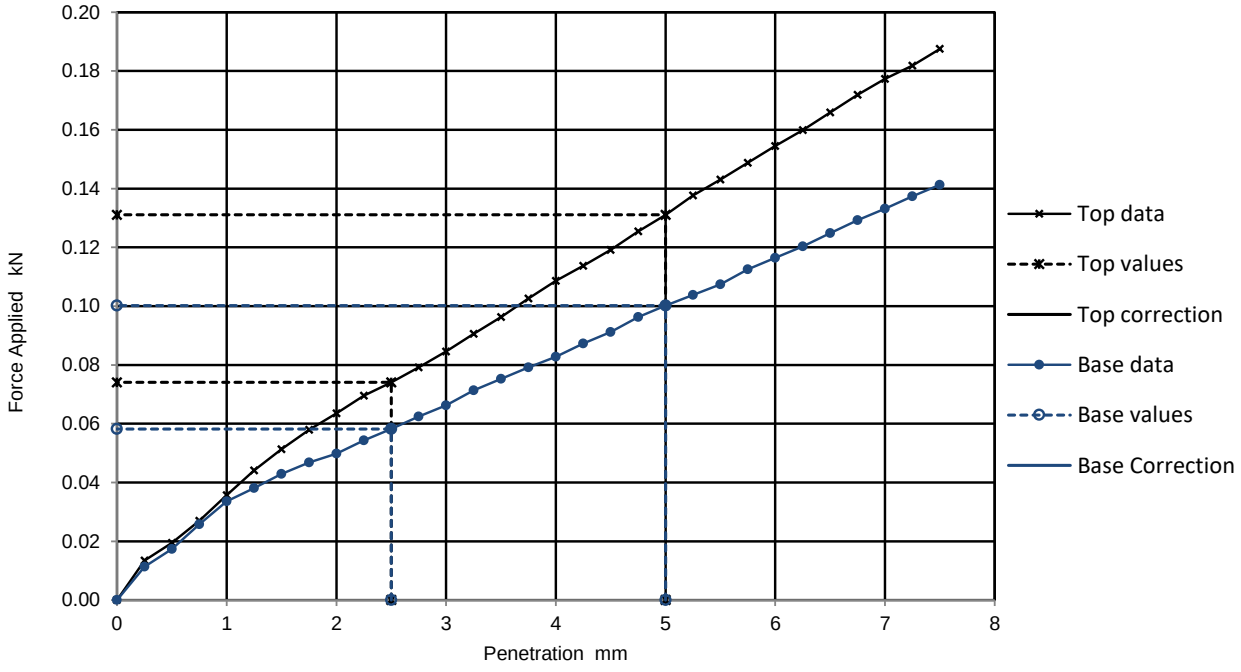
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	BH-102037				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.00 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY with numerous cobbles (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	05/12/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		40	%			
Initial Specimen details	Bulk density	2.08	Mg/m3	Surcharge applied	6	kg
	Dry density	1.73	Mg/m3		4	kPa
	Moisture content	20	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.56	0.66	0.66	N/A	20
BASE	No	0.44	0.50	0.50		21

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-100485				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	13/10/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 4.1 %

Initial Specimen details:

Bulk density	2.18	Mg/m3
Dry density	1.90	Mg/m3
Moisture content	15	%

Soaking details: Not soaked

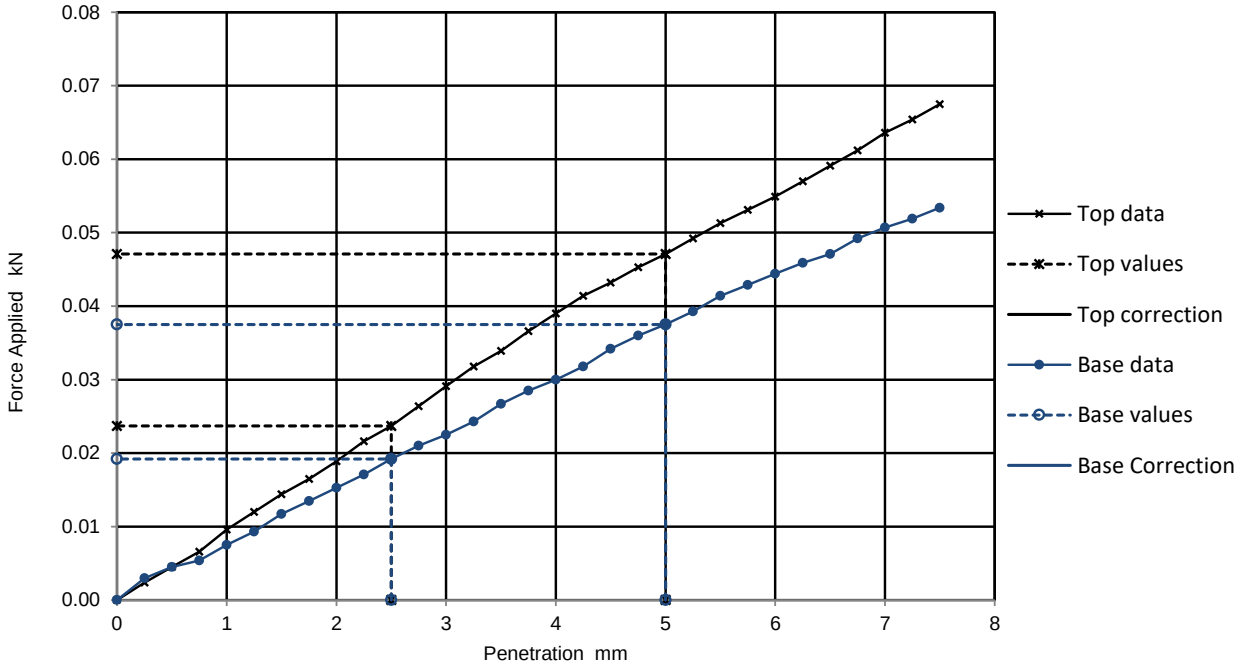
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 4 kg / 2 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.18	0.24	0.24	N/A	15
BASE	No	0.15	0.19	0.19		14

Remarks

UKAS TESTING 2519

Test Report by K4 SOILS LABORATORY
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-100503				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.80 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.10 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	13/10/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 6.2 %

Initial Specimen details:

Bulk density	2.28	Mg/m3	
Dry density	2.06	Mg/m3	
Moisture content	11	%	

Soaking details: Not soaked

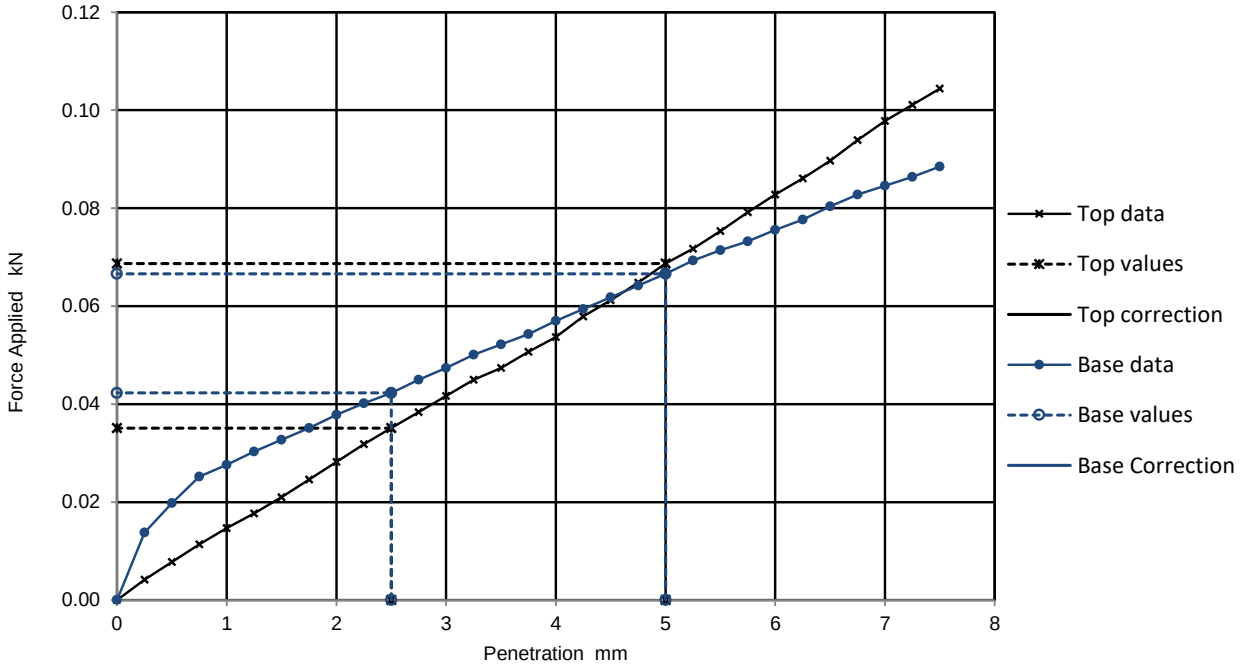
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 4 kg / 2 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.27	0.34	0.34	0.34	10
BASE	No	0.32	0.33	0.33		12

Remarks

Test Report by K4 SOILS LABORATORY
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

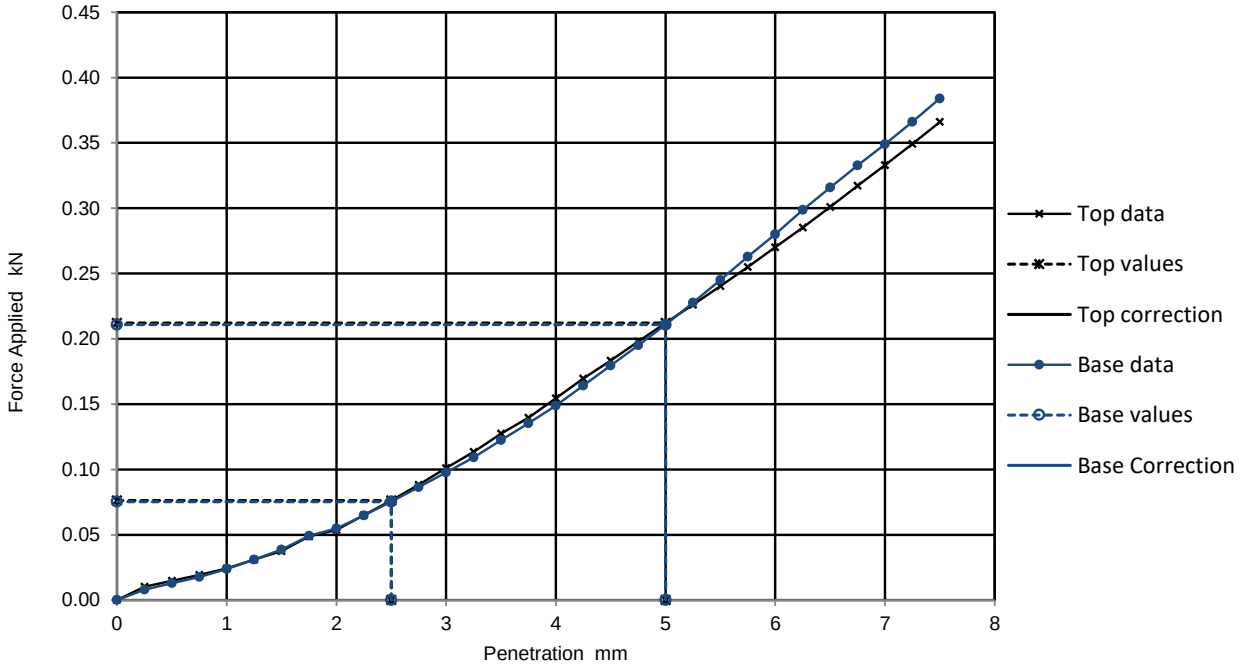
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-101407				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.60 m
Soil Description	Grey slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.90 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	13/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		15	%			
Initial Specimen details	Bulk density	2.31	Mg/m3	Surcharge applied	4	kg
	Dry density	2.12	Mg/m3		2	kPa
	Moisture content	8.9	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.58	1.1	1.1	1.1	9.0
BASE	No	0.57	1.1	1.1		8.8

Remarks

Test Report by K4 SOILS LABORATORY
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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-102303				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.70 m
Soil Description	Grey slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	13/10/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 5.2 %

Initial Specimen details:

Bulk density	2.30	Mg/m3
Dry density	2.09	Mg/m3
Moisture content	10	%

Soaking details: Not soaked

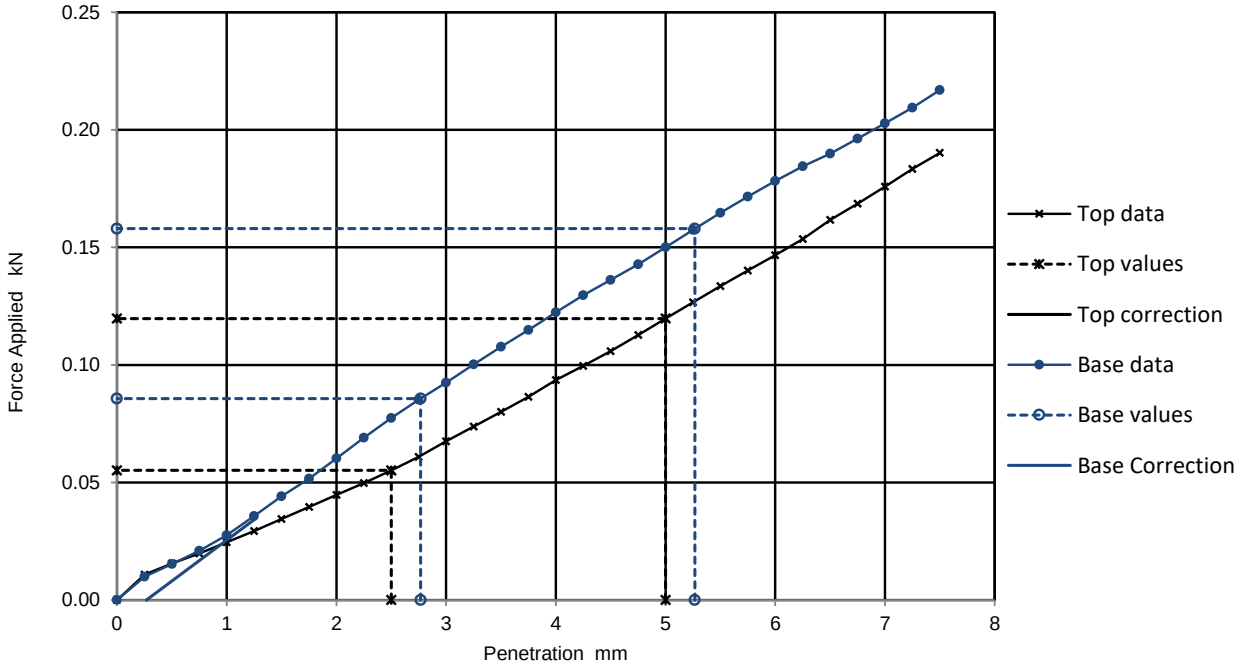
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 4 kg / 2 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.42	0.60	0.60	N/A	10
BASE	Yes	0.65	0.79	0.79		10

Remarks

Test Report by K4 SOILS LABORATORY
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Checked and Approved

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Date: 14/12/2022

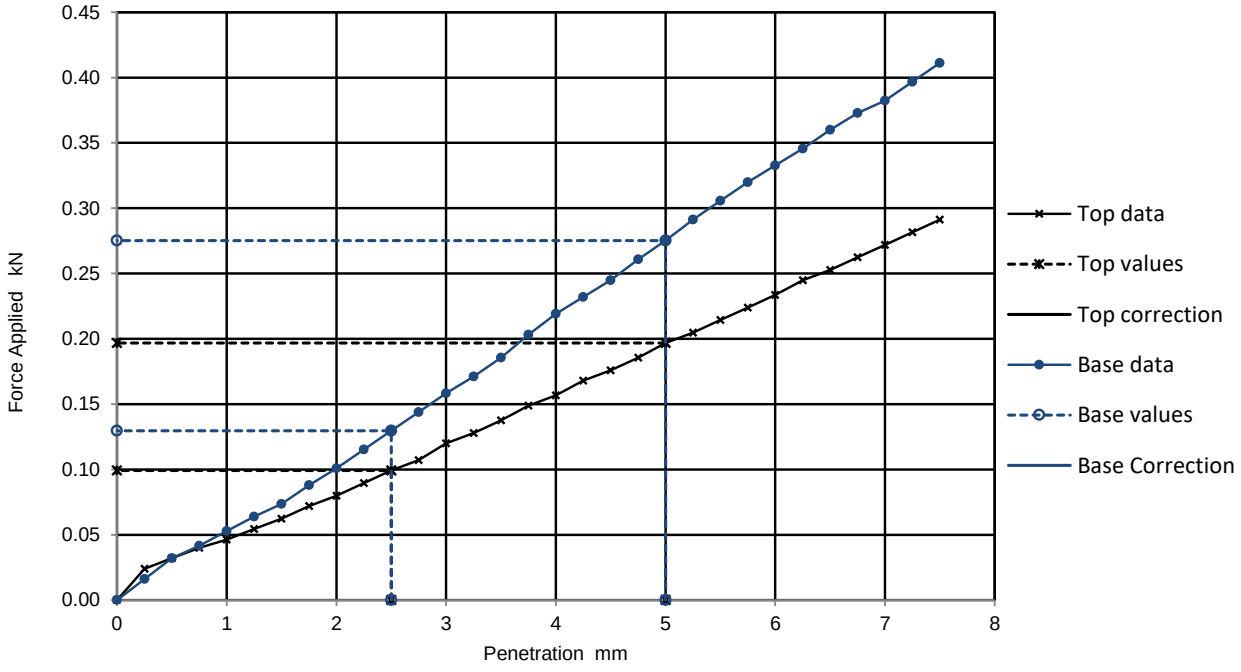
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-102617				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.00 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to rounded)			Depth Base	2.30 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	27/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	- days
				Time to surface	- days
				Amount of swell recorded	- mm
Material retained on 20mm sieve removed		26	%		
Initial Specimen details	Bulk density	2.13	Mg/m3	Surcharge applied	6 kg
	Dry density	1.94	Mg/m3		4 kPa
	Moisture content	9.6	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.75	0.98	0.98	N/A	11
BASE	No	0.98	1.4	1.4		9.9

Remarks

Test Report by K4 SOILS LABORATORY
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

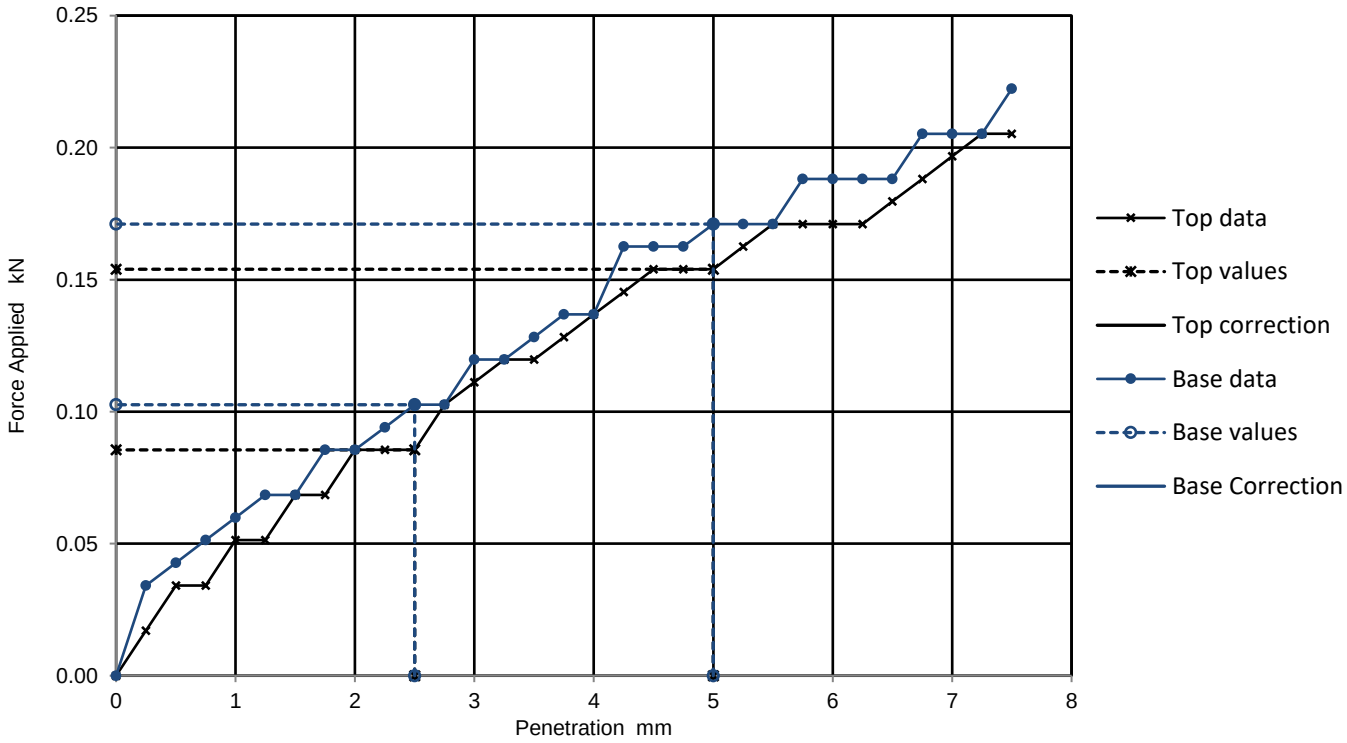
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-51059
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Golden-brown slightly sandy slightly gravelly SILT.			Depth m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022011319
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		20	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.18	Mg/m^3	Surcharge applied	2	kg
	Dry density	1.88	Mg/m^3		1	kPa
	Moisture content	15.9	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.65	0.77	0.77	0.81	15.9
BASE	No	0.78	0.86	0.86		15.9

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 1

Lab Sheet Reference :

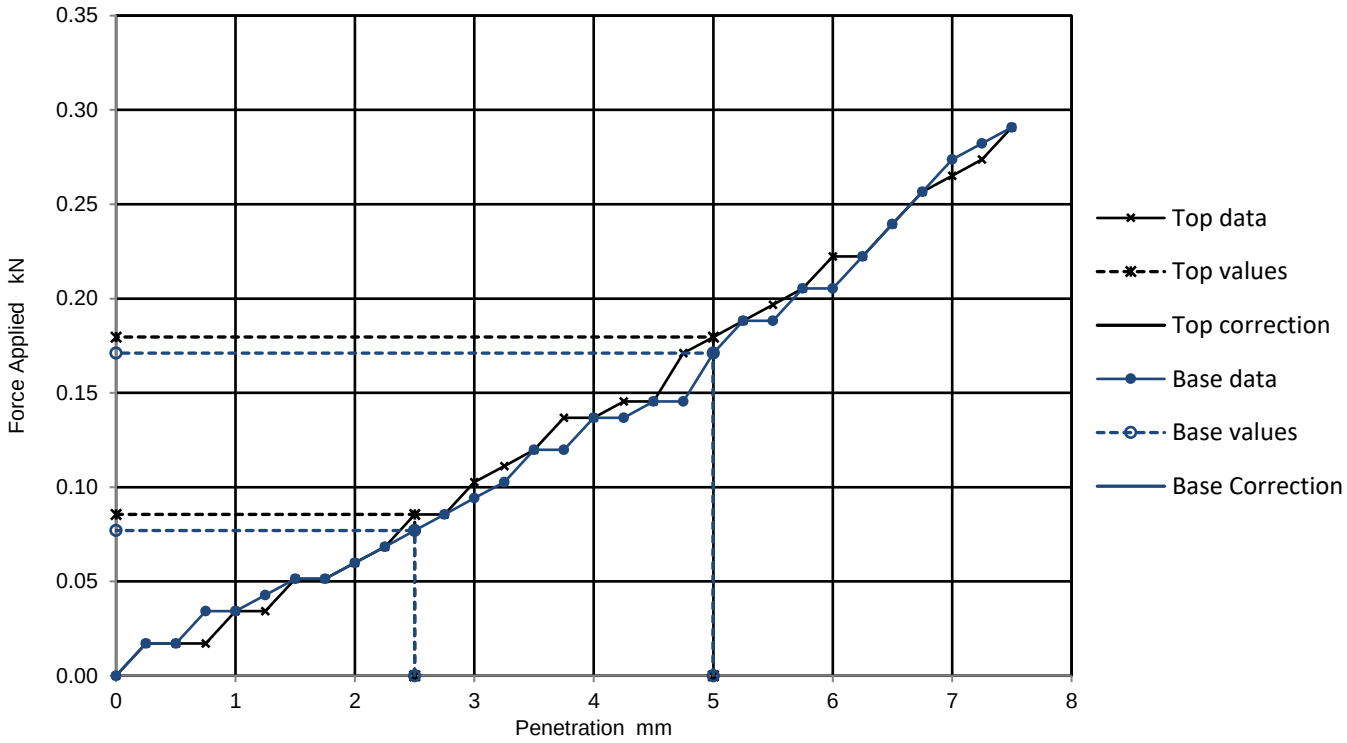
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-68505
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown slightly sandy gravelly SILT.			Depth m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022011365
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		13	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.35	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.15	Mg/m^3		1	kPa
	Moisture content	9.3	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.65	0.90	0.90	0.88	8.5
BASE	No	0.58	0.86	0.86		9.3

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 2

Lab Sheet Reference :

California Bearing Ratio (CBR)

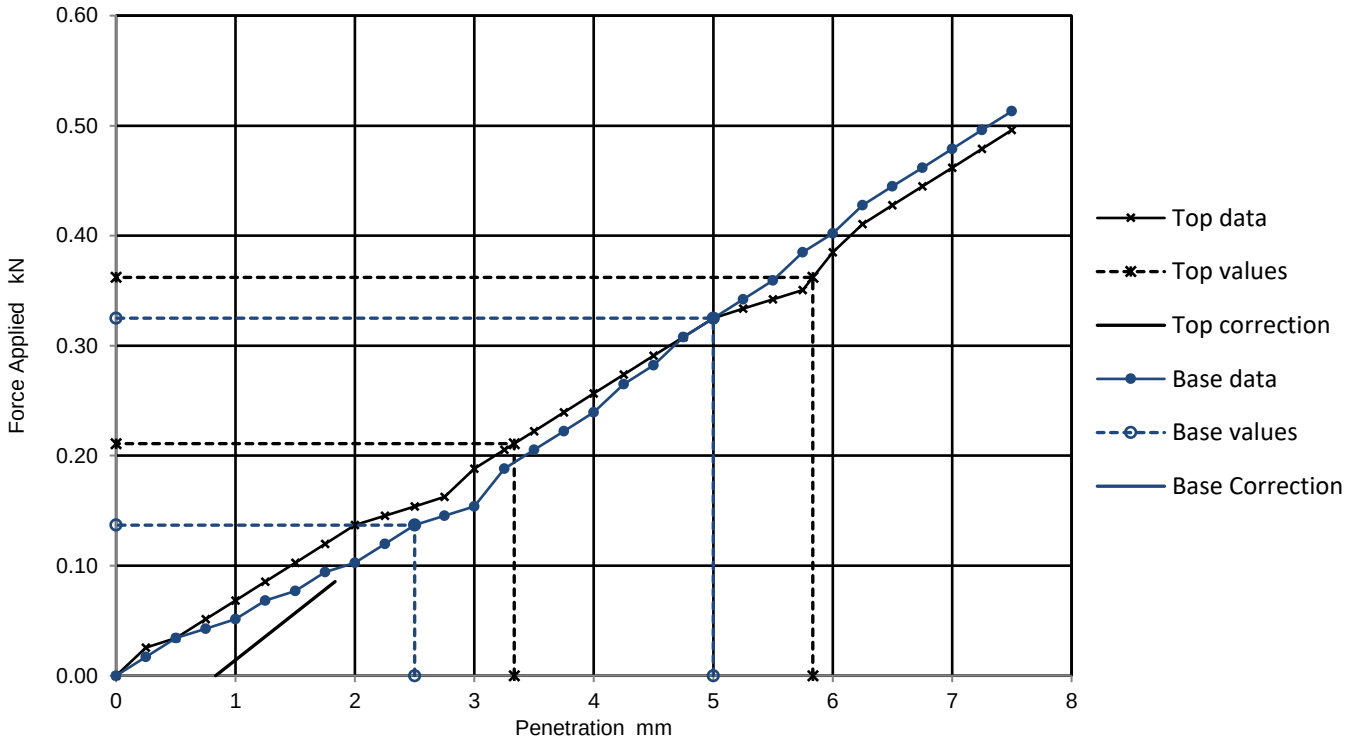
				Job Ref	2021OY102
				Borehole/Pit No.	TP-68806
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown sandy very silty medium GRAVEL.			Depth m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12021122110
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	%	Dry density after soaking	Mg/m^3

Initial Specimen details	Bulk density	2.25	Mg/m^3	Surcharge applied	2	kg
	Dry density	1.99	Mg/m^3		1	kPa
	Moisture content	12.8	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	1.6	1.8	1.8	1.7	11.7
BASE	No	1.0	1.6	1.6		12.8

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 3

Lab Sheet Reference :

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

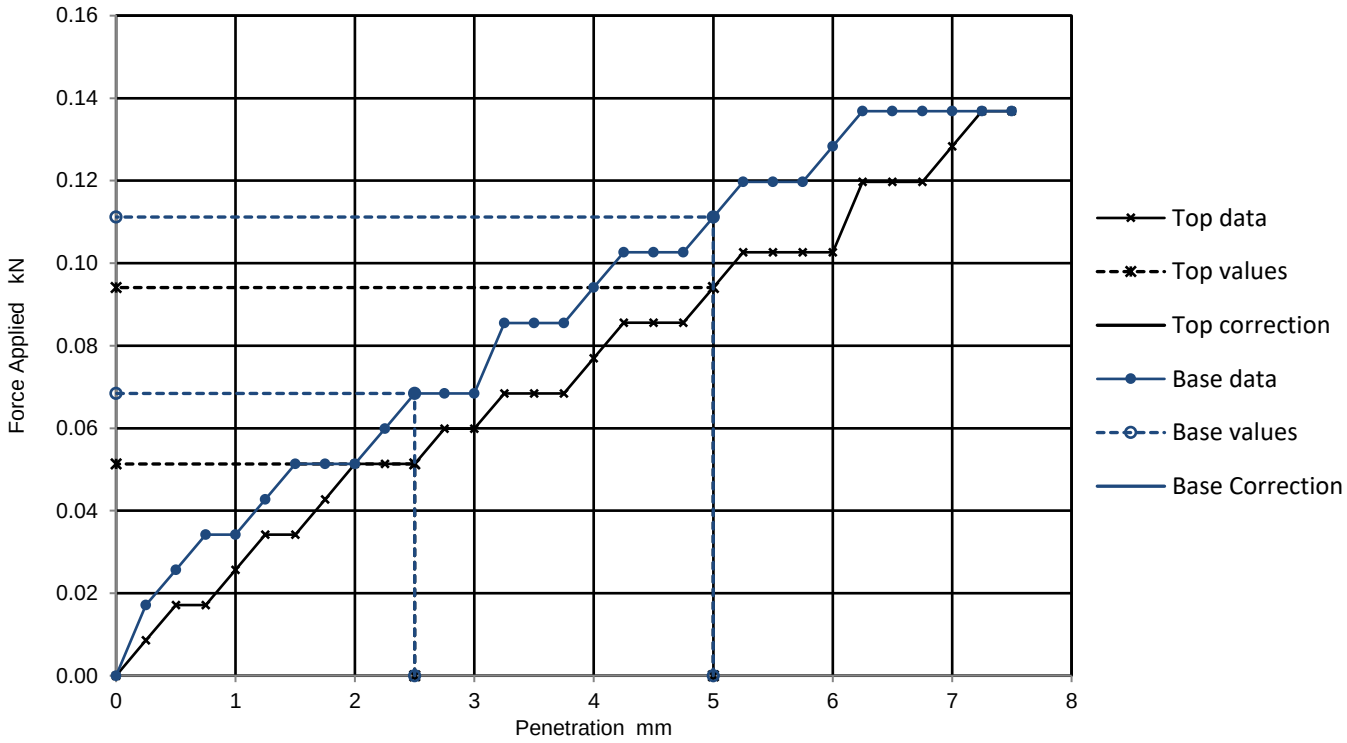
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-70716
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Grey slight sandy gravelly SILT.			Depth m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12021122153
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		18	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.39	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.19	Mg/m^3		1	kPa
	Moisture content	9.0	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP		0.39	0.47	0.47	0.51	9.0
BASE		0.52	0.56	0.56		8.8

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 4

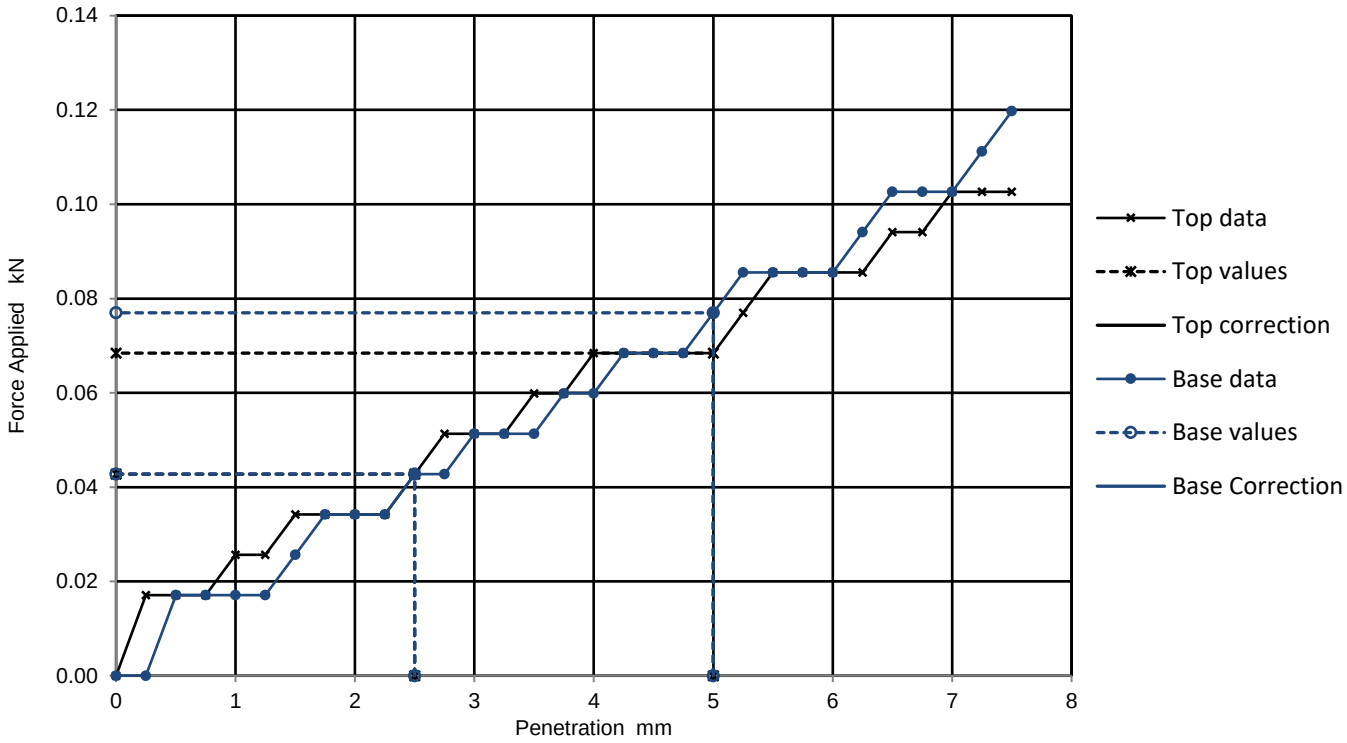
Lab Sheet Reference :

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-72403
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Greyish-brown slightly gravelly slightly sandy SILT.			Depth m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12021122189
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		12	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.31	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.08	Mg/m^3		1	kPa
	Moisture content	10.9	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP		0.32	0.34	0.34	0.36	10.9
BASE		0.32	0.38	0.38		9.8

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 5

Lab Sheet Reference :

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

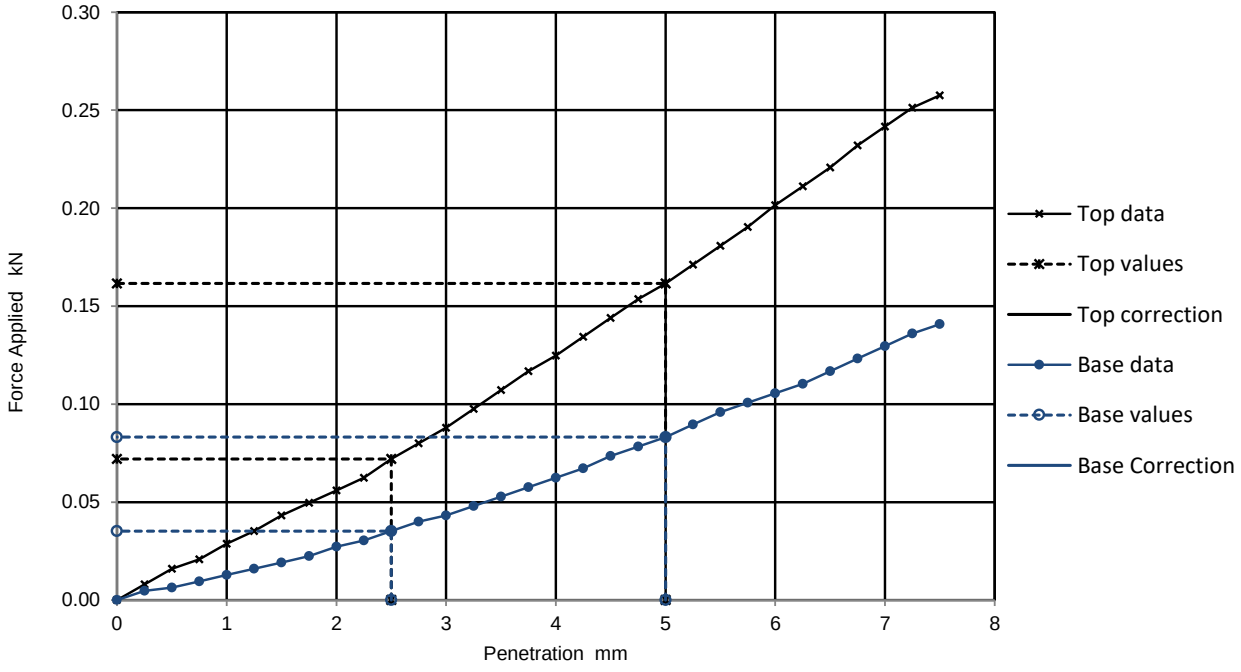
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-73504				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	31/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		10	%			
Initial Specimen details	Bulk density	2.29	Mg/m3	Surcharge applied	6	kg
	Dry density	2.10	Mg/m3		4	kPa
	Moisture content	9.1	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.55	0.81	0.81	N/A	9.5
BASE	No	0.27	0.42	0.42		10

Remarks

UKAS TESTING
2519

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Checked and Approved

Initials: **J.P**

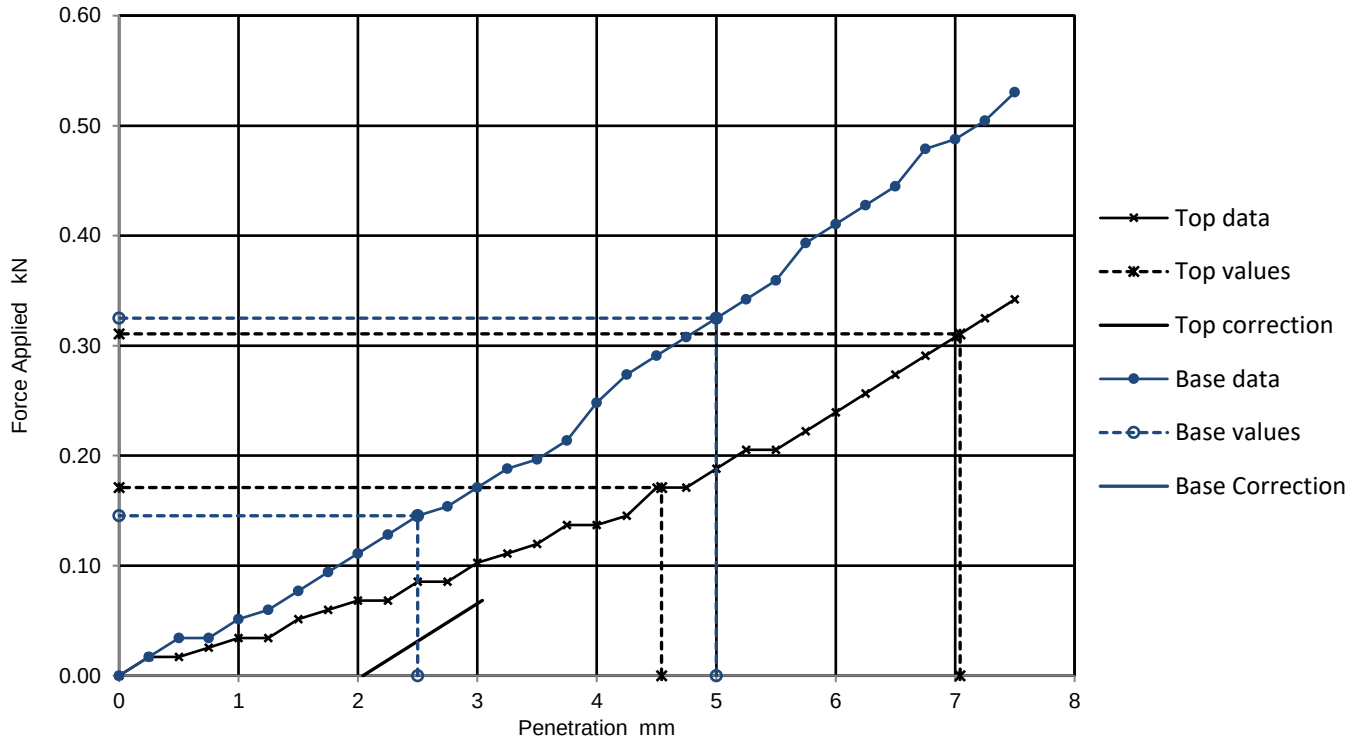
Date: 14/12/2022

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-73602
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth m	2.20
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL120211221144
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		11	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.29	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.08	Mg/m^3		1	kPa
	Moisture content	10.3	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	1.3	1.6	1.6	1.6	10.3
BASE	No	1.1	1.6	1.6		10.3

General remarks	Test specific remarks	Approved
		Administrator

Fig No.	1
QC From R9	
Sheet No	6

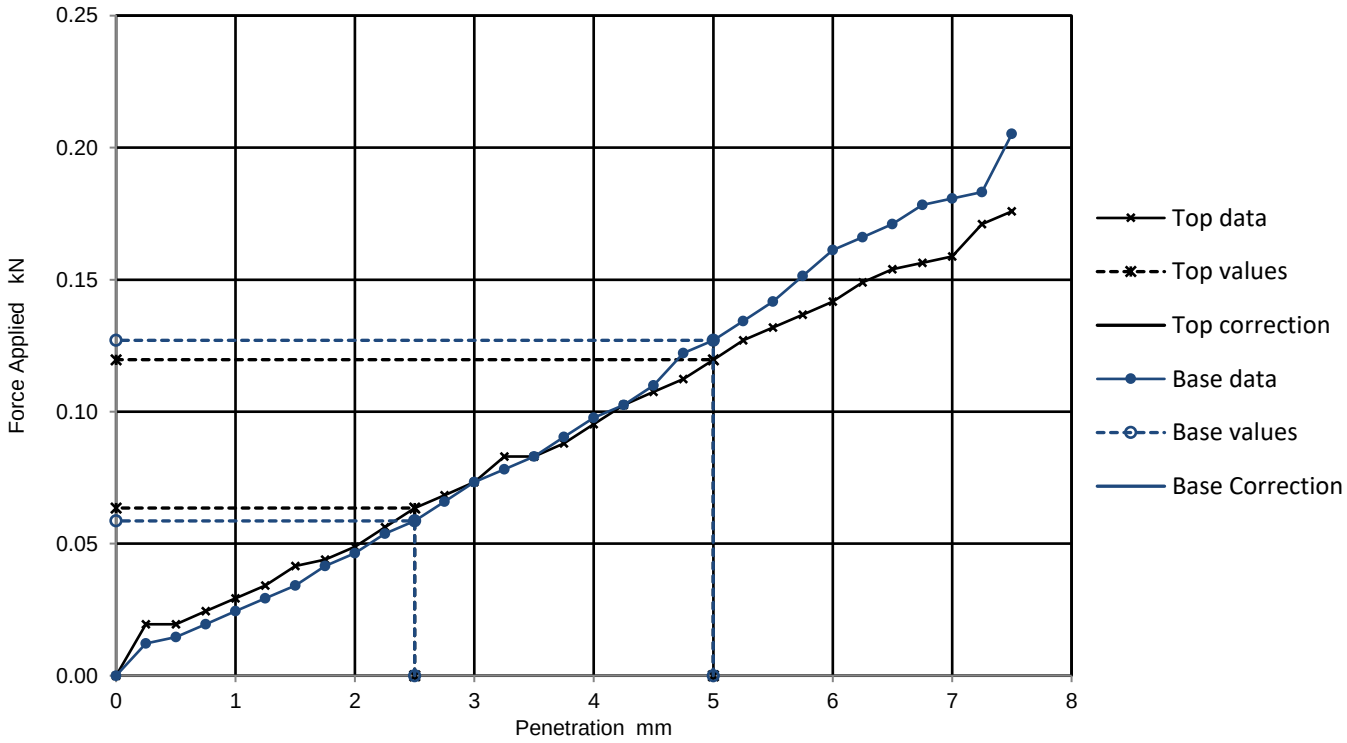
Lab Sheet Reference :

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-74503
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown very silty SAND and GRAVEL.			Depth m	1.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL1202201063
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		18	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.35	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.14	Mg/m^3		1	kPa
	Moisture content	9.6	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.48	0.60	0.60	0.62	9.6
BASE	No	0.44	0.64	0.64		9.0

General remarks	Test specific remarks	Approved
		Administrator

Fig No.	1
QC From R9	
Sheet No	7

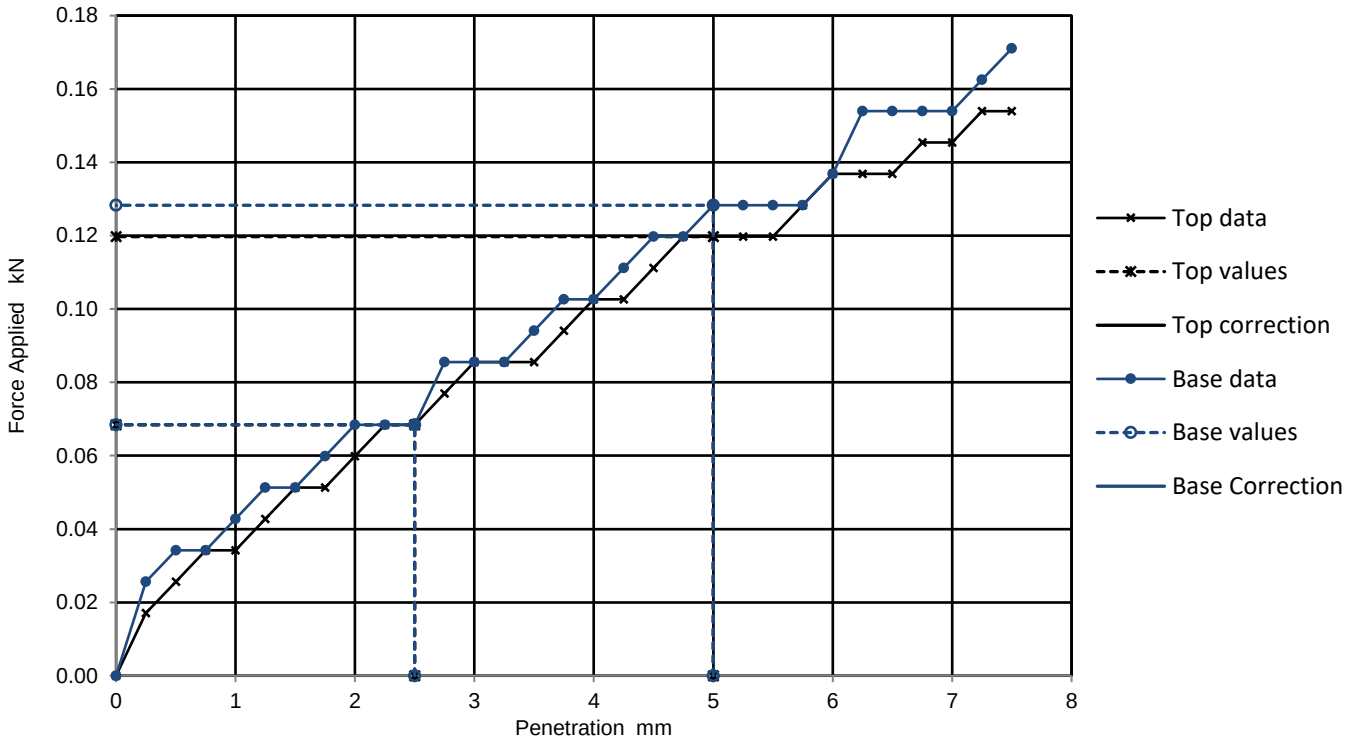
Lab Sheet Reference :

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-75508
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy gravelly SILT.			Depth m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022010668
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		10	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.30	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.07	Mg/m^3		1	kPa
	Moisture content	10.9	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.52	0.60	0.60	0.62	11.1
BASE	No	0.52	0.64	0.64		10.9

General remarks	Test specific remarks	Approved
		Administrator

Fig No.	1
QC From R9	
Sheet No	8

Lab Sheet Reference :

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

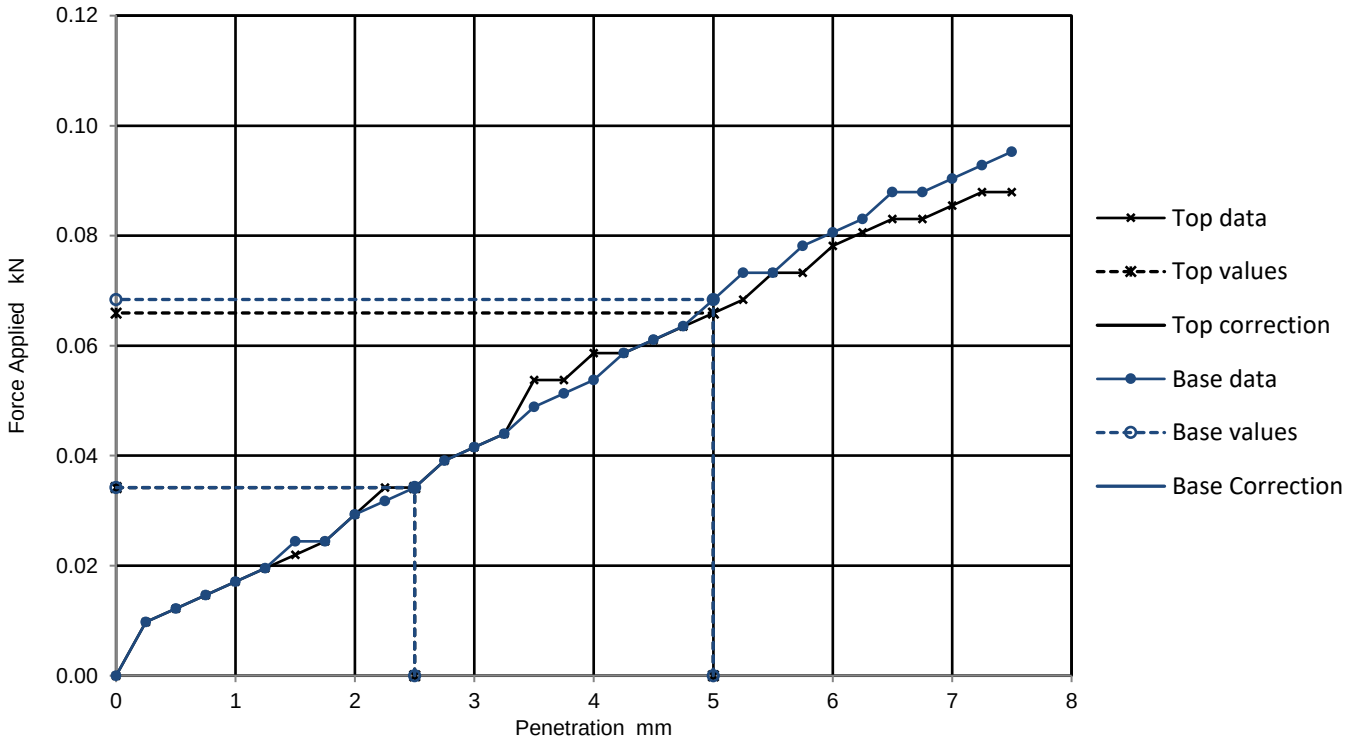
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-76006
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022011396
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		14	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.29	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.04	Mg/m^3		1	kPa
	Moisture content	12.3	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.26	0.33	0.33	0.34	12.3
BASE	No	0.26	0.34	0.34		12.1

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 9

Lab Sheet Reference :

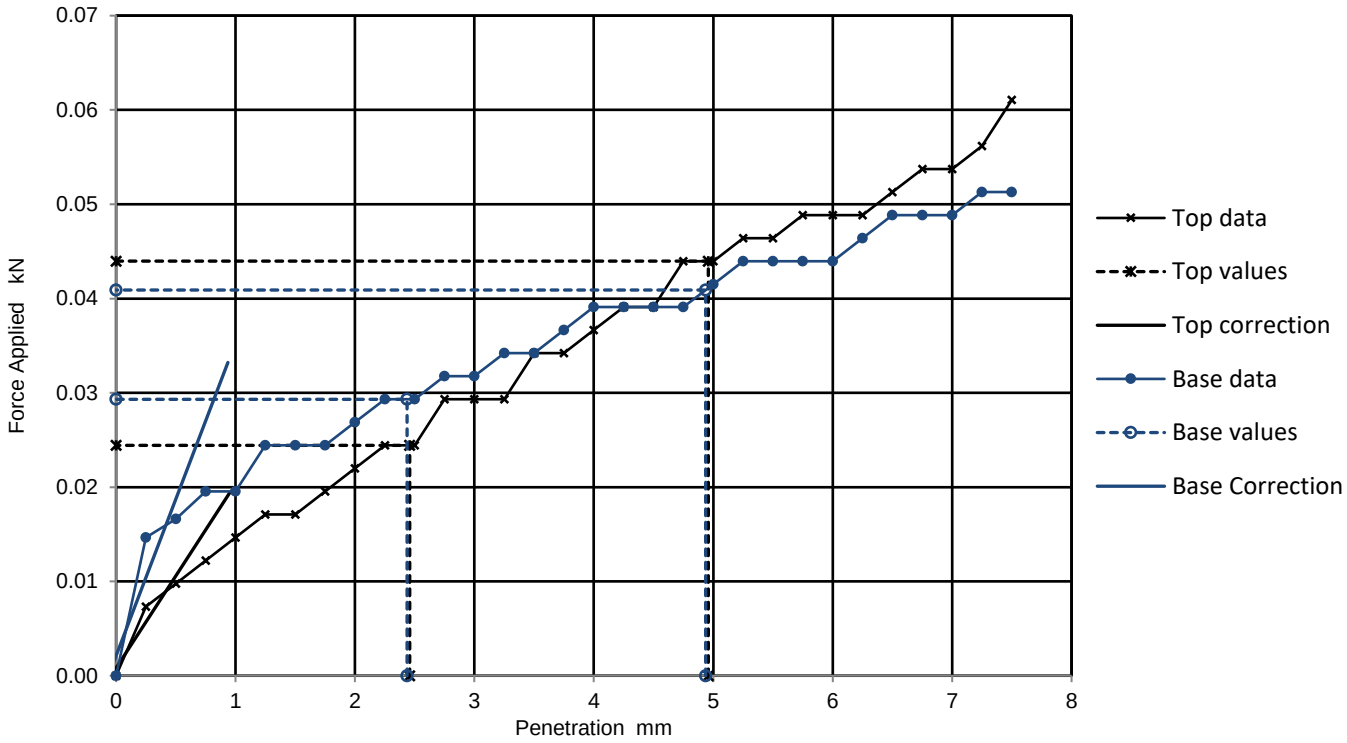
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-76440
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth m	2.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL120220106104
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		19	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.25	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.01	Mg/m^3		1	kPa
	Moisture content	12.2	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	0.19	0.22	0.22	0.22	13.1
BASE	Yes	0.22	0.20	0.22		12.2

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 10

Lab Sheet Reference :

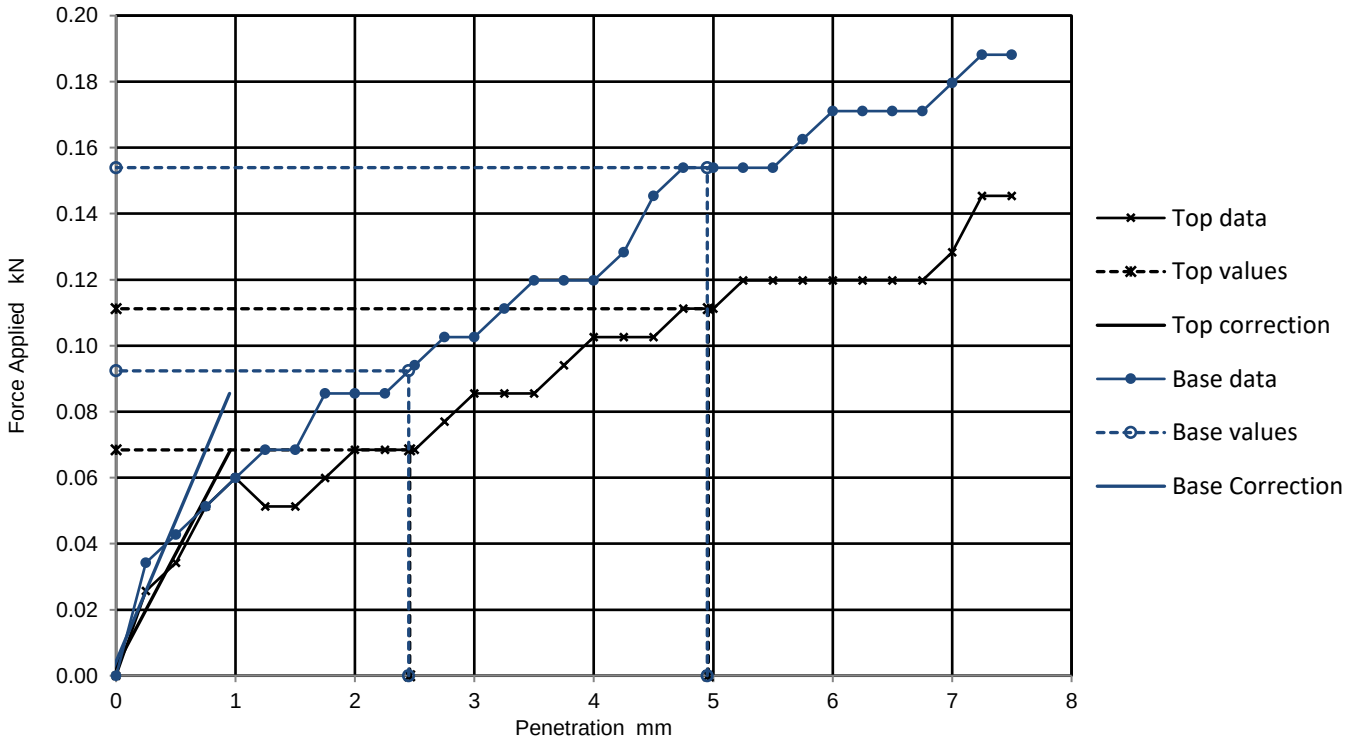
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-76707
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly sandy SILT.			Depth m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL120220106123
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		11	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.20	Mg/m^3	Surcharge applied	2	kg
	Dry density	1.99	Mg/m^3		1	kPa
	Moisture content	10.8	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	Yes	0.52	0.56	0.56		10.8
BASE	Yes	0.70	0.77	0.77		10.5

General remarks	Test specific remarks	Approved
		Administrator

Fig No.	1
QC From R9	
Sheet No	11

Lab Sheet Reference :

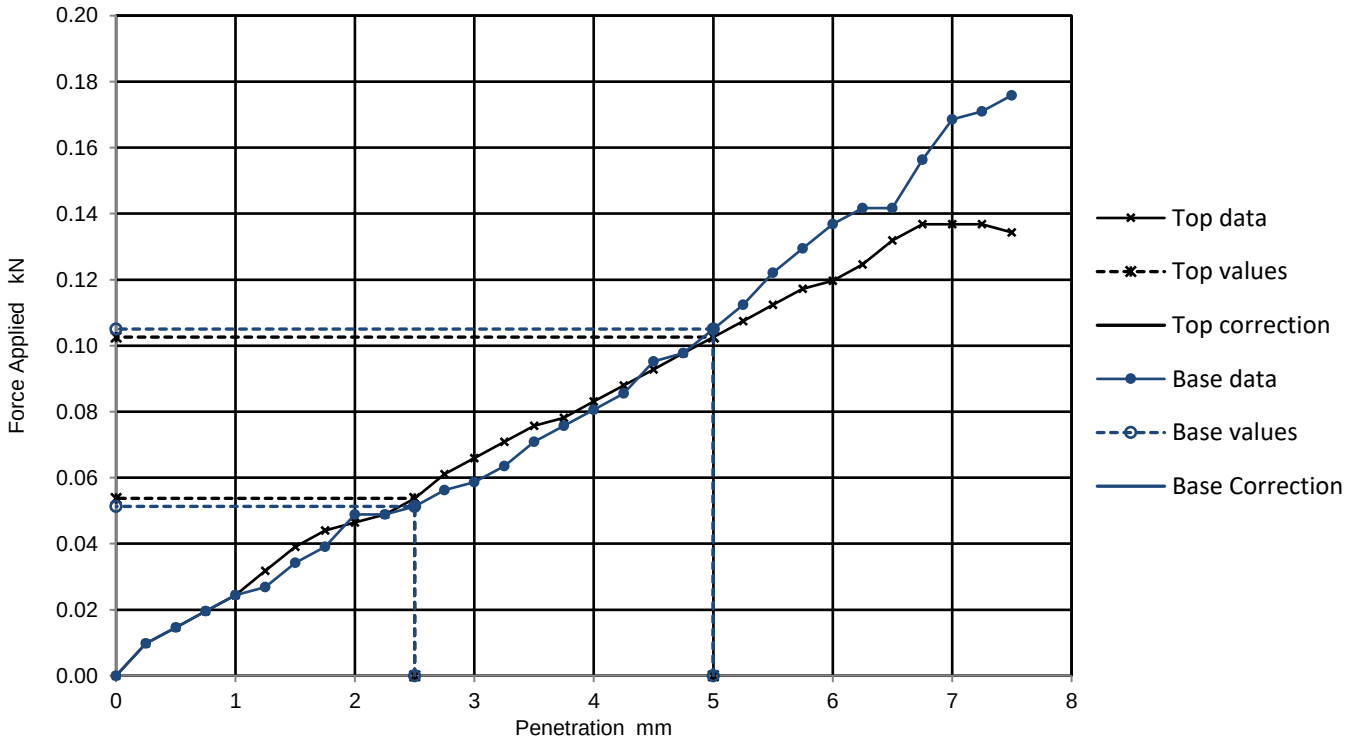
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-77304
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly sandy slightly gravelly SILT.			Depth m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL1202201143
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		7	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.29	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.03	Mg/m^3		1	kPa
	Moisture content	12.6	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.41	0.51	0.51	0.52	12.6
BASE	No	0.39	0.53	0.53		11.9

General remarks	Test specific remarks	Approved
		Administrator

Fig No.	1
QC From R9	
Sheet No	12

Lab Sheet Reference :

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

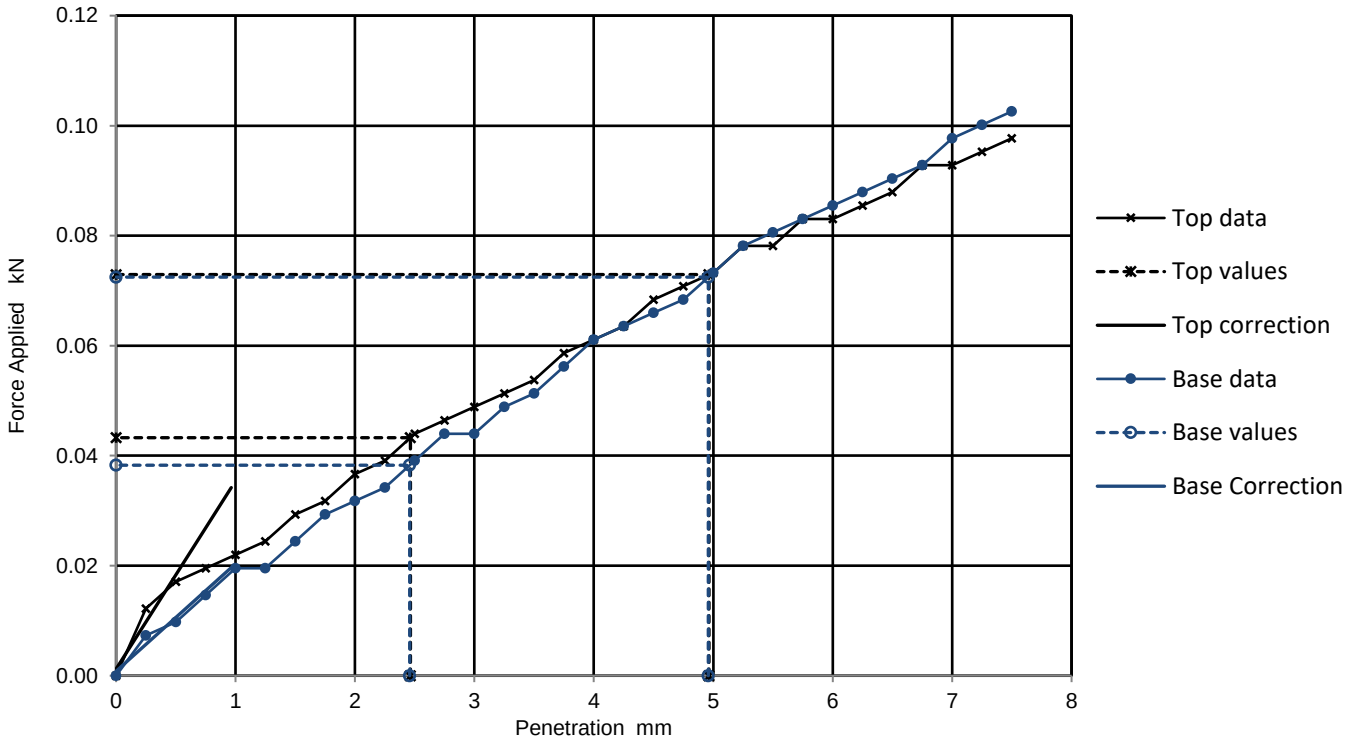
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-77416
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly sandy SILT.			Depth m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL120220113132
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		10	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.30	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.08	Mg/m^3		1	kPa
	Moisture content	10.6	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	Yes	0.33	0.36	0.36	0.36	12.0
BASE	Yes	0.29	0.36	0.36		10.6

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 13

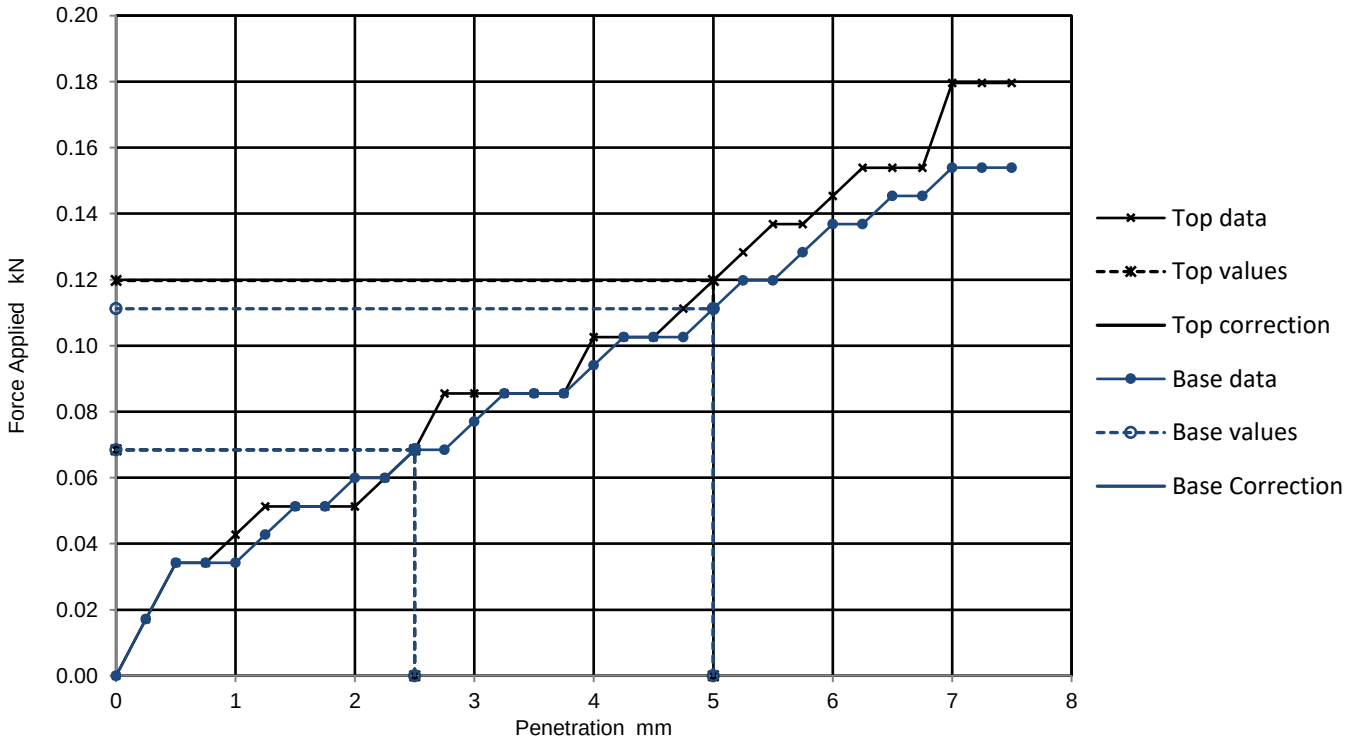
Lab Sheet Reference :

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-79208
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022011441
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		37	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.21	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.00	Mg/m^3		1	kPa
	Moisture content	10.7	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP		0.52	0.60	0.60	0.58	9.2
BASE		0.52	0.56	0.56		10.7

General remarks	Test specific remarks	Approved
		Administrator

Fig No.	1
QC From R9	
Sheet No	14

Lab Sheet Reference :

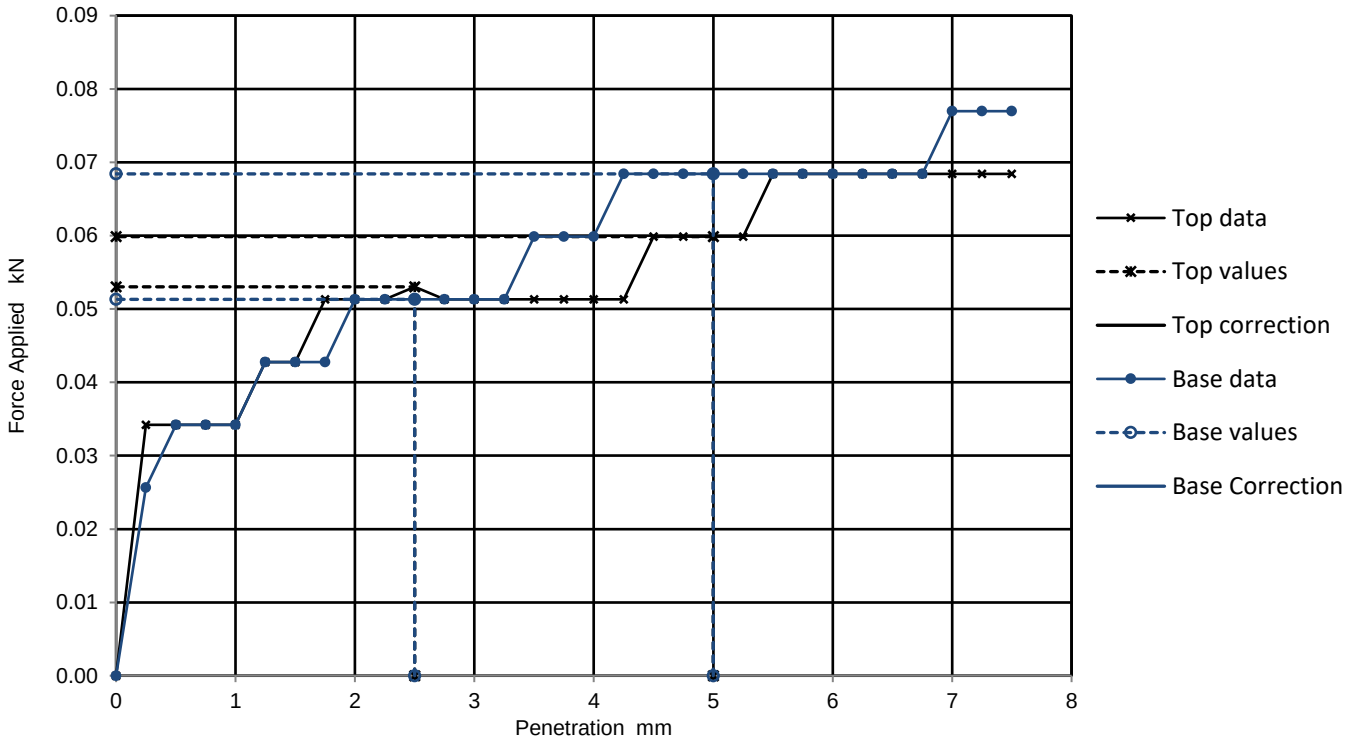
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-80442
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth m	1.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022011467
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		9	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.28	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.04	Mg/m^3		1	kPa
	Moisture content	11.9	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.40	0.30	0.40	0.40	11.9
BASE	No	0.39	0.34	0.39		11.8

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 15

Lab Sheet Reference :

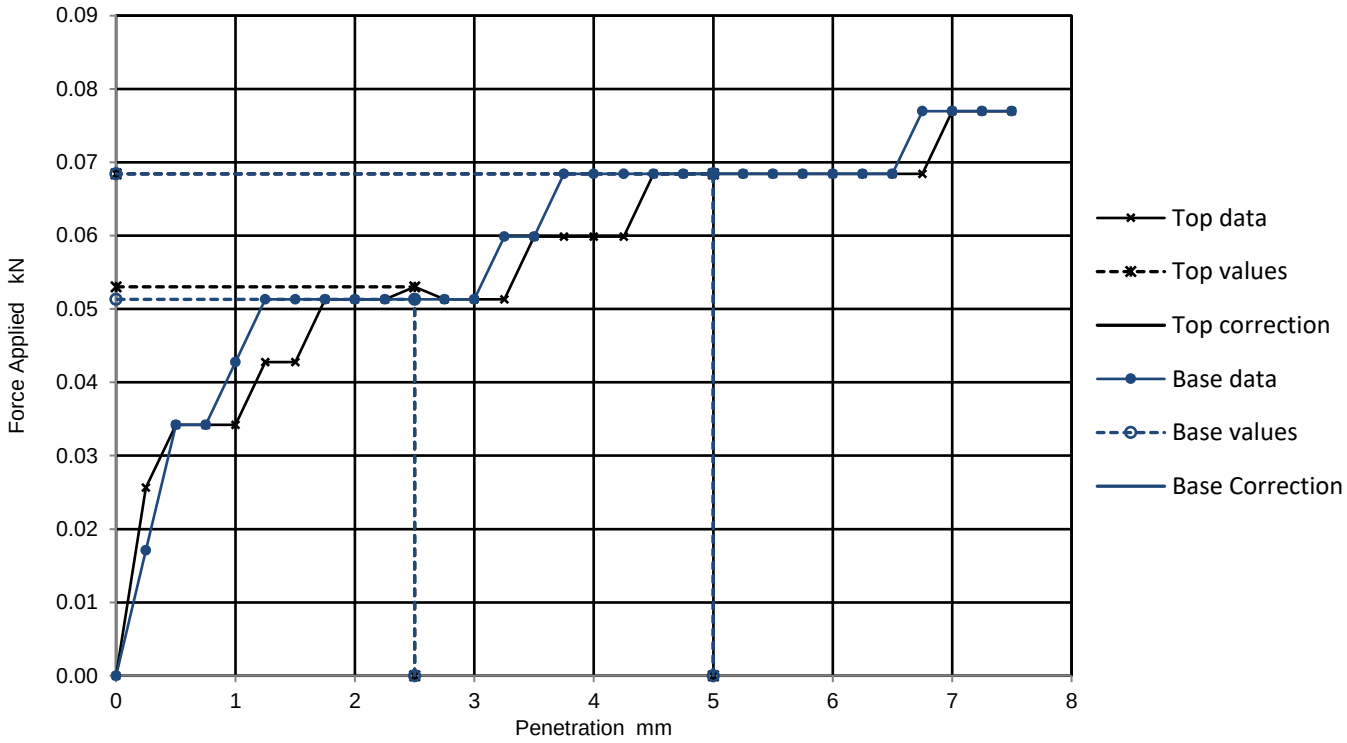
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-80508
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022012128
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		18	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.29	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.04	Mg/m^3		1	kPa
	Moisture content	12.0	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP		0.40	0.34	0.40	0.40	12.0
BASE		0.39	0.34	0.39		10.6

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 16

Lab Sheet Reference :

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

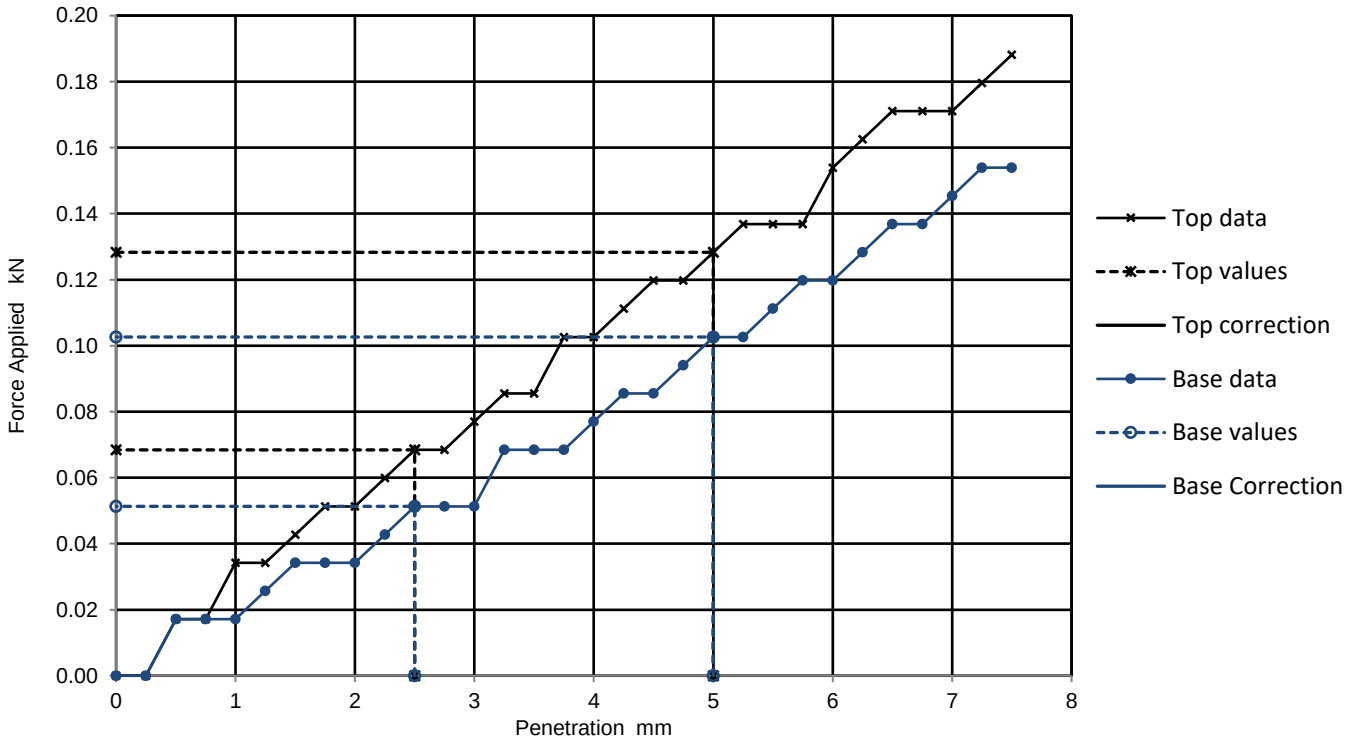
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-81501
Site Name	WSP Eastern & Midlands Region			Sample No.	2
Soil Description	Brownish-grey slightly gravelly sandy SILT.			Depth m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022012177
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		15	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.34	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.13	Mg/m^3		1	kPa
	Moisture content	9.7	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.52	0.64	0.64		9.4
BASE	No	0.39	0.51	0.51		9.7

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 1

Lab Sheet Reference :

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

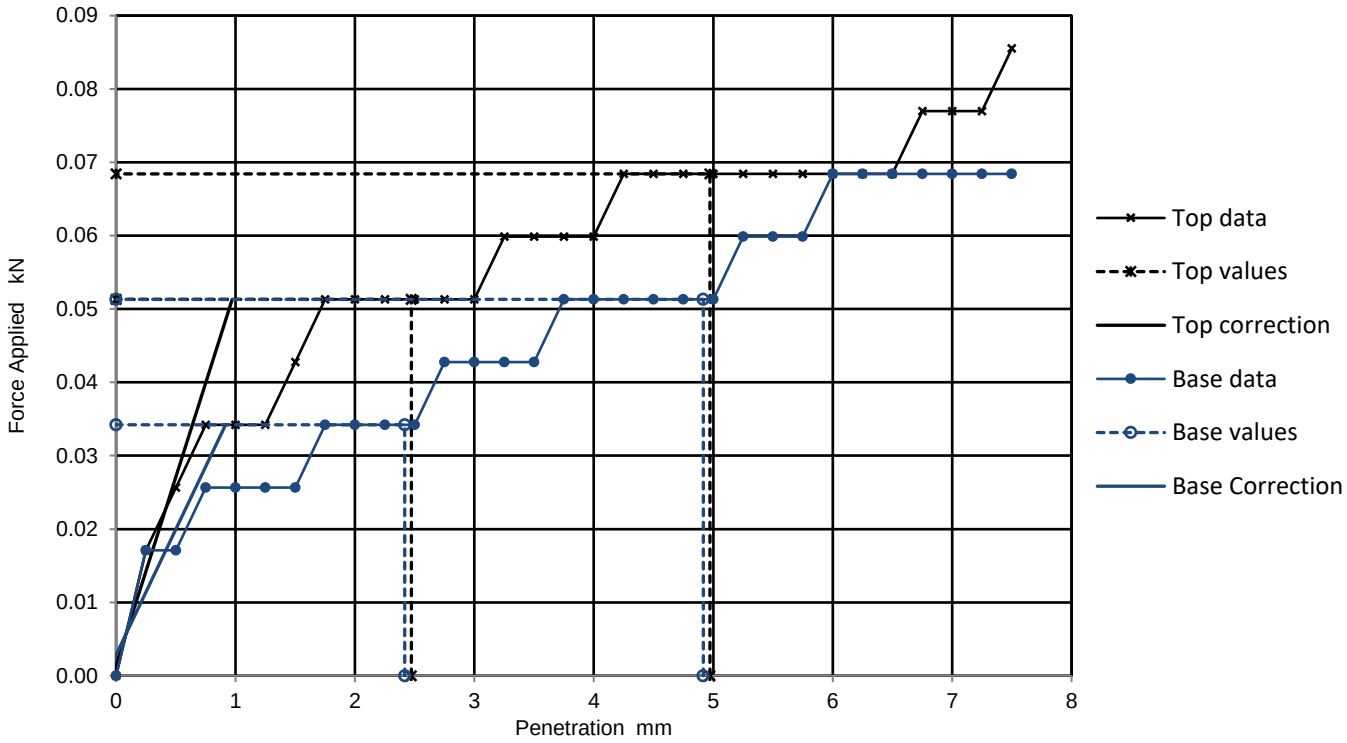
California Bearing Ratio (CBR)

				Job Ref	2021OY102
				Borehole/Pit No.	TP-82001
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Soil Description	Light brown slightly gravelly slightly sandy SILT.			Depth m	2.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022012710
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		9	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.30	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.07	Mg/m^3		1	kPa
	Moisture content	11.3	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	0.39	0.34	0.39		11.3
BASE	Yes	0.26	0.26	0.26		11.6

General remarks	Test specific remarks	Approved
		Administrator

Fig No. 1
QC From R9
Sheet No 18

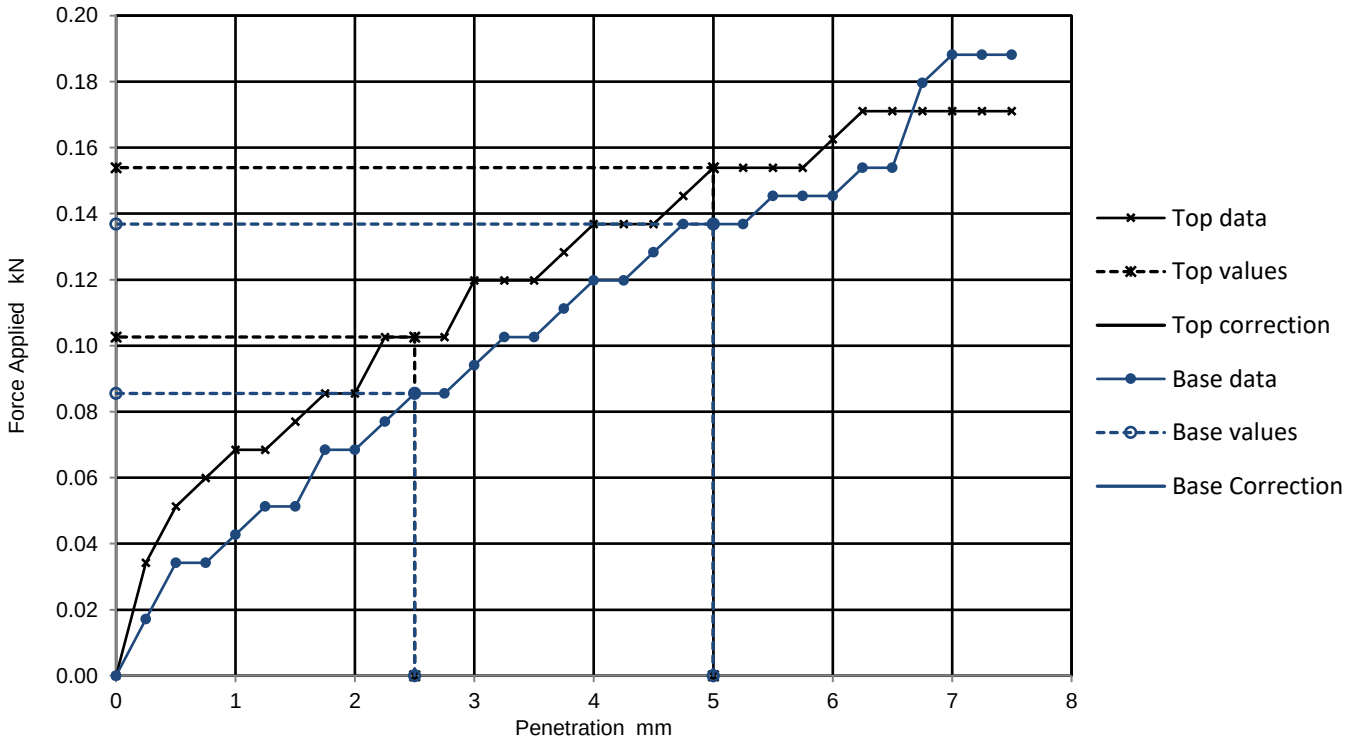
Lab Sheet Reference :

IRISH DRILLING LIMITED	**California Bearing Ratio (CBR)**			Job Ref	2021OY102
				Borehole/Pit No.	TP-82590
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Soil Description	Brownish-grey slightly sandy gravelly SILT.			Depth m	1.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	IDL12022012751
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		13	%	Dry density after soaking		Mg/m^3
Initial Specimen details	Bulk density	2.37	Mg/m^3	Surcharge applied	2	kg
	Dry density	2.15	Mg/m^3		1	kPa
	Moisture content	10.0	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.78	0.77	0.78	0.73	10.0
BASE	No	0.65	0.68	0.68		10.0

General remarks	Test specific remarks	Approved
		Administrator

Fig No.	1
QC From R9	
Sheet No	19

Lab Sheet Reference :

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

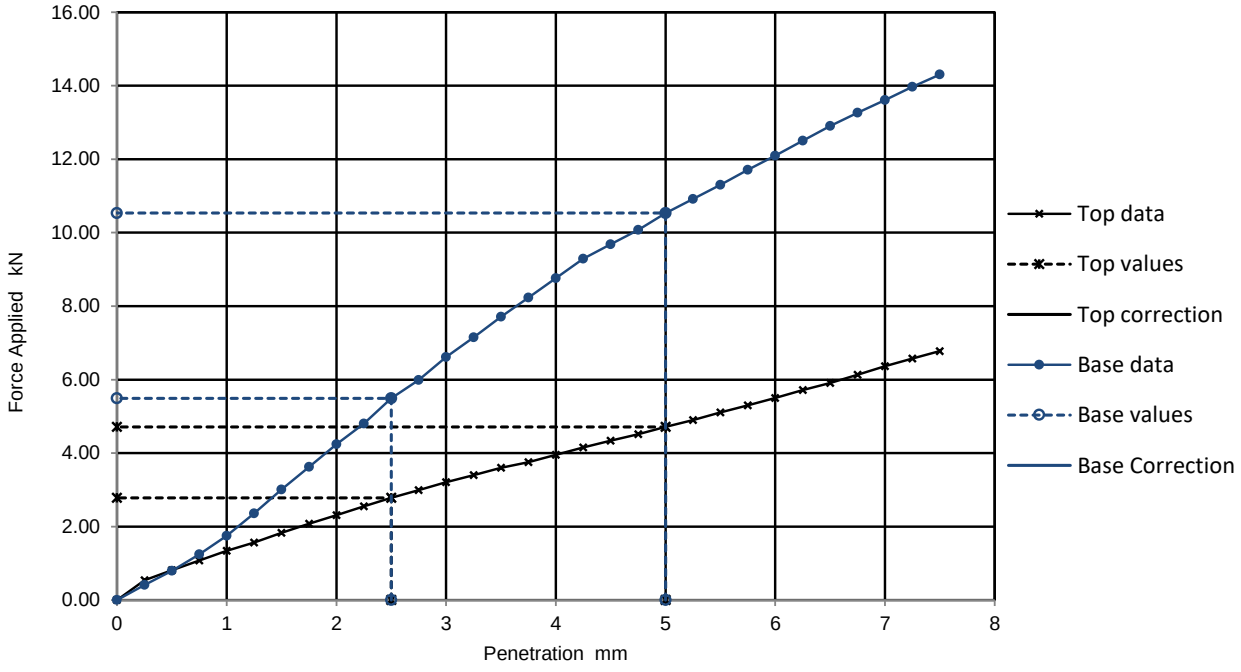
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-83101				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Grey silty clayey very sandy GRAVEL gravel is fmc and angular to sub-angular)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	18/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		12	%			
Initial Specimen details	Bulk density	2.31	Mg/m3	Surcharge applied	4	kg
	Dry density	2.18	Mg/m3		2	kPa
	Moisture content	5.9	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	21	24	24	N/A	5.9
BASE	No	42	53	53		5.9

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R16

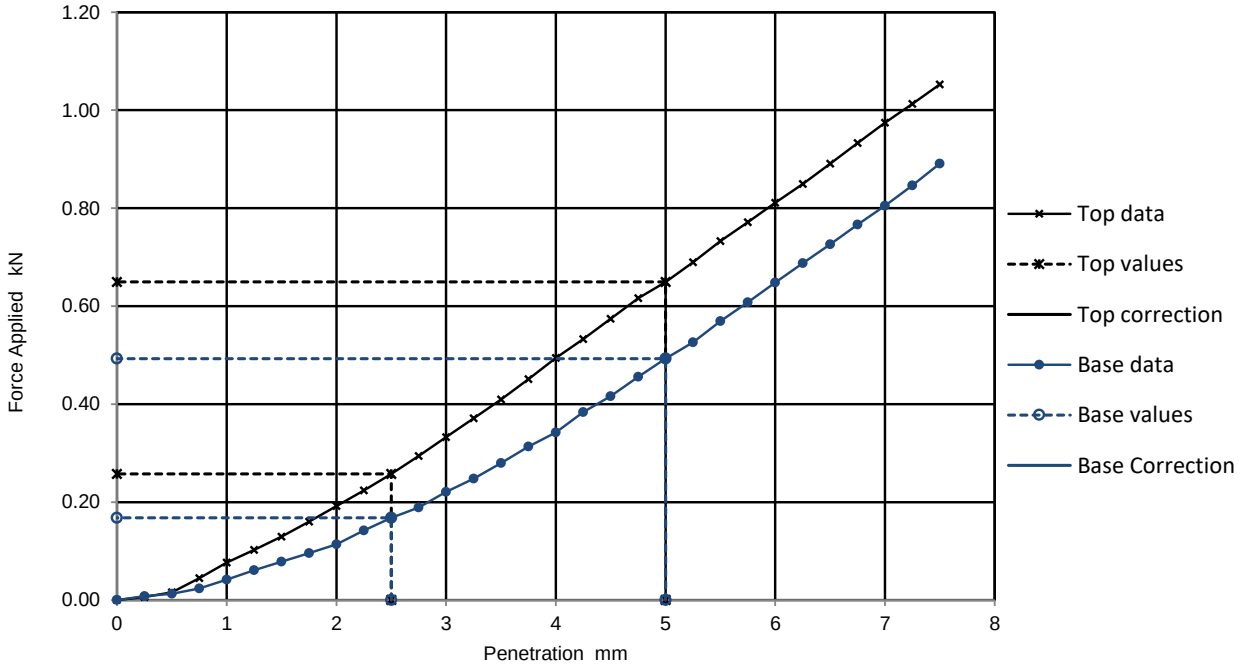
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-85302				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.20 m
Soil Description	Grey silty clayey very sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth Base	2.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	17/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		17	%			
Initial Specimen details	Bulk density	2.37	Mg/m3	Surcharge applied	4	kg
	Dry density	2.19	Mg/m3		2	kPa
	Moisture content	8.4	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	2.0	3.2	3.2	N/A	8.4
BASE	No	1.3	2.5	2.5		7.9

Remarks

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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-90401				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Grey clayey silty very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	25/10/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 11 %

Initial Specimen details

Bulk density	2.37	Mg/m3
Dry density	2.18	Mg/m3
Moisture content	8.7	%

Soaking details: Not soaked

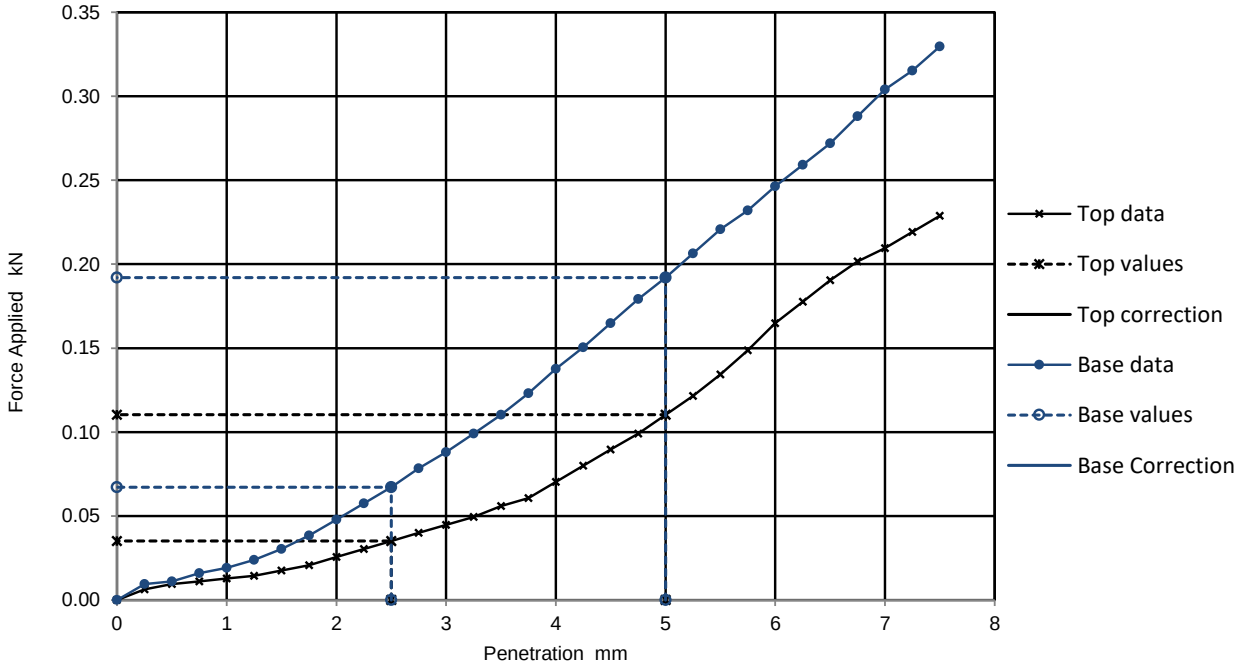
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 10 kg / 6 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.27	0.55	0.55	N/A	8.3
BASE	No	0.51	0.96	0.96		8.7

Remarks

Test Report by K4 SOILS LABORATORY
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Date: 14/12/2022

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-90894				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	25/10/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 14 %

Initial Specimen details:

Bulk density	2.31	Mg/m3
Dry density	2.10	Mg/m3
Moisture content	9.8	%

Soaking details: Not soaked

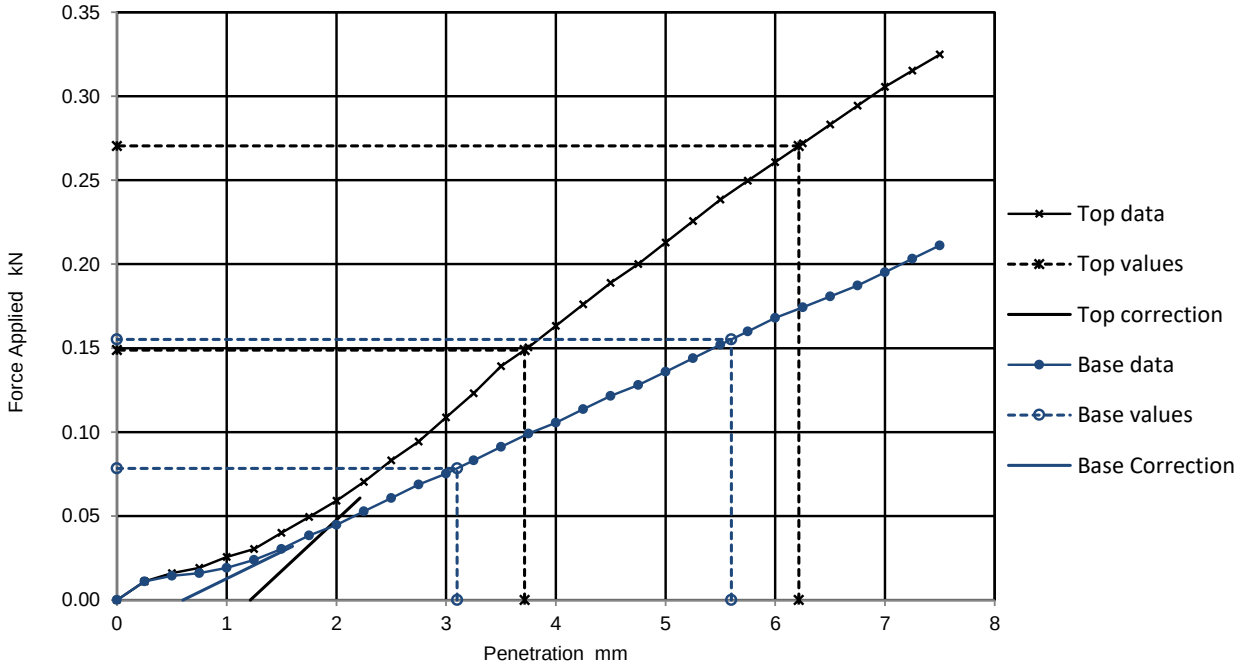
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 10 kg / 6 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	Yes	1.1	1.4	1.4	N/A	10
BASE	Yes	0.59	0.78	0.78		9.7

Remarks

Test Report by K4 SOILS LABORATORY
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-91905				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.70 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY with occasional cobbles (gravel is fmc and angular to sub-angular)			Depth Base	2.00 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	14/09/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 14 %

Initial Specimen details

Bulk density	2.31	Mg/m3
Dry density	2.11	Mg/m3
Moisture content	9.3	%

Soaking details: Not soaked

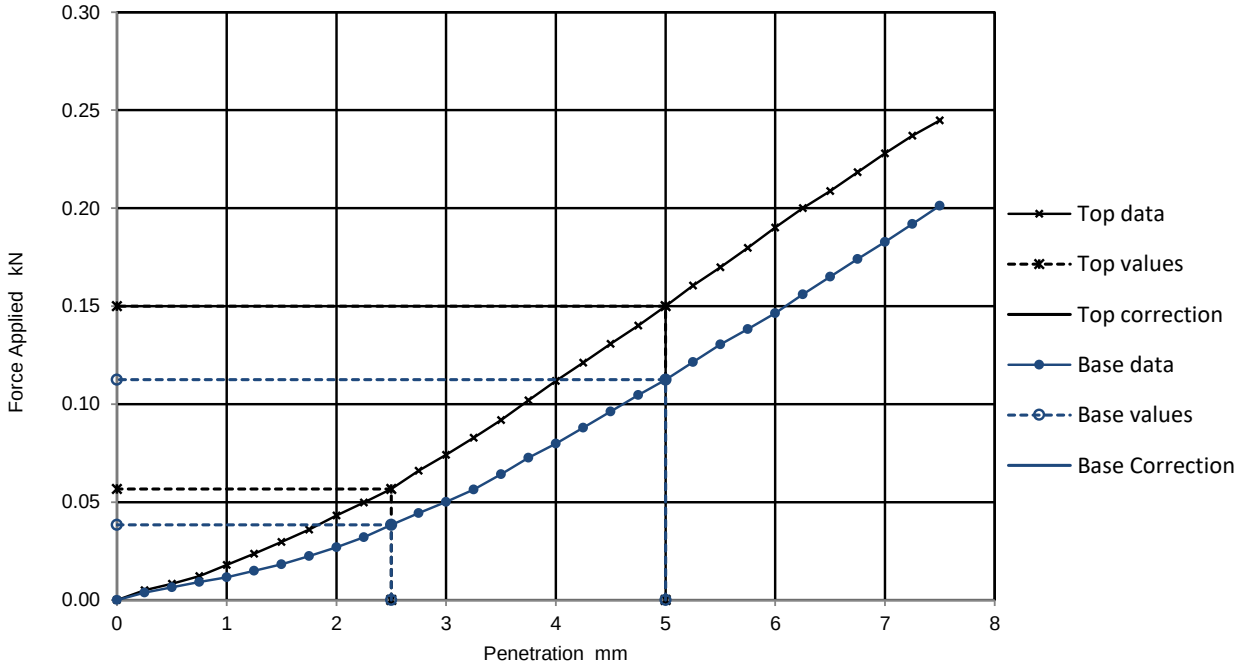
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 4 kg, 2 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.43	0.75	0.75	N/A	9.4
BASE	No	0.29	0.56	0.56		9.4

Remarks

Test Report by K4 SOILS LABORATORY
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Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

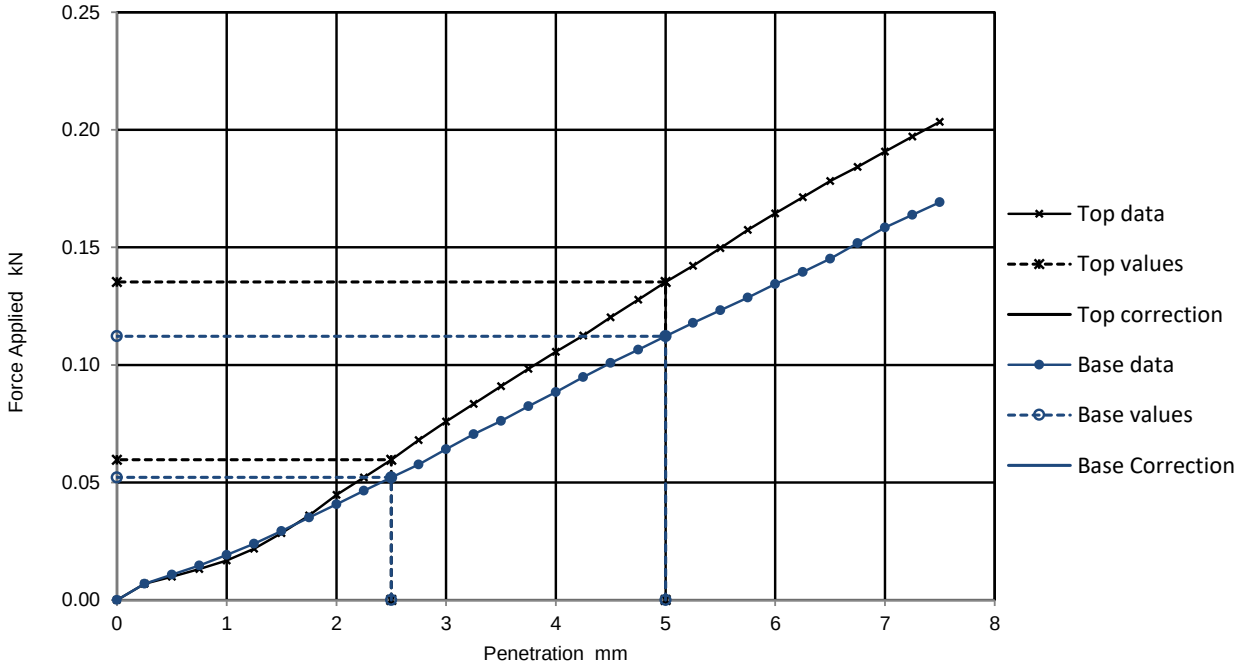
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-92209				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.40 m
Soil Description	Greyish brown slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-rounded)			Depth Base	2.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	19/09/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		10	%			
Initial Specimen details	Bulk density	2.31	Mg/m3	Surcharge applied	4	kg
	Dry density	2.10	Mg/m3		2	kPa
	Moisture content	10	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.45	0.68	0.68	0.62	10
BASE	No	0.40	0.56	0.56		10

Remarks

Test Report by K4 SOILS LABORATORY
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Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

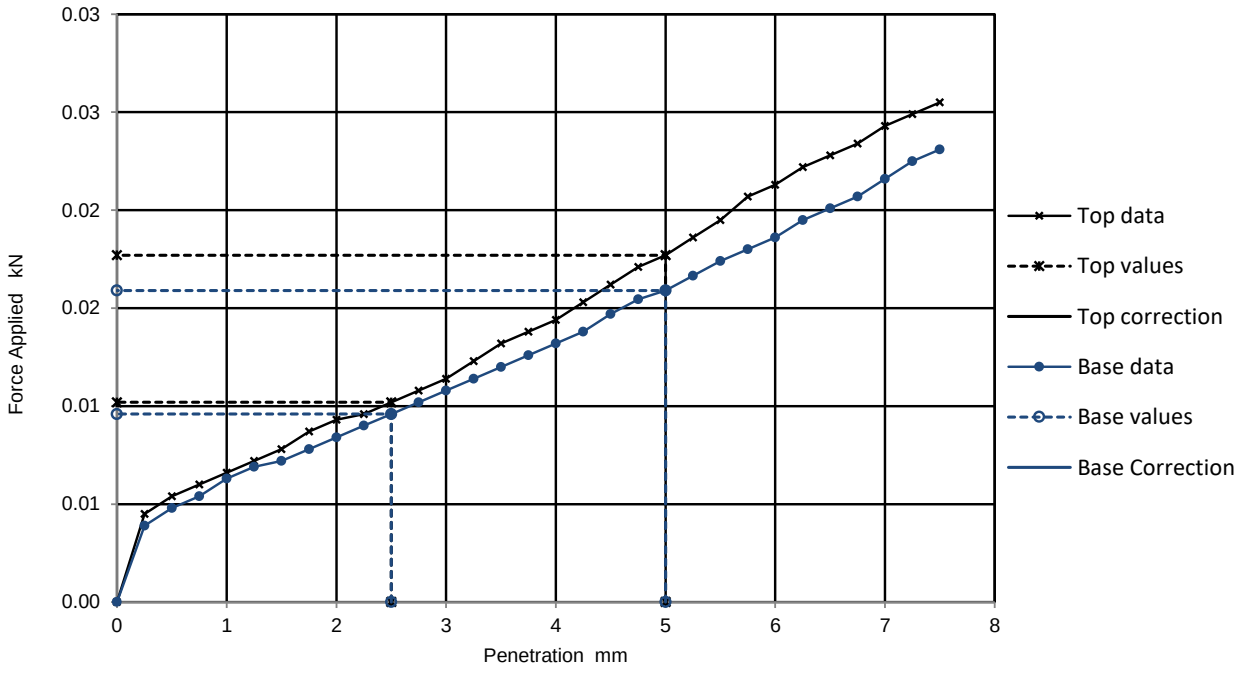
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-92407				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	01/11/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		15	%			
Initial Specimen details	Bulk density	2.25	Mg/m3	Surcharge applied	6	kg
	Dry density	2.01	Mg/m3		4	kPa
	Moisture content	12	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.08	0.09	0.09	0.08	12
BASE	No	0.07	0.08	0.08		12

Remarks

Test Report by K4 SOILS LABORATORY
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Initials: **J.P**

Date: 14/12/2022

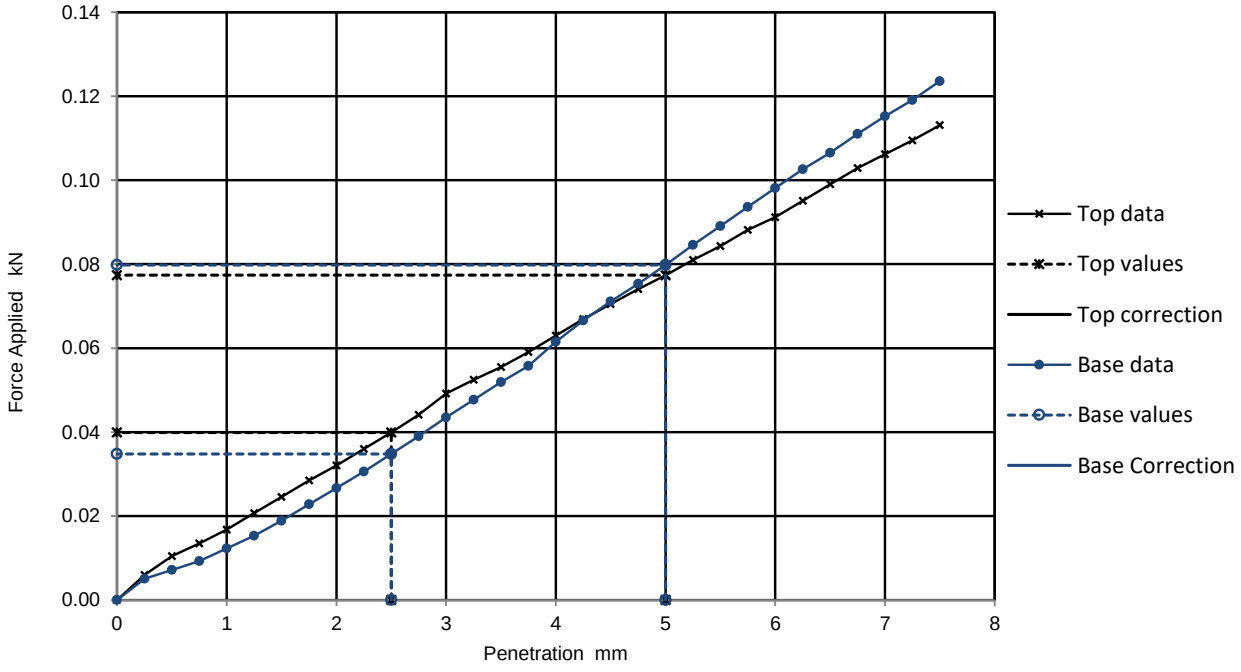
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-93703				
Site Name	WSP Eastern & Midlands Region			Sample No.	4
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	19/09/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		10	%			
Initial Specimen details	Bulk density	2.32	Mg/m3	Surcharge applied	4	kg
	Dry density	2.13	Mg/m3		2	kPa
	Moisture content	8.8	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.30	0.39	0.39	0.39	9.7
BASE	No	0.26	0.40	0.40		9.5

Remarks

Test Report by K4 SOILS LABORATORY
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

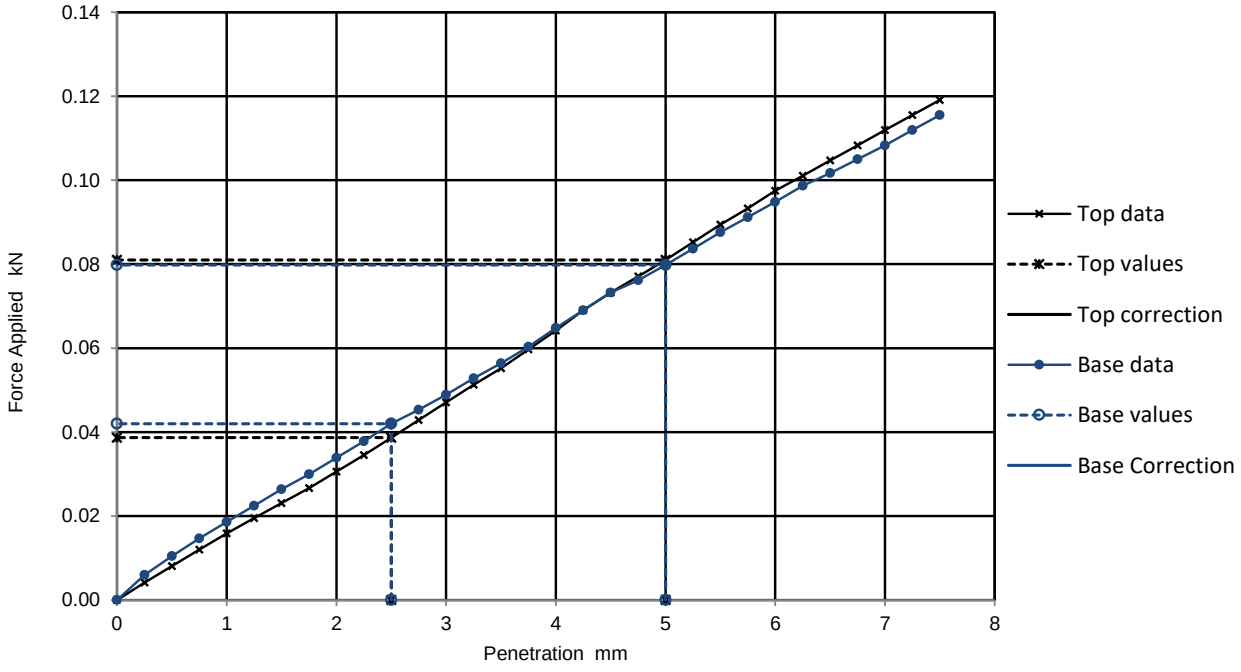
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-94905				
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.40 m
Soil Description	Brown slightly gravelly sandy clayey SILT (gravel is fmc and angular to sub-rounded)			Depth Base	0.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	14/09/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		5.7	%			
Initial Specimen details	Bulk density	1.95	Mg/m3	Surcharge applied	4	kg
	Dry density	1.59	Mg/m3		2	kPa
	Moisture content	22	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.29	0.41	0.41	0.40	23
BASE	No	0.32	0.40	0.40		22

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-95905				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	11/10/2022

Specimen Preparation

Condition: REMOULDED

Details: Recompacted with specified standard effort using 2.5kg rammer

Material retained on 20mm sieve removed: 24 %

Initial Specimen details:

Bulk density	2.35	Mg/m3
Dry density	2.16	Mg/m3
Moisture content	8.7	%

Soaking details: Not soaked

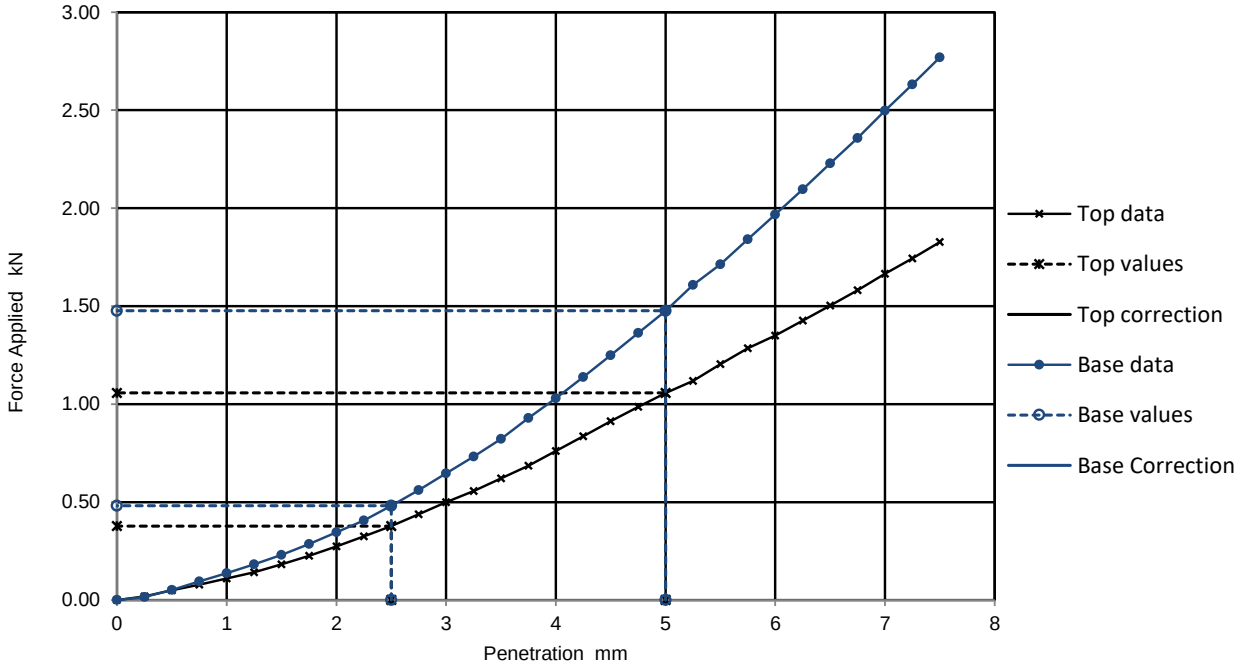
Period of soaking: - days

Time to surface: - days

Amount of swell recorded: - mm

Surcharge applied: 4 kg / 2 kPa

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	2.9	5.3	5.3	N/A	8.9
BASE	No	3.6	7.4	7.4		9.1

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

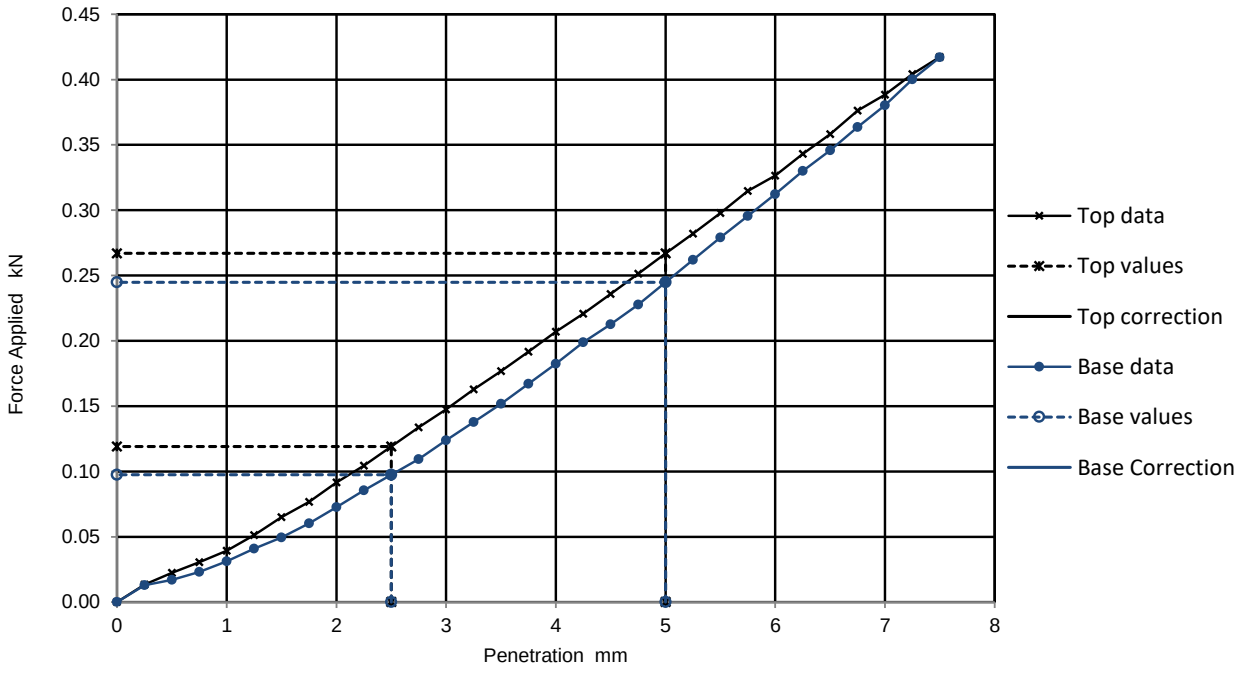
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-96204				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Brown clayey silty very sandy GRAVEL (gravel is fmc and sub-rounded to angular)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	10/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		36	%			
Initial Specimen details	Bulk density	2.21	Mg/m3	Surcharge applied	4	kg
	Dry density	1.95	Mg/m3		2	kPa
	Moisture content	13	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.90	1.3	1.3	1.3	14
BASE	No	0.74	1.2	1.2		12

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

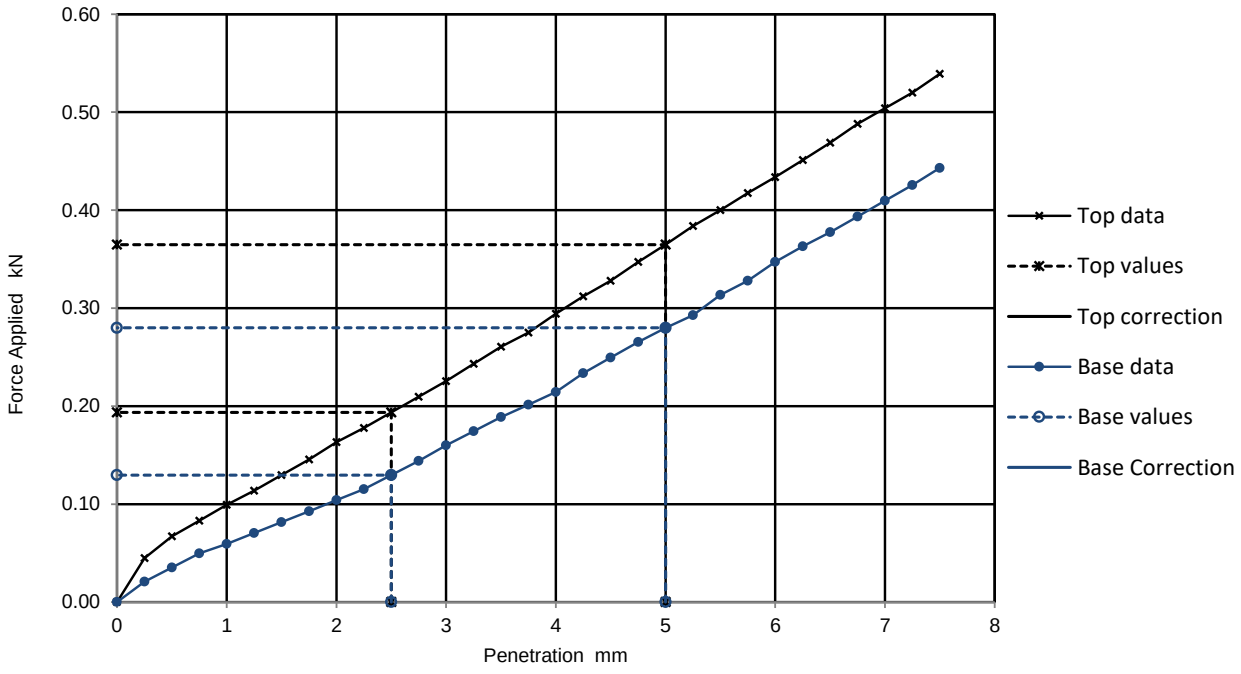
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-97505				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.40 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.70 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	11/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	- days
				Time to surface	- days
				Amount of swell recorded	- mm
Material retained on 20mm sieve removed		13	%		
Initial Specimen details	Bulk density	2.26	Mg/m3	Surcharge applied	4 kg
	Dry density	1.99	Mg/m3		2 kPa
	Moisture content	14	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	1.5	1.8	1.8	N/A	13
BASE	No	1.0	1.4	1.4		12

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

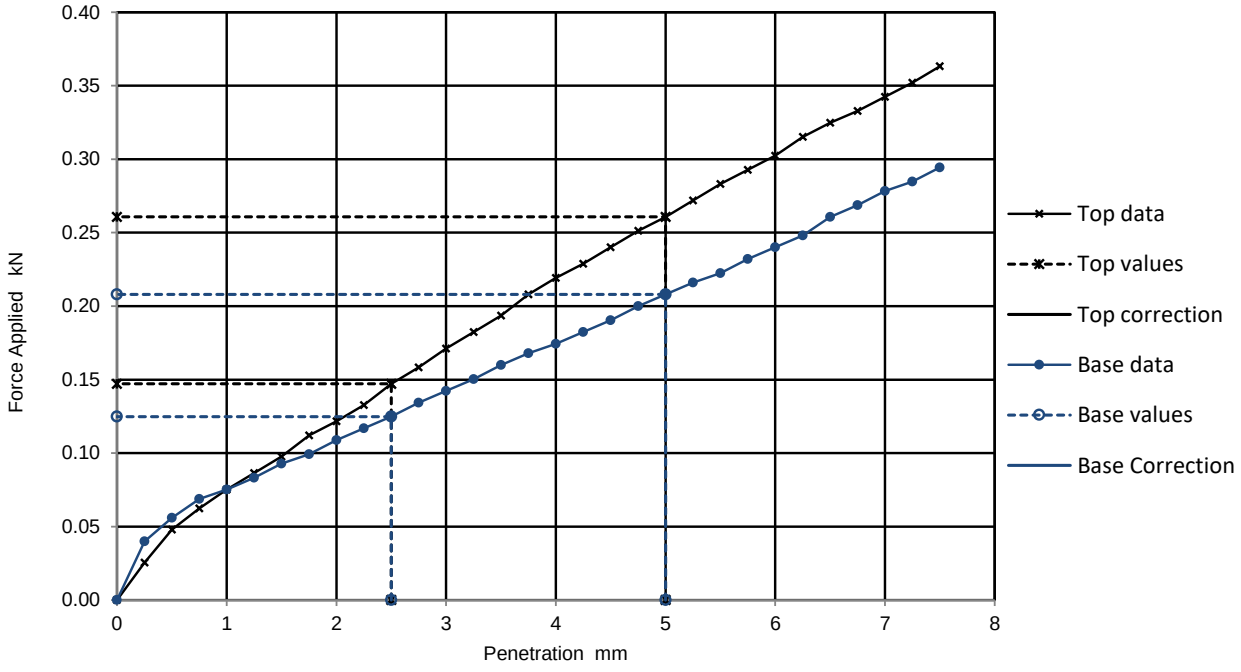
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-98105				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.30 m
Soil Description	Greyish brown slightly gravelly slightly sandy silty CLAY (gravel is fm and sub-angular to sub-rounded)			Depth Base	1.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	11/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		10	%			
Initial Specimen details	Bulk density	2.30	Mg/m3	Surcharge applied	4	kg
	Dry density	2.07	Mg/m3		2	kPa
	Moisture content	11	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	1.1	1.3	1.3	N/A	11
BASE	No	0.95	1.0	1.0		11

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

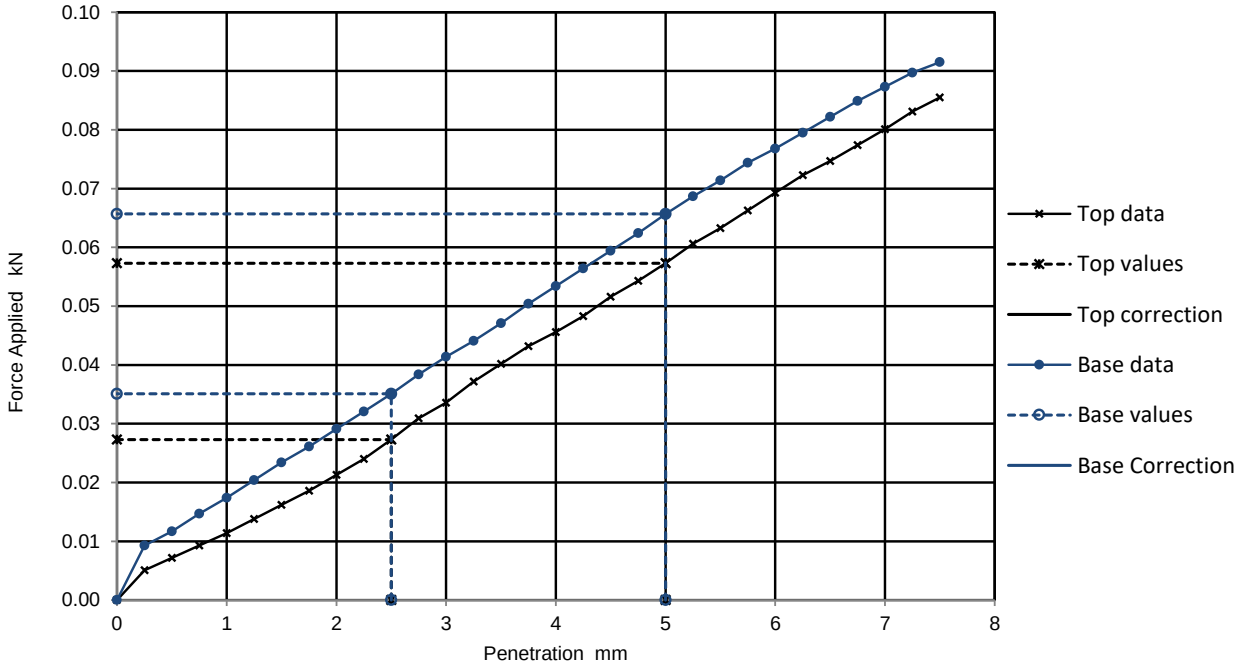
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-98403				
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Grey slightly gravelly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	13/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		2.6	%			
Initial Specimen details	Bulk density	2.18	Mg/m3	Surcharge applied	4	kg
	Dry density	1.91	Mg/m3		2	kPa
	Moisture content	14	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.21	0.29	0.29	0.31	14
BASE	No	0.27	0.33	0.33		15

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Initials: **J.P**

Date: 14/12/2022

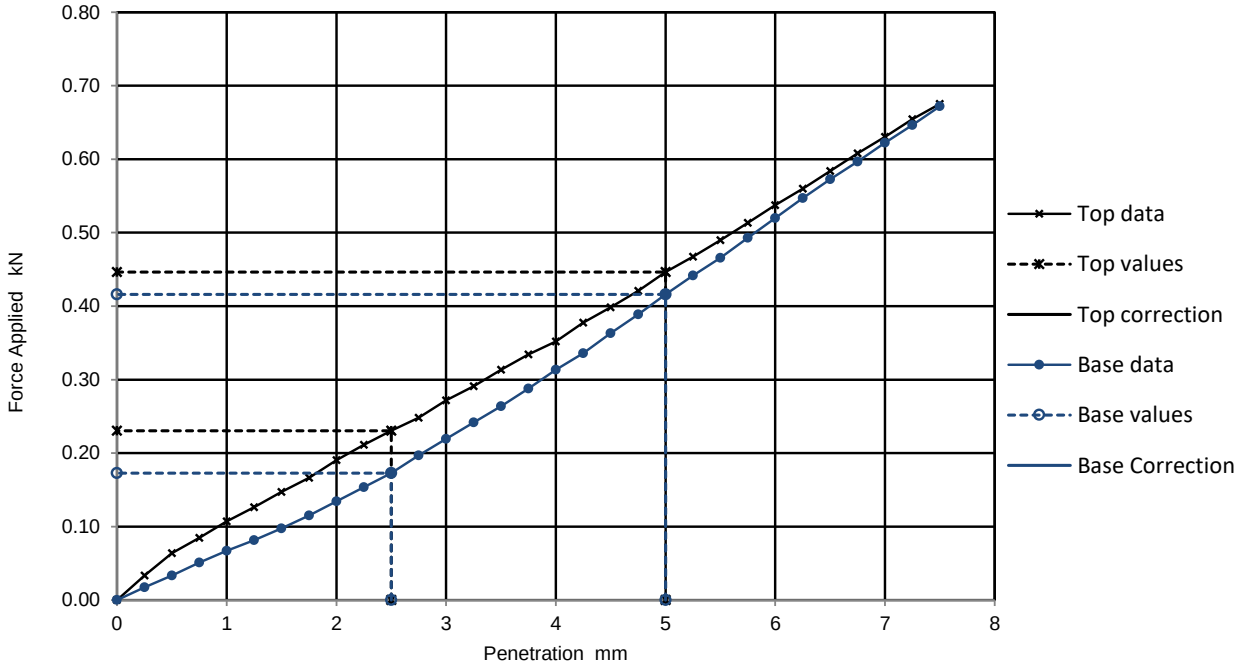
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-98702				
Site Name	WSP Eastern & Midlands Region			Sample No.	1
Project No.	2021OY102	Client	Irish Drilling	Depth Top	0.30 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	14/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		12	%			
Initial Specimen details	Bulk density	2.18	Mg/m3	Surcharge applied	4	kg
	Dry density	1.92	Mg/m3		2	kPa
	Moisture content	13	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	1.7	2.2	2.2	2.2	13
BASE	No	1.3	2.1	2.1		13

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

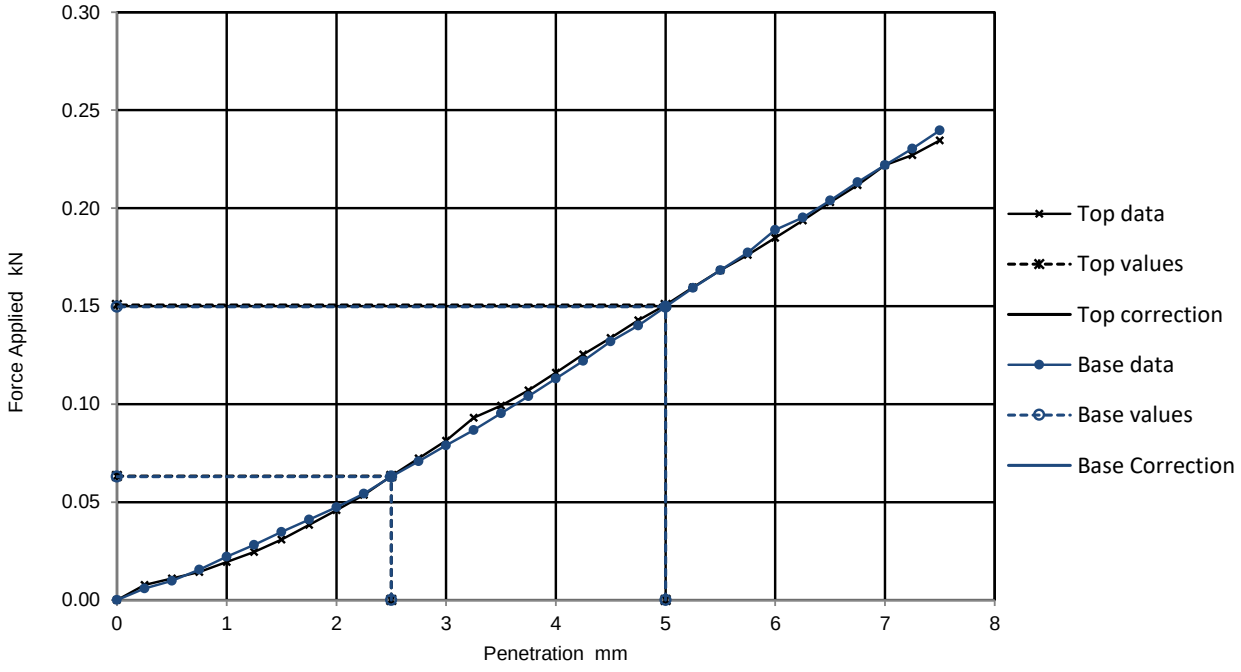
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-98904				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.50 m
Soil Description	Brown slightly sandy gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.80 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	14/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		9.5	%			
Initial Specimen details	Bulk density	2.33	Mg/m3	Surcharge applied	4	kg
	Dry density	2.10	Mg/m3		2	kPa
	Moisture content	11	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.48	0.75	0.75	0.75	11
BASE	No	0.48	0.75	0.75		11

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

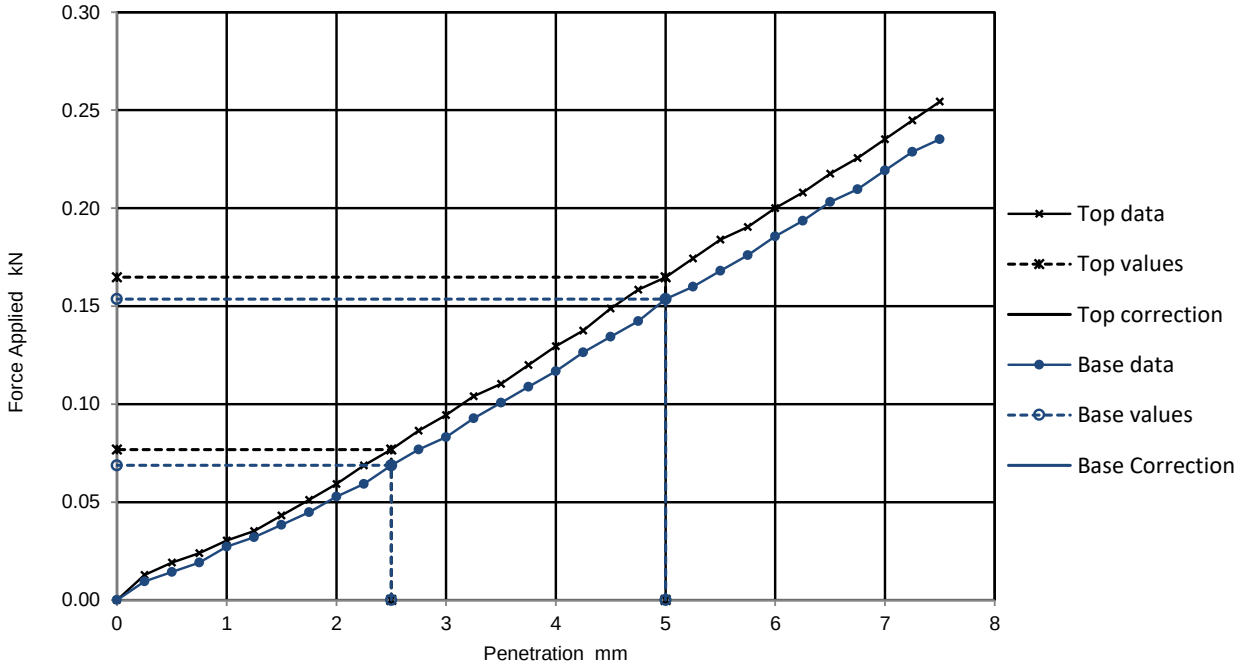
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-99105				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Grey slightly sandy slightly gravelly silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	31/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		5.7	%			
Initial Specimen details	Bulk density	2.18	Mg/m3	Surcharge applied	6	kg
	Dry density	1.92	Mg/m3		4	kPa
	Moisture content	14	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.58	0.82	0.82	0.80	11
BASE	No	0.52	0.77	0.77		13

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

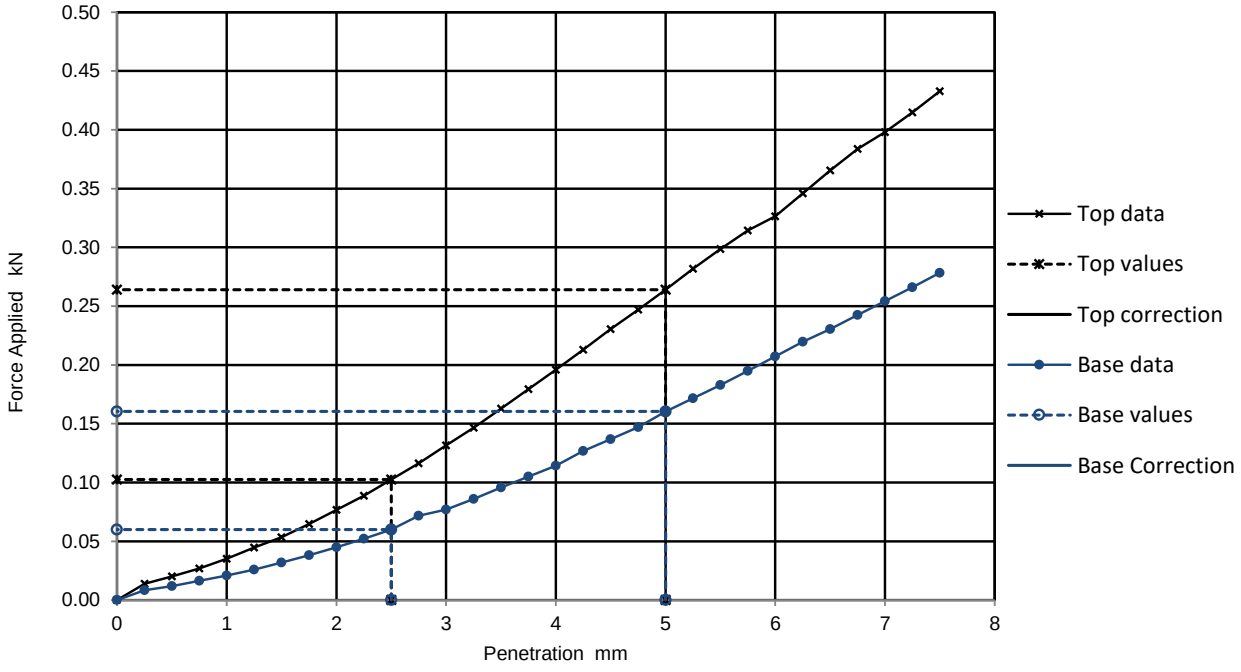
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-99304				
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Project No.	2021OY102	Client	Irish Drilling	Depth Top	2.30 m
Soil Description	Brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and angular to sub-angular)			Depth Base	2.60 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	14/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	-	days
				Time to surface	-	days
				Amount of swell recorded	-	mm
Material retained on 20mm sieve removed		16	%			
Initial Specimen details	Bulk density	2.26	Mg/m3	Surcharge applied	4	kg
	Dry density	2.06	Mg/m3		2	kPa
	Moisture content	10	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	0.78	1.3	1.3	N/A	12
BASE	No	0.45	0.80	0.80		13

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

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Checked and Approved

Initials: **J.P**

Date: 14/12/2022

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R16

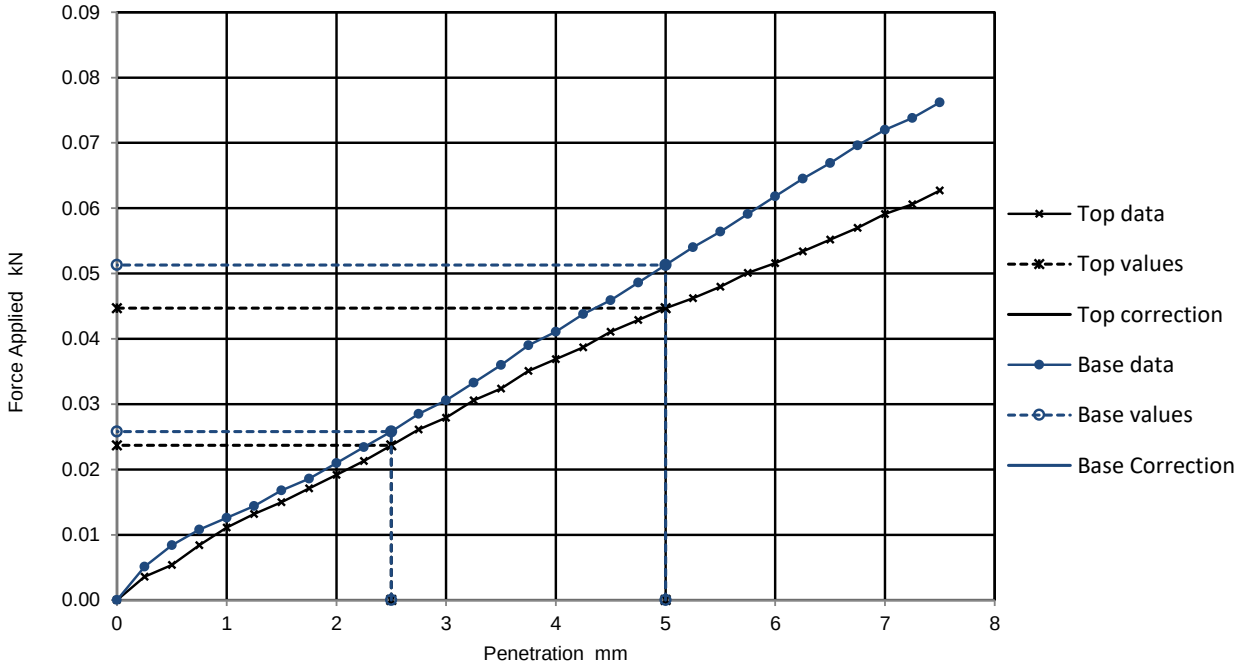
California Bearing Ratio (CBR)

Job Ref	32282				
Borehole/Pit No.	TP-99505				
Site Name	WSP Eastern & Midlands Region			Sample No.	3
Project No.	2021OY102	Client	Irish Drilling	Depth Top	1.20 m
Soil Description	Grey and brown slightly gravelly slightly sandy silty CLAY (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.50 m
				Sample Type	B
				Samples received	16/08/2022
				Schedules received	11/08/2022
Test Method	BS1377 : Part 4 : 1990, clause 7			Project Started	17/08/2022
				Date Tested	13/10/2022

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking	- days
				Time to surface	- days
				Amount of swell recorded	- mm
Material retained on 20mm sieve removed		1.8	%		
Initial Specimen details	Bulk density	2.15	Mg/m3	Surcharge applied	4 kg
	Dry density	1.85	Mg/m3		2 kPa
	Moisture content	16	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, % 2.5mm	5mm	Highest	Average	Moisture Content %
TOP	No	0.18	0.22	0.22	0.24	16
BASE	No	0.20	0.26	0.26		16

Remarks

Test Report by K4 SOILS LABORATORY
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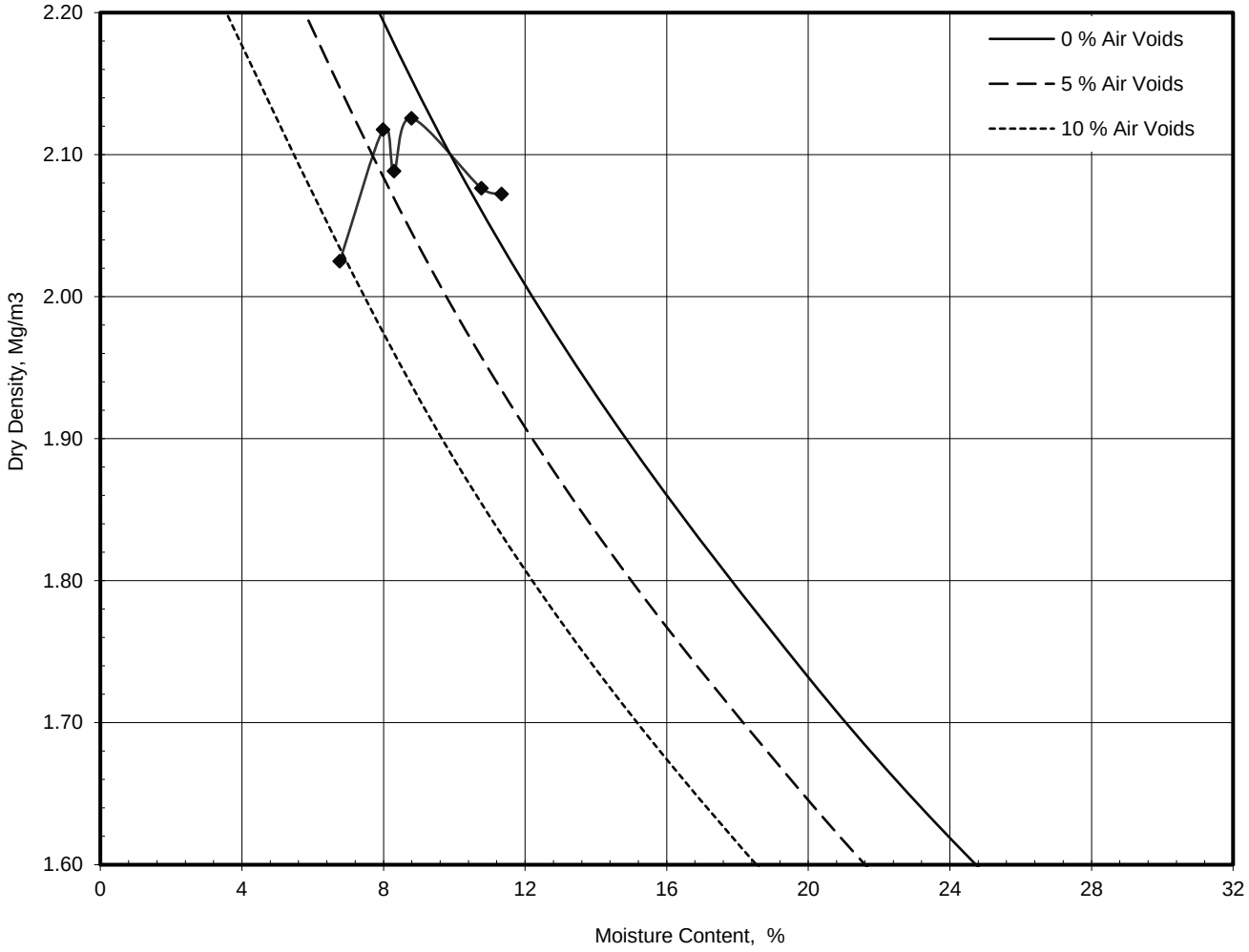
Checked and Approved

Initials: **J.P**

Date: 14/12/2022

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-39403
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Grey very silty SAND and GRAVEL. Sand is coarse, gravel is fine and medium.			Depth	0.90 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	IDL12021101427
				Compaction Test Reference/No.	



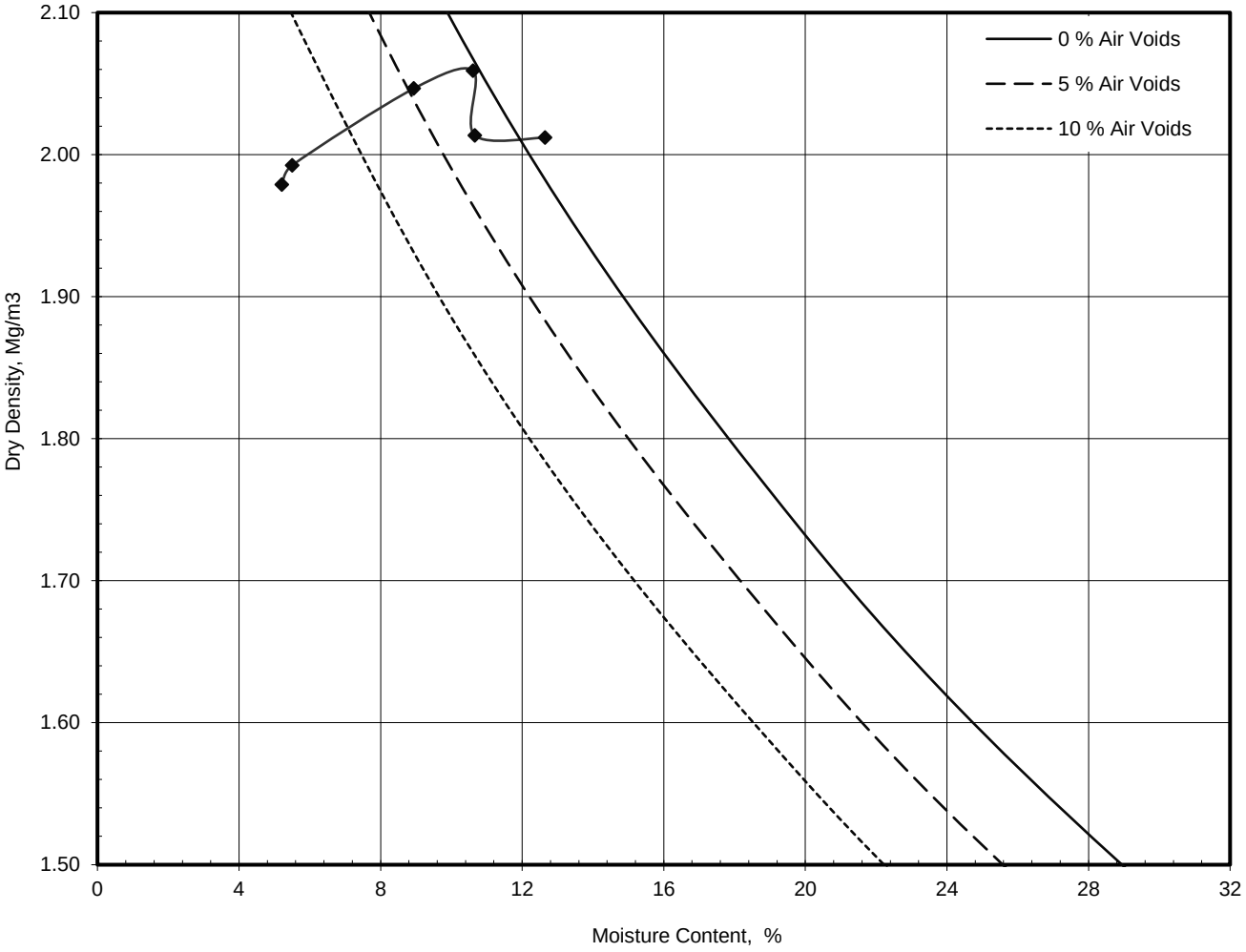
Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	26
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.13**
Optimum Moisture Content	%	**8.5**

Operator	Checked	Approved	Remarks / Report Date:	QC Form R4
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-39906
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Grey-brown silty very sandy coarse GRAVEL.			Depth	0.90 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	IDL12021101441
				Compaction Test Reference/No.	



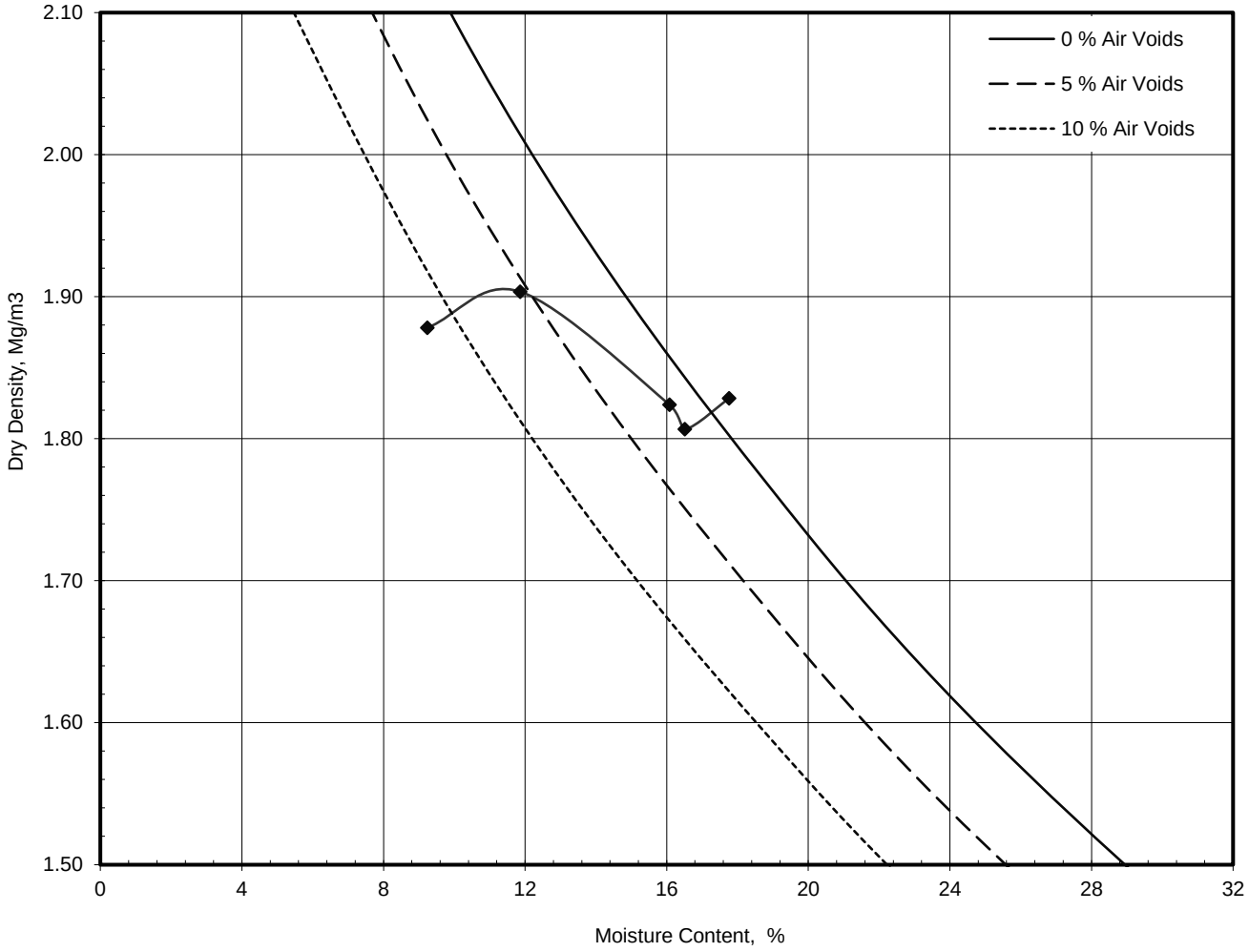
Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	21
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.06**
Optimum Moisture Content	%	**11**

Operator	Checked	Approved	Remarks / Report Date:	QC Form R4
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-40205
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth	0.70 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	IDL12021101451
				Compaction Test Reference/No.	



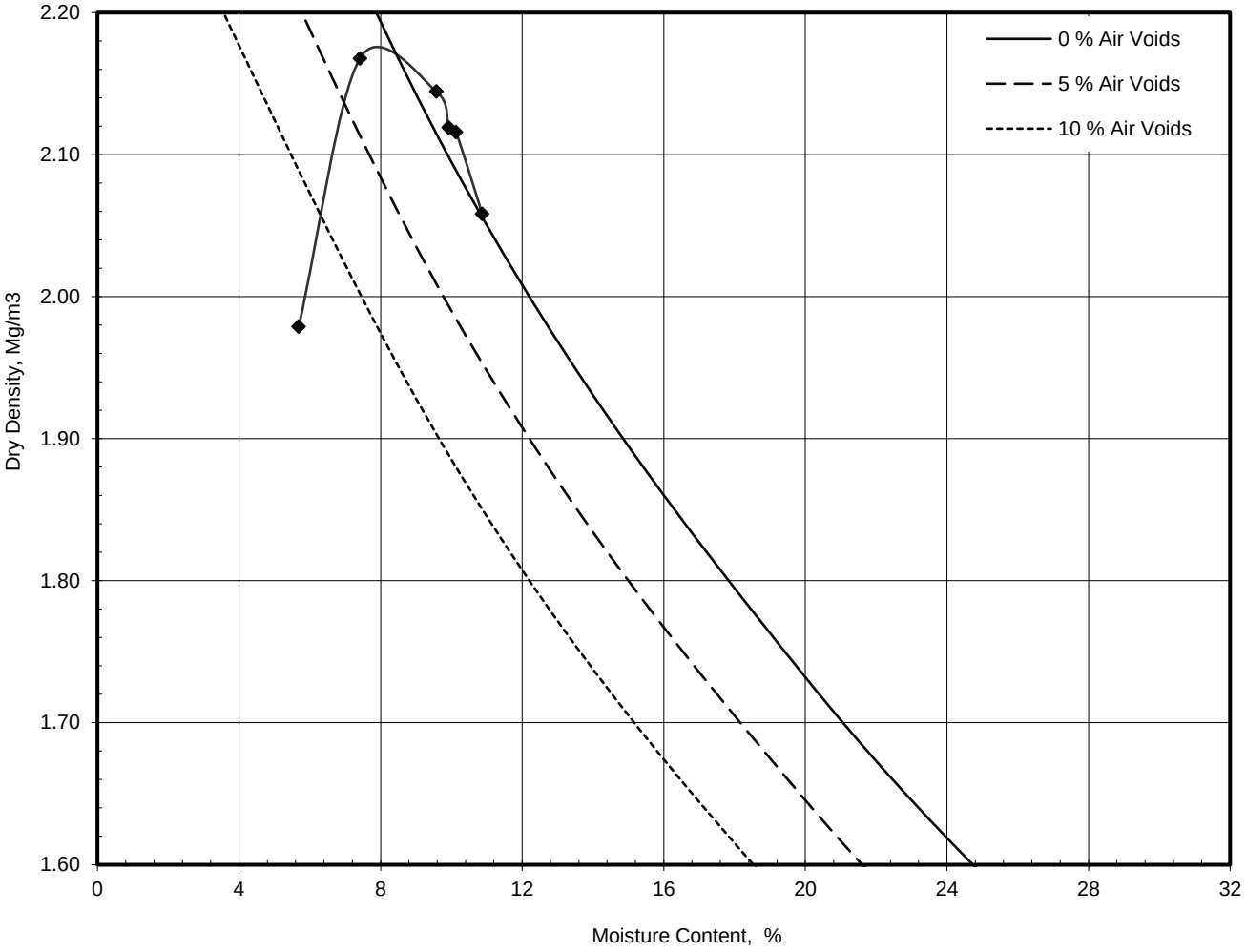
Preparation		Material used was natural
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	20
Particle Density -	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**1.90**
Optimum Moisture Content	%	**12**

Operator	Checked	Approved	Remarks / Report Date:	**QC Form R4**
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	**2021OY102**
				Borehole / Pit No	TP-40605
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Grey very sandy very silty coarse GRAVEL.			Depth	1.30 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	IDL12021101472
				Compaction Test Reference/No.	



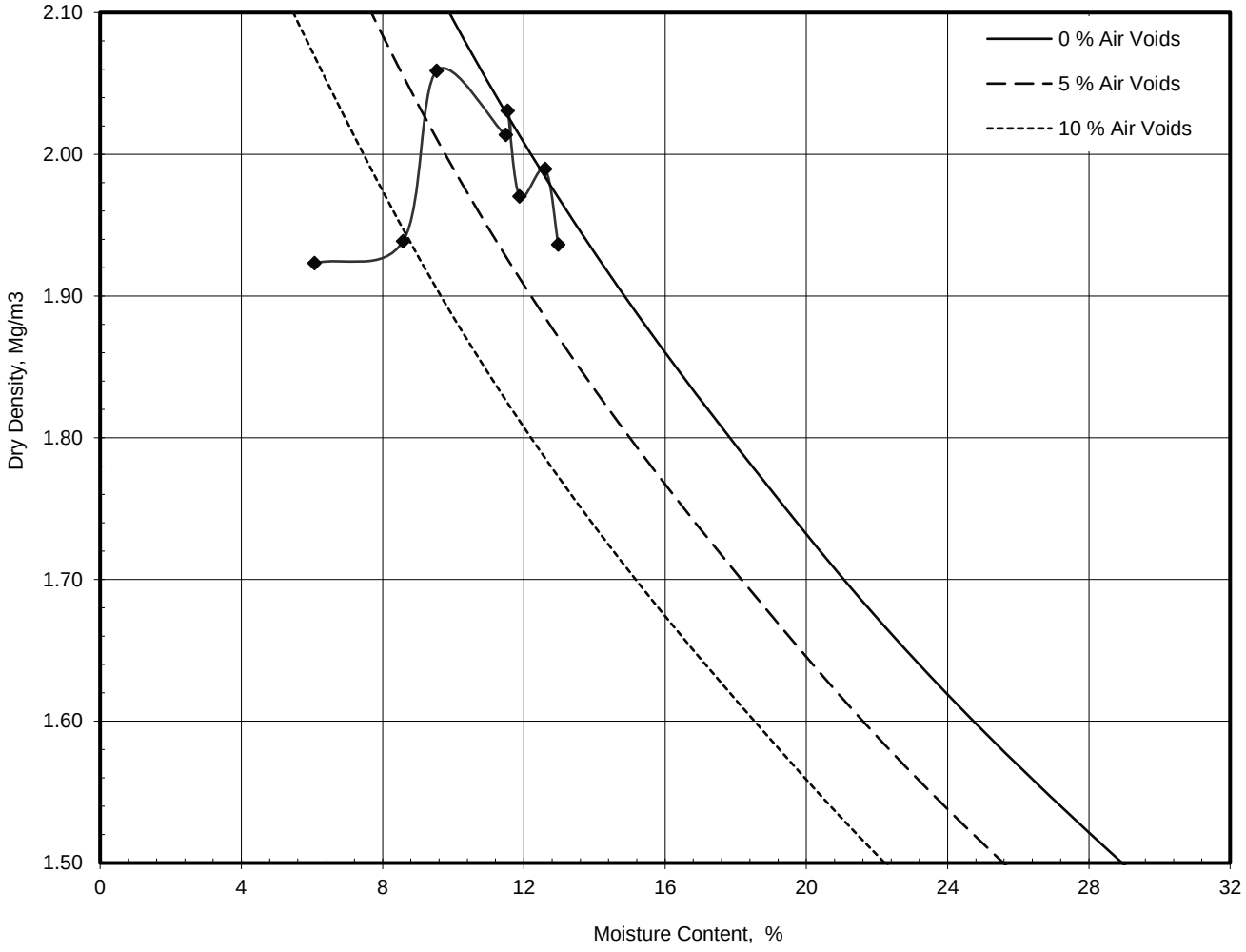
Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	21
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.18**
Optimum Moisture Content	%	**8.2**

Operator	Checked	Approved	Remarks / Report Date:	**QC Form R4**
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-43308
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Brown slightly sandy gravelly SILT. Gravel is medium.			Depth	1.10 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	IDL12021101488
				Compaction Test Reference/No.	



Preparation		-2146826273
Mould Type		CBR
Samples Used		
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	21
Particle Density - Assumed	Mg/m³	2.65

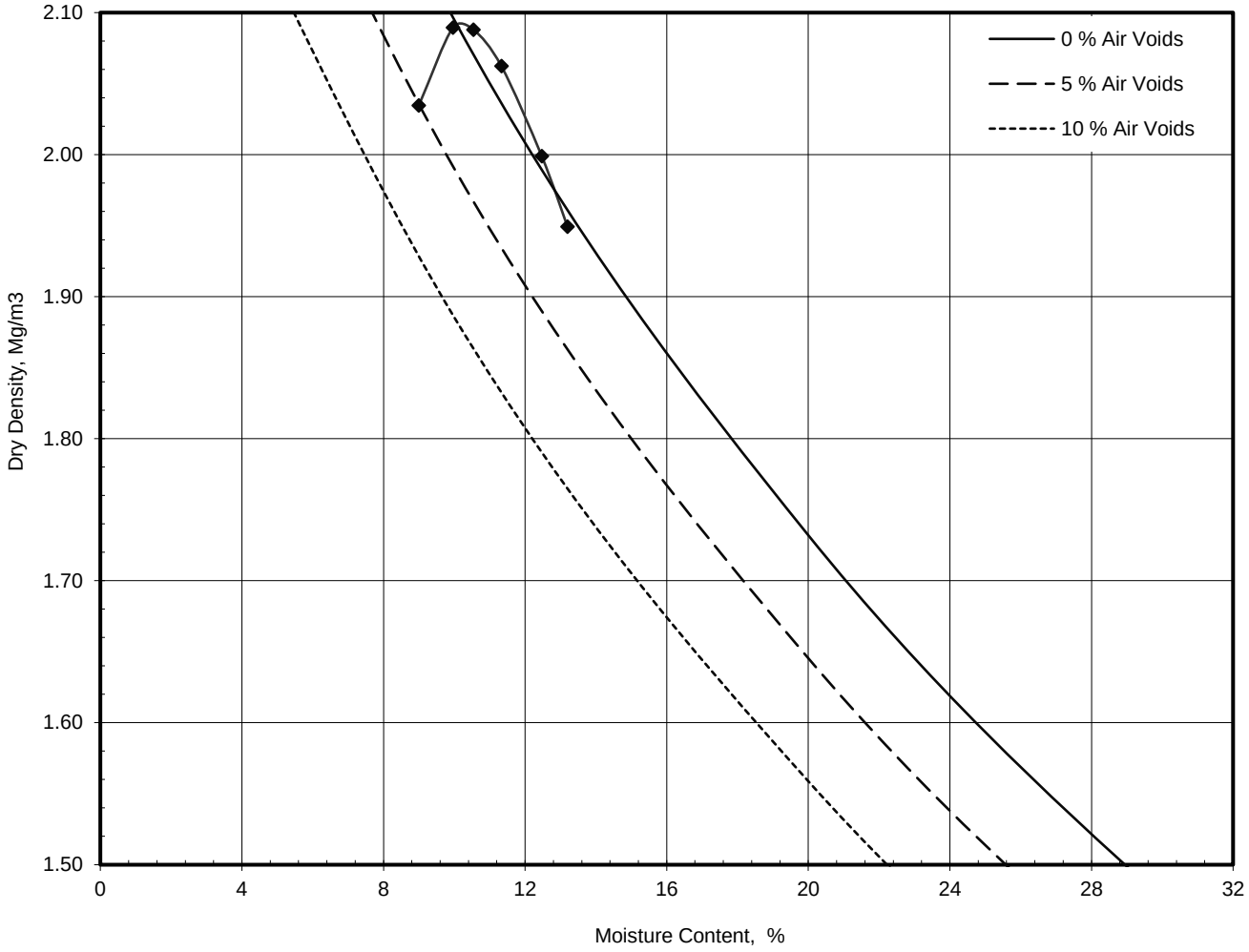
Maximum Dry Density	Mg/m³	**2.06**

Optimum Moisture Content	%	**9.5**

Operator	Checked	Approved	Remarks / Report Date:	**QC Form R4**
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	**2021OY102**
				Borehole / Pit No	TP-43507
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth	1.10 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	IDL120211014102
				Compaction Test Reference/No.	



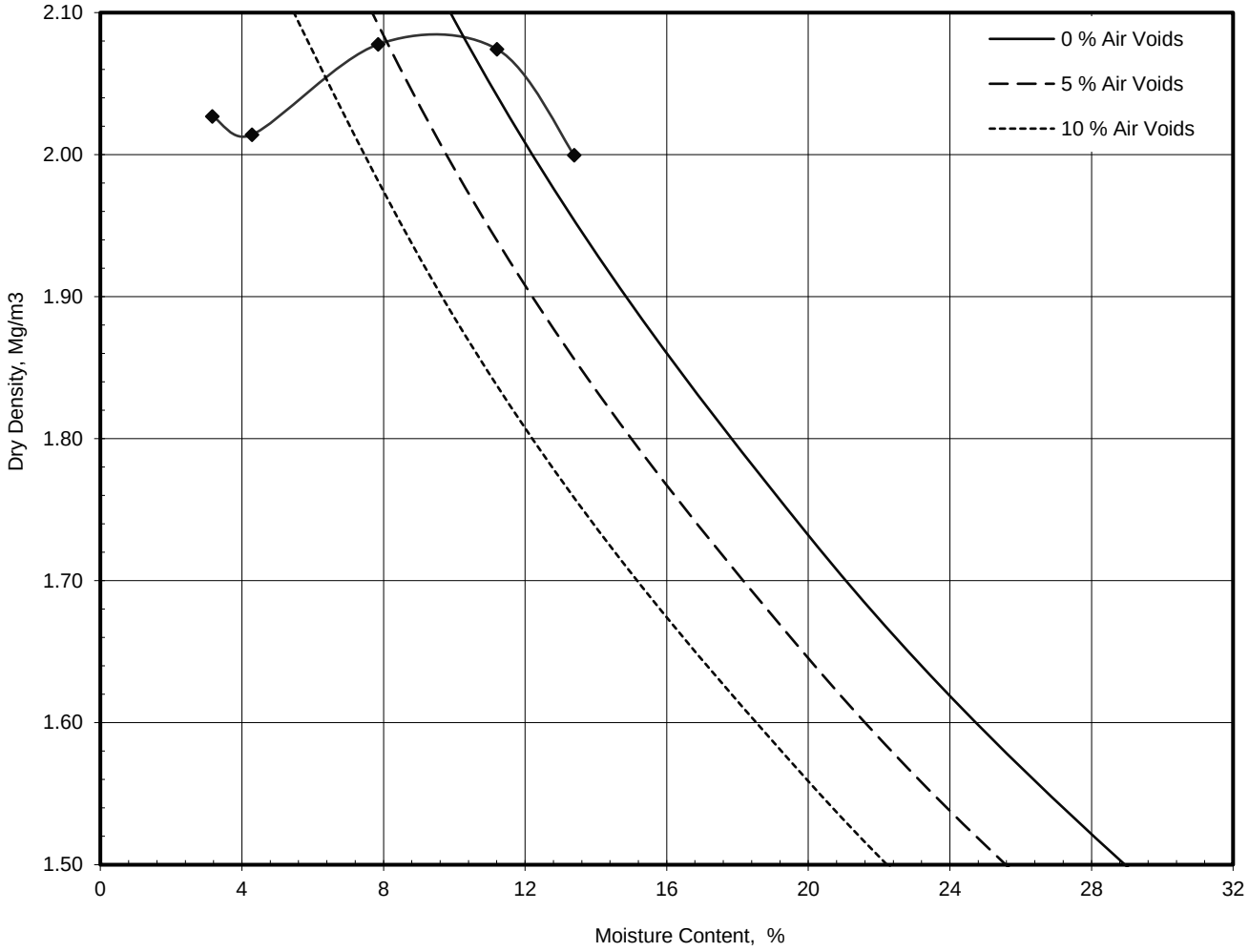
Preparation		Material used was natural and air dried
Mould Type		
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	17
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.09**
Optimum Moisture Content	%	**9.7**

Operator	Checked	Approved	Remarks / Report Date:	**QC Form R4**
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-43708
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Brown very silty SAND and GRAVEL.			Depth	1.20 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	IDL120211014115
				Compaction Test Reference/No.	



Preparation		Material used was natural
Mould Type		
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	22
Particle Density - Assumed	Mg/m³	2.65

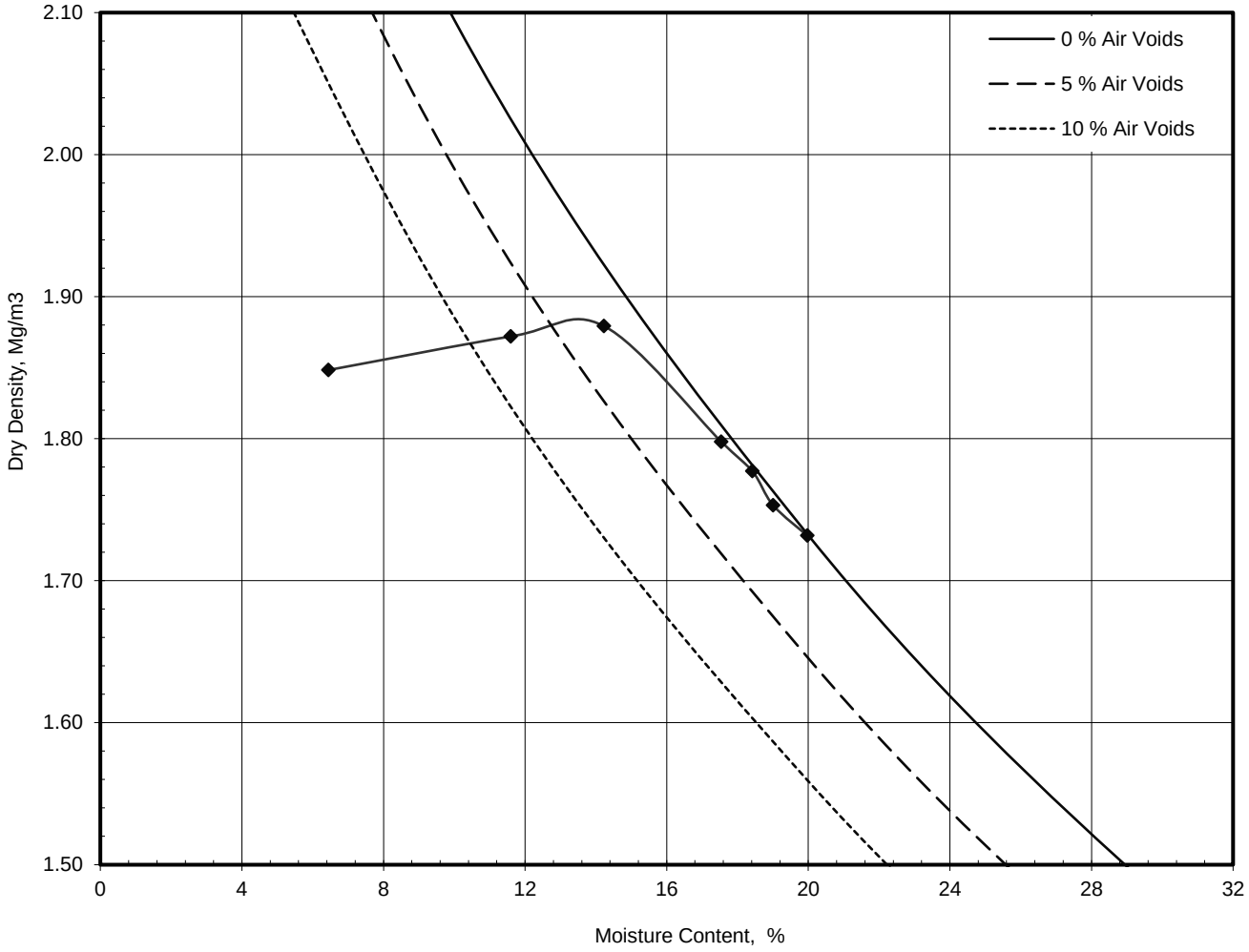
Maximum Dry Density	Mg/m³	**2.09**

Optimum Moisture Content	%	**9.9**

Operator	Checked	Approved	Remarks / Report Date:	**QC Form R4**
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-44309
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Grey very silty SAND and GRAVEL.			Depth	1.00 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	IDL120211014149
				Compaction Test Reference/No.	



Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	
Material Retained on 20.0 mm Sieve	%	
Particle Density - Assumed	Mg/m³	2.65

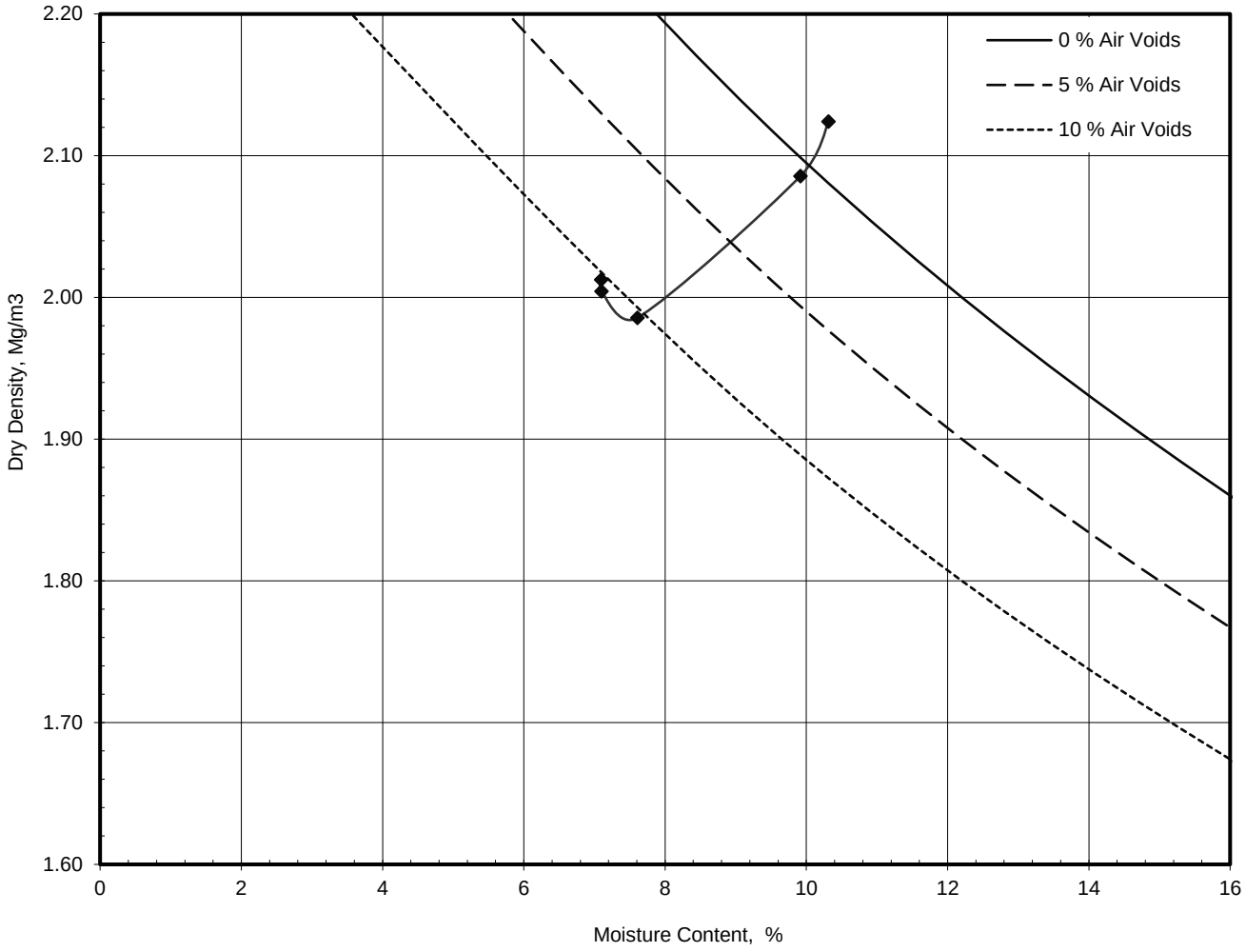
Maximum Dry Density	Mg/m³	**1.88**

Optimum Moisture Content	%	**14**

Operator	Checked	Approved	Remarks / Report Date:	**QC Form R4**
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL	Dry Density / Moisture Content Relationship Vibrating Hammer Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-39006
Site Name	**WSP Eastern & Midlands Region**			Sample No	4
Soil Description	Brown very silty very sandy medium and fine GRAVEL.			Depth	1.10 m
Specimen Ref.	1	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.7 Vibrating Hammer Method			Keylab ID	IDL12021101415
				Compaction Test Reference/No.	



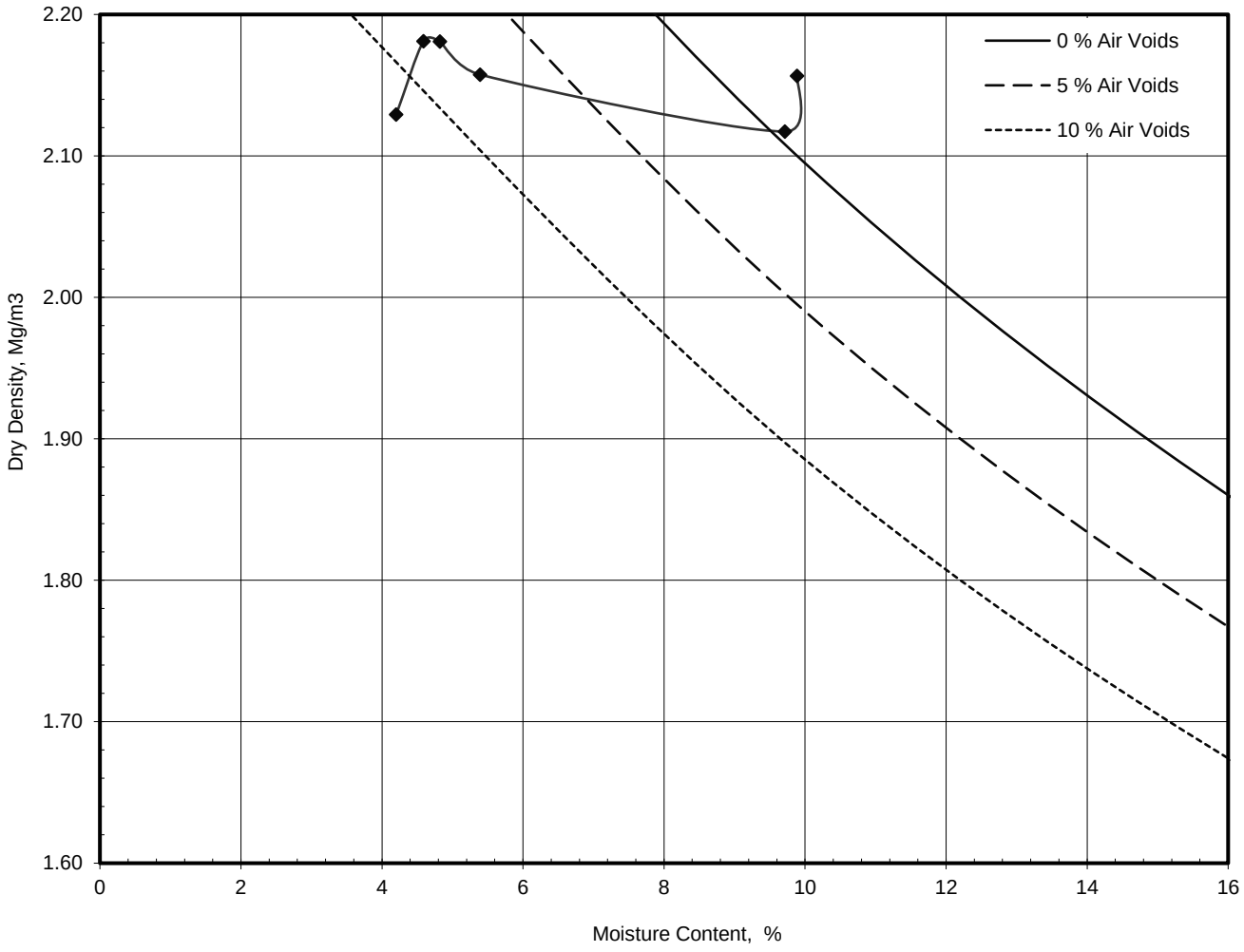
Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	26
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.12**

Optimum Moisture Content	%	**11**

Operator	Checked	Approved	Remarks	**Fig**
Administrator		Administrator		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Heavy Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-40404
Site Name	**WSP Eastern & Midlands Region**			Sample No	5
Soil Description	Grey slightly gravelly slightly sandy SILT.			Depth	2.50 m
Specimen Ref.	1	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.6, 4.5kg rammer			Keylab ID	IDL12021101462
				Compaction Test Reference/No.	



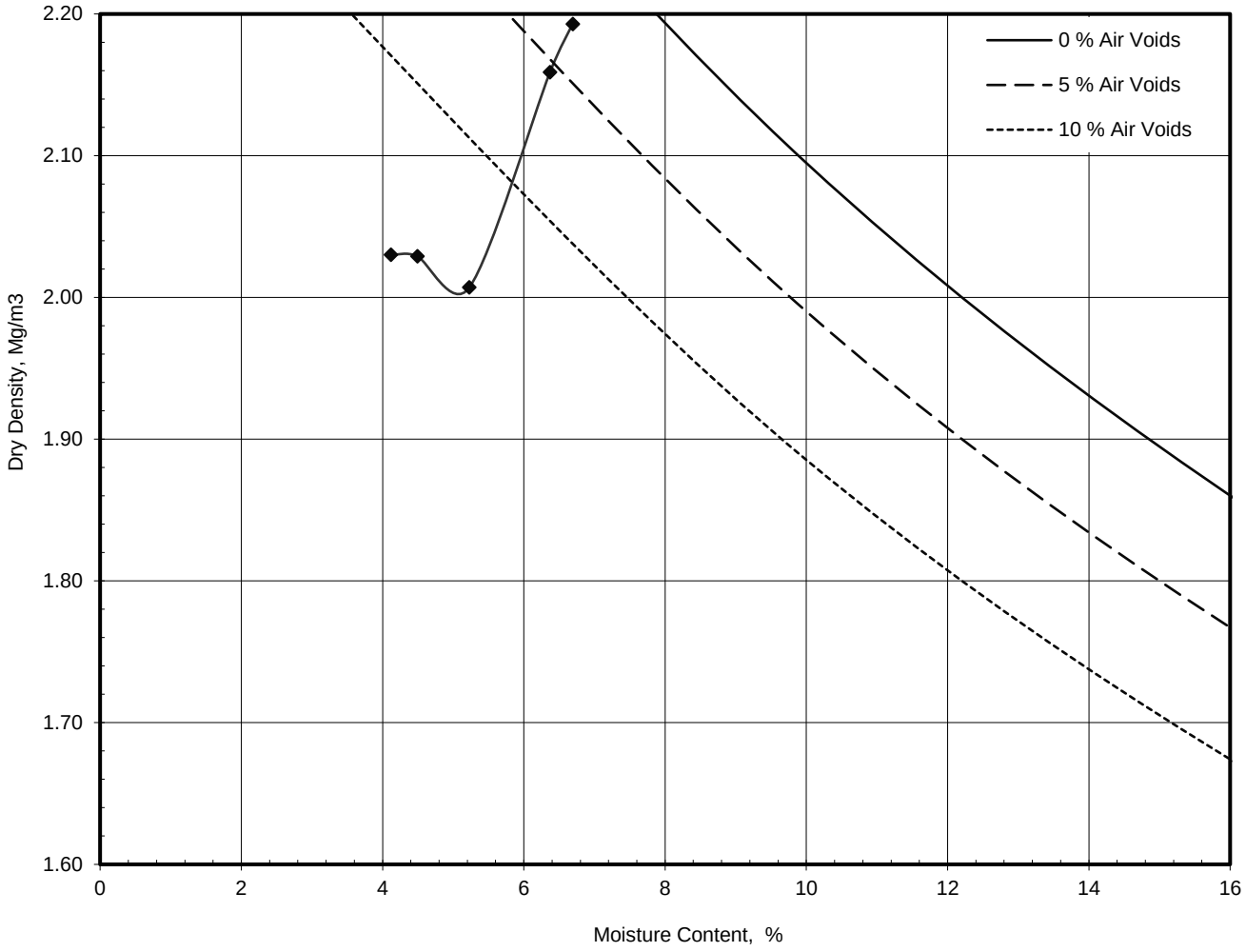
Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	16
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.18**
Optimum Moisture Content	%	**4.8**

Operator	Checked	Approved	Remarks	QC Form R4
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL	Dry Density / Moisture Content Relationship Vibrating Hammer Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-44104
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Grey silty very gravelly SAND.			Depth	1.30 m
Specimen Ref.	1	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.7 Vibrating Hammer Method			Keylab ID	IDL120211014136
				Compaction Test Reference/No.	



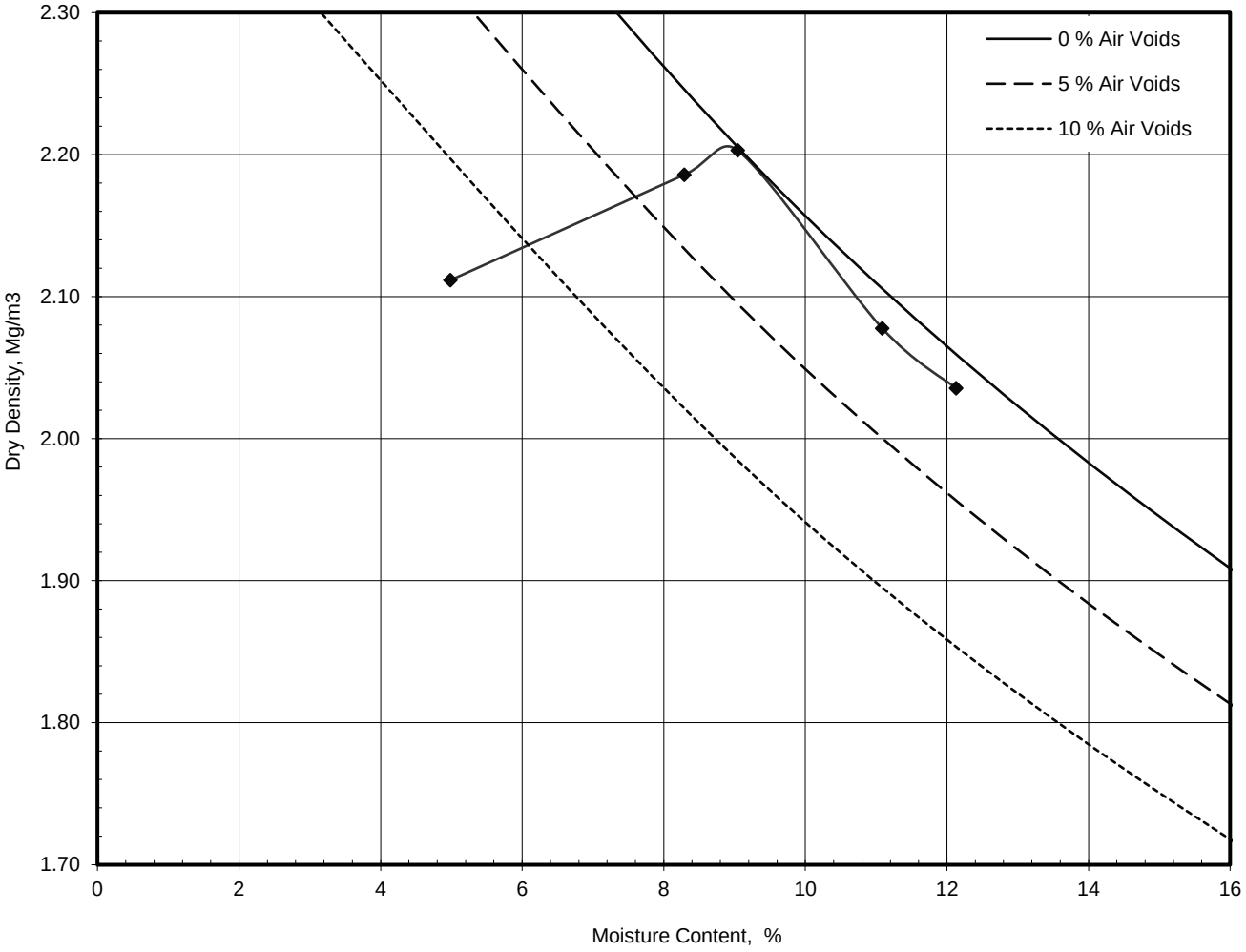
Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	11
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**2.19**

Optimum Moisture Content	%	**6.7**

Operator	Checked	Approved	Remarks	**Fig**
Administrator		Administrator		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Heavy Compaction			Job Ref	2021OY102
				Borehole / Pit No	TP-46603
Site Name	**WSP Eastern & Midlands Region**			Sample No	3
Soil Description	Brown slightly gravelly sandy SILT.			Depth	1.80 m
Specimen Ref.	1	Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.6, 4.5kg rammer			Keylab ID	IDL120211014185
				Compaction Test Reference/No.	



Preparation		Material used was natural and air dried
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	17
Particle Density - Assumed	Mg/m³	2.75

Maximum Dry Density	Mg/m³	**2.20**
Optimum Moisture Content	%	**9**

Operator	Checked	Approved	Remarks	QC Form R4
Administrator		Administrator		Sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Determination of shear strength using the Small Shear Box Apparatus

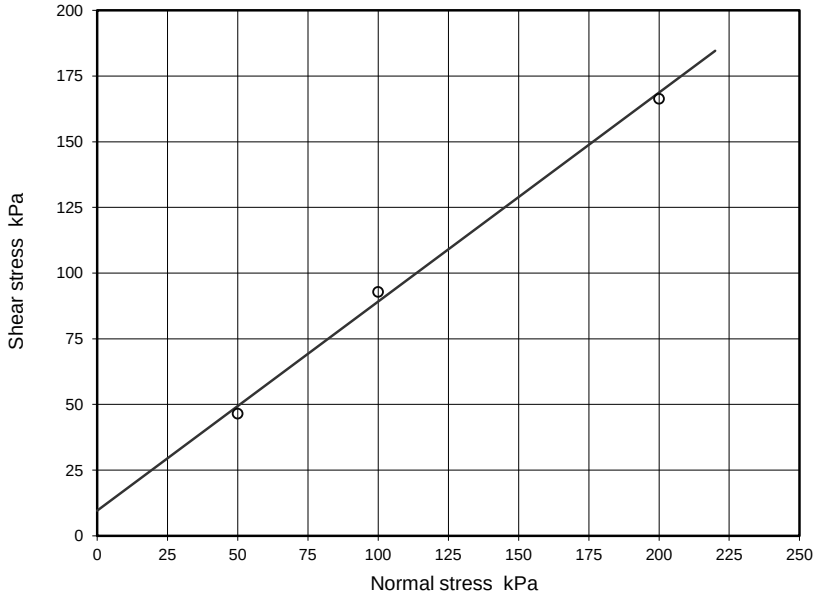
Job Ref	32282				
Borehole/Pit No.	BH-62806				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and rounded to sub-angular)			Depth m	5.00
				Sample Type	D
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	16/12/2022
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	16/12/2022

Specimen Details

	Test No.	1	2	3				
Initial	Height	25.0	25.0	25.0				mm
	Bulk Density	1.83	1.83	1.83				Mg/m³
	Moisture Content	8.1	8.1	8.1				%
	Dry density	1.69	1.69	1.69				Mg/m³
	Voids ratio	0.562	0.562	0.562				
	Degree of Saturation	38	38	38				%
Consolidation	Consolidation / Normal Stress applied	**50**	**100**	**200**				kPa
	Change in height during consolidation*	-0.158	-0.192	-0.284				mm
	Voids ratio after consolidation	0.552	0.550	0.544				
After test	Final Moisture content	6.3	6.3	6.3				

Shearing stage(s)

Rate of displacement	Peak	1.14000	1.14000	1.14000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	2.75	3.00	2.75				mm
	Shear stress	46.4	92.8	166.3				kPa
	Vertical Movement at peak shear stress*	0.12	0.17	-0.11				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	9.6	-
Ø '	degrees	38.5	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
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Checked and Approved
Initials K.P.
Date 19/12/2022

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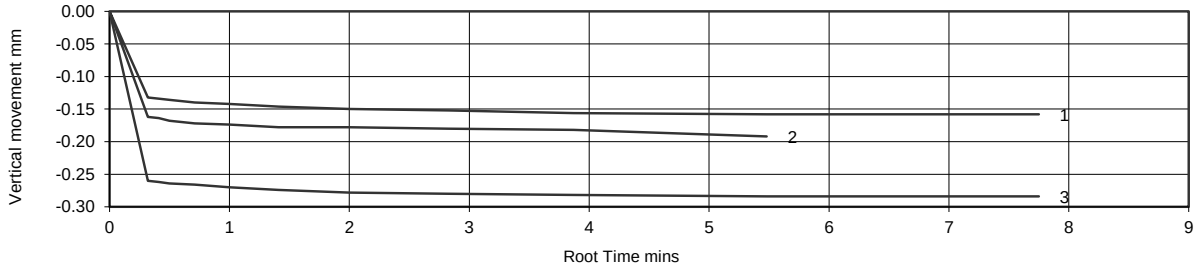
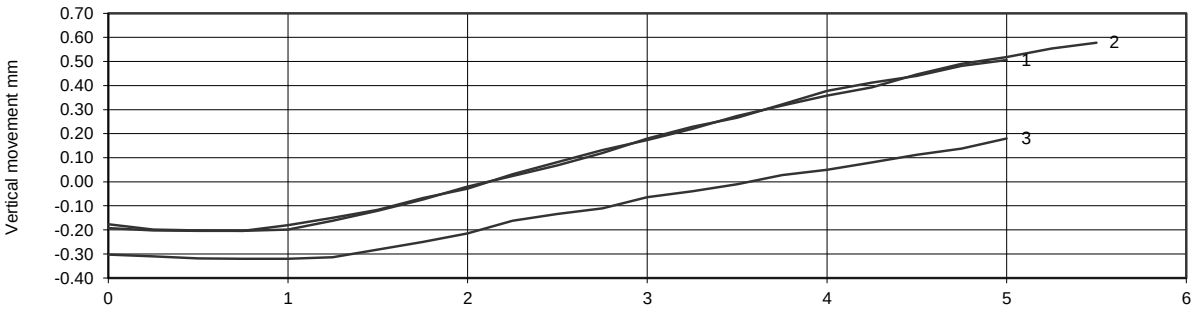
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

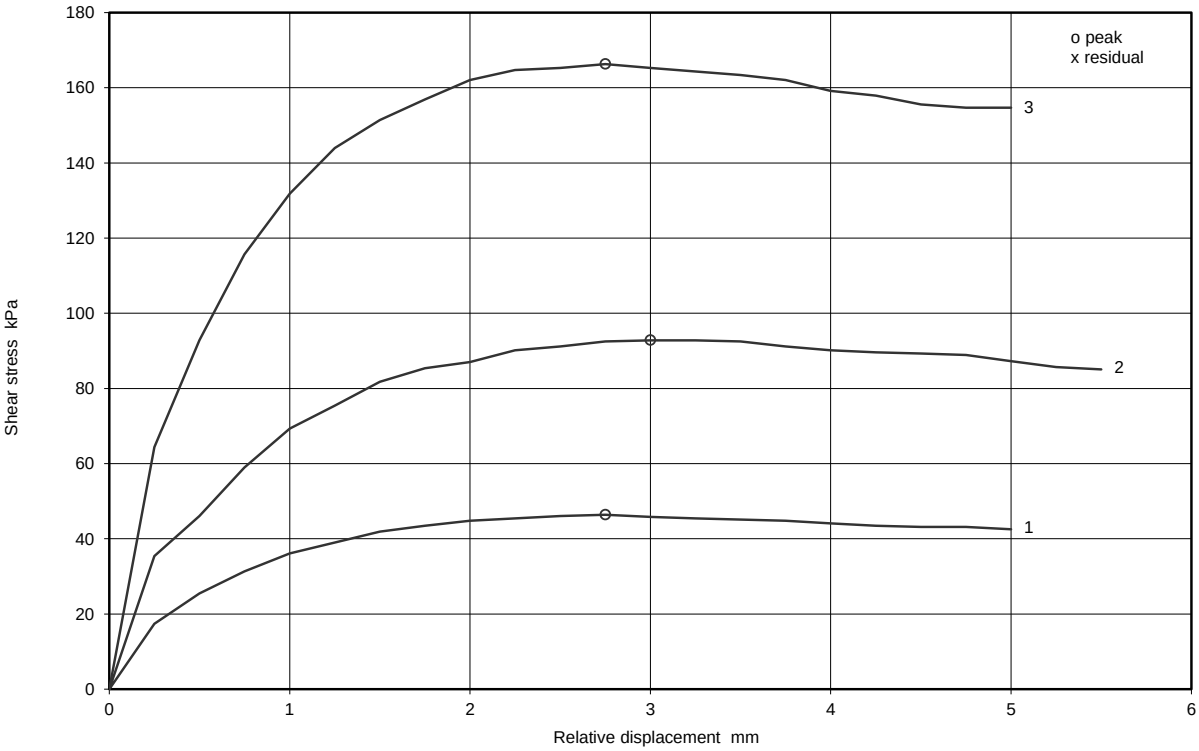
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	BH-62806
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and rounded to sub-angular)			Depth m	5.00
				Sample Type	D
Project No.	2021OY102	Client	Irish Drilling	Date of Test	16/12/2022

Consolidation stage(s)



Shearing stage(s)





*Note : Vertical movement/change in height is recorded as negative for reduced height (settlement) and positive for increased height (swell).

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Date 19/12/2022

2519 *Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)*

Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey silty CLAY			Depth m	4.00
				Sample Type	D
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	19/12/2022
				Date completed	20/12/2022

Job Ref: 32282

Borehole/Pit No.: BH-64085

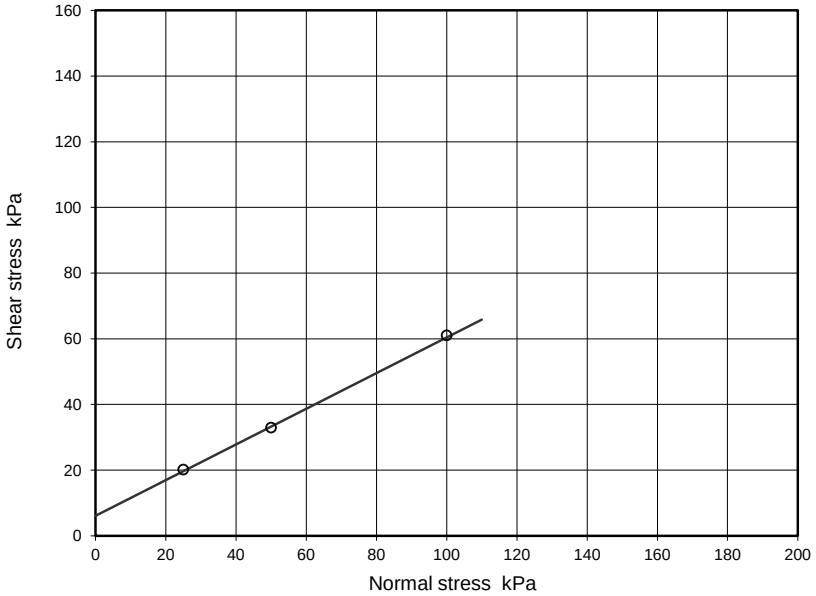
Preparation Details: Prepared in accordance with BS1377 : Part 7 : 1990, clause 4

Specimen Details

		Test No. 1	2	3				
Initial	Height	20.0	20.0	20.0				mm
	Bulk Density	1.69	1.70	1.71				Mg/m³
	Moisture Content	53.3	53.3	53.3				%
	Dry density	1.10	1.11	1.12				Mg/m³
	Voids ratio	1.455	1.432	1.411				
	Degree of Saturation	99	100	102				%
Consolidation	Consolidation / Normal Stress applied	**25**	**50**	**100**				kPa
	Change in height during consolidation*	-1.610	-2.795	-3.421				mm
	Voids ratio after consolidation	1.257	1.092	0.999				
After test	Final Moisture content	45.0	43.4	40.9				

Shearing stage(s)

Rate of displacement	Peak	0.00900	0.00900	0.00900				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	5.20	7.18	4.67				mm
	Shear stress	20.1	32.9	61.0				kPa
	Vertical Movement at peak shear stress*	-2.17	-3.55	-4.16				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	6.1	-
Ø '	degrees	28.5	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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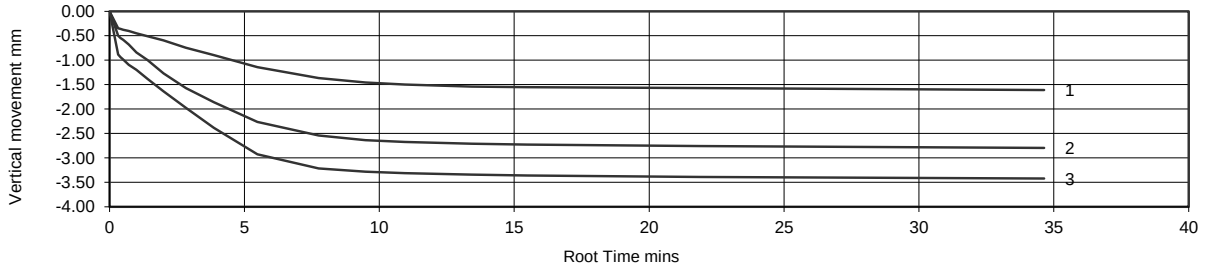
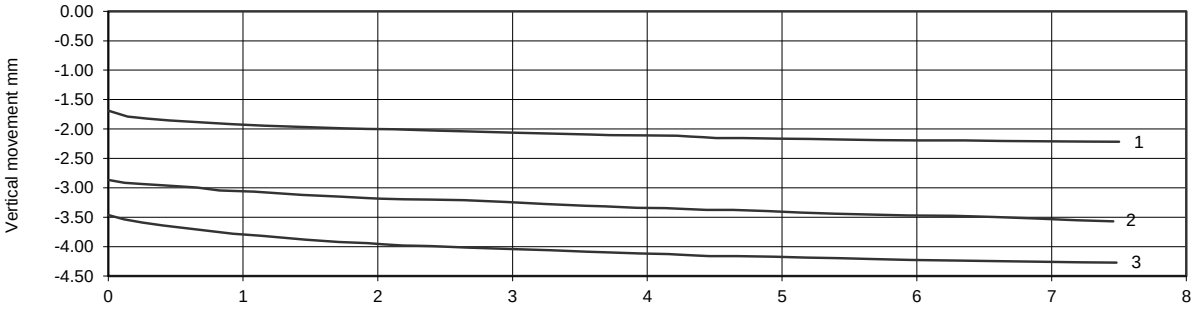
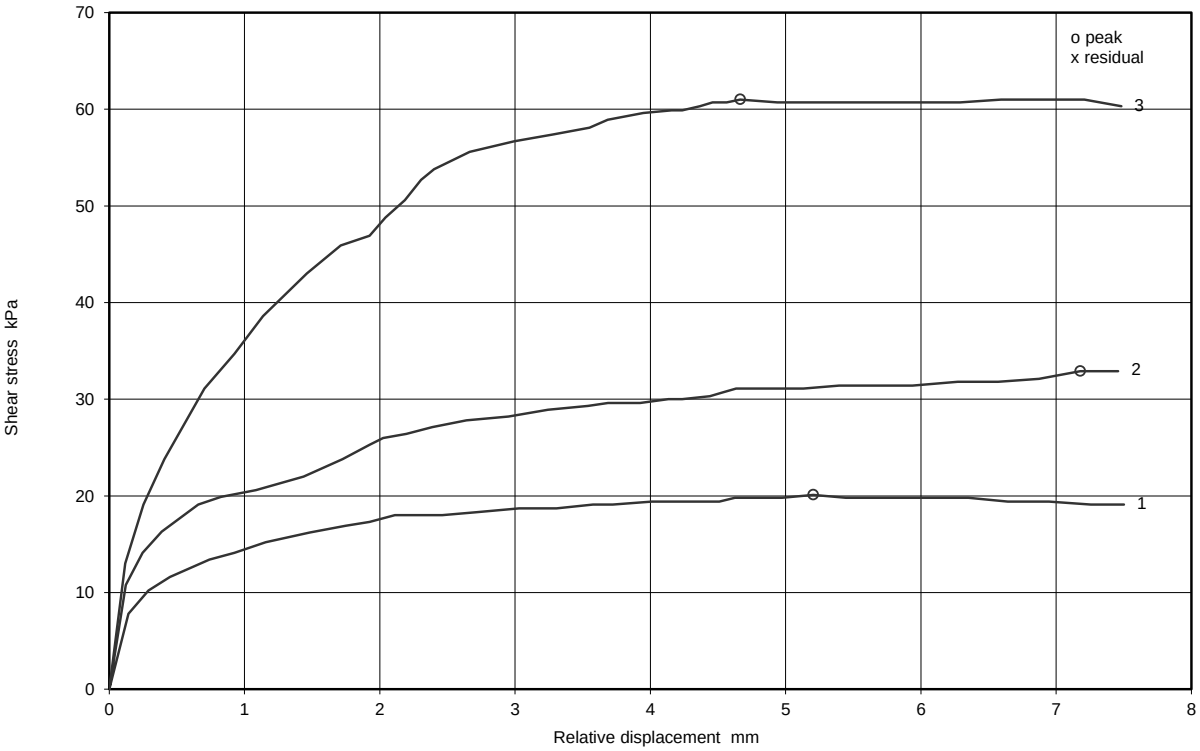
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	BH-64085
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey silty CLAY			Depth m	4.00
				Sample Type	D
Project No.	2021OY102	Client	Irish Drilling	Date of Test	19/12/2022

Consolidation stage(s)



Shearing stage(s)





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2519 *Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)*

Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Grey sandy clayey GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	08/12/2022
				Date completed	12/12/2022
Job Ref	32282				
Borehole/Pit No.	BH-68009				

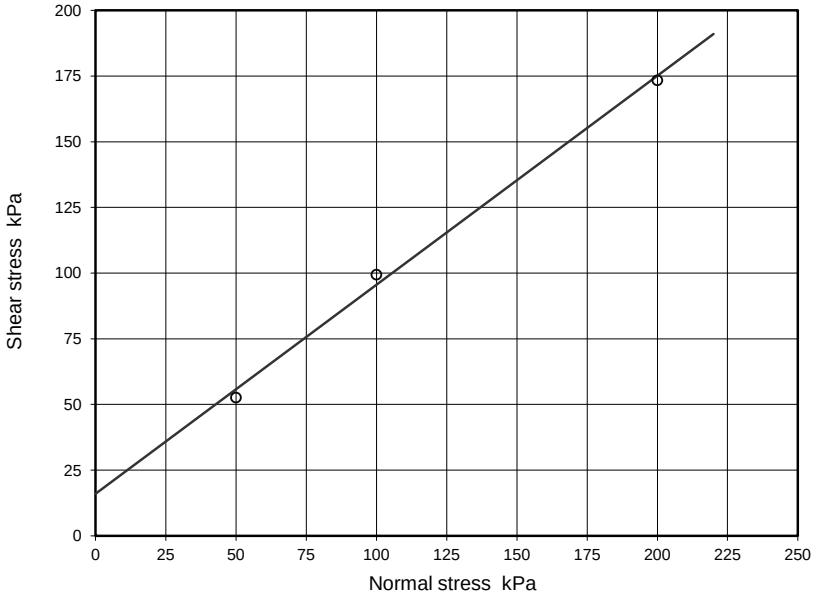
Preparation Details: Prepared in accordance with BS1377 : Part 7 : 1990, clause 4

Specimen Details

		Test No.	1	2	3				
Initial	Height		20.0	20.0	20.0				mm
	Bulk Density		2.35	2.34	2.36				Mg/m³
	Moisture Content		12.6	12.6	12.6				%
	Dry density		2.09	2.08	2.10				Mg/m³
	Voids ratio		0.278	0.284	0.271				
	Degree of Saturation		121	118	124				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.746	-1.215	-1.453				mm
	Voids ratio after consolidation		0.230	0.206	0.179				
After test	Final Moisture content		11.0	10.6	10.5				

Shearing stage(s)

Rate of displacement	Peak	0.02000	0.02000	0.02000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	2.60	2.39	2.87				mm
	Shear stress	52.6	99.3	173.3				kPa
	Vertical Movement at peak shear stress*	-0.75	-1.28	-1.60				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	16	-
Ø '	degrees	38.5	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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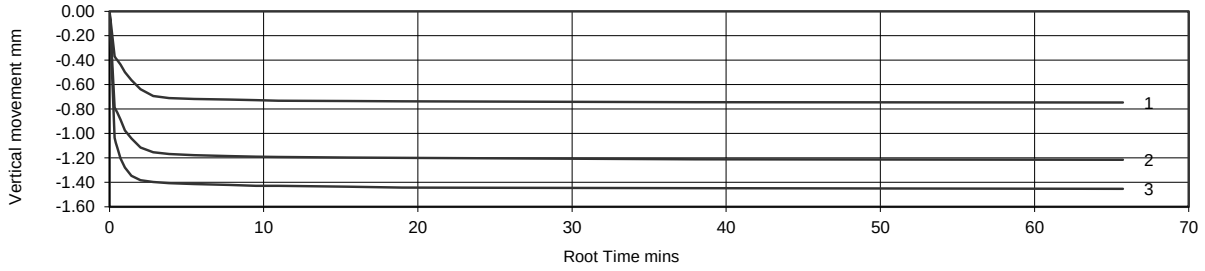
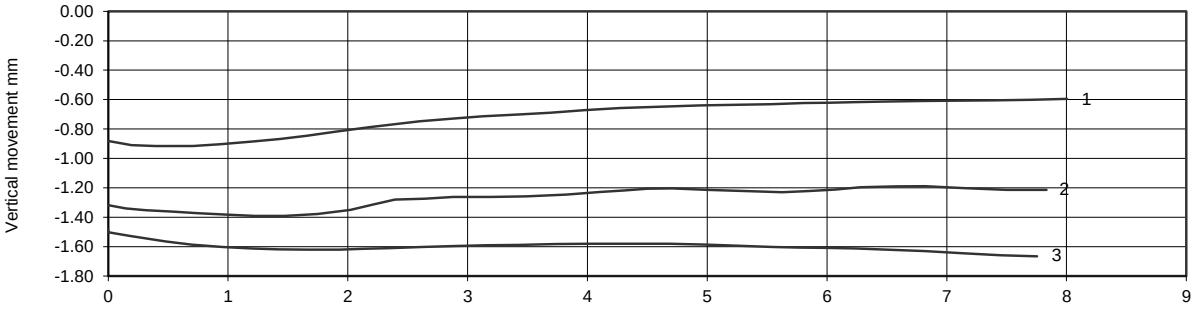
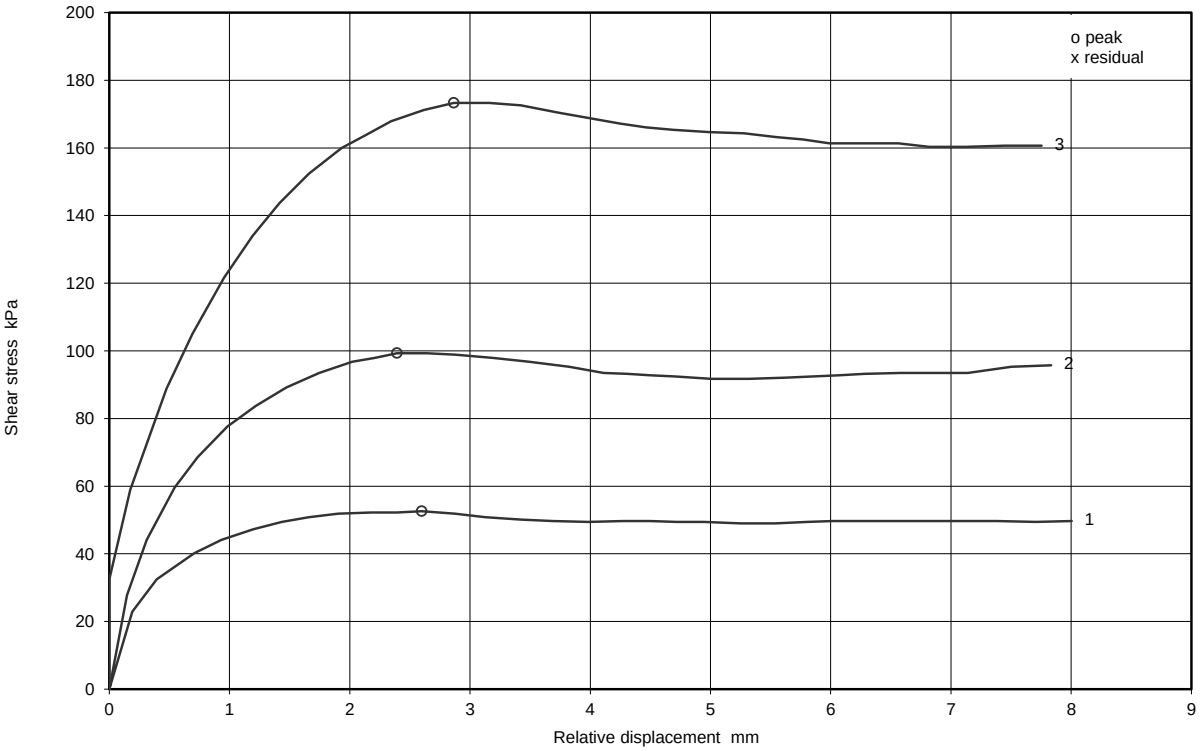
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	BH-68009
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Grey sandy clayey GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	08/12/2022

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and angular to rounded)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	09/12/2022
				Date completed	09/12/2022
Job Ref	32282				
Borehole/Pit No.	BH-69703				

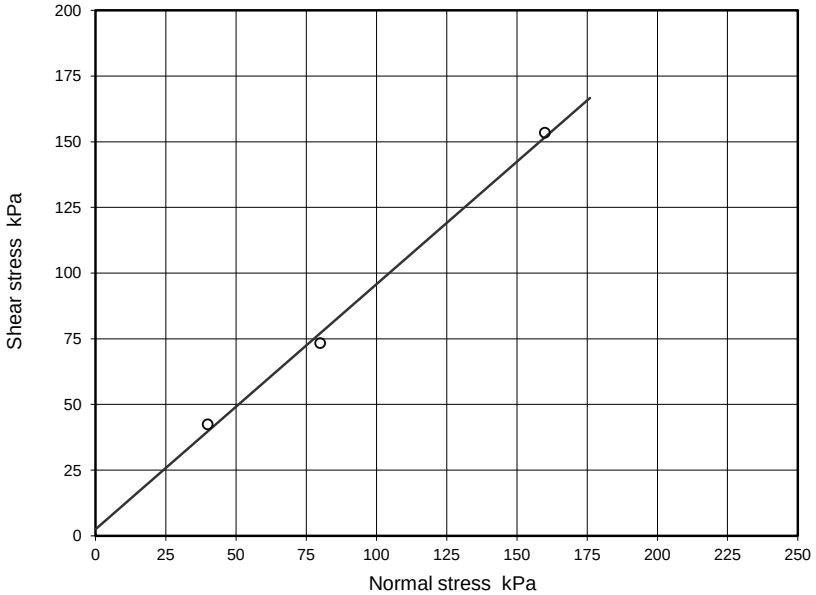
Preparation Details: Prepared in accordance with BS1377 : Part 7 : 1990, clause 4

Specimen Details

		Test No.	1	2	3				
Initial	Height		20.0	20.0	20.0				mm
	Bulk Density		1.89	1.89	1.89				Mg/m³
	Moisture Content		6.1	6.1	6.1				%
	Dry density		1.78	1.78	1.78				Mg/m³
	Voids ratio		0.500	0.500	0.500				
	Degree of Saturation		33	33	33				%
Consolidation	Consolidation / Normal Stress applied		**40**	**80**	**160**				kPa
	Change in height during consolidation*		-0.084	-0.160	-0.232				mm
	Voids ratio after consolidation		0.494	0.488	0.483				
After test	Final Moisture content		4.7	4.7	4.7				

Shearing stage(s)

Rate of displacement	Peak	1.14000	1.14000	1.14000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	1.50	3.75	2.75				mm
	Shear stress	42.3	73.3	153.4				kPa
	Vertical Movement at peak shear stress*	0.23	0.42	0.09				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	2.5	-
Ø '	degrees	43	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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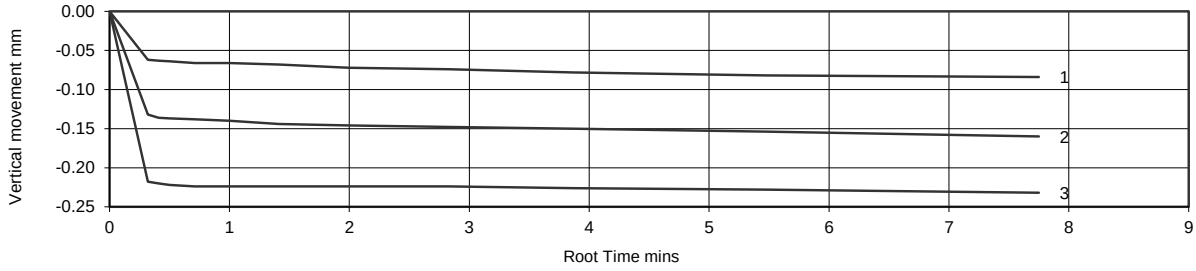
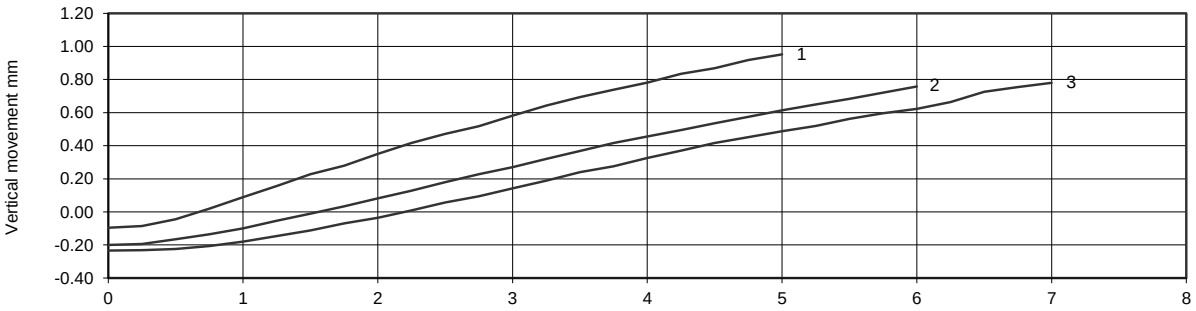
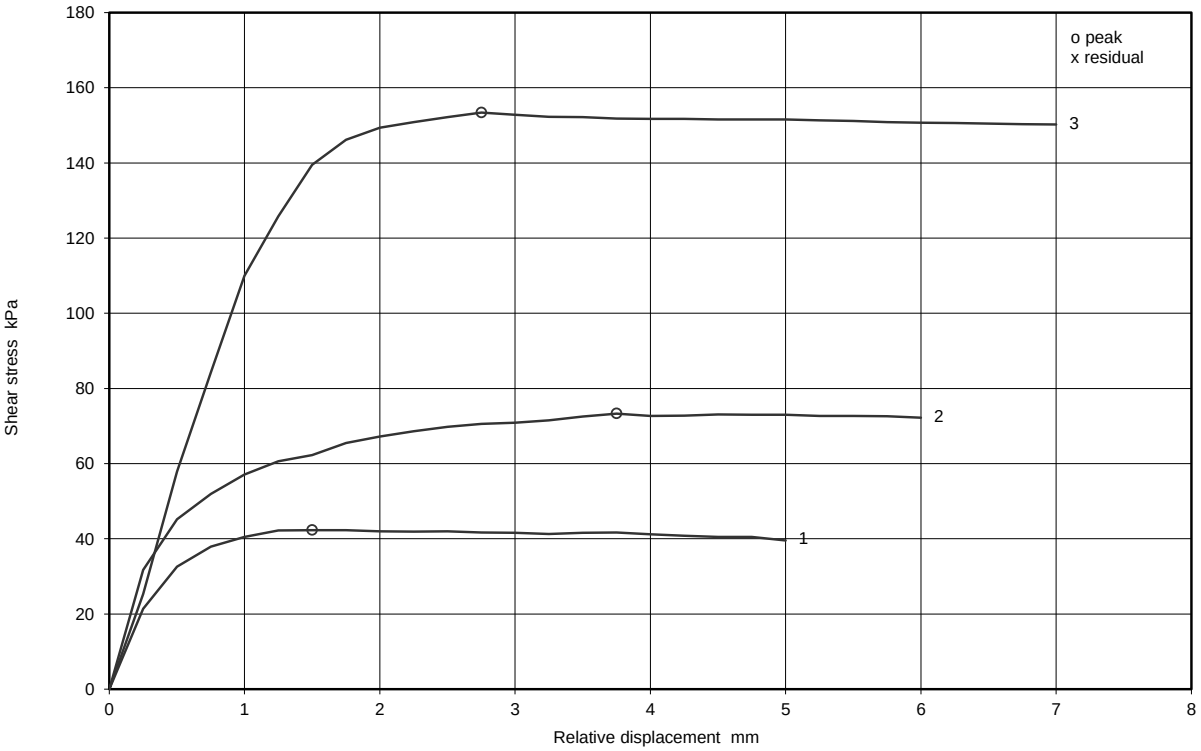
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	BH-69703
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and angular to rounded)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	09/12/2022

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey sandy clayey GRAVEL (gravel is fmc and angular to sub-rounded)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	16/12/2022
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	19/12/2022

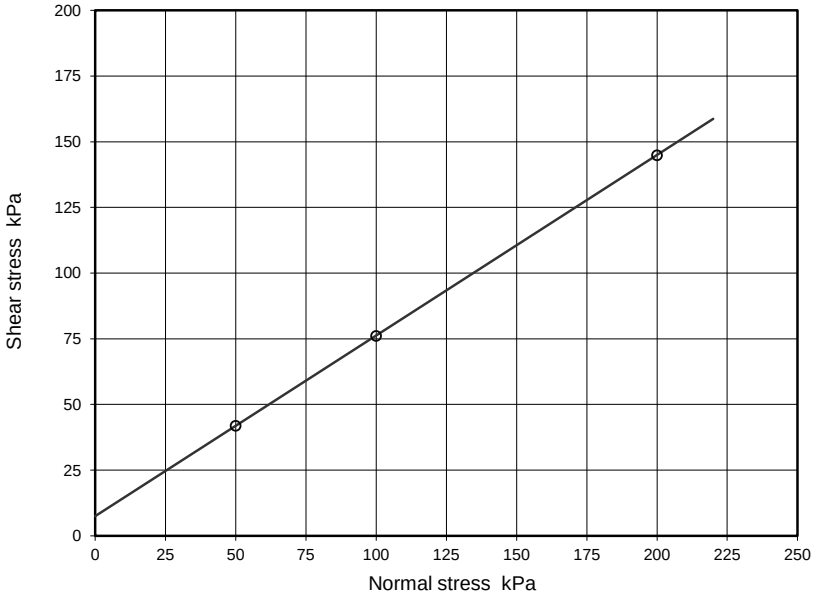
Job Ref	32282
Borehole/Pit No.	BH-83591

Specimen Details

	Test No.	1	2	3				
Initial	Height	20.0	20.0	20.0				mm
	Bulk Density	2.29	2.29	2.30				Mg/m³
	Moisture Content	8.4	8.4	8.4				%
	Dry density	2.11	2.11	2.12				Mg/m³
	Voids ratio	0.251	0.251	0.245				
	Degree of Saturation	88	88	91				%
Consolidation	Consolidation / Normal Stress applied	**50**	**100**	**200**				kPa
	Change in height during consolidation*	-0.306	-0.454	-1.760				mm
	Voids ratio after consolidation	0.232	0.223	0.135				
After test	Final Moisture content	9.4	9.4	9.1				

Shearing stage(s)

Rate of displacement	Peak	0.02000	0.02000	0.02000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	7.24	2.04	7.35				mm
	Shear stress	41.8	76.0	144.7				kPa
	Vertical Movement at peak shear stress*	-0.36	-0.45	-2.06				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	7.5	-
Ø '	degrees	34.5	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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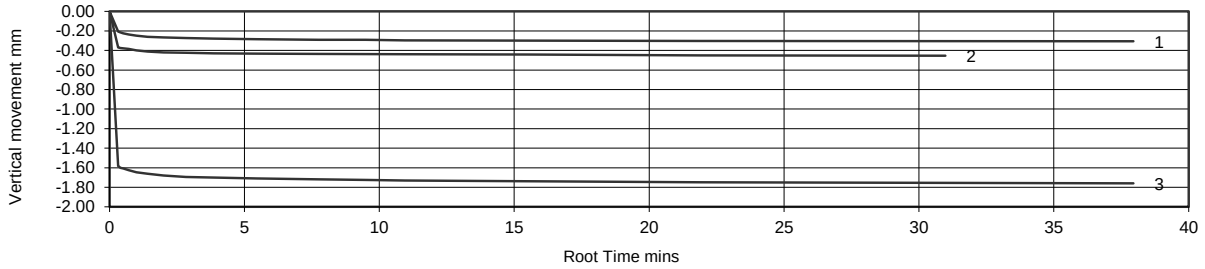
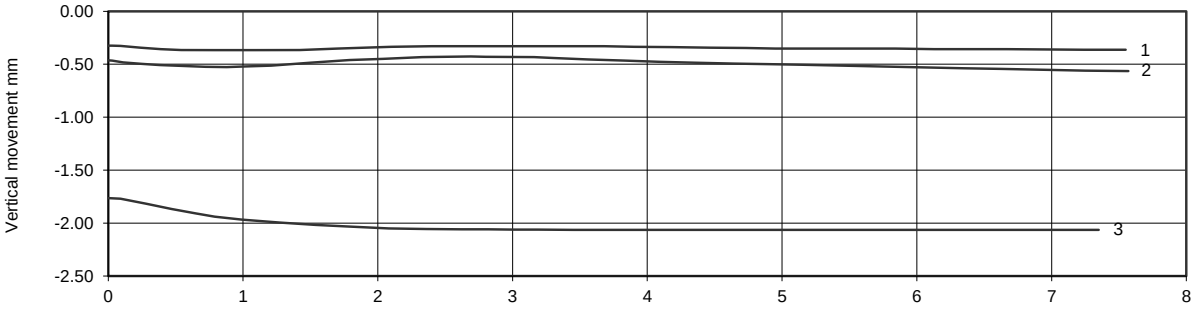
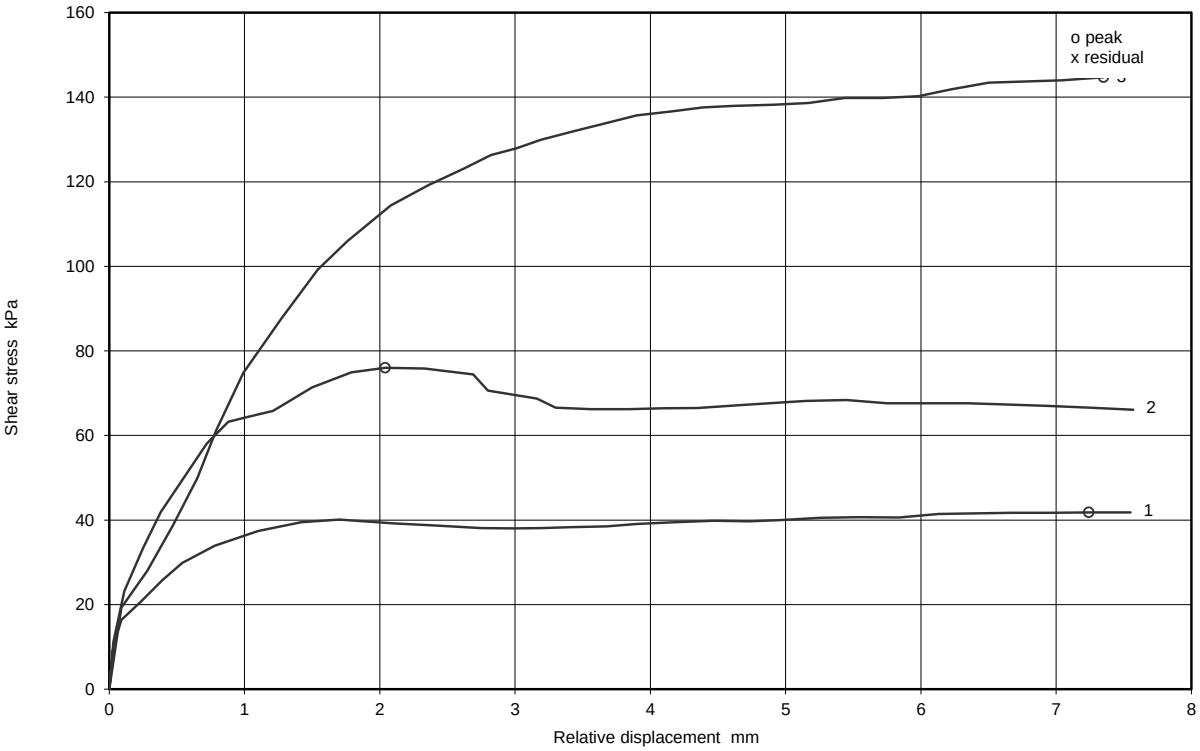
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	BH-83591
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey sandy clayey GRAVEL (gravel is fmc and angular to sub-rounded)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	16/12/2022

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey slightly sandy GRAVEL with occasional cobbles (gravel is fmc and sub-rounded to angular)			Depth m	6.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	15/12/2022
				Date completed	15/12/2022

Job Ref: 32282

Borehole/Pit No.: BH-89747

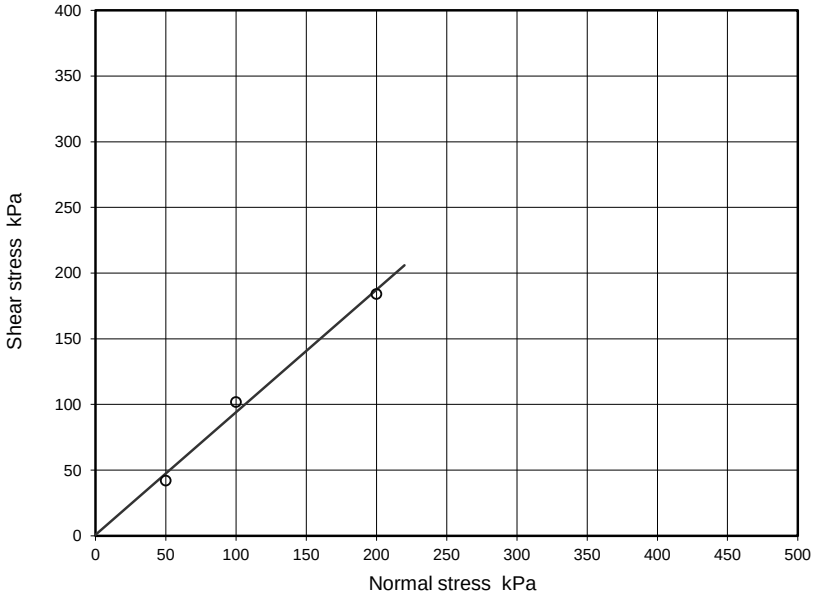
Preparation Details: Prepared in accordance with BS1377 : Part 7 : 1990, clause 4

Specimen Details

		Test No.	1	2	3				
Initial	Height		25.0	25.0	25.0				mm
	Bulk Density		1.73	1.73	1.73				Mg/m³
	Moisture Content		4.5	4.5	4.5				%
	Dry density		1.66	1.66	1.66				Mg/m³
	Voids ratio		0.584	0.584	0.584				
	Degree of Saturation		20	20	20				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.136	-0.208	-0.400				mm
	Voids ratio after consolidation		0.575	0.571	0.559				
After test	Final Moisture content		4.3	4.3	4.3				

Shearing stage(s)

Rate of displacement	Peak	1.14000	1.14000	1.14000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	1.75	2.25	3.25				mm
	Shear stress	41.9	101.8	184.0				kPa
	Vertical Movement at peak shear stress*	0.03	0.23	0.00				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	0.8	-
Ø '	degrees	43	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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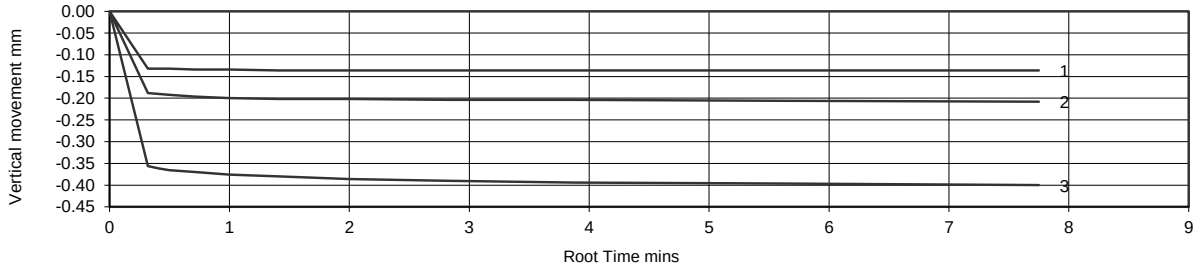
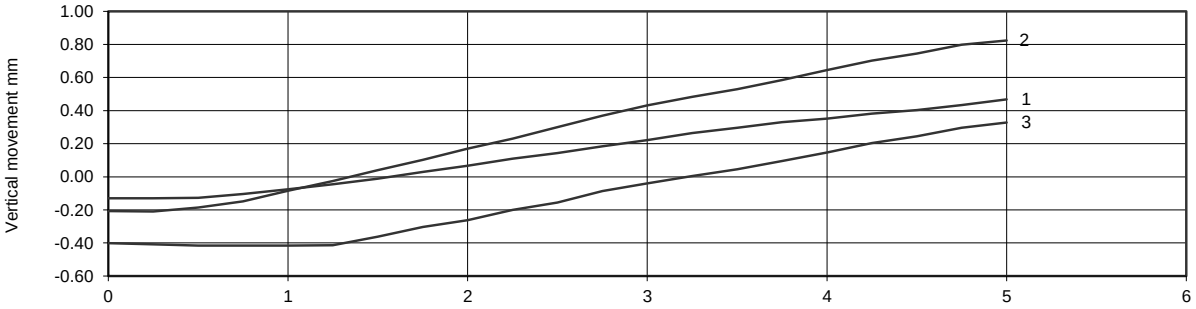
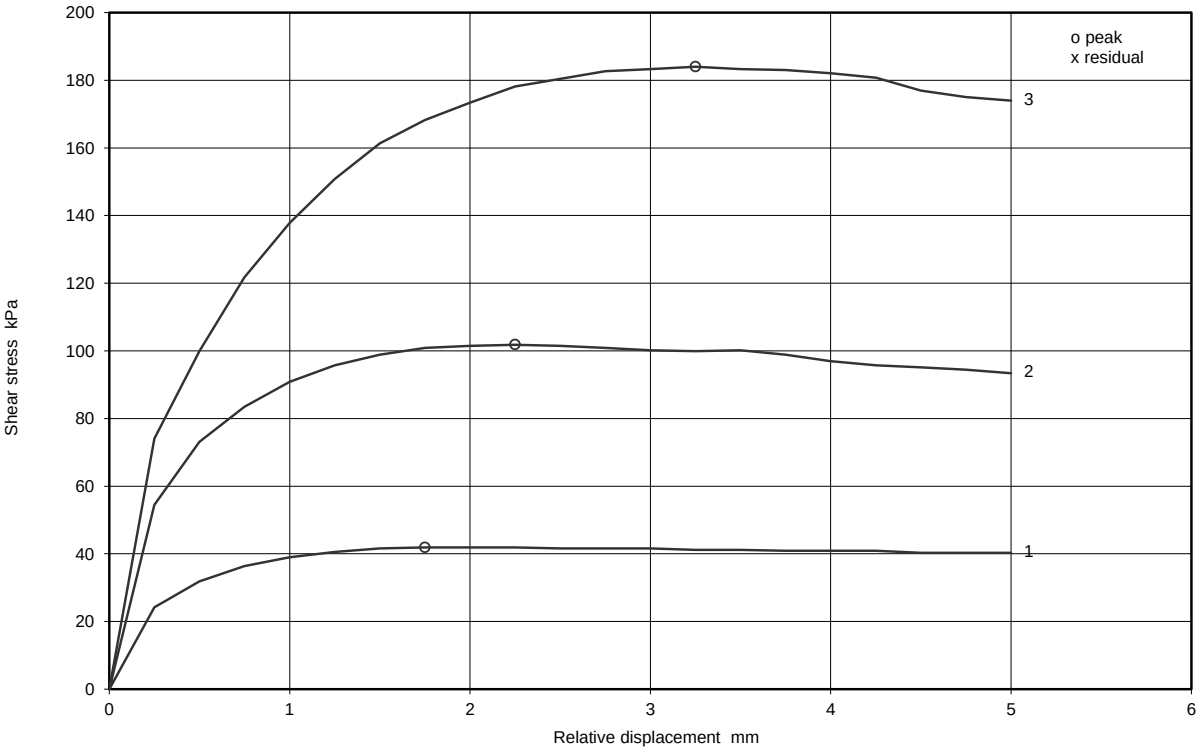
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	BH-89747
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Soil Description	Grey slightly sandy GRAVEL with occasional cobbles (gravel is fmc and sub-rounded to angular)			Depth m	6.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	15/12/2022

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

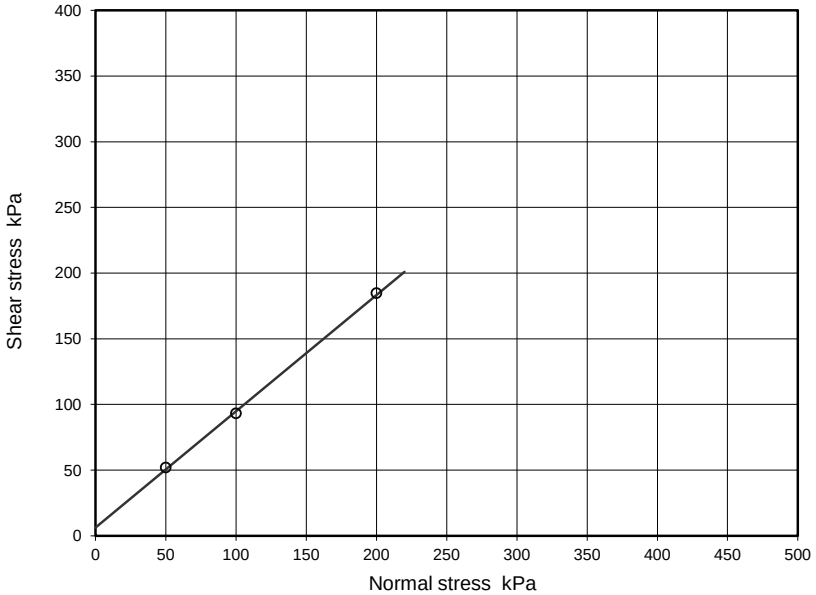
				Job Ref	32282
				Borehole/Pit No.	BH-94016
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Soil Description	Grey clayey sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth m	4.00
				Sample Type	D
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	07/12/2022
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	08/12/2022

Specimen Details

		Test No.	1	2	3				
Initial	Height		20.0	20.0	20.0				mm
	Bulk Density		2.27	2.24	2.27				Mg/m³
	Moisture Content		11.5	11.5	11.5				%
	Dry density		2.04	2.01	2.04				Mg/m³
	Voids ratio		0.309	0.328	0.309				
	Degree of Saturation		99	94	99				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.467	-0.640	-0.949				mm
	Voids ratio after consolidation		0.278	0.286	0.247				
After test	Final Moisture content		11.4	11.7	11.2				

Shearing stage(s)

Rate of displacement	Peak	0.02000	0.02000	0.02000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	2.08	3.07	3.22				mm
	Shear stress	51.9	93.2	184.5				kPa
	Vertical Movement at peak shear stress*	-0.36	-0.61	-0.98				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	6.3	-
Ø '	degrees	41.5	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

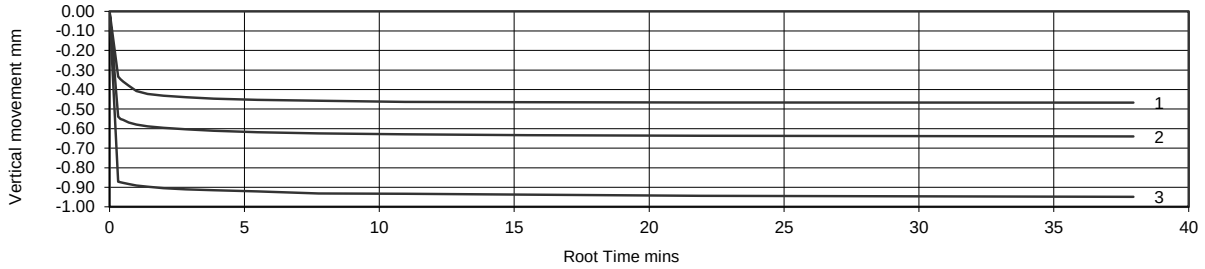
K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: james@K4soils.com

Checked and Approved
Initials K.P.
Date 15/12/2022

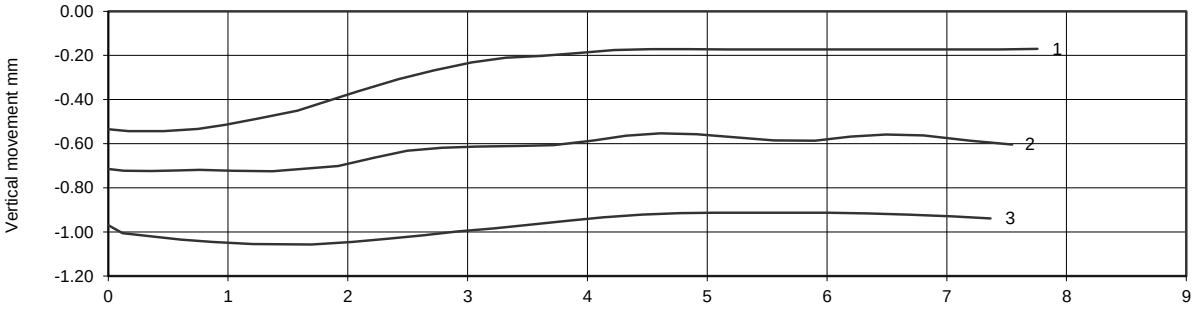
UKAS TESTING
2519
These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

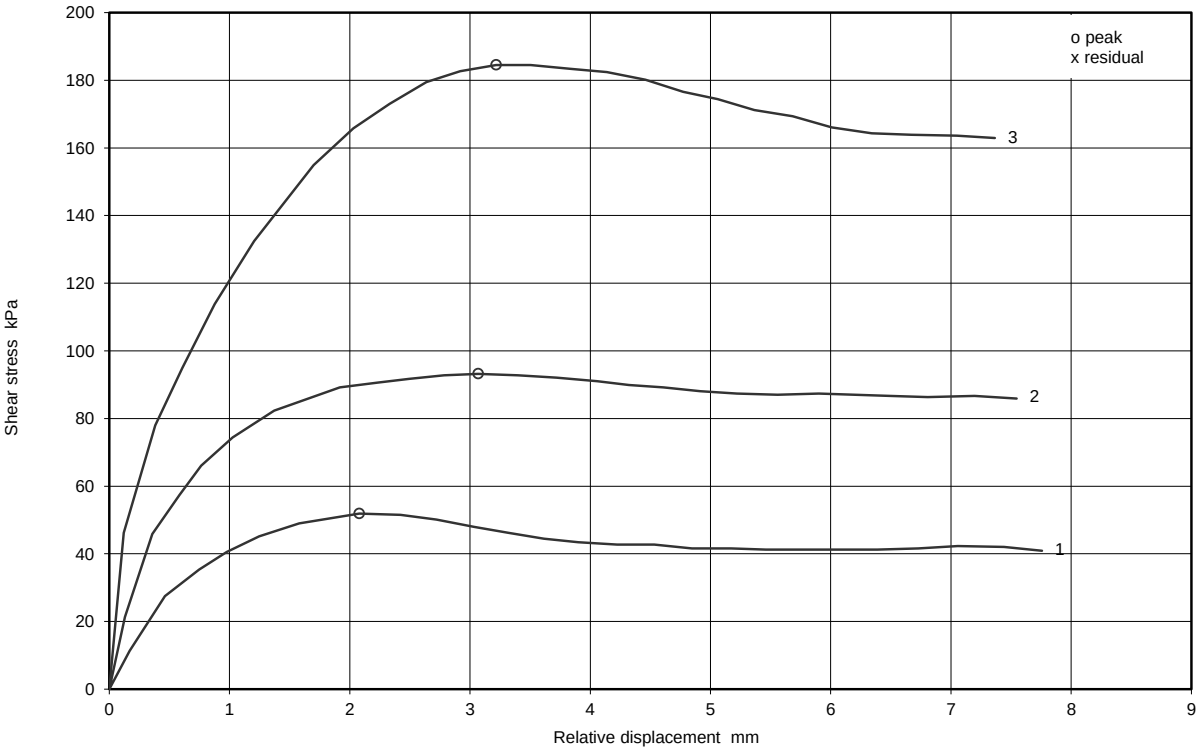
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	BH-94016
Site Name	WSP Eastern & Midlands Region			Sample No.	11
Soil Description	Grey clayey sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth m	4.00
				Sample Type	D
Project No.	2021OY102	Client	Irish Drilling	Date of Test	07/12/2022

Consolidation stage(s)



Shearing stage(s)





*Note : Vertical movement/change in height is recorded as negative for reduced height (settlement) and positive for increased height (swell).

K4 SOILS LABORATORY Unit 8 Olds Close
Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288
Email: james@K4soils.com

Checked and Approved
Initials K.P.
Date 15/12/2022

2519 *Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)*

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5kg Rammer at natural moisture content**
Sample screened on 2.0mm Sieve
Description **Brown/grey silty very sandy GRAVEL.**

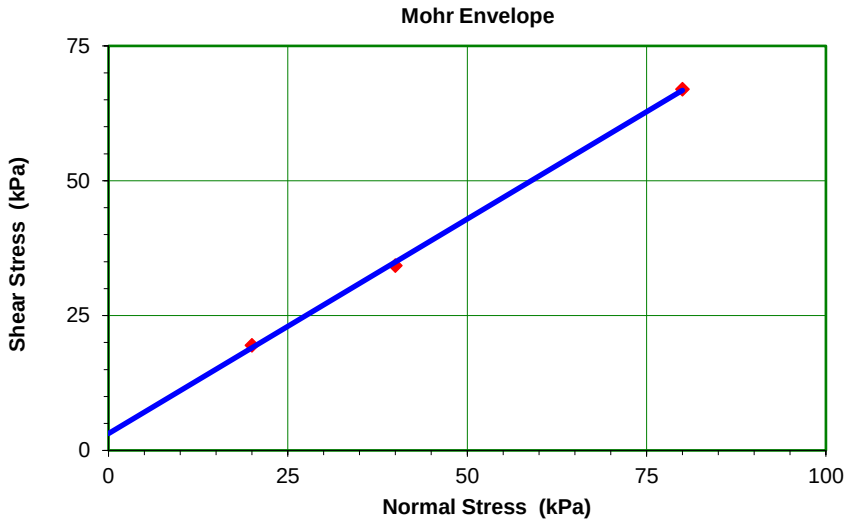
Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	351.8	349.6	350.7
Dry soil	gms	176.5	174.2	175.1
Wet soil	gms	197.5	195.3	196.4
Dry soil	gms	176.5	174.2	175.1
Water	gms	21.0	21.1	21.3
Moisture Content (%)		11.9	12.1	12.2
Bulk Density (Mg/m3)		2.23	2.20	2.22
Dry density (Mg/m3)		1.99	1.97	1.98
Voids ratio e		0.3547	0.3726	0.3658
Degree of saturation (%)		90.5	87.6	89.8

Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	24.6
Volume	V cm3	88.56
Particle density	Mg/m3	2.70

Final Details

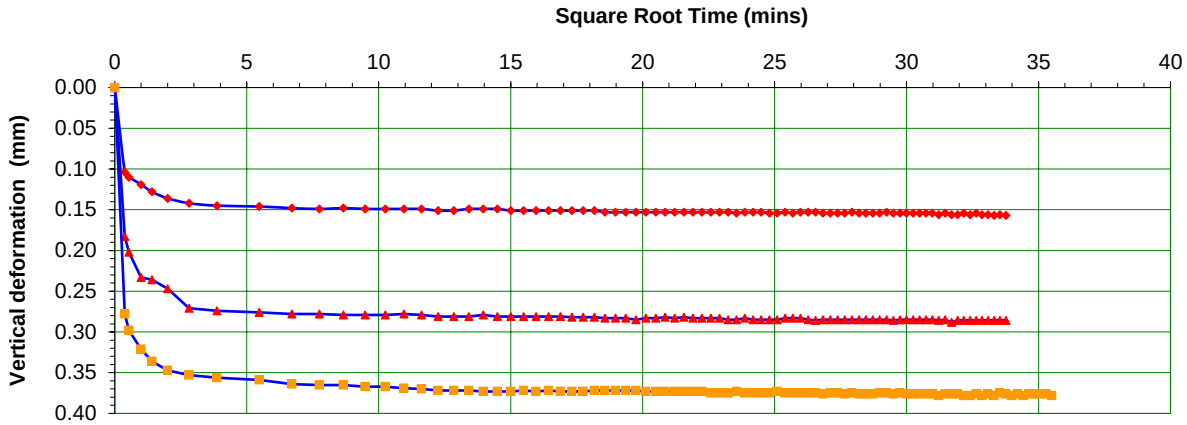
	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	20	40	80
Shear stress (kPa)	19.5	34.3	67.0
Horizontal Displacement (mm)	2.110	2.260	2.721
Vertical displacement (mm)	-0.223	-0.204	-0.260
Rate of displacement (mm/min)		0.0060	

Date sampled	n/a		Peak
Date received	26/10/2022	Cohesion c' (kPa)	3.13
Date tested	02/11/2022	Friction angle phi'	38.5°

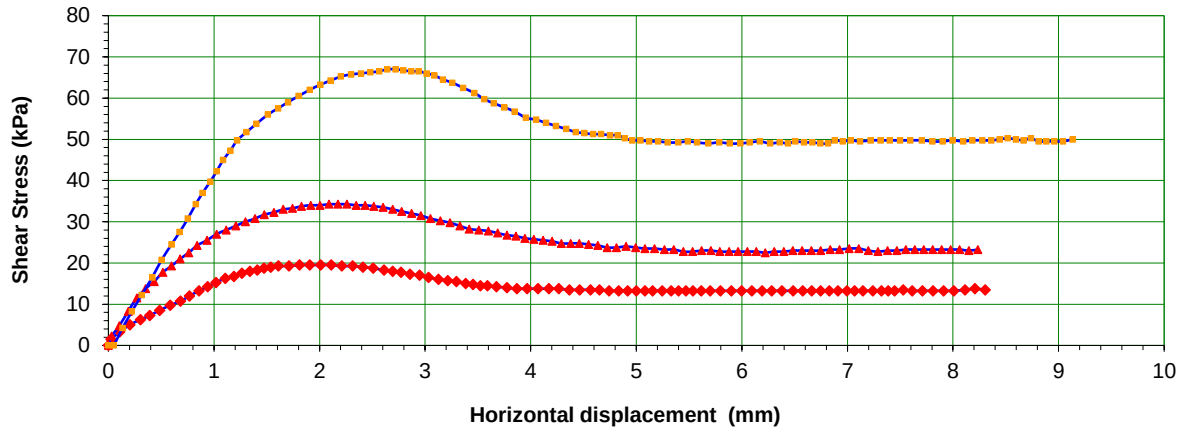


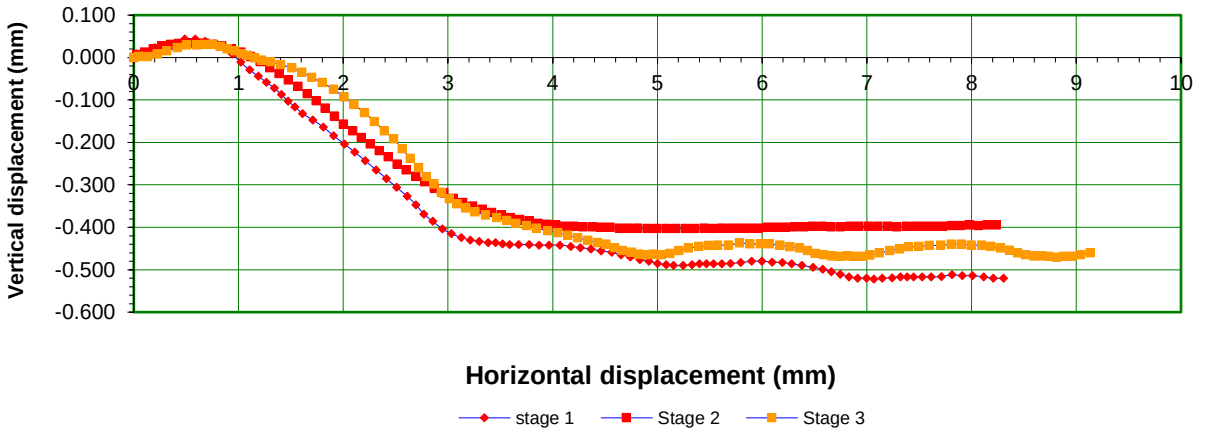
NM T L Ltd	Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
			BH/TP	TP68108
	Project	WSP Eastern & Midlands Region-2021OY102	Sample No.	B5
Operator Sb	Checked Nc	Approved Bc	Depth.	1.90-2.20m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
				BH/TP	TP68108
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No.	B5
Operator Sb	Checked	Nc	Approved Bc	Depth.	1.90-2.20m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5kg Rammer at natural moisture content**
Sample screened on 2.0mm Sieve
Description **Grey/brown silty very sandy GRAVEL.**

Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	339.7	340.0	339.6
Dry soil	gms	168.0	168.7	168.1
Wet soil	gms	185.2	185.7	185.2
Dry soil	gms	168.0	168.7	168.1
Water	gms	17.2	17.0	17.1
Moisture Content (%)		10.2	10.1	10.2
Bulk Density (Mg/m3)		2.09	2.10	2.09
Dry density (Mg/m3)		1.90	1.90	1.90
Voids ratio e		0.4236	0.4178	0.4227
Degree of saturation (%)		65.3	65.2	65.1

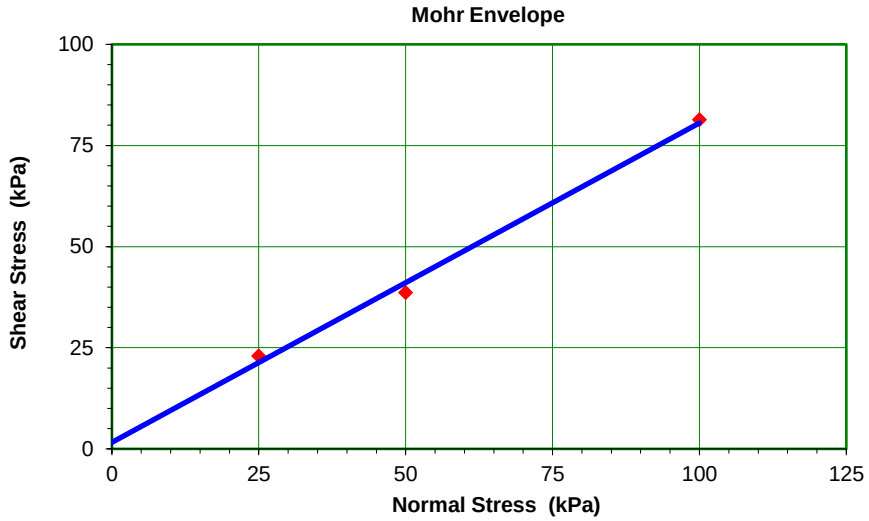
Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	24.6
Volume	V cm3	88.56
Particle density	Mg/m3	2.70

Final Details

	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	25	50	100
Shear stress (kPa)	23.0	38.6	81.4
Horizontal Displacement (mm)	2.018	2.659	3.074
Vertical displacement (mm)	-0.217	0.113	-0.082
Rate of displacement (mm/min)		0.0060	

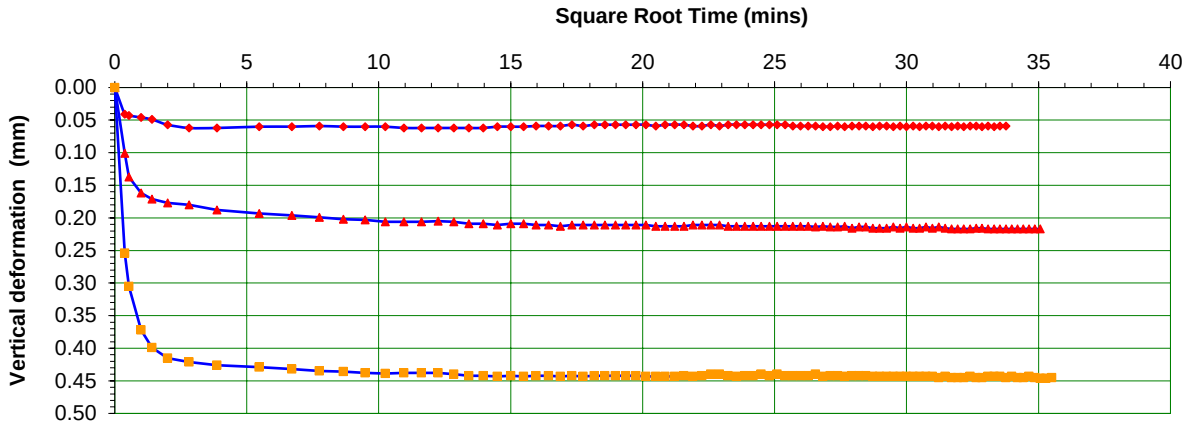
Date sampled n/a
Date received 26/10/2022
Date tested 05/11/2022

	Peak
Cohesion c' (kPa)	1.61
Friction angle phi'	38.3°

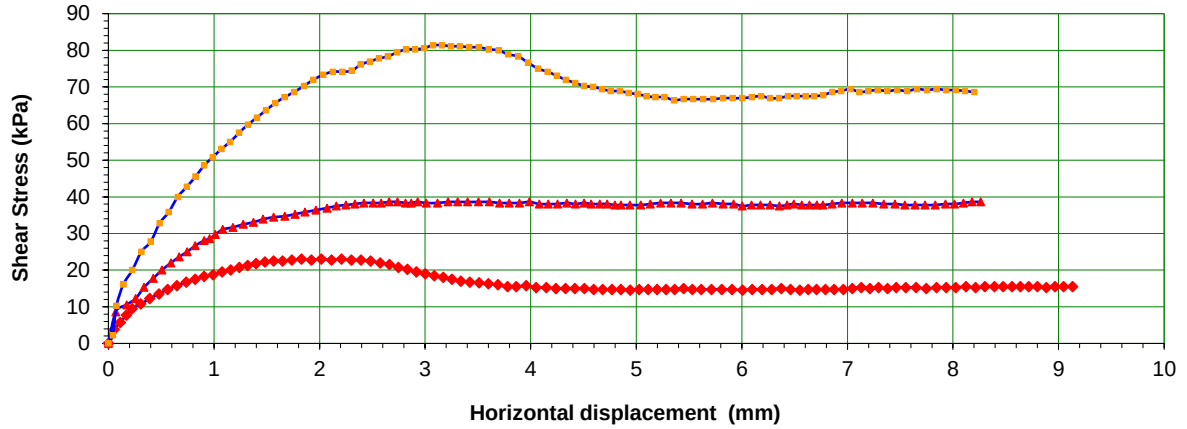


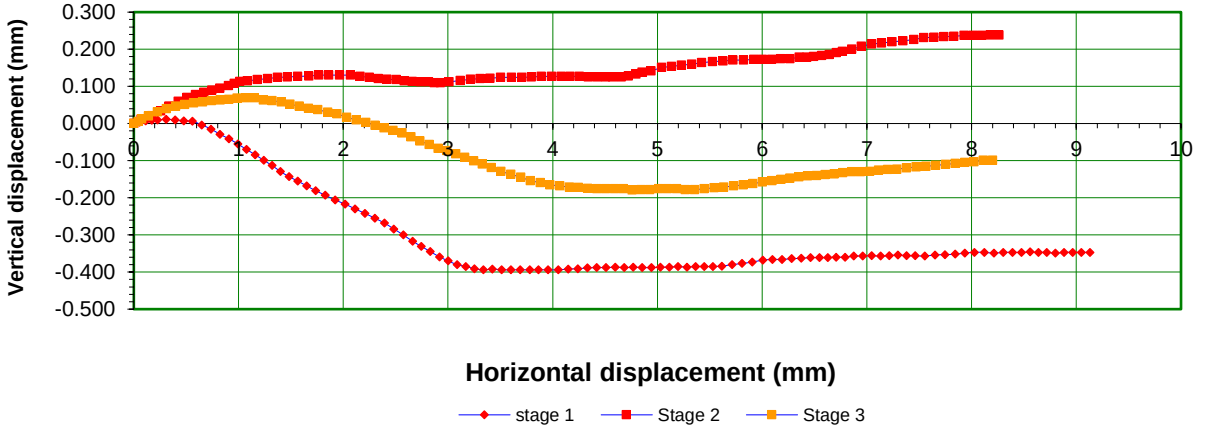
NM T L Ltd	Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
			BH/TP	TP68905
	Project	WSP Eastern & Midlands Region-2021OY102	Sample No.	B5
Operator Sb	Checked Nc	Approved Bc	Depth.	2.40-2.70m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
				BH/TP	TP68905
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No.	B5
Operator Sb	Checked	Nc	Approved Bc	Depth.	2.40-2.70m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5kg Rammer at natural moisture content**
Sample screened on 2.0mm Sieve

Description **Grey slightly silty very sandy GRAVEL.**

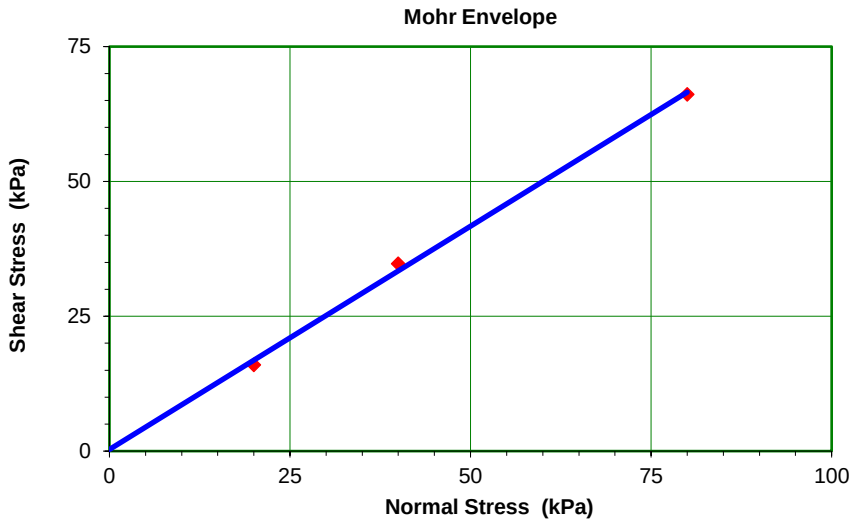
Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	324.7	324.0	324.8
Dry soil	gms	160.1	159.3	160.1
Wet soil	gms	170.4	169.7	170.5
Dry soil	gms	160.1	159.3	160.1
Water	gms	10.3	10.4	10.4
Moisture Content (%)		6.4	6.5	6.5
Bulk Density (Mg/m3)		1.92	1.92	1.93
Dry density (Mg/m3)		1.81	1.80	1.81
Voids ratio e		0.4934	0.5011	0.4933
Degree of saturation (%)		35.1	35.3	35.5

Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	24.6
Volume	V cm3	88.56
Particle density	Mg/m3	2.70

Final Details

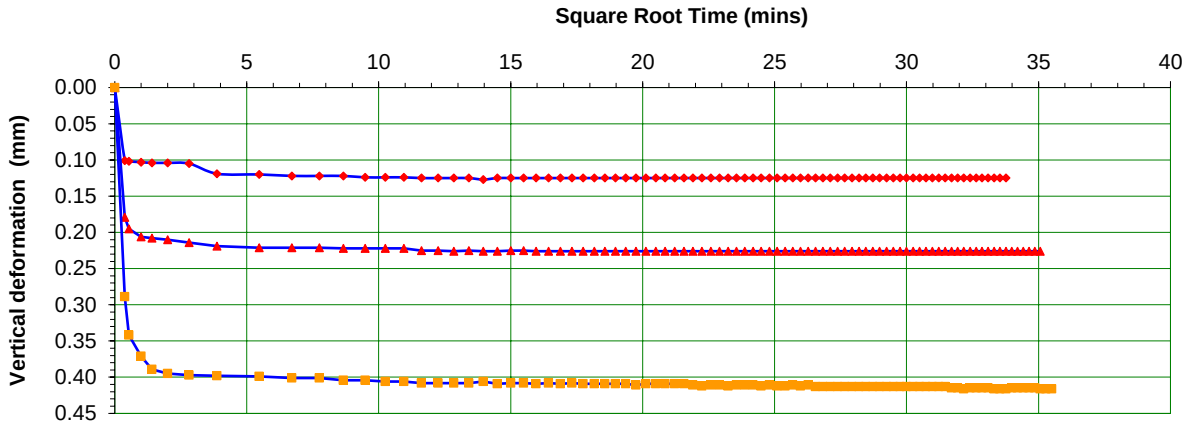
	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	20	40	80
Shear stress (kPa)	16.0	34.7	66.1
Horizontal Displacement (mm)	3.474	3.114	2.031
Vertical displacement (mm)	-0.367	-0.334	-0.213
Rate of displacement (mm/min)		0.0060	

Date sampled	n/a		Peak
Date received	26/10/2022	Cohesion c' (kPa)	0.31
Date tested	09/11/2022	Friction angle phi'	39.6°

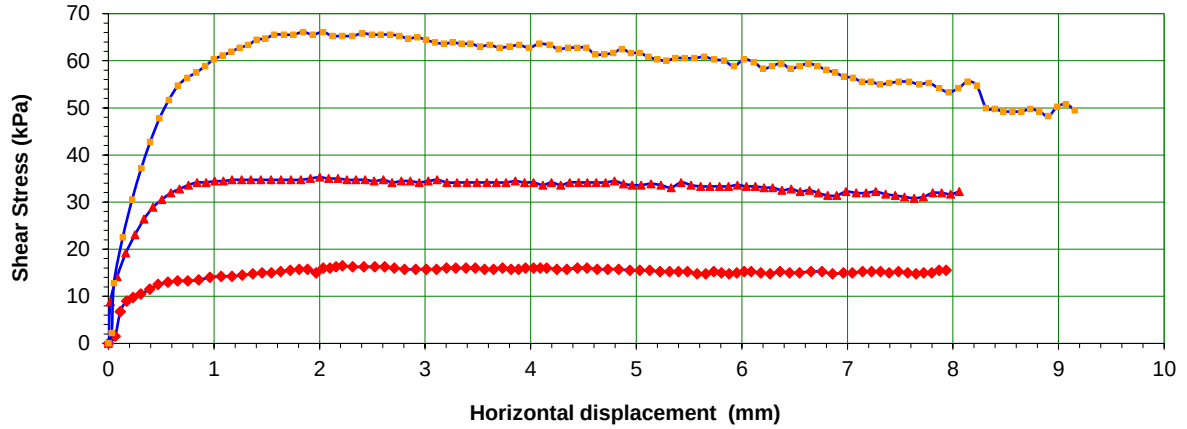


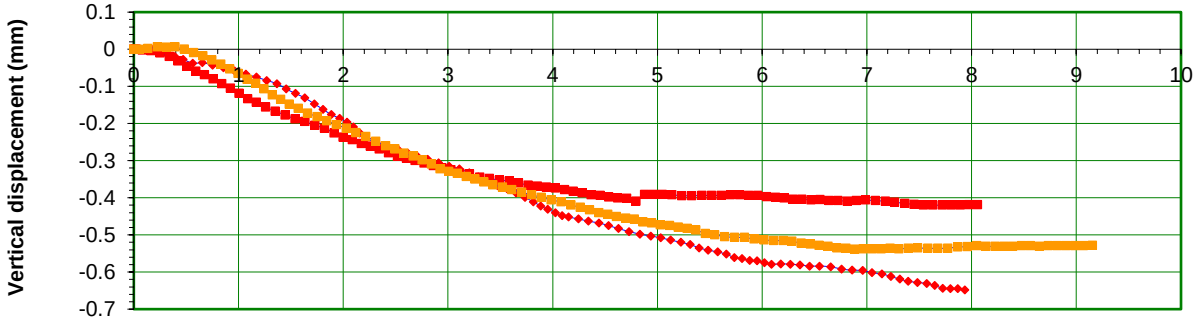
NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No. NMTL_3589
				BH/TP TP70104
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No. B2
Operator Sb	Checked	Nc	Approved Bc	Depth. 1.0-1.30m

CONSOLIDATION STAGE



SHEAR STAGE





Horizontal displacement (mm)

stage 1 — Stage 2 — Stage 3

NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
				BH/TP	TP70104
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No.	B2
Operator Sb	Checked	Nc	Approved Bc	Depth.	1.0-1.30m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5kg Rammer at natural moisture content**
Sample screened on 2.0mm Sieve

Description **Grey slightly silty very sandy GRAVEL.**

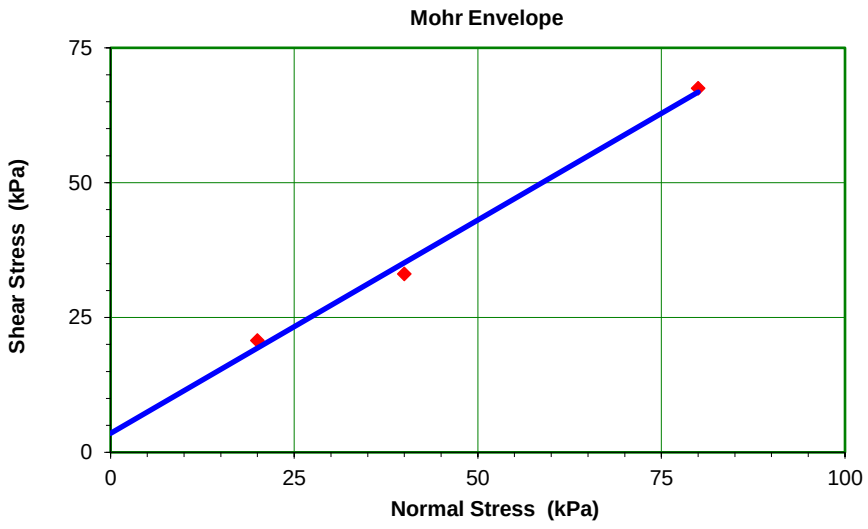
Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	338.5	339.3	338.4
Dry soil	gms	165.7	166.7	165.5
Wet soil	gms	184.2	185.0	184.2
Dry soil	gms	165.7	166.7	165.5
Water	gms	18.6	18.3	18.7
Moisture Content (%)		11.2	11.0	11.3
Bulk Density (Mg/m3)		2.08	2.09	2.08
Dry density (Mg/m3)		1.87	1.88	1.87
Voids ratio e		0.4434	0.4348	0.4451
Degree of saturation (%)		68.3	68.3	68.5

Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	24.6
Volume	V cm3	88.56
Particle density	Mg/m3	2.70

Final Details

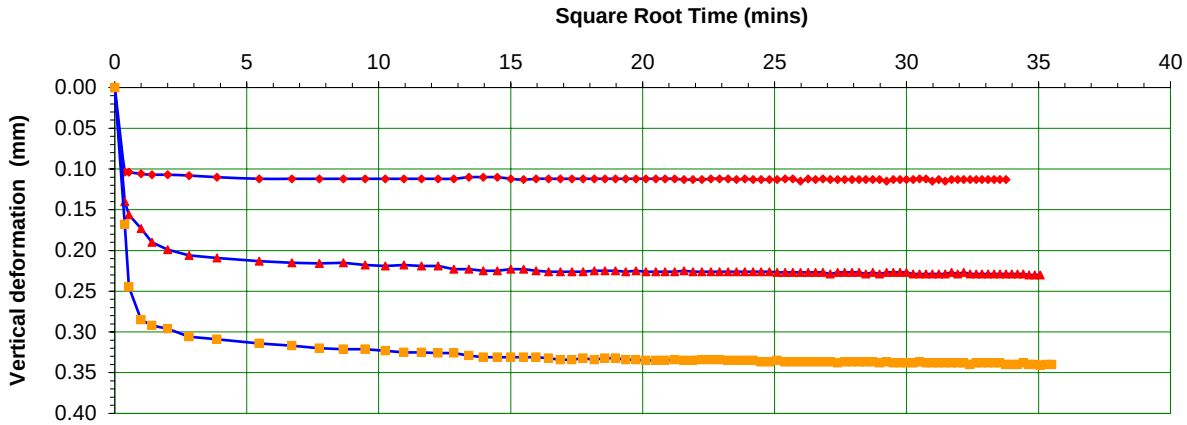
	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	20	40	80
Shear stress (kPa)	20.8	33.1	67.5
Horizontal Displacement (mm)	1.808	2.321	3.274
Vertical displacement (mm)	-0.223	-0.120	-0.162
Rate of displacement (mm/min)		0.0060	

Date sampled	n/a		Peak
Date received	26/10/2022	Cohesion c' (kPa)	3.53
Date tested	11/11/2022	Friction angle phi'	38.2°

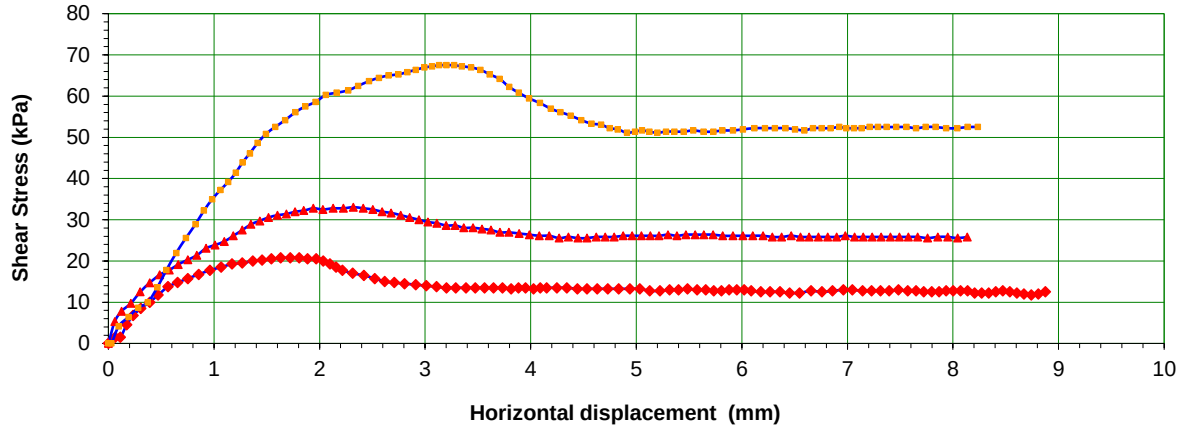


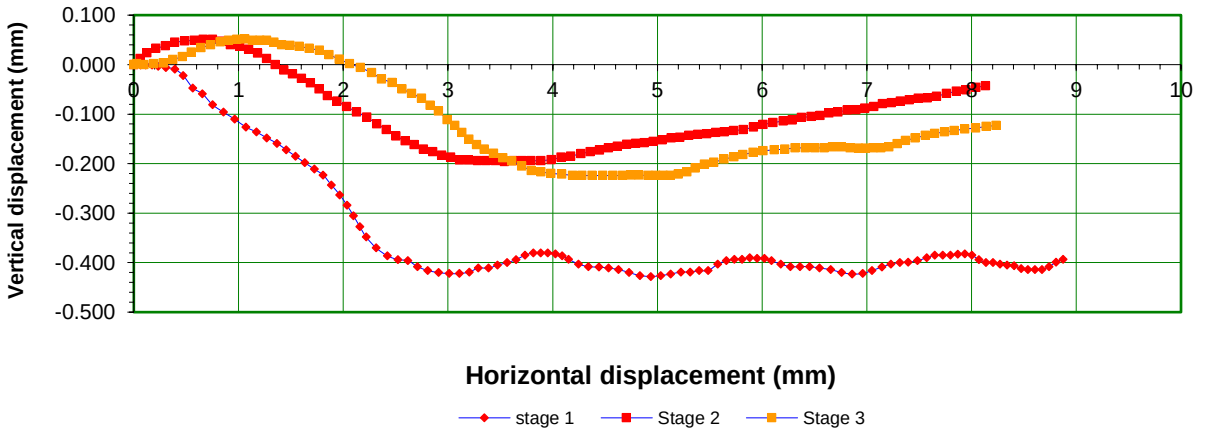
NM T L Ltd	Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
			BH/TP	TP75197
	Project	WSP Eastern & Midlands Region-2021OY102	Sample No.	B5
Operator Sb	Checked Nc	Approved Bc	Depth.	1.30-1.60m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
				BH/TP	TP75197
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No.	B5
Operator Sb	Checked	Nc	Approved Bc	Depth.	1.30-1.60m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5kg Rammer at natural moisture content**
Sample screened on 2.0mm Sieve

Description **Brown/grey slightly sandy slightly gravelly clayey SILT.**

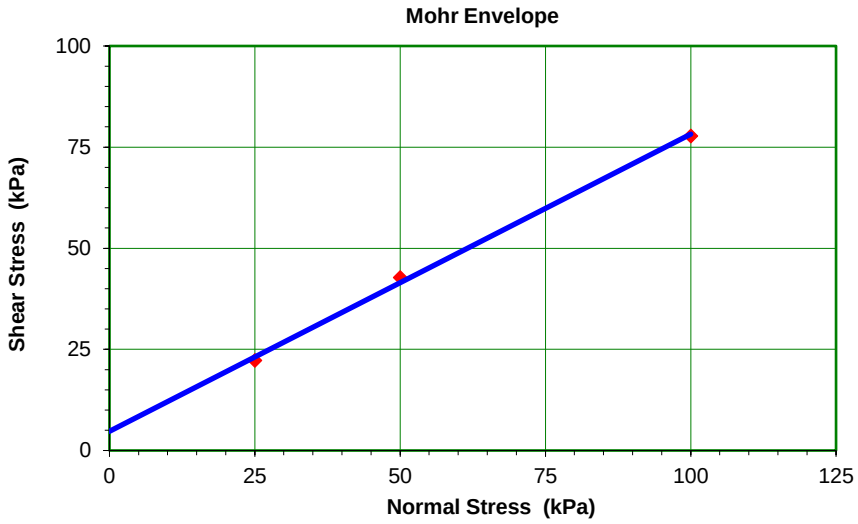
Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	345.8	345.9	345.8
Dry soil	gms	172.2	172.2	172.2
Wet soil	gms	191.5	191.6	191.5
Dry soil	gms	172.2	172.2	172.2
Water	gms	19.3	19.4	19.3
Moisture Content (%)		11.2	11.3	11.2
Bulk Density (Mg/m3)		2.16	2.16	2.16
Dry density (Mg/m3)		1.94	1.94	1.94
Voids ratio e		0.3884	0.3886	0.3884
Degree of saturation (%)		78.0	78.3	78.0

Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	24.6
Volume	V cm3	88.56
Particle density	Mg/m3	2.70

Final Details

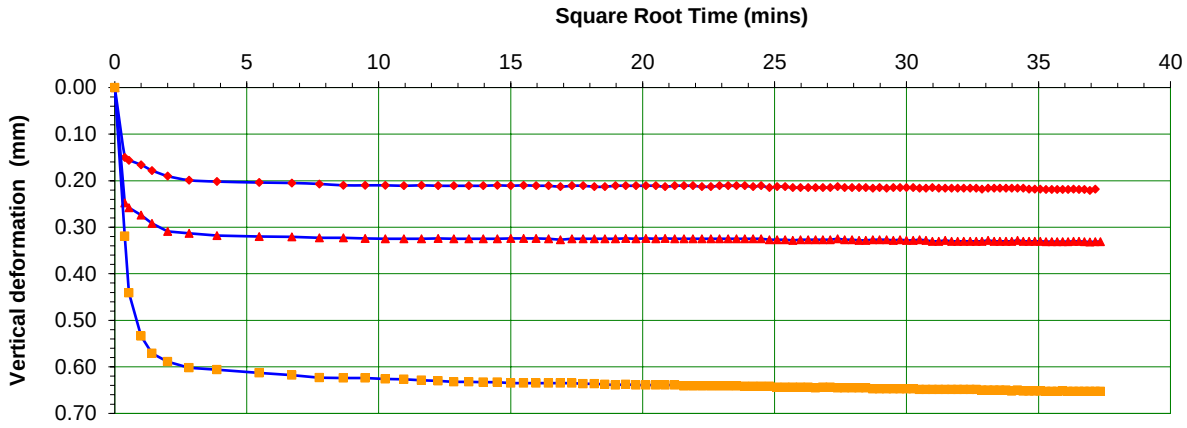
	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	25	50	100
Shear stress (kPa)	22.3	42.8	77.8
Horizontal Displacement (mm)	2.051	2.189	2.827
Vertical displacement (mm)	-0.216	-0.115	-0.034
Rate of displacement (mm/min)		0.0060	

Date sampled	n/a		Peak
Date received	26/10/2022	Cohesion c' (kPa)	4.75
Date tested	13/11/2022	Friction angle phi'	36.3°

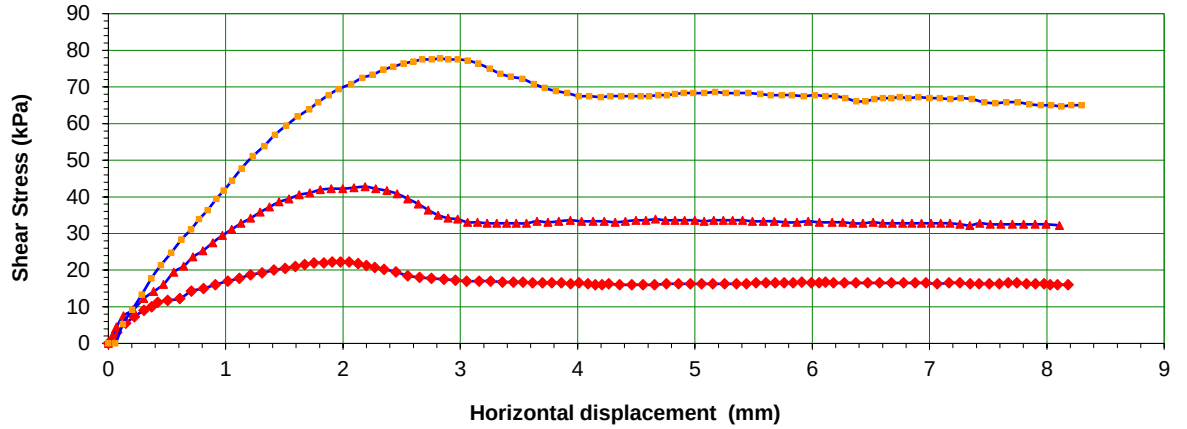


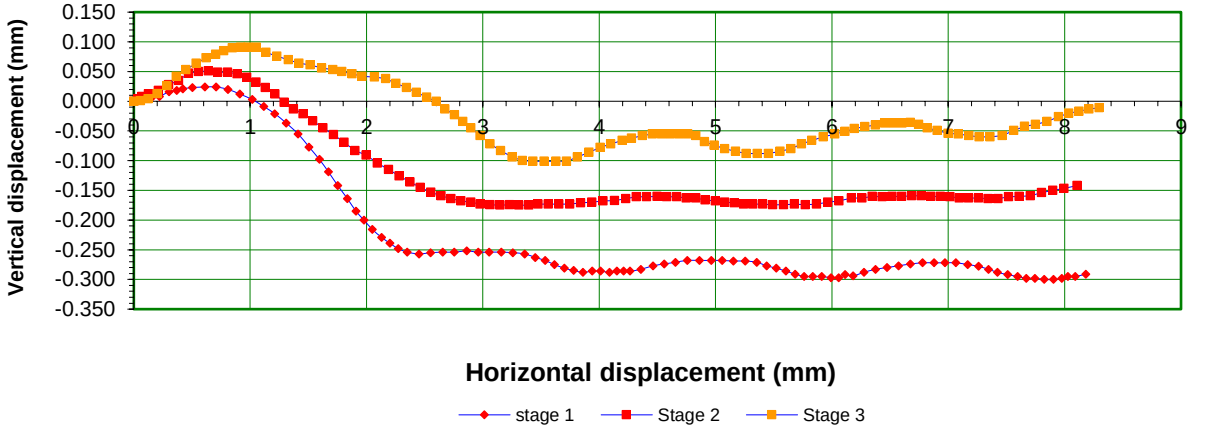
NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No. NMTL_3589
				BH/TP TP75197
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No B7
Operator Sb	Checked	Nc	Approved Bc	Depth. 2.50-2.80m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
				BH/TP	TP75197
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No.	B7
Operator Sb	Checked	Nc	Approved Bc	Depth.	2.50-2.80m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5kg Rammer at natural moisture content**
Sample screened on 2.0mm Sieve
Description **Brown/grey slightly sandy slightly gravelly silty CLAY**

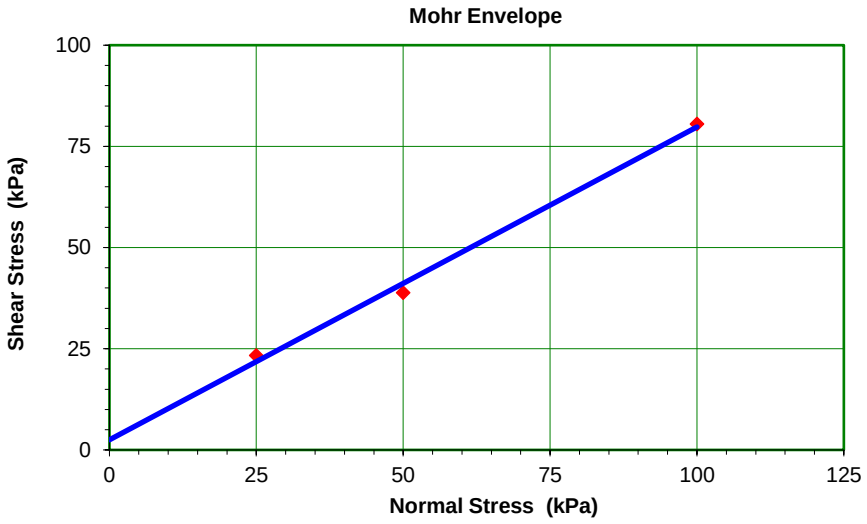
Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	349.8	350.7	350.8
Dry soil	gms	173.8	174.6	174.9
Wet soil	gms	195.5	196.4	196.5
Dry soil	gms	173.8	174.6	174.9
Water	gms	21.7	21.9	21.6
Moisture Content (%)		12.5	12.5	12.4
Bulk Density (Mg/m3)		2.21	2.22	2.22
Dry density (Mg/m3)		1.96	1.97	1.97
Voids ratio e		0.3761	0.3698	0.3675
Degree of saturation (%)		89.7	91.5	90.8

Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	24.6
Volume	V cm3	88.56
Particle density	Mg/m3	2.70

Final Details

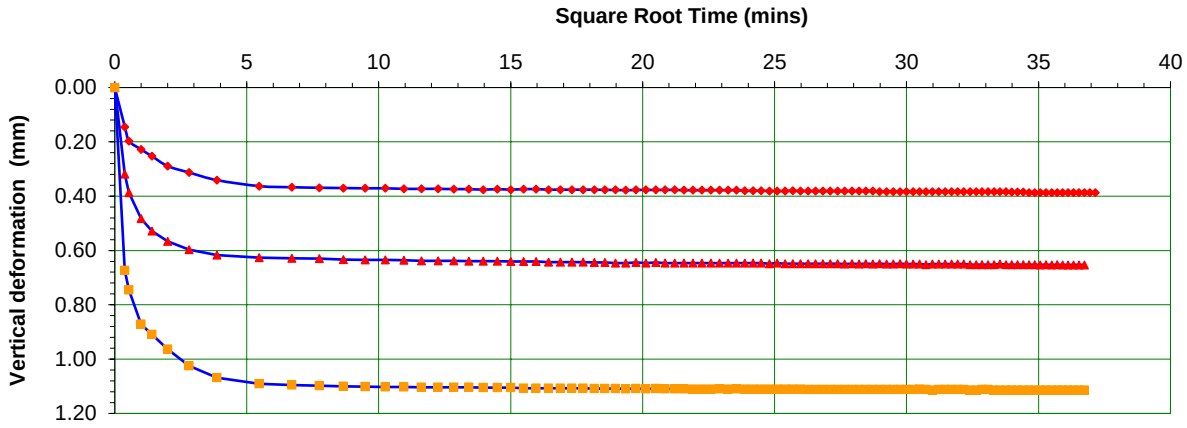
	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	25	50	100
Shear stress (kPa)	23.3	38.9	80.6
Horizontal Displacement (mm)	2.189	1.282	1.890
Vertical displacement (mm)	-0.070	-0.066	-0.075
Rate of displacement (mm/min)		0.0060	

Date sampled	n/a		Peak
Date received	26/10/2022	Cohesion c' (kPa)	2.5
Date tested	16/11/2022	Friction angle phi'	37.7°

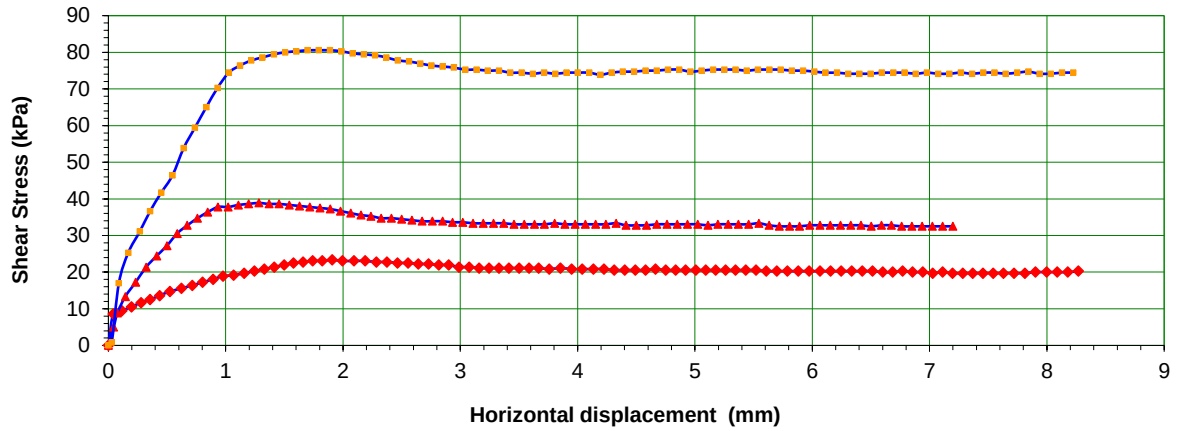


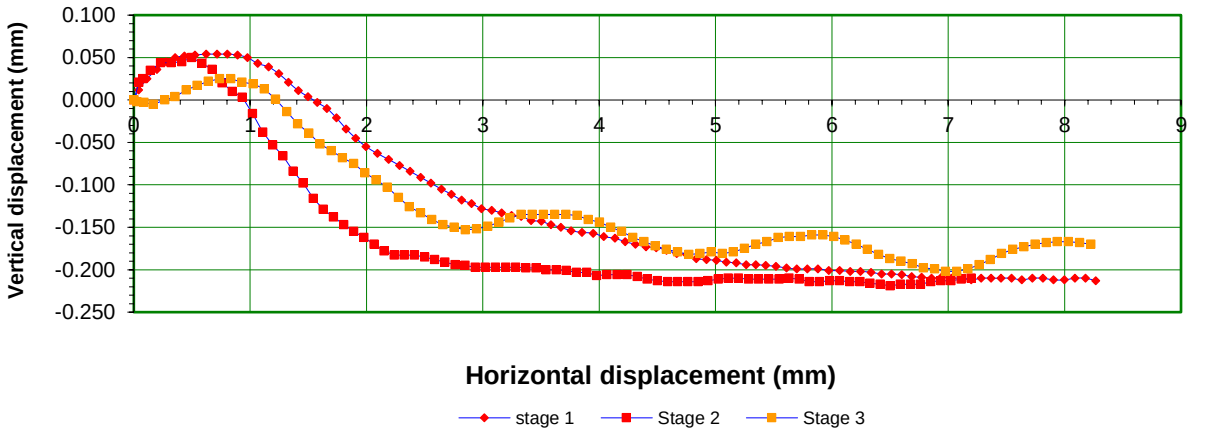
NM T L Ltd	Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
			BH/TP	TP75404
	Project	WSP Eastern & Midlands Region-2021OY102	Sample No.	B5
Operator Sb	Checked Nc	Approved Bc	Depth.	2.00-2.30m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3589
				BH/TP	TP75404
	Project	WSP Eastern & Midlands Region-2021OY102		Sample No.	B5
Operator Sb	Checked	Nc	Approved Bc	Depth.	2.00-2.30m

Determination of shear strength using the Small Shear Box Apparatus

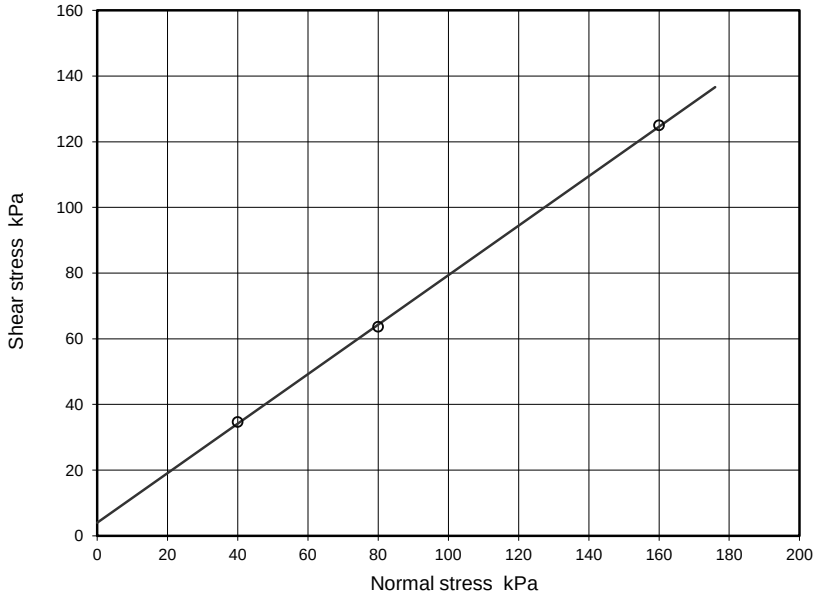
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular)			Depth m	3.90
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	27/10/2022
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	28/10/2022
				Job Ref	32282
				Borehole/Pit No.	TP-91012

Specimen Details

		Test No.	1	2	3				
Initial	Height		20.0	20.0	20.0				mm
	Bulk Density		2.29	2.30	2.31				Mg/m³
	Moisture Content		11.1	11.1	11.1				%
	Dry density		2.06	2.07	2.08				Mg/m³
	Voids ratio		0.286	0.280	0.274				
	Degree of Saturation		103	105	107				%
Consolidation	Consolidation / Normal Stress applied		**40**	**80**	**160**				kPa
	Change in height during consolidation*		-0.633	-0.935	-1.197				mm
	Voids ratio after consolidation		0.245	0.220	0.198				
After test	Final Moisture content		10.4	10.2	9.5				

Shearing stage(s)

Rate of displacement	Peak	0.01500	0.01500	0.01500				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	1.77	2.68	2.70				mm
	Shear stress	34.6	63.6	124.9				kPa
	Vertical Movement at peak shear stress*	-0.73	-1.16	-1.37				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	4	-
Ø '	degrees	37	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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Date 15/12/2022

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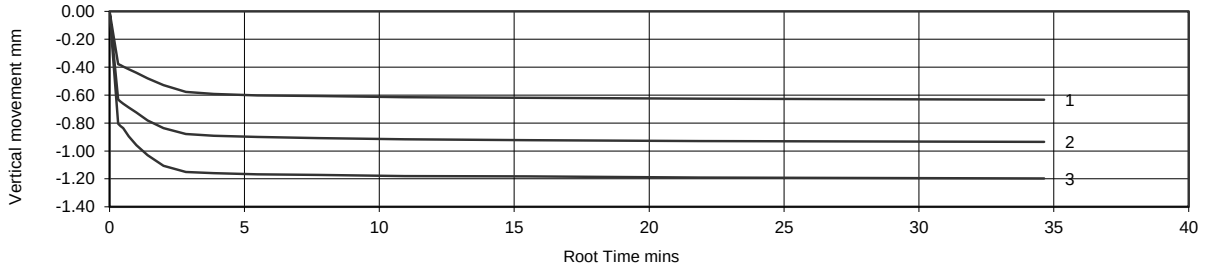
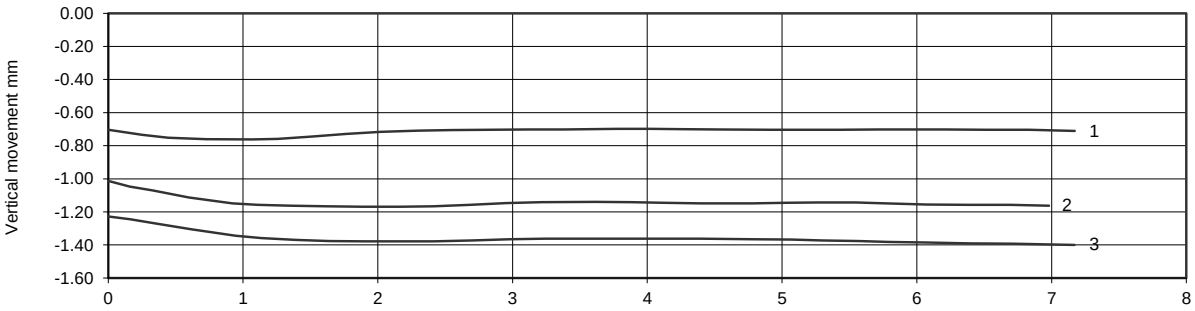
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

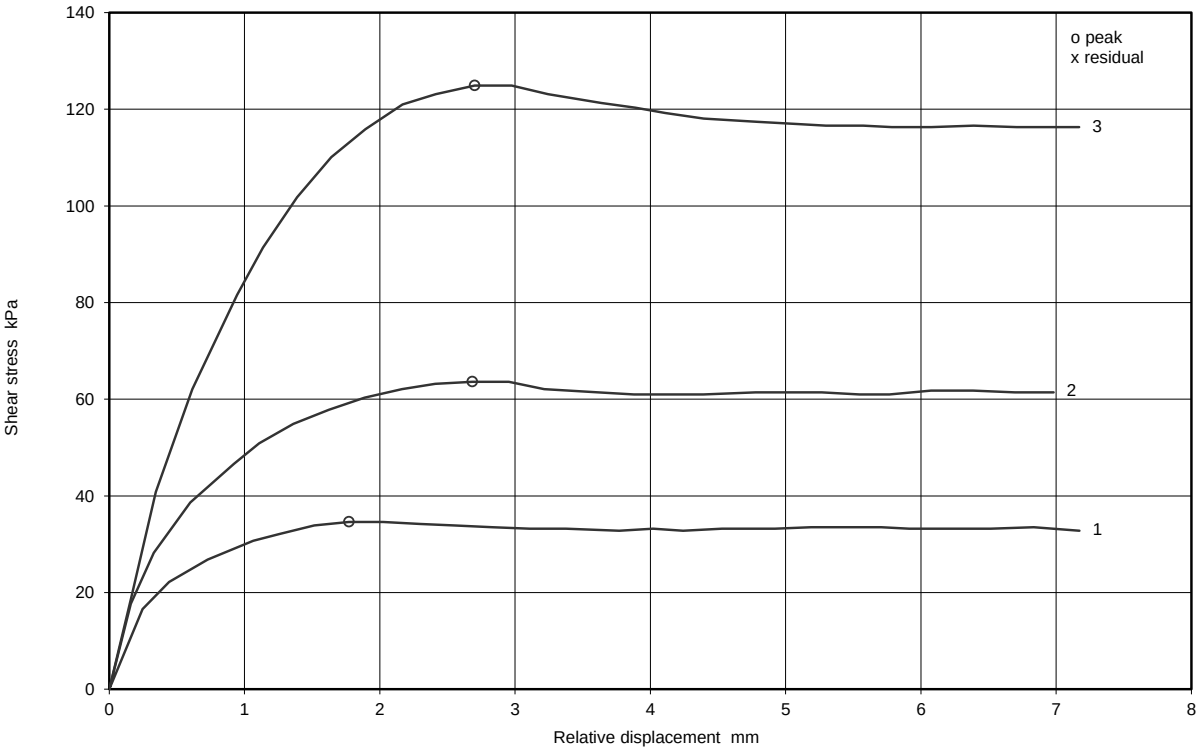
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	TP-91012
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Grey slightly sandy gravelly very silty CLAY (gravel is fmc and sub-angular)			Depth m	3.90
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	27/10/2022

Consolidation stage(s)



Shearing stage(s)





*Note : Vertical movement/change in height is recorded as negative for reduced height (settlement) and positive for increased height (swell).

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Determination of shear strength using the Small Shear Box Apparatus

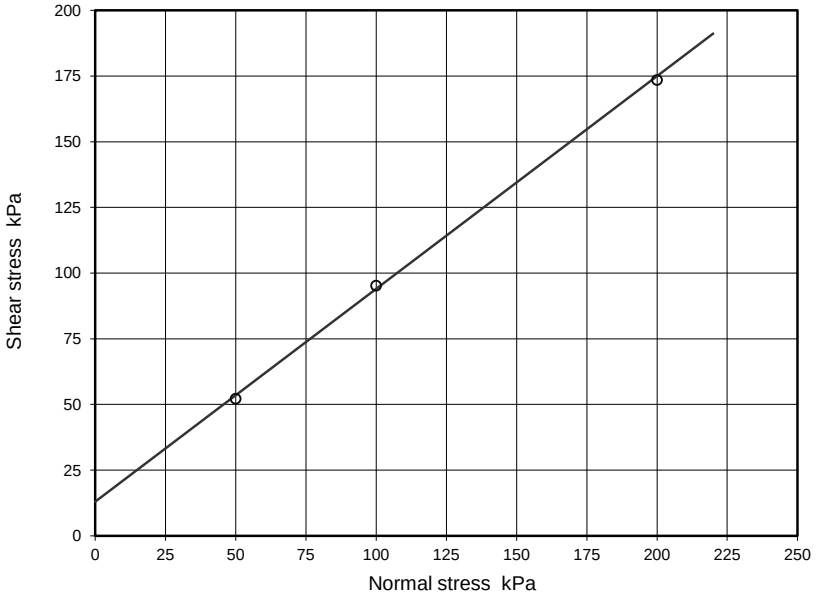
				Job Ref	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Soil Description	Grey clayey silty sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth m	3.20
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	16/08/2022
				Schedule received	13/08/2022
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	06/12/2022
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	09/12/2022

Specimen Details

		Test No.	1	2	3				
Initial	Height		20.0	20.0	20.0				mm
	Bulk Density		2.30	2.34	2.35				Mg/m³
	Moisture Content		11.2	11.2	11.2				%
	Dry density		2.07	2.10	2.11				Mg/m³
	Voids ratio		0.290	0.271	0.265				
	Degree of Saturation		103	110	113				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.356	-0.526	-0.878				mm
	Voids ratio after consolidation		0.267	0.238	0.209				
After test	Final Moisture content		12.0	10.7	10.9				

Shearing stage(s)

Rate of displacement	Peak	0.02000	0.02000	0.02000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	2.58	2.45	2.94				mm
	Shear stress	52.1	95.1	173.4				kPa
	Vertical Movement at peak shear stress*	-0.18	-0.27	-0.96				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	13	-
Ø '	degrees	39	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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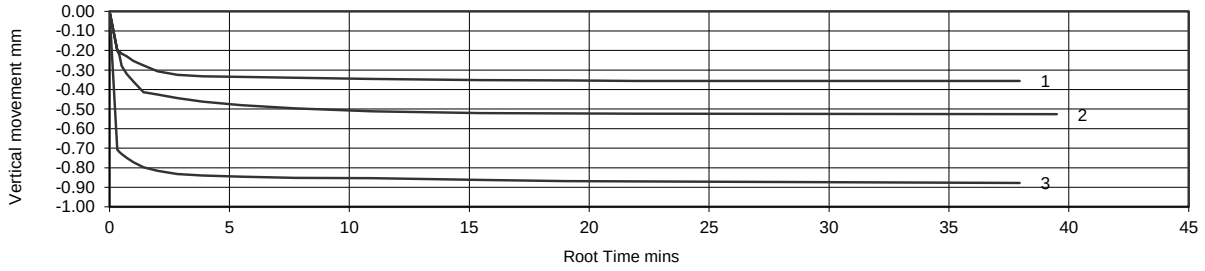
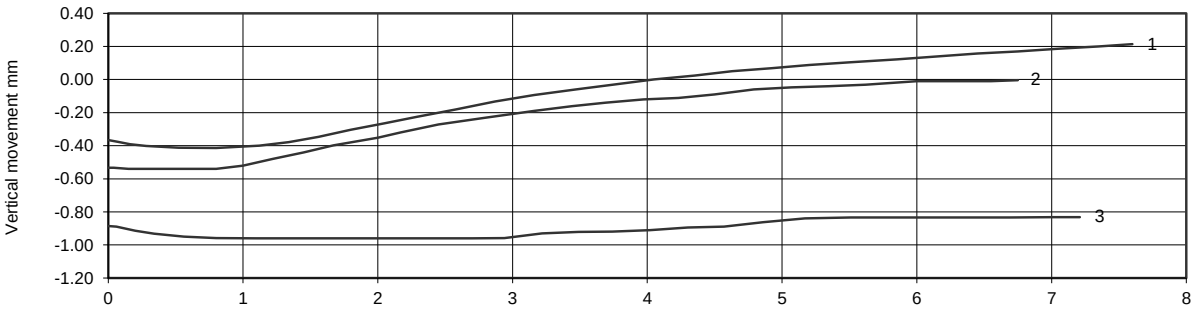
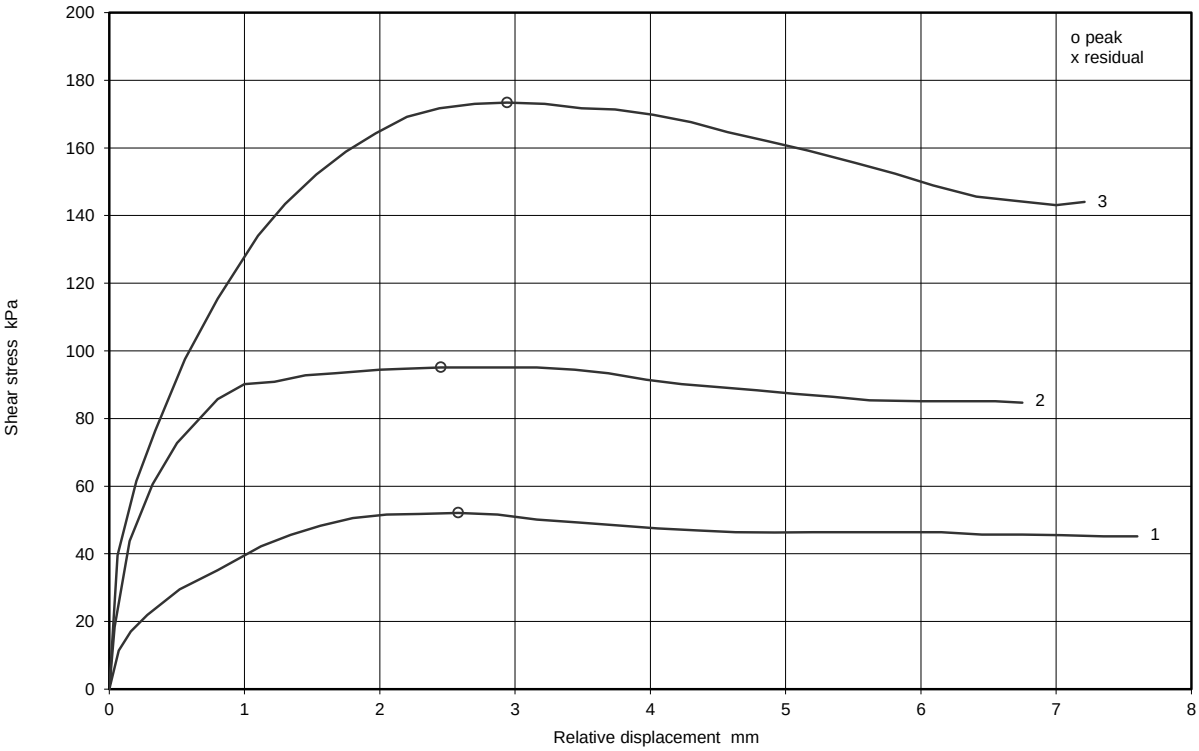
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32282
				Borehole/Pit No.	TP-91305
Site Name	WSP Eastern & Midlands Region			Sample No.	6
Soil Description	Grey clayey silty sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth m	3.20
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	06/12/2022

Consolidation stage(s)



Shearing stage(s)





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Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - Multistage test

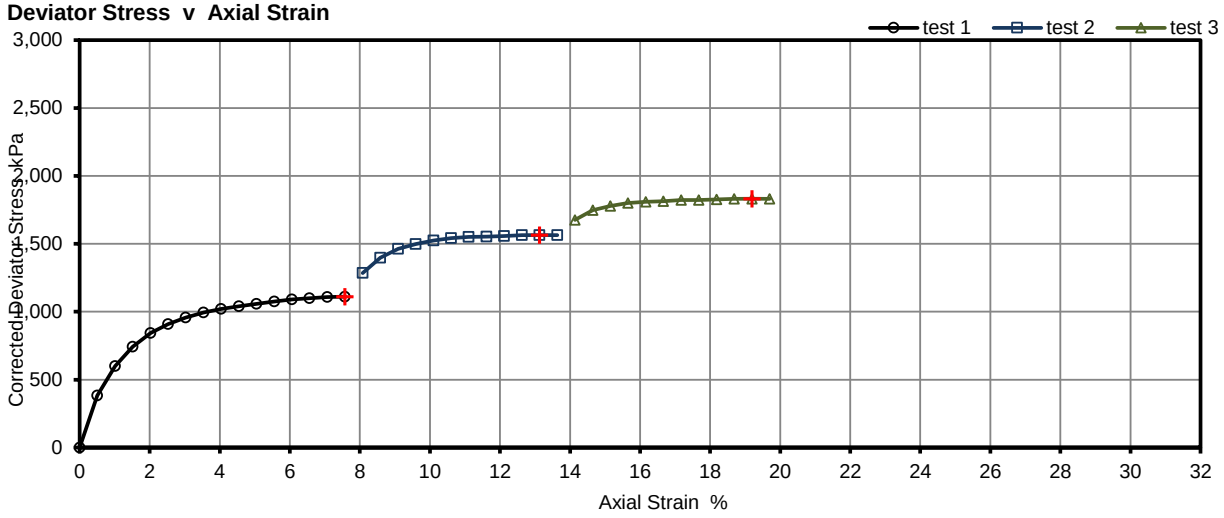
Job Ref	32840				
Borehole/Pit No.	BH-87006				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	8.00 m
Soil Description	Extremely high strength dark grey slightly sandy gravelly silty CLAY with numerous cobbles (gravel is fmc and angular to sub-rounded)			Depth Base	9.50 m
				Sample Type	C
				Samples received	10/01/2023
				Schedules received	10/01/2023
Test Method	BS1377:Part 7:1990, clause 9, multistage test on a single specimen			Date of test	12/01/2023

Remarks

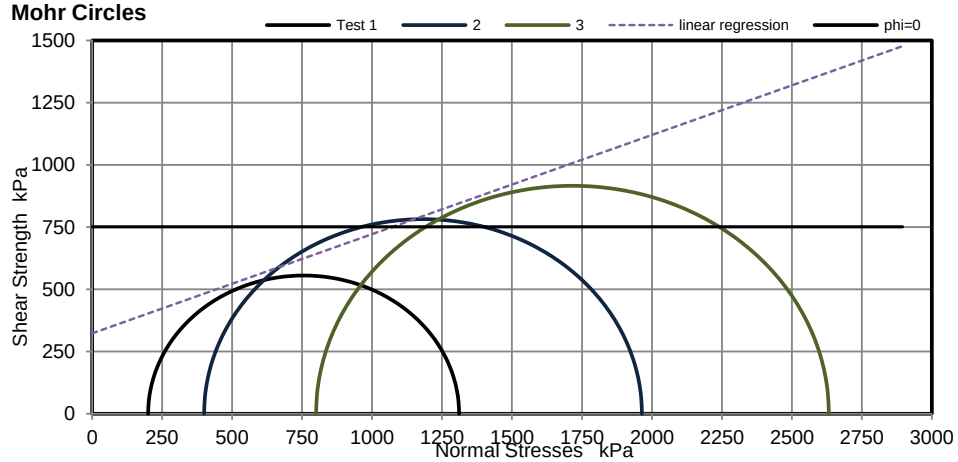
Length	mm	198.0		
Diameter	mm	102.0		
Bulk Density	Mg/m3	2.30		
Moisture Content	%	7.0		
Dry Density	Mg/m3	2.15		
Rate of Strain	%/min	2.00		
Stage Number		1	2	3
Cell Pressure	kPa	200	400	800
Axial Strain	%	7.6	13	19
Deviator Stress, (σ1 - σ3)f	kPa	1111	1564	1832
Shear strength, cu	kPa	556	782	916
Mode of failure		Compound		

Position within sample

Deviator Stress v Axial Strain



Mohr Circles



ϕu = 0

Average cu 751 kPa

Linear Regression

ϕu 21.7 °

cu 323 kPa

Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Test Report by K4 SOILS LABORATORY
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Checked and Approved

Initials: J.P

Date: 23/01/2023

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Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - Multistage test

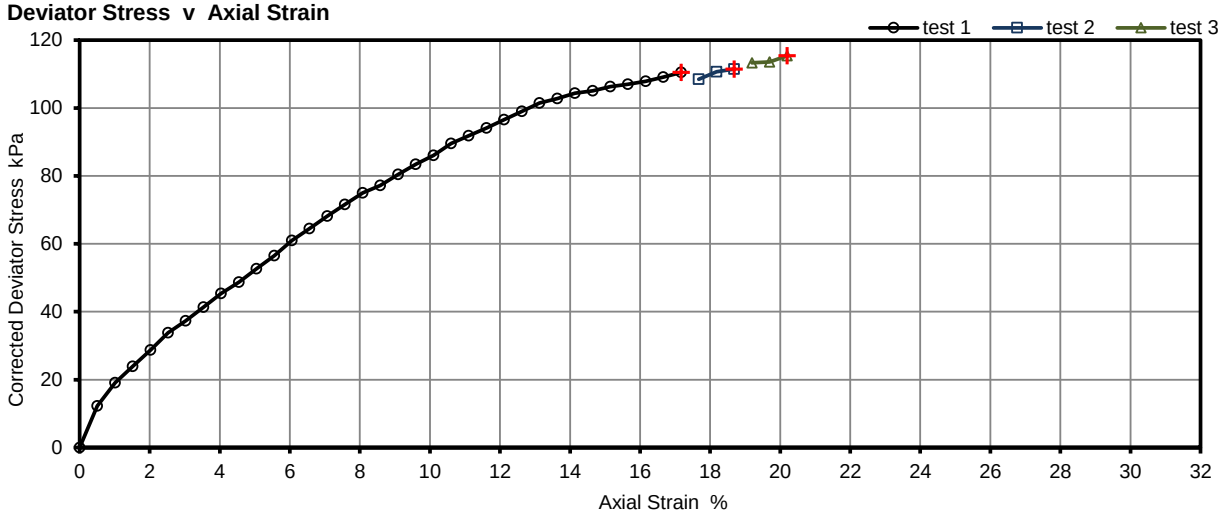
Job Ref	32840				
Borehole/Pit No.	BH-49513				
Site Name	WSP Eastern & Midlands Region			Sample No.	8
Project No.	2021OY102	Client	Irish Drilling	Depth Top	3.00 m
Soil Description	Medium strength reddish brown slightly organic silty CLAY with rare sub-rounded cobbles			Depth Base	3.45 m
				Sample Type	U
				Samples received	10/01/2023
				Schedules received	10/01/2023
Test Method	BS1377:Part 7:1990, clause 9, multistage test on a single specimen			Date of test	12/01/2023

Remarks

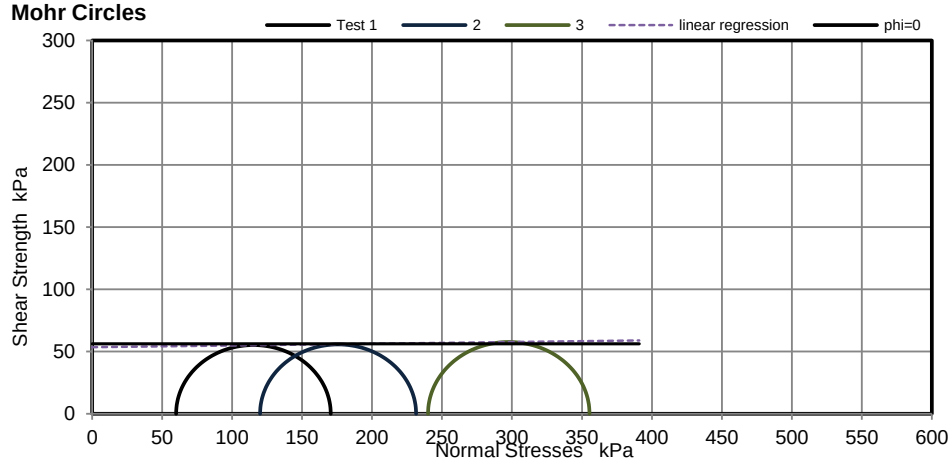
Length	mm	198.0		
Diameter	mm	102.0		
Bulk Density	Mg/m3	2.08		
Moisture Content	%	31		
Dry Density	Mg/m3	1.58		
Rate of Strain	%/min	2.00		
Stage Number		1	2	3
Cell Pressure	kPa	60	120	240
Axial Strain	%	17	19	20
Deviator Stress, (σ1 - σ3)f	kPa	110	111	115
Shear strength, cu	kPa	55	56	58
Mode of failure		Compound		

Position within sample

Deviator Stress v Axial Strain



Mohr Circles



ϕu = 0

Average cu 56 kPa

Linear Regression

ϕu 0.8 °

cu 54 kPa

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Unconsolidated Undrained Triaxial Compression tests without measurement of pore pressure
Summary of Results

Tests carried out in accordance with BS1377:Part 7 : 1990 clause 8 or 9 as appropriate to test

Job No.	Project Name	Programme	
32840	WSP Eastern & Midlands Region	Samples received	10/01/2023
		Schedule received	10/01/2023
Project No.	Client	Project started	10/01/2023
2021OY102	Irish Drilling	Testing Started	12/01/2023

Hole No.	Sample Ref	Top m	Base m	Type	Soil Description	Test Type	Density bulk Mg/m3	Density dry Mg/m3	w %	Length mm	Diameter mm	σ3 kPa	At failure: Axial strain %	At failure: σ1 - σ3 kPa	At failure: cu kPa	At failure: Mode	Remarks
BH-87006	-	8.00	9.50	C	Extremely high strength dark grey slightly sandy gravelly silty CLAY with numerous cobbles (gravel is fmc and angular to sub-rounded)	UUM	2.30	2.15	7.0	198	102	200 400 800	7.6 13.1 19.2	1,111 1,564 1,832	556 782 916	C	
BH-49513	8	3.00	3.45	U	Medium strength reddish brown slightly organic silty CLAY with rare sub-rounded cobbles	UUM	2.08	1.58	31	198	102	60 120 240	17.2 18.7 20.2	110 111 115	55 56 58	C	
BH-97788	-	6.80	8.00	C	Cobble sized LIMESTONE fragments with grey silty clay pockets	-	-	-	-	-	-	-	-	-	-	-	Unsuitable for TXL

Legend
UU - single stage test (single and multiple specimens) | σ3 Cell pressure | Mode of failure ; B - Brittle
UUM - Multistage test on a single specimen | σ1 - σ3 Maximum corrected deviator stress | P - Plastic
suffix R - remoulded or recompacted | cu Undrained shear strength, ½ (σ1 - σ3) | C - Compound

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Date: 23/01/2023

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Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Light brown slightly sandy clayey GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	3.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	10/01/2023
				Schedule received	10/01/2023
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	12/01/2023
				Date completed	12/01/2023

Job Ref: 32840

Borehole/Pit No.: BH-48795

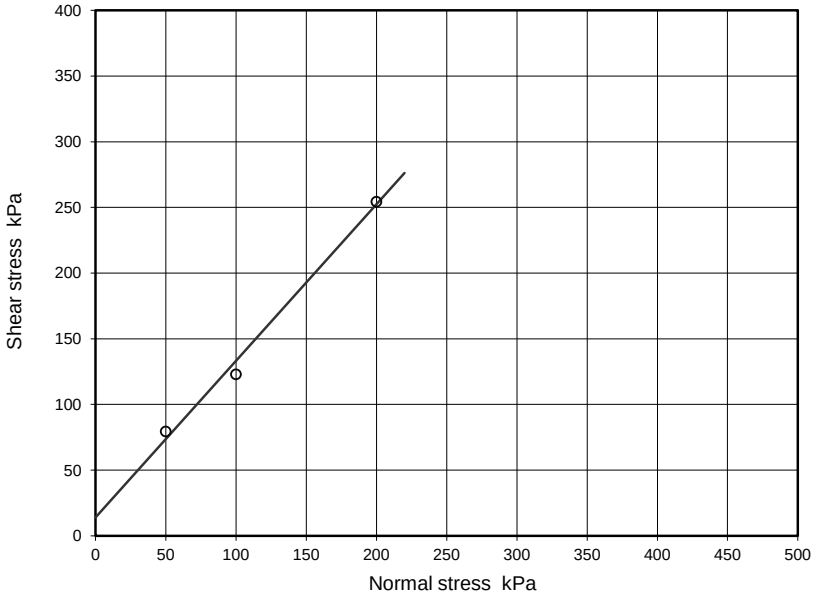
Preparation Details: Prepared in accordance with BS1377 : Part 7 : 1990, clause 4

Specimen Details

		Test No.	1	2	3				
Initial	Height		25.0	25.0	25.0				mm
	Bulk Density		2.16	2.16	2.16				Mg/m³
	Moisture Content		7.8	7.8	7.8				%
	Dry density		2.00	2.00	2.00				Mg/m³
	Voids ratio		0.335	0.335	0.335				
	Degree of Saturation		62	62	62				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.082	-0.204	-0.258				mm
	Voids ratio after consolidation		0.331	0.324	0.321				
After test	Final Moisture content		5.9	5.9	5.9				

Shearing stage(s)

Rate of displacement	Peak	0.50000	0.50000	0.50000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	3.75	3.75	4.50				mm
	Shear stress	79.3	122.8	254.2				kPa
	Vertical Movement at peak shear stress*	1.18	0.54	0.47				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	14	-
Ø '	degrees	50	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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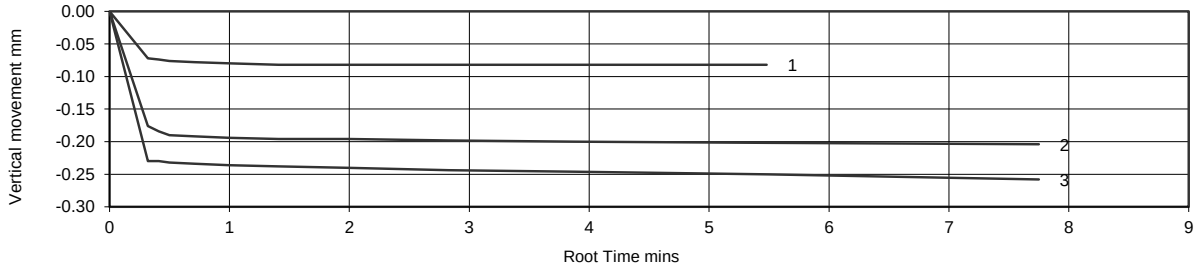
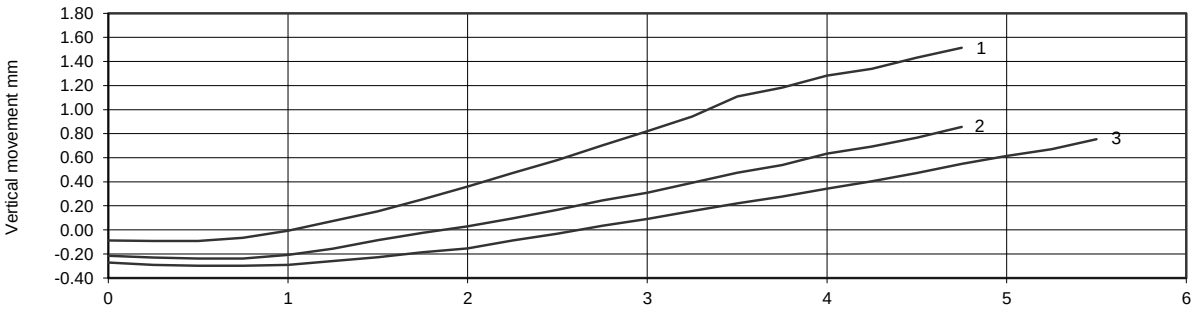
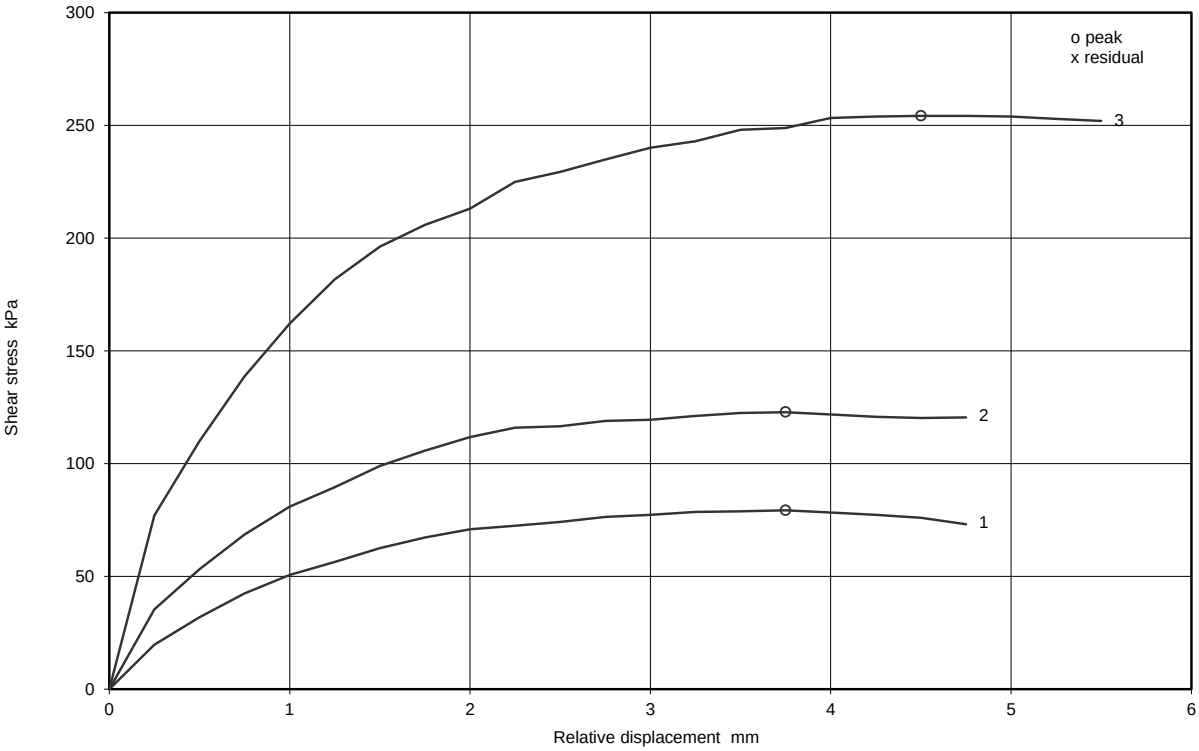
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32840
				Borehole/Pit No.	BH-48795
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Light brown slightly sandy clayey GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	3.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	12/01/2023

Consolidation stage(s)



Shearing stage(s)





*Note : Vertical movement/change in height is recorded as negative for reduced height (settlement) and positive for increased height (swell).

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2519 *Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)*

Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Job Ref	32840
				Borehole/Pit No.	BH-49513
				Sample No.	13
Soil Description	Bluish grey sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	4.50
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	10/01/2023
				Schedule received	10/01/2023
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	12/01/2023
				Date completed	13/01/2023

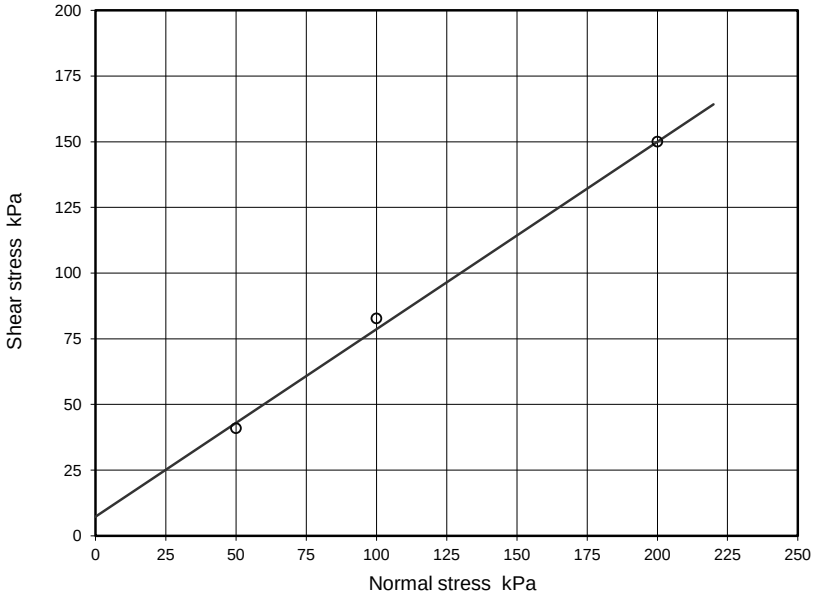
Preparation Details: Prepared in accordance with BS1377 : Part 7 : 1990, clause 4

Specimen Details

		Test No. 1	2	3				
Initial	Height	20.0	20.0	20.0				mm
	Bulk Density	1.70	1.70	1.71				Mg/m³
	Moisture Content	6.4	6.4	6.4				%
	Dry density	1.60	1.60	1.61				Mg/m³
	Voids ratio	0.663	0.663	0.652				
	Degree of Saturation	26	26	26				%
Consolidation	Consolidation / Normal Stress applied	**50**	**100**	**200**				kPa
	Change in height during consolidation*	-0.329	-0.528	-0.759				mm
	Voids ratio after consolidation	0.636	0.619	0.589				
After test	Final Moisture content	20.6	17.6	17.5				

Shearing stage(s)

Rate of displacement	Peak	0.02000	0.02000	0.02000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	3.00	3.41	3.84				mm
	Shear stress	40.9	82.7	149.9				kPa
	Vertical Movement at peak shear stress*	-0.17	-0.44	-0.90				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	7.3	-
Ø '	degrees	35.5	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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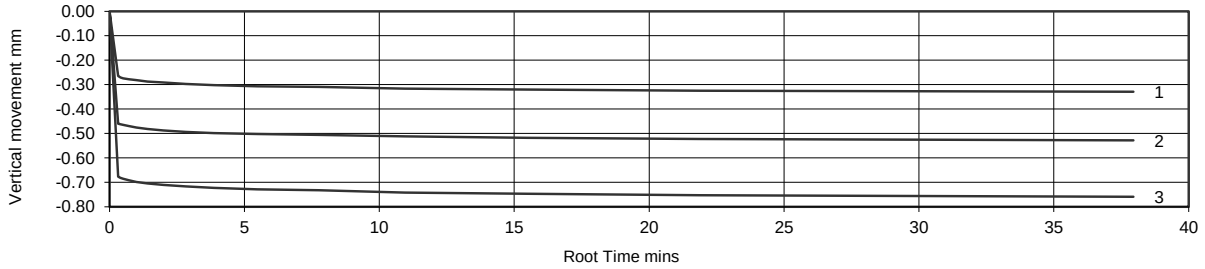
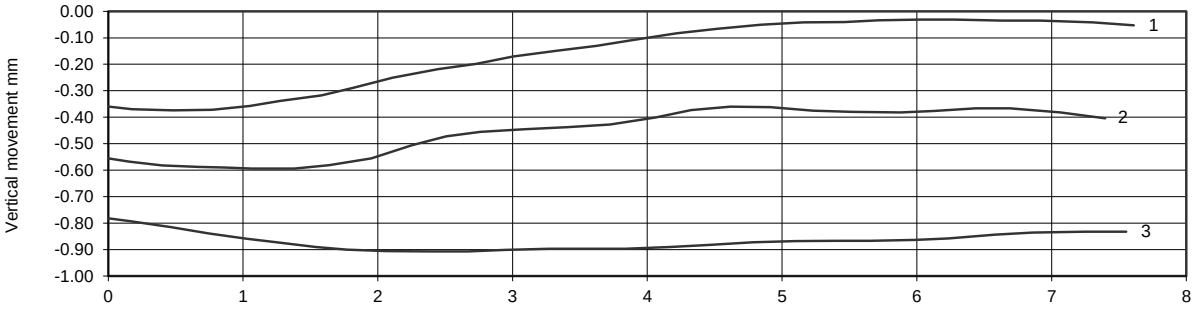
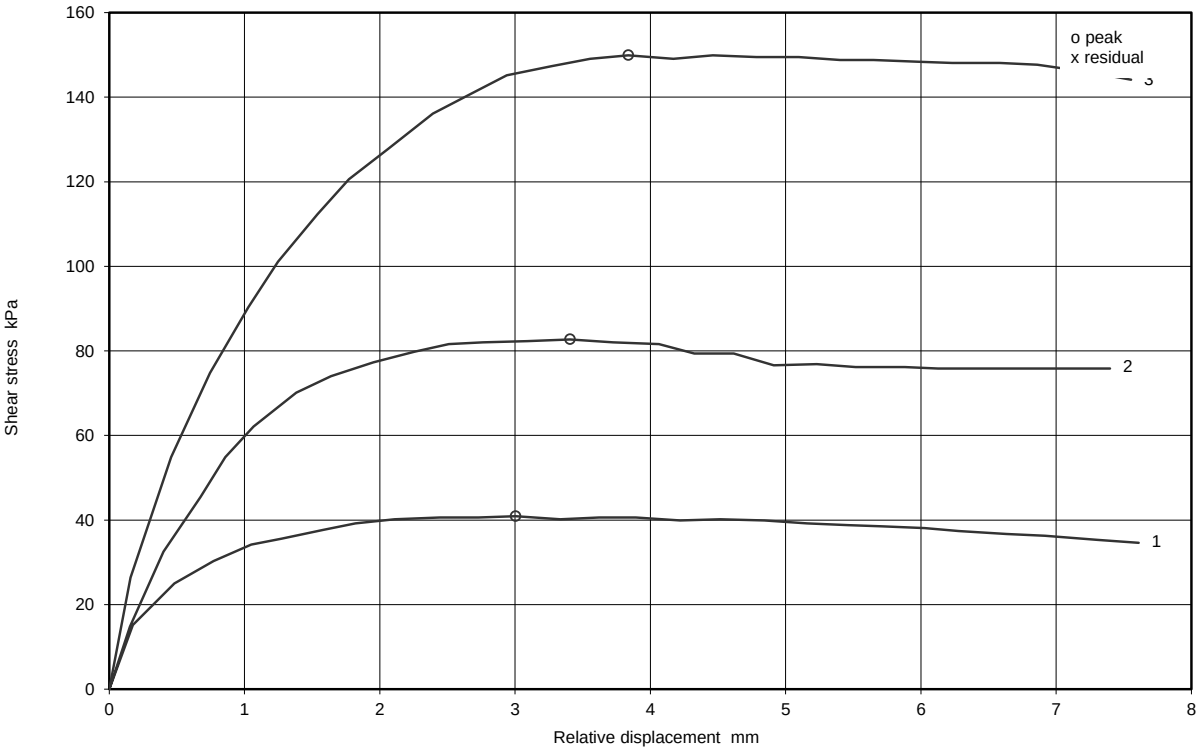
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32840
				Borehole/Pit No.	BH-49513
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Bluish grey sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	4.50
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	12/01/2023

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

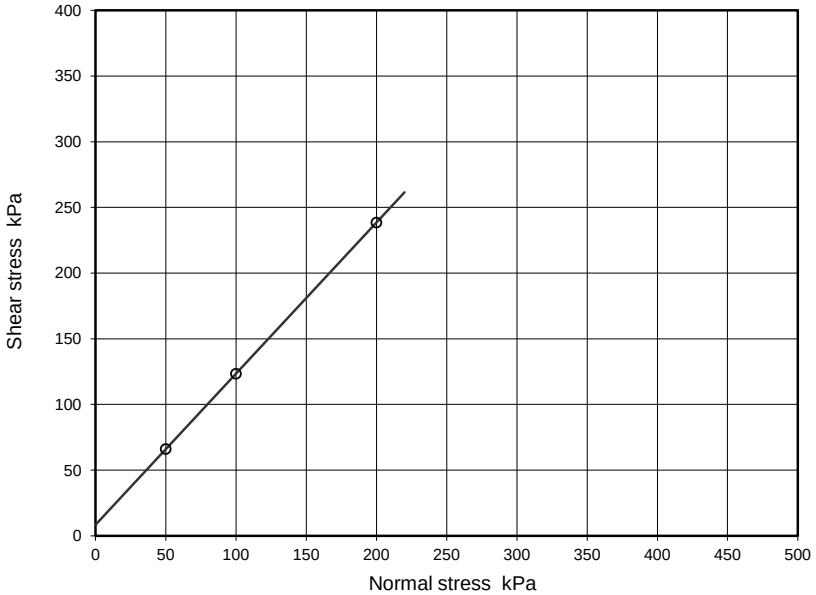
				Job Ref	32840
				Borehole/Pit No.	BH-52008
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and angular)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	10/01/2023
				Schedule received	10/01/2023
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	18/01/2023
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	19/01/2023

Specimen Details

		Test No.	1	2	3				
Initial	Height		20.0	20.0	20.0				mm
	Bulk Density		2.50	2.52	2.52				Mg/m³
	Moisture Content		9.1	9.1	9.1				%
	Dry density		2.29	2.31	2.31				Mg/m³
	Voids ratio		0.166	0.156	0.156				
	Degree of Saturation		146	156	156				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.732	-0.824	-1.152				mm
	Voids ratio after consolidation		0.123	0.108	0.089				
After test	Final Moisture content		9.8	9.5	9.3				

Shearing stage(s)

Rate of displacement	Peak	0.02000	0.02000	0.02000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	2.85	2.90	3.98				mm
	Shear stress	66.0	123.1	238.3				kPa
	Vertical Movement at peak shear stress*	-0.37	-0.49	-0.88				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	8.4	-
Ø '	degrees	49	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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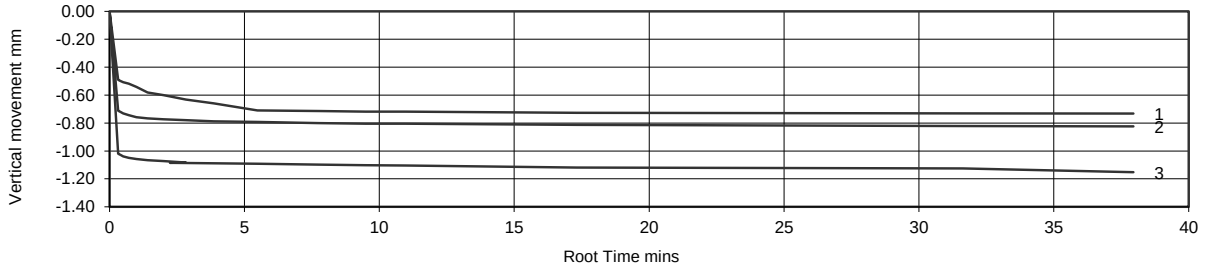
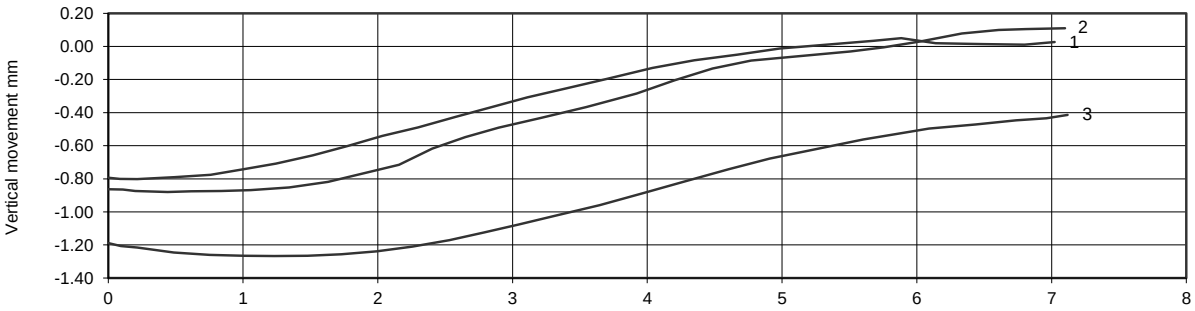
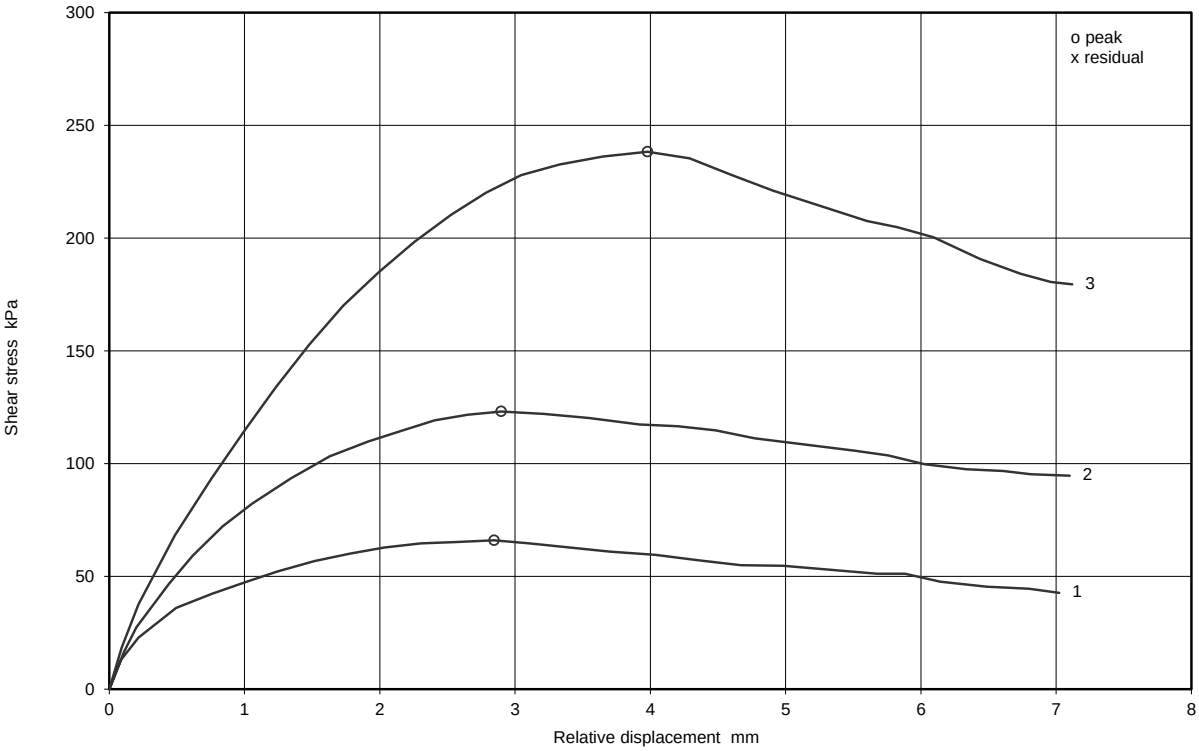
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32840
				Borehole/Pit No.	BH-52008
Site Name	WSP Eastern & Midlands Region			Sample No.	13
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and angular)			Depth m	4.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	18/01/2023

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Black and bluish grey sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	3.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	10/01/2023
				Schedule received	10/01/2023
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	13/01/2023
				Date completed	13/01/2023

Job Ref: 32840

Borehole/Pit No.: BH-55944

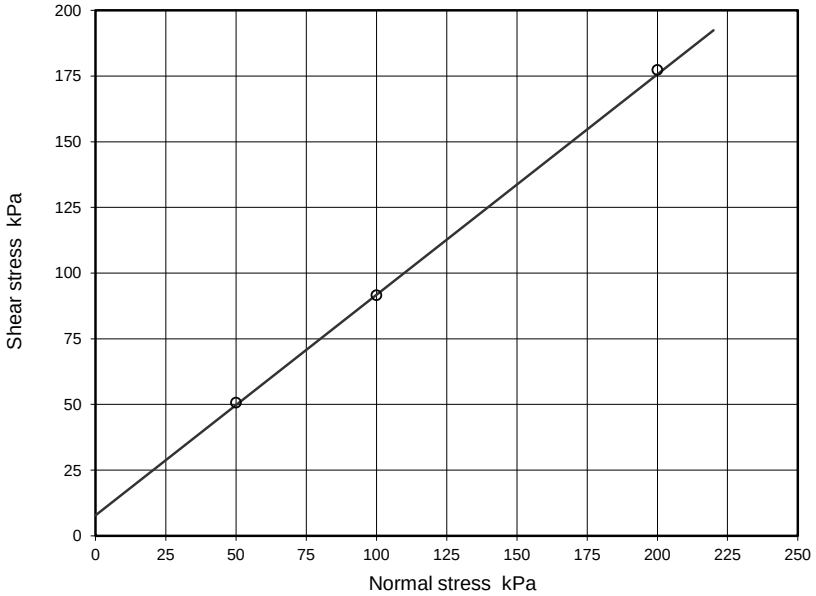
Preparation Details: Prepared in accordance with BS1377 : Part 7 : 1990, clause 4

Specimen Details

		Test No.	1	2	3				
Initial	Height		25.0	25.0	25.0				mm
	Bulk Density		1.86	1.86	1.86				Mg/m³
	Moisture Content		10.1	10.1	10.1				%
	Dry density		1.69	1.69	1.69				Mg/m³
	Voids ratio		0.574	0.574	0.574				
	Degree of Saturation		47	47	47				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.168	-0.230	-0.402				mm
	Voids ratio after consolidation		0.563	0.560	0.549				
After test	Final Moisture content		8.9	8.9	8.9				

Shearing stage(s)

Rate of displacement	Peak	0.50000	0.50000	0.50000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	2.75	3.00	3.75				mm
	Shear stress	50.6	91.5	177.2				kPa
	Vertical Movement at peak shear stress*	0.23	0.18	-0.07				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	7.8	-
Ø '	degrees	40	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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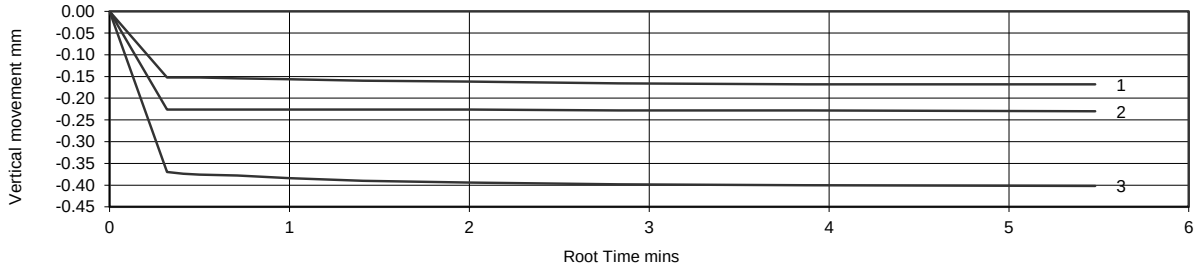
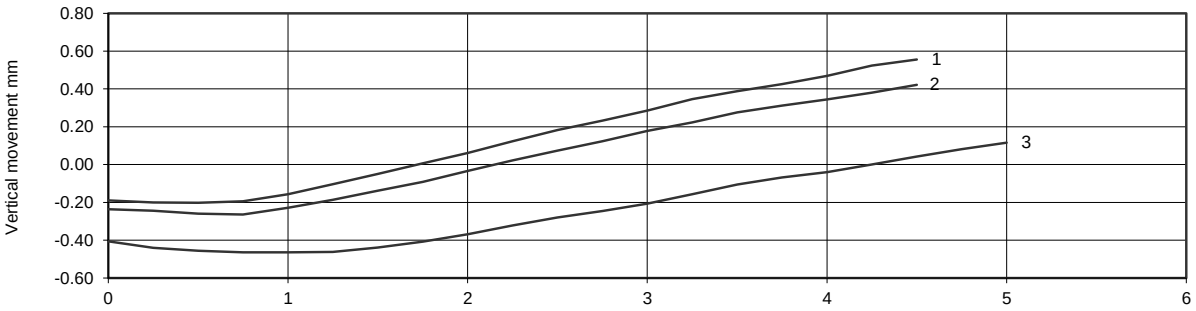
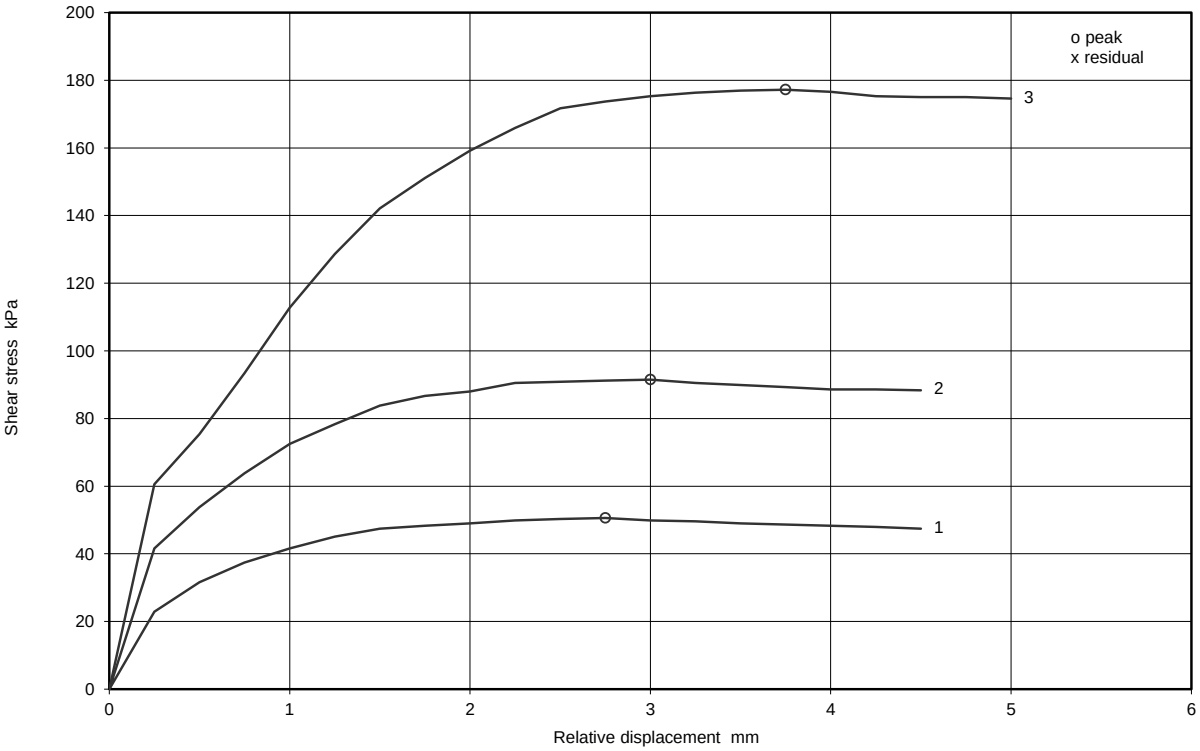
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32840
				Borehole/Pit No.	BH-55944
Site Name	WSP Eastern & Midlands Region			Sample No.	10
Soil Description	Black and bluish grey sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	3.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	13/01/2023

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

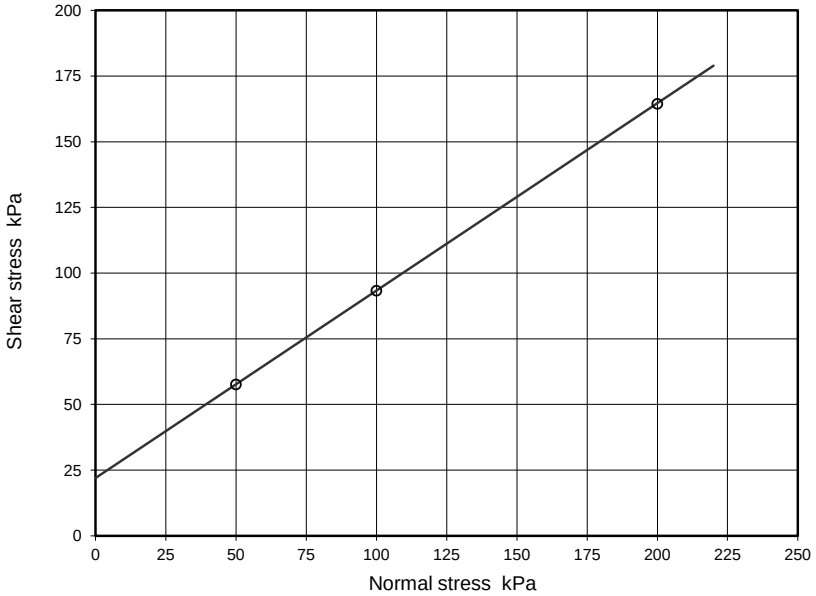
Job Ref	32840				
Borehole/Pit No.	BH-56857				
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	2.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	10/01/2023
				Schedule received	10/01/2023
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	13/01/2023
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	17/01/2023

Specimen Details

		Test No. 1	2	3				
Initial	Height	20.0	20.0	20.0				mm
	Bulk Density	2.24	2.22	2.25				Mg/m³
	Moisture Content	10.1	10.1	10.1				%
	Dry density	2.03	2.02	2.04				Mg/m³
	Voids ratio	0.315	0.322	0.309				
	Degree of Saturation	86	84	87				%
Consolidation	Consolidation / Normal Stress applied	**50**	**100**	**200**				kPa
	Change in height during consolidation*	-0.349	-0.577	-0.885				mm
	Voids ratio after consolidation	0.292	0.284	0.251				
After test	Final Moisture content	12.6	12.2	11.9				

Shearing stage(s)

Rate of displacement	Peak	0.02000	0.02000	0.02000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	3.01	2.80	4.39				mm
	Shear stress	57.5	93.2	164.3				kPa
	Vertical Movement at peak shear stress*	-0.05	-0.43	-0.83				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	22	-
Ø '	degrees	35.5	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

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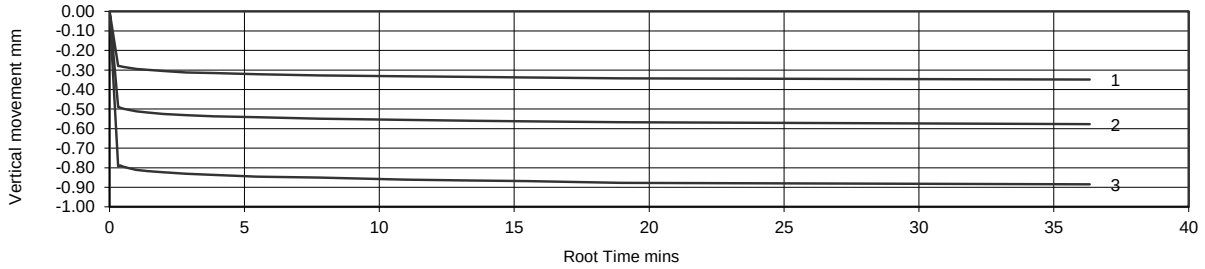
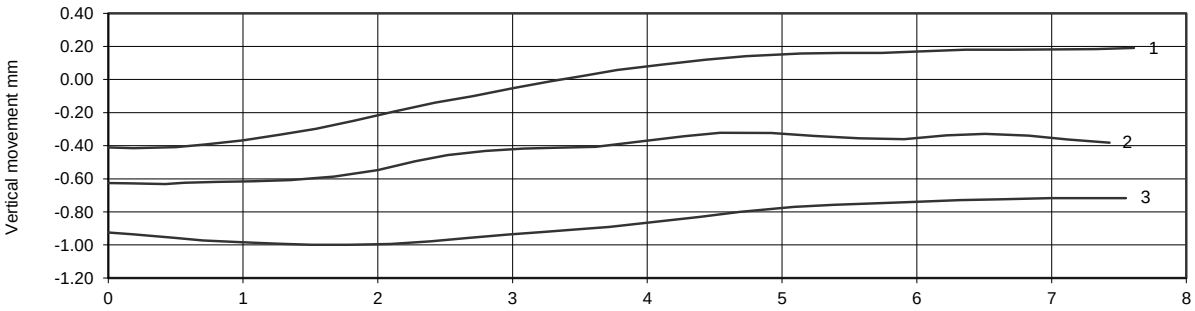
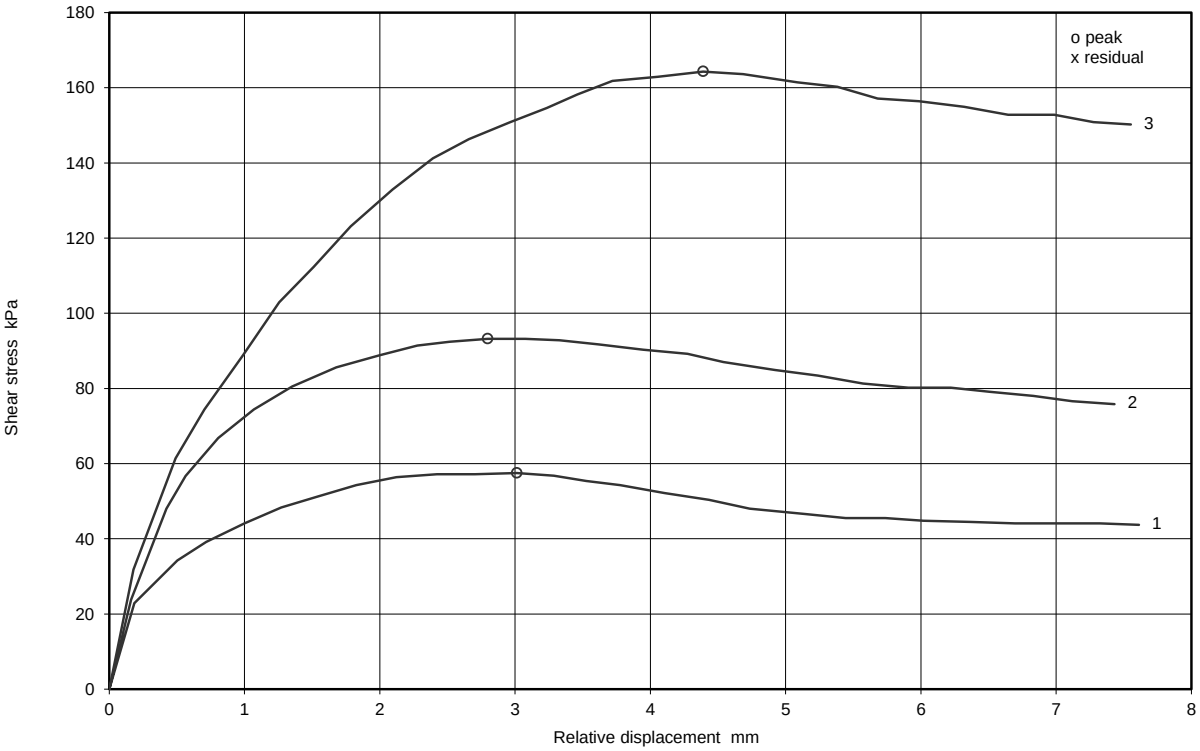
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32840
				Borehole/Pit No.	BH-56857
Site Name	WSP Eastern & Midlands Region			Sample No.	7
Soil Description	Grey slightly clayey sandy GRAVEL (gravel is fmc and angular to sub-angular)			Depth m	2.00
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	13/01/2023

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength using the Small Shear Box Apparatus

Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark grey slightly clayey sandy GRAVEL (gravel is fmc and angular to sub-rounded)			Depth m	3.10
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Sample received	10/01/2023
				Schedule received	10/01/2023
Test Method	BS1377 : Part 7 : 1990, clause 4			Date test started	16/01/2023
Preparation Details	Prepared in accordance with BS1377 : Part 7 : 1990, clause 4			Date completed	16/01/2023

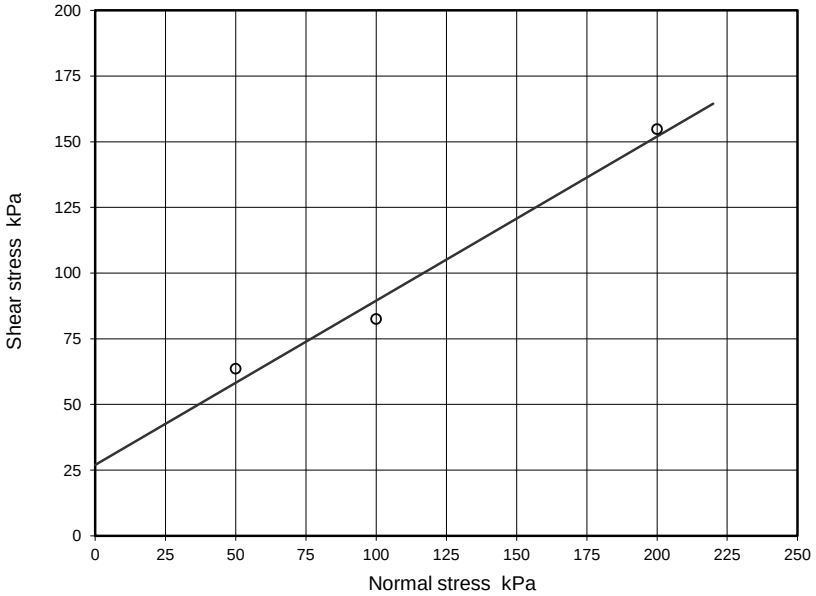
Job Ref	32840
Borehole/Pit No.	TP-77107

Specimen Details

		Test No.	1	2	3				
Initial	Height		25.0	25.0	25.0				mm
	Bulk Density		2.03	2.03	2.03				Mg/m³
	Moisture Content		14.0	14.0	14.0				%
	Dry density		1.78	1.78	1.78				Mg/m³
	Voids ratio		0.500	0.500	0.500				
	Degree of Saturation		75	75	75				%
Consolidation	Consolidation / Normal Stress applied		**50**	**100**	**200**				kPa
	Change in height during consolidation*		-0.304	-0.344	-0.398				mm
	Voids ratio after consolidation		0.482	0.479	0.476				
After test	Final Moisture content		11.3	11.3	11.3				

Shearing stage(s)

Rate of displacement	Peak	0.50000	0.50000	0.50000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	2.00	3.00	3.00				mm
	Shear stress	63.5	82.5	154.7				kPa
	Vertical Movement at peak shear stress*	-0.15	0.05	-0.18				mm
Residual values, (x)	No. of traverses (including peak run)							
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress*							mm



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	27	-
Ø '	degrees	32	-

Residual strength, (x)

c 'R	kPa	[0.0]	-
Ø 'R	degrees	[ ]	-

Remarks :

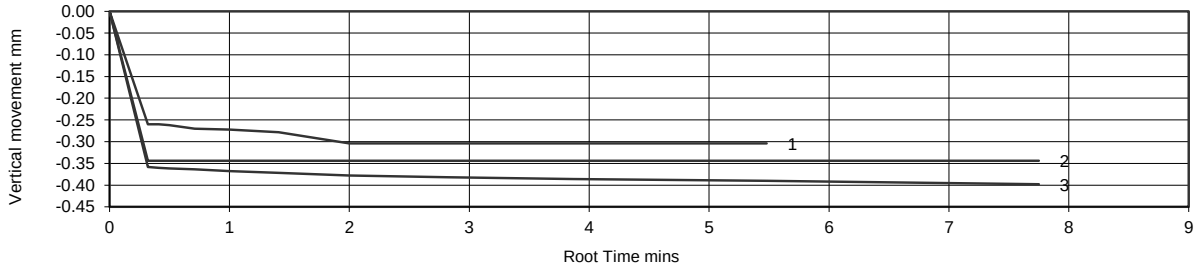
K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288 Email: james@K4soils.com

Checked and Approved
Initials K.P.
Date 23/01/2023

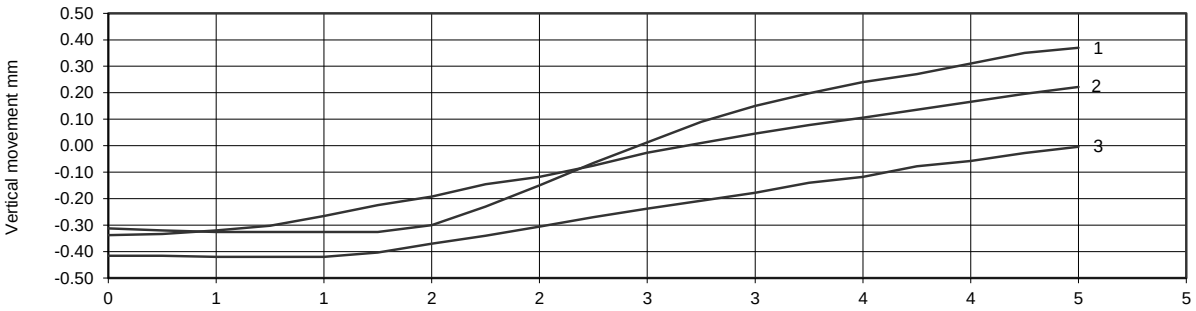
UKAS TESTING
2519
These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory
Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

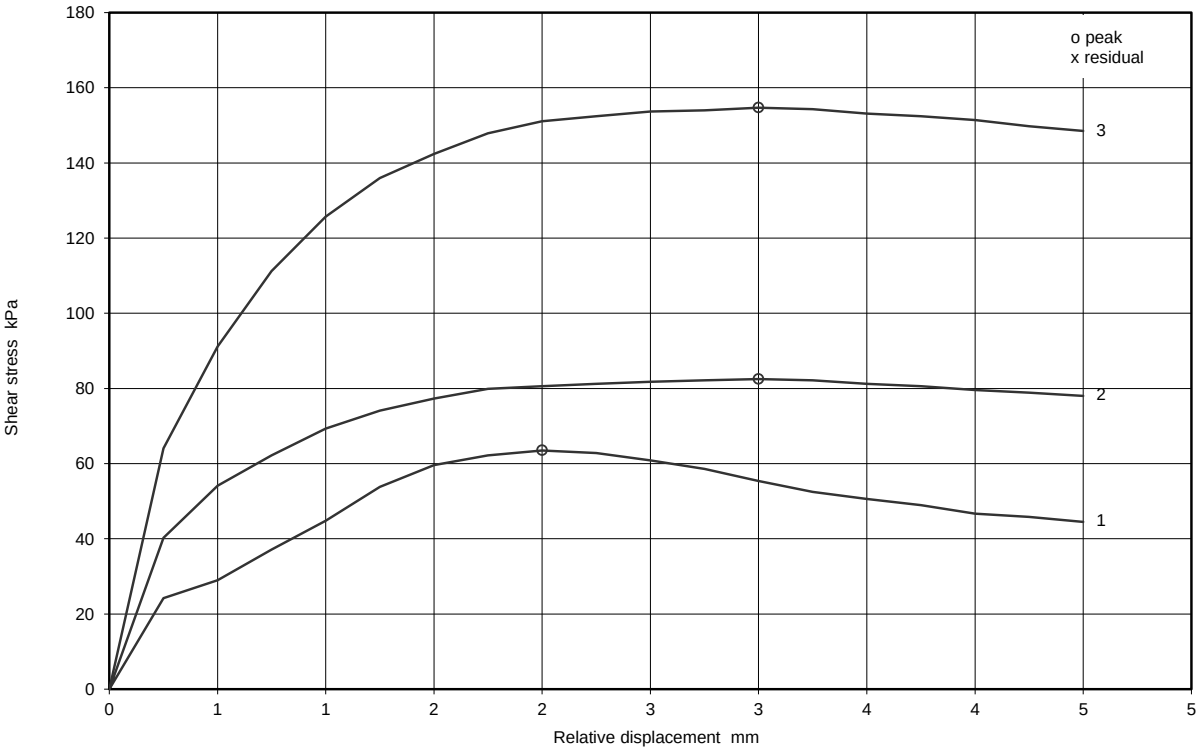
	Determination of shear strength using the Small Shear Box Apparatus			Job Ref	32840
				Borehole/Pit No.	TP-77107
Site Name	WSP Eastern & Midlands Region			Sample No.	5
Soil Description	Dark grey slightly clayey sandy GRAVEL (gravel is fmc and angular to sub-rounded)			Depth m	3.10
				Sample Type	B
Project No.	2021OY102	Client	Irish Drilling	Date of Test	16/01/2023

Consolidation stage(s)



Shearing stage(s)





*Note : Vertical movement/change in height is recorded as negative for reduced height (settlement) and positive for increased height (swell).

K4 SOILS LABORATORY Unit 8 Olds Close
Olds Approach Watford Herts WD18 9RU
Tel: 01923 711 288
Email: james@K4soils.com

Checked and Approved
Initials K.P.
Date 23/01/2023

2519 *Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)*

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-43588
Issue:	1
Date of Issue:	06/10/2022
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q22-02658
Order No:	Not Supplied
Customer Reference:	32282
Date Received:	29/09/2022
Date Approved:	06/10/2022
Details:	WSP Eastern & Midlands Region
Approved by:	

Tim Reeve, Quality Officer

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 22-43588, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
295566	TP-91905 2 0.70	Not Provided	29/09/2022	Sandy loam	a
295567	TP-92029 2 0.60	Not Provided	29/09/2022	Sandy clayey loam	a
295568	TP-92106 2 0.60	Not Provided	29/09/2022	Sandy clayey loam	a
295569	TP-93352 3 1.00	Not Provided	29/09/2022	Loamy sand	a
295570	TP-93505 4 1.90	Not Provided	29/09/2022	Sandy clayey loam	a
295571	TP-93902 3 2.00	Not Provided	29/09/2022	Silty clayey loam	a
295572	TP-94015 4 1.10	Not Provided	29/09/2022	Loamy sand	a
295573	TP-94015 7 2.40	Not Provided	29/09/2022	Silty loam	a
295574	TP-94103 4 1.50	Not Provided	29/09/2022	Silty loam	a
295575	TP-94504 4 1.80	Not Provided	29/09/2022	Sandy clayey loam	a
295576	TP-94704 5 1.50	Not Provided	29/09/2022	Loamy sand	a
295577	TP-95003 6 2.30	Not Provided	29/09/2022	Sandy loam	a
295578	TP-95408 6 3.30	Not Provided	29/09/2022	Clayey loam	a
295579	TP-95806 6 2.40	Not Provided	29/09/2022	Sandy loam	a
295580	TP-95905 4 1.60	Not Provided	29/09/2022	Silty clayey loam	a
295581	TP-96105 6 2.00	Not Provided	29/09/2022	Sandy clayey loam	a
295582	TP-96831 6 3.10	Not Provided	29/09/2022	Sandy clayey loam	a
295583	TP-96905 4 2.10	Not Provided	29/09/2022	Silty clayey loam	a
295584	TP-97309 7 3.30	Not Provided	29/09/2022	Clayey loam	a
295585	TP-97383 6 2.80	Not Provided	29/09/2022	Silty clayey loam	a
295586	TP-97602 6 2.80	Not Provided	29/09/2022	Clayey loam	a
295587	TP-97704 7 3.80	Not Provided	29/09/2022	Silty clayey loam	a

Results Summary

Report No.: 22-43588, issue number 1

				ELAB Reference	295566	295567	295568	295569	295570	295571	295572	295573	295574
				Customer Reference	2	2	2	3	4	3	4	7	4
				Sample ID									
				Sample Type	DISTURBED	DISTURBED	DISTURBED	BULK	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	TP-91905	TP-92029	TP-92106	TP-93352	TP-93505	TP-93902	TP-94015	TP-94015	TP-94103
				Sample Depth (m)	0.70	0.60	0.60	1.00	1.90	2.00	1.10	2.40	1.50
				Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**										
Soil sample preparation parameters													
Moisture Content	N	%	0.1		8.5	15.2	14.2	8.8	8.5	7.8	21.1	79.3	66.1
Material removed	N	%	0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0		None	None	None	None	None	None	None	None	None
Anions													
Water Soluble Sulphate	M	g/l	0.02		< 0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	n/t	0.45	n/t
Inorganics													
Total Sulphur	N	%	0.01		0.02	0.02	0.02	0.03	0.02	0.02	n/t	1.3	n/t
Acid Soluble Sulphate (SO4)	U	%	0.02		0.02	0.03	0.02	0.03	0.02	0.02	n/t	0.60	n/t
Miscellaneous													
pH	M	pH units	0.1		8.6	8.3	8.3	8.8	8.9	9.0	n/t	7.6	n/t
Soil Organic Matter	U	%	0.1		n/t	n/t	n/t	n/t	n/t	n/t	1.2	n/t	21

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 22-43588, issue number 1

				ELAB Reference	295575	295576	295577	295578	295579	295580	295581	295582	295583
				Customer Reference	4	5	6	6	6	4	6	6	4
				Sample ID									
				Sample Type	DISTURBED	DISTURBED	BULK	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	TP-94504	TP-94704	TP-95003	TP-95408	TP-95806	TP-95905	TP-96105	TP-96831	TP-96905
				Sample Depth (m)	1.80	1.50	2.30	3.30	2.40	1.60	2.00	3.10	2.10
				Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**										
Soil sample preparation parameters													
Moisture Content	N	%	0.1		8.0	14.0	7.3	7.5	7.8	7.8	8.6	9.0	9.6
Material removed	N	%	0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0		None	None	None	None	None	None	None	None	None
Anions													
Water Soluble Sulphate	M	g/l	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics													
Total Sulphur	N	%	0.01		0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.03
Acid Soluble Sulphate (SO4)	U	%	0.02		0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03
Miscellaneous													
pH	M	pH units	0.1		8.9	9.1	8.7	8.9	8.7	8.9	8.7	8.8	9.0
Soil Organic Matter	U	%	0.1		n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 22-43588, issue number 1

				ELAB Reference	295584	295585	295586	295587
				Customer Reference	7	6	6	7
				Sample ID				
				Sample Type	DISTURBED	DISTURBED	BULK	DISTURBED
				Sample Location	TP-97309	TP-97383	TP-97602	TP-97704
				Sample Depth (m)	3.30	2.80	2.80	3.80
				Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**				
Soil sample preparation parameters							
Moisture Content	N	%	0.1	13.7	9.4	10.6	12.0
Material removed	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	None	None
Anions							
Water Soluble Sulphate	M	g/l	0.02	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics							
Total Sulphur	N	%	0.01	0.03	0.03	0.02	0.02
Acid Soluble Sulphate (SO4)	U	%	0.02	0.03	0.03	< 0.02	0.02
Miscellaneous							
pH	M	pH units	0.1	9.1	9.2	8.9	8.8
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t

Method Summary

Report No.: 22-43588, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	03/10/2022	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	04/10/2022	115	Ion Chromatography
Water soluble anions	M	Air dried sample	30/09/2022	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	01/10/2022	216	IR
Soil organic matter	U	Air dried sample	04/10/2022	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-43588, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Unit A2
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TN38 9BY
Telephone: (01424) 718618

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-44032
Issue:	1
Date of Issue:	24/10/2022
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q22-02658
Order No:	32282
Customer Reference:	32282
Date Received:	17/10/2022
Date Approved:	24/10/2022
Details:	WSP Eastern & Midlands Region
Approved by:	

Tim Reeve, Quality Officer

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 22-44032, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
298171	TP-100304 4 1.60	Not Provided	17/10/2022	Silty loam	a
298172	TP-100407 4 1.80	Not Provided	17/10/2022	Silty loam	a
298173	TP-100449 4 1.70	Not Provided	17/10/2022	Silty loam	a
298174	TP-100517 4 1.00	Not Provided	17/10/2022	Silty loam	a
298175	TP-101407 4 1.90	Not Provided	17/10/2022	Silty loam	a
298176	TP-101600 4 1.60	Not Provided	17/10/2022	Silty clayey loam	a
298177	TP-102105 2 0.70	Not Provided	17/10/2022	Silty loam	a
298178	TP-102303 4 1.50	Not Provided	17/10/2022	Silty loam	a
298179	TP-98271 5 2.50	Not Provided	17/10/2022	Sandy silty loam	a
298180	TP-98502 2 0.70	Not Provided	17/10/2022	Silty clayey loam	a
298181	TP-98702 4 1.60	Not Provided	17/10/2022	Loamy sand	a
298182	TP-98904 2 0.80	Not Provided	17/10/2022	Silty loam	a
298183	TP-99004 4 1.50	Not Provided	17/10/2022	Sandy loam	a
298184	TP-99304 2 0.60	Not Provided	17/10/2022	Sandy silty loam	a
298185	TP-99400 2 0.70	Not Provided	17/10/2022	Silty loam	a
298186	TP-99599 5 2.50	Not Provided	17/10/2022	Silty loam	a
298187	TP-98105 6 2.60	Not Provided	17/10/2022	Silty loam	a

Results Summary

Report No.: 22-44032, issue number 1

			ELAB Reference	298171	298172	298173	298174	298175
			Customer Reference	4	4	4	4	4
			Sample ID					
			Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
			Sample Location	TP-100304	TP-100407	TP-100449	TP-100517	TP-101407
			Sample Depth (m)	1.60	1.80	1.70	1.00	1.90
			Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**					
Soil sample preparation parameters								
Moisture Content	N	%	0.1	10.0	10.1	9.9	11.9	9.2
Material removed	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	None	None	None
Anions								
Water Soluble Sulphate	M	g/l	0.02	0.13	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics								
Total Sulphur	N	%	0.01	0.07	0.03	0.02	0.02	0.02
Acid Soluble Sulphate (SO4)	U	%	0.02	0.08	0.03	0.03	0.02	0.03
Miscellaneous								
pH	M	pH units	0.1	7.9	8.3	8.6	8.7	8.8

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 22-44032, issue number 1

				ELAB Reference	298176	298177	298178	298179	298180
				Customer Reference	4	2	4	5	2
				Sample ID					
				Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	TP-101600	TP-102105	TP-102303	TP-98271	TP-98502
				Sample Depth (m)	1.60	0.70	1.50	2.50	0.70
				Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**						
Soil sample preparation parameters									
Moisture Content	N	%	0.1		14.7	9.4	10.4	5.8	9.7
Material removed	N	%	0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0		None	None	None	None	None
Anions									
Water Soluble Sulphate	M	g/l	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics									
Total Sulphur	N	%	0.01		0.02	0.02	0.02	0.05	0.02
Acid Soluble Sulphate (SO4)	U	%	0.02		0.02	0.02	0.02	0.04	0.03
Miscellaneous									
pH	M	pH units	0.1		8.6	8.7	8.5	8.8	8.6

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 22-44032, issue number 1

				ELAB Reference	298181	298182	298183	298184	298185
				Customer Reference	4	2	4	2	2
				Sample ID					
				Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	TP-98702	TP-98904	TP-99004	TP-99304	TP-99400
				Sample Depth (m)	1.60	0.80	1.50	0.60	0.70
				Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**						
Soil sample preparation parameters									
Moisture Content	N	%	0.1		8.7	9.5	13.1	12.5	14.4
Material removed	N	%	0.1		< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0		None	None	None	None	None
Anions									
Water Soluble Sulphate	M	g/l	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics									
Total Sulphur	N	%	0.01		0.02	0.02	0.02	0.02	0.01
Acid Soluble Sulphate (SO4)	U	%	0.02		0.02	0.02	0.02	0.04	0.03
Miscellaneous									
pH	M	pH units	0.1		8.8	8.6	8.6	8.5	7.9

Tests marked N are not UKAS accredited.

Results Summary

Report No.: 22-44032, issue number 1

ELAB Reference	298186	298187
Customer Reference	5	6
Sample ID		
Sample Type	DISTURBED	DISTURBED
Sample Location	TP-99599	TP-98105
Sample Depth (m)	2.50	2.60
Sampling Date	Not Provided	Not Provided

Determinand	Codes	Units	LOD		
Soil sample preparation parameters					
Moisture Content	N	%	0.1	6.7	8.6
Material removed	N	%	0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None
Anions					
Water Soluble Sulphate	M	g/l	0.02	< 0.02	0.05
Inorganics					
Total Sulphur	N	%	0.01	0.01	0.04
Acid Soluble Sulphate (SO4)	U	%	0.02	0.02	0.03
Miscellaneous					
pH	M	pH units	0.1	8.6	8.5

Method Summary

Report No.: 22-44032, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	20/10/2022	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	20/10/2022	115	Ion Chromatography
Water soluble anions	M	Air dried sample	19/10/2022	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	20/10/2022	216	IR

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-44032, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.
	Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.
	ELAB are unable to provide an interpretation or opinion on the content of this report.
	The results relate only to the sample received.
	PCB congener results may include any coeluting PCBs
	Uncertainty of measurement for the determinands tested are available upon request
	Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Unit A2
Windmill Road
Ponswood Industrial Estate
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TN38 9BY
Telephone: (01424) 718618

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info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-44308
Issue:	1
Date of Issue:	02/11/2022
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q22-02658
Order No:	Not Supplied
Customer Reference:	32282
Date Received:	28/10/2022
Date Approved:	02/11/2022
Details:	WSP Eastern & Midlands Region
Approved by:	

Tim Reeve, Quality Officer

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 22-44308, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
299838	TP-82812 4 1.70	Not Provided	28/10/2022	Loamy sand	a
299839	TP-82902 4 2.10	Not Provided	28/10/2022	Sandy loam	a
299840	TP-83101 4 1.70	Not Provided	28/10/2022	Sandy loam	a
299841	TP-83303 4 1.30	Not Provided	28/10/2022	Sandy loam	a
299842	TP-85005 4 1.70	Not Provided	28/10/2022	Sandy loam	a
299843	TP-85302 4 1.40	Not Provided	28/10/2022	Sandy loam	a
299844	TP-87803 5 1.70	Not Provided	28/10/2022	Sand	a
299845	TP-88303 6 2.30	Not Provided	28/10/2022	Sandy loam	a
299846	TP-88503 3 1.50	Not Provided	28/10/2022	Sandy loam	a
299847	TP-88802 6 1.60	Not Provided	28/10/2022	Sandy loam	a
299848	TP-88904 3 2.70	Not Provided	28/10/2022	Sand	a
299849	TP-89104 2 0.80	Not Provided	28/10/2022	Sandy loam	a
299850	TP-90401 6 2.10	Not Provided	28/10/2022	Sandy loam	a
299851	TP-90604 5 1.80	Not Provided	28/10/2022	Sandy loam	a
299852	TP-90894 5 3.40	Not Provided	28/10/2022	Sandy loam	a
299853	TP-91012 4 2.00	Not Provided	28/10/2022	Sandy loam	a

Results Summary

Report No.: 22-44308, issue number 1

				ELAB Reference	299838	299839	299840	299841	299842	299843	299844	299845	299846
				Customer Reference	4	4	4	4	4	4	5	6	3
				Sample ID									
				Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	BULK	DISTURBED	DISTURBED
				Sample Location	TP-82812	TP-82902	TP-83101	TP-83303	TP-85005	TP-85302	TP-87803	TP-88303	TP-88503
				Sample Depth (m)	1.70	2.10	1.70	1.30	1.70	1.40	1.70	2.30	1.50
				Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**										
Soil sample preparation parameters													
Moisture Content	N	%	0.1		6.3	8.5	6.9	10.0	9.7	10.9	5.3	7.5	6.6
Material removed	N	%	0.1		19.2	10.4	10.5	< 0.1	12.2	< 0.1	21.9	19.0	13.0
Description of Inert material removed	N		0		None	None	None	None	Stones	None	Stones	Stones	Stones
Anions													
Water Soluble Sulphate	M	g/l	0.02		0.10	0.03	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics													
Total Sulphur	N	%	0.01		0.17	0.03	0.02	0.02	0.02	0.02	0.03	0.02	0.03
Acid Soluble Sulphate (SO4)	U	%	0.02		0.04	0.03	0.02	0.02	0.02	0.03	0.03	0.02	0.03
Miscellaneous													
pH	M	pH units	0.1		9.4	9.1	8.9	9.0	8.9	8.8	8.9	9.0	8.9

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Results Summary

Report No.: 22-44308, issue number 1

				ELAB Reference	299847	299848	299849	299850	299851	299852	299853
				Customer Reference	6	3	2	6	5	5	4
				Sample ID							
				Sample Type	DISTURBED	BULK	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	TP-88802	TP-88904	TP-89104	TP-90401	TP-90604	TP-90894	TP-91012
				Sample Depth (m)	1.60	2.70	0.80	2.10	1.80	3.40	2.00
				Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**								
Soil sample preparation parameters											
Moisture Content	N	%	0.1		2.0	5.6	12.9	8.8	8.9	9.1	9.1
Material removed	N	%	0.1		10.4	25.6	< 0.1	25.2	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0		Stones	Stones	None	Stones	None	None	None
Anions											
Water Soluble Sulphate	M	g/l	0.02		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics											
Total Sulphur	N	%	0.01		0.02	0.01	< 0.01	0.02	0.02	0.02	0.01
Acid Soluble Sulphate (SO4)	U	%	0.02		< 0.02	0.02	0.02	0.02	0.02	0.03	0.03
Miscellaneous											
pH	M	pH units	0.1		8.9	8.8	8.6	8.7	8.8	8.7	8.7

Method Summary

Report No.: 22-44308, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	02/11/2022	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	02/11/2022	115	Ion Chromatography
Water soluble anions	M	Air dried sample	31/10/2022	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	01/11/2022	216	IR

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-44308, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

PCB congener results may include any coeluting PCBs

Uncertainty of measurement for the determinands tested are available upon request

Unless otherwise stated, sample information has been provided by the client. This may affect the validity of the results.

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-44478
Issue:	1
Date of Issue:	14/11/2022
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q22-02658
Order No:	32282
Customer Reference:	32282
Date Received:	07/11/2022
Date Approved:	14/11/2022
Details:	WSP Eastern & Midlands Region
Approved by:	

Tim Reeve, Quality Officer

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Sample Summary

Report No.: 22-44478, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
300702	TP-73403 4 1.30	06/10/2022	07/11/2022	Sandy silty loam	f
300703	TP-73504 4 1.70	06/10/2022	07/11/2022	Sandy silty loam	f
300704	TP-91305 5 2.60	06/10/2022	07/11/2022	Sandy silty loam	f
300705	TP-91603 3 1.60	06/10/2022	07/11/2022	Sandy silty loam	f
300706	TP-91805 5 2.60	06/10/2022	07/11/2022	Sandy silty loam	f
300707	TP-92407 6 3.30	06/10/2022	07/11/2022	Silty clayey loam	f
300708	TP-92587 4 1.60	06/10/2022	07/11/2022	Sandy silty loam	f
300709	TP-92804 7 3.30	06/10/2022	07/11/2022	Sandy silty loam	f
300710	TP-93106 6 4.10	06/10/2022	07/11/2022	Sandy clayey loam	f
300711	TP-98904 4 1.80	06/10/2022	07/11/2022	Clayey loam	f
300712	TP-91104 4 1.80	06/10/2022	07/11/2022	Sandy clayey loam	f

Results Summary

Report No.: 22-44478, issue number 1

			ELAB Reference	300702	300703	300704	300705	300706	300707	300708	300709	300710
			Customer Reference	4	4	5	3	5	6	4	7	6
			Sample ID									
			Sample Type	DISTURBED	DISTURBED	DISTURBED	BULK	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
			Sample Location	TP-73403	TP-73504	TP-91305	TP-91603	TP-91805	TP-92407	TP-92587	TP-92804	TP-93106
			Sample Depth (m)	1.30	1.70	2.60	1.60	2.60	3.30	1.60	3.30	4.10
			Sampling Date	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022	06/10/2022
Determinand	**Codes**	**Units**	**LOD**									
Soil sample preparation parameters												
Moisture Content	N	%	0.1	6.3	6.8	7.7	9.3	7.8	8.5	8.2	6.9	8.6
Material removed	N	%	0.1	25.8	37.2	38.7	18.2	26.5	34.7	< 0.1	39.0	32.8
Description of Inert material removed	N		0	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones
Anions												
Water Soluble Sulphate	M	g/l	0.02	f < 0.02	f < 0.02	f < 0.02	f < 0.02	f < 0.02	f < 0.02	f < 0.02	f < 0.02	f < 0.02
Inorganics												
Total Sulphur	N	%	0.01	f 0.03	f 0.03	f 0.02	f 0.03	f 0.02	f 0.03	f 0.02	f 0.02	f 0.03
Acid Soluble Sulphate (SO4)	U	%	0.02	f 0.03	f 0.04	f 0.03	f 0.03	f 0.03	f 0.03	f 0.03	f 0.03	f 0.03
Miscellaneous												
pH	M	pH units	0.1	f 9.0	f 9.2	f 9.0	f 8.9	f 9.0	f 8.9	f 9.0	f 9.2	f 9.0

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Results Summary

Report No.: 22-44478, issue number 1

			ELAB Reference	300711	300712
			Customer Reference	4	4
			Sample ID		
			Sample Type	DISTURBED	DISTURBED
			Sample Location	TP-98904	TP-91104
			Sample Depth (m)	1.80	1.80
			Sampling Date	06/10/2022	06/10/2022
Determinand	**Codes**	**Units**	**LOD**		
Soil sample preparation parameters					
Moisture Content	N	%	0.1	8.6	7.9
Material removed	N	%	0.1	22.1	23.4
Description of Inert material removed	N		0	Stones	Stones
Anions					
Water Soluble Sulphate	M	g/l	0.02	f < 0.02	f < 0.02
Inorganics					
Total Sulphur	N	%	0.01	f 0.04	f 0.03
Acid Soluble Sulphate (SO4)	U	%	0.02	f 0.03	f 0.03
Miscellaneous					
pH	M	pH units	0.1	f 8.9	f 9.1

Method Summary

Report No.: 22-44478, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	08/11/2022	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	09/11/2022	115	Ion Chromatography
Water soluble anions	M	Air dried sample	08/11/2022	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	11/11/2022	216	IR

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Report Information

Report No.: 22-44478, issue number 1

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Sample Retention and Disposal

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Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-45117
Issue:	1
Date of Issue:	07/12/2022
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q22-03477
Order No:	32282
Customer Reference:	32282
Date Received:	01/12/2022
Date Approved:	07/12/2022
Details:	WSP Eastern & Midlands Region
Approved by:	

Tim Reeve, Quality Officer

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Sample Summary

Report No.: 22-45117, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
303978	BH-100012 5 2.00	03/11/2022	01/12/2022	Silty clayey loam	
303979	BH-67630 11 3.50	03/11/2022	01/12/2022	Silty clayey loam	
303980	BH-68804 11 3.50	03/11/2022	01/12/2022	Sandy clayey loam	
303981	BH-69703 8 3.00	03/11/2022	01/12/2022	Loamy sand	
303982	BH-71124 8 2.50	03/11/2022	01/12/2022	Sandy clayey loam	
303983	BH-71397 7 2.50	03/11/2022	01/12/2022	Sandy clayey loam	
303984	BH-73135 8 3.00	03/11/2022	01/12/2022	Sand + stones.	
303985	BH-76545 2 1.00	03/11/2022	01/12/2022	Silty loam	
303986	BH-77176 8 3.00	03/11/2022	01/12/2022	Sandy clayey loam	
303987	BH-77477 5 2.00	03/11/2022	01/12/2022	Loamy sand	
303988	BH-78204 2 1.00	03/11/2022	01/12/2022	Sandy clayey loam	
303989	BH-78412 11 4.00	03/11/2022	01/12/2022	Sandy clayey loam	
303990	BH-80024 5 2.00	03/11/2022	01/12/2022	Sandy clayey loam	
303991	BH-80338 5 2.00	03/11/2022	01/12/2022	Sandy clayey loam	
303992	BH-80960 8 3.00	03/11/2022	01/12/2022	Sandy clayey loam	
303993	BH-84800 8 3.00	03/11/2022	01/12/2022	Loamy sand	
303994	BH-84791 5 2.00	03/11/2022	01/12/2022	Sandy clayey loam	
303995	BH-86592 8 3.00	03/11/2022	01/12/2022	Sand + stones	
303996	BH-90402 5 2.00	03/11/2022	01/12/2022	Sandy clayey loam	
303997	BH-93391 8 3.00	03/11/2022	01/12/2022	Sandy clayey loam	
303998	BH-94403 8 3.00	03/11/2022	01/12/2022	Sandy clayey loam	
303999	BH-96364 5 2.00	03/11/2022	01/12/2022	Silty clayey loam	
304000	BH-97788 8 3.00	03/11/2022	01/12/2022	Sandy clayey loam	
304001	BH-98602 8 3.00	03/11/2022	01/12/2022	Sandy clayey loam	
304002	BH-99777 5 2.00	03/11/2022	01/12/2022	Sandy clayey loam	
304003	BH-71124 1 0.00	03/11/2022	01/12/2022	Silty loam	
304004	BH-71397 2 1.00	03/11/2022	01/12/2022	Silty loam	
304005	BH-94016 1 0.00	03/11/2022	01/12/2022	Silty loam	

Results Summary

Report No.: 22-45117, issue number 1

			ELAB Reference	303978	303979	303980	303981	303982	303983	303984	303985	303986	303987
			Customer Reference	5	11	11	8	8	7	8	2	8	5
			Sample ID										
			Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
			Sample Location	BH-100012	BH-67630	BH-68804	BH-69703	BH-71124	BH-71397	BH-73135	BH-76545	BH-77176	BH-77477
			Sample Depth (m)	2.00	3.50	3.50	3.00	2.50	2.50	3.00	1.00	3.00	2.00
			Sampling Date	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022
Determinand	**Codes**	**Units**	**LOD**										
Soil sample preparation parameters													
Moisture Content	N	%	0.1	12.1	9.1	9.7	4.2	7.8	7.9	3.6	21.4	8.8	8.7
Material removed	N	%	0.1	< 0.1	12.3	7.4	14.9	14.4	13.0	12.7	7.8	12.9	12.3
Description of Inert material removed	N		0	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Anions													
Water Soluble Sulphate	M	g/l	0.02	0.07	0.02	< 0.02	0.03	0.04	< 0.02	^ < 0.02	0.02	< 0.02	< 0.02
Inorganics													
Total Sulphur	N	%	0.01	0.04	0.03	0.02	0.05	0.03	0.02	0.03	0.04	0.03	0.02
Acid Soluble Sulphate (SO4)	U	%	0.02	0.03	0.03	0.02	0.03	0.03	0.02	0.02	0.04	0.03	0.02
Miscellaneous													
pH	M	pH units	0.1	8.7	8.9	8.9	8.8	8.7	8.7	^ 8.7	8.4	8.7	8.8
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

BH-85791

Report No.: 22-45117, issue number 1

			ELAB Reference	303988	303989	303990	303991	303992	303993	303994	303995	303996	303997
			Customer Reference	2	11	5	5	8	8	5	8	5	8
			Sample ID										
			Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
			Sample Location	BH-78204	BH-78412	BH-80024	BH-80338	BH-80960	BH-84800	BH-84791	BH-86592	BH-90402	BH-93391
			Sample Depth (m)	1.00	4.00	2.00	2.00	3.00	3.00	2.00	3.00	2.00	3.00
			Sampling Date	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022
Determinand	**Codes**	**Units**	**LOD**										
Soil sample preparation parameters													
Moisture Content	N	%	0.1	10.8	15.6	6.9	8.8	8.3	9.1	9.2	4.5	8.3	8.6
Material removed	N	%	0.1	11.2	< 0.1	10.7	13.0	12.3	9.9	17.6	15.0	11.3	15.2
Description of Inert material removed	N		0	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Anions													
Water Soluble Sulphate	M	g/l	0.02	0.03	0.03	0.03	< 0.02	< 0.02	< 0.02	< 0.02	^ 0.07	< 0.02	< 0.02
Inorganics													
Total Sulphur	N	%	0.01	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.06	0.02	0.01
Acid Soluble Sulphate (SO4)	U	%	0.02	0.03	0.02	0.03	0.02	0.02	0.10	0.03	0.04	0.03	0.02
Miscellaneous													
pH	M	pH units	0.1	8.8	8.6	8.6	8.8	8.8	8.6	8.8	^ 8.7	9.0	8.9
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 22-45117, issue number 1

			ELAB Reference	303998	303999	304000	304001	304002	304003	304004	304005
			Customer Reference	8	5	8	8	5	1	2	1
			Sample ID								
			Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
			Sample Location	BH-94403	BH-96364	BH-97788	BH-98602	BH-99777	BH-71124	BH-71397	BH-94016
			Sample Depth (m)	3.00	2.00	3.00	3.00	2.00	0.00	1.00	0.00
			Sampling Date	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022	03/11/2022
Determinand	**Codes**	**Units**	**LOD**								
Soil sample preparation parameters											
Moisture Content	N	%	0.1	7.5	14.4	7.5	8.9	16.3	36.8	84.2	45.7
Material removed	N	%	0.1	13.2	11.5	20.3	< 0.1	< 0.1	7.9	30.0	18.6
Description of Inert material removed	N		0	Stones	Stones	Stones	None	None	Stones	Stones/Wood	Stones/Wood
Anions											
Water Soluble Sulphate	M	g/l	0.02	< 0.02	< 0.02	0.06	< 0.02	< 0.02	n/t	n/t	n/t
Inorganics											
Total Sulphur	N	%	0.01	0.03	0.03	0.03	0.03	0.02	n/t	n/t	n/t
Acid Soluble Sulphate (SO4)	U	%	0.02	0.03	0.03	0.04	0.03	0.03	n/t	n/t	n/t
Miscellaneous											
pH	M	pH units	0.1	9.0	8.8	8.7	8.8	8.7	n/t	n/t	n/t
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t	n/t	10	32	11

Method Summary

Report No.: 22-45117, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	06/12/2022	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	06/12/2022	115	Ion Chromatography
Water soluble anions	M	Air dried sample	05/12/2022	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	05/12/2022	216	IR
Soil organic matter	U	Air dried sample	06/12/2022	BS1377:P3	Titrimetry

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-45117, issue number 1

Key

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SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"
LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

ELAB are unable to provide an interpretation or opinion on the content of this report.

The results relate only to the sample received.

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Uncertainty of measurement for the determinands tested are available upon request

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Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

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Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-45181
Issue:	1
Date of Issue:	12/12/2022
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q22-03477
Order No:	32282
Customer Reference:	Sch 6
Date Received:	05/12/2022
Date Approved:	12/12/2022
Details:	WSP Eastern & Midlands Region
Approved by:	

Tim Reeve, Quality Officer

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 22-45181, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
304343	BH-102037 4.00	29/11/2022	05/12/2022	Loamy sand	
304344	BH-64085 3.00	29/11/2022	05/12/2022	Silty clayey loam	
304345	BH-72683 2.50	29/11/2022	05/12/2022	Sandy loam	
304346	BH-74100 3.50	29/11/2022	05/12/2022	Silty clayey loam	
304347	BH-76085 2.50	29/11/2022	05/12/2022	Sandy silty loam	
304348	BH-79273 1.50	29/11/2022	05/12/2022	Silty clayey loam	
304349	BH-82974 3.00	29/11/2022	05/12/2022	Loamy sand	
304350	BH-84203 3.00	29/11/2022	05/12/2022	Sandy silty loam	
304351	BH-87806 3.00	29/11/2022	05/12/2022	Loamy sand	
304352	BH-89092 3.00	29/11/2022	05/12/2022	Loamy sand	
304353	BH-89604 4.00	29/11/2022	05/12/2022	Loamy sand	
304354	BH-89747 2.00	29/11/2022	05/12/2022	Sand	

Results Summary

Report No.: 22-45181, issue number 1

				ELAB Reference	304343	304344	304345	304346	304347	304348
				Customer Reference						
				Sample ID						
				Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	BH-102037	BH-64085	BH-72683	BH-74100	BH-76085	BH-79273
				Sample Depth (m)	4.00	3.00	2.50	3.50	2.50	1.50
				Sampling Date	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Determinand	**Group**	**Codes**	**Units**	**LOD**						
Soil sample preparation parameters										
Moisture Content	SAMPPREP	N	%	0.1	6.0	27.2	7.4	8.3	9.2	8.0
Material removed	SAMPPREP	N	%	0.1	8.9	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	SAMPPREP	N		0	Stones	None	None	None	None	None
Anions										
Water Soluble Sulphate	ANIONS	M	g/l	0.02	0.02	< 0.02	0.08	0.02	< 0.02	< 0.02
Inorganics										
Total Sulphur	INORGANICS	N	%	0.01	0.04	0.02	0.07	0.02	0.02	0.02
Acid Soluble Sulphate (SO4)	INORGANICS	U	%	0.02	0.03	0.03	0.03	0.02	< 0.02	< 0.02
Miscellaneous										
pH	MISC	M	pH units	0.1	8.5	8.6	8.4	8.6	8.7	8.7

Results Summary

Report No.: 22-45181, issue number 1

				ELAB Reference	304349	304350	304351	304352	304353	304354
				Customer Reference						
				Sample ID						
				Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	BH-82974	BH-84203	BH-87806	BH-89092	BH-89604	BH-89747
				Sample Depth (m)	3.00	3.00	3.00	3.00	4.00	2.00
				Sampling Date	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Determinand	**Group**	**Codes**	**Units**	**LOD**						
Soil sample preparation parameters										
Moisture Content	SAMPPREP	N	%	0.1	6.7	8.9	5.7	8.4	5.2	5.8
Material removed	SAMPPREP	N	%	0.1	12.4	7.5	14.8	4.7	10.3	10.8
Description of Inert material removed	SAMPPREP	N		0	Stones	Stones	Stones	Stones	Stones	Stones
Anions										
Water Soluble Sulphate	ANIONS	M	g/l	0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.02	< 0.02
Inorganics										
Total Sulphur	INORGANICS	N	%	0.01	0.02	0.02	0.03	0.02	0.03	0.02
Acid Soluble Sulphate (SO4)	INORGANICS	U	%	0.02	< 0.02	< 0.02	0.02	< 0.02	0.03	0.02
Miscellaneous										
pH	MISC	M	pH units	0.1	8.7	8.8	8.4	8.4	8.7	8.7

Method Summary

Report No.: 22-45181, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	09/12/2022	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	08/12/2022	115	Ion Chromatography
Water soluble anions	M	Air dried sample	07/12/2022	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	07/12/2022	216	IR

Tests marked N are not UKAS accredited

Report Information

Report No.: 22-45181, issue number 1

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SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
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I/S	Insufficient Sample
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n/t	Not tested
<	means "less than"
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LOD	LOD refers to limit of detection, except in the case of pH soils and pH waters where it means limit of discrimination.

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.

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Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

TPH Classification - HWOL Acronym System

HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
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MS	Mass Spectrometry

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Telephone: (01424) 718618

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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	22-45186
Issue:	1
Date of Issue:	12/12/2022
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q22-03477
Order No:	32282
Customer Reference:	Sch 6 (Batch2)
Date Received:	05/12/2022
Date Approved:	12/12/2022
Details:	WSP Eastern & Midlands Region
Approved by:	

Tim Reeve, Quality Officer

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

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Sample Summary

Report No.: 22-45186, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
304427	BH-103234 2.00	29/11/2022	05/12/2022	Sandy clayey loam	
304428	BH-62806 2.00	29/11/2022	05/12/2022	Silty clayey loam	
304429	BH-78579 2.50	29/11/2022	05/12/2022	Loamy sand	
304430	BH-78662 2.50	29/11/2022	05/12/2022	Loamy sand	
304431	BH-79026 2.50	29/11/2022	05/12/2022	Sandy loam	
304432	BH-79209 2.50	29/11/2022	05/12/2022	Sandy silty loam	
304433	BH-79441 2.50	29/11/2022	05/12/2022	Sandy loam	
304434	BH-88759 2.00	29/11/2022	05/12/2022	Sandy clayey loam	
304435	BH-89662 2.00	29/11/2022	05/12/2022	Loamy sand	
304436	BH-89690 3.00	29/11/2022	05/12/2022	Sandy clayey loam	
304437	BH-91011 2.00	29/11/2022	05/12/2022	Sandy loam	
304438	BH-93803 2.00	29/11/2022	05/12/2022	Sandy loam	
304439	BH-97881 3.00	29/11/2022	05/12/2022	Clayey loam	
304440	BH-98002 5.00	29/11/2022	05/12/2022	Clayey loam	
304441	BH-74100 4.50	29/11/2022	05/12/2022	Sandy clayey loam	

Results Summary

Report No.: 22-45186, issue number 1

BH-78862

ELAB Reference				304427	304428	304429	304430	304431	304432	304433	304434	304435
Customer Reference												
Sample ID												
Sample Type				DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
Sample Location				BH-103234	BH-62806	BH-78579	BH-78662	BH-79026	BH-79209	BH-79441	BH-88759	BH-89662
Sample Depth (m)				2.00	2.00	2.50	2.50	2.50	2.50	2.50	2.00	2.00
Sampling Date				29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Determinand	**Codes**	**Units**	**LOD**									
Soil sample preparation parameters												
Moisture Content	N	%	0.1	9.1	23.1	10.3	14.2	9.2	8.1	10.0	9.4	4.8
Material removed	N	%	0.1	< 0.1	< 0.1	10.1	< 0.1	6.1	< 0.1	13.4	11.1	14.3
Description of Inert material removed	N		0	None	None	Stones	None	Stones	None	Stones	Stones	Stones
Anions												
Water Soluble Sulphate	M	g/l	0.02	0.06	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Inorganics												
Total Sulphur	N	%	0.01	0.04	0.01	0.04	0.01	0.03	0.02	0.02	0.02	0.02
Acid Soluble Sulphate (SO4)	U	%	0.02	0.04	0.02	0.02	< 0.02	0.02	< 0.02	< 0.02	< 0.02	0.02
Miscellaneous												
pH	M	pH units	0.1	8.4	8.3	8.3	8.8	8.6	8.6	8.6	8.7	8.6
Soil Organic Matter	U	%	0.1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t

TP-78662 should be TP-78862

Results Summary

Report No.: 22-45186, issue number 1

				ELAB Reference	304436	304437	304438	304439	304440	304441
				Customer Reference						
				Sample ID						
				Sample Type	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED	DISTURBED
				Sample Location	BH-89690	BH-91011	BH-93803	BH-97881	BH-98002	BH-74100
				Sample Depth (m)	3.00	2.00	2.00	3.00	5.00	4.50
				Sampling Date	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
Determinand	**Codes**	**Units**	**LOD**							
Soil sample preparation parameters										
Moisture Content	N	%	0.1		7.9	10.7	10.5	13.6	8.7	7.7
Material removed	N	%	0.1		10.3	9.1	8.9	< 0.1	< 0.1	8.5
Description of Inert material removed	N		0		Stones	Stones	Stones	None	None	Stones
Anions										
Water Soluble Sulphate	M	g/l	0.02		0.03	< 0.02	< 0.02	< 0.02	0.03	n/t
Inorganics										
Total Sulphur	N	%	0.01		0.03	0.02	0.02	0.04	0.03	n/t
Acid Soluble Sulphate (SO4)	U	%	0.02		0.03	< 0.02	0.03	0.02	0.03	n/t
Miscellaneous										
pH	M	pH units	0.1		8.5	8.5	8.5	8.7	8.5	n/t
Soil Organic Matter	U	%	0.1		n/t	n/t	n/t	n/t	n/t	0.5

Method Summary

Report No.: 22-45186, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	09/12/2022	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	08/12/2022	115	Ion Chromatography
Water soluble anions	M	Air dried sample	07/12/2022	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	07/12/2022	216	IR
Soil organic matter	U	Air dried sample	12/12/2022	BS1377:P3	Titrimetry

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<	means "less than"
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	ELAB are unable to provide an interpretation or opinion on the content of this report.
	The results relate only to the sample received.
	PCB congener results may include any coeluting PCBs
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EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
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1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
2D	GC-GC - Double coil gas chromatography
#1	EH_Total but with humics mathematically subtracted
#2	EH_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry

Loss On Ignition - Summary of Results

Job No.	Project Name	Programme	
32282	WSP Eastern & Midlands Region	Samples Received	16/08/2022
		Schedule Received	11/08/2022
Project No.	Client	Project Started	17/08/2022
2021OY102	Irish Drilling	Date Started	21/09/2022

Hole No.	Sample				Description	Passing 2mm	Loss on Ignition	Remarks
	Ref	Top m	Base m	Type		%	%	
TP-94015	4	1.10	-	D	Dark grey amorphous PEAT	100	**77**	
TP-94103	4	1.50	-	D	Dark grey fibrous PEAT	100	**30**	

Test Methods: BS1377: Part 3: 2018:
Mass Loss on Ignition : clause 6.0

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU
Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved
Initials **j.P**
Date: 28/09/2022

UKAS TESTING
2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

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Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	28 January 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220121-98
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	631283
Order Number:	10808

We received 10 samples on Friday January 21, 2022 and 10 of these samples were scheduled for analysis which was completed on Friday January 28, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220121-98 **Report Number:** 631283 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
25683286	BH-36879	D11	3.40 - 3.40	19/10/2021
25683296	BH-37778	D11	3.50 - 3.50	12/10/2021
25683299	BH-38106	D5	1.50 - 1.50	13/10/2021
25683301	BH-38523	D11	3.30 - 3.30	18/10/2021
25683305	BH-39229	D5	1.30 - 1.30	11/10/2021
25683307	BH-39518	D5	1.50 - 1.50	12/10/2021
25683309	BH-40405	D8	2.50 - 2.50	20/10/2021
25683288	BH-40830	D8	2.50 - 2.50	22/10/2021
25683291	BH-41053	D8	2.50 - 2.50	27/10/2021
25683303	BH-38786A	D8	2.50 - 2.50	14/10/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220121-98 **Report Number:** 631283 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			25683286	BH-36879	D11	3.40 - 3.40	250g Amber Jar (ALE210)	S
			25683296	BH-37778	D11	3.50 - 3.50	250g Amber Jar (ALE210)	S
			25683299	BH-38106	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			25683301	BH-38523	D11	3.30 - 3.30	250g Amber Jar (ALE210)	S
			25683305	BH-39229	D5	1.30 - 1.30	250g Amber Jar (ALE210)	S
			25683307	BH-39518	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			25683309	BH-40405	D8	2.50 - 2.50	250g Amber Jar (ALE210)	S
			25683288	BH-40830	D8	2.50 - 2.50	250g Amber Jar (ALE210)	S
			25683291	BH-41053	D8	2.50 - 2.50	250g Amber Jar (ALE210)	S
			25683303	BH-38786A	D8	2.50 - 2.50	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 10	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 10	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 10	X	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 10	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 10	X	X	X	X	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 220121-98 **Report Number:** 631283 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
25683286	BH-36879	3.40 - 3.40	Light Brown	Sandy Loam	Stones	Vegetation
25683296	BH-37778	3.50 - 3.50	Dark Brown	Sandy Loam	Stones	Vegetation
25683299	BH-38106	1.50 - 1.50	Light Brown	Sandy Clay	Stones	None
25683301	BH-38523	3.30 - 3.30	Dark Brown	Sandy Loam	Stones	Vegetation
25683305	BH-39229	1.30 - 1.30	Dark Brown	Sandy Loam	Stones	Vegetation
25683307	BH-39518	1.50 - 1.50	Grey	Sandy Loam	Stones	Vegetation
25683309	BH-40405	2.50 - 2.50	Dark Brown	Sandy Loam	Stones	Vegetation
25683288	BH-40830	2.50 - 2.50	Light Brown	Silty Clay	Stones	None
25683291	BH-41053	2.50 - 2.50	Dark Brown	Sandy Loam	Stones	Vegetation
25683303	BH-38786A	2.50 - 2.50	Grey	Sandy Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220121-98 **Report Number:** 631283 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-36879	BH-37778	BH-38106	BH-38523	BH-39229	BH-39518
			Depth (m)	3.40 - 3.40	3.50 - 3.50	1.50 - 1.50	3.30 - 3.30	1.30 - 1.30	1.50 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	19/10/2021	12/10/2021	13/10/2021	18/10/2021	11/10/2021	12/10/2021
			Sample Time	.	.	.	.	.	.
			Date Received	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022	21/01/2022
			SDG Ref	220121-98	220121-98	220121-98	220121-98	220121-98	220121-98
			Lab Sample No.(s)	25683286	25683296	25683299	25683301	25683305	25683307
			AGS Reference	D11	D11	D5	D11	D5	D5
Moisture Content Ratio (% of as received sample)	%	PM024		4.5	3	8.9	7.1	19	6.1
Sulphur, Total	<0.02 %	TM132		<0.02 @	0.021 @	0.0241 @	0.0234 @	0.0273 @	0.021 @
pH	1 pH Units	TM133		8.84 @ M	8.94 @ M	8.92 @ M	8.96 @ M	8.08 @ M	8.94 @ M
Sulphate, Total	<48 mg/kg	TM221		104 M	358 M	381 M	412 M	548 M	265 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0079 @ M	0.0075 @ M	0.0065 @ M	<0.004 @ M	0.0079 @ M	0.0089 @ M

CERTIFICATE OF ANALYSIS

SDG: 220121-98 **Report Number:** 631283 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-40405	BH-40830	BH-41053	BH-38786A		
			Depth (m)	2.50 - 2.50	2.50 - 2.50	2.50 - 2.50	2.50 - 2.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	20/10/2021	22/10/2021	27/10/2021	14/10/2021		
			Sample Time	.	.	.	.		
			Date Received	21/01/2022	21/01/2022	21/01/2022	21/01/2022		
			SDG Ref	220121-98	220121-98	220121-98	220121-98		
			Lab Sample No.(s)	25683309	25683288	25683291	25683303		
			AGS Reference	D8	D8	D8	D8		
Moisture Content Ratio (% of as received sample)	%	PM024		18	11	14	2.2		
Sulphur, Total	<0.02 %	TM132		0.182 @	0.022 @	0.0216 @	<0.02 @		
pH	1 pH Units	TM133		8.19 @ M	8.55 @ M	8.47 @ M	9.12 @ M		
Sulphate, Total	<48 mg/kg	TM221		486 M	504 M	336 M	483 M		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		<0.004 @ M	0.029 @ M	0.0162 @ M	0.0081 @ M		

CERTIFICATE OF ANALYSIS

SDG: 220121-98 **Report Number:** 631283 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220121-98 **Report Number:** 631283 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	25683286	25683296	25683299	25683301	25683305	25683307	25683309	25683288	25683291	25683303
Customer Sample Ref.	BH-36879	BH-37778	BH-38106	BH-38523	BH-39229	BH-39518	BH-40405	BH-40830	BH-41053	BH-38786A
AGS Ref.	D11	D11	D5	D11	D5	D5	D8	D8	D8	D8
Depth	3.40 - 3.40	3.50 - 3.50	1.50 - 1.50	3.30 - 3.30	1.30 - 1.30	1.50 - 1.50	2.50 - 2.50	2.50 - 2.50	2.50 - 2.50	2.50 - 2.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	28-Jan-2022	27-Jan-2022	27-Jan-2022	27-Jan-2022	27-Jan-2022	28-Jan-2022	28-Jan-2022	27-Jan-2022	28-Jan-2022	28-Jan-2022
pH	25-Jan-2022	25-Jan-2022	25-Jan-2022	25-Jan-2022	25-Jan-2022	25-Jan-2022	25-Jan-2022	24-Jan-2022	25-Jan-2022	25-Jan-2022
Sample description	23-Jan-2022	23-Jan-2022	22-Jan-2022	23-Jan-2022	23-Jan-2022	23-Jan-2022	23-Jan-2022	22-Jan-2022	23-Jan-2022	23-Jan-2022
Total Sulphate	28-Jan-2022	27-Jan-2022	27-Jan-2022	27-Jan-2022	27-Jan-2022	28-Jan-2022	28-Jan-2022	27-Jan-2022	28-Jan-2022	28-Jan-2022
Total Sulphur	28-Jan-2022	27-Jan-2022	27-Jan-2022	27-Jan-2022	28-Jan-2022	28-Jan-2022	28-Jan-2022	27-Jan-2022	28-Jan-2022	28-Jan-2022

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	15 February 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220208-68
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	633672
Order Number:	10808

We received 20 samples on Tuesday February 08, 2022 and 20 of these samples were scheduled for analysis which was completed on Tuesday February 15, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220208-68 **Report Number:** 633672 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
25783357	TP-37778	D4	0.80 - 0.80	15/10/2021
25783353	TP-37903	D6	2.60 - 2.60	15/10/2021
25783350	TP-38205	D2	0.40 - 0.40	15/10/2021
25783407	TP-43406	D4	1.30 - 1.30	01/10/2021
25783405	TP-43507	D4	1.40 - 1.40	01/10/2021
25783403	TP-43607	D6	2.80 - 2.80	01/10/2021
25783400	TP-43708	D4	1.50 - 1.50	04/10/2021
25783392	TP-43905	D4	1.60 - 1.60	04/10/2021
25783388	TP-44003	D4	1.50 - 1.50	04/10/2021
25783385	TP-44104	D4	1.60 - 1.60	05/10/2021
25783381	TP-44211	D3	0.70 - 0.70	05/10/2021
25783383	TP-44408	D4	1.60 - 1.60	05/10/2021
25783378	TP-44508	D4	1.50 - 1.50	05/10/2021
25783373	TP-44611	D2	0.70 - 0.70	06/10/2021
25783370	TP-46303	D4	1.00 - 1.00	06/10/2021
25783367	TP-46502	D4	1.60 - 1.60	06/10/2021
25783362	TP-47705	D6	2.50 - 2.50	13/10/2021
25783355	TP-48900	D6	2.00 - 2.00	13/10/2021
25783360	TP-48900	D8	3.50 - 3.50	13/10/2021
25783347	TP-49000	B3	1.20 - 1.50	13/10/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220208-68 **Report Number:** 633672 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			25783357	TP-37778	D4	0.80 - 0.80	250g Amber Jar (ALE210)	S
			25783353	TP-37903	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
			25783350	TP-38205	D2	0.40 - 0.40	250g Amber Jar (ALE210)	S
			25783407	TP-43406	D4	1.30 - 1.30	250g Amber Jar (ALE210)	S
			25783405	TP-43507	D4	1.40 - 1.40	250g Amber Jar (ALE210)	S
			25783403	TP-43607	D6	2.80 - 2.80	250g Amber Jar (ALE210)	S
			25783400	TP-43708	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			25783392	TP-43905	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			25783388	TP-44003	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			25783385	TP-44104	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			25783381	TP-44211	D3	0.70 - 0.70	250g Amber Jar (ALE210)	S
			25783383	TP-44408	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			25783378	TP-44508	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			25783373	TP-44611	D2	0.70 - 0.70	250g Amber Jar (ALE210)	S
			25783370	TP-46303	D4	1.00 - 1.00	250g Amber Jar (ALE210)	S
			25783367	TP-46502	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			25783362	TP-47705	D6	2.50 - 2.50	250g Amber Jar (ALE210)	S
			25783355	TP-48900	D6	2.00 - 2.00	250g Amber Jar (ALE210)	S
			25783360	TP-48900	D8	3.50 - 3.50	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 2																				X
pH	All	NDPs: 0 Tests: 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sample description	All	NDPs: 0 Tests: 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 2																				X
Total Sulphate	All	NDPs: 0 Tests: 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Total Sulphur	All	NDPs: 0 Tests: 1																			X	

25783347	TP-49000	B3	1.20 - 1.50	250g Amber Jar (ALE210)	S
					X
					X
					X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
25783357	TP-37778	0.80 - 0.80	Light Brown	Sandy Silt Loam	Stones	None
25783353	TP-37903	2.60 - 2.60	Light Brown	Loamy Sand	Stones	None
25783350	TP-38205	0.40 - 0.40	Light Brown	Loamy Sand	Stones	None
25783407	TP-43406	1.30 - 1.30	Light Brown	Sandy Silt Loam	Stones	None
25783405	TP-43507	1.40 - 1.40	Light Brown	Sandy Clay Loam	Stones	None
25783403	TP-43607	2.80 - 2.80	Light Brown	Loamy Sand	Stones	None
25783400	TP-43708	1.50 - 1.50	Light Brown	Sandy Clay Loam	Stones	None
25783392	TP-43905	1.60 - 1.60	Light Brown	Sandy Clay Loam	Stones	None
25783388	TP-44003	1.50 - 1.50	Light Brown	Sandy Clay Loam	Stones	None
25783385	TP-44104	1.60 - 1.60	Light Brown	Loamy Sand	Stones	None
25783381	TP-44211	0.70 - 0.70	Light Brown	Sandy Clay Loam	Stones	None
25783383	TP-44408	1.60 - 1.60	Dark Brown	Sandy Loam	Stones	None
25783378	TP-44508	1.50 - 1.50	Light Brown	Loamy Sand	Stones	None
25783373	TP-44611	0.70 - 0.70	Grey	Gravel	Stones	None
25783370	TP-46303	1.00 - 1.00	Light Brown	Sandy Silt Loam	Stones	None
25783367	TP-46502	1.60 - 1.60	Light Brown	Loamy Sand	Stones	None
25783362	TP-47705	2.50 - 2.50	Light Brown	Sandy Clay	Stones	None
25783355	TP-48900	2.00 - 2.00	Light Brown	Loamy Sand	Stones	None
25783360	TP-48900	3.50 - 3.50	Light Brown	Sand	Stones	None
25783347	TP-49000	1.20 - 1.50	Light Brown	Sandy Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220208-68 **Report Number:** 633672 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-37778	TP-37903	TP-38205	TP-43406	TP-43507	TP-43607
			Depth (m)	0.80 - 0.80	2.60 - 2.60	0.40 - 0.40	1.30 - 1.30	1.40 - 1.40	2.80 - 2.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	15/10/2021	15/10/2021	15/10/2021	01/10/2021	01/10/2021	01/10/2021
			Sample Time	.	.	.	.	.	.
			Date Received	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022
			SDG Ref	220208-68	220208-68	220208-68	220208-68	220208-68	220208-68
			Lab Sample No.(s)	25783357	25783353	25783350	25783407	25783405	25783403
			AGS Reference	D4	D6	D2	D4	D4	D6
Moisture Content Ratio (% of as received sample)	%	PM024		7.3	9	15	10	7.6	7.8
pH	1 pH Units	TM133		8.88 @ M	8.94 @ M	8.34 @ M	8.82 @ M	8.93 @ M	8.92 @ M
Sulphate, Total	<48 mg/kg	TM221		76.4 M	93.7 M	1970 M	104 M	74.9 M	273 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0082 @ M	0.0084 @ M	0.708 @ M	0.0074 @ M	0.0093 @ M	0.0117 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220208-68 **Report Number:** 633672 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-43708	TP-43905	TP-44003	TP-44104	TP-44211	TP-44408
			Depth (m)	1.50 - 1.50	1.60 - 1.60	1.50 - 1.50	1.60 - 1.60	0.70 - 0.70	1.60 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/10/2021	04/10/2021	04/10/2021	05/10/2021	05/10/2021	05/10/2021
			Sample Time	.	.	.	.	.	.
			Date Received	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022
			SDG Ref	220208-68	220208-68	220208-68	220208-68	220208-68	220208-68
			Lab Sample No.(s)	25783400	25783392	25783388	25783385	25783381	25783383
			AGS Reference	D4	D4	D4	D4	D3	D4
Moisture Content Ratio (% of as received sample)	%	PM024		7.1	10	9.8	5.6	12	8.3
pH	1 pH Units	TM133		9 @ M	8.86 @ M	8.8 @ M	8.99 @ M	8.54 @ M	8.61 @ M
Sulphate, Total	<48 mg/kg	TM221		116 M	78 M	64.4 M	169 M	317 M	199 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0046 @ M	0.0078 @ M	0.0081 @ M	0.0067 @ M	0.0096 @ M	<0.004 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220208-68 **Report Number:** 633672 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-44508	TP-44611	TP-46303	TP-46502	TP-47705	TP-48900
			Depth (m)	1.50 - 1.50	0.70 - 0.70	1.00 - 1.00	1.60 - 1.60	2.50 - 2.50	2.00 - 2.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2021	06/10/2021	06/10/2021	06/10/2021	13/10/2021	13/10/2021
			Sample Time	.	.	.	.	.	.
			Date Received	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022	08/02/2022
			SDG Ref	220208-68	220208-68	220208-68	220208-68	220208-68	220208-68
			Lab Sample No.(s)	25783378	25783373	25783370	25783367	25783362	25783355
			AGS Reference	D4	D2	D4	D4	D6	D6
Moisture Content Ratio (% of as received sample)	%	PM024		7.6	8.4	9.6	13	10	9
Sulphur, Total	<0.02 %	TM132							<0.02 @
pH	1 pH Units	TM133		8.71 @ M	8.74 @ #	8.77 @ M	8.9 @ M	8.71 @ M	8.93 @ M
Sulphate, Total	<48 mg/kg	TM221		131 M	189 #	121 M	100 M	83.8 M	73.5 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0166 @ M	0.0229 @ #	0.008 @ M	0.0093 @ M	0.0084 @ M	0.0068 @ M

CERTIFICATE OF ANALYSIS

SDG: 220208-68 **Report Number:** 633672 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-48900	TP-49000
			Depth (m)	3.50 - 3.50	1.20 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2021	13/10/2021
			Sample Time	.	.
			Date Received	08/02/2022	08/02/2022
			SDG Ref	220208-68	220208-68
			Lab Sample No.(s)	25783360	25783347
			AGS Reference	D8	B3
Moisture Content Ratio (% of as received sample)	%	PM024		7.9	5.2
Loss on ignition	<0.7 %	TM018		<0.7 @ M	<0.7 @ M
Soil Organic Matter (SOM)	<0.35 %	TM132		<0.35 @ #	<0.35 @ #

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

CERTIFICATE OF ANALYSIS

SDG: 220208-68 **Report Number:** 633672 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	25783357	25783353	25783350	25783407	25783405	25783403	25783400	25783392	25783388	25783385
Customer Sample Ref.	TP-37778	TP-37903	TP-38205	TP-43406	TP-43507	TP-43607	TP-43708	TP-43905	TP-44003	TP-44104
AGS Ref.	D4	D6	D2	D4	D4	D6	D4	D4	D4	D4
Depth	0.80 - 0.80	2.60 - 2.60	0.40 - 0.40	1.30 - 1.30	1.40 - 1.40	2.80 - 2.80	1.50 - 1.50	1.60 - 1.60	1.50 - 1.50	1.60 - 1.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	11-Feb-2022	11-Feb-2022	14-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022
pH	10-Feb-2022	11-Feb-2022	11-Feb-2022	10-Feb-2022	10-Feb-2022	14-Feb-2022	10-Feb-2022	10-Feb-2022	10-Feb-2022	10-Feb-2022
Sample description	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022
Total Sulphate	11-Feb-2022	11-Feb-2022	14-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	14-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022

Lab Sample No(s)	25783381	25783383	25783378	25783373	25783370	25783367	25783362	25783355	25783360	25783347
Customer Sample Ref.	TP-44211	TP-44408	TP-44508	TP-44611	TP-46303	TP-46502	TP-47705	TP-48900	TP-48900	TP-49000
AGS Ref.	D3	D4	D4	D2	D4	D4	D6	D6	D8	B3
Depth	0.70 - 0.70	1.60 - 1.60	1.50 - 1.50	0.70 - 0.70	1.00 - 1.00	1.60 - 1.60	2.50 - 2.50	2.00 - 2.00	3.50 - 3.50	1.20 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	11-Feb-2022	14-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022		
Loss on Ignition in soils									14-Feb-2022	14-Feb-2022
pH	10-Feb-2022	11-Feb-2022	14-Feb-2022	10-Feb-2022	10-Feb-2022	11-Feb-2022	10-Feb-2022	11-Feb-2022		
Sample description	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022	09-Feb-2022
Total Organic Carbon									15-Feb-2022	15-Feb-2022
Total Sulphate	11-Feb-2022	14-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	11-Feb-2022	14-Feb-2022	11-Feb-2022		
Total Sulphur								14-Feb-2022		

SDG:	220208-68	**Client Reference:**	2021OY102	**Report Number:**	633672
Location:	WSP Lot2: Eastern and Midlands	**Order Number:**	10808	**Superseded Report:**	

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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Deeside
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Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	02 March 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220223-35
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	635840
Order Number:	10808

We received 21 samples on Tuesday February 22, 2022 and 21 of these samples were scheduled for analysis which was completed on Wednesday March 02, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
25864372	TP-37698	D4	1.50 - 1.50	27/09/2021
25864403	TP-38901	D2	0.50 - 0.50	28/09/2021
25864410	TP-39006	D5	1.30 - 1.30	28/09/2021
25864413	TP-39101	D4	1.60 - 1.60	27/09/2021
25864415	TP-39300	D2	0.70 - 0.70	29/09/2021
25864419	TP-39403	D4	1.20 - 1.20	29/09/2021
25864423	TP-39503	D4	2.00 - 2.00	28/09/2021
25864426	TP-39601	D2	0.80 - 0.80	29/09/2021
25864428	TP-39805	D2	0.70 - 0.70	28/09/2021
25864375	TP-40001	D4	1.40 - 1.40	29/09/2021
25864378	TP-40205	D4	1.00 - 1.00	30/09/2021
25864380	TP-40305	D3	1.10 - 1.10	30/09/2021
25864382	TP-40404	D6	2.80 - 2.80	30/09/2021
25864386	TP-40505	D6	2.40 - 2.40	30/09/2021
25864388	TP-40605	D6	2.60 - 2.60	30/09/2021
25864390	TP-43108	D4	1.10 - 1.10	30/09/2021
25864392	TP-43207	D4	1.50 - 1.50	01/10/2021
25864397	TP-43308	D6	1.80 - 1.80	01/10/2021
25864401	TP-49102	B3	0.60 - 0.90	14/10/2021
25864405	TP-49215	B3	1.20 - 1.50	14/10/2021
25864407	TP-49408	B1	0.60 - 0.90	14/10/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			25864372	TP-37698	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			25864403	TP-38901	D2	0.50 - 0.50	250g Amber Jar (ALE210)	S
			25864410	TP-39006	D5	1.30 - 1.30	250g Amber Jar (ALE210)	S
			25864413	TP-39101	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			25864415	TP-39300	D2	0.70 - 0.70	250g Amber Jar (ALE210)	S
			25864419	TP-39403	D4	1.20 - 1.20	250g Amber Jar (ALE210)	S
			25864423	TP-39503	D4	2.00 - 2.00	250g Amber Jar (ALE210)	S
			25864426	TP-39601	D2	0.80 - 0.80	250g Amber Jar (ALE210)	S
			25864428	TP-39805	D2	0.70 - 0.70	250g Amber Jar (ALE210)	S
			25864375	TP-40001	D4	1.40 - 1.40	250g Amber Jar (ALE210)	S
			25864378	TP-40205	D4	1.00 - 1.00	250g Amber Jar (ALE210)	S
			25864380	TP-40305	D3	1.10 - 1.10	250g Amber Jar (ALE210)	S
			25864382	TP-40404	D6	2.80 - 2.80	250g Amber Jar (ALE210)	S
			25864386	TP-40505	D6	2.40 - 2.40	250g Amber Jar (ALE210)	S
			25864388	TP-40605	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
			25864390	TP-43108	D4	1.10 - 1.10	250g Amber Jar (ALE210)	S
			25864392	TP-43207	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			25864397	TP-43308	D6	1.80 - 1.80	250g Amber Jar (ALE210)	S
			25864401	TP-49102	B3	0.60 - 0.90	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 3																						X
pH	All	NDPs: 0 Tests: 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Sample description	All	NDPs: 0 Tests: 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 3																						X
Total Sulphate	All	NDPs: 0 Tests: 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Total Sulphur	All	NDPs: 0 Tests: 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

25864407	TP-49408	B1	0.60 - 0.90	250g Amber Jar (ALE210)	S
25864405	TP-49215	B3	1.20 - 1.50	250g Amber Jar (ALE210)	S
X	X				
X	X				
X	X				
X	X				
X	X				
X	X				
X	X				

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
25864372	TP-37698	1.50 - 1.50	Dark Brown	Sandy Loam	Stones	None
25864403	TP-38901	0.50 - 0.50	Dark Brown	Sandy Loam	Stones	None
25864410	TP-39006	1.30 - 1.30	Light Brown	Sandy Loam	Vegetation	Stones
25864413	TP-39101	1.60 - 1.60	Light Brown	Sand	Vegetation	Stones
25864415	TP-39300	0.70 - 0.70	Dark Brown	Sandy Loam	Stones	Vegetation
25864419	TP-39403	1.20 - 1.20	Dark Brown	Sand	Stones	None
25864423	TP-39503	2.00 - 2.00	Dark Brown	Sandy Loam	Stones	None
25864426	TP-39601	0.80 - 0.80	Light Brown	Sandy Loam	Vegetation	Stones
25864428	TP-39805	0.70 - 0.70	Dark Brown	Sandy Loam	Stones	Vegetation
25864375	TP-40001	1.40 - 1.40	Dark Brown	Sandy Clay Loam	Stones	None
25864378	TP-40205	1.00 - 1.00	Dark Brown	Sandy Loam	Stones	Vegetation
25864380	TP-40305	1.10 - 1.10	Dark Brown	Sand	Stones	None
25864382	TP-40404	2.80 - 2.80	Light Brown	Silty Clay Loam	None	Stones
25864386	TP-40505	2.40 - 2.40	Light Brown	Sandy Loam	None	Stones
25864388	TP-40605	2.60 - 2.60	Grey	Silty Clay Loam	Vegetation	Stones
25864390	TP-43108	1.10 - 1.10	Light Brown	Sand	Vegetation	Stones
25864392	TP-43207	1.50 - 1.50	Dark Brown	Loamy Sand	Stones	None
25864397	TP-43308	1.80 - 1.80	Dark Brown	Loamy Sand	Stones	None
25864401	TP-49102	0.60 - 0.90	Dark Brown	Sandy Loam	Stones	None
25864405	TP-49215	1.20 - 1.50	Dark Brown	Sandy Loam	Stones	Vegetation
25864407	TP-49408	0.60 - 0.90	Dark Brown	Sandy Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-37698	TP-38901	TP-39006	TP-39101	TP-39300	TP-39403
			Depth (m)	1.50 - 1.50	0.50 - 0.50	1.30 - 1.30	1.60 - 1.60	0.70 - 0.70	1.20 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/09/2021	28/09/2021	28/09/2021	27/09/2021	29/09/2021	29/09/2021
			Sample Time	.	.	.	.	.	.
			Date Received	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
			SDG Ref	220223-35	220223-35	220223-35	220223-35	220223-35	220223-35
			Lab Sample No.(s)	25864372	25864403	25864410	25864413	25864415	25864419
			AGS Reference	D4	D2	D5	D4	D2	D4
Moisture Content Ratio (% of as received sample)	%	PM024		9.4	8	8.5	6.3	17	6.5
Sulphur, Total	<0.02 %	TM132		<0.02 @	0.0218 @	<0.02 @	<0.02 @	<0.02 @	<0.02 @
Sulphate, Total potential	<0.06 %	TM132		0.06	0.0654	0.06	0.06	0.06	0.06
pH	1 pH Units	TM133		9.03 @ M	8.77 @ M	9.05 @ M	9.15 @ M	8.52 @ M	8.77 @ M
Sulphate, Total	<48 mg/kg	TM221		183 M	338 M	135 M	<48 M	245 M	190 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0097 @ M	<0.02 @ M	0.0049 @ M	<0.004 @ M	<0.004 @ M	<0.004 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-39503	TP-39601	TP-39805	TP-40001	TP-40205	TP-40305
			Depth (m)	2.00 - 2.00	0.80 - 0.80	0.70 - 0.70	1.40 - 1.40	1.00 - 1.00	1.10 - 1.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	28/09/2021	29/09/2021	28/09/2021	29/09/2021	30/09/2021	30/09/2021
			Sample Time	.	.	.	.	.	.
			Date Received	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
			SDG Ref	220223-35	220223-35	220223-35	220223-35	220223-35	220223-35
			Lab Sample No.(s)	25864423	25864426	25864428	25864375	25864378	25864380
			AGS Reference	D4	D2	D2	D4	D4	D3
Moisture Content Ratio (% of as received sample)	%	PM024		9	11	11	9.6	13	6.5
Sulphur, Total	<0.02 %	TM132		<0.02 @	<0.02 @	<0.02 @	<0.02 @	0.0215 @	0.0201 @
Sulphate, Total potential	<0.06 %	TM132		0.06	0.06	0.06	0.06	0.0645	0.0603
pH	1 pH Units	TM133		8.69 @ M	8.47 @ M	8.59 @ M	8.84 @ M	8.42 @ M	8.78 @ M
Sulphate, Total	<48 mg/kg	TM221		202 M	212 M	524 M	272 M	290 M	297 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		<0.004 @ M	<0.004 @ M	<0.004 @ M	0.0083 @ M	<0.004 @ M	0.008 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-40404	TP-40505	TP-40605	TP-43108	TP-43207	TP-43308
			Depth (m)	2.80 - 2.80	2.40 - 2.40	2.60 - 2.60	1.10 - 1.10	1.50 - 1.50	1.80 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	30/09/2021	30/09/2021	30/09/2021	30/09/2021	01/10/2021	01/10/2021
			Sample Time	.	.	.	.	.	.
			Date Received	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
			SDG Ref	220223-35	220223-35	220223-35	220223-35	220223-35	220223-35
			Lab Sample No.(s)	25864382	25864386	25864388	25864390	25864392	25864397
			AGS Reference	D6	D6	D6	D4	D4	D6
Moisture Content Ratio (% of as received sample)	%	PM024		9.4	6.5	7.6	6.6	7.2	8.9
Sulphur, Total	<0.02 %	TM132		<0.02 @	<0.02 @	<0.02 @	0.02 @	0.0261 @	<0.02 @
Sulphate, Total potential	<0.06 %	TM132		0.06	0.06	0.06	0.06	0.0783	0.06
pH	1 pH Units	TM133		8.92 @ M	9.05 @ M	8.95 @ M	8.75 @ M	8.86 @ M	8.74 @ M
Sulphate, Total	<48 mg/kg	TM221		263 M	346 M	187 M	346 M	391 M	728 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0071 @ M	0.006 @ M	0.0048 @ M	<0.004 @ M	0.0049 @ M	0.0057 @ M

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-49102	TP-49215	TP-49408			
			Depth (m)	0.60 - 0.90	1.20 - 1.50	0.60 - 0.90			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	14/10/2021	14/10/2021	14/10/2021			
			Sample Time	.	.	.			
			Date Received	22/02/2022	22/02/2022	22/02/2022			
			SDG Ref	220223-35	220223-35	220223-35			
			Lab Sample No.(s)	25864401	25864405	25864407			
			AGS Reference	B3	B3	B1			
Moisture Content Ratio (% of as received sample)	%	PM024		8.3	10	9.1			
Loss on ignition	<0.7 %	TM018		1 @ M	1.29 @ M	4.75 @ M			
Sulphur, Total	<0.02 %	TM132			<0.02 @	0.0264 @			
Sulphate, Total potential	<0.06 %	TM132			0.06	0.0792			
Soil Organic Matter (SOM)	<0.35 %	TM132		<0.35 @ #	0.528 @ #	2.05 @ #			
pH	1 pH Units	TM133			8.64 @ M	8.32 @ M			
Sulphate, Total	<48 mg/kg	TM221			225 M	239 M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243			<0.004 @ M	<0.004 @ M			

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

CERTIFICATE OF ANALYSIS

SDG: 220223-35 **Report Number:** 635840 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	25864372	25864403	25864410	25864413	25864415	25864419	25864423	25864426	25864428	25864375
Customer Sample Ref.	TP-37698	TP-38901	TP-39006	TP-39101	TP-39300	TP-39403	TP-39503	TP-39601	TP-39805	TP-40001
AGS Ref.	D4	D2	D5	D4	D2	D4	D4	D2	D2	D4
Depth	1.50 - 1.50	0.50 - 0.50	1.30 - 1.30	1.60 - 1.60	0.70 - 0.70	1.20 - 1.20	2.00 - 2.00	0.80 - 0.80	0.70 - 0.70	1.40 - 1.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	25-Feb-2022	25-Feb-2022	25-Feb-2022	25-Feb-2022	25-Feb-2022	25-Feb-2022	25-Feb-2022	25-Feb-2022	01-Mar-2022	25-Feb-2022
pH	01-Mar-2022	28-Feb-2022	28-Feb-2022	01-Mar-2022	01-Mar-2022	01-Mar-2022	28-Feb-2022	01-Mar-2022	01-Mar-2022	01-Mar-2022
Sample description	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022
Total Sulphate	25-Feb-2022	28-Feb-2022	25-Feb-2022	28-Feb-2022	25-Feb-2022	28-Feb-2022	28-Feb-2022	28-Feb-2022	28-Feb-2022	28-Feb-2022
Total Sulphur	02-Mar-2022	02-Mar-2022	02-Mar-2022	01-Mar-2022	02-Mar-2022	01-Mar-2022	01-Mar-2022	01-Mar-2022	01-Mar-2022	01-Mar-2022

Lab Sample No(s)	25864378	25864380	25864382	25864386	25864388	25864390	25864392	25864397	25864401	25864405
Customer Sample Ref.	TP-40205	TP-40305	TP-40404	TP-40505	TP-40605	TP-43108	TP-43207	TP-43308	TP-49102	TP-49215
AGS Ref.	D4	D3	D6	D6	D6	D4	D4	D6	B3	B3
Depth	1.00 - 1.00	1.10 - 1.10	2.80 - 2.80	2.40 - 2.40	2.60 - 2.60	1.10 - 1.10	1.50 - 1.50	1.80 - 1.80	0.60 - 0.90	1.20 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	25-Feb-2022	25-Feb-2022	01-Mar-2022	25-Feb-2022	01-Mar-2022	01-Mar-2022	25-Feb-2022	01-Mar-2022		25-Feb-2022
Loss on Ignition in soils									25-Feb-2022	25-Feb-2022
pH	28-Feb-2022	01-Mar-2022	28-Feb-2022	28-Feb-2022	01-Mar-2022	01-Mar-2022	28-Feb-2022	01-Mar-2022		01-Mar-2022
Sample description	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022	23-Feb-2022
Total Organic Carbon									02-Mar-2022	01-Mar-2022
Total Sulphate	25-Feb-2022	25-Feb-2022	28-Feb-2022	28-Feb-2022	28-Feb-2022	28-Feb-2022	28-Feb-2022	28-Feb-2022		28-Feb-2022
Total Sulphur	02-Mar-2022	02-Mar-2022	01-Mar-2022	01-Mar-2022	01-Mar-2022	01-Mar-2022	02-Mar-2022	01-Mar-2022		02-Mar-2022

Lab Sample No(s)	25864407
Customer Sample Ref.	TP-49408
AGS Ref.	B1
Depth	0.60 - 0.90
Type	Soil/Solid (S)
Anions by Kone (soil)	25-Feb-2022
Loss on Ignition in soils	25-Feb-2022
pH	28-Feb-2022
Sample description	23-Feb-2022
Total Organic Carbon	28-Feb-2022
Total Sulphate	28-Feb-2022
Total Sulphur	02-Mar-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 April 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220407-114
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	643216
Order Number:	10808

We received 20 samples on Thursday April 07, 2022 and 20 of these samples were scheduled for analysis which was completed on Thursday April 21, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220407-114 **Report Number:** 643216 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26099680	BPS-BH001	D14	4.50 - 4.50	28/01/2022
26099717	BPS-BH004	D14	4.50 - 4.50	31/01/2022
26099721	BPS-BH006	D11	3.50 - 3.50	04/02/2022
26099723	BPS-BH008	D5	1.50 - 1.50	26/01/2022
26099729	BPS-BH010	D5	1.50 - 1.50	24/01/2022
26099734	BPS-TP001	D6	2.30 - 2.30	25/11/2021
26099738	BPS-TP002	D4	1.80 - 1.80	25/11/2021
26099740	BPS-TP003	D4	1.50 - 1.50	24/11/2021
26099742	BPS-TP004	D4	0.80 - 0.80	23/11/2021
26099685	BPS-TP006	D6	1.80 - 1.80	23/11/2021
26099687	BPS-TP007	D4	1.80 - 1.80	24/11/2021
26099696	BPS-TP009	D4	1.50 - 1.50	25/11/2021
26099698	BPS-TP011	D6	2.60 - 2.60	24/11/2021
26099702	BPS-TP012	D8	4.30 - 4.30	23/11/2021
26099705	BPS-TP016	D6	2.50 - 2.50	25/11/2021
26099707	BPS-TP018	D8	3.80 - 3.80	26/11/2021
26099709	BPS-TP026	D4	1.50 - 1.50	26/11/2021
26099712	BPS-TPINF001	D4	1.50 - 1.50	24/11/2021
26099714	TP-39906	D4	1.20 - 1.20	28/09/2021
26099719	TP-40305	D1	0.40 - 0.40	30/09/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220407-114 **Report Number:** 643216 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26099680	BPS-BH001	D14	4.50 - 4.50	250g Amber Jar (ALE210)	S
			26099717	BPS-BH004	D14	4.50 - 4.50	250g Amber Jar (ALE210)	S
			26099721	BPS-BH006	D11	3.50 - 3.50	250g Amber Jar (ALE210)	S
			26099723	BPS-BH008	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26099729	BPS-BH010	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26099734	BPS-TP001	D6	2.30 - 2.30	250g Amber Jar (ALE210)	S
			26099738	BPS-TP002	D4	1.80 - 1.80	250g Amber Jar (ALE210)	S
			26099740	BPS-TP003	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26099742	BPS-TP004	D4	0.80 - 0.80	250g Amber Jar (ALE210)	S
			26099685	BPS-TP006	D6	1.80 - 1.80	250g Amber Jar (ALE210)	S
			26099687	BPS-TP007	D4	1.80 - 1.80	250g Amber Jar (ALE210)	S
			26099696	BPS-TP009	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26099698	BPS-TP011	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
			26099702	BPS-TP012	D8	4.30 - 4.30	250g Amber Jar (ALE210)	S
			26099705	BPS-TP016	D6	2.50 - 2.50	250g Amber Jar (ALE210)	S
			26099707	BPS-TP018	D8	3.80 - 3.80	250g Amber Jar (ALE210)	S
			26099709	BPS-TP026	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26099712	BPS-TPINF001	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26099714	TP-39906	D4	1.20 - 1.20	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 1																				
Total Sulphate	All	NDPs: 0 Tests: 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

26099719	TP-40305	D1	0.40 - 0.40	250g Amber Jar (ALE210)	S
					X
					X

CERTIFICATE OF ANALYSIS

SDG: 220407-114 **Report Number:** 643216 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26099680						
26099717						
26099721						
26099723						
26099729						
26099734						
26099738						
26099740						
26099742						
26099685						
26099687						
26099696						
26099698						
26099702						
26099705						
26099707						
26099709						
26099712						
26099714	TP-39906	1.20 - 1.20	Light Brown	Loamy Sand	Stones	None
26099719	TP-40305	0.40 - 0.40	Dark Brown	Silt Loam	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220407-114 **Report Number:** 643216 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-39906	TP-40305				
			Depth (m)	1.20 - 1.20	0.40 - 0.40				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	28/09/2021	30/09/2021				
			Sample Time	.	.				
			Date Received	07/04/2022	07/04/2022				
			SDG Ref	220407-114	220407-114				
			Lab Sample No.(s)	26099714	26099719				
			AGS Reference	D4	D1				
Moisture Content Ratio (% of as received sample)	%	PM024		10	45				
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0139 @					
Sulphur, Total	<0.02 %	TM132		<0.02 @ #					
Sulphate, Total potential	<0.06 %	TM132		0.06 @					
Soil Organic Matter (SOM)	<0.35 %	TM132			40.5 @ #				
pH	1 pH Units	TM133		8.53 @ M					
Sulphate, acid soluble (total)	<0.02 %	TM221		0.022 @					

CERTIFICATE OF ANALYSIS

SDG: 220407-114 **Report Number:** 643216 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

CERTIFICATE OF ANALYSIS

SDG: 220407-114 **Report Number:** 643216 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26099680	26099717	26099721	26099723	26099729	26099734	26099738	26099740	26099742	26099685
Customer Sample Ref.	BPS-BH001	BPS-BH004	BPS-BH006	BPS-BH008	BPS-BH010	BPS-TP001	BPS-TP002	BPS-TP003	BPS-TP004	BPS-TP006
AGS Ref.	D14	D14	D11	D5	D5	D6	D4	D4	D4	D6
Depth	4.50 - 4.50	4.50 - 4.50	3.50 - 3.50	1.50 - 1.50	1.50 - 1.50	2.30 - 2.30	1.80 - 1.80	1.50 - 1.50	0.80 - 0.80	1.80 - 1.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	13-Apr-2022	13-Apr-2022	13-Apr-2022	13-Apr-2022	14-Apr-2022	13-Apr-2022	13-Apr-2022	14-Apr-2022	14-Apr-2022	13-Apr-2022
pH	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022
Sample description	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022
Total Sulphate	12-Apr-2022	12-Apr-2022	13-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	13-Apr-2022	12-Apr-2022	12-Apr-2022
Total Sulphur	14-Apr-2022	14-Apr-2022	14-Apr-2022	14-Apr-2022	14-Apr-2022	12-Apr-2022	12-Apr-2022	14-Apr-2022	14-Apr-2022	14-Apr-2022

Lab Sample No(s)	26099687	26099696	26099698	26099702	26099705	26099707	26099709	26099712	26099714	26099719
Customer Sample Ref.	BPS-TP007	BPS-TP009	BPS-TP011	BPS-TP012	BPS-TP016	BPS-TP018	BPS-TP026	BPS-TPINF001	TP-39906	TP-40305
AGS Ref.	D4	D4	D6	D8	D6	D8	D4	D4	D4	D1
Depth	1.80 - 1.80	1.50 - 1.50	2.60 - 2.60	4.30 - 4.30	2.50 - 2.50	3.80 - 3.80	1.50 - 1.50	1.50 - 1.50	1.20 - 1.20	0.40 - 0.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	14-Apr-2022	14-Apr-2022	14-Apr-2022	14-Apr-2022	14-Apr-2022	13-Apr-2022	14-Apr-2022	13-Apr-2022	13-Apr-2022	
pH	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	
Sample description	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022	08-Apr-2022
Total Organic Carbon										21-Apr-2022
Total Sulphate	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	13-Apr-2022	12-Apr-2022	12-Apr-2022	
Total Sulphur	14-Apr-2022	14-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	12-Apr-2022	14-Apr-2022	12-Apr-2022	14-Apr-2022	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
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Tel: (01244) 528700
Fax: (01244) 528701
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	05 May 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220427-99
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	644867
Order Number:	10808

We received 2 samples on Wednesday April 27, 2022 and 2 of these samples were scheduled for analysis which was completed on Thursday May 05, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220427-99 **Report Number:** 644867 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26192508	TP-47003	D4	1.70 - 1.70	07/10/2021
26192510	TP-47102	D8	4.00 - 4.00	07/10/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220427-99 **Report Number:** 644867 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26192508	26192510
Customer Sample Reference			TP-47003	TP-47102
AGS Reference			D4	D8
Depth (m)			1.70 - 1.70	4.00 - 4.00
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 2	X	X
pH	All	NDPs: 0 Tests: 2	X	X
Sample description	All	NDPs: 0 Tests: 2	X	X
Total Sulphate	All	NDPs: 0 Tests: 2	X	X
Total Sulphur	All	NDPs: 0 Tests: 2	X	X

CERTIFICATE OF ANALYSIS

SDG: 220427-99 **Report Number:** 644867 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26192508	TP-47003	1.70 - 1.70	Dark Brown	Sandy Clay	Stones	None
26192510	TP-47102	4.00 - 4.00	Light Brown	Sandy Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220427-99 **Report Number:** 644867 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-47003	TP-47102				
			Depth (m)	1.70 - 1.70	4.00 - 4.00				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	07/10/2021	07/10/2021				
			Sample Time	.	.				
			Date Received	27/04/2022	27/04/2022				
			SDG Ref	220427-99	220427-99				
			Lab Sample No.(s)	26192508	26192510				
			AGS Reference	D4	D8				
Moisture Content Ratio (% of as received sample)	%	PM024		12	8.6				
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #				
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @				
pH	1 pH Units	TM133		8.55 @ M	8.94 @ M				
Sulphate, acid soluble (total)	<0.02 %	TM221		<0.02 @	<0.02 @				
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		<0.004 @ M	0.0052 @ M				

CERTIFICATE OF ANALYSIS

SDG: 220427-99 **Report Number:** 644867 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

CERTIFICATE OF ANALYSIS

SDG: 220427-99 **Report Number:** 644867 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26192508	26192510
Customer Sample Ref.	TP-47003	TP-47102
AGS Ref.	D4	D8
Depth	1.70 - 1.70	4.00 - 4.00
Type	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	04-May-2022	03-May-2022
pH	29-Apr-2022	29-Apr-2022
Sample description	28-Apr-2022	28-Apr-2022
Total Sulphate	04-May-2022	04-May-2022
Total Sulphur	05-May-2022	04-May-2022

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
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Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	13 June 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220606-31
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	650368
Order Number:	10808

We received 9 samples on Monday June 06, 2022 and 9 of these samples were scheduled for analysis which was completed on Monday June 13, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 220606-31 **Report Number:** 650368 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26389052	TP-46717	D4	1.60 - 1.60	07/10/2021
26389054	TP-46801	D6	2.80 - 2.80	07/10/2021
26389058	TP-47308	D2	0.60 - 0.60	08/10/2021
26389060	TP-47507	D4	1.30 - 1.30	11/10/2021
26389063	TP-47615	D4	1.50 - 1.50	11/10/2021
26389066	TP-47902	D2	0.80 - 0.80	11/10/2021
26389069	TP-48401	D4	1.90 - 1.90	12/10/2021
26389071	TP-48596	D4	2.00 - 2.00	12/10/2021
26389074	TP-48800	D4	1.00 - 1.00	12/10/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220606-31 **Report Number:** 650368 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26389052	TP-46717	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			26389054	TP-46801	D6	2.80 - 2.80	250g Amber Jar (ALE210)	S
			26389058	TP-47308	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			26389060	TP-47507	D4	1.30 - 1.30	250g Amber Jar (ALE210)	S
			26389063	TP-47615	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26389066	TP-47902	D2	0.80 - 0.80	250g Amber Jar (ALE210)	S
			26389069	TP-48401	D4	1.90 - 1.90	250g Amber Jar (ALE210)	S
			26389071	TP-48596	D4	2.00 - 2.00	250g Amber Jar (ALE210)	S
			26389074	TP-48800	D4	1.00 - 1.00	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 220606-31 **Report Number:** 650368 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26389052	TP-46717	1.60 - 1.60	Light Brown	Sandy Loam	Stones	None
26389054	TP-46801	2.80 - 2.80	Light Brown	Sandy Clay	Stones	None
26389058	TP-47308	0.60 - 0.60	Light Brown	Sandy Clay Loam	Stones	None
26389060	TP-47507	1.30 - 1.30	Light Brown	Sand	Stones	None
26389063	TP-47615	1.50 - 1.50	Light Brown	Sandy Loam	Stones	None
26389066	TP-47902	0.80 - 0.80	Light Brown	Silty Clay Loam	Stones	None
26389069	TP-48401	1.90 - 1.90	Light Brown	Loamy Sand	Stones	None
26389071	TP-48596	2.00 - 2.00	Light Brown	Sandy Clay Loam	Stones	None
26389074	TP-48800	1.00 - 1.00	Light Brown	Sandy Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220606-31 **Report Number:** 650368 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-46717	TP-46801	TP-47308	TP-47507	TP-47615	TP-47902
			Depth (m)	1.60 - 1.60	2.80 - 2.80	0.60 - 0.60	1.30 - 1.30	1.50 - 1.50	0.80 - 0.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2021	07/10/2021	08/10/2021	11/10/2021	11/10/2021	11/10/2021
			Sample Time	-	-	-	-	-	-
			Date Received	06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022
			SDG Ref	220606-31	220606-31	220606-31	220606-31	220606-31	220606-31
			Lab Sample No.(s)	26389052	26389054	26389058	26389060	26389063	26389066
			AGS Reference	D4	D6	D2	D4	D4	D2
Moisture Content Ratio (% of as received sample)	%	PM024		6.4	6	11	5.5	5.5	8.4
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #	<0.02 @ #	0.0204 @ #	<0.02 @ #	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @	0.06 @	0.0612 @	0.06 @	0.06 @
pH	1 pH Units	TM133		8.74 @ M	8.95 @ M	8.6 @ M	8.62 @ M	8.94 @ M	8.92 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0105 @ M	<0.0048 @ M	<0.0048 @ M	0.0273 @ M	<0.0048 @ M	0.0082 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.007 @ M	0.0052 @ M	0.0068 @ M	0.022 @ M	0.008 @ M	0.0101 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220606-31 **Report Number:** 650368 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-48401	TP-48596	TP-48800			
			Depth (m)	1.90 - 1.90	2.00 - 2.00	1.00 - 1.00			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	12/10/2021	12/10/2021	12/10/2021			
			Sample Time	-	-	-			
			Date Received	06/06/2022	06/06/2022	06/06/2022			
			SDG Ref	220606-31	220606-31	220606-31			
			Lab Sample No.(s)	26389069	26389071	26389074			
			AGS Reference	D4	D4	D4			
Moisture Content Ratio (% of as received sample)	%	PM024		4.7	7	7.1			
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #	0.0243 @ #			
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @	0.0729 @			
pH	1 pH Units	TM133		8.99 @ M	8.84 @ M	8.58 @ M			
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0139 @ M	<0.0048 @ M	0.0147 @ M			
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0075 @ M	0.0085 @ M	0.0139 @ M			

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

CERTIFICATE OF ANALYSIS

SDG: 220606-31 **Report Number:** 650368 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26389052	26389054	26389058	26389060	26389063	26389066	26389069	26389071	26389074
Customer Sample Ref.	TP-46717	TP-46801	TP-47308	TP-47507	TP-47615	TP-47902	TP-48401	TP-48596	TP-48800
AGS Ref.	D4	D6	D2	D4	D4	D2	D4	D4	D4
Depth	1.60 - 1.60	2.80 - 2.80	0.60 - 0.60	1.30 - 1.30	1.50 - 1.50	0.80 - 0.80	1.90 - 1.90	2.00 - 2.00	1.00 - 1.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	13-Jun-2022	13-Jun-2022	13-Jun-2022	09-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	09-Jun-2022	09-Jun-2022
pH	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022
Sample description	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022
Total Sulphate	10-Jun-2022	10-Jun-2022	10-Jun-2022	09-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	09-Jun-2022	09-Jun-2022
Total Sulphur	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	23 June 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220616-107
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	651836
Order Number:	10808

We received 22 samples on Thursday June 16, 2022 and 22 of these samples were scheduled for analysis which was completed on Thursday June 23, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26439352	TP-38500	D2	0.70 - 0.70	18/10/2021
26439395	TP-38777	D4	1.60 - 1.60	18/10/2021
26439421	TP-59203	B3	0.60 - 0.90	11/11/2021
26439424	TP-62907	D4	1.70 - 1.70	18/11/2021
26439427	TP-62907	D6	2.70 - 2.70	18/11/2021
26439430	TP-63610	D4	1.50 - 1.50	19/11/2021
26439436	TP-63711	D2	0.60 - 0.60	22/11/2021
26439447	TP-63812	D2	0.60 - 0.60	22/11/2021
26439454	TP-63911	D4	1.50 - 1.50	22/11/2021
26439356	TP-63911	B5	2.30 - 2.60	25/11/2021
26439362	TP-63911	D6	2.60 - 2.60	22/11/2021
26439368	TP-65707	B1	0.50 - 0.80	22/11/2021
26439371	TP-65707	D4	2.40 - 2.40	22/11/2021
26439374	TP-65707	B5	3.30 - 3.60	22/11/2021
26439378	TP-65805	B3	1.30 - 1.60	22/11/2021
26439381	TP-65805	D6	2.50 - 2.50	22/11/2021
26439383	TP-65906	B1	0.20 - 0.50	23/11/2021
26439388	TP-65906	B3	1.30 - 1.60	23/11/2021
26439390	TP-65906	B5	2.50 - 2.80	23/11/2021
26439398	TP-66005	B3	0.80 - 1.10	23/11/2021
26439400	TP-66005	D4	1.10 - 1.10	23/11/2021
26439407	TP-66005	B5	1.70 - 2.00	23/11/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26439352	TP-38500	D2	0.70 - 0.70	250g Amber Jar (ALE210)	S
			26439395	TP-38777	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			26439421	TP-59203	B3	0.60 - 0.90	250g Amber Jar (ALE210)	S
			26439424	TP-62907	D4	1.70 - 1.70	250g Amber Jar (ALE210)	S
			26439427	TP-62907	D6	2.70 - 2.70	250g Amber Jar (ALE210)	S
			26439430	TP-63610	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26439436	TP-63711	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			26439447	TP-63812	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			26439454	TP-63911	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26439356	TP-63911	B5	2.30 - 2.60	250g Amber Jar (ALE210)	S
			26439362	TP-63911	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
			26439368	TP-65707	B1	0.50 - 0.80	250g Amber Jar (ALE210)	S
			26439371	TP-65707	D4	2.40 - 2.40	250g Amber Jar (ALE210)	S
			26439374	TP-65707	B5	3.30 - 3.60	250g Amber Jar (ALE210)	S
			26439378	TP-65805	B3	1.30 - 1.60	250g Amber Jar (ALE210)	S
			26439381	TP-65805	D6	2.50 - 2.50	250g Amber Jar (ALE210)	S
			26439383	TP-65906	B1	0.20 - 0.50	250g Amber Jar (ALE210)	S
			26439388	TP-65906	B3	1.30 - 1.60	250g Amber Jar (ALE210)	S
			26439390	TP-65906	B5	2.50 - 2.80	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 8			X		X	
					X		X	
					X		X	
					X		X	
					X		X	
					X		X	
					X		X	
					X		X	
					X		X	
					X		X	
					X		X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 13						
						X		

26439407	TP-66005	B5	1.70 - 2.00	250g Amber Jar (ALE210)	S				X				X		X				
26439400	TP-66005	D4	1.10 - 1.10	250g Amber Jar (ALE210)	S		X				X		X				X		X
26439398	TP-66005	B3	0.80 - 1.10	250g Amber Jar (ALE210)	S				X				X		X				

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26439352	TP-38500	0.70 - 0.70	Light Brown	Sandy Clay	Stones	None
26439395	TP-38777	1.60 - 1.60	Light Brown	Silt Loam	None	Stones
26439421	TP-59203	0.60 - 0.90	Light Brown	Sandy Loam	Stones	None
26439424	TP-62907	1.70 - 1.70	Light Brown	Silt Loam	None	None
26439427	TP-62907	2.70 - 2.70	Grey	Sandy Silt Loam	None	Stones
26439430	TP-63610	1.50 - 1.50	Light Brown	Sandy Silt Loam	None	Stones
26439436	TP-63711	0.60 - 0.60	Light Brown	N/A	None	None
26439447	TP-63812	0.60 - 0.60	Light Brown	Silty Clay Loam	Vegetation	Stones
26439356	TP-63911	2.30 - 2.60	Grey	Sandy Clay	None	None
26439362	TP-63911	2.60 - 2.60	Grey	Sandy Loam	None	Stones
26439454	TP-63911	1.50 - 1.50	Dark Brown	Peat	Vegetation	None
26439368	TP-65707	0.50 - 0.80	Light Brown	Sandy Clay Loam	Stones	None
26439371	TP-65707	2.40 - 2.40	Light Brown	Sandy Clay Loam	Stones	None
26439374	TP-65707	3.30 - 3.60	Dark Brown	Sand	None	Stones
26439378	TP-65805	1.30 - 1.60	Light Brown	Sandy Silt Loam	None	Stones
26439381	TP-65805	2.50 - 2.50	Light Brown	Sandy Clay Loam	Stones	None
26439383	TP-65906	0.20 - 0.50	Light Brown	Sand	Stones	None
26439388	TP-65906	1.30 - 1.60	Light Brown	Loamy Sand	Stones	None
26439390	TP-65906	2.50 - 2.80	Light Brown	Sandy Loam	None	Stones
26439398	TP-66005	0.80 - 1.10	Light Brown	Sandy Silt Loam	Stones	None
26439400	TP-66005	1.10 - 1.10	Dark Brown	Clay Loam	None	Stones
26439407	TP-66005	1.70 - 2.00	Light Brown	Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-38500	TP-38777	TP-59203	TP-62907	TP-62907	TP-63610
			Depth (m)	0.70 - 0.70	1.60 - 1.60	0.60 - 0.90	1.70 - 1.70	2.70 - 2.70	1.50 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	18/10/2021	18/10/2021	11/11/2021	18/11/2021	18/11/2021	19/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	16/06/2022	16/06/2022	16/06/2022	16/06/2022	16/06/2022	16/06/2022
			SDG Ref	220616-107	220616-107	220616-107	220616-107	220616-107	220616-107
			Lab Sample No.(s)	26439352	26439395	26439421	26439424	26439427	26439430
			AGS Reference	D2	D4	B3	D4	D6	D4
Moisture Content Ratio (% of as received sample)	%	PM024		6.3	11	7.8	24	18	8.4
Loss on ignition	<0.7 %	TM018					3.42 @ M		
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019				0.0113 @		0.155 @	0.014 @
Sulphur, Total	<0.02 %	TM132				<0.02 @ #		0.0523 @ #	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132				0.06 @		0.157 @	0.06 @
Soil Organic Matter (SOM)	<0.35 %	TM132					0.936 @ #		
pH	1 pH Units	TM133				8.79 @ M		8.31 @ M	8.7 @ M
Sulphate, Total	<48 mg/kg	TM221		304 @ M	190 @ M				
Sulphate, acid soluble (total)	<0.0048 %	TM221				0.0515 @ M		0.0472 @ M	0.0168 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-63711	TP-63812	TP-63911	TP-63911	TP-63911	TP-65707
			Depth (m)	0.60 - 0.60	0.60 - 0.60	1.50 - 1.50	2.30 - 2.60	2.60 - 2.60	0.50 - 0.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	22/11/2021	22/11/2021	22/11/2021	25/11/2021	22/11/2021	22/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	16/06/2022	16/06/2022	16/06/2022	16/06/2022	16/06/2022	16/06/2022
			SDG Ref	220616-107	220616-107	220616-107	220616-107	220616-107	220616-107
			Lab Sample No.(s)	26439436	26439447	26439454	26439356	26439362	26439368
			AGS Reference	D2	D2	D4	B5	D6	B1
Moisture Content Ratio (% of as received sample)	%	PM024		16	17	80	20	14	10
Loss on ignition	<0.7 %	TM018		1.15 @	1.93 @ M	83.8 @ #		0.718 @ M	1.14 @ M
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019			0.0217 @		0.0918 @		
Sulphur, Total	<0.02 %	TM132			<0.02 @ #		0.052 @ #		
Sulphate, Total potential	<0.06 %	TM132			0.06 @		0.156 @		
Soil Organic Matter (SOM)	<0.35 %	TM132		<0.35 @	0.429 @ #	69 @ #		<0.35 @ #	<0.35 @ #
pH	1 pH Units	TM133			8.37 @ M		8.14 @ M		
Sulphate, acid soluble (total)	<0.0048 %	TM221			0.0132 @ M		0.0305 @ M		

Validated

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-65707	TP-65707	TP-65805	TP-65805	TP-65906	TP-65906
			Depth (m)	2.40 - 2.40	3.30 - 3.60	1.30 - 1.60	2.50 - 2.50	0.20 - 0.50	1.30 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	22/11/2021	22/11/2021	22/11/2021	22/11/2021	23/11/2021	23/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	16/06/2022	16/06/2022	16/06/2022	16/06/2022	16/06/2022	16/06/2022
			SDG Ref	220616-107	220616-107	220616-107	220616-107	220616-107	220616-107
			Lab Sample No.(s)	26439371	26439374	26439378	26439381	26439383	26439388
			AGS Reference	D4	B5	B3	D6	B1	B3
Moisture Content Ratio (% of as received sample)	%	PM024		12	5.3	9.1	9.2	9.6	8
Loss on ignition	<0.7 %	TM018			1.19 @ M	1.41 @ M		0.827 @ M	0.784 @ M
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0136 @			0.00999 @		
Sulphur, Total	<0.02 %	TM132		0.0201 @ #			<0.02 @ #		
Sulphate, Total potential	<0.06 %	TM132		0.0603 @			0.06 @		
Soil Organic Matter (SOM)	<0.35 %	TM132			<0.35 @ #	<0.35 @ #		<0.35 @ #	<0.35 @ #
pH	1 pH Units	TM133		8.9 @ M			8.66 @ M		
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0269 @ M			0.0208 @ M		

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP-65906	2.50 - 2.80	Soil/Solid (S)	23/11/2021	-	16/06/2022	220616-107	26439390	B5
			TP-66005	0.80 - 1.10	Soil/Solid (S)	23/11/2021	-	16/06/2022	220616-107	26439398	B3
			TP-66005	1.10 - 1.10	Soil/Solid (S)	23/11/2021	-	16/06/2022	220616-107	26439400	D4
			TP-66005	1.70 - 2.00	Soil/Solid (S)	23/11/2021	-	16/06/2022	220616-107	26439407	B5
Moisture Content Ratio (% of as received sample)	%	PM024	8.7	12	13	7					
Loss on ignition	<0.7 %	TM018	1.12 @ M	1.12 @ M		1.31 @ M					
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019			0.0175 @						
Sulphur, Total	<0.02 %	TM132			<0.02 @ #						
Sulphate, Total potential	<0.06 %	TM132			0.06 @						
Soil Organic Matter (SOM)	<0.35 %	TM132	<0.35 @ #	<0.35 @ #		0.56 @ #					
pH	1 pH Units	TM133			8.82 @ M						
Sulphate, acid soluble (total)	<0.0048 %	TM221			0.016 @ M						

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220616-107 **Report Number:** 651836 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26439352	26439395	26439421	26439424	26439427	26439430	26439436	26439447	26439356	26439362
Customer Sample Ref.	TP-38500	TP-38777	TP-59203	TP-62907	TP-62907	TP-63610	TP-63711	TP-63812	TP-63911	TP-63911
AGS Ref.	D2	D4	B3	D4	D6	D4	D2	D2	B5	D6
Depth	0.70 - 0.70	1.60 - 1.60	0.60 - 0.90	1.70 - 1.70	2.70 - 2.70	1.50 - 1.50	0.60 - 0.60	0.60 - 0.60	2.30 - 2.60	2.60 - 2.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC			23-Jun-2022		23-Jun-2022	23-Jun-2022		23-Jun-2022	23-Jun-2022	
Loss on Ignition in soils				21-Jun-2022			22-Jun-2022	21-Jun-2022		21-Jun-2022
pH			17-Jun-2022		17-Jun-2022	17-Jun-2022		17-Jun-2022	17-Jun-2022	
Sample description	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022
Total Organic Carbon				21-Jun-2022			22-Jun-2022	22-Jun-2022		22-Jun-2022
Total Sulphate	23-Jun-2022	23-Jun-2022	23-Jun-2022		23-Jun-2022	23-Jun-2022		23-Jun-2022	20-Jun-2022	
Total Sulphur			22-Jun-2022		22-Jun-2022	22-Jun-2022		22-Jun-2022	20-Jun-2022	

Lab Sample No(s)	26439454	26439368	26439371	26439374	26439378	26439381	26439383	26439388	26439390	26439398
Customer Sample Ref.	TP-63911	TP-65707	TP-65707	TP-65707	TP-65805	TP-65805	TP-65906	TP-65906	TP-65906	TP-66005
AGS Ref.	D4	B1	D4	B5	B3	D6	B1	B3	B5	B3
Depth	1.50 - 1.50	0.50 - 0.80	2.40 - 2.40	3.30 - 3.60	1.30 - 1.60	2.50 - 2.50	0.20 - 0.50	1.30 - 1.60	2.50 - 2.80	0.80 - 1.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC			23-Jun-2022			23-Jun-2022				
Loss on Ignition in soils	22-Jun-2022	21-Jun-2022		21-Jun-2022	21-Jun-2022		21-Jun-2022	21-Jun-2022	21-Jun-2022	21-Jun-2022
pH			17-Jun-2022			17-Jun-2022				
Sample description	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022	17-Jun-2022
Total Organic Carbon	22-Jun-2022	21-Jun-2022		22-Jun-2022	22-Jun-2022		21-Jun-2022	21-Jun-2022	22-Jun-2022	21-Jun-2022
Total Sulphate			23-Jun-2022			23-Jun-2022				
Total Sulphur			22-Jun-2022			22-Jun-2022				

Lab Sample No(s)	26439400	26439407
Customer Sample Ref.	TP-66005	TP-66005
AGS Ref.	D4	B5
Depth	1.10 - 1.10	1.70 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	23-Jun-2022	
Loss on Ignition in soils		21-Jun-2022
pH	17-Jun-2022	
Sample description	17-Jun-2022	17-Jun-2022
Total Organic Carbon		21-Jun-2022
Total Sulphate	23-Jun-2022	
Total Sulphur	22-Jun-2022	

SDG:	220616-107	**Report Number:**	651836	**Superseded Report:**	
Client Ref:	2021OY102	**Location:**	WSP Lot2: Eastern and Midlands		

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	01 July 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220624-151
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	652814
Order Number:	10808

We received 10 samples on Friday June 24, 2022 and 10 of these samples were scheduled for analysis which was completed on Friday July 01, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220624-151 **Report Number:** 652814 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26487535	TP-37102	D4	1.70 - 1.70	19/10/2021
26487542	TP-50707	D6	2.60 - 2.60	22/10/2021
26487549	TP-50959	D6	2.60 - 2.60	20/10/2021
26487552	TP-51052	D4	1.30 - 1.30	21/10/2021
26487556	TP-51061	B3	1.50 - 1.80	20/10/2021
26487558	TP-51061	D4	1.80 - 1.80	20/10/2021
26487561	TP-51116	D2	0.60 - 0.60	21/10/2021
26487564	TP-51305	D4	1.50 - 1.50	21/10/2021
26487537	TP-51385	D4	2.30 - 2.30	21/10/2021
26487540	TP-51705	D6	3.30 - 3.30	22/10/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220624-151 **Report Number:** 652814 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26487535	26487542	26487549	26487552	26487556	26487558	26487561	26487564	26487537	26487540
Customer Sample Reference			TP-37102	TP-50707	TP-50959	TP-51052	TP-51061	TP-51061	TP-51116	TP-51305	TP-51385	TP-51705
AGS Reference			D4	D6	D6	D4	B3	D4	D2	D4	D4	D6
Depth (m)			1.70 - 1.70	2.60 - 2.60	2.60 - 2.60	1.30 - 1.30	1.50 - 1.80	1.80 - 1.80	0.60 - 0.60	1.50 - 1.50	2.30 - 2.30	3.30 - 3.30
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S
Loss on Ignition in soils	All	NDPs: 0 Tests: 1					X					
Sample description	All	NDPs: 0 Tests: 10	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 1					X					
Total Sulphate	All	NDPs: 0 Tests: 9	X	X	X	X		X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 220624-151 **Report Number:** 652814 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26487535	TP-37102	1.70 - 1.70	Light Brown	Sandy Clay	Stones	None
26487542	TP-50707	2.60 - 2.60	Light Brown	Sandy Loam	Stones	None
26487549	TP-50959	2.60 - 2.60	Light Brown	Sandy Clay	Stones	None
26487552	TP-51052	1.30 - 1.30	Light Brown	Sand	Stones	None
26487556	TP-51061	1.50 - 1.80	Light Brown	Sandy Clay	Stones	None
26487558	TP-51061	1.80 - 1.80	Light Brown	Silty Sand	Stones	None
26487561	TP-51116	0.60 - 0.60	Light Brown	Sandy Loam	Stones	None
26487564	TP-51305	1.50 - 1.50	Light Brown	Sandy Clay	Stones	None
26487537	TP-51385	2.30 - 2.30	Light Brown	Silty Sand	Stones	None
26487540	TP-51705	3.30 - 3.30	Light Brown	Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220624-151 **Report Number:** 652814 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-37102	TP-50707	TP-50959	TP-51052	TP-51061	TP-51061
			Depth (m)	1.70 - 1.70	2.60 - 2.60	2.60 - 2.60	1.30 - 1.30	1.50 - 1.80	1.80 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	19/10/2021	22/10/2021	20/10/2021	21/10/2021	20/10/2021	20/10/2021
			Sample Time	-	-	-	-	-	-
			Date Received	24/06/2022	24/06/2022	24/06/2022	24/06/2022	24/06/2022	24/06/2022
			SDG Ref	220624-151	220624-151	220624-151	220624-151	220624-151	220624-151
			Lab Sample No.(s)	26487535	26487542	26487549	26487552	26487556	26487558
			AGS Reference	D4	D6	D6	D4	B3	D4
Moisture Content Ratio (% of as received sample)	%	PM024		6.6	6.4	12	6.6	4.9	7.1
Loss on ignition	<0.7 %	TM018						<0.7 @ M	
Soil Organic Matter (SOM)	<0.35 %	TM132						<0.35 @ #	
Sulphate, Total	<48 mg/kg	TM221		138 @ M	52 @ M	<48 @ M	<48 @ M		<48 @ M

CERTIFICATE OF ANALYSIS

SDG: 220624-151 **Report Number:** 652814 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-51116	TP-51305	TP-51385	TP-51705		
			Depth (m)	0.60 - 0.60	1.50 - 1.50	2.30 - 2.30	3.30 - 3.30		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	21/10/2021	21/10/2021	21/10/2021	22/10/2021		
			Sample Time	-	-	-	-		
			Date Received	24/06/2022	24/06/2022	24/06/2022	24/06/2022		
			SDG Ref	220624-151	220624-151	220624-151	220624-151		
			Lab Sample No.(s)	26487561	26487564	26487537	26487540		
			AGS Reference	D2	D4	D4	D6		
Moisture Content Ratio (% of as received sample)	%	PM024		17	5	6.7	5.8		
Sulphate, Total	<48 mg/kg	TM221		220 @ M	118 @ M	<48 @ M	178 @ M		

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220624-151 **Report Number:** 652814 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26487535	26487542	26487549	26487552	26487556	26487558	26487561	26487564	26487537	26487540
Customer Sample Ref.	TP-37102	TP-50707	TP-50959	TP-51052	TP-51061	TP-51061	TP-51116	TP-51305	TP-51385	TP-51705
AGS Ref.	D4	D6	D6	D4	B3	D4	D2	D4	D4	D6
Depth	1.70 - 1.70	2.60 - 2.60	2.60 - 2.60	1.30 - 1.30	1.50 - 1.80	1.80 - 1.80	0.60 - 0.60	1.50 - 1.50	2.30 - 2.30	3.30 - 3.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Loss on Ignition in soils					29-Jun-2022					
Sample description	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022
Total Organic Carbon					01-Jul-2022					
Total Sulphate	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022		30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	31 August 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220822-32
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	659563
Order Number:	10808

We received 23 samples on Monday August 22, 2022 and 23 of these samples were scheduled for analysis which was completed on Wednesday August 31, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26768438	TP-50508	D2	0.70 - 0.70	26/10/2021
26768467	TP-50508	D4	1.70 - 1.70	26/10/2021
26768480	TP-51801	D4	1.30 - 1.30	27/10/2021
26768483	TP-52108	D2	0.60 - 0.60	27/10/2021
26768486	TP-52108	D4	1.60 - 1.60	27/10/2021
26768488	TP-52207	D4	1.60 - 1.60	28/10/2021
26768490	TP-52308	D2	0.60 - 0.60	28/10/2021
26768492	TP-52507	D6	3.60 - 3.60	28/10/2021
26768494	TP-52709	D2	0.60 - 0.60	29/10/2021
26768441	TP-52709	D6	1.60 - 1.60	29/10/2021
26768443	TP-53110	D6	2.60 - 2.60	29/10/2021
26768445	TP-53310	D4	1.80 - 1.80	29/10/2021
26768447	TP-53510	D4	1.70 - 1.70	01/11/2021
26768450	TP-60003	D4	1.20 - 1.20	15/11/2021
26768452	TP-60106	D4	1.20 - 1.20	15/11/2021
26768454	TP-60269	D4	1.60 - 1.60	15/11/2021
26768457	TP-60805	D6	1.80 - 1.80	16/11/2021
26768459	TP-60905	D4	1.10 - 1.10	16/11/2021
26768463	TP-61904	D6	2.00 - 2.00	17/11/2021
26768469	TP-62205	D4	1.40 - 1.40	17/11/2021
26768472	TP-62305	D2	0.70 - 0.70	17/11/2021
26768474	TP-62506	D4	1.50 - 1.50	18/11/2021
26768478	TP-62706	D4	1.80 - 1.80	18/11/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26768438	TP-50508	D2	0.70 - 0.70	250g Amber Jar (ALE210)	S
			26768467	TP-50508	D4	1.70 - 1.70	250g Amber Jar (ALE210)	S
			26768480	TP-51801	D4	1.30 - 1.30	250g Amber Jar (ALE210)	S
			26768483	TP-52108	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			26768486	TP-52108	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			26768488	TP-52207	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			26768490	TP-52308	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			26768492	TP-52507	D6	3.60 - 3.60	250g Amber Jar (ALE210)	S
			26768494	TP-52709	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			26768441	TP-52709	D6	1.60 - 1.60	250g Amber Jar (ALE210)	S
			26768443	TP-53110	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
			26768445	TP-53310	D4	1.80 - 1.80	250g Amber Jar (ALE210)	S
			26768447	TP-53510	D4	1.70 - 1.70	250g Amber Jar (ALE210)	S
			26768450	TP-60003	D4	1.20 - 1.20	250g Amber Jar (ALE210)	S
			26768452	TP-60106	D4	1.20 - 1.20	250g Amber Jar (ALE210)	S
			26768454	TP-60269	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			26768457	TP-60805	D6	1.80 - 1.80	250g Amber Jar (ALE210)	S
			26768459	TP-60905	D4	1.10 - 1.10	250g Amber Jar (ALE210)	S
			26768463	TP-61904	D6	2.00 - 2.00	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 16						
								X X X X X X X X X X X X X X X X
Loss on Ignition in soils	All	NDPs: 0 Tests: 4						
			X			X		X
pH	All	NDPs: 0 Tests: 16						
								X X X X X X X X X X X X X X X X
Sample description	All	NDPs: 0 Tests: 23						
			X	X	X	X	X	X X X X X X X X X X X X X X X X X X X
Total Organic Carbon	All	NDPs: 0 Tests: 4						
			X			X		X
Total Sulphate	All	NDPs: 0 Tests: 20						
				X	X		X	X X X X X X X X X X X X X X X X X X
Total Sulphur	All	NDPs: 0 Tests: 16						
								X X X X X X X X X X X X X X X X

26768478	TP-62706	D4	1.80 - 1.80	250g Amber Jar (ALE210)	S				X				X		X						
26768474	TP-62506	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S		X				X		X				X		X		
26768472	TP-62305	D2	0.70 - 0.70	250g Amber Jar (ALE210)	S		X				X		X				X		X		
26768469	TP-62205	D4	1.40 - 1.40	250g Amber Jar (ALE210)	S		X				X		X				X		X		

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26768438	TP-50508	0.70 - 0.70	Beige	Sandy Loam	Stones	None
26768467	TP-50508	1.70 - 1.70	Beige	Sandy Clay Loam	Stones	None
26768480	TP-51801	1.30 - 1.30	Light Brown	Sand	Stones	Vegetation
26768483	TP-52108	0.60 - 0.60	Black	Sandy Silt Loam	Stones	Vegetation
26768486	TP-52108	1.60 - 1.60	Grey	Clay	Stones	Vegetation
26768488	TP-52207	1.60 - 1.60	Beige	Sandy Loam	Stones	None
26768490	TP-52308	0.60 - 0.60	Dark Brown	Sandy Loam	Stones	Vegetation
26768492	TP-52507	3.60 - 3.60	Light Brown	Loamy Sand	Stones	None
26768441	TP-52709	1.60 - 1.60	Dark Brown	Loamy Sand	Stones	Vegetation
26768494	TP-52709	0.60 - 0.60	Light Brown	Clay	Stones	Vegetation
26768443	TP-53110	2.60 - 2.60	Light Brown	Clay	Stones	Vegetation
26768445	TP-53310	1.80 - 1.80	Light Brown	Sand	Stones	Vegetation
26768447	TP-53510	1.70 - 1.70	Light Brown	Sand	Stones	Vegetation
26768450	TP-60003	1.20 - 1.20	Light Brown	Sand	Stones	Vegetation
26768452	TP-60106	1.20 - 1.20	Light Brown	Sand	Stones	Vegetation
26768454	TP-60269	1.60 - 1.60	Light Brown	Sandy Clay	Stones	Vegetation
26768457	TP-60805	1.80 - 1.80	Light Brown	Sandy Clay	Stones	Vegetation
26768459	TP-60905	1.10 - 1.10	Light Brown	Clay	Vegetation	Stones
26768463	TP-61904	2.00 - 2.00	Light Brown	Sandy Silt Loam	Stones	None
26768469	TP-62205	1.40 - 1.40	Light Brown	Sandy Clay	Stones	Vegetation
26768472	TP-62305	0.70 - 0.70	Light Brown	Gravel	Stones	N/A
26768474	TP-62506	1.50 - 1.50	Light Brown	Sandy Clay	Stones	Vegetation
26768478	TP-62706	1.80 - 1.80	Light Brown	Clay	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-50508	TP-50508	TP-51801	TP-52108	TP-52108	TP-52207
			Depth (m)	0.70 - 0.70	1.70 - 1.70	1.30 - 1.30	0.60 - 0.60	1.60 - 1.60	1.60 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	26/10/2021	26/10/2021	27/10/2021	27/10/2021	27/10/2021	28/10/2021
			Sample Time	-	-	-	-	-	-
			Date Received	22/08/2022	22/08/2022	22/08/2022	22/08/2022	22/08/2022	22/08/2022
			SDG Ref	220822-32	220822-32	220822-32	220822-32	220822-32	220822-32
			Lab Sample No.(s)	26768438	26768467	26768480	26768483	26768486	26768488
			AGS Reference	D2	D4	D4	D2	D4	D4
Moisture Content Ratio (% of as received sample)	%	PM024		6.6	9.3	6.2	28	8.5	13
Loss on ignition	<0.7 %	TM018		2.19 @ M			13.4 @ M		
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019							0.00679 @
Sulphur, Total	<0.02 %	TM132							<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132							0.06 @
Soil Organic Matter (SOM)	<0.35 %	TM132		<0.35 @ #			10.4 @ #		
pH	1 pH Units	TM133							8.83 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221			<0.0048 @ M	0.00572 @ M		0.0157 @ M	<0.0048 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-52308	TP-52507	TP-52709	TP-52709	TP-53110	TP-53310
			Depth (m)	0.60 - 0.60	3.60 - 3.60	0.60 - 0.60	1.60 - 1.60	2.60 - 2.60	1.80 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	28/10/2021	28/10/2021	29/10/2021	29/10/2021	29/10/2021	29/10/2021
			Sample Time	-	-	-	-	-	-
			Date Received	22/08/2022	22/08/2022	22/08/2022	22/08/2022	22/08/2022	22/08/2022
			SDG Ref	220822-32	220822-32	220822-32	220822-32	220822-32	220822-32
			Lab Sample No.(s)	26768490	26768492	26768494	26768441	26768443	26768445
			AGS Reference	D2	D6	D2	D6	D6	D4
Moisture Content Ratio (% of as received sample)	%	PM024		16	11	9	34	7.4	9.4
Loss on ignition	<0.7 %	TM018				1.09 @ M			
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.011 @	0.00927 @		0.0306 @	0.00714 @	0.00797 @
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #		0.0722 @ #	<0.02 @ #	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @		0.217 @	0.06 @	0.06 @
Soil Organic Matter (SOM)	<0.35 %	TM132				<0.35 @ #			
pH	1 pH Units	TM133		8.44 @ M	9.02 @ M		7.49 @ M	9.12 @ M	8.81 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		<0.0048 @ M	<0.0048 @ M	<0.0048 @ M	0.216 @ M	<0.0048 @ M	0.00943 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-53510	TP-60003	TP-60106	TP-60269	TP-60805	TP-60905
			Depth (m)	1.70 - 1.70	1.20 - 1.20	1.20 - 1.20	1.60 - 1.60	1.80 - 1.80	1.10 - 1.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	01/11/2021	15/11/2021	15/11/2021	15/11/2021	16/11/2021	16/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	22/08/2022	22/08/2022	22/08/2022	22/08/2022	22/08/2022	22/08/2022
			SDG Ref	220822-32	220822-32	220822-32	220822-32	220822-32	220822-32
			Lab Sample No.(s)	26768447	26768450	26768452	26768454	26768457	26768459
			AGS Reference	D4	D4	D4	D4	D6	D4
Moisture Content Ratio (% of as received sample)	%	PM024		6.3	11	7.3	7.3	5.6	13
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.00652 @	0.01 @	0.00866 @	0.0112 @	0.0093 @	0.00866 @
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #	<0.02 @ #	0.0272 @ #	0.0209 @ #	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @	0.06 @	0.0816 @	0.0627 @	0.06 @
pH	1 pH Units	TM133		9.03 @ M	8.85 @ M	8.94 @ M	8.97 @ M	8.81 @ M	8.82 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.00684 @ M	<0.0048 @ M	0.0106 @ M	0.0123 @ M	0.00665 @ M	0.0124 @ M

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-61904	TP-62205	TP-62305	TP-62506	TP-62706
			Depth (m)	2.00 - 2.00	1.40 - 1.40	0.70 - 0.70	1.50 - 1.50	1.80 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	17/11/2021	17/11/2021	17/11/2021	18/11/2021	18/11/2021
			Sample Time	-	-	-	-	-
			Date Received	22/08/2022	22/08/2022	22/08/2022	22/08/2022	22/08/2022
			SDG Ref	220822-32	220822-32	220822-32	220822-32	220822-32
			Lab Sample No.(s)	26768463	26768469	26768472	26768474	26768478
			AGS Reference	D6	D4	D2	D4	D4
Moisture Content Ratio (% of as received sample)	%	PM024		14	7.7	4.2	12	31
Loss on ignition	<0.7 %	TM018						7.98 @ M
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0155 @	0.0103 @	0.00871 @	0.00973 @	
Sulphur, Total	<0.02 %	TM132		0.042 @ #	0.0256 @ #	0.0262 @ #	<0.02 @ #	
Sulphate, Total potential	<0.06 %	TM132		0.126 @	0.0768 @	0.0786 @	0.06 @	
Soil Organic Matter (SOM)	<0.35 %	TM132						1.53 @ #
pH	1 pH Units	TM133		8.47 @ M	8.83 @ M	9.17 @ #	8.57 @ M	
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0178 @ M	<0.0048 @ M	0.0118 @ #	<0.0048 @ M	

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220822-32 **Report Number:** 659563 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26768438	26768467	26768480	26768483	26768486	26768488	26768490	26768492	26768441	26768494
Customer Sample Ref.	TP-50508	TP-50508	TP-51801	TP-52108	TP-52108	TP-52207	TP-52308	TP-52507	TP-52709	TP-52709
AGS Ref.	D2	D4	D4	D2	D4	D4	D2	D6	D6	D2
Depth	0.70 - 0.70	1.70 - 1.70	1.30 - 1.30	0.60 - 0.60	1.60 - 1.60	1.60 - 1.60	0.60 - 0.60	3.60 - 3.60	1.60 - 1.60	0.60 - 0.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC						31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022	
Loss on Ignition in soils	25-Aug-2022			25-Aug-2022						25-Aug-2022
pH						25-Aug-2022	25-Aug-2022	25-Aug-2022	24-Aug-2022	
Sample description	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022
Total Organic Carbon	26-Aug-2022			26-Aug-2022						26-Aug-2022
Total Sulphate		25-Aug-2022	24-Aug-2022		25-Aug-2022	25-Aug-2022	25-Aug-2022	25-Aug-2022	25-Aug-2022	25-Aug-2022
Total Sulphur						25-Aug-2022	25-Aug-2022	25-Aug-2022	25-Aug-2022	

Lab Sample No(s)	26768443	26768445	26768447	26768450	26768452	26768454	26768457	26768459	26768463	26768469
Customer Sample Ref.	TP-53110	TP-53310	TP-53510	TP-60003	TP-60106	TP-60269	TP-60805	TP-60905	TP-61904	TP-62205
AGS Ref.	D6	D4	D4	D4	D4	D4	D6	D4	D6	D4
Depth	2.60 - 2.60	1.80 - 1.80	1.70 - 1.70	1.20 - 1.20	1.20 - 1.20	1.60 - 1.60	1.80 - 1.80	1.10 - 1.10	2.00 - 2.00	1.40 - 1.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022	31-Aug-2022
pH	24-Aug-2022	25-Aug-2022	25-Aug-2022	25-Aug-2022	24-Aug-2022	25-Aug-2022	25-Aug-2022	24-Aug-2022	25-Aug-2022	24-Aug-2022
Sample description	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022	23-Aug-2022
Total Sulphate	24-Aug-2022	24-Aug-2022	24-Aug-2022	25-Aug-2022	24-Aug-2022	24-Aug-2022	24-Aug-2022	25-Aug-2022	25-Aug-2022	24-Aug-2022
Total Sulphur	24-Aug-2022	24-Aug-2022	24-Aug-2022	25-Aug-2022	24-Aug-2022	24-Aug-2022	24-Aug-2022	25-Aug-2022	25-Aug-2022	24-Aug-2022

Lab Sample No(s)	26768472	26768474	26768478
Customer Sample Ref.	TP-62305	TP-62506	TP-62706
AGS Ref.	D2	D4	D4
Depth	0.70 - 0.70	1.50 - 1.50	1.80 - 1.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	31-Aug-2022	31-Aug-2022	
Loss on Ignition in soils			25-Aug-2022
pH	25-Aug-2022	25-Aug-2022	
Sample description	23-Aug-2022	23-Aug-2022	23-Aug-2022
Total Organic Carbon			26-Aug-2022
Total Sulphate	24-Aug-2022	24-Aug-2022	
Total Sulphur	25-Aug-2022	24-Aug-2022	

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	08 September 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220901-112
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	660591
Order Number:	10808

We received 13 samples on Thursday September 01, 2022 and 13 of these samples were scheduled for analysis which was completed on Thursday September 08, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220901-112 **Report Number:** 660591 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26815079	TP-53692	D4	2.00 - 2.00	02/11/2021
26815089	TP-53810	D4	2.10 - 2.10	02/11/2021
26815091	TP-54012	D2	0.80 - 0.80	02/11/2021
26815094	TP-54109	D2	0.60 - 0.60	02/11/2021
26815096	TP-54309	D3	2.10 - 2.40	02/11/2021
26815098	TP-54411	D4	1.90 - 1.90	03/11/2021
26815101	TP-54511	D4	1.70 - 1.70	03/11/2021
26815103	TP-54611	D4	1.00 - 1.00	03/11/2021
26815106	TP-55008	D2	0.80 - 0.80	05/11/2021
26815081	TP-55109	D6	1.60 - 1.60	05/11/2021
26815083	TP-55310	D4	2.20 - 2.20	04/11/2021
26815085	TP-55806	D6	1.70 - 1.70	03/11/2021
26815087	TP-55897	D6	2.40 - 2.40	03/11/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220901-112 **Report Number:** 660591 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26815079	TP-53692	D4	2.00 - 2.00	250g Amber Jar (ALE210)	S
			26815089	TP-53810	D4	2.10 - 2.10	250g Amber Jar (ALE210)	S
			26815091	TP-54012	D2	0.80 - 0.80	250g Amber Jar (ALE210)	S
			26815094	TP-54109	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			26815096	TP-54309	D3	2.10 - 2.40	250g Amber Jar (ALE210)	S
			26815098	TP-54411	D4	1.90 - 1.90	250g Amber Jar (ALE210)	S
			26815101	TP-54511	D4	1.70 - 1.70	250g Amber Jar (ALE210)	S
			26815103	TP-54611	D4	1.00 - 1.00	250g Amber Jar (ALE210)	S
			26815106	TP-55008	D2	0.80 - 0.80	250g Amber Jar (ALE210)	S
			26815081	TP-55109	D6	1.60 - 1.60	250g Amber Jar (ALE210)	S
			26815083	TP-55310	D4	2.20 - 2.20	250g Amber Jar (ALE210)	S
			26815085	TP-55806	D6	1.70 - 1.70	250g Amber Jar (ALE210)	S
			26815087	TP-55897	D6	2.40 - 2.40	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 13	X	X	X	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 13	X	X	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 13	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 13	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 13	X	X	X	X	X	X	X	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 220901-112 **Report Number:** 660591 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26815079	TP-53692	2.00 - 2.00	Light Brown	Sandy Clay Loam	Stones	None
26815089	TP-53810	2.10 - 2.10	Grey	Sandy Clay	Stones	None
26815091	TP-54012	0.80 - 0.80	Light Brown	Sandy Loam	Stones	Vegetation
26815094	TP-54109	0.60 - 0.60	Light Brown	Sandy Clay Loam	Stones	Vegetation
26815096	TP-54309	2.10 - 2.40	Grey	Sandy Clay	Stones	None
26815098	TP-54411	1.90 - 1.90	Light Brown	Sandy Clay Loam	Stones	Vegetation
26815101	TP-54511	1.70 - 1.70	Light Brown	Sandy Clay Loam	Stones	None
26815103	TP-54611	1.00 - 1.00	Light Brown	Sandy Clay Loam	Stones	None
26815106	TP-55008	0.80 - 0.80	Light Brown	Sandy Clay Loam	Stones	None
26815081	TP-55109	1.60 - 1.60	Light Brown	Sandy Clay Loam	Stones	None
26815083	TP-55310	2.20 - 2.20	Light Brown	Sandy Clay	Stones	None
26815085	TP-55806	1.70 - 1.70	Dark Brown	Sandy Clay Loam	Stones	Vegetation
26815087	TP-55897	2.40 - 2.40	Grey	Loamy Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220901-112 **Report Number:** 660591 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-53692	TP-53810	TP-54012	TP-54109	TP-54309	TP-54411
			Depth (m)	2.00 - 2.00	2.10 - 2.10	0.80 - 0.80	0.60 - 0.60	2.10 - 2.40	1.90 - 1.90
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	02/11/2021	02/11/2021	02/11/2021	02/11/2021	02/11/2021	03/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	01/09/2022	01/09/2022	01/09/2022	01/09/2022	01/09/2022	01/09/2022
			SDG Ref	220901-112	220901-112	220901-112	220901-112	220901-112	220901-112
			Lab Sample No.(s)	26815079	26815089	26815091	26815094	26815096	26815098
			AGS Reference	D4	D4	D2	D2	D3	D4
Moisture Content Ratio (% of as received sample)	%	PM024		13	8.9	6.8	9	6	5.1
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.00904 @	0.00766 @	0.0134 @	0.0105 @	0.00854 @	0.0069 @
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #	0.0442 @ #	<0.02 @ #	<0.02 @ #	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @	0.133 @	0.06 @	0.06 @	0.06 @
pH	1 pH Units	TM133		8.99 @ M	8.77 @ M	8.93 @ M	8.75 @ M	9.28 @ M	9.23 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0185 @ M	0.0093 @ M	0.0383 @ M	0.0202 @ M	0.00729 @ M	0.0189 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220901-112 **Report Number:** 660591 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-54511	TP-54611	TP-55008	TP-55109	TP-55310	TP-55806
			Depth (m)	1.70 - 1.70	1.00 - 1.00	0.80 - 0.80	1.60 - 1.60	2.20 - 2.20	1.70 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	03/11/2021	03/11/2021	05/11/2021	05/11/2021	04/11/2021	03/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	01/09/2022	01/09/2022	01/09/2022	01/09/2022	01/09/2022	01/09/2022
			SDG Ref	220901-112	220901-112	220901-112	220901-112	220901-112	220901-112
			Lab Sample No.(s)	26815101	26815103	26815106	26815081	26815083	26815085
			AGS Reference	D4	D4	D2	D6	D4	D6
Moisture Content Ratio (% of as received sample)	%	PM024		8.1	10	8	8.4	9.2	15
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0114 @	0.0115 @	0.00953 @	0.00717 @	0.0113 @	0.0189 @
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #	<0.02 @ #	0.0218 @ #	<0.02 @ #	0.0537 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @	0.06 @	0.0654 @	0.06 @	0.161 @
pH	1 pH Units	TM133		8.94 @ M	9.21 @ M	8.51 @ M	9.21 @ M	9.04 @ M	8.58 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0207 @ M	0.00708 @ M	0.0264 @ M	0.013 @ M	0.0182 @ M	0.0493 @ M

CERTIFICATE OF ANALYSIS

SDG: 220901-112 **Report Number:** 660591 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP-55897
Depth (m)	2.40 - 2.40
Sample Type	Soil/Solid (S)
Date Sampled	03/11/2021
Sample Time	-
Date Received	01/09/2022
SDG Ref	220901-112
Lab Sample No.(s)	26815087
AGS Reference	D6

Component	LOD/Units	Method	
Moisture Content Ratio (% of as received sample)	%	PM024	7.1
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019	0.0203 @
Sulphur, Total	<0.02 %	TM132	0.0227 @ #
Sulphate, Total potential	<0.06 %	TM132	0.0681 @
pH	1 pH Units	TM133	8.69 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221	0.0301 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220901-112 **Report Number:** 660591 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26815079	26815089	26815091	26815094	26815096	26815098	26815101	26815103	26815106	26815081
Customer Sample Ref.	TP-53692	TP-53810	TP-54012	TP-54109	TP-54309	TP-54411	TP-54511	TP-54611	TP-55008	TP-55109
AGS Ref.	D4	D4	D2	D2	D3	D4	D4	D4	D2	D6
Depth	2.00 - 2.00	2.10 - 2.10	0.80 - 0.80	0.60 - 0.60	2.10 - 2.40	1.90 - 1.90	1.70 - 1.70	1.00 - 1.00	0.80 - 0.80	1.60 - 1.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	08-Sep-2022	08-Sep-2022	08-Sep-2022	08-Sep-2022	08-Sep-2022	08-Sep-2022	08-Sep-2022	08-Sep-2022	08-Sep-2022	08-Sep-2022
pH	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022
Sample description	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022
Total Sulphate	06-Sep-2022	06-Sep-2022	06-Sep-2022	06-Sep-2022	06-Sep-2022	06-Sep-2022	06-Sep-2022	06-Sep-2022	06-Sep-2022	06-Sep-2022
Total Sulphur	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022

Lab Sample No(s)	26815083	26815085	26815087
Customer Sample Ref.	TP-55310	TP-55806	TP-55897
AGS Ref.	D4	D6	D6
Depth	2.20 - 2.20	1.70 - 1.70	2.40 - 2.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	08-Sep-2022	08-Sep-2022	08-Sep-2022
pH	06-Sep-2022	07-Sep-2022	07-Sep-2022
Sample description	02-Sep-2022	02-Sep-2022	02-Sep-2022
Total Sulphate	06-Sep-2022	06-Sep-2022	06-Sep-2022
Total Sulphur	07-Sep-2022	07-Sep-2022	07-Sep-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	07 September 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220901-118
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	660377
Order Number:	10808

We received 4 samples on Thursday September 01, 2022 and 4 of these samples were scheduled for analysis which was completed on Wednesday September 07, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220901-118 **Report Number:** 660377 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26815314	BH-42602	D2	1.00	01/11/2021
26815312	BH-43407	D8	2.50	03/11/2021
26815316	BH-44177	D5	1.50	04/11/2021
26815304	BH-44534a	D11	3.50	05/11/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220901-118 **Report Number:** 660377 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26815314	BH-42602	D2	1.00	250g Amber Jar (ALE210)	S
			26815312	BH-43407	D8	2.50	250g Amber Jar (ALE210)	S
			26815316	BH-44177	D5	1.50	250g Amber Jar (ALE210)	S
			26815304	BH-44534a	D11	3.50	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X	X	X	X		
pH	All	NDPs: 0 Tests: 4	X	X	X	X		
Sample description	All	NDPs: 0 Tests: 4	X	X	X	X		
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	X	X		
Total Sulphur	All	NDPs: 0 Tests: 4	X	X	X	X		

CERTIFICATE OF ANALYSIS

SDG: 220901-118 **Report Number:** 660377 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26815314	BH-42602	1.00	Dark Brown	Sandy Clay	Stones	None
26815312	BH-43407	2.50	Grey	Sandy Clay	Stones	None
26815316	BH-44177	1.50	Dark Brown	Sandy Clay	Stones	None
26815304	BH-44534a	3.50	Dark Brown	Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220901-118 **Report Number:** 660377 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-42602	BH-43407	BH-44177	BH-44534a		
			Depth (m)	1.00	2.50	1.50	3.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	01/11/2021	03/11/2021	04/11/2021	05/11/2021		
			Sample Time	-	-	-	-		
			Date Received	01/09/2022	01/09/2022	01/09/2022	01/09/2022		
			SDG Ref	220901-118	220901-118	220901-118	220901-118		
			Lab Sample No.(s)	26815314	26815312	26815316	26815304		
			AGS Reference	D2	D8	D5	D11		
Moisture Content Ratio (% of as received sample)	%	PM024		8.9	8.5	8.9	6.4		
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	0.0373 @ #	<0.02 @ #	0.025 @ #		
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.112 @	0.06 @	0.075 @		
pH	1 pH Units	TM133		8.76 @ M	8.84 @ M	8.78 @ M	9.06 @ M		
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.01 @ M	0.0269 @ M	0.0191 @ M	0.00713 @ M		
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0102 @ M	0.0112 @ M	<0.004 @ M	0.0075 @ M		

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220901-118 **Report Number:** 660377 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26815314	26815312	26815316	26815304
Customer Sample Ref.	BH-42602	BH-43407	BH-44177	BH-44534a
AGS Ref.	D2	D8	D5	D11
Depth	1.00	2.50	1.50	3.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	05-Sep-2022	06-Sep-2022	05-Sep-2022	05-Sep-2022
pH	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022
Sample description	02-Sep-2022	02-Sep-2022	02-Sep-2022	02-Sep-2022
Total Sulphate	06-Sep-2022	05-Sep-2022	06-Sep-2022	06-Sep-2022
Total Sulphur	07-Sep-2022	07-Sep-2022	07-Sep-2022	07-Sep-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	03 October 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220926-33
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	663384
Order Number:	10808

We received 5 samples on Monday September 26, 2022 and 5 of these samples were scheduled for analysis which was completed on Monday October 03, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220926-33 **Report Number:** 663384 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26925660	TP-57602	B1	0.20 - 0.30	09/11/2021
26925665	TP-57708	B1	0.00 - 0.20	09/11/2021
26925667	TP-57708	B5	1.50 - 1.80	09/11/2021
26925669	TP-68705	D5	2.50 - 2.50	03/12/2021
26925671	TP-68806	D8	3.30 - 3.30	03/12/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220926-33 **Report Number:** 663384 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)				
			26925660	26925665	26925667	26925669	26925671
			Customer Sample Reference				
			TP-57602	TP-57708	TP-57708	TP-68705	TP-68806
			AGS Reference				
			B1	B1	B5	D5	D8
			Depth (m)				
			0.20 - 0.30	0.00 - 0.20	1.50 - 1.80	2.50 - 2.50	3.30 - 3.30
			Container				
			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
			Sample Type				
			S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 2				X	X
Loss on Ignition in soils	All	NDPs: 0 Tests: 3	X	X	X		
pH	All	NDPs: 0 Tests: 2				X	X
Sample description	All	NDPs: 0 Tests: 5	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 3	X	X	X		
Total Sulphate	All	NDPs: 0 Tests: 2				X	X
Total Sulphur	All	NDPs: 0 Tests: 2				X	X

CERTIFICATE OF ANALYSIS

SDG: 220926-33 **Report Number:** 663384 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26925660	TP-57602	0.20 - 0.30	Dark Brown	Sandy Silt Loam	Stones	Vegetation
26925665	TP-57708	0.00 - 0.20	Dark Brown	Sandy Loam	Stones	Vegetation
26925667	TP-57708	1.50 - 1.80	Dark Brown	Sandy Clay Loam	Stones	None
26925669	TP-68705	2.50 - 2.50	Dark Brown	Sandy Clay Loam	Stones	Vegetation
26925671	TP-68806	3.30 - 3.30	Light Brown	Sandy Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220926-33 **Report Number:** 663384 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-57602	TP-57708	TP-57708	TP-68705	TP-68806
			Depth (m)	0.20 - 0.30	0.00 - 0.20	1.50 - 1.80	2.50 - 2.50	3.30 - 3.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/11/2021	09/11/2021	09/11/2021	03/12/2021	03/12/2021
			Sample Time	-	-	-	-	-
			Date Received	26/09/2022	26/09/2022	26/09/2022	26/09/2022	26/09/2022
			SDG Ref	220926-33	220926-33	220926-33	220926-33	220926-33
			Lab Sample No.(s)	26925660	26925665	26925667	26925669	26925671
			AGS Reference	B1	B1	B5	D5	D8
Moisture Content Ratio (% of as received sample)	%	PM024		21	27	7.2	6	9.3
Loss on ignition	<0.7 %	TM018		7.06 @ M	11 @ M	1.05 @ M		
Sulphur, Total	<0.02 %	TM132					<0.02 @ #	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132					0.06 @	0.06 @
Soil Organic Matter (SOM)	<0.35 %	TM132		4.05 @ #	6.81 @ #	<0.35 @ #		
pH	1 pH Units	TM133					9.03 @ M	8.84 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221					<0.0048 @ M	<0.0048 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243					0.007 @ M	0.0096 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220926-33 **Report Number:** 663384 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26925660	26925665	26925667	26925669	26925671
Customer Sample Ref.	TP-57602	TP-57708	TP-57708	TP-68705	TP-68806
AGS Ref.	B1	B1	B5	D5	D8
Depth	0.20 - 0.30	0.00 - 0.20	1.50 - 1.80	2.50 - 2.50	3.30 - 3.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)				03-Oct-2022	03-Oct-2022
Loss on Ignition in soils	29-Sep-2022	29-Sep-2022	29-Sep-2022		
pH				27-Sep-2022	27-Sep-2022
Sample description	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022
Total Organic Carbon	29-Sep-2022	29-Sep-2022	29-Sep-2022		
Total Sulphate				29-Sep-2022	29-Sep-2022
Total Sulphur				29-Sep-2022	29-Sep-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
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Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	17 October 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221010-25
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	664957
Order Number:	10808

We received 15 samples on Monday October 10, 2022 and 15 of these samples were scheduled for analysis which was completed on Monday October 17, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 221010-25 **Report Number:** 664957 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26994169	TP-67410	D6	3.20 - 3.20	10/12/2021
26994200	TP-67630	D2	0.70 - 0.70	10/12/2021
26994202	TP-67809	D4	2.20 - 2.20	10/12/2021
26994172	TP-68108	D4	1.30 - 1.30	10/12/2021
26994174	TP-68405	D6	2.50 - 2.50	10/12/2021
26994177	TP-68505	D4	1.10 - 1.10	10/12/2021
26994179	TP-68607	D4	2.20 - 2.20	10/12/2021
26994182	TP-69006	B5	2.50 - 2.70	10/12/2021
26994184	TP-69306	D5	2.40 - 2.40	10/12/2021
26994187	TP-69407	D4	1.50 - 1.50	10/12/2021
26994189	TP-69505	B2	1.20 - 1.50	10/12/2021
26994191	TP-69703	B1	0.20 - 0.50	10/12/2021
26994193	TP-70204	B2	0.90 - 1.20	10/12/2021
26994195	TP-72108	D4	1.80	10/12/2021
26994197	TP-73001	B1	0.20 - 0.50	10/12/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 221010-25 **Report Number:** 664957 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26994169	TP-67410	D6	3.20 - 3.20	250g Amber Jar (ALE210)	S
			26994200	TP-67630	D2	0.70 - 0.70	250g Amber Jar (ALE210)	S
			26994202	TP-67809	D4	2.20 - 2.20	250g Amber Jar (ALE210)	S
			26994172	TP-68108	D4	1.30 - 1.30	250g Amber Jar (ALE210)	S
			26994174	TP-68405	D6	2.50 - 2.50	250g Amber Jar (ALE210)	S
			26994177	TP-68505	D4	1.10 - 1.10	250g Amber Jar (ALE210)	S
			26994179	TP-68607	D4	2.20 - 2.20	250g Amber Jar (ALE210)	S
			26994182	TP-69006	B5	2.50 - 2.70	250g Amber Jar (ALE210)	S
			26994184	TP-69306	D5	2.40 - 2.40	250g Amber Jar (ALE210)	S
			26994187	TP-69407	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			26994189	TP-69505	B2	1.20 - 1.50	250g Amber Jar (ALE210)	S
			26994191	TP-69703	B1	0.20 - 0.50	250g Amber Jar (ALE210)	S
			26994193	TP-70204	B2	0.90 - 1.20	250g Amber Jar (ALE210)	S
			26994195	TP-72108	D4	1.80	250g Amber Jar (ALE210)	S
			26994197	TP-73001	B1	0.20 - 0.50	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 10	X	X	X			X	X	X	X	X	X	X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 1													X
pH	All	NDPs: 0 Tests: 10	X	X	X			X	X	X	X	X	X	X	
Sample description	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 1													X
Total Sulphate	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 10	X	X	X			X	X	X	X	X	X	X	

CERTIFICATE OF ANALYSIS

SDG: 221010-25 **Report Number:** 664957 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26994169	TP-67410	3.20 - 3.20	Light Brown	Sandy Clay	Stones	None
26994200	TP-67630	0.70 - 0.70	Light Brown	Sandy Clay	Stones	None
26994202	TP-67809	2.20 - 2.20	Light Brown	Sandy Clay	Stones	None
26994172	TP-68108	1.30 - 1.30	Light Brown	Sandy Silt Loam	Stones	None
26994174	TP-68405	2.50 - 2.50	Light Brown	Loamy Sand	Stones	None
26994177	TP-68505	1.10 - 1.10	Light Brown	Sandy Clay Loam	Stones	None
26994179	TP-68607	2.20 - 2.20	Light Brown	Loamy Sand	Stones	None
26994182	TP-69006	2.50 - 2.70	Light Brown	Sandy Silt Loam	Stones	None
26994184	TP-69306	2.40 - 2.40	Light Brown	Sandy Clay	Stones	None
26994187	TP-69407	1.50 - 1.50	Light Brown	Sandy Clay	Stones	None
26994189	TP-69505	1.20 - 1.50	Light Brown	Loamy Sand	Stones	None
26994191	TP-69703	0.20 - 0.50	Light Brown	Loamy Sand	Stones	None
26994193	TP-70204	0.90 - 1.20	Light Brown	Loamy Sand	Stones	None
26994195	TP-72108	1.80	Light Brown	Sandy Clay	Stones	None
26994197	TP-73001	0.20 - 0.50	Light Brown	Sandy Clay Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221010-25 **Report Number:** 664957 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-67410	TP-67630	TP-67809	TP-68108	TP-68405	TP-68505
			Depth (m)	3.20 - 3.20	0.70 - 0.70	2.20 - 2.20	1.30 - 1.30	2.50 - 2.50	1.10 - 1.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021
			Sample Time	-	-	-	-	-	-
			Date Received	10/10/2022	10/10/2022	10/10/2022	10/10/2022	10/10/2022	10/10/2022
			SDG Ref	221010-25	221010-25	221010-25	221010-25	221010-25	221010-25
			Lab Sample No.(s)	26994169	26994200	26994202	26994172	26994174	26994177
			AGS Reference	D6	D2	D4	D4	D6	D4
Moisture Content Ratio (% of as received sample)	%	PM024		8	8.8	8.8	6.1	5.6	9.5
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.00672 @	0.00899 @	0.00977 @			
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	0.0235 @ #	0.0209 @ #			
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.0705 @	0.0627 @			
pH	1 pH Units	TM133		8.95 @ M	8.92 @ M	8.99 @ M			
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0215 @ M	0.0176 @ M	0.0185 @ M	0.0137 @ M	0.0238 @ M	0.0231 @ M

CERTIFICATE OF ANALYSIS

SDG: 221010-25 **Report Number:** 664957 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-68607	TP-69006	TP-69306	TP-69407	TP-69505	TP-69703
			Depth (m)	2.20 - 2.20	2.50 - 2.70	2.40 - 2.40	1.50 - 1.50	1.20 - 1.50	0.20 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021	10/12/2021
			Sample Time	-	-	-	-	-	-
			Date Received	10/10/2022	10/10/2022	10/10/2022	10/10/2022	10/10/2022	10/10/2022
			SDG Ref	221010-25	221010-25	221010-25	221010-25	221010-25	221010-25
			Lab Sample No.(s)	26994179	26994182	26994184	26994187	26994189	26994191
			AGS Reference	D4	B5	D5	D4	B2	B1
Moisture Content Ratio (% of as received sample)	%	PM024		3.6	6.8	7.9	8.4	8.4	14
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019			0.0071 @	0.00629 @	0.00705 @	0.0633 @	0.0142 @
Sulphur, Total	<0.02 %	TM132			0.0222 @ #	<0.02 @ #	0.0221 @ #	0.0342 @ #	0.0255 @ #
Sulphate, Total potential	<0.06 %	TM132			0.0666 @	0.06 @	0.0663 @	0.103 @	0.0765 @
pH	1 pH Units	TM133			9.13 @ M	9.08 @ M	8.89 @ M	8.76 @ M	8.63 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0173 @ M	0.025 @ M	0.0142 @ M	0.0208 @ M	0.0505 @ M	0.0389 @ M

CERTIFICATE OF ANALYSIS

SDG: 221010-25 **Report Number:** 664957 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-70204	TP-72108	TP-73001			
			Depth (m)	0.90 - 1.20	1.80	0.20 - 0.50			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	10/12/2021	10/12/2021	10/12/2021			
			Sample Time	-	-	-			
			Date Received	10/10/2022	10/10/2022	10/10/2022			
			SDG Ref	221010-25	221010-25	221010-25			
			Lab Sample No.(s)	26994193	26994195	26994197			
			AGS Reference	B2	D4	B1			
Moisture Content Ratio (% of as received sample)	%	PM024		5.1	9.2	12			
Loss on ignition	<0.7 %	TM018				2.34 @ M			
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.00574 @	0.00576 @				
Sulphur, Total	<0.02 %	TM132		0.0243 @ #	0.0227 @ #				
Sulphate, Total potential	<0.06 %	TM132		0.0729 @	0.0681 @				
Soil Organic Matter (SOM)	<0.35 %	TM132				<0.35 @ #			
pH	1 pH Units	TM133		9.26 @ M	8.93 @ M				
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0335 @ M	0.0162 @ M				

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221010-25 **Report Number:** 664957 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26994169	26994200	26994202	26994172	26994174	26994177	26994179	26994182	26994184	26994187
Customer Sample Ref.	TP-67410	TP-67630	TP-67809	TP-68108	TP-68405	TP-68505	TP-68607	TP-69006	TP-69306	TP-69407
AGS Ref.	D6	D2	D4	D4	D6	D4	D4	B5	D5	D4
Depth	3.20 - 3.20	0.70 - 0.70	2.20 - 2.20	1.30 - 1.30	2.50 - 2.50	1.10 - 1.10	2.20 - 2.20	2.50 - 2.70	2.40 - 2.40	1.50 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	17-Oct-2022	17-Oct-2022	17-Oct-2022					17-Oct-2022	17-Oct-2022	17-Oct-2022
pH	12-Oct-2022	12-Oct-2022	12-Oct-2022					12-Oct-2022	12-Oct-2022	12-Oct-2022
Sample description	11-Oct-2022	11-Oct-2022	11-Oct-2022	10-Oct-2022	11-Oct-2022	11-Oct-2022	11-Oct-2022	10-Oct-2022	11-Oct-2022	11-Oct-2022
Total Sulphate	14-Oct-2022	14-Oct-2022	12-Oct-2022	14-Oct-2022	14-Oct-2022	12-Oct-2022	12-Oct-2022	14-Oct-2022	12-Oct-2022	12-Oct-2022
Total Sulphur	13-Oct-2022	17-Oct-2022	13-Oct-2022					13-Oct-2022	13-Oct-2022	13-Oct-2022

Lab Sample No(s)	26994189	26994191	26994193	26994195	26994197
Customer Sample Ref.	TP-69505	TP-69703	TP-70204	TP-72108	TP-73001
AGS Ref.	B2	B1	B2	D4	B1
Depth	1.20 - 1.50	0.20 - 0.50	0.90 - 1.20	1.80	0.20 - 0.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	17-Oct-2022	17-Oct-2022	17-Oct-2022	17-Oct-2022	
Loss on Ignition in soils					14-Oct-2022
pH	12-Oct-2022	12-Oct-2022	12-Oct-2022	12-Oct-2022	
Sample description	10-Oct-2022	11-Oct-2022	11-Oct-2022	11-Oct-2022	10-Oct-2022
Total Organic Carbon					14-Oct-2022
Total Sulphate	14-Oct-2022	12-Oct-2022	12-Oct-2022	14-Oct-2022	
Total Sulphur	13-Oct-2022	13-Oct-2022	13-Oct-2022	17-Oct-2022	

SDG:	221010-25	**Report Number:**	664957	**Superseded Report:**	
Client Ref:	2021OY102	**Location:**	WSP Lot2: Eastern and Midlands		

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	17 October 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221010-27
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	664976
Order Number:	10808

We received 5 samples on Monday October 10, 2022 and 5 of these samples were scheduled for analysis which was completed on Monday October 17, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 221010-27 **Report Number:** 664976 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26994225	TP-70393	D6	2.10 - 2.10	06/12/2021
26994230	TP-70716	D5	2.30 - 2.30	06/12/2021
26994232	TP-72503	D6	2.60 - 2.60	08/12/2021
26994234	TP-72603	D3	0.80 - 0.80	09/12/2021
26994236	TP-72801	D4	1.70 - 1.70	09/12/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221010-27 **Report Number:** 664976 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26994225	TP-70393	D6	2.10 - 2.10	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X	X	X		X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 1				X		
pH	All	NDPs: 0 Tests: 4	X	X	X		X	
Sample description	All	NDPs: 0 Tests: 5	X	X	X	X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 1				X		
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	X		X	
Total Sulphur	All	NDPs: 0 Tests: 4	X	X	X		X	

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26994230	TP-70716	D5	2.30 - 2.30	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X	X	X		X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 1				X		
pH	All	NDPs: 0 Tests: 4	X	X	X		X	
Sample description	All	NDPs: 0 Tests: 5	X	X	X	X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 1				X		
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	X		X	
Total Sulphur	All	NDPs: 0 Tests: 4	X	X	X		X	

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26994232	TP-72503	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X	X	X		X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 1				X		
pH	All	NDPs: 0 Tests: 4	X	X	X		X	
Sample description	All	NDPs: 0 Tests: 5	X	X	X	X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 1				X		
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	X		X	
Total Sulphur	All	NDPs: 0 Tests: 4	X	X	X		X	

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26994234	TP-72603	D3	0.80 - 0.80	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4						
Loss on Ignition in soils	All	NDPs: 0 Tests: 1	X	X	X	X	X	
pH	All	NDPs: 0 Tests: 4						
Sample description	All	NDPs: 0 Tests: 5	X	X	X	X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 1	X	X	X	X	X	
Total Sulphate	All	NDPs: 0 Tests: 4						
Total Sulphur	All	NDPs: 0 Tests: 4						

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26994236	TP-72801	D4	1.70 - 1.70	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X	X	X		X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 1				X		
pH	All	NDPs: 0 Tests: 4	X	X	X		X	
Sample description	All	NDPs: 0 Tests: 5	X	X	X	X	X	
Total Organic Carbon	All	NDPs: 0 Tests: 1				X		
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	X		X	
Total Sulphur	All	NDPs: 0 Tests: 4	X	X	X		X	

CERTIFICATE OF ANALYSIS

SDG: 221010-27 **Report Number:** 664976 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26994225	TP-70393	2.10 - 2.10	Light Brown	Sandy Clay	Stones	None
26994230	TP-70716	2.30 - 2.30	Light Brown	Sandy Clay Loam	Stones	None
26994232	TP-72503	2.60 - 2.60	Light Brown	Sandy Clay	Stones	None
26994234	TP-72603	0.80 - 0.80	Light Brown	Silty Clay	Stones	None
26994236	TP-72801	1.70 - 1.70	Light Brown	Sandy Clay	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 221010-27 **Report Number:** 664976 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-70393	TP-70716	TP-72503	TP-72603	TP-72801
			Depth (m)	2.10 - 2.10	2.30 - 2.30	2.60 - 2.60	0.80 - 0.80	1.70 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/12/2021	06/12/2021	08/12/2021	09/12/2021	09/12/2021
			Sample Time	-	-	-	-	-
			Date Received	10/10/2022	10/10/2022	10/10/2022	10/10/2022	10/10/2022
			SDG Ref	221010-27	221010-27	221010-27	221010-27	221010-27
			Lab Sample No.(s)	26994225	26994230	26994232	26994234	26994236
			AGS Reference	D6	D5	D6	D3	D4
Moisture Content Ratio (% of as received sample)	%	PM024		9.4	7.6	8.2	28	6.8
Loss on ignition	<0.7 %	TM018					4.44 @ M	
Sulphur, Total	<0.02 %	TM132		0.0231 @ #	0.0249 @ #	0.0369 @ #		0.0271 @ #
Sulphate, Total potential	<0.06 %	TM132		0.0693 @	0.0747 @	0.111 @		0.0813 @
Soil Organic Matter (SOM)	<0.35 %	TM132					1.93 @ #	
pH	1 pH Units	TM133		8.6 @ M	8.84 @ M	8.88 @ M		8.85 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0219 @ M	0.0449 @ M	0.0372 @ M		0.0321 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0065 @ M	0.024 @ M	0.0205 @ M		0.0113 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221010-27 **Report Number:** 664976 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26994225	26994230	26994232	26994234	26994236
Customer Sample Ref.	TP-70393	TP-70716	TP-72503	TP-72603	TP-72801
AGS Ref.	D6	D5	D6	D3	D4
Depth	2.10 - 2.10	2.30 - 2.30	2.60 - 2.60	0.80 - 0.80	1.70 - 1.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	14-Oct-2022	17-Oct-2022	14-Oct-2022		14-Oct-2022
Loss on Ignition in soils				14-Oct-2022	
pH	12-Oct-2022	12-Oct-2022	12-Oct-2022		12-Oct-2022
Sample description	10-Oct-2022	11-Oct-2022	11-Oct-2022	11-Oct-2022	11-Oct-2022
Total Organic Carbon				14-Oct-2022	
Total Sulphate	14-Oct-2022	14-Oct-2022	14-Oct-2022		14-Oct-2022
Total Sulphur	13-Oct-2022	17-Oct-2022	17-Oct-2022		17-Oct-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 October 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221013-80
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	665322
Order Number:	10808

We received 7 samples on Thursday October 13, 2022 and 7 of these samples were scheduled for analysis which was completed on Thursday October 20, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

ALS Laboratories (UK) Limited. Registered Office: Torrington Avenue, Coventry CV4 9GU. Registered in England and Wales No. 02391955.

CERTIFICATE OF ANALYSIS

SDG: 221013-80 **Report Number:** 665322 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27011452	TP-70504	D6	2.10 - 2.10	06/12/2021
27011434	TP-72289	D6	2.30 - 2.30	08/12/2021
27011436	TP-72603	D1	0.30 - 0.30	09/12/2021
27011439	TP-73001	D6	2.00 - 2.00	10/12/2021
27011441	TP-73202	D6	2.10 - 2.10	13/12/2021
27011443	TP-73602	D4	1.40 - 1.40	13/12/2021
27011446	TP-73704	D6	2.70 - 2.70	13/12/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 221013-80 **Report Number:** 665322 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			27011452	TP-70504	D6	2.10 - 2.10	250g Amber Jar (ALE210)	S
			27011434	TP-72289	D6	2.30 - 2.30	250g Amber Jar (ALE210)	S
			27011436	TP-72603	D1	0.30 - 0.30	250g Amber Jar (ALE210)	S
			27011439	TP-73001	D6	2.00 - 2.00	250g Amber Jar (ALE210)	S
			27011441	TP-73202	D6	2.10 - 2.10	250g Amber Jar (ALE210)	S
			27011443	TP-73602	D4	1.40 - 1.40	250g Amber Jar (ALE210)	S
			27011446	TP-73704	D6	2.70 - 2.70	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 6	X	X		X	X	X	X
Loss on Ignition in soils	All	NDPs: 0 Tests: 1			X				
pH	All	NDPs: 0 Tests: 6	X	X		X	X	X	X
Sample description	All	NDPs: 0 Tests: 7	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 1			X				
Total Sulphate	All	NDPs: 0 Tests: 6	X	X		X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 6	X	X		X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 221013-80 **Report Number:** 665322 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27011452	TP-70504	2.10 - 2.10	Light Brown	Sandy Clay	Stones	None
27011434	TP-72289	2.30 - 2.30	Light Brown	Sandy Loam	Stones	None
27011436	TP-72603	0.30 - 0.30	Black	Silt Loam	Vegetation	None
27011439	TP-73001	2.00 - 2.00	Grey	Silty Clay Loam	Vegetation	Stones
27011441	TP-73202	2.10 - 2.10	Light Brown	Sandy Clay	Stones	None
27011443	TP-73602	1.40 - 1.40	Grey	Silty Clay Loam	Stones	None
27011446	TP-73704	2.70 - 2.70	Light Brown	Sandy Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221013-80 **Report Number:** 665322 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-70504	TP-72289	TP-72603	TP-73001	TP-73202	TP-73602
			Depth (m)	2.10 - 2.10	2.30 - 2.30	0.30 - 0.30	2.00 - 2.00	2.10 - 2.10	1.40 - 1.40
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/12/2021	08/12/2021	09/12/2021	10/12/2021	13/12/2021	13/12/2021
			Sample Time	-	-	-	-	-	-
			Date Received	13/10/2022	13/10/2022	13/10/2022	13/10/2022	13/10/2022	13/10/2022
			SDG Ref	221013-80	221013-80	221013-80	221013-80	221013-80	221013-80
			Lab Sample No.(s)	27011452	27011434	27011436	27011439	27011441	27011443
			AGS Reference	D6	D6	D1	D6	D6	D4
Moisture Content Ratio (% of as received sample)	%	PM024		9.8	6.6	65	8.9	9.1	8.6
Loss on ignition	<0.7 %	TM018				59.1 @ M			
Sulphur, Total	<0.02 %	TM132		0.022 @ #	0.0222 @ #		0.0362 @ #	0.0233 @ #	0.0274 @ #
Sulphate, Total potential	<0.06 %	TM132		0.066 @	0.0666 @		0.109 @	0.0699 @	0.0822 @
Soil Organic Matter (SOM)	<0.35 %	TM132				79.5 @ #			
pH	1 pH Units	TM133		8.94 @ M	9.02 @ M		8.86 @ M	8.87 @ M	8.99 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.014 @ M	0.0138 @ M		0.0322 @ M	0.014 @ M	0.0221 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0071 @ M	<0.004 @ M		0.0411 @ M	0.0069 @ M	0.0082 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 221013-80 **Report Number:** 665322 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

		Customer Sample Ref.	TP-73704
		Depth (m)	2.70 - 2.70
		Sample Type	Soil/Solid (S)
		Date Sampled	13/12/2021
		Sample Time	-
		Date Received	13/10/2022
		SDG Ref	221013-80
		Lab Sample No.(s)	27011446
		AGS Reference	D6
Component	**LOD/Units**	**Method**	
Moisture Content Ratio (% of as received sample)	%	PM024	8.8
Sulphur, Total	<0.02 %	TM132	0.0232 @ #
Sulphate, Total potential	<0.06 %	TM132	0.0696 @
pH	1 pH Units	TM133	9.11 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221	0.0168 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243	0.005 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221013-80 **Report Number:** 665322 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27011452	27011434	27011436	27011439	27011441	27011443	27011446
Customer Sample Ref.	TP-70504	TP-72289	TP-72603	TP-73001	TP-73202	TP-73602	TP-73704
AGS Ref.	D6	D6	D1	D6	D6	D4	D6
Depth	2.10 - 2.10	2.30 - 2.30	0.30 - 0.30	2.00 - 2.00	2.10 - 2.10	1.40 - 1.40	2.70 - 2.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	19-Oct-2022	17-Oct-2022		17-Oct-2022	17-Oct-2022	19-Oct-2022	17-Oct-2022
Loss on Ignition in soils			19-Oct-2022				
pH	14-Oct-2022	14-Oct-2022		14-Oct-2022	14-Oct-2022	14-Oct-2022	14-Oct-2022
Sample description	13-Oct-2022	13-Oct-2022	13-Oct-2022	13-Oct-2022	13-Oct-2022	13-Oct-2022	13-Oct-2022
Total Organic Carbon			19-Oct-2022				
Total Sulphate	18-Oct-2022	18-Oct-2022		18-Oct-2022	18-Oct-2022	18-Oct-2022	18-Oct-2022
Total Sulphur	20-Oct-2022	17-Oct-2022		17-Oct-2022	20-Oct-2022	20-Oct-2022	17-Oct-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	02 November 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221026-74
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	666990
Order Number:	10808

We received 13 samples on Wednesday October 26, 2022 and 13 of these samples were scheduled for analysis which was completed on Wednesday November 02, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 221026-74 **Report Number:** 666990 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27075455	TP-74503	D4	1.60 - 1.60	14/12/2021
27075466	TP-74902	D6	2.00 - 2.00	14/12/2021
27075468	TP-75197	D8	2.80 - 2.80	15/12/2021
27075470	TP-75404	D4	1.30 - 1.30	16/12/2021
27075473	TP-75508	D6	3.00 - 3.00	15/12/2021
27075476	TP-75605	D6	2.30 - 2.30	16/12/2021
27075478	TP-76006	D4	2.00 - 2.00	20/12/2021
27075487	TP-76087	D4	2.30 - 2.30	17/12/2021
27075499	TP-76309	D6	2.60 - 2.60	16/12/2021
27075458	TP-76440	D6	2.70 - 2.70	16/12/2021
27075460	TP-76641	D6	2.50 - 2.50	17/12/2021
27075462	TP-76707	D4	1.50 - 1.50	17/12/2021
27075464	TP-77903	D4	1.60 - 1.60	05/01/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 221026-74 **Report Number:** 666990 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			27075455	TP-74503	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			27075466	TP-74902	D6	2.00 - 2.00	250g Amber Jar (ALE210)	S
			27075468	TP-75197	D8	2.80 - 2.80	250g Amber Jar (ALE210)	S
			27075470	TP-75404	D4	1.30 - 1.30	250g Amber Jar (ALE210)	S
			27075473	TP-75508	D6	3.00 - 3.00	250g Amber Jar (ALE210)	S
			27075476	TP-75605	D6	2.30 - 2.30	250g Amber Jar (ALE210)	S
			27075478	TP-76006	D4	2.00 - 2.00	250g Amber Jar (ALE210)	S
			27075487	TP-76087	D4	2.30 - 2.30	250g Amber Jar (ALE210)	S
			27075499	TP-76309	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
			27075458	TP-76440	D6	2.70 - 2.70	250g Amber Jar (ALE210)	S
			27075460	TP-76641	D6	2.50 - 2.50	250g Amber Jar (ALE210)	S
			27075462	TP-76707	D4	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27075464	TP-77903	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 1						
								X
pH	All	NDPs: 0 Tests: 1						
								X
Sample description	All	NDPs: 0 Tests: 13						
			X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 13						
			X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 1						
								X

CERTIFICATE OF ANALYSIS

SDG: 221026-74 **Report Number:** 666990 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27075455	TP-74503	1.60 - 1.60	Light Brown	Sandy Clay	Stones	None
27075466	TP-74902	2.00 - 2.00	Light Brown	Silty Clay Loam	Stones	None
27075468	TP-75197	2.80 - 2.80	Light Brown	Sandy Loam	Stones	None
27075470	TP-75404	1.30 - 1.30	Light Brown	Silty Clay Loam	Stones	None
27075473	TP-75508	3.00 - 3.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
27075476	TP-75605	2.30 - 2.30	Light Brown	Silty Clay	Stones	None
27075478	TP-76006	2.00 - 2.00	Light Brown	Sandy Clay Loam	Stones	None
27075487	TP-76087	2.30 - 2.30	Light Brown	Sandy Clay Loam	Stones	None
27075499	TP-76309	2.60 - 2.60	Light Brown	Silty Clay Loam	Stones	None
27075458	TP-76440	2.70 - 2.70	Light Brown	Sandy Clay Loam	Stones	None
27075460	TP-76641	2.50 - 2.50	Light Brown	Silty Clay	None	None
27075462	TP-76707	1.50 - 1.50	Light Brown	Silty Clay Loam	Stones	None
27075464	TP-77903	1.60 - 1.60	Light Brown	Silty Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 221026-74 **Report Number:** 666990 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-74503	TP-74902	TP-75197	TP-75404	TP-75508	TP-75605
			Depth (m)	1.60 - 1.60	2.00 - 2.00	2.80 - 2.80	1.30 - 1.30	3.00 - 3.00	2.30 - 2.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	14/12/2021	14/12/2021	15/12/2021	16/12/2021	15/12/2021	16/12/2021
			Sample Time	-	-	-	-	-	-
			Date Received	26/10/2022	26/10/2022	26/10/2022	26/10/2022	26/10/2022	26/10/2022
			SDG Ref	221026-74	221026-74	221026-74	221026-74	221026-74	221026-74
			Lab Sample No.(s)	27075455	27075466	27075468	27075470	27075473	27075476
			AGS Reference	D4	D6	D8	D4	D6	D6
Moisture Content Ratio (% of as received sample)	%	PM024		9.2	6.5	9.1	11	11	11
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0246 @ M	0.0366 @ M	0.0146 @ M	0.0163 @ M	0.0165 @ M	0.0146 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 221026-74 **Report Number:** 666990 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-76006	TP-76087	TP-76309	TP-76440	TP-76641	TP-76707
			Depth (m)	2.00 - 2.00	2.30 - 2.30	2.60 - 2.60	2.70 - 2.70	2.50 - 2.50	1.50 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/12/2021	17/12/2021	16/12/2021	16/12/2021	17/12/2021	17/12/2021
			Sample Time	-	-	-	-	-	-
			Date Received	26/10/2022	26/10/2022	26/10/2022	26/10/2022	26/10/2022	26/10/2022
			SDG Ref	221026-74	221026-74	221026-74	221026-74	221026-74	221026-74
			Lab Sample No.(s)	27075478	27075487	27075499	27075458	27075460	27075462
			AGS Reference	D4	D4	D6	D6	D6	D4
Moisture Content Ratio (% of as received sample)	%	PM024		10	9.6	9.3	8.8	2.6	9.6
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0195 @ M	0.0204 @ M	0.022 @ M	0.0157 @ M	0.0162 @ M	0.0151 @ M

CERTIFICATE OF ANALYSIS

SDG: 221026-74 **Report Number:** 666990 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Customer Sample Ref.	TP-77903
Depth (m)	1.60 - 1.60
Sample Type	Soil/Solid (S)
Date Sampled	05/01/2022
Sample Time	-
Date Received	26/10/2022
SDG Ref	221026-74
Lab Sample No.(s)	27075464
AGS Reference	D4

Component	LOD/Units	Method	
Moisture Content Ratio (% of as received sample)	%	PM024	8.8
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019	0.0123 @
Sulphur, Total	<0.02 %	TM132	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132	0.06 @
pH	1 pH Units	TM133	9.09 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221	0.0187 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221026-74 **Report Number:** 666990 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27075455	27075466	27075468	27075470	27075473	27075476	27075478	27075487	27075499	27075458
Customer Sample Ref.	TP-74503	TP-74902	TP-75197	TP-75404	TP-75508	TP-75605	TP-76006	TP-76087	TP-76309	TP-76440
AGS Ref.	D4	D6	D8	D4	D6	D6	D4	D4	D6	D6
Depth	1.60 - 1.60	2.00 - 2.00	2.80 - 2.80	1.30 - 1.30	3.00 - 3.00	2.30 - 2.30	2.00 - 2.00	2.30 - 2.30	2.60 - 2.60	2.70 - 2.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Sample description	26-Oct-2022	26-Oct-2022	26-Oct-2022	26-Oct-2022	26-Oct-2022	26-Oct-2022	26-Oct-2022	26-Oct-2022	26-Oct-2022	26-Oct-2022
Total Sulphate	02-Nov-2022	02-Nov-2022	02-Nov-2022	02-Nov-2022	02-Nov-2022	02-Nov-2022	02-Nov-2022	02-Nov-2022	02-Nov-2022	02-Nov-2022

Lab Sample No(s)	27075460	27075462	27075464
Customer Sample Ref.	TP-76641	TP-76707	TP-77903
AGS Ref.	D6	D4	D4
Depth	2.50 - 2.50	1.50 - 1.50	1.60 - 1.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC			02-Nov-2022
pH			31-Oct-2022
Sample description	26-Oct-2022	26-Oct-2022	26-Oct-2022
Total Sulphate	02-Nov-2022	02-Nov-2022	02-Nov-2022
Total Sulphur			31-Oct-2022

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	22 November 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221115-85
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	669343
Order Number:	10808

We received 16 samples on Tuesday November 15, 2022 and 16 of these samples were scheduled for analysis which was completed on Tuesday November 22, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 221115-85 **Report Number:** 669343 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27162999	TP-50987	D6	2.30 - 2.30	21/12/2021
27163030	TP-51019	D6	2.00 - 2.00	21/12/2021
27163001	TP-74102	D6	2.20 - 2.20	20/12/2021
27163003	TP-76805	D6	2.60 - 2.60	04/01/2022
27163005	TP-77008	D2	0.60 - 0.60	04/01/2022
27163007	TP-77107	B4	1.40 - 1.70	04/01/2022
27163009	TP-78697	D6	2.50 - 2.50	07/01/2022
27163011	TP-79309	D6	2.70 - 2.70	06/01/2022
27163013	TP-79507	D4	1.60 - 1.60	06/01/2022
27163015	TP-80442	D4	1.70 - 1.70	06/01/2022
27163017	TP-81902	D4	1.80 - 1.80	17/01/2022
27163019	TP-82102	D6	2.70 - 2.70	17/01/2022
27163021	TP-82207	D6	2.70 - 2.70	17/01/2022
27163023	TP-82303	D4	1.60 - 1.60	17/01/2022
27163026	TP-82400	D4	2.10 - 2.10	17/01/2022
27163028	TP-82502	D4	2.40 - 2.40	18/01/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221115-85 **Report Number:** 669343 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			27162999	TP-50987	D6	2.30 - 2.30	250g Amber Jar (ALE210)	S
			27163030	TP-51019	D6	2.00 - 2.00	250g Amber Jar (ALE210)	S
			27163001	TP-74102	D6	2.20 - 2.20	250g Amber Jar (ALE210)	S
			27163003	TP-76805	D6	2.60 - 2.60	250g Amber Jar (ALE210)	S
			27163005	TP-77008	D2	0.60 - 0.60	250g Amber Jar (ALE210)	S
			27163007	TP-77107	B4	1.40 - 1.70	250g Amber Jar (ALE210)	S
			27163009	TP-78697	D6	2.50 - 2.50	250g Amber Jar (ALE210)	S
			27163011	TP-79309	D6	2.70 - 2.70	250g Amber Jar (ALE210)	S
			27163013	TP-79507	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			27163015	TP-80442	D4	1.70 - 1.70	250g Amber Jar (ALE210)	S
			27163017	TP-81902	D4	1.80 - 1.80	250g Amber Jar (ALE210)	S
			27163019	TP-82102	D6	2.70 - 2.70	250g Amber Jar (ALE210)	S
			27163021	TP-82207	D6	2.70 - 2.70	250g Amber Jar (ALE210)	S
			27163023	TP-82303	D4	1.60 - 1.60	250g Amber Jar (ALE210)	S
			27163026	TP-82400	D4	2.10 - 2.10	250g Amber Jar (ALE210)	S
			27163028	TP-82502	D4	2.40 - 2.40	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 4						
							X	X
							X	X
pH	All	NDPs: 0 Tests: 4						
							X	X
							X	X
Sample description	All	NDPs: 0 Tests: 16						
			X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 16						
			X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 4						
							X	X
							X	X

CERTIFICATE OF ANALYSIS

SDG: 221115-85 **Report Number:** 669343 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27162999	TP-50987	2.30 - 2.30	Light Brown	Sandy Clay	Stones	None
27163030	TP-51019	2.00 - 2.00	Light Brown	Sandy Clay	Stones	None
27163001	TP-74102	2.20 - 2.20	Light Brown	Sandy Clay	Stones	None
27163003	TP-76805	2.60 - 2.60	Light Brown	Sandy Clay	Stones	None
27163005	TP-77008	0.60 - 0.60	Light Brown	Sandy Silt Loam	Stones	None
27163007	TP-77107	1.40 - 1.70	Light Brown	Sand	Stones	None
27163009	TP-78697	2.50 - 2.50	Dark Brown	Loamy Sand	Stones	None
27163011	TP-79309	2.70 - 2.70	Light Brown	Sandy Clay	Stones	None
27163013	TP-79507	1.60 - 1.60	Dark Brown	Sandy Clay Loam	Stones	None
27163015	TP-80442	1.70 - 1.70	Light Brown	Sandy Clay	Stones	None
27163017	TP-81902	1.80 - 1.80	Light Brown	Sandy Clay	Stones	None
27163019	TP-82102	2.70 - 2.70	Light Brown	Sandy Clay	Stones	None
27163021	TP-82207	2.70 - 2.70	Light Brown	Sandy Clay	Stones	None
27163023	TP-82303	1.60 - 1.60	Light Brown	Sandy Clay	Stones	None
27163026	TP-82400	2.10 - 2.10	Light Brown	Sandy Clay	Stones	None
27163028	TP-82502	2.40 - 2.40	Light Brown	Sandy Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221115-85 **Report Number:** 669343 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-50987	TP-51019	TP-74102	TP-76805	TP-77008	TP-77107
			Depth (m)	2.30 - 2.30	2.00 - 2.00	2.20 - 2.20	2.60 - 2.60	0.60 - 0.60	1.40 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	21/12/2021	21/12/2021	20/12/2021	04/01/2022	04/01/2022	04/01/2022
			Sample Time	-	-	-	-	-	-
			Date Received	15/11/2022	15/11/2022	15/11/2022	15/11/2022	15/11/2022	15/11/2022
			SDG Ref	221115-85	221115-85	221115-85	221115-85	221115-85	221115-85
			Lab Sample No.(s)	27162999	27163030	27163001	27163003	27163005	27163007
			AGS Reference	D6	D6	D6	D6	D2	B4
Moisture Content Ratio (% of as received sample)	%	PM024		7.7	6.7	8.1	7.9	14	8.1
Sulphate, Total	<48 mg/kg	TM221		122 @ M	109 @ M	445 @ M	152 @ M	86.9 @ M	<48 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 221115-85 **Report Number:** 669343 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-78697	TP-79309	TP-79507	TP-80442	TP-81902	TP-82102
			Depth (m)	2.50 - 2.50	2.70 - 2.70	1.60 - 1.60	1.70 - 1.70	1.80 - 1.80	2.70 - 2.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/01/2022	06/01/2022	06/01/2022	06/01/2022	17/01/2022	17/01/2022
			Sample Time	-	-	-	-	-	-
			Date Received	15/11/2022	15/11/2022	15/11/2022	15/11/2022	15/11/2022	15/11/2022
			SDG Ref	221115-85	221115-85	221115-85	221115-85	221115-85	221115-85
			Lab Sample No.(s)	27163009	27163011	27163013	27163015	27163017	27163019
			AGS Reference	D6	D6	D4	D4	D4	D6
Moisture Content Ratio (% of as received sample)	%	PM024		6.9	8.8	11	8.1	8.3	9
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0087 @	0.00901 @	0.0148 @	0.00781 @		
Sulphur, Total	<0.02 %	TM132		0.0215 @ #	0.0228 @ #	0.021 @ #	0.0223 @ #		
Sulphate, Total potential	<0.06 %	TM132		0.0645 @	0.0684 @	0.063 @	0.0669 @		
pH	1 pH Units	TM133		8.83 @ M	8.85 @ M	8.48 @ M	8.77 @ M		
Sulphate, Total	<48 mg/kg	TM221						156 @ M	193 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0182 @ M	0.0132 @ M	0.0313 @ M	<0.0048 @ M		

Validated

CERTIFICATE OF ANALYSIS

SDG: 221115-85 **Report Number:** 669343 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-82207	TP-82303	TP-82400	TP-82502		
			Depth (m)	2.70 - 2.70	1.60 - 1.60	2.10 - 2.10	2.40 - 2.40		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	17/01/2022	17/01/2022	17/01/2022	18/01/2022		
			Sample Time	-	-	-	-		
			Date Received	15/11/2022	15/11/2022	15/11/2022	15/11/2022		
			SDG Ref	221115-85	221115-85	221115-85	221115-85		
			Lab Sample No.(s)	27163021	27163023	27163026	27163028		
			AGS Reference	D6	D4	D4	D4		
Moisture Content Ratio (% of as received sample)	%	PM024		8.8	8.8	8	8.2		
Sulphate, Total	<48 mg/kg	TM221		194 @ M	190 @ M	179 @ M	192 @ M		

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221115-85 **Report Number:** 669343 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27162999	27163030	27163001	27163003	27163005	27163007	27163009	27163011	27163013	27163015
Customer Sample Ref.	TP-50987	TP-51019	TP-74102	TP-76805	TP-77008	TP-77107	TP-78697	TP-79309	TP-79507	TP-80442
AGS Ref.	D6	D6	D6	D6	D2	B4	D6	D6	D4	D4
Depth	2.30 - 2.30	2.00 - 2.00	2.20 - 2.20	2.60 - 2.60	0.60 - 0.60	1.40 - 1.70	2.50 - 2.50	2.70 - 2.70	1.60 - 1.60	1.70 - 1.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC							22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022
pH							16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022
Sample description	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022
Total Sulphate	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	21-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	21-Nov-2022
Total Sulphur							22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022

Lab Sample No(s)	27163017	27163019	27163021	27163023	27163026	27163028
Customer Sample Ref.	TP-81902	TP-82102	TP-82207	TP-82303	TP-82400	TP-82502
AGS Ref.	D4	D6	D6	D4	D4	D4
Depth	1.80 - 1.80	2.70 - 2.70	2.70 - 2.70	1.60 - 1.60	2.10 - 2.10	2.40 - 2.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Sample description	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022	16-Nov-2022
Total Sulphate	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022	22-Nov-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	01 December 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221123-177
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	670553
Order Number:	10808

We received 15 samples on Wednesday November 23, 2022 and 15 of these samples were scheduled for analysis which was completed on Thursday December 01, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 221123-177 **Report Number:** 670553 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27205947	BH-44676	D2	1.00 - 1.00	
27205945	BH-45501	D14	4.50 - 4.50	
27205950	BH-46131	D5	1.50 - 1.50	15/11/2021
27205968	BH-46402	D5	1.50 - 1.50	16/11/2021
27205976	BH-47262	D5	1.50 - 1.50	22/11/2021
27205979	BH-49513	B1	0.00 - 1.00	26/11/2021
27205982	BH-49513	D7	2.50 - 2.50	26/11/2021
27205985	BH-49654	D2	1.00 - 1.00	24/11/2021
27205990	BH-49654	D17	5.50 - 5.50	24/11/2021
27205971	BH-46715A	D5	1.50 - 1.50	17/11/2021
27205992	TP-80508	B1	1.00 - 1.50	10/01/2022
27205955	TP-80634	D4	2.00 - 2.50	10/01/2022
27205959	TP-80903	D4	2.00 - 2.40	11/01/2022
27205962	TP-81202	D2	0.50 - 1.00	12/01/2022
27205964	TP-81501	B4	2.00 - 2.40	13/01/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 221123-177 **Report Number:** 670553 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			27205947	BH-44676	D2	1.00 - 1.00	250g Amber Jar (ALE210)	S
			27205945	BH-45501	D14	4.50 - 4.50	250g Amber Jar (ALE210)	S
			27205950	BH-46131	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27205968	BH-46402	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27205976	BH-47262	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27205979	BH-49513	B1	0.00 - 1.00	250g Amber Jar (ALE210)	S
			27205982	BH-49513	D7	2.50 - 2.50	250g Amber Jar (ALE210)	S
			27205985	BH-49654	D2	1.00 - 1.00	250g Amber Jar (ALE210)	S
			27205990	BH-49654	D17	5.50 - 5.50	250g Amber Jar (ALE210)	S
			27205971	BH-46715A	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27205992	TP-80508	B1	1.00 - 1.50	250g Amber Jar (ALE210)	S
			27205955	TP-80634	D4	2.00 - 2.50	250g Amber Jar (ALE210)	S
			27205959	TP-80903	D4	2.00 - 2.40	250g Amber Jar (ALE210)	S
			27205962	TP-81202	D2	0.50 - 1.00	250g Amber Jar (ALE210)	S
			27205964	TP-81501	B4	2.00 - 2.40	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 7	X	X	X	X	X				X	X					
Anions in soil by IC	All	NDPs: 0 Tests: 7	X	X	X	X	X				X	X					
Loss on Ignition in soils	All	NDPs: 0 Tests: 3						X	X	X							
pH	All	NDPs: 0 Tests: 7	X	X	X	X	X				X	X					
Sample description	All	NDPs: 0 Tests: 15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 3						X	X	X							
Total Sulphate	All	NDPs: 0 Tests: 12	X	X	X	X	X				X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 7	X	X	X	X	X				X	X					

CERTIFICATE OF ANALYSIS

SDG: 221123-177 **Report Number:** 670553 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27205947	BH-44676	1.00 - 1.00	Light Brown	Sandy Clay Loam	Stones	None
27205945	BH-45501	4.50 - 4.50	Light Brown	Sandy Clay	Stones	None
27205950	BH-46131	1.50 - 1.50	Light Brown	Sandy Clay	Stones	None
27205968	BH-46402	1.50 - 1.50	Light Brown	Sandy Clay	Stones	None
27205976	BH-47262	1.50 - 1.50	Light Brown	Sandy Clay	Stones	None
27205979	BH-49513	0.00 - 1.00	Dark Brown	Silt Loam	Vegetation	None
27205982	BH-49513	2.50 - 2.50	Dark Brown	Sandy Silt Loam	Vegetation	None
27205985	BH-49654	1.00 - 1.00	Dark Brown	Silt Loam	Vegetation	None
27205990	BH-49654	5.50 - 5.50	Light Brown	Sandy Clay	Stones	None
27205971	BH-46715A	1.50 - 1.50	Light Brown	Sandy Clay	Stones	None
27205992	TP-80508	1.00 - 1.50	Light Brown	Sandy Clay	Stones	None
27205955	TP-80634	2.00 - 2.50	Light Brown	Sandy Clay	Stones	None
27205959	TP-80903	2.00 - 2.40	Light Brown	Sandy Clay	Stones	None
27205962	TP-81202	0.50 - 1.00	Light Brown	Sandy Clay	Stones	None
27205964	TP-81501	2.00 - 2.40	Light Brown	Sandy Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221123-177 **Report Number:** 670553 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-44676	BH-45501	BH-46131	BH-46402	BH-47262	BH-49513
			Depth (m)	1.00 - 1.00	4.50 - 4.50	1.50 - 1.50	1.50 - 1.50	1.50 - 1.50	0.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	-	-	15/11/2021	16/11/2021	22/11/2021	26/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	23/11/2022	23/11/2022	23/11/2022	23/11/2022	23/11/2022	23/11/2022
			SDG Ref	221123-177	221123-177	221123-177	221123-177	221123-177	221123-177
			Lab Sample No.(s)	27205947	27205945	27205950	27205968	27205976	27205979
			AGS Reference	D2	D14	D5	D5	D5	B1
Moisture Content Ratio (% of as received sample)	%	PM024		18 §	14 §	20	9.5	12	85
Loss on ignition	<0.7 %	TM018							77.6 @ M
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0146 §	0.021 §	0.0147 @	0.00824 @	0.0104 @	
Sulphur, Total	<0.02 %	TM132		0.03 § #	0.0227 § #	0.0232 @ #	<0.02 @ #	<0.02 @ #	
Sulphate, Total potential	<0.06 %	TM132		0.09 §	0.0681 §	0.0696 @	0.06 @	0.06 @	
Soil Organic Matter (SOM)	<0.35 %	TM132							66.2 @ #
pH	1 pH Units	TM133		8.62 § M	8.63 § M	8.37 @ M	8.73 @ M	8.67 @ M	
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0181 § M	0.0104 § M	0.0228 @ M	0.0113 @ M	0.0127 @ M	
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.02 § M	0.0233 § M	0.0139 @ M	0.0085 @ M	0.0105 @ M	

CERTIFICATE OF ANALYSIS

SDG: 221123-177 **Report Number:** 670553 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-49513	BH-49654	BH-49654	BH-46715A	TP-80508	TP-80634
			Depth (m)	2.50 - 2.50	1.00 - 1.00	5.50 - 5.50	1.50 - 1.50	1.00 - 1.50	2.00 - 2.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	26/11/2021	24/11/2021	24/11/2021	17/11/2021	10/01/2022	10/01/2022
			Sample Time	-	-	-	-	-	-
			Date Received	23/11/2022	23/11/2022	23/11/2022	23/11/2022	23/11/2022	23/11/2022
			SDG Ref	221123-177	221123-177	221123-177	221123-177	221123-177	221123-177
			Lab Sample No.(s)	27205982	27205985	27205990	27205971	27205992	27205955
			AGS Reference	D7	D2	D17	D5	B1	D4
Moisture Content Ratio (% of as received sample)	%	PM024		87	87	14	8.2	9	8.5
Loss on ignition	<0.7 %	TM018		86.6 @ M	80.5 @ M				
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019				0.0659 @	0.00831 @		
Sulphur, Total	<0.02 %	TM132				0.0346 @ #	0.0234 @ #		
Sulphate, Total potential	<0.06 %	TM132				0.104 @	0.0702 @		
Soil Organic Matter (SOM)	<0.35 %	TM132		>100 @ #	>100 @ #				
pH	1 pH Units	TM133				8.34 @ M	8.86 @ M		
Sulphate, acid soluble (total)	<0.0048 %	TM221				0.0281 @ M	0.0138 @ M	0.0231 @ M	0.027 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243				0.0693 @ M	0.0088 @ M		

Validated

CERTIFICATE OF ANALYSIS

SDG: 221123-177 **Report Number:** 670553 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-80903	TP-81202	TP-81501			
			Depth (m)	2.00 - 2.40	0.50 - 1.00	2.00 - 2.40			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	11/01/2022	12/01/2022	13/01/2022			
			Sample Time	-	-	-			
			Date Received	23/11/2022	23/11/2022	23/11/2022			
			SDG Ref	221123-177	221123-177	221123-177			
			Lab Sample No.(s)	27205959	27205962	27205964			
			AGS Reference	D4	D2	B4			
Moisture Content Ratio (% of as received sample)	%	PM024		8.9	8.3	7.4			
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0146 @ M	0.0134 @ M	0.0258 @ M			

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221123-177 **Report Number:** 670553 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27205947	27205945	27205950	27205968	27205976	27205979	27205982	27205985	27205990	27205971
Customer Sample Ref.	BH-44676	BH-45501	BH-46131	BH-46402	BH-47262	BH-49513	BH-49513	BH-49654	BH-49654	BH-46715A
AGS Ref.	D2	D14	D5	D5	D5	B1	D7	D2	D17	D5
Depth	1.00 - 1.00	4.50 - 4.50	1.50 - 1.50	1.50 - 1.50	1.50 - 1.50	0.00 - 1.00	2.50 - 2.50	1.00 - 1.00	5.50 - 5.50	1.50 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	30-Nov-2022	30-Nov-2022	29-Nov-2022	29-Nov-2022	29-Nov-2022				29-Nov-2022	29-Nov-2022
Anions in soil by IC	01-Dec-2022	01-Dec-2022	01-Dec-2022	01-Dec-2022	01-Dec-2022				01-Dec-2022	01-Dec-2022
Loss on Ignition in soils						30-Nov-2022	29-Nov-2022	30-Nov-2022		
pH	29-Nov-2022	29-Nov-2022	28-Nov-2022	28-Nov-2022	28-Nov-2022				28-Nov-2022	28-Nov-2022
Sample description	28-Nov-2022	28-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022
Total Organic Carbon						30-Nov-2022	01-Dec-2022	01-Dec-2022		
Total Sulphate	30-Nov-2022	30-Nov-2022	28-Nov-2022	28-Nov-2022	28-Nov-2022				28-Nov-2022	28-Nov-2022
Total Sulphur	30-Nov-2022	30-Nov-2022	28-Nov-2022	28-Nov-2022	28-Nov-2022				28-Nov-2022	28-Nov-2022

Lab Sample No(s)	27205992	27205955	27205959	27205962	27205964
Customer Sample Ref.	TP-80508	TP-80634	TP-80903	TP-81202	TP-81501
AGS Ref.	B1	D4	D4	D2	B4
Depth	1.00 - 1.50	2.00 - 2.50	2.00 - 2.40	0.50 - 1.00	2.00 - 2.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Sample description	24-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022	24-Nov-2022
Total Sulphate	28-Nov-2022	28-Nov-2022	28-Nov-2022	28-Nov-2022	28-Nov-2022

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
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Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	05 December 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221128-25
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	670979
Order Number:	10808

We received 8 samples on Monday November 28, 2022 and 8 of these samples were scheduled for analysis which was completed on Monday December 05, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 221128-25 **Report Number:** 670979 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27229324	BH-47431	D5	2.00 - 2.00	16/11/2021
27229326	BH-47650	D2	1.00 - 1.00	16/11/2021
27229328	BH-48400	D2	1.00 - 1.00	18/11/2021
27229330	BH-50920	D8	3.00 - 3.00	23/11/2021
27229332	BH-51540	D14	5.00 - 5.00	25/11/2021
27229334	BH-52680	B1	0.00 - 1.00	30/11/2021
27229337	BH-52680	D5	2.00 - 2.00	30/11/2021
27229322	TP-55806	D2	0.30 - 0.30	03/11/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 221128-25 **Report Number:** 670979 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			27229324	27229326	27229328	27229330	27229332	27229334	27229337	27229322
Customer Sample Reference			BH-47431	BH-47650	BH-48400	BH-50920	BH-51540	BH-52680	BH-52680	TP-55806
AGS Reference			D5	D2	D2	D8	D14	B1	D5	D2
Depth (m)			2.00 - 2.00	1.00 - 1.00	1.00 - 1.00	3.00 - 3.00	5.00 - 5.00	0.00 - 1.00	2.00 - 2.00	0.30 - 0.30
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 5	X	X	X	X	X			
Loss on Ignition in soils	All	NDPs: 0 Tests: 2						X		X
pH	All	NDPs: 0 Tests: 5	X	X	X	X	X			
Sample description	All	NDPs: 0 Tests: 8	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 2						X		X
Total Sulphate	All	NDPs: 0 Tests: 6	X	X	X	X	X		X	
Total Sulphur	All	NDPs: 0 Tests: 5	X	X	X	X	X			

CERTIFICATE OF ANALYSIS

SDG: 221128-25 **Report Number:** 670979 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27229324	BH-47431	2.00 - 2.00	Dark Brown	Sand	Stones	None
27229326	BH-47650	1.00 - 1.00	Dark Brown	Sandy Clay Loam	Stones	Vegetation
27229328	BH-48400	1.00 - 1.00	Dark Brown	Sandy Clay Loam	Stones	Vegetation
27229330	BH-50920	3.00 - 3.00	Cream	Sandy Clay Loam	Stones	Vegetation
27229332	BH-51540	5.00 - 5.00	Grey	Sandy Clay	Stones	Vegetation
27229334	BH-52680	0.00 - 1.00	Dark Brown	Sandy Clay Loam	Stones	Vegetation
27229337	BH-52680	2.00 - 2.00	Dark Brown	Sandy Clay Loam	Stones	Vegetation
27229322	TP-55806	0.30 - 0.30	Dark Brown	Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 221128-25 **Report Number:** 670979 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-47431	BH-47650	BH-48400	BH-50920	BH-51540	BH-52680
			Depth (m)	2.00 - 2.00	1.00 - 1.00	1.00 - 1.00	3.00 - 3.00	5.00 - 5.00	0.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	16/11/2021	16/11/2021	18/11/2021	23/11/2021	25/11/2021	30/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022
			SDG Ref	221128-25	221128-25	221128-25	221128-25	221128-25	221128-25
			Lab Sample No.(s)	27229324	27229326	27229328	27229330	27229332	27229334
			AGS Reference	D5	D2	D2	D8	D14	B1
Moisture Content Ratio (% of as received sample)	%	PM024		11	18	11	5.9	7.2	15
Loss on ignition	<0.7 %	TM018							2.27 @ M
Sulphur, Total	<0.02 %	TM132		0.0257 @ #	0.0218 @ #	<0.02 @ #	<0.02 @ #	0.0312 @ #	
Sulphate, Total potential	<0.06 %	TM132		0.0771 @	0.0654 @	0.06 @	0.06 @	0.0936 @	
Soil Organic Matter (SOM)	<0.35 %	TM132							0.859 @ #
pH	1 pH Units	TM133		8.95 @ M	8.2 @ M	8.74 @ M	9.04 @ M	8.9 @ M	
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0241 @ M	<0.0048 @ M	0.00856 @ M	<0.0048 @ M	0.0157 @ M	
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0867 @ M	0.01 @ M	0.0146 @ M	0.0065 @ M	0.0605 @ M	

Validated

CERTIFICATE OF ANALYSIS

SDG: 221128-25 **Report Number:** 670979 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-52680	TP-55806				
			Depth (m)	2.00 - 2.00	0.30 - 0.30				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	30/11/2021	03/11/2021				
			Sample Time	-	-				
			Date Received	28/11/2022	28/11/2022				
			SDG Ref	221128-25	221128-25				
			Lab Sample No.(s)	27229337	27229322				
			AGS Reference	D5	D2				
Moisture Content Ratio (% of as received sample)	%	PM024		16	7.3				
Loss on ignition	<0.7 %	TM018			2.12 @ M				
Soil Organic Matter (SOM)	<0.35 %	TM132			1.02 @ #				
Sulphate, acid soluble (total)	<0.0048 %	TM221		<0.0048 @ M					

CERTIFICATE OF ANALYSIS

SDG: 221128-25 **Report Number:** 670979 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221128-25 **Report Number:** 670979 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27229324	27229326	27229328	27229330	27229332	27229334	27229337	27229322
Customer Sample Ref.	BH-47431	BH-47650	BH-48400	BH-50920	BH-51540	BH-52680	BH-52680	TP-55806
AGS Ref.	D5	D2	D2	D8	D14	B1	D5	D2
Depth	2.00 - 2.00	1.00 - 1.00	1.00 - 1.00	3.00 - 3.00	5.00 - 5.00	0.00 - 1.00	2.00 - 2.00	0.30 - 0.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	05-Dec-2022	05-Dec-2022	05-Dec-2022	05-Dec-2022	05-Dec-2022			
Loss on Ignition in soils						02-Dec-2022		02-Dec-2022
pH	01-Dec-2022	01-Dec-2022	01-Dec-2022	01-Dec-2022	01-Dec-2022			
Sample description	30-Nov-2022	30-Nov-2022	30-Nov-2022	30-Nov-2022	30-Nov-2022	30-Nov-2022	30-Nov-2022	30-Nov-2022
Total Organic Carbon						02-Dec-2022		02-Dec-2022
Total Sulphate	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022		02-Dec-2022	
Total Sulphur	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022	02-Dec-2022			

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

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email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	16 December 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221207-75
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	672530
Order Number:	10808

We received 29 samples on Wednesday December 07, 2022 and 29 of these samples were scheduled for analysis which was completed on Friday December 16, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27274796	BH-49880	D2	1.00 - 1.00	03/12/2021
27274838	BH-49880	B6	2.00 - 2.50	03/12/2021
27274882	BH-49880	U1008	3.00 - 3.45	03/12/2021
27274885	BH-49880	D9	3.50 - 3.50	03/12/2021
27274888	BH-50108	D2	1.00 - 1.00	06/12/2021
27274894	BH-53367	D5	1.50 - 1.50	13/12/2021
27274898	BH-53713	D5	15.00	10/12/2021
27274902	BH-54278	B1	0.00 - 1.00	14/12/2021
27274800	BH-54278	D8	2.50 - 2.50	14/12/2021
27274803	BH-55944	D8	2.50 - 2.50	17/12/2021
27274807	BH-56060	B1	0.00 - 1.00	20/12/2021
27274814	BH-56109	B1	0.00 - 1.00	21/12/2021
27274817	BH-56109	D11	3.50 - 3.50	21/12/2021
27274820	BH-56272	D5	1.50 - 1.50	05/01/2022
27274823	BH-56645	D5	1.50 - 1.50	06/01/2022
27274827	BH-56857	B1	0.00 - 1.00	07/01/2022
27274830	BH-57037	D5	1.50 - 1.50	10/01/2022
27274833	BH-57428	D5	1.50 - 1.50	11/01/2022
27274841	BH-59474	D5	1.50 - 1.50	13/01/2022
27274846	BH-59932	D8	2.50 - 2.50	17/01/2022
27274850	BH-60345	D8	2.50 - 2.50	18/01/2022
27274854	BH-60805	D8	2.50 - 2.50	20/01/2022
27274858	BH-61136	D8	2.50 - 2.50	21/01/2022
27274862	BH-61605	D2	1.00 - 1.00	19/01/2022
27274865	BH-61869	D5	2.00 - 2.00	20/01/2022
27274868	BH-62325	D5	2.00 - 2.00	20/01/2022
27274872	BH-62456	D5	2.00 - 2.00	21/01/2022
27274877	BH-62606	D5	2.00 - 2.00	25/01/2022
27274890	BH-50608a	D2	1.00 - 1.00	02/12/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			27274796	BH-49880	D2	1.00 - 1.00	250g Amber Jar (ALE210)	S
			27274838	BH-49880	B6	2.00 - 2.50	250g Amber Jar (ALE210)	S
			27274882	BH-49880	U1008	3.00 - 3.45	250g Amber Jar (ALE210)	S
			27274885	BH-49880	D9	3.50 - 3.50	250g Amber Jar (ALE210)	S
			27274888	BH-50108	D2	1.00 - 1.00	250g Amber Jar (ALE210)	S
			27274894	BH-53367	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27274898	BH-53713	D5	15.00	250g Amber Jar (ALE210)	S
			27274902	BH-54278	B1	0.00 - 1.00	250g Amber Jar (ALE210)	S
			27274800	BH-54278	D8	2.50 - 2.50	250g Amber Jar (ALE210)	S
			27274803	BH-55944	D8	2.50 - 2.50	250g Amber Jar (ALE210)	S
			27274807	BH-56060	B1	0.00 - 1.00	250g Amber Jar (ALE210)	S
			27274814	BH-56109	B1	0.00 - 1.00	250g Amber Jar (ALE210)	S
			27274817	BH-56109	D11	3.50 - 3.50	250g Amber Jar (ALE210)	S
			27274820	BH-56272	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27274823	BH-56645	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27274827	BH-56857	B1	0.00 - 1.00	250g Amber Jar (ALE210)	S
			27274830	BH-57037	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27274833	BH-57428	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
			27274841	BH-59474	D5	1.50 - 1.50	250g Amber Jar (ALE210)	S
Anions in soil by IC	All	NDPs: 0 Tests: 21						
						X		X
						X	X	X
						X	X	X
						X	X	X
						X	X	X
Loss on Ignition in soils	All	NDPs: 0 Tests: 8						
			X	X	X		X	
						X		
						X	X	
							X	
pH	All	NDPs: 0 Tests: 21						
						X		X
						X	X	X
						X	X	X
						X	X	X
Sample description	All	NDPs: 0 Tests: 29						
			X	X	X	X	X	X
			X	X	X	X	X	X
			X	X	X	X	X	X
			X	X	X	X	X	X
			X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 8						
			X	X	X		X	
						X		
						X	X	
							X	
Total Sulphate	All	NDPs: 0 Tests: 21						
						X		X
						X	X	X
						X	X	X
						X	X	X
Total Sulphur	All	NDPs: 0 Tests: 21						
						X		X
						X	X	X
						X	X	X
						X	X	X

| | | |

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27274796	BH-49880	1.00 - 1.00	Black	Silt Loam	Vegetation	None
27274838	BH-49880	2.00 - 2.50	Black	Silt Loam	Vegetation	None
27274882	BH-49880	3.00 - 3.45	Black	Silt Loam	Vegetation	None
27274885	BH-49880	3.50 - 3.50	Grey	Sandy Clay Loam	Stones	Vegetation
27274888	BH-50108	1.00 - 1.00	Dark Brown	Silt Loam	Vegetation	None
27274894	BH-53367	1.50 - 1.50	Dark Brown	Sandy Loam	Stones	Vegetation
27274898	BH-53713	15.00	Dark Brown	Sandy Loam	Stones	Vegetation
27274800	BH-54278	2.50 - 2.50	Grey	Sandy Loam	Stones	None
27274902	BH-54278	0.00 - 1.00	Black	Silt Loam	Vegetation	None
27274803	BH-55944	2.50 - 2.50	Grey	Sandy Loam	Stones	None
27274807	BH-56060	0.00 - 1.00	Dark Brown	Sandy Silt Loam	Stones	Vegetation
27274814	BH-56109	0.00 - 1.00	Dark Brown	Sandy Silt Loam	Vegetation	None
27274817	BH-56109	3.50 - 3.50	Grey	Loamy Sand	Stones	None
27274820	BH-56272	1.50 - 1.50	Dark Brown	Sandy Silt Loam	Stones	None
27274823	BH-56645	1.50 - 1.50	Light Brown	Sandy Clay Loam	Stones	None
27274827	BH-56857	0.00 - 1.00	Dark Brown	Sandy Loam	Stones	None
27274830	BH-57037	1.50 - 1.50	Grey	Sandy Loam	Stones	None
27274833	BH-57428	1.50 - 1.50	Dark Brown	Sandy Loam	Stones	Vegetation
27274841	BH-59474	1.50 - 1.50	Light Brown	Sandy Clay Loam	Stones	None
27274846	BH-59932	2.50 - 2.50	Grey	Sandy Loam	Stones	None
27274850	BH-60345	2.50 - 2.50	Grey	Sandy Clay Loam	Stones	None
27274854	BH-60805	2.50 - 2.50	Grey	Silty Clay Loam	Stones	Vegetation
27274858	BH-61136	2.50 - 2.50	Dark Brown	Sandy Clay Loam	Stones	None
27274862	BH-61605	1.00 - 1.00	Dark Brown	Sandy Loam	Stones	None
27274865	BH-61869	2.00 - 2.00	Dark Brown	Sandy Loam	Stones	Vegetation
27274868	BH-62325	2.00 - 2.00	Dark Brown	Sandy Silt Loam	Vegetation	None
27274872	BH-62456	2.00 - 2.00	Dark Brown	Sandy Silt Loam	Vegetation	None
27274877	BH-62606	2.00 - 2.00	Dark Brown	Sandy Silt Loam	Stones	Vegetation
27274890	BH-50608a	1.00 - 1.00	Light Brown	Sandy Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-49880	BH-49880	BH-49880	BH-49880	BH-50108	BH-53367
			Depth (m)	1.00 - 1.00	2.00 - 2.50	3.00 - 3.45	3.50 - 3.50	1.00 - 1.00	1.50 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	03/12/2021	03/12/2021	03/12/2021	03/12/2021	06/12/2021	13/12/2021
			Sample Time	-	-	-	-	-	-
			Date Received	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
			SDG Ref	221207-75	221207-75	221207-75	221207-75	221207-75	221207-75
			Lab Sample No.(s)	27274796	27274838	27274882	27274885	27274888	27274894
			AGS Reference	D2	B6	U1008	D9	D2	D5
Moisture Content Ratio (% of as received sample)	%	PM024		76	80	86	17	75	9.6
Loss on ignition	<0.7 %	TM018		84.5 @ M	81.6 @ M	82.4 @ M		69.4 @ M	
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019					0.201 @		0.00779 @
Sulphur, Total	<0.02 %	TM132					0.131 @ #		<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132					0.393 @		0.06 @
Soil Organic Matter (SOM)	<0.35 %	TM132		>100 @ #	>100 @ #	>100 @ #		69.1 @ #	
pH	1 pH Units	TM133					8.16 @ M		9 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221					0.0775 @ M		0.0221 @ M

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-53713	BH-54278	BH-54278	BH-55944	BH-56060	BH-56109
			Depth (m)	15.00	0.00 - 1.00	2.50 - 2.50	2.50 - 2.50	0.00 - 1.00	0.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	10/12/2021	14/12/2021	14/12/2021	17/12/2021	20/12/2021	21/12/2021
			Sample Time	-	-	-	-	-	-
			Date Received	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
			SDG Ref	221207-75	221207-75	221207-75	221207-75	221207-75	221207-75
			Lab Sample No.(s)	27274898	27274902	27274800	27274803	27274807	27274814
			AGS Reference	D5	B1	D8	D8	B1	B1
Moisture Content Ratio (% of as received sample)	%	PM024		14	34	10	5.9	17	22
Loss on ignition	<0.7 %	TM018			10.6 @ M			3.93 @ M	9.28 @ M
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0124 @		0.0159 @	0.0088 @		
Sulphur, Total	<0.02 %	TM132		<0.02 @ #		0.0374 @ #	0.0214 @ #		
Sulphate, Total potential	<0.06 %	TM132		0.06 @		0.112 @	0.0642 @		
Soil Organic Matter (SOM)	<0.35 %	TM132			8.15 @ #			1.84 @ #	7.24 @ #
pH	1 pH Units	TM133		8.52 @ M		8.87 @ M	8.79 @ M		
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0203 @ M		0.0294 @ M	0.0278 @ M		

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-56109	BH-56272	BH-56645	BH-56857	BH-57037	BH-57428
			Depth (m)	3.50 - 3.50	1.50 - 1.50	1.50 - 1.50	0.00 - 1.00	1.50 - 1.50	1.50 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	21/12/2021	05/01/2022	06/01/2022	07/01/2022	10/01/2022	11/01/2022
			Sample Time	-	-	-	-	-	-
			Date Received	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
			SDG Ref	221207-75	221207-75	221207-75	221207-75	221207-75	221207-75
			Lab Sample No.(s)	27274817	27274820	27274823	27274827	27274830	27274833
			AGS Reference	D11	D5	D5	B1	D5	D5
Moisture Content Ratio (% of as received sample)	%	PM024		7	17	9.8	10	6.2	8.5
Loss on ignition	<0.7 %	TM018					1.63 @ M		
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0625 @	0.0177 @	0.00788 @		0.0111 @	0.00908 @
Sulphur, Total	<0.02 %	TM132		0.0633 @ #	0.0539 @ #	0.0256 @ #		0.0251 @ #	0.0232 @ #
Sulphate, Total potential	<0.06 %	TM132		0.19 @	0.162 @	0.0768 @		0.0753 @	0.0696 @
Soil Organic Matter (SOM)	<0.35 %	TM132					0.519 @ #		
pH	1 pH Units	TM133		8.67 @ M	8.07 @ M	8.76 @ M		9.04 @ M	8.73 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.045 @ M	0.0563 @ M	0.0381 @ M		0.0243 @ M	0.0208 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-59474	BH-59932	BH-60345	BH-60805	BH-61136	BH-61605
			Depth (m)	1.50 - 1.50	2.50 - 2.50	2.50 - 2.50	2.50 - 2.50	2.50 - 2.50	1.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/01/2022	17/01/2022	18/01/2022	20/01/2022	21/01/2022	19/01/2022
			Sample Time	-	-	-	-	-	-
			Date Received	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
			SDG Ref	221207-75	221207-75	221207-75	221207-75	221207-75	221207-75
			Lab Sample No.(s)	27274841	27274846	27274850	27274854	27274858	27274862
			AGS Reference	D5	D8	D8	D8	D8	D2
Moisture Content Ratio (% of as received sample)	%	PM024		8	7.2	7.5	7.1	9.6	25
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.00686 @	0.0338 @	0.0402 @	0.0174 @	0.00807 @	0.0228 @
Sulphur, Total	<0.02 %	TM132		0.0229 @ #	<0.02 @ #	0.0466 @ #	0.023 @ #	<0.02 @ #	0.0387 @ #
Sulphate, Total potential	<0.06 %	TM132		0.0687 @	0.06 @	0.14 @	0.069 @	0.06 @	0.116 @
pH	1 pH Units	TM133		8.9 @ M	8.81 @ M	8.73 @ M	9.01 @ M	8.72 @ M	8.14 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0236 @ M	0.0328 @ M	0.0459 @ M	0.0322 @ M	0.0231 @ M	0.0429 @ M

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-61869	BH-62325	BH-62456	BH-62606	BH-50608a
			Depth (m)	2.00 - 2.00	2.00 - 2.00	2.00 - 2.00	2.00 - 2.00	1.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	20/01/2022	20/01/2022	21/01/2022	25/01/2022	02/12/2021
			Sample Time	-	-	-	-	-
			Date Received	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
			SDG Ref	221207-75	221207-75	221207-75	221207-75	221207-75
			Lab Sample No.(s)	27274865	27274868	27274872	27274877	27274890
			AGS Reference	D5	D5	D5	D5	D2
Moisture Content Ratio (% of as received sample)	%	PM024		16	20	21	23	13
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0255 @	0.0144 @	0.00975 @	0.0153 @	0.011 @
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #	<0.02 @ #	0.0203 @ #	<0.02 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @	0.06 @	0.0609 @	0.06 @
pH	1 pH Units	TM133		8.12 @ M	8.55 @ M	8.43 @ M	8.35 @ M	8.64 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0343 @ M	<0.0048 @ M	0.016 @ M	0.0105 @ M	0.0227 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221207-75 **Report Number:** 672530 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27274796	27274838	27274882	27274885	27274888	27274894	27274898	27274800	27274902	27274803
Customer Sample Ref.	BH-49880	BH-49880	BH-49880	BH-49880	BH-50108	BH-53367	BH-53713	BH-54278	BH-54278	BH-55944
AGS Ref.	D2	B6	U1008	D9	D2	D5	D5	D8	B1	D8
Depth	1.00 - 1.00	2.00 - 2.50	3.00 - 3.45	3.50 - 3.50	1.00 - 1.00	1.50 - 1.50	15.00	2.50 - 2.50	0.00 - 1.00	2.50 - 2.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC				13-Dec-2022		15-Dec-2022	15-Dec-2022	12-Dec-2022		12-Dec-2022
Loss on Ignition in soils	14-Dec-2022	14-Dec-2022	14-Dec-2022		14-Dec-2022				14-Dec-2022	
pH				08-Dec-2022		08-Dec-2022	08-Dec-2022	08-Dec-2022		08-Dec-2022
Sample description	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Total Organic Carbon	14-Dec-2022	14-Dec-2022	14-Dec-2022		16-Dec-2022				14-Dec-2022	
Total Sulphate				12-Dec-2022		13-Dec-2022	13-Dec-2022	13-Dec-2022		12-Dec-2022
Total Sulphur				12-Dec-2022		12-Dec-2022	12-Dec-2022	14-Dec-2022		12-Dec-2022

Lab Sample No(s)	27274807	27274814	27274817	27274820	27274823	27274827	27274830	27274833	27274841	27274846
Customer Sample Ref.	BH-56060	BH-56109	BH-56109	BH-56272	BH-56645	BH-56857	BH-57037	BH-57428	BH-59474	BH-59932
AGS Ref.	B1	B1	D11	D5	D5	B1	D5	D5	D5	D8
Depth	0.00 - 1.00	0.00 - 1.00	3.50 - 3.50	1.50 - 1.50	1.50 - 1.50	0.00 - 1.00	1.50 - 1.50	1.50 - 1.50	1.50 - 1.50	2.50 - 2.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC			12-Dec-2022	15-Dec-2022	12-Dec-2022		12-Dec-2022	12-Dec-2022	12-Dec-2022	12-Dec-2022
Loss on Ignition in soils	14-Dec-2022	12-Dec-2022				13-Dec-2022				
pH			08-Dec-2022	08-Dec-2022	08-Dec-2022		08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Sample description	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Total Organic Carbon	14-Dec-2022	12-Dec-2022				14-Dec-2022				
Total Sulphate			13-Dec-2022	13-Dec-2022	12-Dec-2022		12-Dec-2022	13-Dec-2022	12-Dec-2022	12-Dec-2022
Total Sulphur			14-Dec-2022	12-Dec-2022	12-Dec-2022		12-Dec-2022	14-Dec-2022	12-Dec-2022	12-Dec-2022

Lab Sample No(s)	27274850	27274854	27274858	27274862	27274865	27274868	27274872	27274877	27274890
Customer Sample Ref.	BH-60345	BH-60805	BH-61136	BH-61605	BH-61869	BH-62325	BH-62456	BH-62606	BH-50608a
AGS Ref.	D8	D8	D8	D2	D5	D5	D5	D5	D2
Depth	2.50 - 2.50	2.50 - 2.50	2.50 - 2.50	1.00 - 1.00	2.00 - 2.00	2.00 - 2.00	2.00 - 2.00	2.00 - 2.00	1.00 - 1.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	12-Dec-2022	12-Dec-2022	15-Dec-2022	12-Dec-2022	12-Dec-2022	15-Dec-2022	15-Dec-2022	15-Dec-2022	12-Dec-2022
pH	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Sample description	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Total Sulphate	13-Dec-2022	12-Dec-2022	13-Dec-2022	13-Dec-2022	13-Dec-2022	13-Dec-2022	13-Dec-2022	13-Dec-2022	12-Dec-2022
Total Sulphur	14-Dec-2022	12-Dec-2022	12-Dec-2022	14-Dec-2022	14-Dec-2022	12-Dec-2022	12-Dec-2022	12-Dec-2022	12-Dec-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
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Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	15 December 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	221207-77
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	672272
Order Number:	10808

We received 14 samples on Wednesday December 07, 2022 and 14 of these samples were scheduled for analysis which was completed on Thursday December 15, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

ALS Laboratories (UK) Limited. Registered Office: Torrington Avenue, Coventry CV4 9GU. Registered in England and Wales No. 02391955.

CERTIFICATE OF ANALYSIS

SDG: 221207-77 **Report Number:** 672272 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27274927	BH-44534A	D11	3.50 - 3.50	05/11/2021
27274915	TP-54809	D4	1.60 - 1.60	10/11/2021
27274929	TP-54922	D4	1.50 - 1.50	10/11/2021
27274931	TP-56485	D4	1.60 - 1.60	05/11/2021
27274933	TP-56627	D4	1.20 - 1.20	08/11/2021
27274935	TP-56709	D4	1.50 - 1.50	08/11/2021
27274937	TP-57107	D4	1.80 - 1.80	08/11/2021
27274940	TP-57203	D6	3.50 - 3.50	08/11/2021
27274943	TP-57307	D4	2.10 - 2.10	09/11/2021
27274945	TP-57602	D6	1.90 - 1.90	09/11/2021
27274918	TP-58505	D4	1.80 - 1.80	10/11/2021
27274921	TP-58702	B4	1.80 - 1.80	11/11/2021
27274923	TP-58814	D4	2.00 - 2.00	11/11/2021
27274925	TP-59407	D4	1.70 - 2.00	12/11/2021

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-77 **Report Number:** 672272 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			27274927	27274915	27274929	27274931	27274933	27274935	27274937	27274940	27274943	27274945	27274918	27274921	27274923	27274925
Customer Sample Reference			BH-44534A	TP-54809	TP-54922	TP-56485	TP-56627	TP-56709	TP-57107	TP-57203	TP-57307	TP-57602	TP-58505	TP-58702	TP-58814	TP-59407
AGS Reference			D11	D4	D4	D4	D4	D4	D4	D6	D4	D6	D4	B4	D4	D4
Depth (m)			3.50 - 3.50	1.60 - 1.60	1.50 - 1.50	1.60 - 1.60	1.20 - 1.20	1.50 - 1.50	1.80 - 1.80	3.50 - 3.50	2.10 - 2.10	1.90 - 1.90	1.80 - 1.80	1.80 - 1.80	2.00 - 2.00	1.70 - 2.00
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions in soil by IC	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 14	X	X	X	X	X	X	X	X	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 221207-77 **Report Number:** 672272 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27274927	BH-44534A	3.50 - 3.50	Light Brown	Loamy Sand	Stones	None
27274915	TP-54809	1.60 - 1.60	Light Brown	Loamy Sand	Stones	None
27274929	TP-54922	1.50 - 1.50	Light Brown	Loamy Sand	Stones	None
27274931	TP-56485	1.60 - 1.60	Light Brown	Loamy Sand	Stones	None
27274933	TP-56627	1.20 - 1.20	Light Brown	Loamy Sand	Stones	None
27274935	TP-56709	1.50 - 1.50	Dark Brown	Loamy Sand	Stones	None
27274937	TP-57107	1.80 - 1.80	Grey	Sandy Silt Loam	Stones	None
27274940	TP-57203	3.50 - 3.50	Light Brown	Sandy Loam	Stones	None
27274943	TP-57307	2.10 - 2.10	Light Brown	Sandy Clay Loam	Stones	None
27274945	TP-57602	1.90 - 1.90	Light Brown	Sandy Loam	Stones	None
27274918	TP-58505	1.80 - 1.80	Light Brown	Loamy Sand	Stones	None
27274921	TP-58702	1.80 - 1.80	Light Brown	Sandy Loam	Stones	None
27274923	TP-58814	2.00 - 2.00	Light Brown	Sandy Silt Loam	Stones	None
27274925	TP-59407	1.70 - 2.00	Light Brown	Sandy Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-77 **Report Number:** 672272 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-44534A	TP-54809	TP-54922	TP-56485	TP-56627	TP-56709
			Depth (m)	3.50 - 3.50	1.60 - 1.60	1.50 - 1.50	1.60 - 1.60	1.20 - 1.20	1.50 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/11/2021	10/11/2021	10/11/2021	05/11/2021	08/11/2021	08/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
			SDG Ref	221207-77	221207-77	221207-77	221207-77	221207-77	221207-77
			Lab Sample No.(s)	27274927	27274915	27274929	27274931	27274933	27274935
			AGS Reference	D11	D4	D4	D4	D4	D4
Moisture Content Ratio (% of as received sample)	%	PM024		4.9	4.9	6.5	10	9.2	5
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.0114 @	0.00718 @	0.00754 @	0.00724 @	0.00751 @	0.00689 @
Sulphur, Total	<0.02 %	TM132		0.0231 @ #	<0.02 @ #	<0.02 @ #	<0.02 @ #	<0.02 @ #	0.0261 @ #
Sulphate, Total potential	<0.06 %	TM132		0.0693 @	0.06 @	0.06 @	0.06 @	0.06 @	0.0783 @
pH	1 pH Units	TM133		8.98 @ M	8.97 @ M	9.09 @ M	8.82 @ M	8.88 @ M	8.97 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0219 @ M	0.0148 @ M	0.0174 @ M	0.014 @ M	0.0251 @ M	0.0325 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-77 **Report Number:** 672272 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-57107	TP-57203	TP-57307	TP-57602	TP-58505	TP-58702
			Depth (m)	1.80 - 1.80	3.50 - 3.50	2.10 - 2.10	1.90 - 1.90	1.80 - 1.80	1.80 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/11/2021	08/11/2021	09/11/2021	09/11/2021	10/11/2021	11/11/2021
			Sample Time	-	-	-	-	-	-
			Date Received	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
			SDG Ref	221207-77	221207-77	221207-77	221207-77	221207-77	221207-77
			Lab Sample No.(s)	27274937	27274940	27274943	27274945	27274918	27274921
			AGS Reference	D4	D6	D4	D6	D4	B4
Moisture Content Ratio (% of as received sample)	%	PM024		8.8	9.9	5.8	8.2	6.2	6.2
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.00636 @	0.007 @	0.00677 @	0.00969 @	0.00626 @	0.0071 @
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	<0.02 @ #	<0.02 @ #	0.0267 @ #	0.0422 @ #	0.0413 @ #
Sulphate, Total potential	<0.06 %	TM132		0.06 @	0.06 @	0.06 @	0.0801 @	0.127 @	0.124 @
pH	1 pH Units	TM133		8.96 @ M	8.93 @ M	9.01 @ M	9.03 @ M	9.11 @ M	8.94 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0386 @ M	0.0131 @ M	0.0232 @ M	0.0323 @ M	0.0574 @ M	0.0698 @ M

Validated

CERTIFICATE OF ANALYSIS

SDG: 221207-77 **Report Number:** 672272 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP-58814	TP-59407				
			Depth (m)	2.00 - 2.00	1.70 - 2.00				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	11/11/2021	12/11/2021				
			Sample Time	-	-				
			Date Received	07/12/2022	07/12/2022				
			SDG Ref	221207-77	221207-77				
			Lab Sample No.(s)	27274923	27274925				
			AGS Reference	D4	D4				
Moisture Content Ratio (% of as received sample)	%	PM024		8.2	9				
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.00662 @	0.00604 @				
Sulphur, Total	<0.02 %	TM132		0.0238 @ #	<0.02 @ #				
Sulphate, Total potential	<0.06 %	TM132		0.0714 @	0.06 @				
pH	1 pH Units	TM133		9.03 @ M	9.12 @ M				
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0311 @ M	0.0274 @ M				

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 221207-77 **Report Number:** 672272 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27274927	27274915	27274929	27274931	27274933	27274935	27274937	27274940	27274943	27274945
Customer Sample Ref.	BH-44534A	TP-54809	TP-54922	TP-56485	TP-56627	TP-56709	TP-57107	TP-57203	TP-57307	TP-57602
AGS Ref.	D11	D4	D4	D4	D4	D4	D4	D6	D4	D6
Depth	3.50 - 3.50	1.60 - 1.60	1.50 - 1.50	1.60 - 1.60	1.20 - 1.20	1.50 - 1.50	1.80 - 1.80	3.50 - 3.50	2.10 - 2.10	1.90 - 1.90
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	12-Dec-2022	12-Dec-2022	15-Dec-2022	15-Dec-2022	15-Dec-2022	12-Dec-2022	15-Dec-2022	15-Dec-2022	15-Dec-2022	15-Dec-2022
pH	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Sample description	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Total Sulphate	12-Dec-2022	12-Dec-2022	13-Dec-2022	13-Dec-2022	12-Dec-2022	12-Dec-2022	13-Dec-2022	13-Dec-2022	12-Dec-2022	12-Dec-2022
Total Sulphur	12-Dec-2022	12-Dec-2022	14-Dec-2022	14-Dec-2022	12-Dec-2022	12-Dec-2022	14-Dec-2022	14-Dec-2022	12-Dec-2022	12-Dec-2022

Lab Sample No(s)	27274918	27274921	27274923	27274925
Customer Sample Ref.	TP-58505	TP-58702	TP-58814	TP-59407
AGS Ref.	D4	B4	D4	D4
Depth	1.80 - 1.80	1.80 - 1.80	2.00 - 2.00	1.70 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	12-Dec-2022	12-Dec-2022	15-Dec-2022	15-Dec-2022
pH	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Sample description	08-Dec-2022	08-Dec-2022	08-Dec-2022	08-Dec-2022
Total Sulphate	12-Dec-2022	12-Dec-2022	13-Dec-2022	13-Dec-2022
Total Sulphur	12-Dec-2022	12-Dec-2022	14-Dec-2022	14-Dec-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	17 January 2023
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	230110-35
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	675328
Order Number:	10808

We received 2 samples on Tuesday January 10, 2023 and 2 of these samples were scheduled for analysis which was completed on Tuesday January 17, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 230110-35 **Report Number:** 675328 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27385125	BH-100203	D11	4.00 - 4.00	03/05/2022
27385128	BH-101404	D5	2.00 - 2.00	04/05/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 230110-35 **Report Number:** 675328 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			27385125	27385128
Customer Sample Reference			BH-100203	BH-101404
AGS Reference			D11	D5
Depth (m)			4.00 - 4.00	2.00 - 2.00
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S
Anions in soil by IC	All	NDPs: 0 Tests: 2	X	X
pH	All	NDPs: 0 Tests: 2	X	X
Sample description	All	NDPs: 0 Tests: 2	X	X
Total Sulphate	All	NDPs: 0 Tests: 2	X	X
Total Sulphur	All	NDPs: 0 Tests: 2	X	X

CERTIFICATE OF ANALYSIS

SDG: 230110-35 **Report Number:** 675328 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27385125	BH-100203	4.00 - 4.00	Dark Brown	Sandy Clay Loam	Stones	None
27385128	BH-101404	2.00 - 2.00	Light Brown	Sandy Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 230110-35 **Report Number:** 675328 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-100203	BH-101404				
			Depth (m)	4.00 - 4.00	2.00 - 2.00				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	03/05/2022	04/05/2022				
			Sample Time	-	-				
			Date Received	10/01/2023	10/01/2023				
			SDG Ref	230110-35	230110-35				
			Lab Sample No.(s)	27385125	27385128				
			AGS Reference	D11	D5				
Moisture Content Ratio (% of as received sample)	%	PM024		12	10				
Sulphate, 2:1 water soluble (BRE)	<0.0002 g/l	TM019		0.238 @	0.0108 @				
Sulphur, Total	<0.02 %	TM132		0.0731 @ #	<0.02 @ #				
Sulphate, Total potential	<0.06 %	TM132		0.219 @	0.06 @				
pH	1 pH Units	TM133		10.4 @ M	8.87 @ M				
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0638 @ M	0.0149 @ M				

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230110-35 **Report Number:** 675328 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27385125	27385128
Customer Sample Ref.	BH-100203	BH-101404
AGS Ref.	D11	D5
Depth	4.00 - 4.00	2.00 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)
Anions in soil by IC	17-Jan-2023	17-Jan-2023
pH	11-Jan-2023	11-Jan-2023
Sample description	10-Jan-2023	10-Jan-2023
Total Sulphate	11-Jan-2023	11-Jan-2023
Total Sulphur	13-Jan-2023	13-Jan-2023

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/11464
Issue Number: 1 **Date:** 30 November, 2022

Client:
Structural Soils Limited (Castleford Lab)
The Potteries
Pottery Street
Castleford
West Yorkshire
UK
WF10 1NJ

Project Manager: Castleford Lab/Jessica Robertson/Luke Fisher; Laur
Project Name: 2021OY102:WSP2-BPT section
Project Ref: 785325
Order No: N/A
Date Samples Received: 21/11/22
Date Instructions Received: 22/11/22
Date Analysis Completed: 30/11/22

Approved by:

Gemma Berrisford
Client Manager

Envirolab Job Number: 22/11464

Client Project Name: 2021OY102:WSP2-BPT section

Client Project Ref: 785325

Lab Sample ID	22/11464/1	22/11464/2	22/11464/3	22/11464/4	22/11464/5	22/11464/6	22/11464/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BPT-BH-001	BPT-BH-004	BPT-BH-004	BPT-BH-005	BPT-BH-007	BPT-BH-007	BPT-BH-008			
Depth to Top	0.00	0.00	6.50	2.50	0.60	15.00	5.10			
Depth To Bottom	2.00	2.00	8.00	3.20	2.10	16.60	6.60			
Date Sampled		18-May-22	18-May-22	17-Jun-22			20-Jun-22			
Sample Type	Solid	Soil - B	Soil - B	Solid	Solid	Solid	Soil - B			
Sample Matrix Code	7	6A	4A	7	7	7	6			
% Stones >10mm$_A$	<0.1	9.8	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	10.98	8.78	9.17	9.32	9.58	9.19	9.11	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	<10	<10	<10	<10	<10	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.01	-	<0.01	-	<0.01	<0.01	<0.01	% w/w	0.01	A-T-024s

Envirolab Job Number: 22/11464

Client Project Name: 2021OY102:WSP2-BPT section

Client Project Ref: 785325

Lab Sample ID	22/11464/8	22/11464/9	22/11464/10	22/11464/11	22/11464/12	22/11464/13	22/11464/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BPT-BH-010	BPT-BH-012	BPT-BH-013	BPT-BH-014	BPT-BH-016	BPT-BH-018	BPT-BH-020			
Depth to Top	1.10	0.00	0.00	2.10	0.00	3.50	3.50			
Depth To Bottom	2.30	1.50	1.10	3.70	2.00	5.00	5.00			
Date Sampled	23-May-22	27-Jun-22	28-Jun-22	29-Jun-22	11-Jul-22	12-Oct-22				
Sample Type	Solid	Solid	Solid	Solid	Soil - B	Soil - B	Soil - B			
Sample Matrix Code	7	7	7	7	4AE	4A	6A			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	8.4	<0.1	13.3	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	9.41	9.27	9.59	9.59	6.24	8.54	8.81	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	<10	<10	<10	<10	<10	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	<0.02	-	-	-	-	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	<0.01	-	-	-	-	-	-	% w/w	0.01	A-T-024s

Envirolab Job Number: 22/11464

Client Project Name: 2021OY102:WSP2-BPT section

Client Project Ref: 785325

Lab Sample ID	22/11464/15	22/11464/16	22/11464/17	22/11464/18	22/11464/19			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	~~BPT-BH-021~~	BH36789	BH36789	BH36789	~~BPT-BH-003~~					
Depth to Top	~~5.00~~	9.50	18.60	15.70	~~3.60~~					
Depth To Bottom	~~6.60~~	11.00	20.00	17.10	~~5.10~~					
Date Sampled	~~05-Oct-22~~	11-Oct-22		11-Oct-22	~~11-Oct-22~~					
Sample Type	~~Solid~~	Solid	Solid	Solid	~~Solid~~					
Sample Matrix Code	~~7~~	7	7	7	~~7~~					
% Stones >10mm$_A$	~~<0.1~~	<0.1	<0.1	<0.1	~~<0.1~~			% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	~~9.34~~	8.64	8.57	9.47	~~9.58~~			pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	~~<10~~	<10	<10	<10	~~10~~			mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	-	-	<0.02	-	~~<0.02~~			% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	-	-	<0.02	-	~~0.01~~			% w/w	0.01	A-T-024s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
Subscript "^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Structural Soils Limited (Castleford Lab), The Potteries, Pottery Street, Castleford, West Yorkshire, UK, WF10 1NJ

Project: 2021OY102:WSP2-BPT section

Clients Project No: 785325

Project No: 22/11464

Date Received: 22/11/2022 (am)

Cool Box Temperatures (°C): 7.9 & 8.1

Lab Sample ID	22/11464/1	22/11464/2	22/11464/3	22/11464/4	22/11464/5	22/11464/6	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11
Client Sample No											
Client Sample ID/Depth	BPT-BH-001 0.00-2.00m	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-007 0.60-2.10m	BPT-BH-007 15.00-16.60m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m
Date Sampled		18/05/22	18/05/22	17/06/22			20/06/22	23/05/22	27/06/22	28/06/22	29/06/22
Deviation Code											
E (no date)	✓				✓	✓					
F		✓	✓	✓			✓	✓	✓	✓	✓

Lab Sample ID	22/11464/12	22/11464/13	22/11464/14	22/11464/15	22/11464/16	22/11464/17	22/11464/18	22/11464/19
Client Sample No								
Client Sample ID/Depth	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-020 3.50-5.00m	BPT-BH-021 5.00-6.60m	BH36789 9.50-11.00m	BH36789 18.60-20.00m	BH36789 15.70-17.10m	BPT-BH-003 3.60-5.10m
Date Sampled	11/07/22	12/10/22		05/10/22	11/10/22		11/10/22	11/10/22
Deviation Code								
E (no date)			✓			✓		
F	✓	✓		✓	✓		✓	✓

Key

E (no date) *No sampling date provided (all results affected if not provided)*

F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	22/11464/2	22/11464/3	22/11464/4	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11	22/11464/12	22/11464/13	22/11464/15
Client Sample No											
Client Sample ID/Depth	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-021 5.00-6.60m
Date Sampled	18/05/22	18/05/22	17/06/22	20/06/22	23/05/22	27/06/22	28/06/22	29/06/22	11/07/22	12/10/22	05/10/22
pH BRE	✓	✓			✓						

Lab Sample ID	22/11464/2	22/11464/3	22/11464/4	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11	22/11464/12	22/11464/13	22/11464/15
Client Sample No											
Client Sample ID/Depth	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-021 5.00-6.60m
Date Sampled	18/05/22	18/05/22	17/06/22	20/06/22	23/05/22	27/06/22	28/06/22	29/06/22	11/07/22	12/10/22	05/10/22
Sulphate BRE (water sol 2:1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulphate BRE (acid sol)		✓		✓	✓						
Sulphur BRE (total)		✓			✓						

Lab Sample ID	22/11464/16	22/11464/18	22/11464/19
Client Sample No			
Client Sample ID/Depth	BH36789 9.50-11.00m	BH36789 15.70-17.10m	BPT-BH-003 3.60-5.10m
Date Sampled	11/10/22	11/10/22	11/10/22
pH BRE			
Sulphate BRE (water sol 2:1)	✓	✓	✓
Sulphate BRE (acid sol)			✓
Sulphur BRE (total)			

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/11464/1	22/11464/2	22/11464/3	22/11464/4	22/11464/5	22/11464/6	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11
Client Sample No											
Client Sample ID/Depth	BPT-BH-001 0.00-2.00m	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-007 0.60-2.10m	BPT-BH-007 15.00-16.60m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m
Date Sampled		18/05/22	18/05/22	17/06/22			20/06/22	23/05/22	27/06/22	28/06/22	29/06/22
A-T-024s	28/11/2022		28/11/2022		28/11/2022	28/11/2022	30/11/2022	28/11/2022			
A-T-026s	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022
A-T-028s	29/11/2022		29/11/2022		29/11/2022	29/11/2022	29/11/2022	29/11/2022			
A-T-031s	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
A-T-044	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022

Lab Sample ID	22/11464/12	22/11464/13	22/11464/14	22/11464/15	22/11464/16	22/11464/17	22/11464/18	22/11464/19
Client Sample No								
Client Sample ID/Depth	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-020 3.50-5.00m	BPT-BH-021 5.00-6.60m	BH36789 9.50-11.00m	BH36789 18.60-20.00m	BH36789 15.70-17.10m	BPT-BH-003 3.60-5.10m
Date Sampled	11/07/22	12/10/22		05/10/22	11/10/22		11/10/22	11/10/22
A-T-024s						29/11/2022		30/11/2022
A-T-026s	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	29/11/2022
A-T-028s						30/11/2022		30/11/2022
A-T-031s	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
A-T-044	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	28/11/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Appendix 6H
Laboratory Test Results
Part 2: Rotary Core Boreholes

2021OY102: WSP - Pipeline section core schedule

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
Pipeline core scheduled							35	28	5	103	9	4	4	9	7	7	60	0	0	0	0	0	1	0		0		9	6	6	3	8	6	1	0	2	0	1	
Completed to date		04 April 2023					34	27	5	101	9	4	4	9	6	6	57	0	0	0	0	0	1	0	63	0	218	9	1	1	3	8	1	1	0	2	0	1	
to do							1	1		2	0	0	0	0	1	1	3	0		0	0		0				0	5	5	0	0	5	0	0	0	0	0	Tests outstanding are Sub'd in StSoils
BH-100203	**0.00**	**6.90**	**C**		09/05/22	core																															
BH-100203	6.90	8.00	C		09/05/22	core				1																											
BH-100203	8.00	9.50	C		09/05/22	core																															
BH-100203	9.50	10.00	C		09/05/22	core																															
BH-101953	**0.00**	**2.00**	**C**		12/05/22	core						1	1																								Organic and LOI at 1.5m, ALS 230110-34
BH-101953	2.00	3.50	C		12/05/22	core									1	1																					at 3m. ALS 230110-34
BH-101953	3.50	5.00	C		12/05/22	core				1																											
BH-101953	5.00	6.50	C		12/05/22	core																		1		1											PL and UCS at 5.9m
BH-101953	6.50	8.00	C		12/05/22	core																															
BH-101953	8.00	9.50	C		12/05/22	core																															
BH-101953	9.50	10.00	C		12/05/22	core																															
BH-102037	**0.00**	**2.00**	**C**		13/05/22	core																															
BH-102037	2.00	3.50	C		13/05/22	core																															
BH-102037	3.50	5.00	C		13/05/22	core	1			1							0*																				MC, and BRE at 4m
BH-102037	5.00	6.50	C		13/05/22	core														0*																	*shear box not possible
BH-102037	6.50	8.00	C		13/05/22	core																															
BH-102037	8.00	9.50	C		13/05/22	core																															
BH-102037	9.50	10.10	C		13/05/22	core																															
BH-102528	**0.00**	**2.00**	**C**		16/05/22	core	1	1		1																											MC and atterberg at 2m
BH-102528	2.00	3.50	C		16/05/22	core																															
BH-102528	3.50	5.00	C		16/05/22	core									1	1																					At 4m. ALS 230110-34
BH-102528	5.00	6.50	C		16/05/22	core																															
BH-102528	6.50	8.00	C		16/05/22	core																															
BH-102528	8.00	9.00	C		16/05/22	core																															
BH-102528	9.00	10.00	C		16/05/22	core																															
BH-103234	**0.00**	**4.50**	**C**		17/05/22	core																															
BH-103234	4.50	6.10	C		17/05/22	core									1	1																					At 5m. ALS 230110-34
BH-103234	6.10	7.60	C		17/05/22	core																		1		1											PL and UCS between 6.1 and 6.8m
BH-103234	7.60	9.10	C		17/05/22	core																															
BH-103234	9.10	10.30	C		17/05/22	core																															
BH-36391	**0.00**	**1.00**	**C**		09/09/22	core																															

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-36391	1.00	2.00	C		09/09/22	core																																	Missing core box photos. Testing will be
BH-36391	2.00	3.50	C		09/09/22	core																																	
BH-36391	3.50	5.00	C		09/09/22	core																																	
BH-36391	5.00	6.50	C		09/09/22	core																																	
BH-36391	6.50	8.00	C		09/09/22	core																																	
BH-36391	8.00	9.50	C		09/09/22	core																																	
BH-36391	9.50	11.00	C		09/09/22	core																																	
BH36789	*'d BPT in error)*		*C*		10/06/22	core																																	
BH36789	*'d BPT in error)*		*C*		13/06/22	core																																	
BH-36789	**0.00**	**1.00**	**C**		10/6/22	core																																	
BH-36789	1.00	2.00	C		10/6/22	core				**1**	**1**																												at 1.5m
BH-36789	2.00	3.00	C		10/6/22	core																																	
BH-36789	3.00	3.80	C		10/6/22	core																																	
BH-36789	3.80	5.10	C		10/6/22	core																																	
BH-36789	5.10	6.60	C		10/6/22	core																																	
BH-36789	6.60	8.00	C		10/6/22	core																																	
BH-36789	8.00	8.60	C		10/6/22	core																																	
BH-36789	8.60	9.50	C		10/6/22	core																																	
BH-36789	9.50	11.00	C		10/6/22	core									**1**	**1**																							at 10m. Envirolab 22-11464
BH-36789	11.00	12.50	C		10/6/22	core																																	
BH-36789	12.50	14.00	C		10/6/22	core																					**1**												at 13.5m PL axial
BH-36789	14.00	15.60	C		13/6/22	core																																	
BH-36789	15.60	17.00	C		13/6/22	core																																	
BH-36789	17.00	18.60	C		13/6/22	core																						**1**	**0***	**0***	**1**	**1**	**0***	**1**	**0***				(send all 17-25m)
BH-36789	17.00	18.60	C		13/6/22	core																					**1**												at 17m PL axial
BH-36789	18.60	20.00	C		13/6/22	core											**1**																				**1**			Brasilian (tensile). Envirolab 22-11464
BH-36789	18.60	20.00	C		13/6/22	core																			**1**		**2**												at 19m PL axial and diametral, Brasilian (tensile)
BH-36789	20.00	21.60	C		13/6/22	core																					**1**												at 21m PL axial
BH-36789	21.60	23.00	C		13/6/22	core																																	
BH-36789	23.00	24.50	C		13/6/22	core																																	

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-36789	24.50	25.00	C		13/6/22	core																																
BH36829	*'d BPT in error)*		*C*		14/06/22	core																																
BH36829	*'d BPT in error)*		*C*		15/06/22	core																																
BH-36829	**0.00**	**1.00**	**C**		14/6/22	core																																
BH-36829	1.00	1.70	C		14/6/22	core																																
BH-36829	1.70	2.10	C		14/6/22	core																																
BH-36829	2.10	3.50	C		14/6/22	core																				1												at 3m PL axial
BH-36829	3.50	4.80	C		14/6/22	core																																
BH-36829	4.80	5.60	C		14/6/22	core																																
BH-36829	5.60	7.00	C		14/6/22	core																																
BH-36829	7.00	8.10	C		14/6/22	core																																
BH-36829	8.10	9.70	C		14/6/22	core																				1												at 8.1m PL axial
BH-36829	9.70	11.10	C		14/6/22	core																																
BH-36829	11.10	12.70	C		14/6/22	core																																
BH-36829	12.70	14.10	C		14/6/22	core																																
BH-36829	14.10	15.70	C		15/6/22	core																														1			Brasilian (tensile)
BH-36829	15.70	17.10	C		15/6/22	core									0	0																						at 16m pH and SO4
BH-36829	15.70	17.10	C		15/6/22	core																				1												at 16m PL axial, pH and SO4
BH-36829	17.10	18.70	C		15/6/22	core																		1		2												UCS and PL axial and diametral at 18m
BH-36829	17.10	18.70	C		15/6/22	core																					1			1								(Send all 15.6-21m)
BH-36829	18.70	20.10	C		15/6/22	core																				1												at 20m PL axial and diametral
BH-36829	20.10	21.70	C		15/6/22	core																																
BH-36829	21.70	23.10	C		15/6/22	core																																
BH-36829	23.10	24.60	C		15/6/22	core																																
BH-36829	24.60	25.20	C		15/6/22	core																																
BH-36879	3.50	5.00	C	3.5-5.0	14/03/22	core											1																					Envirolab 23-00985
BH-36879	**0.00**	**2.00**	**C**		14/03/22	core																																
BH-36879	2.00	3.50	C		14/03/22	core																				1												PL @3.5m
BH-36879	3.50	5.00	C		14/03/22	core																		1														UCS @ 4m
BH-36879	5.00	6.50	C		14/03/22	core																				1												PL @ 5.5m

2021OY102: WSP - Pipeline section core schedule

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-36879	6.50	8.00	C		14/03/22	core																																
BH-36879	8.00	9.50	C		14/03/22	core																																
BH-36879	9.50	11.00	C		14/03/22	core																																
BH-36879	11.00	12.50	C		14/03/22	core																																
BH-36879	12.50	14.00	C		14/03/22	core																																
BH-36879	14.00	15.00	C		14/03/22	core																																
BH-36883	**0.00**	**2.00**	**C**		11/03/22	core																																
BH-36883	2.00	3.50	C		11/03/22	core																																
BH-36883	3.50	5.00	C		11/03/22	core																				1												UCS @4m
BH-36883	3.50	5.00	C		11/03/22	core											0*																					chem @4m
BH-36883	5.00	6.50	C		11/03/22	core																					1											PL @5m
BH-36883	6.50	8.00	C		11/03/22	core																																
BH-36883	8.00	9.50	C		11/03/22	core																																
BH-36883	9.50	11.00	C		11/03/22	core																																
BH-36883	11.00	12.50	C		11/03/22	core																																
BH-36883	12.50	14.00	C		11/03/22	core																																
BH-36883	14.00	15.20	C		11/03/22	core																																
BH-36920	**0.00**	**2.00**	**C**		15/03/22	core											1																					ALS 220926-32
BH-36920	2.00	3.50	C		15/03/22	core																				0*		2										Point loads @ 2m & 3m. *ucs not possible
BH-36920	3.50	5.00	C		15/03/22	core																						2										
BH-36920	5.00	6.50	C		15/03/22	core																						2										
BH-36920	6.50	8.00	C		15/03/22	core																																
BH-36920	8.00	9.50	C		15/03/22	core																																
BH-36920	9.50	11.00	C		16/03/22	core																																
BH-36920	11.00	12.50	C		16/03/22	core																																
BH-36920	12.50	14.00	C		16/03/22	core																																
BH-36920	14.00	15.00	C		16/03/22	core																																
BH-36956	3.50	5.00	C	3.5-5.0	10/03/22	core											1																					Envirolab 23-00985
BH-36956	**0.00**	**2.00**	**C**		10/03/22	core																																
BH-36956	2.00	3.50	C		10/03/22	core																						1										PL @ 2.2m
BH-36956	3.50	5.00	C		10/03/22	core																				1												UCS @ 3.5m
BH-36956	5.00	6.50	C		10/03/22	core																						1										PL @ 4m
BH-36956	6.50	8.00	C		10/03/22	core																																
BH-36956	8.00	9.50	C		10/03/22	core																																

2021OY102: WSP - Pipeline section core schedule

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressure	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-36956	9.50	11.00	C		10/03/22	core																																
BH-36956	11.00	12.50	C		10/03/22	core																																
BH-36956	12.50	14.00	C		10/03/22	core																																
BH-36956	14.00	15.00	C		10/03/22	core																																
BH-37230	2.00	3.50	C	2.2	09/03/22	core											1																					BRE Suite B @ 2.2m. Envirolab 23-00985
BH-37230	**0.00**	**2.00**	**C**		09/03/22	core																																
BH-37230	3.50	5.00	C		09/03/22	core																		1														UCS @ 4.8m
BH-37230	5.00	6.50	C		09/03/22	core																		1		2												UCS @ 6.0m, PL @ 5.0m & 5.5m
BH-37230	6.50	8.00	C		09/03/22	core																																
BH-37230	8.00	9.50	C		09/03/22	core																																
BH-37230	9.50	11.00	C		09/03/22	core																																
BH-37230	11.00	12.50	C		09/03/22	core																																
BH-37230	12.50	14.00	C		09/03/22	core																																
BH-37230	14.00	15.00	C		09/03/22	core																																
BH-37778	**0.00**	**2.00**	**C**		08/03/22	core																																
BH-37778	2.00	3.50	C		08/03/22	core																																
BH-37778	3.50	5.00	C		08/03/22	core																																
BH-37778	5.00	6.50	C		08/03/22	core																																
BH-37778	6.50	8.00	C		08/03/22	core																																
BH-37778	8.00	9.50	C		08/03/22	core																		0*		1												
BH-37778	8.00	9.50	C		08/03/22	core	0*	0*		0*																												
BH-37778	9.50	10.00	C		08/03/22	core																																
BH-38106	2.00	3.50	C	2	07/03/22	core											1																					BRE Suite B @ 2.0m. Envirolab 23-00985
BH-38106	**0.00**	**2.00**	**C**		07/03/22	core																																
BH-38106	3.50	5.00	C		07/03/22	core																																
BH-38106	5.00	6.50	C		07/03/22	core																				1												PL @ 6.4m
BH-38106	6.50	8.00	C		07/03/22	core																		2														UCS @ 6.6m & 7.0m
BH-38106	8.00	9.50	C		07/03/22	core																				1												PL @ 8.0m
BH-38106	9.50	10.20	C		07/03/22	core																																
BH-38523	2.00	3.50	C	3.5	04/03/22	core											1																					BRE Suite B @ 3.5m. Envirolab 23-00985
BH-38523	**0.00**	**2.00**	**C**		04/03/22	core																																
BH-38523	3.50	5.00	C		04/03/22	core																																
BH-38523	5.00	6.50	C		04/03/22	core																		1		1												UCS @ 5.4m, PL @ 5.4m
BH-38523	6.50	8.00	C		04/03/22	core																		1		1												UCS @ 6.5m, PL @ 7.0m
BH-38523	8.00	9.50	C		04/03/22	core																																
BH-38523	9.50	10.00	C		04/03/22	core																																
BH-38786	2.00	3.50	C	2.0-3.5	03/03/22	core											1																					Envirolab 23-00985
BH-38786	**0.00**	**2.00**	**C**		03/03/22	core																																
BH-38786	3.50	5.00	C		03/03/22	core																				1												PL @4.5m
BH-38786	5.00	6.50	C		03/03/22	core																		1														UCS @ 5m
BH-38786	6.50	8.00	C		03/03/22	core																																
BH-38786	8.00	9.50	C		03/03/22	core																																
BH-38786	9.50	10.10	C		03/03/22	core																																
BH-39229	2.00	3.50	C	3.0, 2.0-3.5	02/03/22	core											1																					BRE Suite B @ 3.0m. Envirolab 23-00985
BH-39229	**0.00**	**2.00**	**C**		02/03/22	core																																

2021OY102: WSP - Pipeline section core schedule

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-39229	3.50	5.00	C		02/03/22	core																			1		1												UCS @ 4.0m, PL @ 4.8m
BH-39229	5.00	6.50	C		02/03/22	core																																
BH-39229	6.50	8.00	C		02/03/22	core																																
BH-39229	8.00	9.50	C		02/03/22	core																																
BH-39229	9.50	10.00	C		02/03/22	core																																
BH-39518	2.00	3.50	C	BAG	01/03/22	core				0*							0*											1	0*	0*	0*	1	0*				0*	*not enough / suitable.
BH-39518	**0.00**	**2.00**	**C**		01/03/22	core																																
BH-39518	3.50	5.00	C		01/03/22	core																																
BH-39518	5.00	6.50	C		01/03/22	core																			0*		1											* UCS not possible
BH-39518	6.50	8.00	C		01/03/22	core																																
BH-39518	8.00	9.50	C		01/03/22	core																			1		1											
BH-39518	9.50	10.00	C		01/03/22	core																																
BH-40004	2.00	3.50	C	2.0-3.5	28/02/22	core											1																					Envirolab 23-00985
BH-40004	**0.00**	**2.00**	**C**		28/02/22	core																																
BH-40004	2.00	3.50	C		28/02/22	core																			1		2											PL @ 2.8m & 3.5m; UCS @ 3,5m
BH-40004	3.50	5.00	C		28/02/22	core																																
BH-40004	5.00	6.50	C		28/02/22	core																																
BH-40004	6.50	8.00	C		28/02/22	core																					1											PL @ 6.5m
BH-40004	8.00	9.50	C		28/02/22	core																																
BH-40004	9.50	10.00	C		28/02/22	core																																
BH-40405	2.00	3.50	C	3.5	24/02/22	core											1																					BRE Suite B @ 3.5m. Envirolab 23-00985
BH-40405	**0.00**	**2.00**	**C**		24/02/22	core																																
BH-40405	3.50	5.00	C		24/02/22	core																																
BH-40405	5.00	8.00	C		24/02/22	core																																
BH-40405	8.00	9.50	C		24/02/22	core																			1		1											UCS & PL @ 8.5m
BH-40405	9.50	10.00	C		24/02/22	core																			1		1											UCS & PL @ 9.5m
BH-40830	**0.00**	**2.00**	**C**		23/02/22	core																																
BH-40830	2.00	3.50	C		23/02/22	core								1																								ALS 220624-152
BH-40830	3.50	5.00	C		23/02/22	core																			1		4											PL set of 10
BH-40830	5.00	6.50	C		23/02/22	core																			1		1											
BH-40830	6.50	8.00	C		23/02/22	core																																
BH-40830	8.00	9.50	C		23/02/22	core																																
BH-40830	9.50	11.00	C		23/02/22	core																																
BH-40830	11.00	12.50	C		23/02/22	core																																
BH-40830	12.50	14.00	C		23/02/22	core																																
BH-40830	14.00	15.00	C		23/02/22	core																																
BH-41053	**0.00**	**2.00**	**C**		22/02/22	core																																
BH-41053	2.00	3.50	C		22/02/22	core								1											1		1											ALS 220624-152
BH-41053	3.50	5.00	C		22/02/22	core																																
BH-41053	5.00	6.50	C		22/02/22	core																			1		1											
BH-41053	6.50	8.00	C		22/02/22	core																																
BH-41053	8.00	9.50	C		22/02/22	core																																
BH-41053	9.50	10.00	C		22/02/22	core																					1											
BH-42602	**0.00**	**2.00**	**C**		17/02/22	core								1																								ALS 220624-152
BH-42602	2.00	3.50	C		17/02/22	core																																
BH-42602	3.50	5.00	C		17/02/22	core																																
BH-42602	5.00	6.50	C		17/02/22	core																																
BH-42602	6.50	8.00	C		17/02/22	core																																
BH-42602	8.00	10.00	C		17/02/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-42851A	**0.00**	**2.00**	**C**		21/02/22	core																																
BH-42851A	2.00	3.50	C		21/02/22	core																																
BH-42851A	3.50	5.00	C		21/02/22	core																			1		1											
BH-42851A	5.00	6.50	C		21/02/22	core																																
BH-42851A	6.50	8.00	C		21/02/22	core																					1											
BH-42851A	8.00	9.50	C		21/02/22	core																																
BH-42851A	9.50	10.20	C		21/02/22	core																																
BH-43407	**0.00**	**2.00**	**C**		17/02/22	core																																
BH-43407	2.00	3.50	C		17/02/22	core								0*																								chem
BH-43407	3.50	5.00	C		17/02/22	core																																
BH-43407	5.00	6.50	C		17/02/22	core	0*	0*		0*																												
BH-43407	6.50	8.00	C		17/02/22	core																																
BH-43407	8.00	9.50	C		17/02/22	core	0*	0*		0*																												
BH-43407	9.50	10.00	C		17/02/22	core																																
BH-43817	**0.00**	**2.00**	**C**		16/02/22	core																																
BH-43817	2.00	3.50	C		16/02/22	core																			1		9											PL set of 10
BH-43817	3.50	5.00	C		16/02/22	core																																
BH-43817	5.00	6.50	C		16/02/22	core																					1											
BH-43817	6.50	8.50	C		16/02/22	core																																
BH-43817	8.50	9.50	C		16/02/22	core																																
BH-43817	9.50	10.10	C		16/02/22	core																																
BH-44177	**0.00**	**1.50**	**C**		14/02/22	core	1	1		1		1	1																									ALS 230110-34
BH-44177	1.50	2.60	C		14/02/22	core											1																					ALS 230110-34
BH-44177	2.60	3.50	C		14/02/22	core				1																												
BH-44177	3.50	5.00	C		14/02/22	core				1																												
BH-44177	5.00	6.50	C		14/02/22	core																																
BH-44177	6.50	8.00	C		14/02/22	core																																
BH-44177	8.00	9.50	C		14/02/22	core																																
BH-44177	9.50	10.00	C		14/02/22	core																																
BH-44534A	0.00	2.00	C		11/02/22	core				1							1																						ALS 230110-34
BH-44534A	2.00	3.50	C		11/02/22	core				1																												
BH-44534A	3.50	5.00	C		11/02/22	core																																
BH-44534A	5.00	6.50	C		11/02/22	core																																
BH-44534A	6.50	8.00	C		11/02/22	core																																
BH-44534A	8.00	9.50	C		11/02/22	core	1	1		1																												
BH-44534A	9.50	10.00	C		11/02/22	core																																
BH-46131	**0.00**	**2.00**	**C**		19/01/22	core																																
BH-46131	2.00	3.80	C		19/01/22	core																																
BH-46131	3.80	5.00	C		19/01/22	core																																
BH-46131	5.00	5.60	C		19/01/22	core	1	1		1																												
BH-46131	5.60	7.00	C		19/01/22	core																																
BH-46131	7.00	8.10	C		19/01/22	core																																
BH-46131	8.10	9.00	C		19/01/22	core																																
BH-46131	9.00	10.00	C		19/01/22	core																																
BH-46402	**0.00**	**2.00**	**C**		20/01/22	core																																
BH-46402	2.00	2.60	C		20/01/22	core																																
BH-46402	2.60	3.00	C		20/01/22	core																																
BH-46402	3.00	3.90	C		20/01/22	core																																
BH-46402	3.90	5.00	C		20/01/22	core				1							1																						als 220913-14
BH-46402	5.00	6.50	C		20/01/22	core																																
BH-46402	6.50	8.00	C		20/01/22	core				1																												
BH-46402	8.00	9.00	C		20/01/22	core																																
BH-46402	9.00	10.00	C		20/01/22	core	1	0*		1																												

2021OY102: WSP - Pipeline section core schedule

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-46715	**0.00**	**1.70**	**C**		24/01/22	core																															
BH-46715	1.70	2.60	C		24/01/22	core																															
BH-46715	2.60	3.20	C		24/01/22	core															100kPa	0*															
BH-46715	3.20	4.20	C		24/01/22	core																															
BH-46715	4.20	5.60	C		24/01/22	core	1	0*		1	1						1																				als 220913-14
BH-46715	5.60	7.00	C		24/01/22	core																															
BH-46715	7.00	8.50	C		24/01/22	core																															
BH-46715	8.50	10.00	C		24/01/22	core																															
BH-47262	**0.00**	**2.00**	**C**		25/01/22	core																															
BH-47262	2.00	3.60	C		25/01/22	core																															
BH-47262	3.60	5.00	C		25/01/22	core	1	1		1	0*						1																				als 220913-14. *Not enough for all tests.
BH-47262	5.00	6.10	C		25/01/22	core																															
BH-47262	6.10	6.70	C		25/01/22	core				1	0*																											
BH-47262	6.70	7.50	C		25/01/22	core																															
BH-47262	7.50	9.10	C		25/01/22	core																				1											
BH-47262	9.10	9.80	C		25/01/22	core																		0*													
BH-47262	9.80	11.00	C		25/01/22	core																				1											
BH-47650	**0.00**	**2.00**	**C**		26/01/22	core																															
BH-47650	2.00	3.50	C		26/01/22	core																															
BH-47650	3.50	5.00	C		26/01/22	core																															
BH-47650	5.00	6.50	C		26/01/22	core				1	1																											
BH-47650	6.50	8.00	C		26/01/22	core																															
BH-47650	8.00	9.00	C		26/01/22	core																															
BH-47650	9.00	10.00	C		26/01/22	core	1	1		1	1																											
BH-47812	**0.00**	**2.00**	**C**		27/01/22	core											1																				als 220913-14
BH-47812	2.00	3.50	C		27/01/22	core				1																											
BH-47812	3.50	5.00	C		27/01/22	core																		0*		1											*ucs not possible
BH-47812	5.00	6.50	C		27/01/22	core																															
BH-47812	6.50	8.00	C		27/01/22	core																															
BH-47812	8.00	9.50	C		27/01/22	core																															
BH-47812	9.50	10.00	C		27/01/22	core																															
BH-48139	**0.00**	**2.00**	**C**		28/01/22	core																															
BH-48139	2.00	2.90	C		28/01/22	core																															
BH-48139	2.90	4.10	C		28/01/22	core																															
BH-48139	4.10	5.60	C		28/01/22	core																															
BH-48139	5.60	6.50	C		28/01/22	core																															
BH-48139	6.50	8.00	C		28/01/22	core				0*	0*																											
BH-48139	8.00	10.00	C		28/01/22	core				1	0*																											
BH-48400	**0.00**	**1.00**	**C**		31/01/22	core																															
BH-48400	1.00	2.00	C		31/01/22	core																															
BH-48400	2.00	3.50	C		31/01/22	core				1	0*																											
BH-48400	3.50	5.00	C		31/01/22	core											0*																				chem (3.2-3.5)
BH-48400	5.00	6.50	C		31/01/22	core				1	0*																										PSD @ 5m
BH-48400	6.50	8.00	C		31/01/22	core																		1		1											UCS @ 6.5m; PL @ 7m
BH-48400	8.00	9.50	C		31/01/22	core																															
BH-48400	9.50	10.00	C		31/01/22	core																				1											PL @ 9.5m
BH-48795	**0.00**	**2.00**	**C**		01/02/22	core																															
BH-48795	2.00	3.50	C		01/02/22	core																															
BH-48795	3.50	5.00	C		01/02/22	core																				1											PL @ 3.5m
BH-48795	5.00	6.50	C		01/02/22	core																		1		1											UCS @ 5m; PL @ 6m

2021OY102: WSP - Pipeline section core schedule

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-48795	6.50	8.00	C		01/02/22	core																																
BH-48795	8.00	9.50	C		01/02/22	core																				1												PL @ 8m
BH-48795	9.50	10.00	C		01/02/22	core																																
BH-49214	**0.00**	**5.00**	**C**		02/02/22	core																		1		1												
BH-49214	5.00	6.50	C		02/02/22	core																																
BH-49214	6.50	8.00	C		02/02/22	core																																
BH-49214	8.00	9.50	C		02/02/22	core																																
BH-49214	9.50	10.00	C		02/02/22	core																																
BH-50608A	**0.00**	**2.00**	**C**		08/02/22	core																																
BH-50608A	2.00	3.50	C		08/02/22	core																		1		1												
BH-50608A	3.50	5.00	C		08/02/22	core																																
BH-50608A	5.00	6.50	C		08/02/22	core																																
BH-50608A	6.50	8.00	C		08/02/22	core																		1		1												
BH-50608A	8.00	9.50	C		08/02/22	core																																
BH-50608A	9.50	10.20	C		08/02/22	core																																
BH-50885	**0.00**	**2.00**	**C**		07/02/22	core																																
BH-50885	2.00	3.50	C		07/02/22	core																																
BH-50885	3.50	4.10	C		07/02/22	core																																
BH-50885	4.10	5.00	C		07/02/22	core																																
BH-50885	5.00	6.50	C		07/02/22	core																				7												PL Set of 10
BH-50885	6.50	8.00	C		07/02/22	core																		1		7												PL set of 10
BH-50885	8.00	9.50	C		07/02/22	core																																
BH-50885	9.50	11.00	C		07/02/22	core																		1		6												PL Set of 10
BH-50885	11.00	11.90	C		07/02/22	core																																
BH-50920	**0.00**	**3.50**	**C**		04/02/22	core																																
BH-50920	3.50	5.00	C		04/02/22	core																				1												
BH-50920	5.00	6.50	C		04/02/22	core																				1												
BH-50920	6.50	8.00	C		04/02/22	core																		1		5												PL set of 10
BH-50920	8.00	9.50	C		04/02/22	core																																
BH-50920	9.50	11.00	C		04/02/22	core																				10												PL set of 10
BH-50920	11.00	12.50	C		04/02/22	core																				7												PL set of 10
BH-50920	12.50	14.00	C		04/02/22	core																																
BH-50920	14.00	15.00	C		04/02/22	core																		1		5												PL set of 10
BH-51386	**0.00**	**2.00**	**C**		03/02/22	core																																
BH-51386	2.00	3.50	C		03/02/22	core																																
BH-51386	3.50	5.00	C		03/02/22	core														0*																		Shear box @ 5m * sample not suitable
BH-51386	5.00	6.50	C		03/02/22	core				1	0*																											
BH-51386	6.50	8.00	C		03/02/22	core				1	0*																											PSD @6.7m
BH-51386	8.00	9.50	C		03/02/22	core																																
BH-51386	9.50	10.00	C		03/02/22	core																																
BH-52008	0.00	2.00	C		09/02/22	core				1							1																					ALS : 230110-34
BH-52008	2.00	3.50	C		09/02/22	core																																
BH-52008	3.50	5.00	C		09/02/22	core				1																												
BH-52008	5.00	6.50	C		09/02/22	core																																
BH-52008	6.50	8.00	C		09/02/22	core																																
BH-52008	8.00	9.50	C		09/02/22	core				1																												
BH-52008	9.50	10.00	C		09/02/22	core																																
BH-52406	**0.00**	**2.00**	**C**		10/02/22	core																																
BH-52406	2.00	5.00	C		10/02/22	core																																
BH-52406	5.00	6.50	C		10/02/22	core	1	0*		1																												
BH-52406	6.50	8.00	C		10/02/22	core	1	1		1																												
BH-52406	8.00	9.00	C		10/02/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-52406	9.00	10.00	C		10/02/22	core																																
BH-53713	**0.00**	**2.00**	**C**		21/03/22	core																																
BH-53713	2.00	3.50	C		21/03/22	core																																
BH-53713	3.50	5.00	C		21/03/22	core																																
BH-53713	5.00	6.50	C		21/03/22	core											**1**										**1**											ALS 220926-32. BRE suite B @ 6.5m.
BH-53713	6.50	8.00	C		21/03/22	core																					**1**											
BH-53713	8.00	9.50	C		21/03/22	core																																
BH-53713	9.50	10.30	C		21/03/22	core																																
BH-54059	**0.00**	**2.00**	**C**		22/03/22	core								1																							ALS 220624-152
BH-54059	2.00	3.50	C		22/03/22	core																																
BH-54059	3.50	5.00	C		22/03/22	core																																
BH-54059	5.00	6.50	C		22/03/22	core																					1											
BH-54059	6.50	8.00	C		22/03/22	core																																
BH-54059	8.00	9.50	C		22/03/22	core																																
BH-54059	9.50	10.00	C		22/03/22	core																																
BH-55944	**0.00**	**1.50**	**C**		23/03/22	core																																
BH-55944	1.50	3.00	C		23/03/22	core																																
BH-55944	3.00	4.50	C		23/03/22	core											**0***																				BRE Suite B @ 3.1m
BH-55944	4.50	6.00	C		23/03/22	core																					**1**											PL @ 6.0m
BH-55944	6.00	7.50	C		23/03/22	core																																
BH-55944	7.50	9.00	C		23/03/22	core																			**1**		**1**											UCS & PL @ 8.0m
BH-55944	9.00	10.00	C		23/03/22	core																			**1**		**1**											UCS & PL @ 9.5m
BH-56060	**0.00**	**2.00**	**C**		24/03/22	core																																
BH-56060	2.00	3.50	C		24/03/22	core																																
BH-56060	3.50	5.00	C		24/03/22	core											**1**																					ALS 220926-32.
BH-56060	5.00	6.50	C		24/03/22	core																																
BH-56060	6.50	8.00	C		24/03/22	core				**1**	**0***																											
BH-56060	8.00	9.50	C		24/03/22	core																																
BH-56060	9.50	10.00	C		24/03/22	core																																
BH-56109	**0.00**	**2.00**	**C**		25/03/22	core																																
BH-56109	2.00	3.50	C		25/03/22	core																																
BH-56109	3.50	5.00	C		25/03/22	core																																
BH-56109	5.00	6.50	C		25/03/22	core				**1**	**1**																											
BH-56109	6.50	8.00	C		25/03/22	core																																
BH-56109	8.00	9.50	C		25/03/22	core																																
BH-56109	9.50	11.00	C		25/03/22	core																																
BH-56645	**0.00**	**2.00**	**C**		29/03/22	core																																
BH-56645	2.00	3.50	C		29/03/22	core											**1**																					BRE Suite B @ 3.5m. ALS 220926-32
BH-56645	3.50	5.00	C		29/03/22	core																																
BH-56645	5.00	6.50	C		29/03/22	core				**1**	**0***																											
BH-56645	6.50	8.00	C		29/03/22	core																																
BH-56645	8.00	9.50	C		29/03/22	core																																
BH-56645	9.50	10.00	C		29/03/22	core	**1**	**1**																																3kg
BH-56857	**0.00**	**2.00**	**C**		28/03/22	core																																
BH-56857	2.00	3.50	C		28/03/22	core											**1**																					BRE Suite B @ 3.5m. ALS 220926-32
BH-56857	3.50	5.00	C		28/03/22	core				**1**	**0***																											
BH-56857	5.00	6.50	C		28/03/22	core																																
BH-56857	6.50	8.00	C		28/03/22	core	**1**	**1**																																3kg
BH-56857	8.00	9.50	C		28/03/22	core																																
BH-56857	9.50	10.00	C		28/03/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-57037	**0.00**	**2.00**	**C**		30/03/22	core																																
BH-57037	2.00	3.50	C		30/03/22	core																																
BH-57037	3.50	5.00	C		30/03/22	core				1	1																											
BH-57037	5.00	6.50	C		30/03/22	core																																
BH-57037	6.50	8.00	C		30/03/22	core	1	1																														3kg
BH-57037	8.00	9.50	C		30/03/22	core																																
BH-57037	9.50	10.00	C		30/03/22	core																																
BH-57428	**0.00**	**2.00**	**C**		31/03/22	core																																
BH-57428	2.00	3.50	C		31/03/22	core																																
BH-57428	3.50	5.00	C		31/03/22	core																																
BH-57428	5.00	6.50	C		31/03/22	core			1	1																												
BH-57428	6.50	8.00	C		31/03/22	core																																
BH-57428	8.00	9.50	C		31/03/22	core																																
BH-57428	9.50	10.00	C		31/03/22	core																																
BH-58414	0.90	2.00	C	0.9-2.0	01/04/22	core											0											1	0	0	0*	1	0				0*	chem
BH-58414	2.00	3.50	C	2.0-3.5	01/04/22	core																						1	0	0	0*	1	0				0*	
BH-58414	**0.00**	**0.90**	**C**		01/04/22	core																																
BH-58414	3.50	5.00	C		01/04/22	core																					2											PL @ 3.5m & 5m
BH-58414	5.00	6.50	C		01/04/22	core																			0*													UCS @ 5.5m(* ucs not possible)
BH-58414	6.50	8.00	C		01/04/22	core																																
BH-58414	8.00	9.50	C		01/04/22	core																																
BH-58414	9.50	10.00	C		01/04/22	core																																
BH-58807	**0.00**	**2.00**	**C**		04/04/22	core																																
BH-58807	2.00	3.50	C		04/04/22	core																																
BH-58807	3.50	5.00	C		04/04/22	core											1																						ALS 230110-34
BH-58807	5.00	6.50	C		04/04/22	core																					1											
BH-58807	6.50	8.00	C		04/04/22	core																			1		1											
BH-58807	8.00	9.50	C		04/04/22	core																																
BH-58807	9.50	10.00	C		04/04/22	core																																
BH-59474	2.00	3.50	C	2.0-3.5	23/03/22	core	1	1		1	1																											3kg
BH-59474	**0.00**	**2.00**	**C**		23/03/22	core																																
BH-59474	3.50	5.00	C		23/03/22	core																																
BH-59474	5.00	6.50	C		23/03/22	core																																
BH-59474	6.50	8.00	C		23/03/22	core																																
BH-59474	8.00	9.50	C		23/03/22	core																																
BH-59474	9.50	10.00	C		23/03/22	core																																
BH-59932	3.50	5.00	C	3.5-5.0	06/04/22	core				1																												3kg
BH-59932	8.00	9.50	C	8.0-10.0	06/04/22	core				1																												3kg
BH-59932	9.50	10.00	C	8.0-10.0	06/04/22	core	1	1																														3kg
BH-59932	**0.00**	**2.00**	**C**		06/04/22	core																																
BH-59932	2.00	3.50	C		06/04/22	core																																
BH-59932	5.00	6.50	C		06/04/22	core																																
BH-59932	6.50	8.00	C		06/04/22	core																																
BH-60345	3.50	5.00	C	3.5-5.0	07/04/22	core				1							1																						Envirolab 23-00985
BH-60345	**0.00**	**2.00**	**C**		07/04/22	core																																
BH-60345	2.00	3.50	C		07/04/22	core																																
BH-60345	5.00	6.50	C		07/04/22	core																																
BH-60345	6.50	8.00	C		07/04/22	core																																
BH-60345	8.00	9.50	C		07/04/22	core																																
BH-60345	9.50	10.00	C		07/04/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-60641	**0.00**	**2.00**	**C**		11/04/22	core																																
BH-60641	2.00	3.50	C		11/04/22	core																																
BH-60641	3.50	5.00	C		11/04/22	core																					1											
BH-60641	5.00	6.50	C		11/04/22	core																																
BH-60641	6.50	8.00	C		11/04/22	core																					1											
BH-60641	8.00	9.50	C		11/04/22	core																																
BH-60641	9.50	10.00	C		11/04/22	core																																
BH-60805	**0.00**	**2.00**	**C**		08/04/22	core																																
BH-60805	2.00	3.50	C		08/04/22	core											1																					ALS 230110-34
BH-60805	3.50	5.00	C		08/04/22	core				1																												
BH-60805	5.00	6.50	C		08/04/22	core																																
BH-60805	6.50	8.00	C		08/04/22	core																					1											
BH-60805	8.00	9.50	C		08/04/22	core																					1											
BH-60805	9.50	10.00	C		08/04/22	core																																
BH-61136	5.00	6.50	C	5.0-6.5	12/04/22	core				1																												3kg
BH-61136	6.50	8.00	C	6.5-8.0	12/04/22	core				1																												3kg
BH-61136	**0.00**	**0.40**	**C**		12/04/22	core																																
BH-61136	0.40	2.00	C		12/04/22	core																																
BH-61136	2.00	3.50	C		12/04/22	core																																
BH-61136	3.50	5.00	C		12/04/22	core																																
BH-61136	8.00	9.50	C		12/04/22	core																				1											
BH-61136	9.50	11.00	C		12/04/22	core																					1											
BH-61515	**0.00**	**2.00**	**C**	0.0-2.0	13/04/22	core	1	1		1		1	1																									OC & LOI on sample above 0.2m, other tests below 0.2m. Envirolab 23-00985
BH-61515	2.00	3.50	C	2.0-3.5	13/04/22	core											1																					Envirolab 23-00985
BH-61515	5.00	6.50	C	5.0-6.5	13/04/22	core				1																												3kg
BH-61515	3.50	5.00	C		13/04/22	core																																
BH-61515	6.50	8.00	C		13/04/22	core																																
BH-61515	8.00	9.50	C		13/04/22	core																																
BH-61515	9.50	10.00	C		13/04/22	core																																
BH-61605	**0.00**	**3.00**	**C**		04/03/22	core																																
BH-61605	3.00	4.50	C		04/03/22	core																																
BH-61605	4.50	5.10	C		04/03/22	core																																
BH-61605	5.10	6.60	C		04/03/22	core	1	1		1																												
BH-61605	6.60	8.10	C		04/03/22	core				1																												
BH-61605	8.10	9.60	C		04/03/22	core																																
BH-61605	9.60	10.00	C		04/03/22	core																																
BH-61805	**0.00**	**3.00**	**C**		03/03/22	core																																
BH-61805	3.00	3.50	C		03/03/22	core																																
BH-61805	3.50	5.10	C		03/03/22	core																				1											
BH-61805	5.10	6.60	C		03/03/22	core																					1											
BH-61805	6.60	8.10	C		03/03/22	core																																
BH-61805	8.10	9.60	C		03/03/22	core																																
BH-61805	9.60	10.00	C		03/03/22	core																																
BH-61869	**0.00**	**1.00**	**C**		10/03/22	core																																
BH-61869	1.00	2.00	C		10/03/22	core																																
BH-61869	2.00	2.60	C		10/03/22	core																					6											PL set of 10
BH-61869	2.60	4.10	C		10/03/22	core																																
BH-61869	4.10	5.60	C		10/03/22	core																				1	10											PL set of 10
BH-61869	5.60	7.10	C		10/03/22	core																					10											PL set of 10
BH-61869	7.10	8.60	C		10/03/22	core																																

2021OY102: WSP - Pipeline section core schedule

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-61869	8.60	10.10	C		10/03/22	core																		1		9												PL set of 10
BH-61869	10.10	11.60	C		11/03/22	core																																
BH-61869	11.60	13.10	C		11/03/22	core																				1												
BH-61869	13.10	14.60	C		11/03/22	core																																
BH-61869	14.60	16.20	C		11/03/22	core																																
BH-62325	**0.00**	**1.50**	**C**		14/03/22	core																																
BH-62325	1.50	3.00	C		14/03/22	core																																
BH-62325	3.00	4.50	C		14/03/22	core								1																								ALS 220624-152
BH-62325	4.50	5.60	C		14/03/22	core																																
BH-62325	5.60	6.50	C		14/03/22	core																																
BH-62325	6.50	8.00	C		14/03/22	core																																
BH-62325	8.00	9.50	C		14/03/22	core																																
BH-62325	9.50	10.50	C		14/03/22	core																																
BH-62456	**0.00**	**1.50**	**C**		14/03/22	core																																
BH-62456	1.50	3.00	C		14/03/22	core																																
BH-62456	3.00	4.10	C		14/03/22	core								1																								ALS 220624-152
BH-62456	4.10	5.60	C		14/03/22	core																																
BH-62456	5.60	7.10	C		15/03/22	core																																
BH-62456	7.10	8.60	C		15/03/22	core																																
BH-62456	8.60	10.10	C		15/03/22	core																																
BH-62606	**0.00**	**1.50**	**C**		15/03/22	core																																
BH-62606	1.50	3.00	C		15/03/22	core																																
BH-62606	3.00	4.50	C		15/03/22	core																																
BH-62606	4.50	5.70	C		15/03/22	core								1																								ALS 220624-152
BH-62606	5.70	6.60	C		15/03/22	core																																
BH-62606	6.60	8.20	C		15/03/22	core																																
BH-62606	8.20	9.40	C		15/03/22	core																																
BH-62606	9.40	10.50	C		15/03/22	core																																
BH-63008	**0.00**	**4.50**	**C**		02/03/22	core																																
BH-63008	4.50	5.10	C		02/03/22	core	1	0*		1																												*STRONG SMELL
BH-63008	5.10	6.60	C		02/03/22	core																																
BH-63008	6.60	8.10	C		02/03/22	core																				1												
BH-63008	8.10	9.60	C		02/03/22	core																																
BH-63008	9.60	10.00	C		02/03/22	core																																
BH-65612	**0.00**	**2.80**	**C**		25/02/22	core																																
BH-65612	2.80	4.30	C		25/02/22	core				0*																												3kg
BH-65612	4.30	5.00	C		25/02/22	core																																
BH-65612	5.00	6.50	C		25/02/22	core																																
BH-65612	6.50	8.00	C		25/02/22	core																																
BH-65612	8.00	9.50	C		25/02/22	core																				1												
BH-65612	9.50	10.00	C		25/02/22	core																																
BH-66007	3.50	5.00	C	3.5	28/02/22	core											1																						BRE Suite B @ 3.5m. Envirolab 23-00985
BH-66007	**0.00**	**3.50**	**C**		28/02/22	core																																
BH-66007	5.00	6.50	C		28/02/22	core																																
BH-66007	6.50	8.00	C		28/02/22	core																																
BH-66007	8.00	9.50	C		28/02/22	core																																
BH-66007	9.50	10.00	C		28/02/22	core																																
BH-68009	3.50	5.00	C	3.5-5.0	14/04/22	core	1	1		1	1																											3kg
BH-68009	**0.00**	**2.00**	**C**		14/04/22	core																																
BH-68009	2.00	3.50	C		14/04/22	core																																
BH-68009	5.00	6.50	C		14/04/22	core																																
BH-68009	6.50	8.00	C		14/04/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-68009	8.00	9.50	C		14/04/22	core																																
BH-68009	9.50	10.00	C		14/04/22	core																																
BH-68306	3.50	5.00	C	3.5-5.0	19/04/22	core											0											1	0	0	0*	1	0					0*	chem
BH-68306	**0.00**	**2.00**	**C**		19/04/22	core																																
BH-68306	2.00	3.50	C		19/04/22	core																			1		1											
BH-68306	5.00	6.50	C		19/04/22	core																					1											
BH-68306	6.50	8.00	C		19/04/22	core																																
BH-68306	8.00	9.50	C		19/04/22	core																																
BH-68306	9.50	10.00	C		19/04/22	core																																
BH-68804	**0.00**	**2.00**	**C**		20/04/22	core																																
BH-68804	2.00	3.50	C		20/04/22	core																																
BH-68804	3.50	5.00	C		20/04/22	core																			1		1											
BH-68804	5.00	6.50	C		20/04/22	core																																
BH-68804	6.50	8.00	C		20/04/22	core																																
BH-68804	8.00	9.50	C		20/04/22	core																																
BH-68804	9.50	10.00	C		20/04/22	core																																
BH-69561	**0.00**	**1.50**	**C**		21/03/22	core																																
BH-69561	1.50	3.00	C		21/03/22	core																																
BH-69561	3.00	4.20	C		21/03/22	core			1	1																												
BH-69561	4.20	5.80	C		21/03/22	core																																
BH-69561	5.80	7.30	C		22/03/22	core																																
BH-69561	7.30	8.80	C		22/03/22	core																																
BH-69561	8.80	10.30	C		22/03/22	core																																
BH-69646	**0.00**	**1.50**	**C**		21/03/22	core																																
BH-69646	1.50	2.80	C		21/03/22	core																					1											PL @2.8m
BH-69646	2.80	4.30	C		21/03/22	core											1																					ALS 220926-32.
BH-69646	4.30	5.80	C		21/03/22	core																																
BH-69646	5.80	6.30	C		21/03/22	core											1																					ALS 220926-32.
BH-69646	6.30	8.80	C		21/03/22	core																																
BH-69646	8.80	10.30	C		21/03/22	core																																
BH-69703	**0.00**	**1.50**	**C**		22/03/22	core																																
BH-69703	1.50	3.00	C		22/03/22	core																																
BH-69703	3.00	4.50	C		22/03/22	core			1	1																												
BH-69703	4.50	5.80	C		22/03/22	core																																
BH-69703	5.80	7.30	C		22/03/22	core																																
BH-69703	7.30	8.80	C		22/03/22	core																																
BH-69703	8.80	10.40	C		22/03/22	core																																
BH-69703	10.40	12.00	C		23/03/22	core																																
BH-69703	12.00	13.50	C		23/03/22	core																																
BH-69703	13.50	15.00	C		23/03/22	core																																
BH-70205	**0.00**	**2.00**	**C**		21/04/22	core																																
BH-70205	2.00	3.50	C		21/04/22	core											0*																					BRE Suite B @ 3.5m
BH-70205	3.50	5.00	C		21/04/22	core																																
BH-70205	5.00	6.50	C		21/04/22	core																																
BH-70205	6.50	8.00	C		21/04/22	core																																
BH-70205	8.00	9.50	C		21/04/22	core																																
BH-70205	9.50	10.00	C		21/04/22	core																																
BH-70701	**0.00**	**1.50**	**C**		24/03/22	core								1																								ALS 220624-152
BH-70701	1.50	3.00	C		24/03/22	core																																
BH-70701	3.00	4.30	C		24/03/22	core																																
BH-70701	4.30	5.80	C		24/03/22	core																																
BH-70701	5.80	7.30	C		24/03/22	core																																
BH-70701	7.30	8.80	C		24/03/22	core	1	1		0*																												

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-70701	8.80	10.30	C		24/03/22	core	1	1																		1												
BH-71124	**0.00**	**1.50**	**C**		23/03/22	core																																
BH-71124	1.50	3.00	C		23/03/22	core																																
BH-71124	3.00	4.50	C		23/03/22	core			1	1																												
BH-71124	4.50	5.80	C		23/03/22	core																																
BH-71124	5.80	7.30	C		24/03/22	core																																
BH-71124	7.30	8.80	C		24/03/22	core																																
BH-71124	8.80	10.30	C		24/03/22	core																																
BH-71656	**0.00**	**2.00**	**C**	0.0-2.0	22/04/22	core						1	1																									
BH-71656	2.00	3.50	C	2.0-3.5	22/04/22	core				1							1																					Envirolab 23-00985
BH-71656	3.50	5.00	C	3.5-5.0(u)	22/04/22	core	1	1		1								***100,200,400kPa				0*															*u section not suitable
BH-71656	5.00	6.50	C		22/04/22	core																																
BH-71656	6.50	8.00	C		22/04/22	core																																
BH-71656	8.00	9.50	C		22/04/22	core																																
BH-71656	9.50	10.00	C		22/04/22	core																																
BH-72207	3.50	5.00	C	3.5	25/04/22	core											1																					BRE Suite B @ 3.5m. Envirolab 23-00985
BH-72207	5.00	6.50	C	5.0-6.5(u), 5.0-6.5	25/04/22	core				1								0*	24060		0*	500 kPa															undisturbed. * sample too dry
BH-72207	**0.00**	**2.00**	**C**		25/04/22	core																																
BH-72207	2.00	3.50	C		25/04/22	core																																
BH-72207	6.50	8.00	C		25/04/22	core																																
BH-72207	8.00	9.50	C		25/04/22	core																																
BH-72207	9.50	10.00	C		25/04/22	core																																
BH-72207	10.00	11.50	C		25/04/22	core																																
BH-72207	11.50	13.00	C		25/04/22	core																																
BH-72207	13.00	14.00	C		25/04/22	core																																
BH-72207	14.00	15.00	C		25/04/22	core																																
BH-72683	**0.00**	**1.50**	**C**		25/03/22	core								1																								ALS 220624-152
BH-72683	1.50	3.00	C		25/03/22	core																																
BH-72683	3.00	4.30	C		25/03/22	core																																
BH-72683	4.30	5.80	C		25/03/22	core																																
BH-72683	5.80	7.30	C		25/03/22	core																																
BH-72683	7.30	8.80	C		25/03/22	core																																
BH-72683	8.80	10.30	C		25/03/22	core																																
BH-73135	4.50	5.60	C	4.5	28/03/22	core											1																					BRE Suite B @ 4.5m. Envirolab 23-00985
BH-73135	**0.00**	**4.50**	**C**		28/03/22	core																																
BH-73135	5.60	7.00	C		28/03/22	core																																
BH-73135	7.00	8.50	C		28/03/22	core																			1		1											PL @ 7.3m, UCS @ 7.5m
BH-73135	8.50	10.10	C		28/03/22	core																																
BH-73604	1.50	2.60	C	2.6	29/03/22	core											1																					BRE Suite B @ 2.6m. Envirolab 23-00985
BH-73604	**0.00**	**1.50**	**C**		29/03/22	core																																
BH-73604	2.60	4.10	C		29/03/22	core																																
BH-73604	4.10	5.60	C		29/03/22	core																																
BH-73604	5.60	7.10	C		29/03/22	core																																
BH-73604	7.10	8.60	C		29/03/22	core																			1		1											PL @ 7.3m, UCS @ 7.4m
BH-73604	8.60	10.10	C		29/03/22	core																			1		1											UCS & PL @ 10.0m

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-73966	3.00	4.50	C	3.5	29/03/22	core											1																					BRE Suite B @ 3.5m. Envirolab 23-00985
BH-73966	**0.00**	**3.00**	**C**		29/03/22	core																																
BH-73966	4.50	5.60	C		29/03/22	core																																
BH-73966	5.60	7.10	C		29/03/22	core																																
BH-73966	7.10	8.60	C		29/03/22	core																			0*		1											UCS @7.2m (*not possible), PL @ 7.4m
BH-73966	8.60	10.10	C		29/03/22	core																			1		1											UCS @& PL @ 9.5m
BH-74100	**0.00**	**4.50**	**C**		30/03/22	core																																
BH-74100	4.50	5.60	C		30/03/22	core																																
BH-74100	5.60	7.10	C		30/03/22	core																																
BH-74100	7.10	8.60	C		30/03/22	core																																
BH-74100	8.60	10.10	C		30/03/22	core																																
BH-74205	3.00	4.10	C	3.5, 3.9	31/03/22	core											1																					BRE Suite B @ 3.9m. Envirolab 23-00985
BH-74205	**0.00**	**3.00**	**C**		31/03/22	core																																
BH-74205	4.10	5.60	C		31/03/22	core																																
BH-74205	5.60	7.10	C		31/03/22	core																																
BH-74205	7.10	8.60	C		31/03/22	core																																
BH-74205	8.60	10.10	C		31/03/22	core																			1		1											UCS & PL @ 9.8m
BH-74205	10.10	11.00	C		31/03/22	core																																
BH-74403	4.10	5.60	C	4.1	01/04/22	core											1																					BRE Suite B @ 4.1m. Envirolab 23-00985
BH-74403	**0.00**	**1.50**	**C**		01/04/22	core																																
BH-74403	1.50	2.60	C		01/04/22	core																																
BH-74403	2.60	4.10	C		01/04/22	core																																
BH-74403	5.60	7.10	C		01/04/22	core																																
BH-74403	7.10	8.60	C		01/04/22	core																					1											PL @ 7.6m
BH-74403	8.60	10.10	C		01/04/22	core																																
BH-74403	10.10	11.60	C		01/04/22	core																			1		1											UCS & PL @ 10.3m
BH-74851	3.00	4.30	C	3.0-5.8	04/04/22	core				1							1																					Envirolab 23-00985
BH-74851	8.80	10.30	C	8.8-10.3	04/04/22	core	1	1		1																												3kg
BH-74851	**0.00**	**1.50**	**C**		04/04/22	core																																
BH-74851	1.50	3.00	C		04/04/22	core																																
BH-74851	4.30	5.80	C		04/04/22	core																																
BH-74851	5.80	7.30	C		04/04/22	core																																
BH-74851	7.30	8.80	C		04/04/22	core																																
BH-74995	**0.00**	**2.40**	**C**		05/04/22	core				0*																												3kg
BH-74995	2.40	3.90	C		05/04/22	core				0*							0*																					3kg
BH-74995	3.90	5.40	C		05/04/22	core																																
BH-74995	5.40	6.90	C		05/04/22	core																																
BH-74995	6.90	8.50	C		05/04/22	core																																
BH-74995	8.50	10.00	C		05/04/22	core																																
BH-75490	3.00	4.30	C	4.3	06/04/22	core											1																					BRE Suite B @ 4.3m. Envirolab 23-00985
BH-75490	**0.00**	**1.50**	**C**		06/04/22	core																																
BH-75490	1.50	3.00	C		06/04/22	core																																
BH-75490	4.30	5.80	C		06/04/22	core																																
BH-75490	5.80	7.30	C		06/04/22	core																																
BH-75490	7.30	8.80	C		06/04/22	core																																
BH-75490	8.80	10.30	C		06/04/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-75808	4.30	5.80	C	4.3-5.8	07/04/22	core				1																												3kg
BH-75808	**0.00**	**1.50**	**C**		07/04/22	core																																
BH-75808	1.50	3.00	C		07/04/22	core																																
BH-75808	3.00	4.30	C		07/04/22	core																																
BH-75808	5.80	7.30	C		07/04/22	core																																
BH-75808	7.30	8.80	C		07/04/22	core																																
BH-75808	8.80	10.30	C		07/04/22	core																																
BH-76545	7.30	8.80	C	7.3-15.1	08/04/22	core	1	1		1																												3kg
BH-76545	10.30	11.80	C	7.3-15.1	08/04/22	core																																
BH-76545	11.80	13.30	C	7.3-15.1	08/04/22	core																																
BH-76545	13.30	14.80	C	7.3-15.1	08/04/22	core																																
BH-76545	14.80	15.10	C	7.3-15.1	08/04/22	core																																
BH-76545	8.80	10.30	C	8.8-10.3(u)	08/04/22	core															0*-50kPa																undisturbed
BH-76545	**0.00**	**1.50**	**C**		08/04/22	core																																
BH-76545	1.50	3.00	C		08/04/22	core																																
BH-76545	3.00	4.30	C		08/04/22	core																																
BH-76545	4.30	5.80	C		08/04/22	core																																
BH-76545	5.80	7.30	C		08/04/22	core																																
BH-76601	3.00	4.50	C	1.5-12.0	12/04/22	core																																
BH-76601	4.50	6.00	C	1.5-12.0	12/04/22	core																																
BH-76601	6.00	7.50	C	1.5-12.0	12/04/22	core																																
BH-76601	7.50	9.00	C	1.5-12.0	12/04/22	core																																
BH-76601	9.00	10.50	C	1.5-12.0	12/04/22	core																																
BH-76601	10.50	12.00	C	1.5-12.0	12/04/22	core																																
BH-76601	1.50	3.00	C	1.5-3.0	12/04/22	core				1							1																				Envirolab 23-00985
BH-76601	**0.00**	**1.50**	**C**		12/04/22	core																																
BH-76601	12.00	13.50	C		13/04/22	core																																
BH-76601	13.50	15.00	C		13/04/22	core																																
BH-77631	**0.00**	**1.50**	**C**		13/04/22	core																																
BH-77631	1.50	3.00	C		13/04/22	core																																
BH-77631	3.00	4.30	C		13/04/22	core											**1**																				ALS 220926-32.
BH-77631	4.30	5.80	C		13/04/22	core	**1**	**1**	**1**	**1**																												
BH-77631	5.80	7.30	C		13/04/22	core																																
BH-77631	7.30	8.80	C		13/04/22	core																																
BH-77631	8.80	10.30	C		13/04/22	core																																
BH-78204	4.30	5.80	C	4.3-8.8	19/04/22	core				**1**																												3kg
BH-78204	8.80	10.30	C	8.8-10.3	19/04/22	core				**1**																												3kg
BH-78204	**0.00**	**1.50**	**C**		19/04/22	core																																
BH-78204	1.50	3.00	C		19/04/22	core																																
BH-78204	3.00	4.30	C		19/04/22	core																																
BH-78204	5.80	7.30	C		19/04/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-78204	7.30	8.80	C		19/04/22	core																																
BH-78412	3.00	4.30	C	2.0-3.3	14/04/22	core				1	1						1																					Envirolab 23-00985
BH-78412	**0.00**	**1.50**	**C**		14/04/22	core																															
BH-78412	1.50	3.00	C		14/04/22	core																															
BH-78412	4.30	5.80	C		14/04/22	core																															
BH-78412	5.80	7.30	C		14/04/22	core																															
BH-78412	7.30	8.80	C		14/04/22	core																															
BH-78412	8.80	10.30	C		14/04/22	core																															
BH-78579	4.30	5.80	C	5.8-8.8	21/04/22	core				1																											3kg
BH-78579	5.80	7.30	C	5.8-8.8	21/04/22	core																															
BH-78579	7.30	8.80	C	5.8-8.8	21/04/22	core																															
BH-78579	8.80	10.30	C	8.8-10.3	21/04/22	core				0																											3kg
BH-78579	**0.00**	**1.50**	**C**		21/04/22	core																															
BH-78579	1.50	3.00	C		21/04/22	core																															
BH-78579	3.00	4.30	C		21/04/22	core																															
BH-78694	5.80	7.30	C	5.8-8.8	22/04/22	core				1																											3kg
BH-78694	8.80	10.30	C	8.0-10.3 (u)	22/04/22	core	0	0		0											0*	kPa	800	kPa													undisturbed
BH-78694	**0.00**	**1.50**	**C**		22/04/22	core																															
BH-78694	1.50	3.00	C		22/04/22	core																															
BH-78694	3.00	4.30	C		22/04/22	core																															
BH-78694	4.30	5.80	C		22/04/22	core																															
BH-78694	7.30	8.80	C		22/04/22	core																															
BH-78790A	1.50	3.00	C	1.5-3.0	20/04/22	core				1																											3kg
BH-78790A	3.00	4.30	C	3.0-5.8	20/04/22	core				1																											3kg
BH-78790A	7.30	8.80	C	7.3-10.3	20/04/22	core				1																											3kg
BH-78790A	**0.00**	**1.50**	**C**		20/04/22	core																															
BH-78790A	4.30	5.80	C		20/04/22	core																															
BH-78790A	5.80	7.30	C		20/04/22	core																															
BH-78790A	8.80	10.30	C		20/04/22	core																															
BH-78862	5.80	7.30	C	5.8-8.8	20/04/22	core				1																											3kg
BH-78862	**0.00**	**1.50**	**C**		20/04/22	core																															
BH-78862	1.50	3.00	C		20/04/22	core																															
BH-78862	3.00	4.30	C		20/04/22	core																															
BH-78862	4.30	5.80	C		20/04/22	core																															
BH-78862	7.30	8.80	C		20/04/22	core																															
BH-78862	8.80	10.30	C		20/04/22	core																															
BH-79026	**0.00**	**1.50**	**C**		25/04/22	core																															
BH-79026	1.50	3.00	C		25/04/22	core																															
BH-79026	3.00	4.30	C		25/04/22	core																															
BH-79026	4.30	5.40	C		25/04/22	core																															
BH-79026	5.40	7.00	C		25/04/22	core																		1		1											
BH-79026	7.00	8.60	C		25/04/22	core																															
BH-79026	8.60	10.20	C		25/04/22	core																				1											
BH-79026	10.20	11.80	C		25/04/22	core																															
BH-79026	11.80	13.40	C		25/04/22	core																															
BH-79026	13.40	15.00	C		25/04/22	core																				1											
BH-79209	4.30	5.60	C	4.3-7.8	26/04/22	core				1																											3kg
BH-79209	5.60	7.80	C	4.3-7.8	27/04/22	core																															
BH-79209	**0.00**	**1.50**	**C**		26/04/22	core																															

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-79209	1.50	3.00	C		26/04/22	core																																
BH-79209	3.00	4.30	C		26/04/22	core																																
BH-79209	7.80	9.00	C		27/04/22	core																				1												
BH-79209	9.00	10.50	C		27/04/22	core																																
BH-79273	4.30	5.60	C	4.3-5.6	27/04/22	core				1																												3kg
BH-79273	**0.00**	**1.50**	**C**		27/04/22	core																																
BH-79273	1.50	3.00	C		27/04/22	core																																
BH-79273	3.00	4.30	C		27/04/22	core																																
BH-79273	5.60	7.40	C		27/04/22	core																		1		1												
BH-79273	7.40	8.80	C		27/04/22	core																																
BH-79273	8.80	10.40	C		27/04/22	core																																
BH-79441	5.00	6.50	C	3.5-10	09/05/22	core																																
BH-79441	6.50	8.00	C	3.5-10	09/05/22	core																																
BH-79441	8.00	9.50	C	3.5-10	09/05/22	core																																
BH-79441	9.50	10.00	C	3.5-10	09/05/22	core																																
BH-79441	3.50	5.00	C	3.5-5.0	09/05/22	core				1							1																					Envirolab 23-00985
BH-79441	**0.00**	**2.00**	**C**		09/05/22	core																																
BH-79441	2.00	3.50	C		09/05/22	core																																
BH-79595	**0.00**	**2.00**	**C**	0-10	10/05/22	core																																
BH-79595	2.00	3.50	C	0-10	10/05/22	core																																
BH-79595	3.50	5.00	C	0-10	10/05/22	core																																
BH-79595	5.00	6.50	C	0-10	10/05/22	core				1																												3kg
BH-79595	6.50	8.00	C	0-10	10/05/22	core																																
BH-79595	8.00	9.50	C	0-10	10/05/22	core																																
BH-79595	9.50	10.00	C	0-10	10/05/22	core																																
BH-80338	**0.00**	**2.00**	**C**		26/04/22	core																																
BH-80338	2.00	3.50	C		26/04/22	core																																
BH-80338	3.50	5.00	C		26/04/22	core																																
BH-80338	5.00	6.50	C		26/04/22	core																																
BH-80338	6.50	8.00	C		26/04/22	core																		0*		1												*ucs not possible
BH-80338	8.00	9.50	C		26/04/22	core																																
BH-80338	9.50	10.00	C		26/04/22	core																																
BH-80439	2.00	3.50	C	2.0-3.5	27/04/22	core				1							1																					Envirolab 23-00985
BH-80439	3.50	5.00	C	2.0-6.5	27/04/22	core																																
BH-80439	5.00	6.50	C	2.0-6.5	27/04/22	core																																
BH-80439	**0.00**	**2.00**	**C**		27/04/22	core																																
BH-80439	6.50	8.00	C		27/04/22	core																				1												
BH-80439	8.00	9.50	C		27/04/22	core																				1												
BH-80439	9.50	10.00	C		27/04/22	core																		1														
BH-80546	2.00	3.50	C	2.0-3.5	28/04/22	core				1																												3kg
BH-80546	3.50	5.00	C	3.5-5.0(u)	28/04/22	core	1	1		1										100,200,4		0*																3kg
BH-80546	6.50	8.00	C	3.5-6.5	28/04/22	core																																
BH-80546	5.00	6.50	C	5.0-6.5	28/04/22	core											1																					Envirolab 23-00985
BH-80546	8.00	9.50	C	8.0-10.0	28/04/22	core				1																												3kg
BH-80546	9.50	10.00	C	8.0-10.0	28/04/22	core																																
BH-80546	**0.00**	**2.00**	**C**		28/04/22	core																																
BH-81459	2.00	3.50	C	2.0-3.5, 2-10	29/04/22	core				1							1																					Envirolab 23-00985
BH-81459	**0.00**	**2.00**	**C**		29/04/22	core																																

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-81459	3.50	5.00	C		29/04/22	core																																
BH-81459	5.00	6.50	C		29/04/22	core																																
BH-81459	6.50	8.00	C		29/04/22	core																																
BH-81459	8.00	9.50	C		29/04/22	core																																
BH-81459	9.50	10.00	C		29/04/22	core																																
BH-81864	2.00	3.50	C	2.0-5.0	03/05/22	core				1							1																				Envirolab 23-00985
BH-81864	8.00	9.50	C	8.0-10.0	03/05/22	core				1																												3kg
BH-81864	**0.00**	**2.00**	**C**		03/05/22	core																																
BH-81864	3.50	5.00	C		03/05/22	core																																
BH-81864	5.00	6.50	C		03/05/22	core																																
BH-81864	6.50	8.00	C		03/05/22	core																																
BH-81864	9.50	10.00	C		03/05/22	core																																
BH-82198	2.00	3.50	C	2.0-3.5	04/05/22	core				1							1																				Envirolab 23-00985
BH-82198	5.00	6.50	C	5.0-6.5	04/05/22	core																																
BH-82198	**0.00**	**2.00**	**C**		04/05/22	core																																
BH-82198	3.50	5.00	C		04/05/22	core																																
BH-82198	6.50	8.00	C		04/05/22	core																																
BH-82198	8.00	9.50	C		04/05/22	core																																
BH-82198	9.50	10.00	C		04/05/22	core																																
BH-82621	**0.00**	**2.00**	**C**		05/05/22	core																																
BH-82621	2.00	3.50	C		05/05/22	core				1																												
BH-82621	3.50	5.00	C		05/05/22	core																																
BH-82621	5.00	6.50	C		05/05/22	core																																
BH-82621	6.50	8.00	C		05/05/22	core																																
BH-82621	8.00	9.50	C		05/05/22	core				1																												
BH-82621	8.00	9.50	C		05/05/22	core																		1														
BH-82621	9.50	10.00	C		05/05/22	core																				1												
BH-82974	**0.00**	**2.00**	**C**		11/05/22	core																																
BH-82974	2.00	3.50	C		11/05/22	core																																
BH-82974	3.50	5.00	C		11/05/22	core																																
BH-82974	5.00	6.50	C		11/05/22	core																																
BH-82974	6.50	8.00	C		11/05/22	core				1																												
BH-82974	8.00	9.50	C		11/05/22	core																																
BH-82974	9.50	10.00	C		11/05/22	core																																
BH-83591	**0.00**	**2.00**	**C**		06/05/22	core																																
BH-83591	2.00	3.50	C		06/05/22	core																																
BH-83591	3.50	5.00	C		06/05/22	core																																
BH-83591	5.00	6.50	C		06/05/22	core				1																												
BH-83591	6.50	8.00	C		06/05/22	core																																
BH-83591	8.00	9.50	C		06/05/22	core																																
BH-83591	9.50	11.00	C		06/05/22	core																		1														
BH-83591	11.00	12.50	C		06/05/22	core																				1												
BH-83591	12.50	14.00	C		06/05/22	core																				1												
BH-83591	14.00	15.00	C		06/05/22	core																																
BH-85791	**0.00**	**2.00**	**C**		12/05/22	core				1																												
BH-85791	2.00	3.50	C		12/05/22	core											1																				ALS 230110-34
BH-85791	3.50	5.00	C		12/05/22	core																																
BH-85791	5.00	6.50	C		12/05/22	core																																
BH-85791	6.50	8.00	C		12/05/22	core																		1		1												
BH-85791	8.00	9.50	C		12/05/22	core																																
BH-85791	9.50	10.00	C		12/05/22	core																				1												
BH-87006	**0.00**	**2.00**	**C**		18/05/22	core	1	1		1																												

Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-87006	2.00	3.50	C		18/05/22	core				1							1																					ALS 230110-34
BH-87006	3.50	5.00	C		18/05/22	core																																
BH-87006	5.00	6.50	C		19/05/22	core				1																												
BH-87006	6.50	8.00	C		19/05/22	core																																
BH-87006	8.00	9.50	C		19/05/22	core (in U100)	1	1		1								200,400,800kPa				1																
BH-87006	8.00	9.50	C		19/05/22	core	1	1		1																												
BH-87006	9.50	10.00	C		19/05/22	core																																
BH-87455	**0.00**	**2.00**	**C**		13/05/22	core																																
BH-87455	2.00	3.50	C		13/05/22	core									1	1																						at 3.5. als 230110-34
BH-87455	3.50	5.00	C		13/05/22	core																																
BH-87455	5.00	6.50	C		13/05/22	core				0*																												*not suitable
BH-87455	6.50	8.00	C		13/05/22	core																																
BH-87455	8.00	9.50	C		13/05/22	core																																
BH-87455	9.50	10.00	C		13/05/22	core																																
BH-88759	**0.00**	**2.00**	**C**		16/05/22	core																																
BH-88759	2.00	3.50	C		16/05/22	core																																
BH-88759	3.50	5.00	C		16/05/22	core																																
BH-88759	5.00	6.50	C		16/05/22	core				1																												
BH-88759	6.50	8.00	C		16/05/22	core																																
BH-88759	8.00	9.50	C		16/05/22	core																																
BH-88759	9.50	10.00	C		16/05/22	core																																
BH-90402	6.50	8.00	C	6.5-8.0	20/05/22	core				1																												3kg
BH-90402	8.00	9.00	C	8.0-10.0	20/05/22	core				1																												3kg
BH-90402	9.00	10.00	C	8.0-10.0	20/05/22	core																																
BH-90402	**0.00**	**2.00**	**C**		20/05/22	core																																
BH-90402	2.00	3.50	C		20/05/22	core																																
BH-90402	3.50	5.00	C		20/05/22	core																																
BH-90402	5.00	6.50	C		20/05/22	core																																
BH-91011	**0.00**	**2.00**	**C**		23/05/22	core																																
BH-91011	2.00	3.50	C		23/05/22	core	1	1																														at 3m
BH-91011	3.50	5.00	C		23/05/22	core											1																					at 4m. Als 230110-34
BH-91011	5.00	6.50	C		23/05/22	core																																
BH-91011	6.50	8.00	C		23/05/22	core																																
BH-91011	8.00	8.80	C		23/05/22	core																																
BH-91011	8.80	10.00	C		23/05/22	core																																
BH-92626	**0.00**	**2.00**	**C**		25/05/22	core																																
BH-92626	2.00	3.50	C		25/05/22	core	1	1		1																												at 2.5m
BH-92626	3.50	5.00	C		25/05/22	core									1	1																						at 3.5m. Als 230110-34
BH-92626	5.00	6.50	C		25/05/22	core																		1		1												at 6 - 6.5m
BH-92626	6.50	8.00	C		26/05/22	core																																
BH-92626	8.00	9.50	C		26/05/22	core																																
BH-92626	9.50	11.10	C		26/05/22	core																																
BH-92626	11.10	12.20	C		26/05/22	core																																
BH-92626	12.20	13.70	C		26/05/22	core																																
BH-92626	13.70	15.10	C		26/05/22	core																																
BH-92680	**0.00**	**2.00**	**C**		24/05/22	core																																
BH-92680	2.00	3.50	C		24/05/22	core																																
BH-92680	3.50	5.00	C		24/05/22	core																																
BH-92680	5.00	6.50	C		24/05/22	core																																

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Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)		Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-92680	6.50	8.00	C		24/05/22	core																																
BH-92680	8.00	9.60	C		24/05/22	core																			1		1											
BH-92680	9.60	11.00	C		24/05/22	core																					1											
BH-92680	11.00	12.50	C		24/05/22	core																																
BH-92680	12.50	14.00	C		24/05/22	core																																
BH-92680	14.00	15.10	C		24/05/22	core																																
BH-93803	**0.00**	**3.20**	**C**		05/05/22	core																																
BH-93803	3.20	5.00	C		05/05/22	core	1	0*		1							1																					chem als 230110-34. LL not possible.
BH-93803	5.00	6.50	C		05/05/22	core																																
BH-93803	6.50	8.00	C		05/05/22	core																																
BH-93803	8.00	9.50	C		05/05/22	core																																
BH-93803	9.50	10.00	C		05/05/22	core																																
BH-94016	**0.00**	**2.00**	**C**		06/05/22	core																																
BH-94016	2.00	3.50	C		06/05/22	core																																
BH-94016	3.50	5.00	C		06/05/22	core				0*							1																					*Not suitabel for PSD. BRE at 4.5m. ALS 230110-34
BH-94016	5.00	6.50	C		06/05/22	core																																
BH-94016	6.50	8.00	C		06/05/22	core																																
BH-94016	8.00	9.40	C		06/05/22	core																					1											PL at 8.3m
BH-94016	9.40	10.10	C		06/05/22	core																																
BH-95064	**0.00**	**1.70**	**C**		04/05/22	core																																
BH-95064	1.70	2.60	C		04/05/22	core											1																					chem. Als 230110-34
BH-95064	1.70	2.60	C		04/05/22	core																			1		1											
BH-95064	2.60	3.60	C		04/05/22	core																																
BH-95064	3.60	5.10	C		04/05/22	core																					1											PL at 4m
BH-95064	5.10	6.60	C		04/05/22	core																																
BH-95064	6.60	8.00	C		04/05/22	core																																
BH-95064	8.00	8.30	C		04/05/22	core																																
BH-95595	**0.00**	**1.10**	**C**		03/05/22	core																																
BH-95595	1.10	2.00	C		03/05/22	core																																
BH-95595	2.00	3.60	C		03/05/22	core																						1	1	1	1	1	1				1	
BH-95595	3.60	5.00	C		03/05/22	core											1																					BRE at 4m. Als 230110-34
BH-95595	3.60	5.00	C		03/05/22	core																			1		1											
BH-95595	5.00	6.50	C		03/05/22	core																					1											PL at 5m
BH-95595	6.50	8.00	C		03/05/22	core																																
BH-95595	8.00	8.40	C		03/05/22	core																																
BH-96005	3.00	4.50	C	3.0-4.5	29/04/22	core											0											1	0	0	0*	1	0				0*	chem
BH-96005	**0.00**	**2.00**	**C**		29/04/22	core																																
BH-96005	2.00	2.60	C		29/04/22	core																																
BH-96005	2.60	3.00	C		29/04/22	core																																
BH-96005	4.50	6.00	C		29/04/22	core																			0*		1											
BH-96005	6.00	7.50	C		29/04/22	core																					1											
BH-96005	7.50	9.10	C		29/04/22	core																																
BH-96005	9.10	10.00	C		29/04/22	core																																
BH-96364	**0.00**	**5.00**	**C**		28/04/22	core																																
BH-96364	5.00	6.50	C		28/04/22	core																					1											
BH-96364	6.50	8.00	C		28/04/22	core																																
BH-96364	8.00	9.50	C		28/04/22	core																			1		1											
BH-96364	9.50	10.20	C		28/04/22	core																																

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Location	Depth (m)	Base Depth	Sample Type	Sample Ref	Date Sampled	Storage	Moisture Content	Atterberg 4 Point	Particle Density by Gas Jar	Particle Size Distribution	Hydrometer	Organic Content	Loss On Ignition	Sulphate Total	Sulphate Water Gravimetric	ph	BRE Suite B	Consolidation	Pressures	Small Direct Shearbox	Triaxial Quick Undrained (Specify Cell Pressure)	Triaxial UU Multi Stage	Triaxial UU Multi Specimen	Rock Uniaxial compression	Rock Uniaxial Compression with measurement of Youngs Modulus and Poisson's ratio	Point Load	Mohr Hardness	Water absorption	Mag Sulphate Soundness	Los Angeles	Slake Durability	Particle Density & Flakiness Ir	Simplified Petrography	Chemical Analysis	Brazilian Tensile Rock Test	Direct shear strength of rock discontinuity	Aggregate Abrasion	Comment
BH-96858	3.50	5.00	C		19/04/22	core	1			1							1																					MC and BRE at 4m, ALS 230110-34
BH-96858	5.00	6.50	C		19/04/22	core																																
BH-96858	6.50	8.00	C		19/04/22	core																																
BH-96858	8.00	9.50	C		19/04/22	core																		1		1												PL and UCS at 8.3m
BH-96858	9.50	10.00	C		19/04/22	core																																
BH-96858			C		19/04/22	core																																
BH-97104	1.10	2.00	C	1.1-2.0	14/04/22	core											1																					Envirolab 23-00985
BH-97104	2.00	3.50	C	2.0-3.5	14/04/22	core																					1	0	0	0*	1	0					0*	
BH-97104	**0.00**	**1.10**	**C**		14/04/22	core																																
BH-97104	3.50	5.00	C		14/04/22	core																		1		1												
BH-97104	5.00	6.50	C		14/04/22	core																		1		1												
BH-97104	6.50	8.00	C		14/04/22	core																																
BH-97423	**0.00**	**1.00**	**C**		26/04/22	core																																
BH-97423	1.00	2.50	C		26/04/22	core																																
BH-97423	2.50	4.00	C		26/04/22	core																																
BH-97423	4.00	5.50	C		26/04/22	core				1							1																					BRE at 4m. ALS 230110-34
BH-97423	5.50	7.00	C		26/04/22	core																																
BH-97423	7.00	8.00	C		27/04/22	core																				1												PL at 7.5m
BH-97423	8.00	9.50	C		27/04/22	core																																
BH-97423	9.50	10.50	C		27/04/22	core																																
BH-97788	**0.00**	**6.80**	**C**		20/04/22	core																																
BH-97788	6.80	8.00	C		20/04/22	core(in U100)													150, 300, 600			0*															
BH-97788	8.00	9.00	C		20/04/22	core																																
BH-97788	9.00	9.90	C		20/04/22	core																																
BH-97788	9.90	11.00	C		20/04/22	core																																
BH-97788	11.00	12.60	C		20/04/22	core																																
BH-97788	12.60	14.00	C		20/04/22	core																																
BH-97788	14.00	15.10	C		20/04/22	core																																
BH-97837	**0.00**	**9.80**	**C**		21/04/22	core																																
BH-97837	9.80	11.00	C		21/04/22	core				1																												
BH-97837	11.00	12.10	C		21/04/22	core																																
BH-97837	12.10	13.60	C		21/04/22	core																				1												PL at 12.1m
BH-97837	13.60	14.10	C		21/04/22	core																																
BH-97837	14.10	15.70	C		21/04/22	core																																
BH-97837	15.70	17.20	C		21/04/22	core																																
BH-97837	17.20	18.70	C		21/04/22	core																																
BH-97881	**0.00**	**10.20**	**C**		22/04/22	core																																
BH-97881	10.20	11.00	C		22/04/22	core																																
BH-97881	11.00	12.60	C		22/04/22	core																																
BH-97881	12.60	14.00	C		22/04/22	core																																
BH-97881	14.00	15.60	C		22/04/22	core																																
BH-97914	9.20	11.00	C		25/04/22	core																																
BH-97914	11.00	11.80	C		25/04/22	core																																
BH-97914	11.80	12.40	C		25/04/22	core																																
BH-97914	12.40	14.00	C		25/04/22	core																																
BH-97914	14.00	15.50	C		25/04/22	core																																
BH-97914	15.50	16.20	C		25/04/22	core																																

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH-100203		6.90	8.00	C		Core:Bluish-grey silty sandy medium GRAVEL.			0.3	10					
BH-101953		3.50	5.00	C		Core: Light grey sandy SILT. Sand is fine.			6.0	97					
BH-102037		3.50	5.00	C		Core:Bluish-grey slightly silty slightly sandy medium GRAVEL.			0.2	1					
BH-102528		0.00	2.00	C		Core: Grey-brown slightly sandy slightly gravelly SILT.			1.1	60	37	27	10		MI
BH-44177		0.00	1.50	C		Core: Greyish-brown very silty m,f SAND and coarse GRAVEL.			3.3	50	64	58	6		MH
BH-44177		2.60	3.50	C		Core: Brownish-grey silty very sandy medium and coarse GRAVEL. Sand is coarse.			0.5	22					
BH-44177		3.50	5.00	C		Core: Brownish-grey silty very sandy fina and coarse GRAVEL. Sand is coarse.			0.6	15					
BH-44534A		0.00	2.00	C		Core: Brownish-grey slightly silty sandy medium and coarse GRAVEL.			0.5	10					
BH-44534A		2.00	3.50	C		Core: Bluish-grey silty very gravelly medium and coarse SAND.			0.4	34					
BH-44534A		8.00	9.50	C		Core: Light brown slightly sandy gravelly SILT. Gravel is coarse.			1.4	51	22	15	7		CL
BH-46131		5.00	5.60	C		Core: Greyish-brown slightly gravelly sandy SILT.			0.1	65					NP
BH-46402		9.00	10.00	C		Core: Greyish-brown slightly sandy gravelly SILT. Gravel is medium.			0.5	56					Not enough for LL
BH-46715		4.20	5.60	C		Core: Greyish-brown slightly sandy slighlty gravelly SILT. Gravel is medium.			0.4	59					Not enough for LL
BH-47262		3.60	5.00	C		Core: Grey-brown very silty SAND and GRAVEL.. Gravel is medium.			0.6	52	19	12	7		CL
BH-47650		9.00	10.00	C		Core: Greyish-brown slightly gravelly sandy SILT.			0.3	71	20	11	9		CL
BH-52008		0.00	2.00	C		Core: Bluish-grey silty very gravelly medium and fine SAND.			0.3	60					
BH-52008		3.50	5.00	C		Core: Light grey gravelly silty medium SAND.			0.3	83					
BH-52008		8.00	9.50	C		Core: Light grey silty very gravelly fine and medium SAND.			0.3	70					
BH-52406		5.00	6.50	C		Core: Greyish-brown slighlty gravelly slightly sandy SILT.			0.4	60					Not enough fines.
BH-52406		6.50	8.00	C		Core: Brown silty medium SAND.			0.5	79					NP
BH-56645		9.50	10.00	C		Core: Bluish-grey slightly sandy gravelly SILT.			0.3	71	20	14	6		ML
BH-56857		6.50	8.00	C		Core: Grey slightly sandy gravelly SILT. Gravel is medium.			0.7	82	28	15	13		CL
BH-57037		6.50	8.00	C		Core: Greyish-brown slightly sandy gravelly SILT.			0.5	69	20	14	6		ML
BH-60805		3.50	5.00	C		Core: Bluish-grey slightly silty sandy medium and coarse GRAVEL.			0.3	16					
BH-61605		5.10	6.60	C		Core: Grey silty very gravelly medium SAND.			0.1	66					NP
BH-61605		6.60	8.10	C		Core: Grey slightly gravelly silty fine and medium SAND.			0.2	86					
BH-63008		4.50	5.10	C		Core: Brown sandy very silty coarse GRAVEL.			1.0	42					
BH-70701		7.30	8.80	C		Core: Greyish-brown fine and medium SAND.			0.2	56					NP
BH-70701		8.80	10.30	C		Core: Brown very silty very sandy GRAVEL.			0.3	30	19 -1pt	15	4		

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary of Classification Test Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH-77631		4.30	5.80	C		Core: Greyish-brown slightly gravelly silty medium SAND.			0.6	71				2.76-gj	NP
BH-82621		2.00	3.50	C		Core:Bluish-grey coarse GRAVEL.			0.2	0					
BH-82974		6.50	8.00	C		Core: Bluish-brown silty very gravelly fine and medium SAND. Gravel is coarse.			0.2	54					
BH-83591		5.00	6.50	C		Core: Bluish-brown sandy very gravelly medium SAND.			0.2	38					
BH-85791		0.00	2.00	C		Core: Bluish-brown silty gravelly medium SAND.			0.3	49					
BH-87006		0.00	2.00	C		Core: Brownish-grey slightly gravelly slightly sandy SILT.			14.0	64	32	19	13		CL
BH-87006		2.00	3.50	C		Core: Bluish-grey silty very sandy coarse GRAVEL. Sand is medium.			2.0	28					
BH-87006		5.00	6.50	C		Core: Bluish-brown silty very sandy coarse GRAVEL.			2.1	20					
BH-87006		8.00	9.50	C		Core: Bluish-brown slightly gravelly slightly sandy SILT.			5.0	59	20	16	4		ML
BH-88759		5.00	6.50	C		Core: Greyish-brown silty very sandy coarse and medium GRAVEL. Sand is fine.			0.3	39					
BH-91011		2.00	3.50	C		Core: Greyish-brown slightly sandy silty medium GRAVEL.			0.6	33	42	39	3		MI
BH-92626		2.00	3.50	C		Core: Golden brown slightly sandy slightly gravelly SILT.			16.0	60					NP
BH-93803		3.20	5.00	C		Core: Bluish-grey silty sandy medium and coarse GRAVEL.			0.6	15					
BH-96858		3.50	5.00	C		Core: Bluish-grey sandy silty coarse and medium GRAVEL.			0.5	9					
BH-97423		4.00	5.50	C		Core: Brownish-grey sandy very silty coarse GRAVEL.			1.2	28					
BH-97837		9.80	11.00	C		Core: Bluish-grey slightly silty coarse and medium GRAVEL.			0.2	2					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 16/03/2023

QC From No: R1

Approved By: Administrator

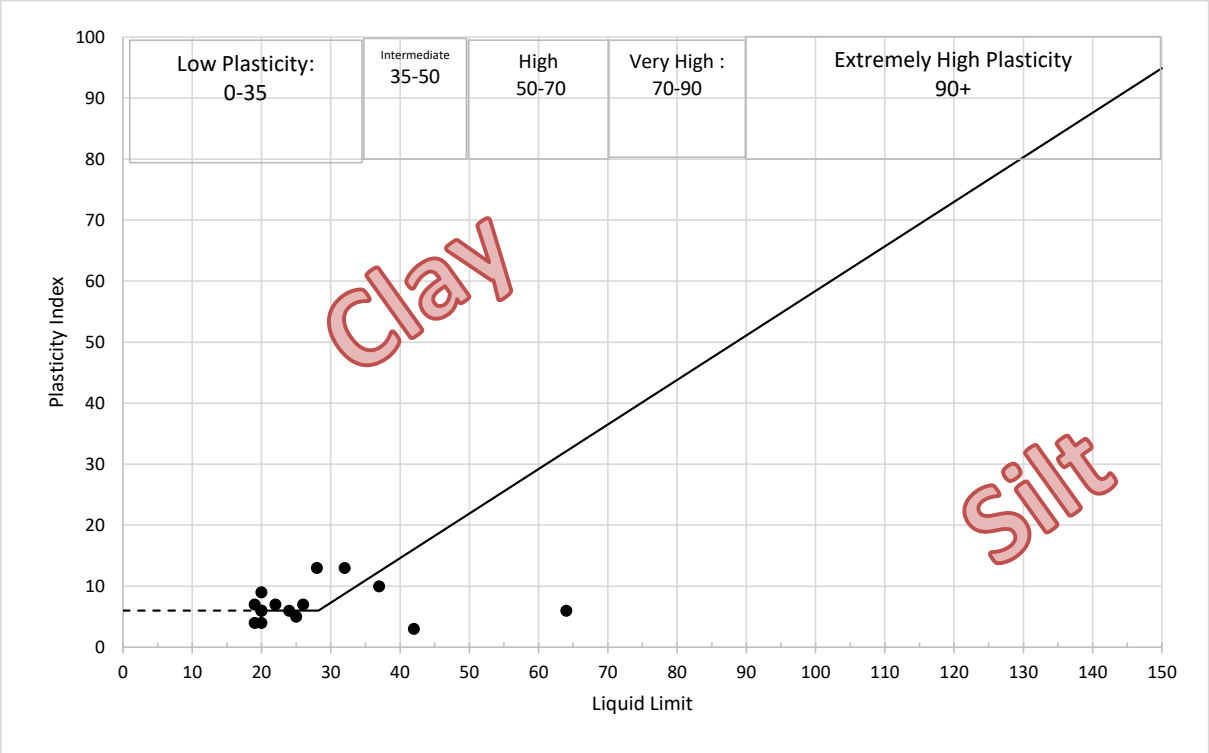
Table 1

sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

	Plasticity (A-Line) Chart	Project Number
Project Name:	**WSP Eastern & Midlands Region**	
Location:		2021OY102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

Schedules of RC samples

QC Form: R1

SUMMARY OF SOIL CLASSIFICATION TESTS

In accordance with Part 1,Part 12 of BS EN ISO 17892

Exploratory Position ID	Sample Ref	Sample Type	Depth (m)	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425um	Description of Sample
BH-59474	2.0-3.5	C	2.00	1.1	NP	NP	NP	49	Grey very gravelly slightly clayey silty SAND
BH-59932	8.0-10.0	C	9.50	12.6	29	18	11	89	Brown grey slightly sandy slightly gravelly CLAY
BH-61515	0.0-2.0	C	0.00	6.4	19	15	4	60	Brown very gravelly silty/clayey SAND
BH-68009	3.5-5.0	C	3.50	0.8	NP	NP	NP	37	Brown very gravelly silty/clayey SAND
BH-71656	3.5	C	3.50	4.5	32	18	14	75	Grey slightly sandy slightly gravelly CLAY
BH-74851	8.8-10.3	C	8.80	0.2	NP	NP	NP	5	Grey slightly sandy slightly silty GRAVEL
BH-76545	7.3-15.1	C	7.30	0.5	25	18	7	22	Grey sandy silty/clayey GRAVEL
BH-80546	3.5-5.0(u)	C	3.50	2.2	20	12	8	19	Brown sandy silty/clayey GRAVEL

SYMBOLS: * denotes BS 1377

STRUCTURAL SOILS LTD

Contract:

2021OY102 WSP Eastern & Midlands Region - Lot 2

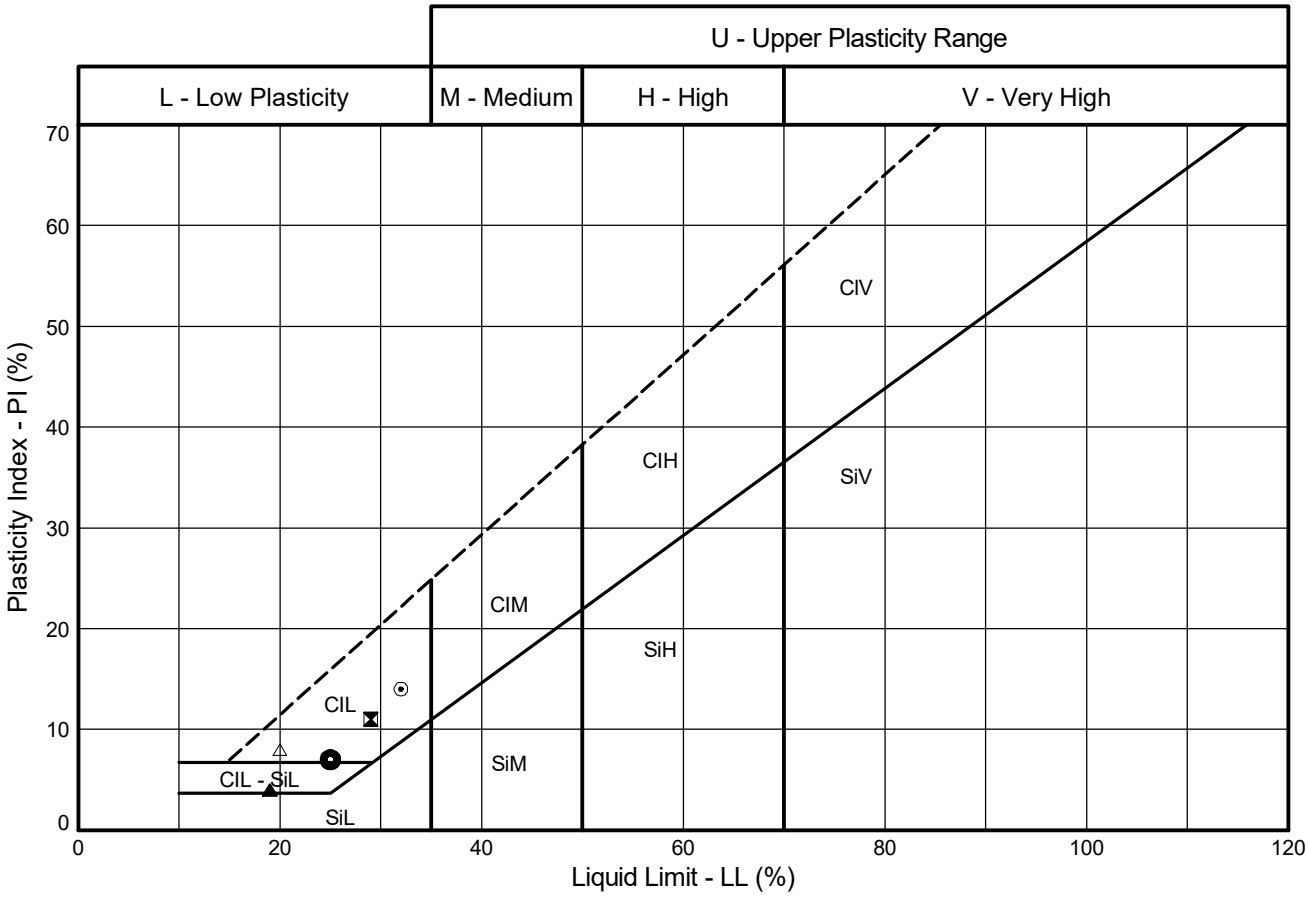
Contract Ref:

785325

AGS

PI vs LL CHART

According to BS EN 14688-2:2018
Testing in accordance with BS EN ISO 17892-12:2018+A1:2021



Sample Identification				Test Method #	Preparation Method +	WC %	LL %	PL %	PI %	<425µm %	Lab location	Notes
Exploratory Position ID		Sample	Depth (m)									
	BH-59474	2.0-3.5C	2.00	5.3/5.5/6.5	5.2.7	1.1	NP	NP	NP	49	C	
⊠	BH-59932	8.0-10.0C	9.50	5.3/5.5/6.5	5.2.7	12.6	29	18	11	89	C	
▲	BH-61515	0.0-2.0C	0.00	5.3/5.5/6.5	5.2.7	6.4	19	15	4	60	C	
	BH-68009	3.5-5.0C	3.50	5.3/5.5/6.5	5.2.7	0.8	NP	NP	NP	37	C	
⊙	BH-71656	3.5C	3.50	5.3/5.5/6.5	5.2.7	4.5	32	18	14	75	C	
	BH-74851	8.8-10.3C	8.80	5.3/5.5/6.5	5.2.7	0.2	NP	NP	NP	5	C	
●	BH-76545	7.3-15.1C	7.30	5.3.14/5.5/6.5	5.2.7	0.5	25	18	7	22	C	
△	BH-80546	3.5-5.0(u)C	3.50	5.3.14/5.5/6.5	5.2.7	2.2	20	12	8	19	C	

Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.3 - Cone Penetrometer Method; 5.3.14 - One-Point Cone Penetrometer Method; 5.4 - Casagrande Method; 5.5 - Plastic Limit Method; 6.5 - Plasticity Index

Water Content (WC) tested in accordance with BS EN ISO 17892-1:2014

+ Tested in accordance with the following clauses of BS EN ISO 17892-12:2018+A1:2021
5.2.1 - Natural State and 5.2.7 - Wet Sieved

Key: * = Non-standard test, NP = Non plastic, I = Increasing WC, D = Decreasing WC.

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	01/03/23

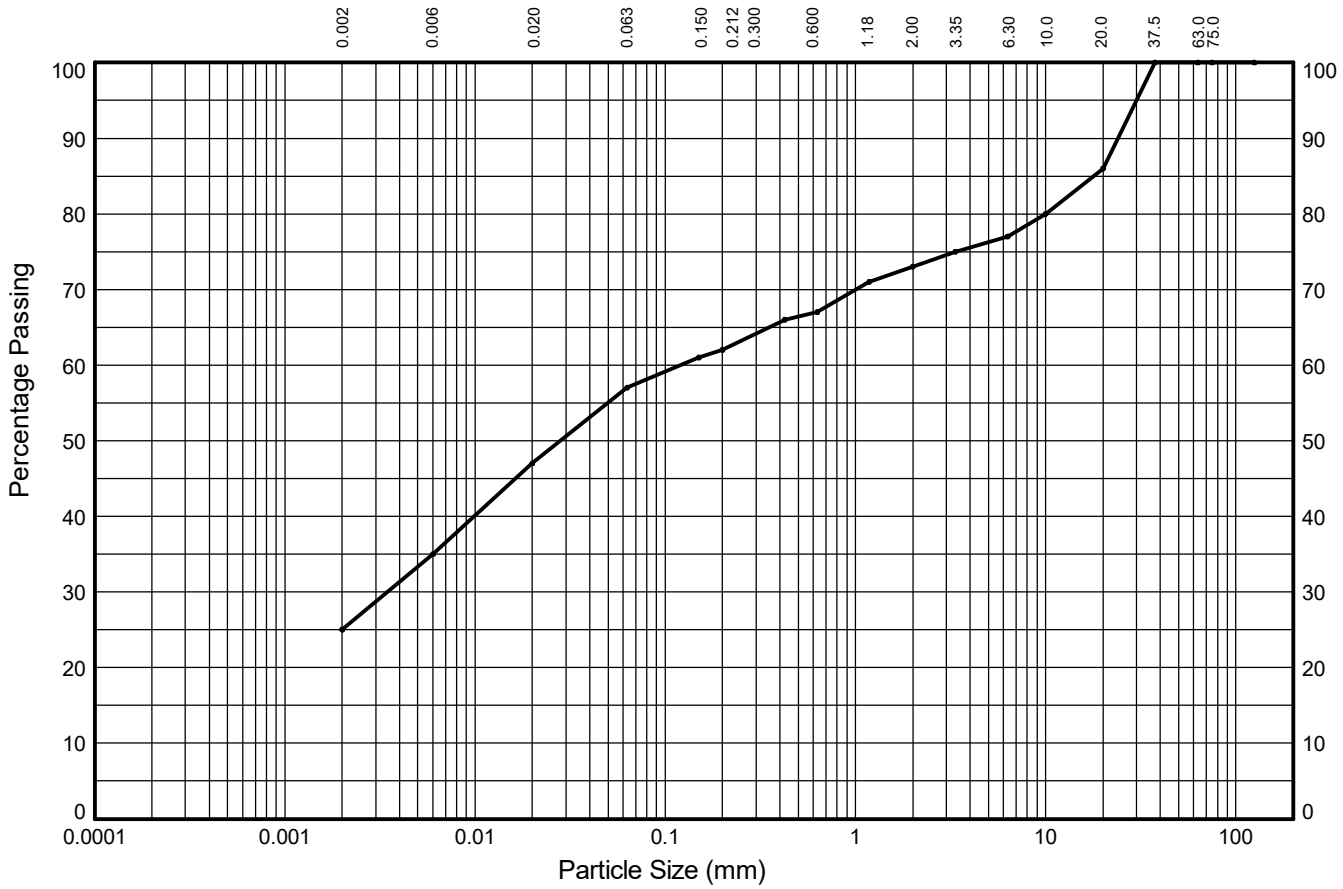
Contract	Contract Ref:
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - ALINE STANDARD - 17892 - A4P | 785325 - 2021OY102WSP2-BPT SECTION.GPJ - v10_01.
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 01/03/23 - 15:19 | LS5 |

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016

Borehole: **BH36789** Sample Ref: **1** Sample Type: **C** Depth (m): **1.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	10%	12%	10%	5%	5%	6%	4%	9%	14%	
	SILT			SAND			GRAVEL			
25%	32%			16%			27%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**86**
10.0	**80**
6.30	**77**
3.35	**75**
2.00	**73**
1.18	**71**
0.630	**67**
0.425	**66**
0.200	**62**
0.150	**61**
0.063	**57**

Particle Diameter (mm)	Percent Passing (%)
0.02	**47**
0.006	**35**
0.002	**25**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**0.003**
D_{50} (mm)	**0.028**
D_{60} (mm)	**0.121**
D_{85} (mm)	**17.818**
D_{90} (mm)	**23.935**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown slightly sandy slightly gravelly clayey SILT

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

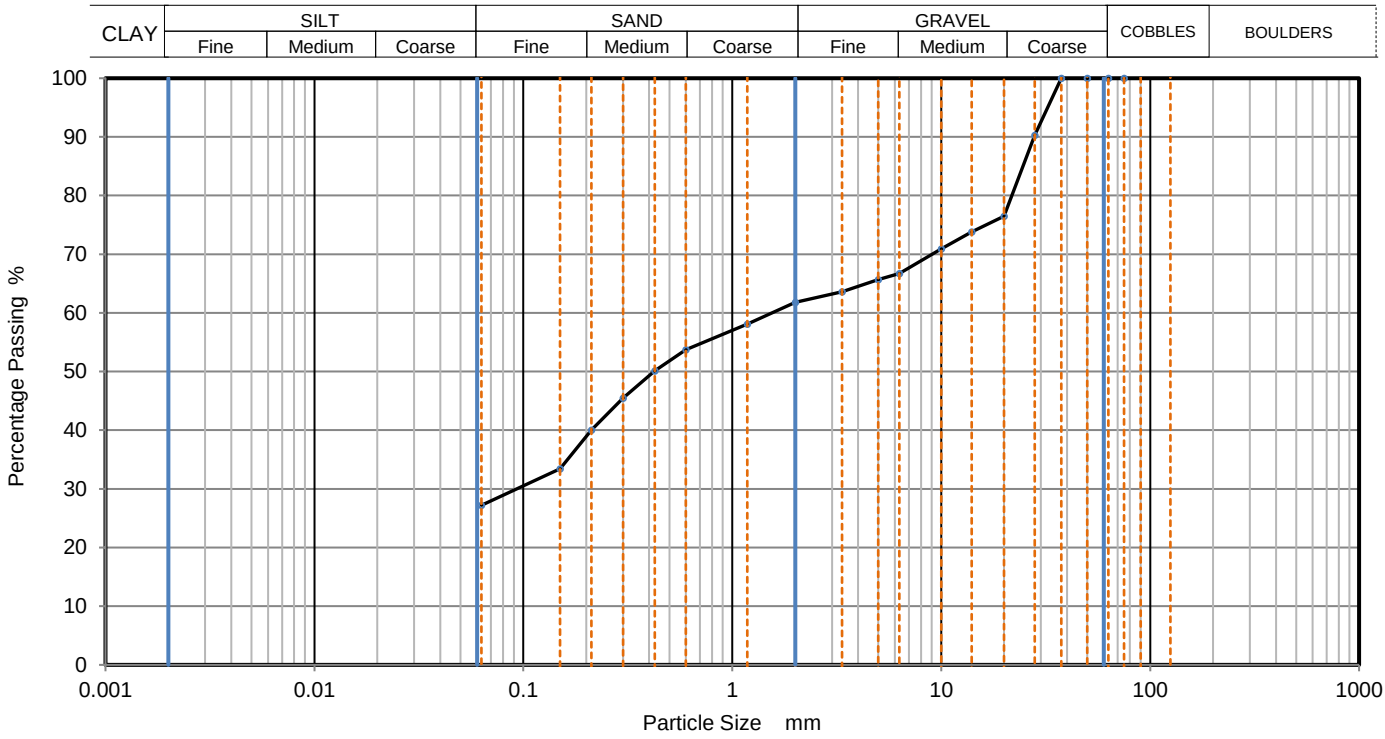
Compiled By	Date
LORNA WHITWORTH	03/02/23

Contract	Contract Ref:
2021OY102WSP2-BPT section	**785325**

AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - PSD - A4P | 785325 - 2021OY102WSP2-BPT SECTION.GPJ - v10_01.
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 03/02/23 - 13:44 | LS5 |

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44177
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown very silty m,f SAND and coarse GRAVEL.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022042641



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	77		
14	74		
10	71		
6.3	67		
5	66		
3.35	64		
2	62		
1.18	58		
0.6	54		
0.425	50		
0.3	46		
0.212	40		
0.15	33		
0.063	27		

Dry Mass of sample, g	419

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	35
Fines <0.063mm	27

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.55
D_{30}	mm	0.0929
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

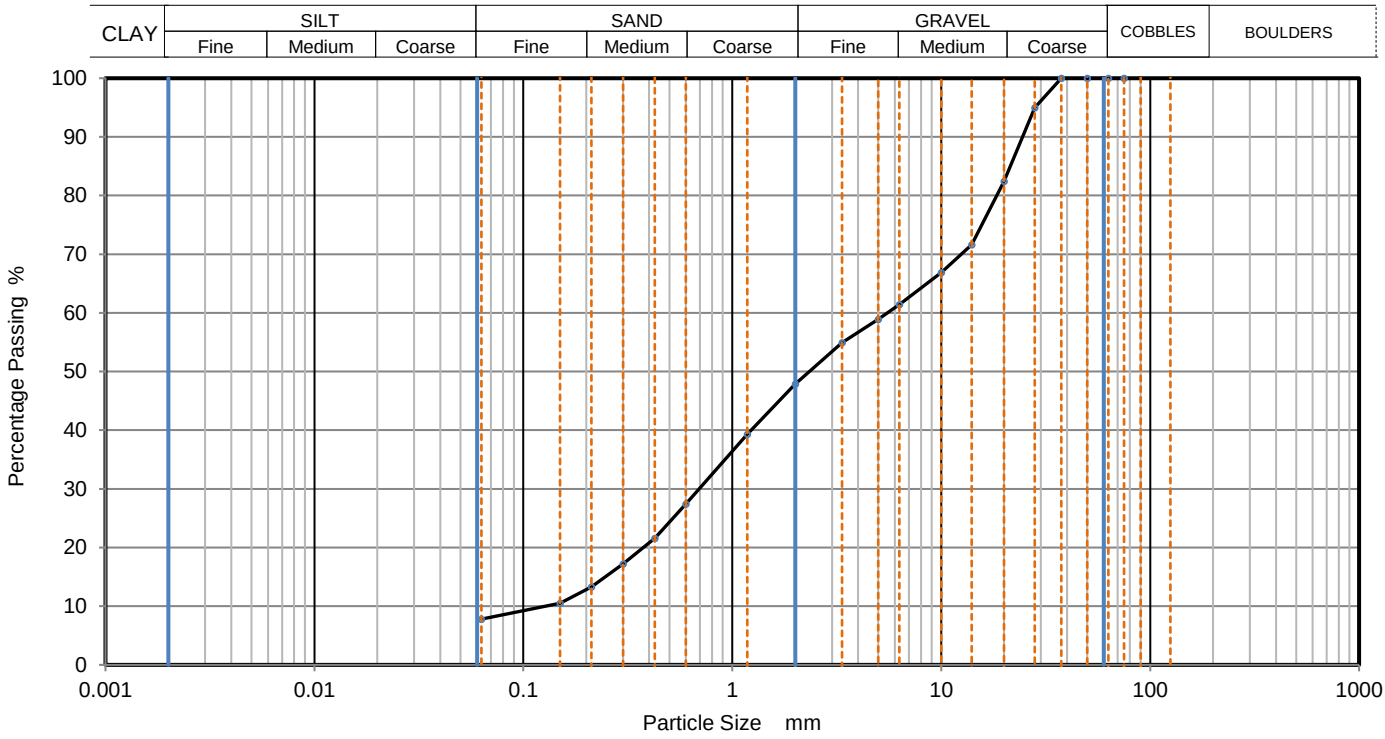
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:01	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

Job Ref	**2021OY102**		
Borehole/Pit No.	BH-44177		
Site Name	WSP Eastern & Midlands Region	Sample No.	
Soil Description	Core: Brownish-grey silty very sandy medium and coarse GRAVEL. Sand is coarse.	Depth, m	2.60
Specimen Reference	Specimen Depth: m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2	KeyLAB ID	IDL1202202282



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	82		
14	72		
10	67		
6.3	61		
5	59		
3.35	55		
2	48		
1.18	39		
0.6	27		
0.425	22		
0.3	17		
0.212	13		
0.15	11		
0.063	8		

Dry Mass of sample, g: 562

Sample Proportions	% dry mass
Very coarse	0
Gravel	52
Sand	40
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.54
D_{30}	mm	0.695
D_{10}	mm	0.127
Uniformity Coefficient		44
Curvature Coefficient		0.69

Remarks

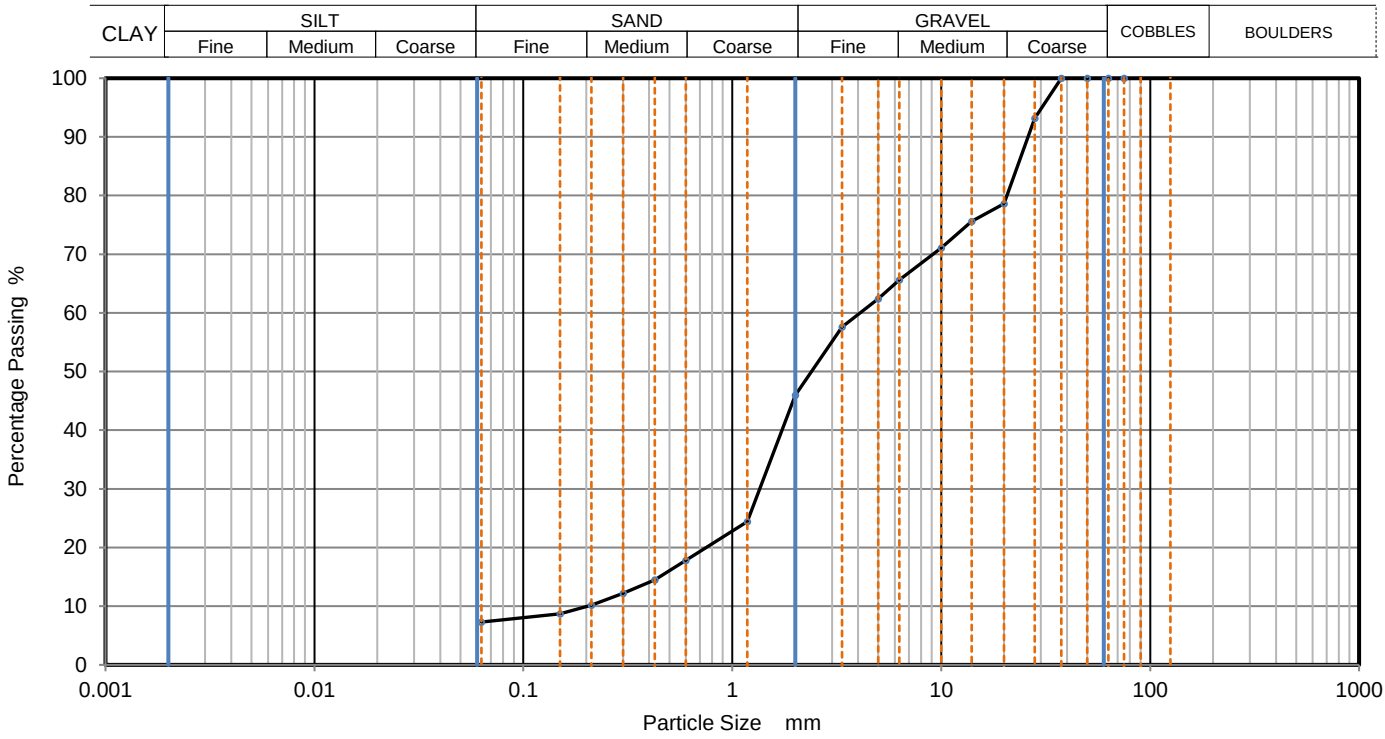
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:01	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44177
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Brownish-grey silty very sandy fina and coarse GRAVEL. Sand is coarse.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022042644



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	79		
14	76		
10	71		
6.3	66		
5	62		
3.35	58		
2	46		
1.18	24		
0.6	18		
0.425	15		
0.3	12		
0.212	10		
0.15	9		
0.063	7		

Dry Mass of sample, g	687

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	39
Fines <0.063mm	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	4.1
D_{30}	mm	1.35
D_{10}	mm	0.202
Uniformity Coefficient		20
Curvature Coefficient		2.2

Remarks

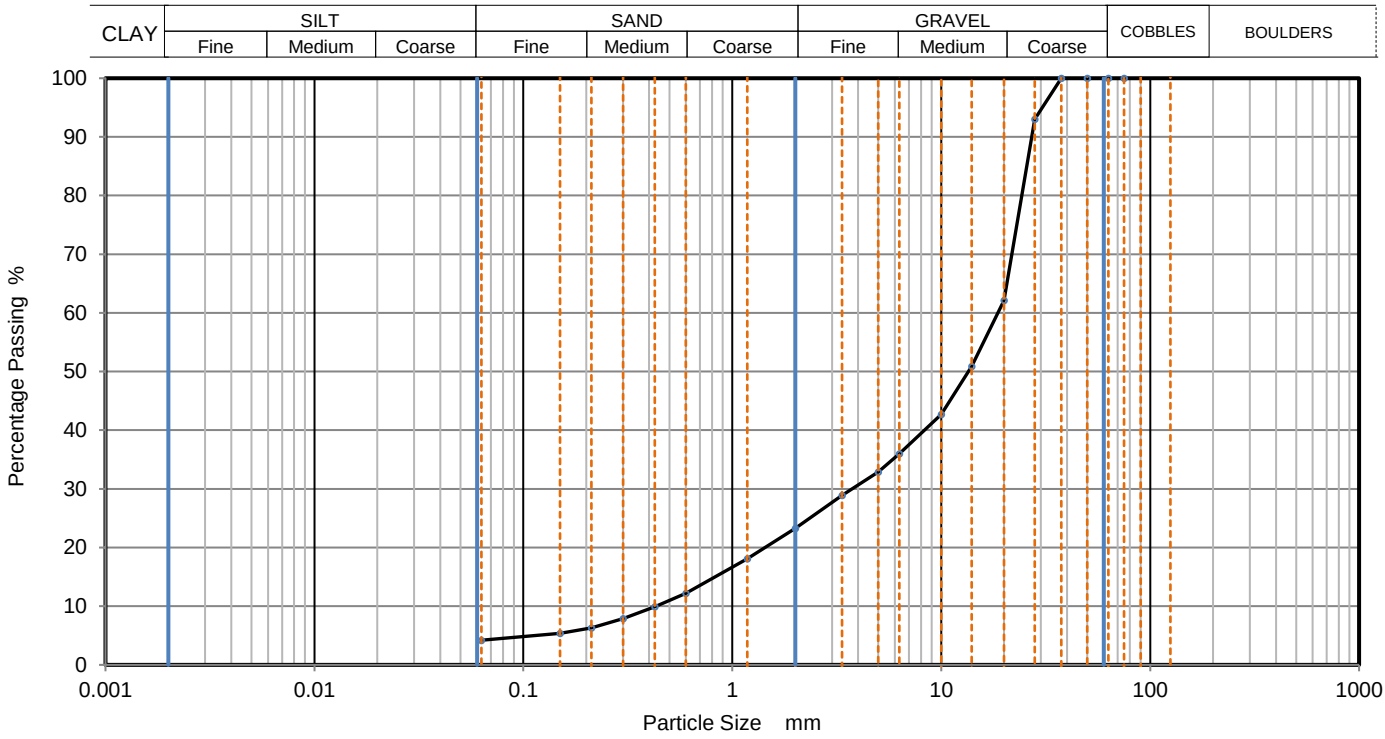
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:01	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534A
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Brownish-grey slightly silty sandy medium and coarse GRAVEL.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022022812



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	62		
14	51		
10	43		
6.3	36		
5	33		
3.35	29		
2	23		
1.18	18		
0.6	12		
0.425	10		
0.3	8		
0.212	6		
0.15	5		
0.063	4		

Dry Mass of sample, g	723

Sample Proportions	% dry mass
Very coarse	0
Gravel	77
Sand	19
Fines <0.063mm	4

Grading Analysis		
D_{100}	mm	
D_{60}	mm	18.7
D_{30}	mm	3.73
D_{10}	mm	0.43
Uniformity Coefficient		43
Curvature Coefficient		1.7

Remarks

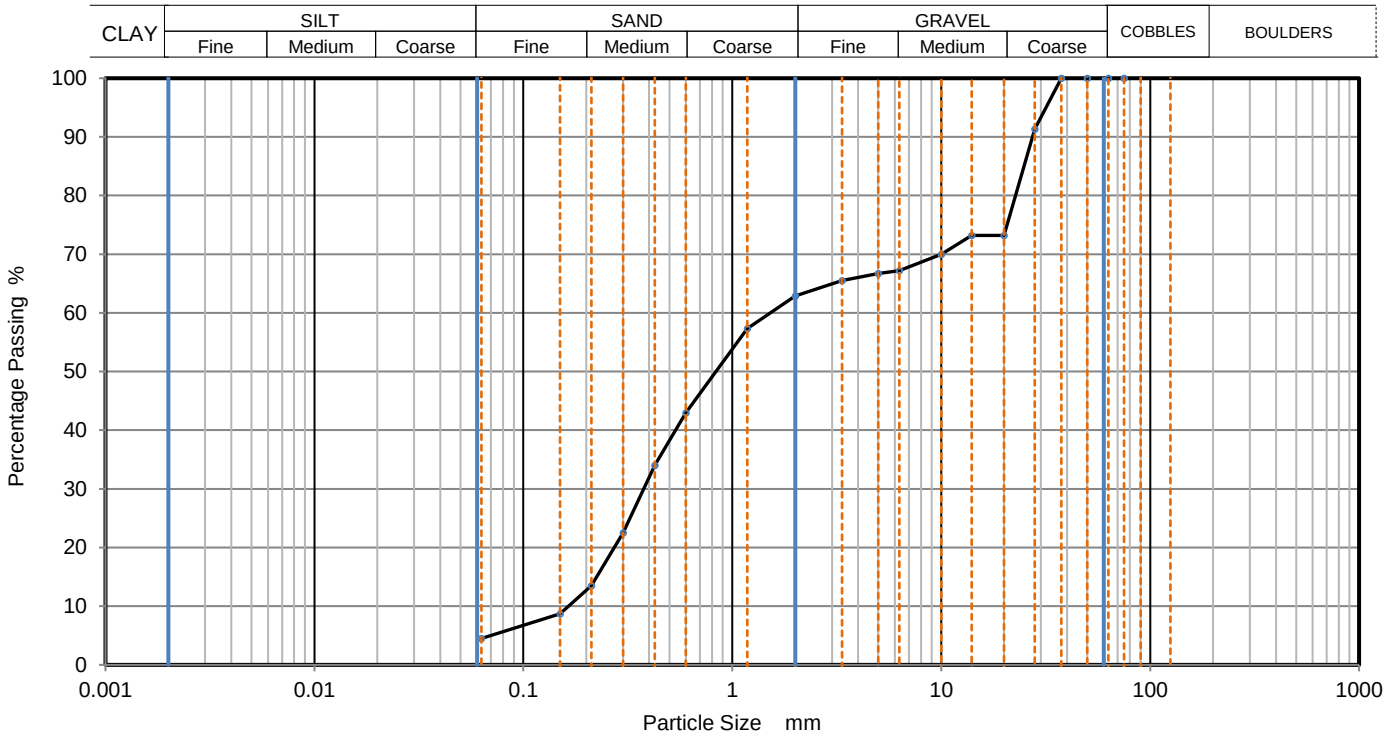
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:01	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534A
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey silty very gravelly medium and coarse SAND.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022022813



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	73		
14	73		
10	70		
6.3	67		
5	67		
3.35	66		
2	63		
1.18	57		
0.6	43		
0.425	34		
0.3	23		
0.212	14		
0.15	9		
0.063	5		

Dry Mass of sample, g	875

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	58
Fines <0.063mm	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.52
D_{30}	mm	0.376
D_{10}	mm	0.165
Uniformity Coefficient		9.3
Curvature Coefficient		0.57

Remarks

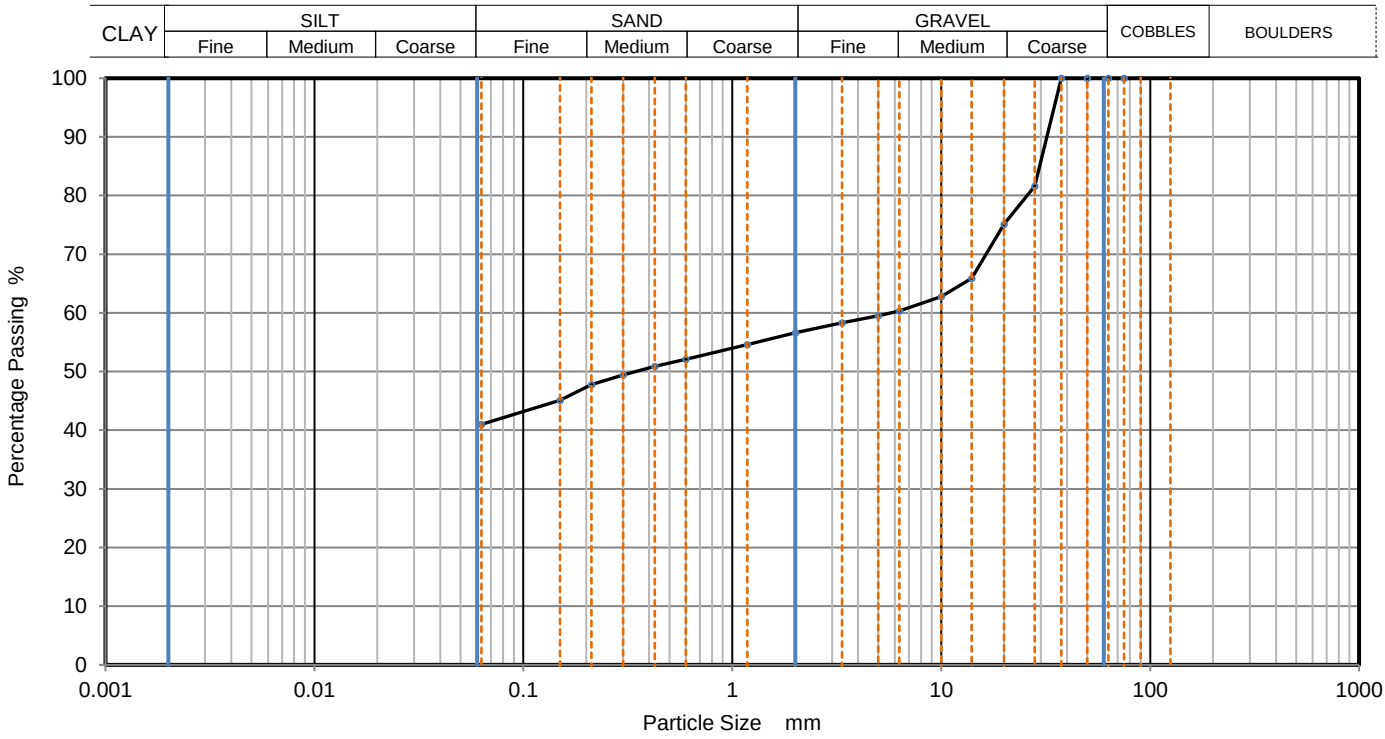
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:01	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-44534A
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light brown slightly sandy gravelly SILT. Gravel is coarse.			Depth, m	8.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022022819



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	82		
20	75		
14	66		
10	63		
6.3	60		
5	60		
3.35	58		
2	57		
1.18	55		
0.6	52		
0.425	51		
0.3	49		
0.212	48		
0.15	45		
0.063	41		

Dry Mass of sample, g	1063

Sample Proportions	% dry mass
Very coarse	0
Gravel	43
Sand	16
Fines <0.063mm	41

Grading Analysis		
D_{100}	mm	
D_{60}	mm	5.77
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:01	**1** QC From No:R2

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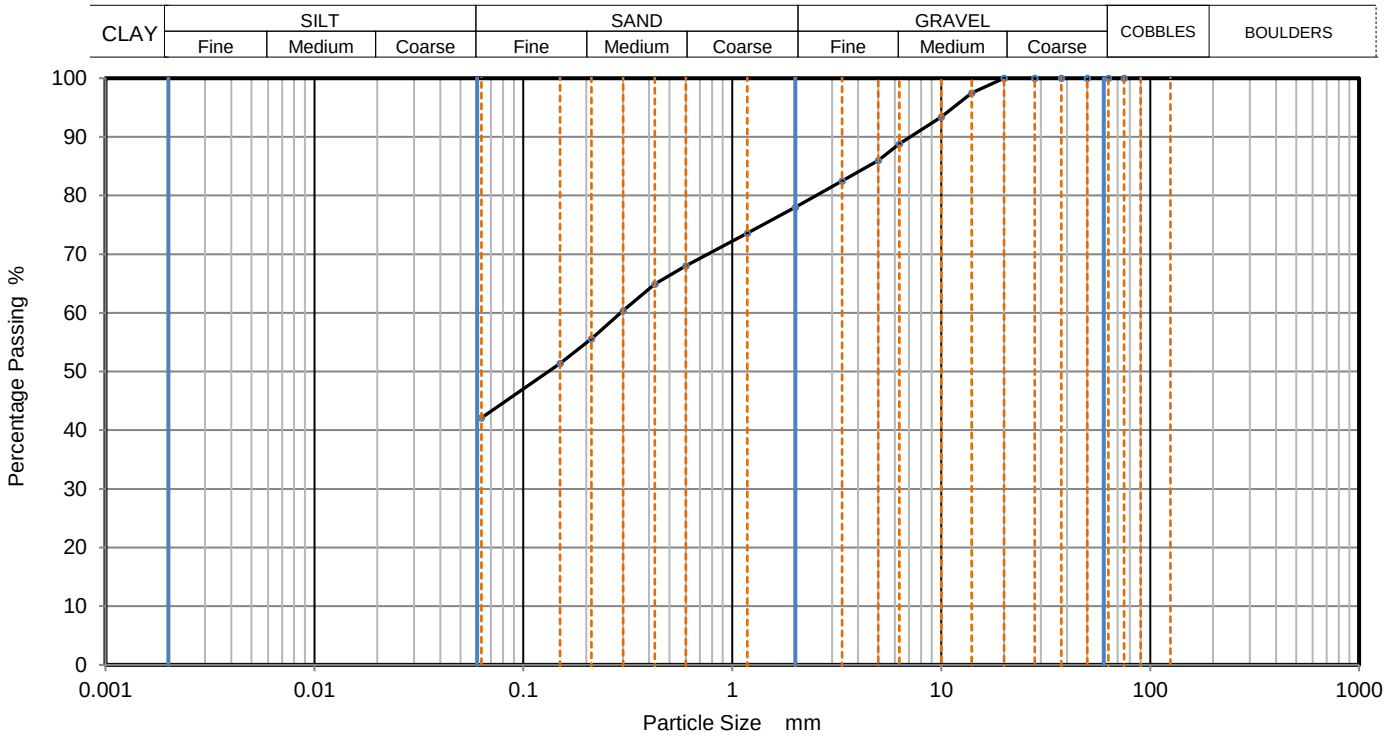
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46131
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown slightly gravelly sandy SILT.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202204263



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	93		
6.3	89		
5	86		
3.35	83		
2	78		
1.18	74		
0.6	68		
0.425	65		
0.3	60		
0.212	56		
0.15	51		
0.063	42		

Dry Mass of sample, g	195

Sample Proportions	% dry mass
Very coarse	0
Gravel	22
Sand	36
Fines <0.063mm	42

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.292
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:08	**1** QC From No:R2

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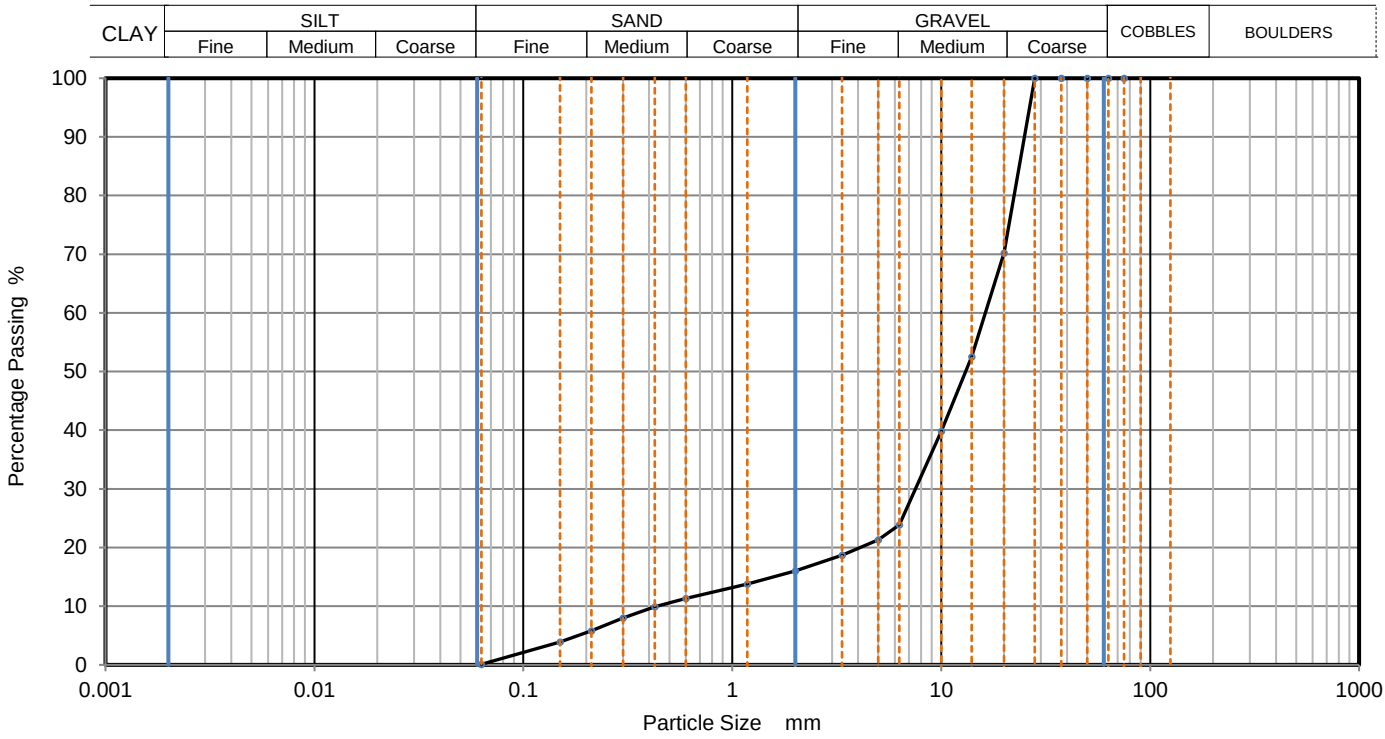
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46402
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey-brown sandy coarse and medium GRAVEL.			Depth, m	3.90
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201294



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	70		
14	53		
10	40		
6.3	24		
5	21		
3.35	19		
2	16		
1.18	14		
0.6	11		
0.425	10		
0.3	8		
0.212	6		
0.15	4		
0.063	0		

Dry Mass of sample, g	256

Sample Proportions	% dry mass
Very coarse	0
Gravel	84
Sand	16
Fines <0.063mm	0

Grading Analysis		
D_{100}	mm	
D_{60}	mm	16.3
D_{30}	mm	7.52
D_{10}	mm	0.436
Uniformity Coefficient		37
Curvature Coefficient		8

Remarks

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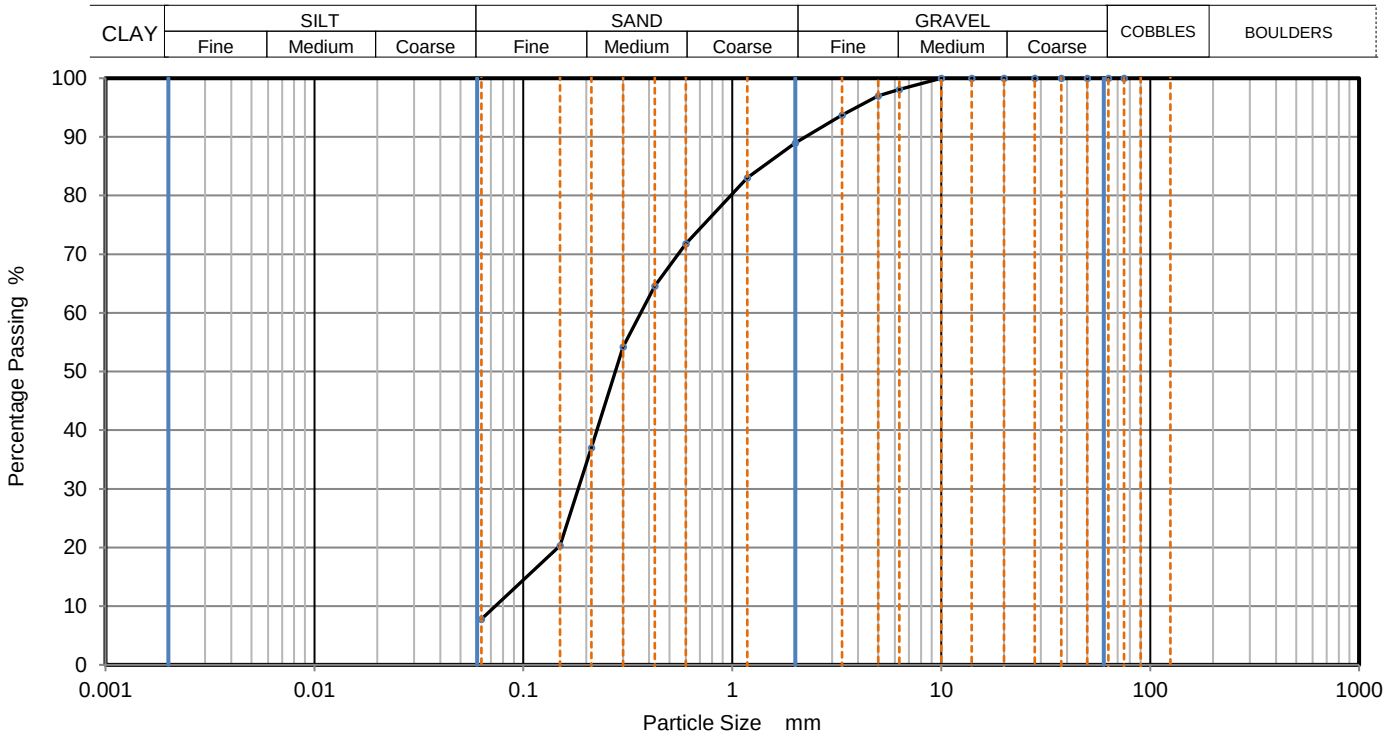
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46402
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey-brown silty very gravelly fine and medium SAND.			Depth, m	6.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201297



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	98		
5	97		
3.35	94		
2	89		
1.18	83		
0.6	72		
0.425	65		
0.3	54		
0.212	37		
0.15	20		
0.063	8		

Dry Mass of sample, g	246

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	81
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.365
D_{30}	mm	0.183
D_{10}	mm	0.0736
Uniformity Coefficient		5
Curvature Coefficient		1.3

Remarks

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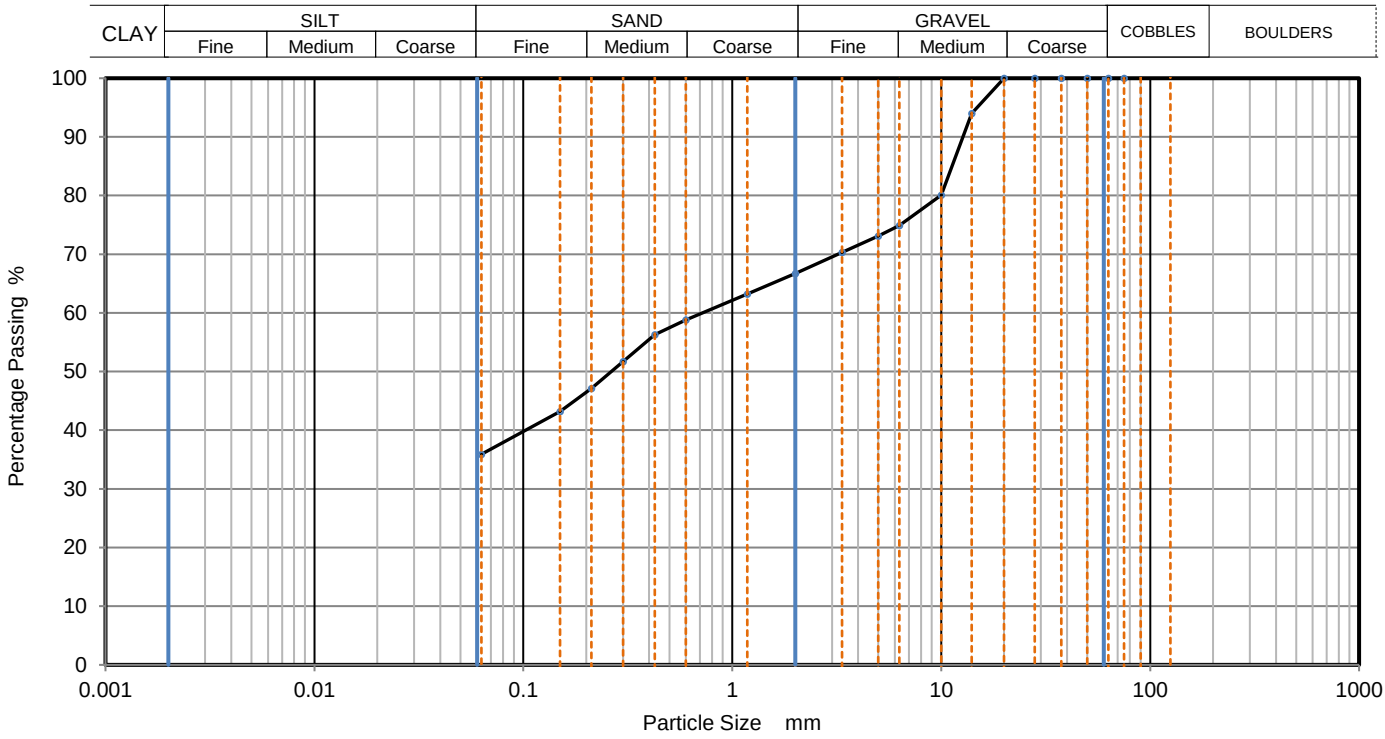
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46402
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown slightly sandy gravelly SILT. Gravel is medium.			Depth, m	9.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201301



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	80		
6.3	75		
5	73		
3.35	70		
2	67		
1.18	63		
0.6	59		
0.425	56		
0.3	52		
0.212	47		
0.15	43		
0.063	36		

Dry Mass of sample, g	217

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	31
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.719
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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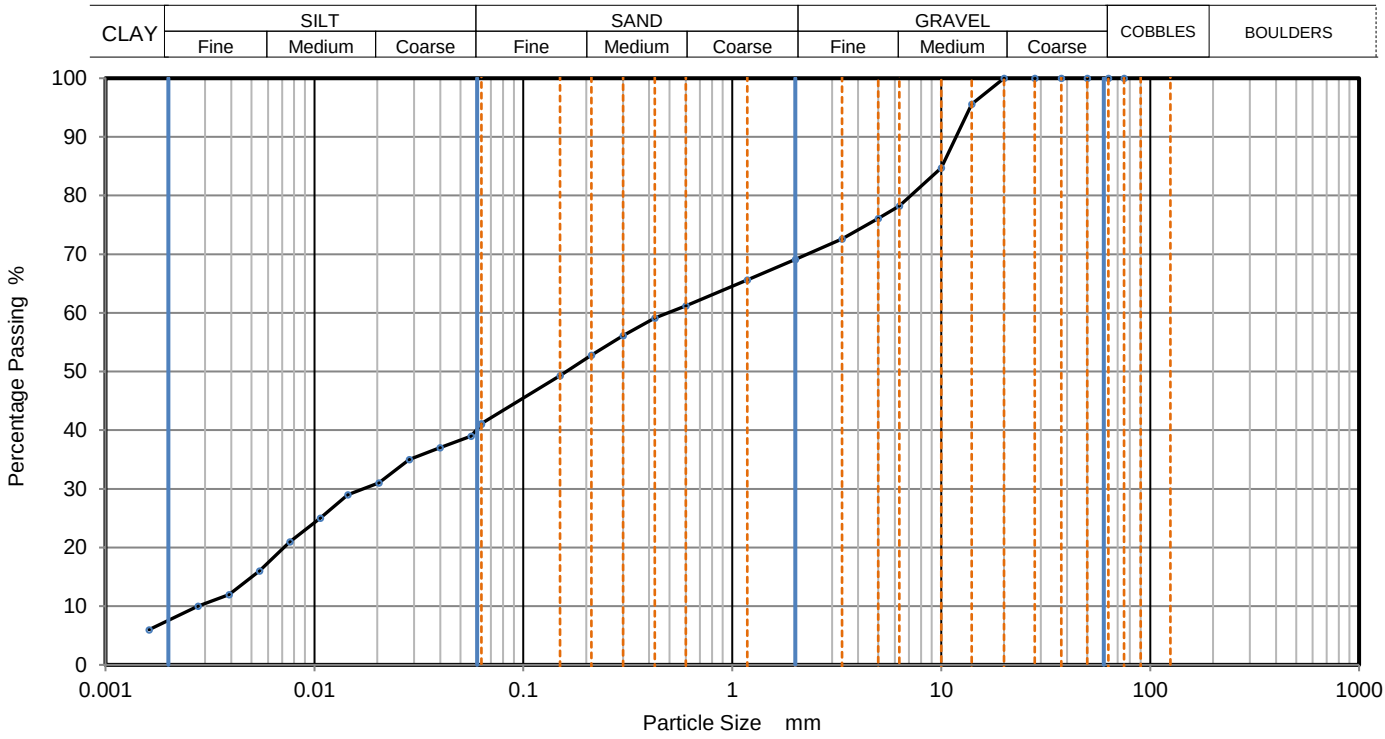
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-46715
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown slightly sandy slightly gravelly SILT. Gravel is medium.			Depth, m	4.20
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220201306



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	41
		0.0562	39
75	100	0.0400	37
63	100	0.0284	35
50	100	0.0203	31
37.5	100	0.0145	29
28	100	0.0107	25
20	100	0.0076	21
14	96	0.0055	16
10	85	0.0039	12
6.3	78	0.0028	10
5	76	0.0016	6
3.35	73		
2	69		
1.18	66		
0.6	61	Particle density (assumed)	
0.425	59	2.65 Mg/m3	
0.3	56		
0.212	53		
0.15	49		
0.063	41		

Dry Mass of sample, g	255

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	28
Silt	33
Clay	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.492
D_{30}	mm	0.0177
D_{10}	mm	0.00267
Uniformity Coefficient		180
Curvature Coefficient		0.24

Remarks

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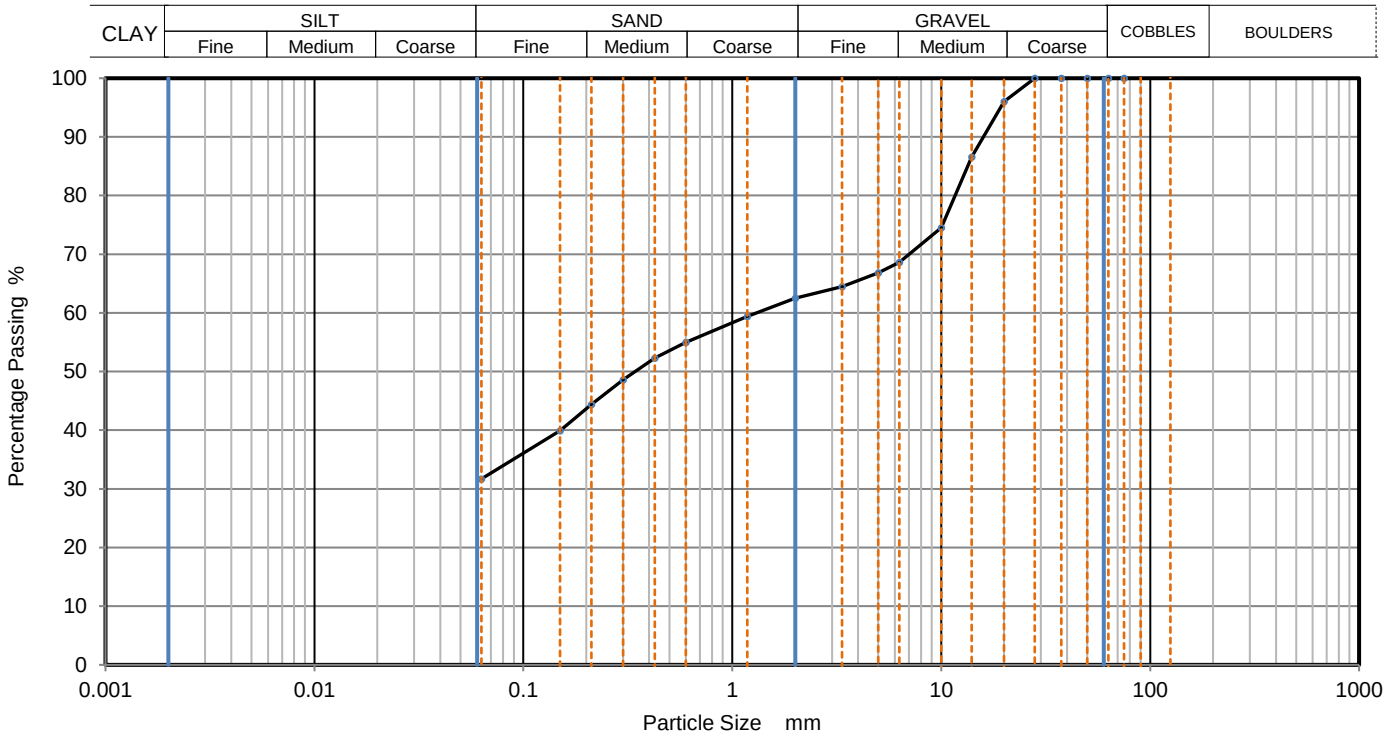
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47262
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey-brown very silty SAND and GRAVEL.. Gravel is medium.			Depth, m	3.60
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201315



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	87		
10	75		
6.3	69		
5	67		
3.35	65		
2	63		
1.18	59		
0.6	55		
0.425	52		
0.3	49		
0.212	44		
0.15	40		
0.063	32		

Dry Mass of sample, g	264

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	31
Fines <0.063mm	32

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.32
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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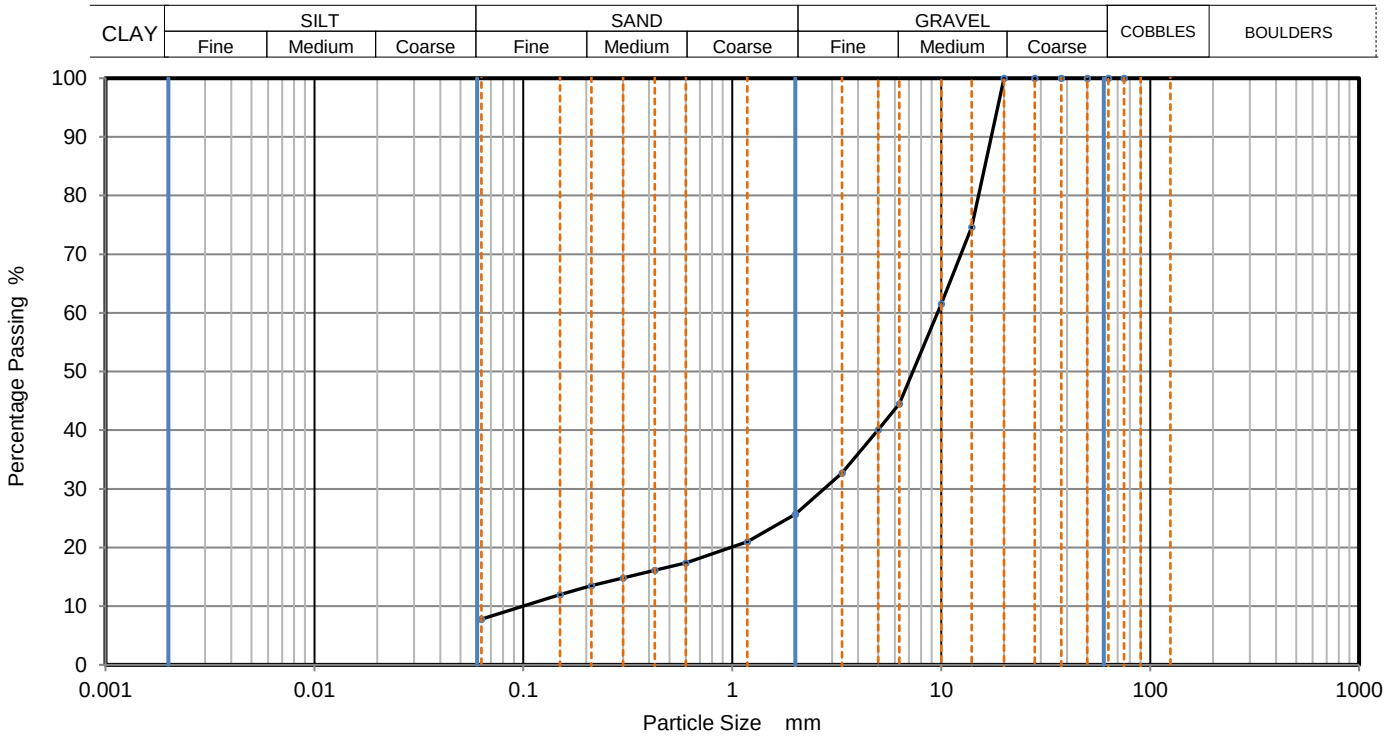
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47262
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Brown silty sandy medium GRAVEL.			Depth, m	6.10
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220201318



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	75		
10	62		
6.3	45		
5	40		
3.35	33		
2	26		
1.18	21		
0.6	17		
0.425	16		
0.3	15		
0.212	14		
0.15	12		
0.063	8		

Dry Mass of sample, g	247

Sample Proportions	% dry mass
Very coarse	0
Gravel	74
Sand	18
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	9.6
D_{30}	mm	2.75
D_{10}	mm	0.0994
Uniformity Coefficient		97
Curvature Coefficient		7.9

Remarks

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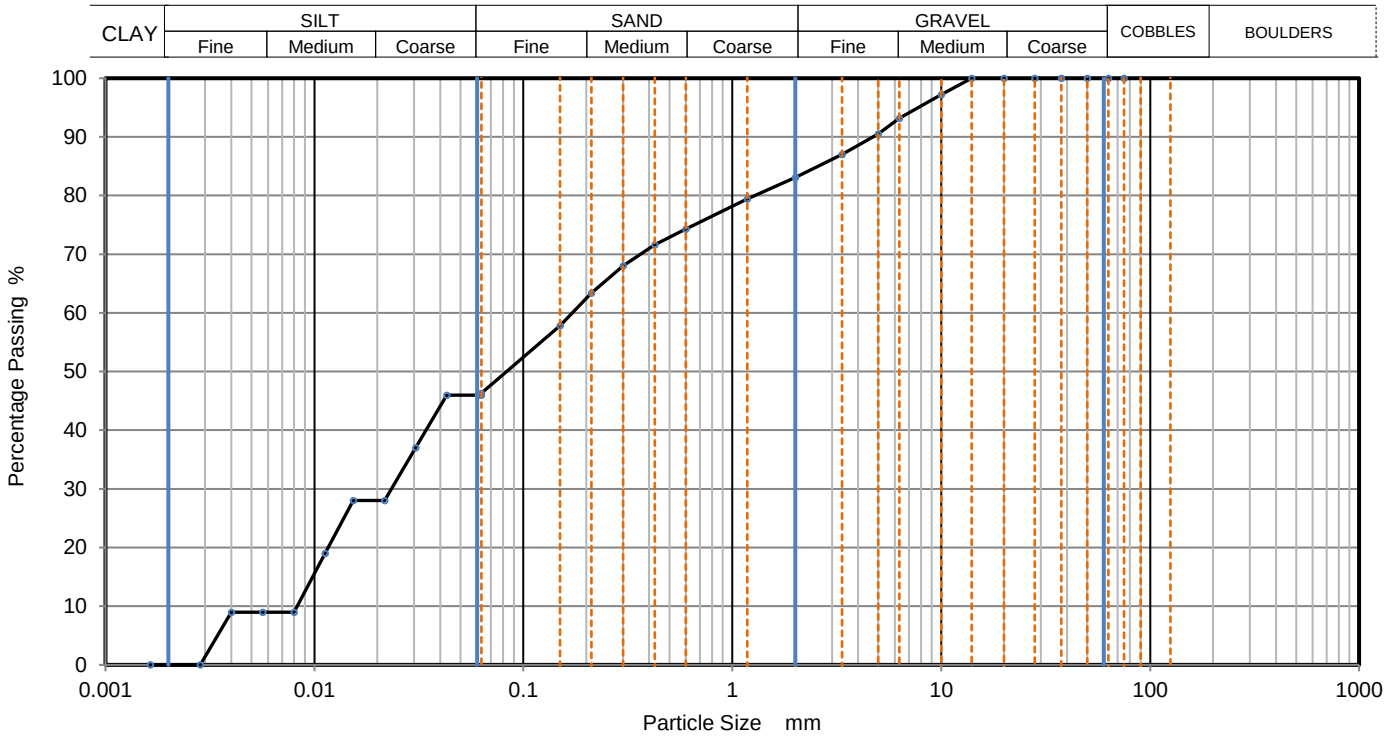
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47650
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Blue-grey slightly gravelly sandy SILT.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022042637



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	46
		0.0607	46
75	100	0.0429	46
63	100	0.0305	37
50	100	0.0217	28
37.5	100	0.0153	28
28	100	0.0113	19
20	100	0.0080	9
14	100	0.0057	9
10	97	0.0040	9
6.3	93	0.0028	0
5	91	0.0016	0
3.35	87		
2	83		
1.18	79		
0.6	74	Particle density (assumed)	
0.425	72	2.65 Mg/m3	
0.3	68		
0.212	63		
0.15	58		
0.063	46		

Dry Mass of sample, g: 292

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	37
Silt	46
Clay	0

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.172
D_{30}	mm	0.0235
D_{10}	mm	0.00822
Uniformity Coefficient		21
Curvature Coefficient		0.39

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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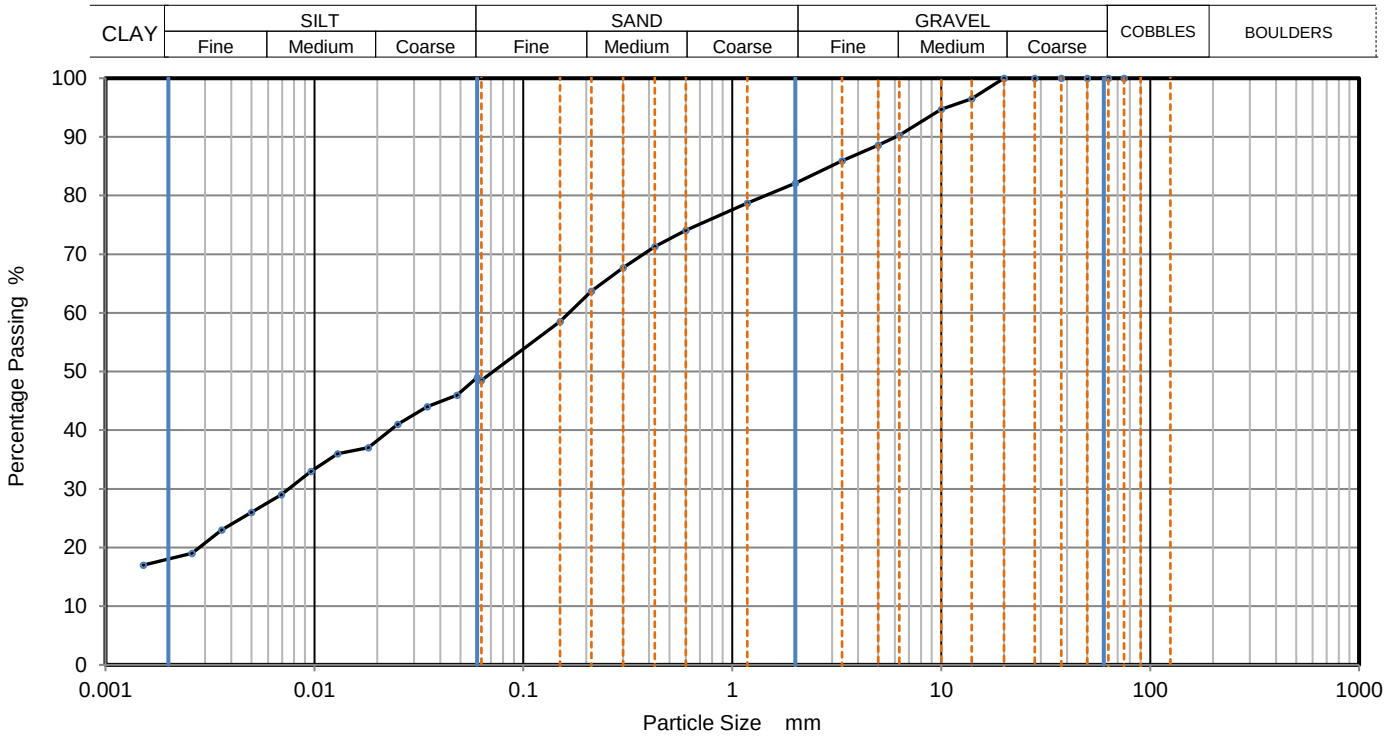
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47650
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown slightly gravelly sandy SILT.			Depth, m	9.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220201332



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0601	49
		0.0482	46
75	100	0.0346	44
63	100	0.0251	41
50	100	0.0181	37
37.5	100	0.0129	36
28	100	0.0096	33
20	100	0.0069	29
14	97	0.0050	26
10	95	0.0036	23
6.3	90	0.0026	19
5	89	0.0015	17
3.35	86		
2	82		
1.18	79		
0.6	74	Particle density (assumed)	
0.425	71	2.65 Mg/m3	
0.3	68		
0.212	64		
0.15	59		
0.063	49		

Dry Mass of sample, g	312

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	34
Silt	30
Clay	18

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.166
D_{30}	mm	0.00741
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:09	**1** QC From No:R2

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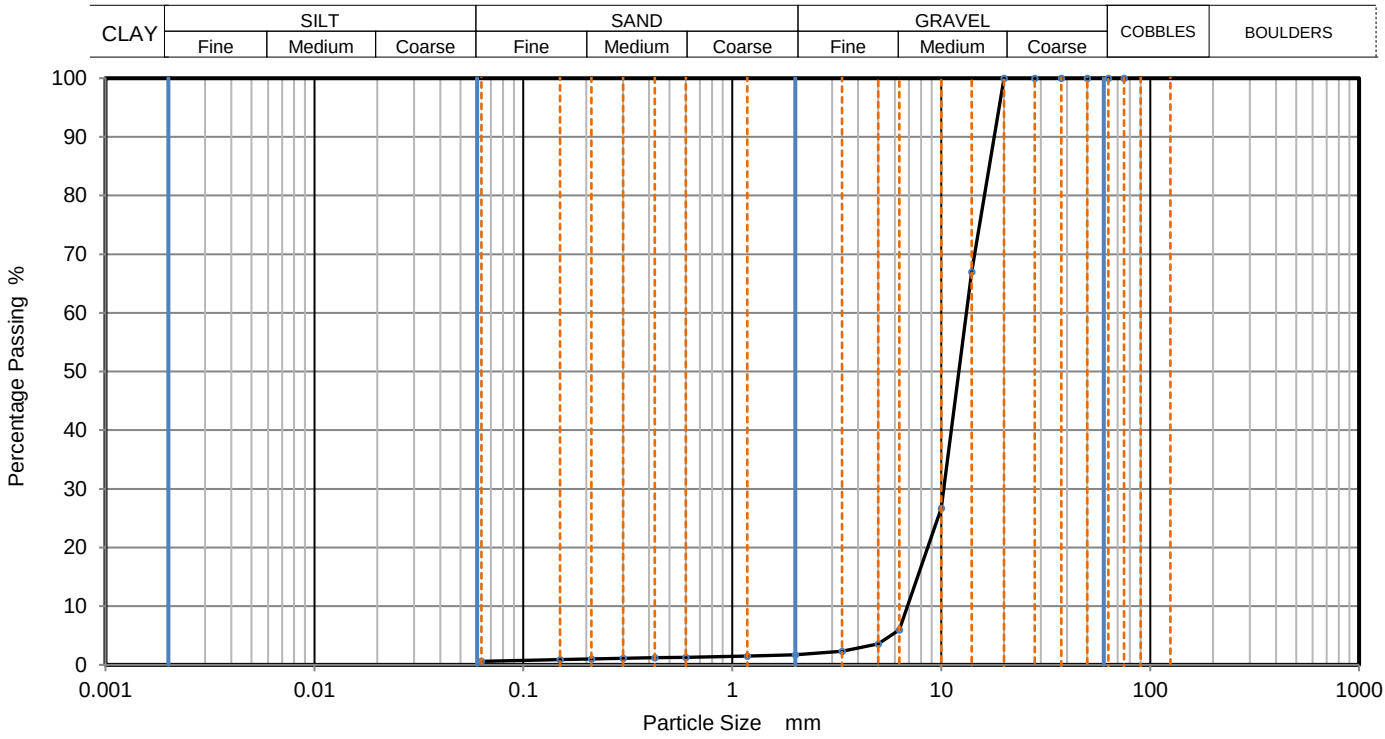
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-47812
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Grey medium GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022040654



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	67		
10	27		
6.3	6		
5	4		
3.35	2		
2	2		
1.18	2		
0.6	1		
0.425	1		
0.3	1		
0.212	1		
0.15	1		
0.063	1		

Dry Mass of sample, g: 361

Sample Proportions	% dry mass
Very coarse	0
Gravel	98
Sand	1
Fines <0.063mm	1

Grading Analysis		
D100	mm	
D60	mm	13.2
D30	mm	10.3
D10	mm	6.88
Uniformity Coefficient		1.9
Curvature Coefficient		1.2

Remarks

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Operator	Checked	Approved	Sheet printed	
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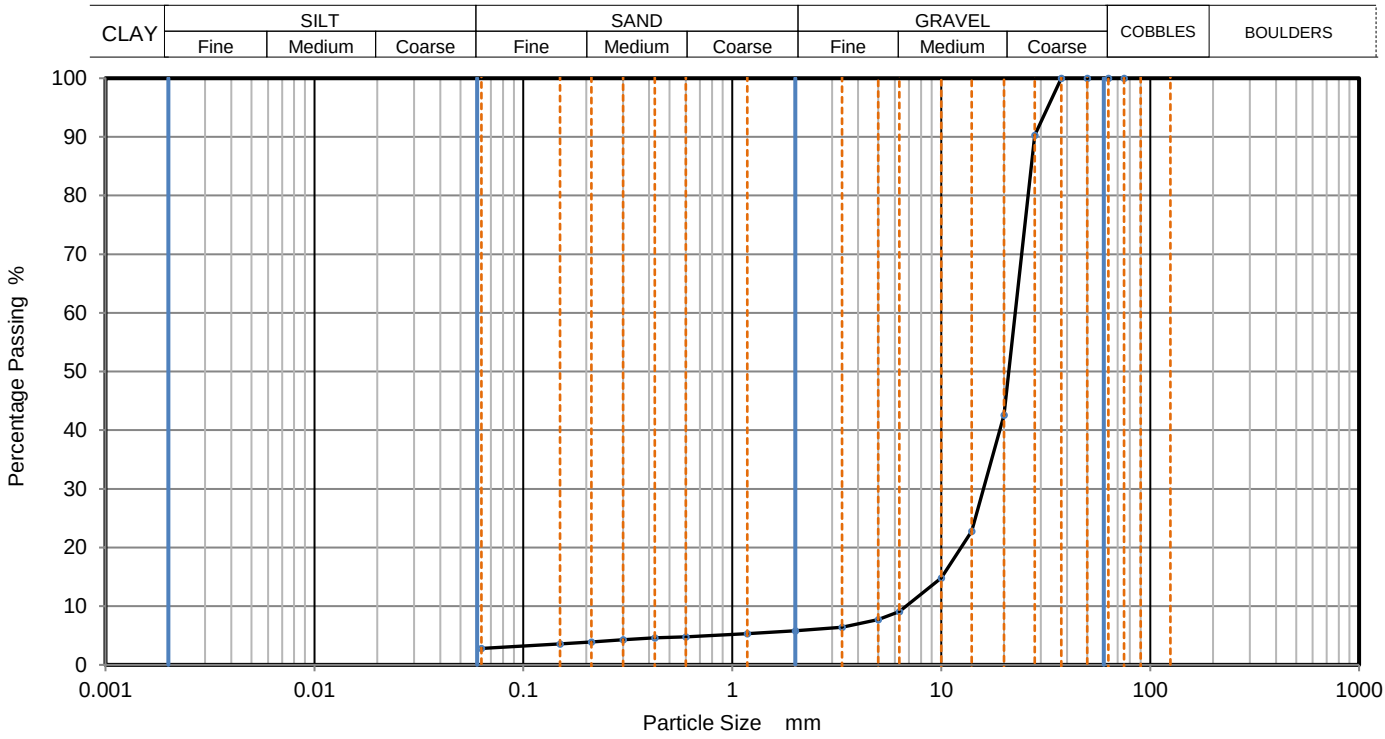
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-48139
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Yellowish slightly silty slightly sandy medium and coarse GRAVEL.			Depth, m	8.00
Specimen Reference		Specimen Depth	8.2-9.0 m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220221300



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	43		
14	23		
10	15		
6.3	9		
5	8		
3.35	6		
2	6		
1.18	5		
0.6	5		
0.425	5		
0.3	4		
0.212	4		
0.15	4		
0.063	3		

Dry Mass of sample, g	361

Sample Proportions	% dry mass
Very coarse	0
Gravel	94
Sand	3
Fines <0.063mm	3

Grading Analysis		
D100	mm	
D60	mm	22.6
D30	mm	16
D10	mm	6.79
Uniformity Coefficient		3.3
Curvature Coefficient		1.7

Remarks

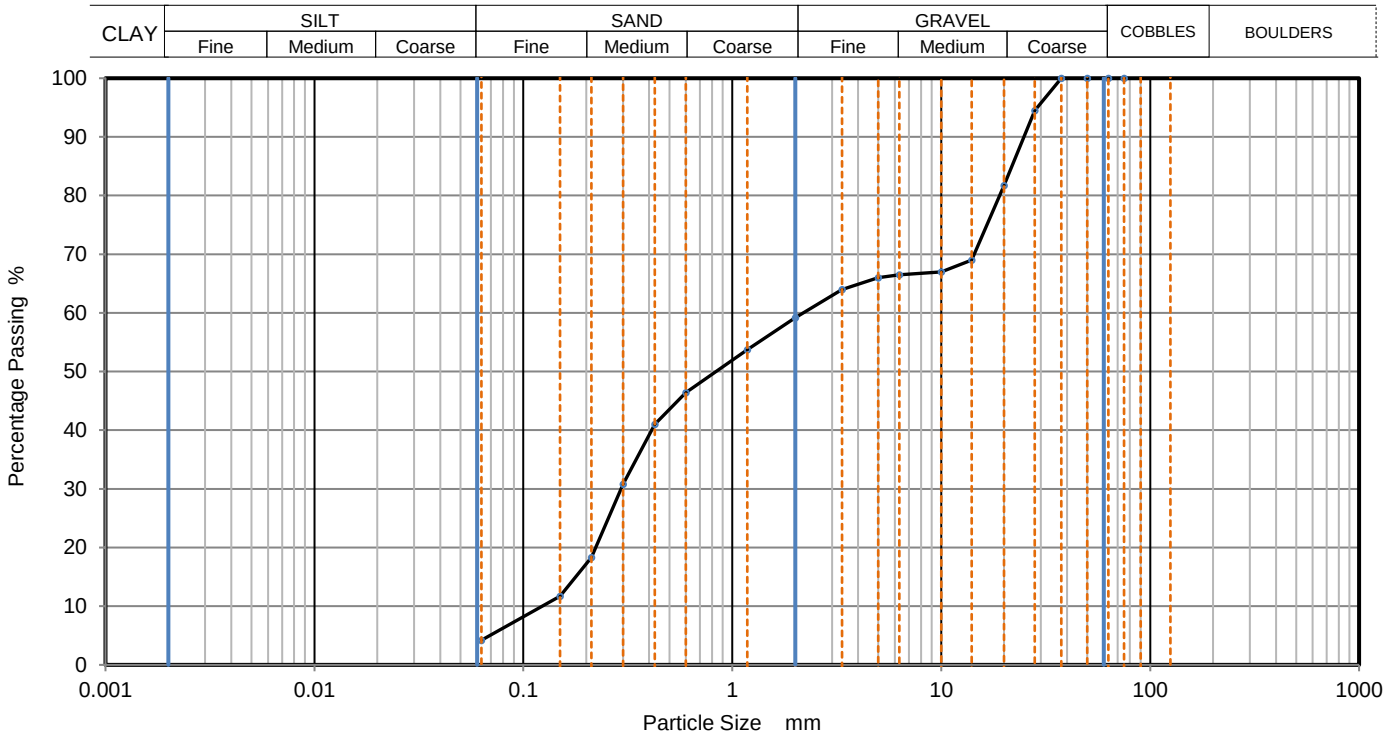
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	28/09/2022 08:50	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-48400
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light grey slightly silty very gravelly medium SAND.			Depth, m	2.00
Specimen Reference		Specimen Depth	2.3-2.5 m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022061544



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	82		
14	69		
10	67		
6.3	67		
5	66		
3.35	64		
2	59		
1.18	54		
0.6	46		
0.425	41		
0.3	31		
0.212	18		
0.15	12		
0.063	4		

Dry Mass of sample, g	730

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	55
Fines <0.063mm	4

Grading Analysis		
D100	mm	
D60	mm	2.17
D30	mm	0.293
D10	mm	0.123
Uniformity Coefficient		18
Curvature Coefficient		0.32

Remarks

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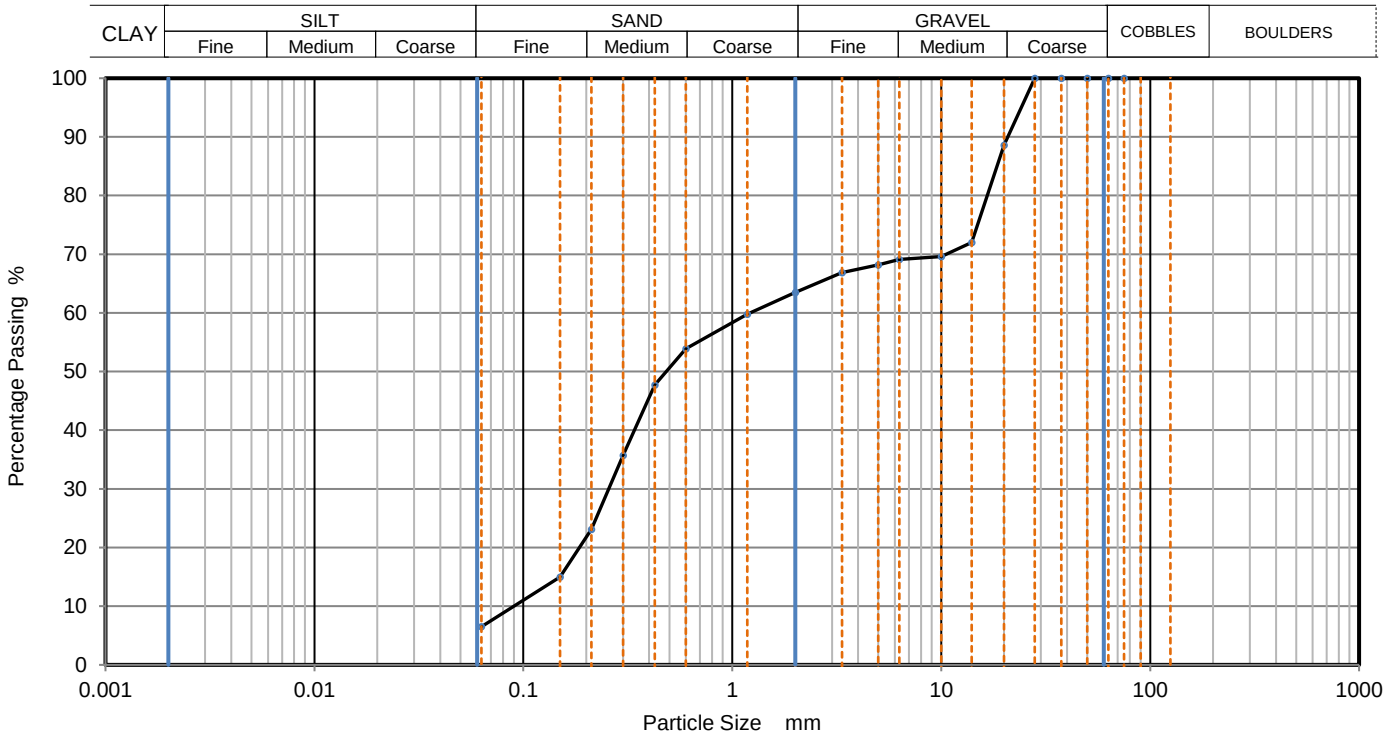
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-48400
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Yellowish-grey silty very gravelly medium SAND. Gravel is medium.			Depth, m	5.00
Specimen Reference		Specimen Depth	5.0-5.1 m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022051111



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	89		
14	72		
10	70		
6.3	69		
5	68		
3.35	67		
2	64		
1.18	60		
0.6	54		
0.425	48		
0.3	36		
0.212	23		
0.15	15		
0.063	7		

Dry Mass of sample, g	206

Sample Proportions	% dry mass
Very coarse	0
Gravel	37
Sand	57
Fines <0.063mm	7

Grading Analysis		
D100	mm	
D60	mm	1.21
D30	mm	0.257
D10	mm	0.0899
Uniformity Coefficient		13
Curvature Coefficient		0.61

Remarks

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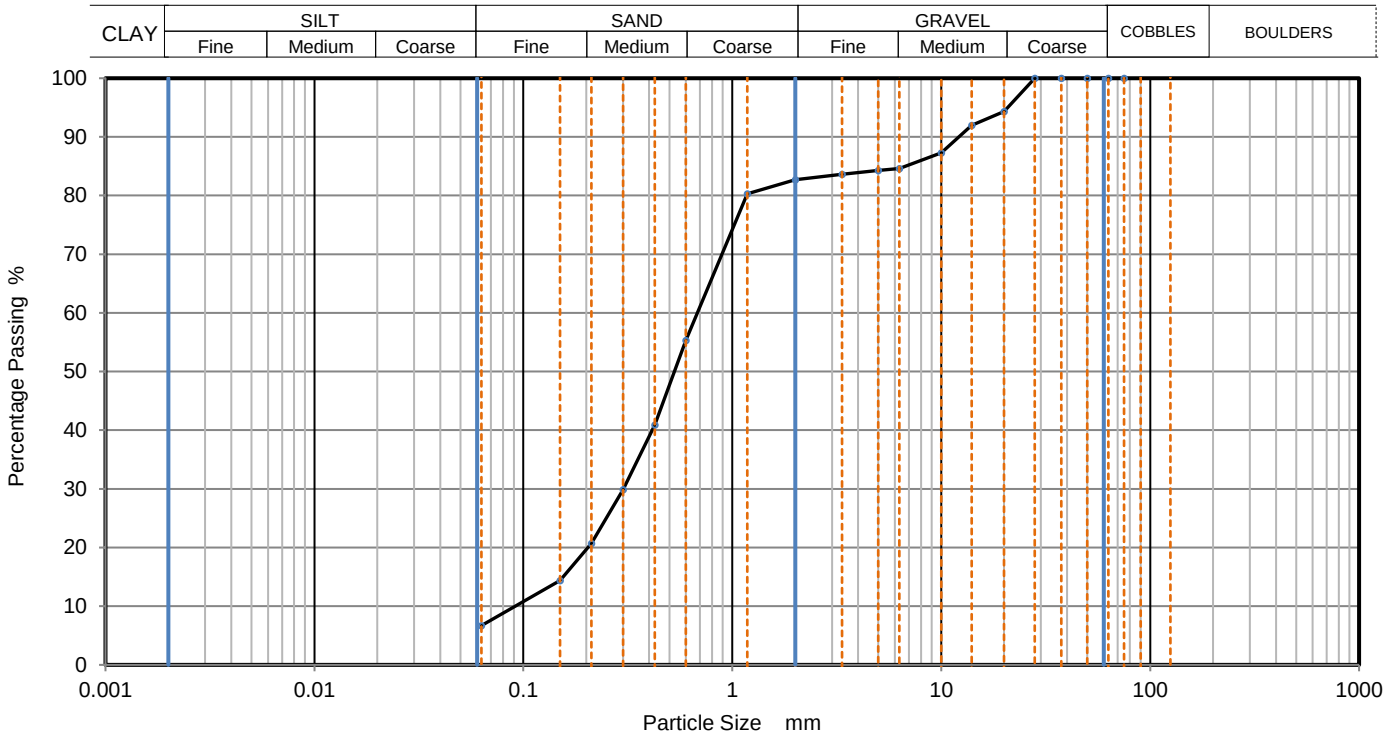
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-51386
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light grey silty gravelly medium and coarse SAND.			Depth, m	5.00
Specimen Reference		Specimen Depth	5.0-6.5 m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022051125



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	92		
10	87		
6.3	85		
5	84		
3.35	84		
2	83		
1.18	80		
0.6	55		
0.425	41		
0.3	30		
0.212	21		
0.15	14		
0.063	7		

Dry Mass of sample, g	428

Sample Proportions	% dry mass
Very coarse	0
Gravel	17
Sand	76
Fines <0.063mm	7

Grading Analysis		
D100	mm	
D60	mm	0.681
D30	mm	0.301
D10	mm	0.0912
Uniformity Coefficient		7.5
Curvature Coefficient		1.5

Remarks

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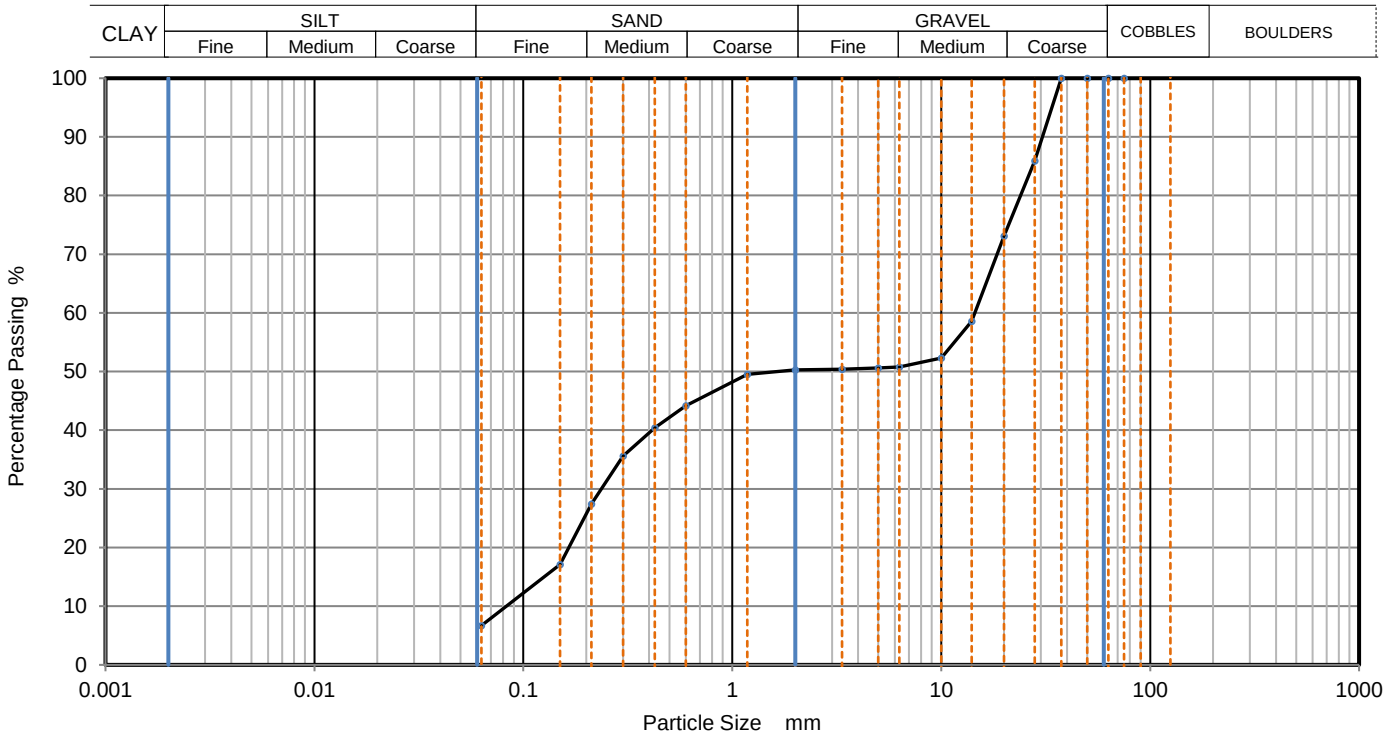
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-51386
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light grey silty very sandy medium and coarse GRAVEL.			Depth, m	6.50
Specimen Reference		Specimen Depth	6.5-8.0 m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220221234



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	86		
20	73		
14	59		
10	52		
6.3	51		
5	51		
3.35	50		
2	50		
1.18	50		
0.6	44		
0.425	40		
0.3	36		
0.212	27		
0.15	17		
0.063	7		

Dry Mass of sample, g	680

Sample Proportions	% dry mass
Very coarse	0
Gravel	50
Sand	44
Fines <0.063mm	7

Grading Analysis		
D100	mm	
D60	mm	14.5
D30	mm	0.237
D10	mm	0.0832
Uniformity Coefficient		170
Curvature Coefficient		0.047

Remarks

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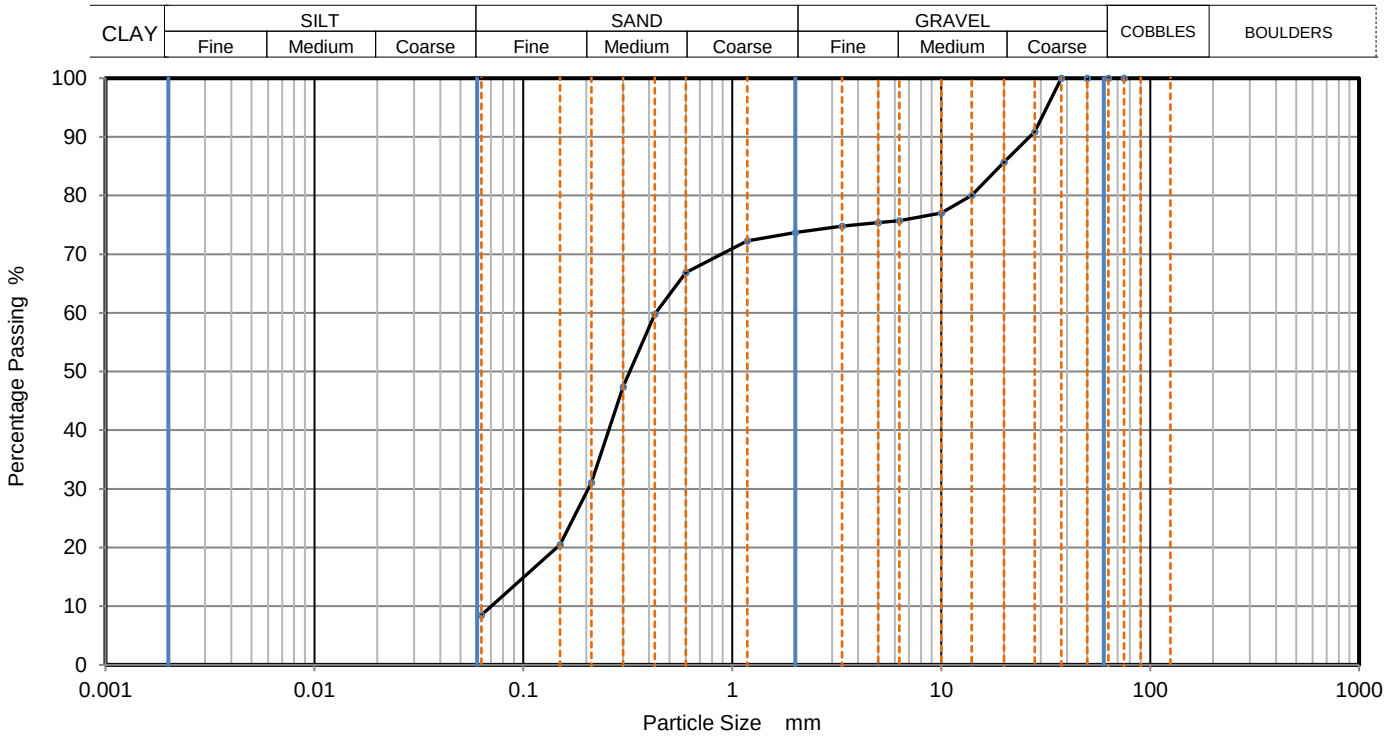
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey silty very gravelly medium and fine SAND.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022022822



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	86		
14	80		
10	77		
6.3	76		
5	75		
3.35	75		
2	74		
1.18	72		
0.6	67		
0.425	60		
0.3	47		
0.212	31		
0.15	21		
0.063	9		

Dry Mass of sample, g	1004

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	65
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.428
D_{30}	mm	0.204
D_{10}	mm	0.0704
Uniformity Coefficient		6.1
Curvature Coefficient		1.4

Remarks

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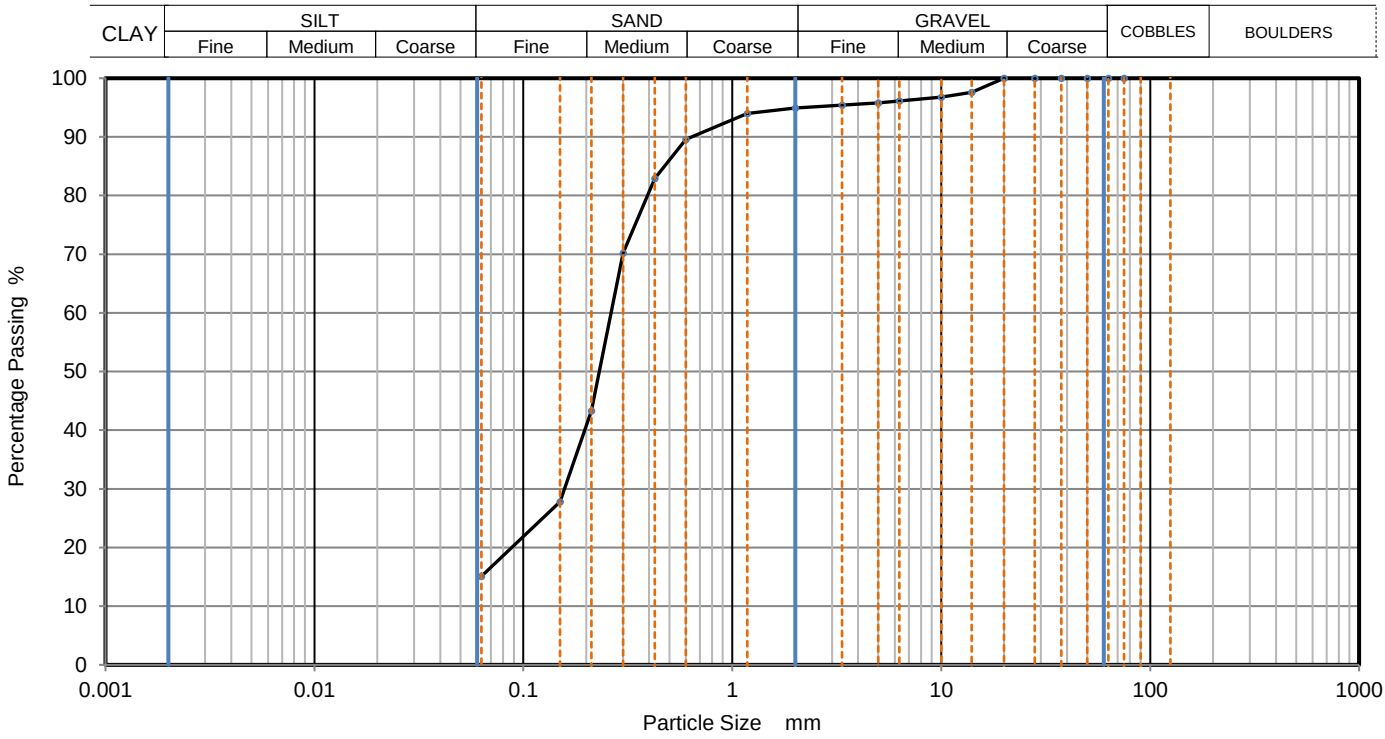
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light grey gravelly silty medium SAND.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022022824



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	96		
5	96		
3.35	95		
2	95		
1.18	94		
0.6	90		
0.425	83		
0.3	70		
0.212	43		
0.15	28		
0.063	15		

Dry Mass of sample, g	770

Sample Proportions	% dry mass
Very coarse	0
Gravel	5
Sand	80
Fines <0.063mm	15

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.263
D_{30}	mm	0.158
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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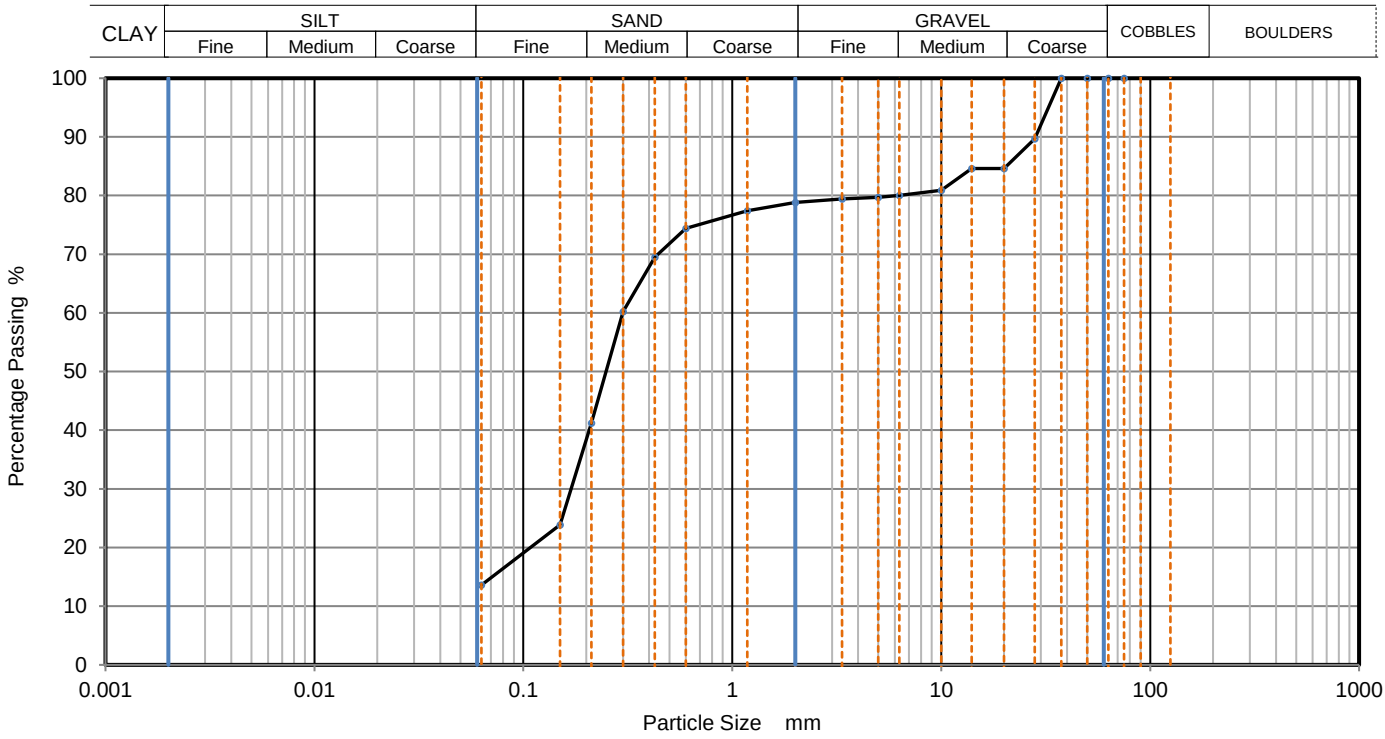
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light grey silty very gravelly fine and medium SAND.			Depth, m	8.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022022829



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	85		
14	85		
10	81		
6.3	80		
5	80		
3.35	79		
2	79		
1.18	77		
0.6	74		
0.425	70		
0.3	60		
0.212	41		
0.15	24		
0.063	14		

Dry Mass of sample, g	739

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	65
Fines <0.063mm	14

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.299
D_{30}	mm	0.169
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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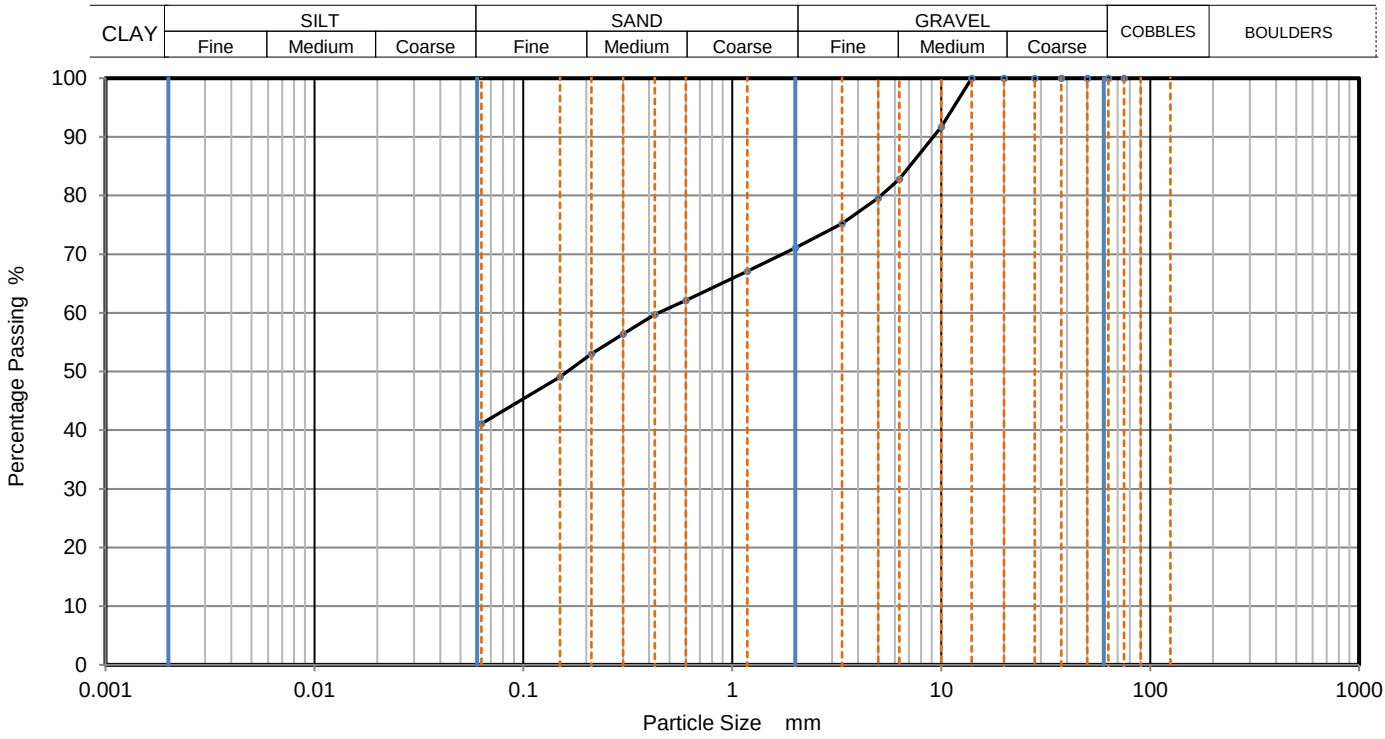
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52406
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown slighlty gravelly slightly sandy SILT.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220406100



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	92		
6.3	83		
5	80		
3.35	75		
2	71		
1.18	67		
0.6	62		
0.425	60		
0.3	56		
0.212	53		
0.15	49		
0.063	41		

Dry Mass of sample, g	260

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	30
Fines <0.063mm	41

Grading Analysis		
D100	mm	
D60	mm	0.441
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	
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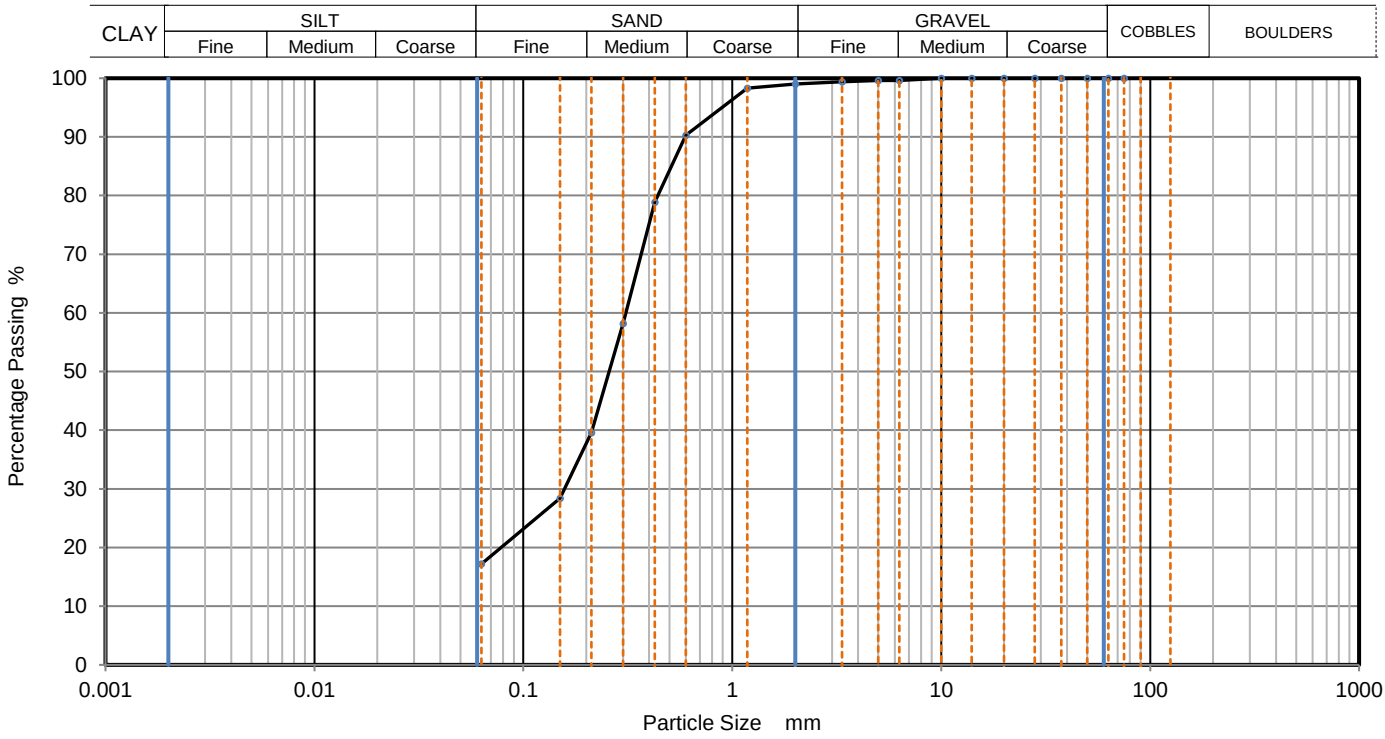
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-52406
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Brown silty medium SAND.			Depth, m	6.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220406102



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	90		
0.425	79		
0.3	58		
0.212	40		
0.15	28		
0.063	17		

Dry Mass of sample, g	272

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	82
Fines <0.063mm	17

Grading Analysis		
D100	mm	
D60	mm	0.309
D30	mm	0.157
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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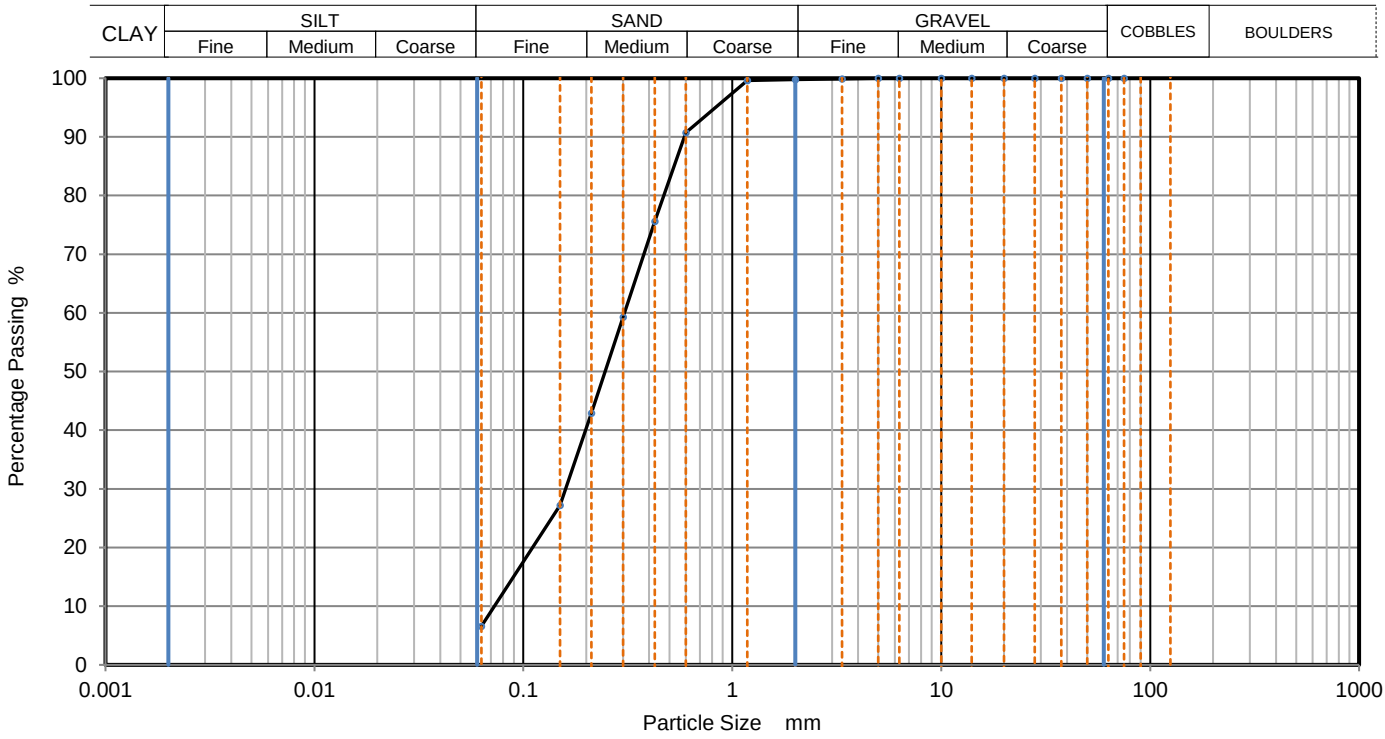
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56060
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey silty fine and medium SAND.			Depth, m	6.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022071521



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	91		
0.425	76		
0.3	59		
0.212	43		
0.15	27		
0.063	7		

Dry Mass of sample, g	261

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	93
Fines <0.063mm	7

Grading Analysis		
D100	mm	
D60	mm	0.305
D30	mm	0.159
D10	mm	0.0726
Uniformity Coefficient		4.2
Curvature Coefficient		1.2

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	28/09/2022 08:55	**1**
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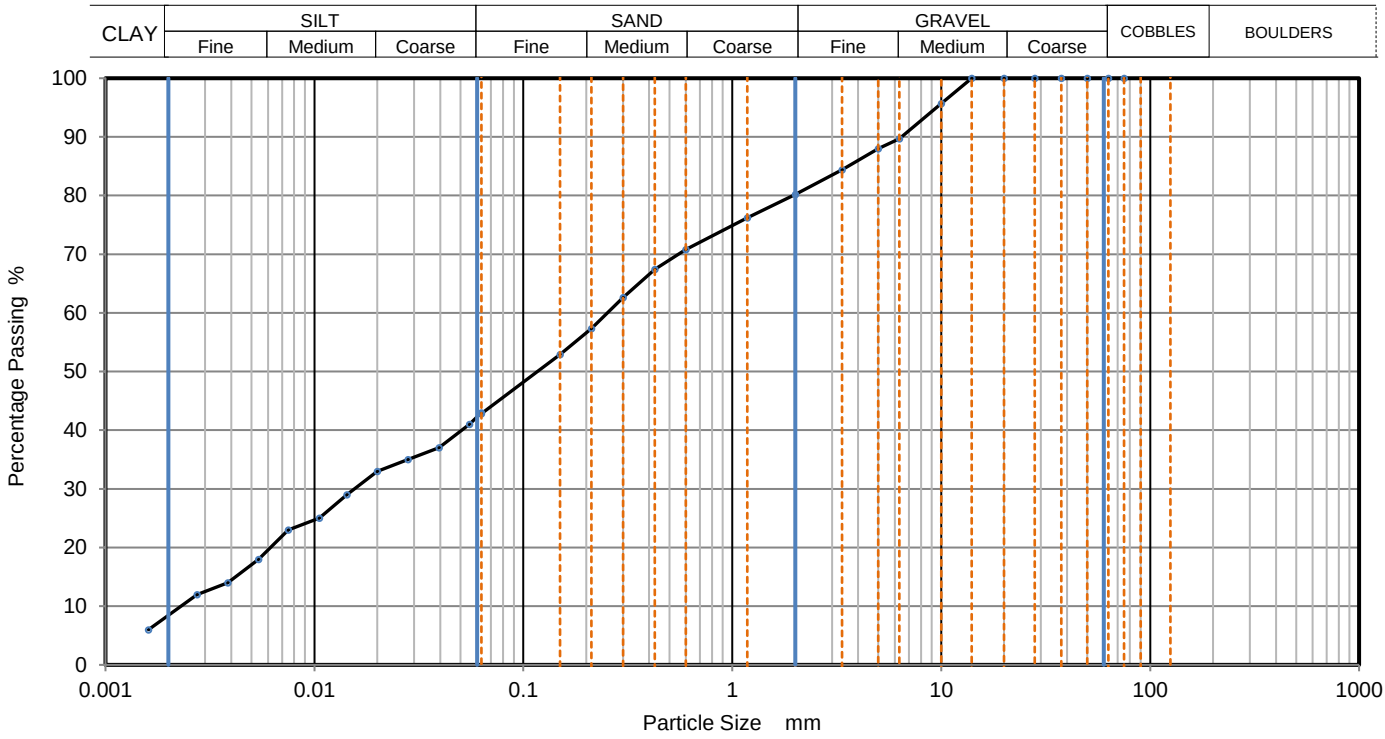
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56109
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey slightly gravelly sandy SILT.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12022050592



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	43
		0.0552	41
75	100	0.0395	37
63	100	0.0281	35
50	100	0.0200	33
37.5	100	0.0143	29
28	100	0.0106	25
20	100	0.0075	23
14	100	0.0054	18
10	96	0.0039	14
6.3	90	0.0027	12
5	88	0.0016	6
3.35	84		
2	80		
1.18	76		
0.6	71	Particle density (assumed)	
0.425	67	2.65	Mg/m3
0.3	63		
0.212	57		
0.15	53		
0.063	43		

Dry Mass of sample, g	254

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	37
Silt	35
Clay	8

Grading Analysis		
D100	mm	
D60	mm	0.253
D30	mm	0.0153
D10	mm	0.00235
Uniformity Coefficient		110
Curvature Coefficient		0.4

Remarks

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Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:43	**1** QC From No:R2

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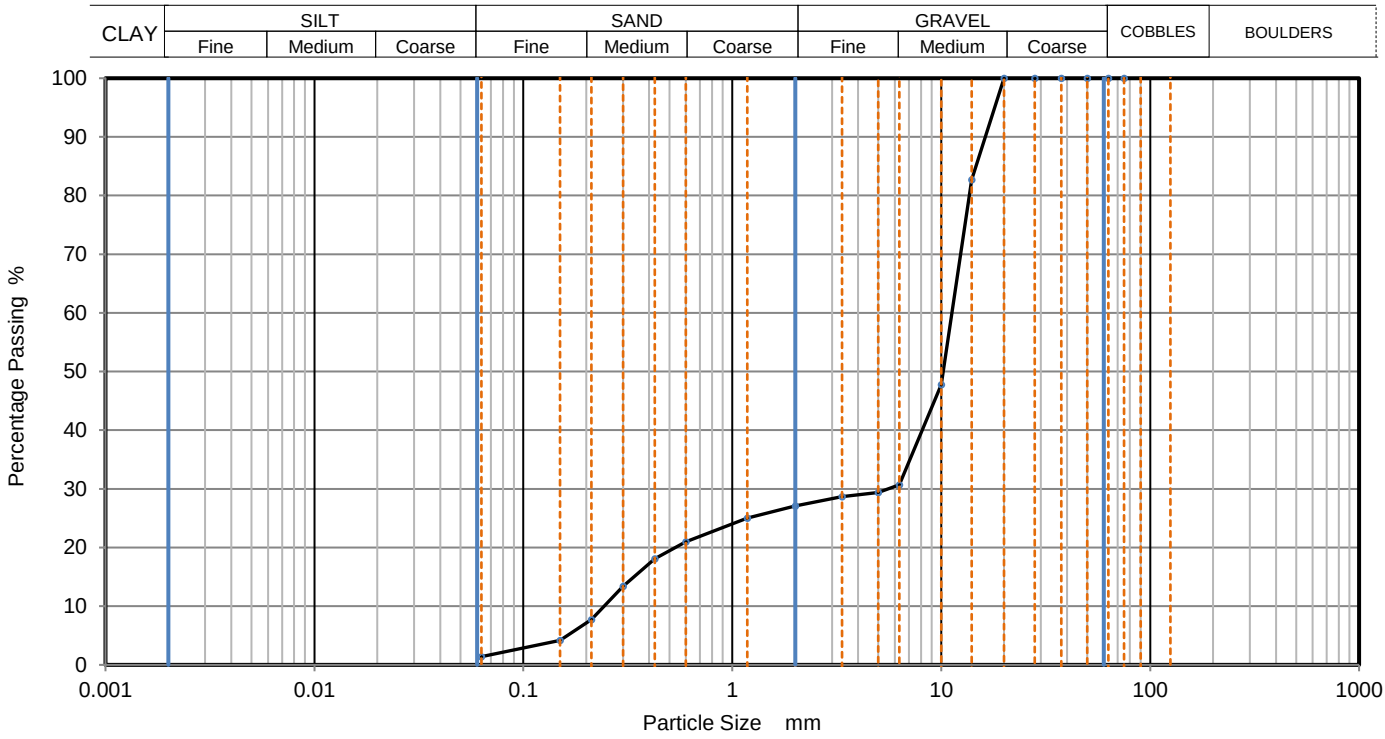
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56645
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey very sandy medium GRAVEL.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022071534



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	83		
10	48		
6.3	31		
5	29		
3.35	29		
2	27		
1.18	25		
0.6	21		
0.425	18		
0.3	13		
0.212	8		
0.15	4		
0.063	1		

Dry Mass of sample, g	115

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	26
Fines <0.063mm	1

Grading Analysis		
D100	mm	
D60	mm	11.2
D30	mm	5.56
D10	mm	0.243
Uniformity Coefficient		46
Curvature Coefficient		11

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:43	**1**
				QC From No:R2

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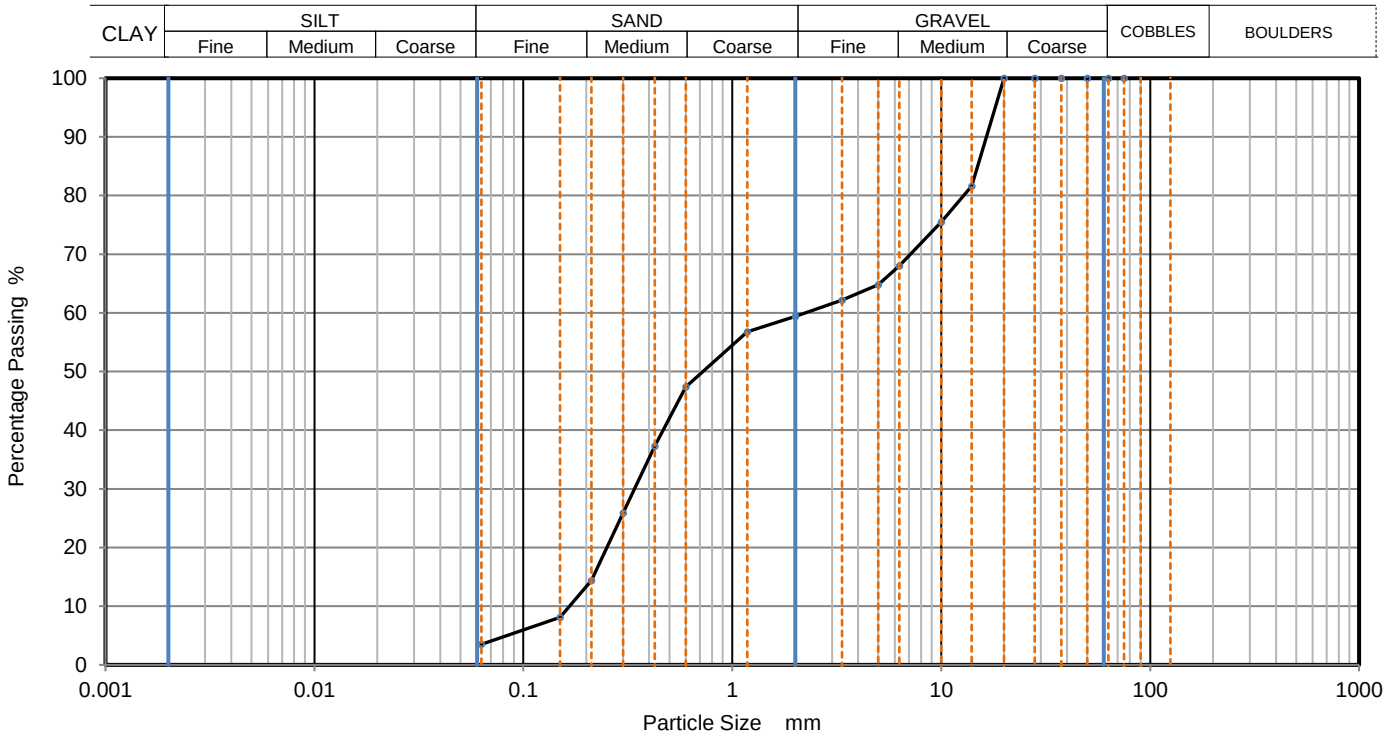
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-56857
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey slightly silty very gravelly medium SAND. Gravel is medium.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220715144



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	82		
10	76		
6.3	68		
5	65		
3.35	62		
2	59		
1.18	57		
0.6	47		
0.425	37		
0.3	26		
0.212	14		
0.15	8		
0.063	4		

Dry Mass of sample, g	231

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	56
Fines <0.063mm	4

Grading Analysis		
D100	mm	
D60	mm	2.22
D30	mm	0.34
D10	mm	0.166
Uniformity Coefficient		13
Curvature Coefficient		0.31

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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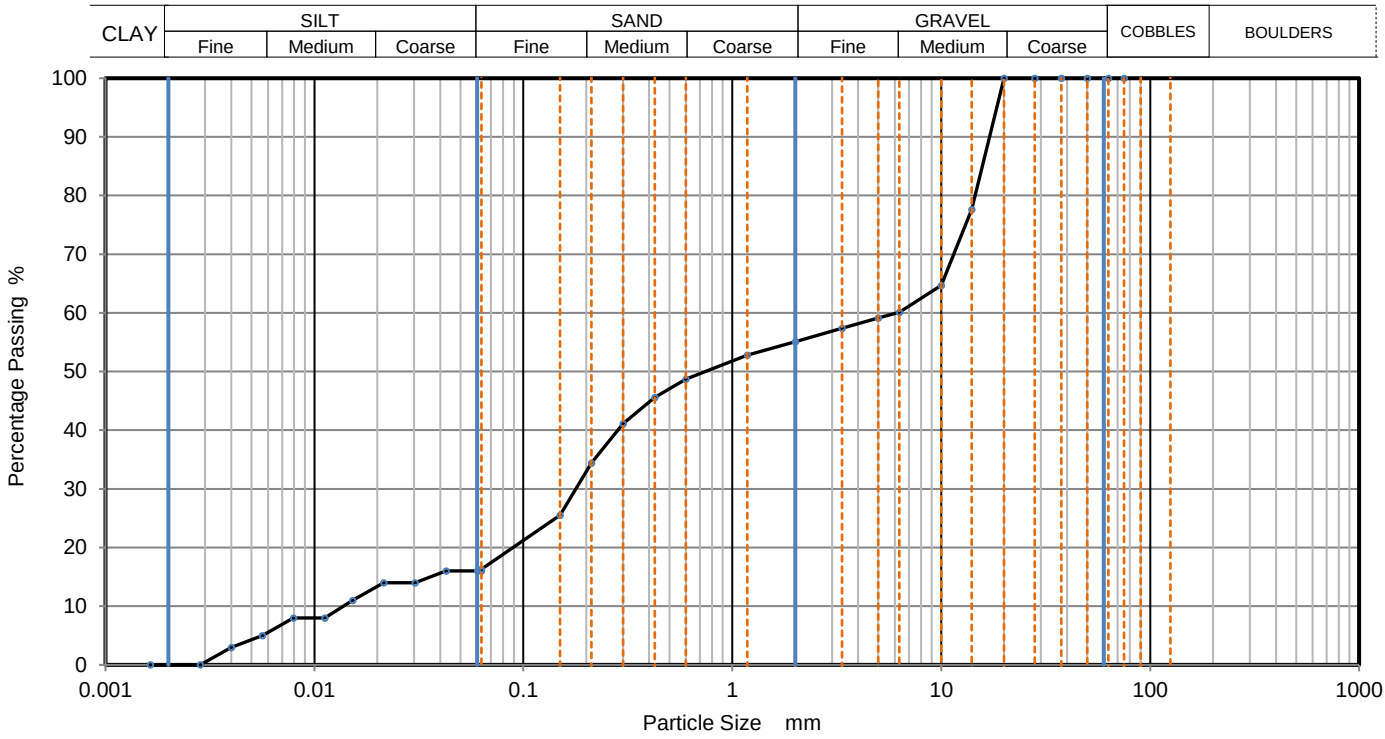
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-57037
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown silty very sandy medium GRAVEL.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120220505116



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
		0.0630	16
		0.0604	16
75	100	0.0427	16
63	100	0.0304	14
50	100	0.0215	14
37.5	100	0.0153	11
28	100	0.0112	8
20	100	0.0079	8
14	78	0.0056	5
10	65	0.0040	3
6.3	60	0.0028	0
5	59	0.0016	0
3.35	57		
2	55		
1.18	53		
0.6	49	Particle density (assumed)	
0.425	46	2.65	Mg/m3
0.3	41		
0.212	34		
0.15	26		
0.063	16		

Dry Mass of sample, g	220

Sample Proportions	% dry mass
Very coarse	0
Gravel	45
Sand	39
Silt	16
Clay	0

Grading Analysis		
D100	mm	
D60	mm	6.11
D30	mm	0.179
D10	mm	0.0138
Uniformity Coefficient		440
Curvature Coefficient		0.38

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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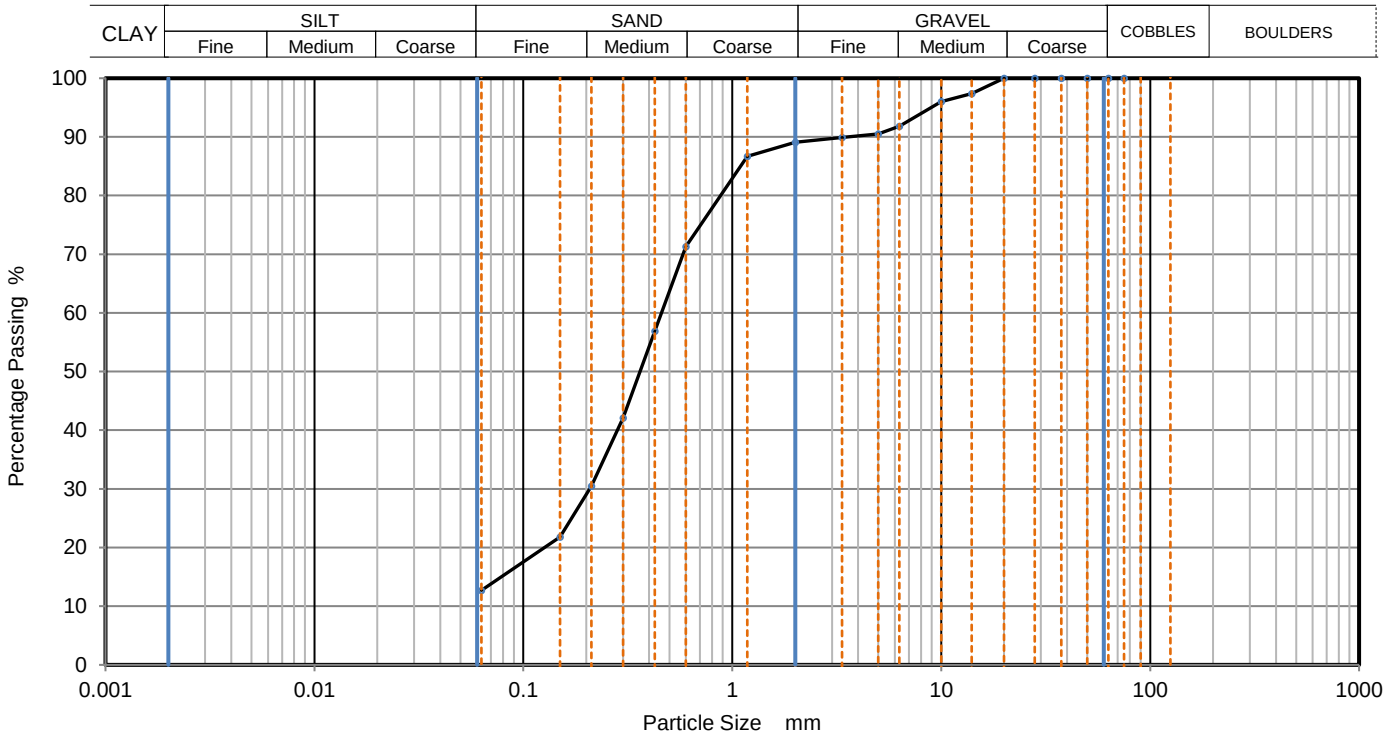
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-57428
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey gravelly silty medium SAND.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220505125



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	96		
6.3	92		
5	91		
3.35	90		
2	89		
1.18	87		
0.6	71		
0.425	57		
0.3	42		
0.212	31		
0.15	22		
0.063	13		

Dry Mass of sample, g	256

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	76
Fines <0.063mm	13

Grading Analysis		
D100	mm	
D60	mm	0.458
D30	mm	0.208
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2, 5.3 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-59474** Sample Ref: **2.0-3.5** Sample Type: **C** Depth (m): **2.00**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	0%	1%	13%	16%	24%	20%	13%	7%	3%	
	SILT			SAND			GRAVEL			
3%	14%			60%			23%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**97**
10.0	**94**
6.30	**90**
3.35	**83**
2.00	**77**
1.18	**69**
0.630	**57**
0.425	**49**
0.200	**33**
0.150	**26**
0.063	**17**

Particle Diameter (mm)	Percent Passing (%)
0.02	**4**
0.006	**3**
0.002	**3**

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.034**
D_{15} (mm)	**0.053**
D_{30} (mm)	**0.177**
D_{50} (mm)	**0.446**
D_{60} (mm)	**0.737**
D_{85} (mm)	**4.012**
D_{90} (mm)	**6.300**
C_U	**22**
C_C	**1**

Soil Description:

Grey very gravelly slightly clayey silty SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	01/03/23

Contract: **2021OY102 WSP Eastern & Midlands Region - Lot 2**

Contract Ref: **785325**

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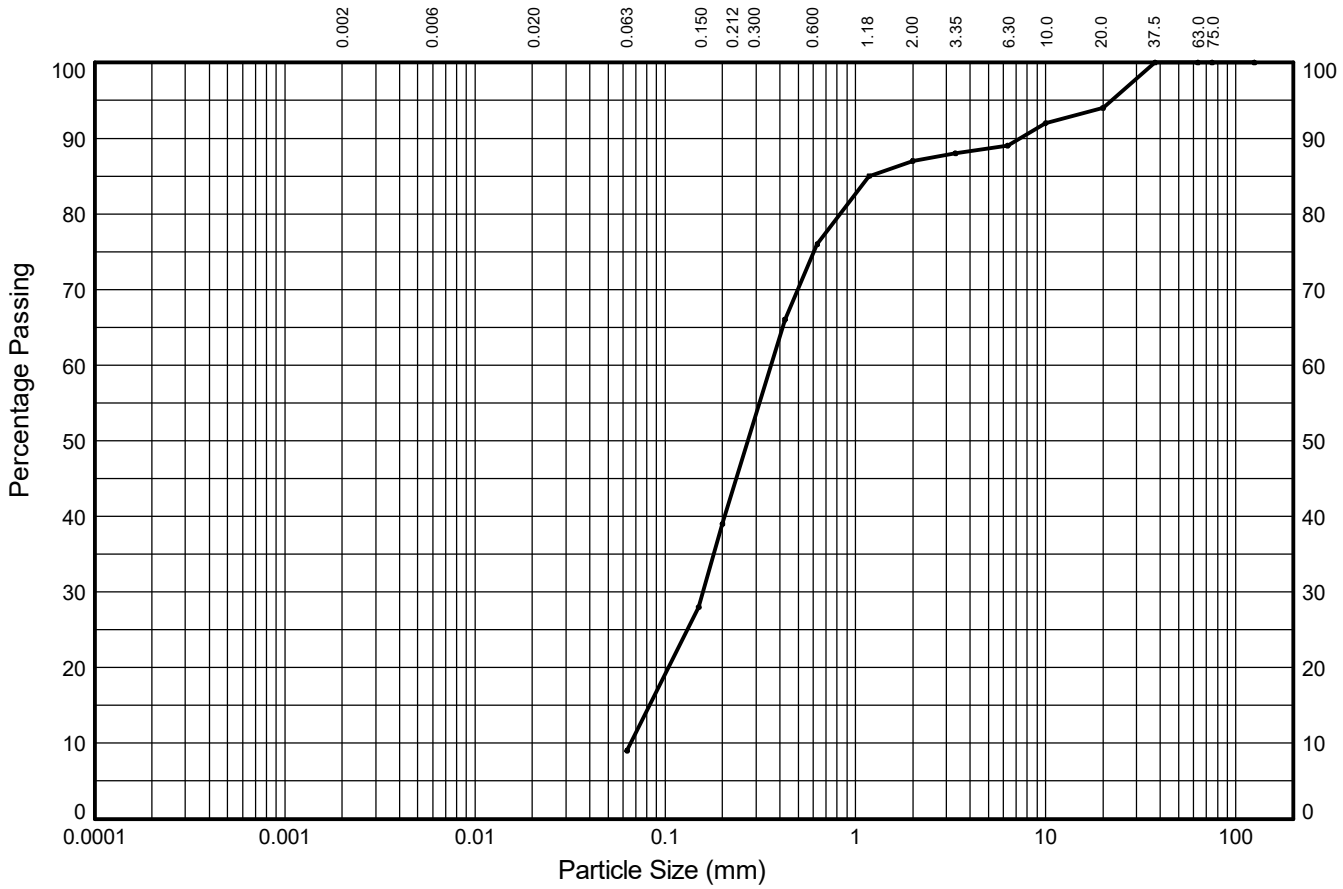
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-59932** Sample Ref: **3.5-5.0** Sample Type: **C** Depth (m): **3.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	30%	37%	11%	2%	5%	6%	
	SILT			SAND			GRAVEL			
9%				78%			13%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**94**
10.0	**92**
6.30	**89**
3.35	**88**
2.00	**87**
1.18	**85**
0.630	**76**
0.425	**66**
0.200	**39**
0.150	**28**
0.063	**9**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.066**
D_{15} (mm)	**0.083**
D_{30} (mm)	**0.158**
D_{50} (mm)	**0.272**
D_{60} (mm)	**0.359**
D_{85} (mm)	**1.180**
D_{90} (mm)	**7.349**
C_U	**5.5**
C_C	**1.1**

Soil Description:

Grey gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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The Potteries
Pottery Street
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Compiled By	Date
LAURA SCHRAMM	01/03/23

Contract: **2021OY102 WSP Eastern & Midlands Region - Lot 2**

Contract Ref: **785325**

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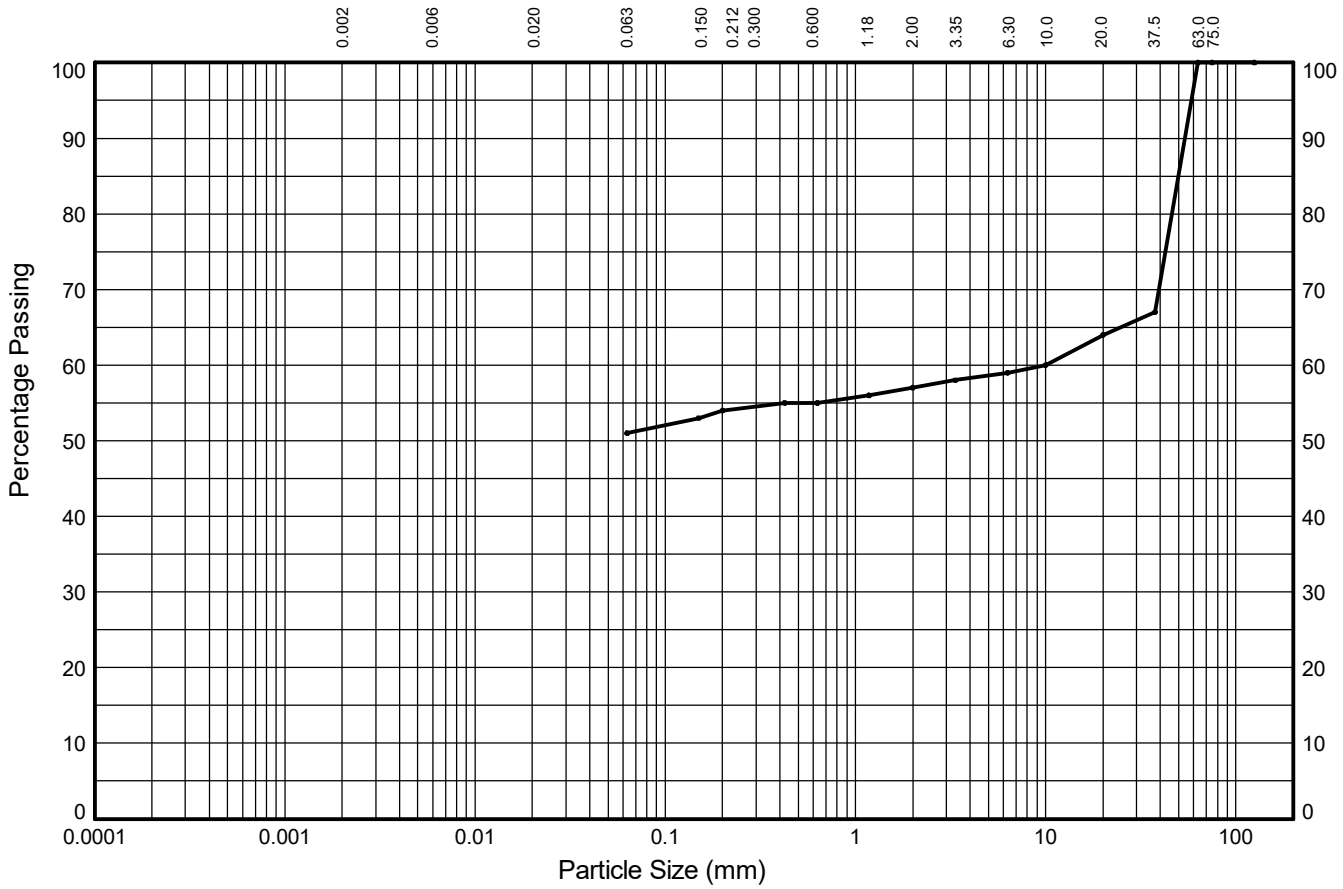
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-59932** Sample Ref: **8.0-10.0** Sample Type: **C** Depth (m): **8.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	3%	1%	2%	2%	5%	36%	
	SILT			SAND			GRAVEL			
51%				6%			43%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**67**
20.0	**64**
10.0	**60**
6.30	**59**
3.35	**58**
2.00	**57**
1.18	**56**
0.630	**55**
0.425	**55**
0.200	**54**
0.150	**53**
0.063	**51**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**NA**
D_{60} (mm)	**10.000**
D_{85} (mm)	**49.765**
D_{90} (mm)	**53.835**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown grey slightly sandy gravelly CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
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Compiled By	Date
LORNA WHITWORTH	01/03/23

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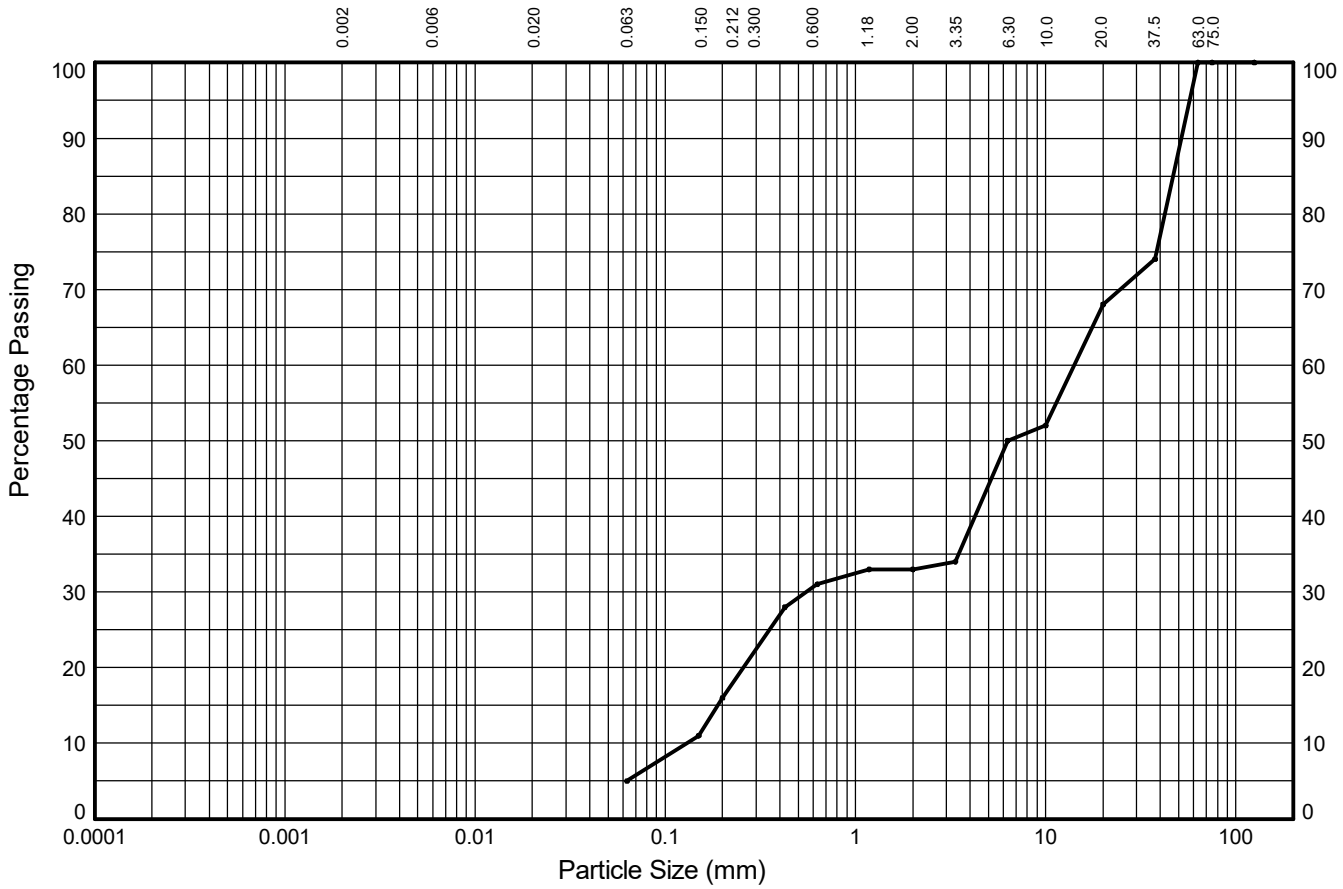
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-60345** Sample Ref: **3.5-5.0** Sample Type: **C** Depth (m): **3.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	11%	15%	2%	17%	18%	32%	
	SILT			SAND			GRAVEL			
5%				28%			67%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**74**
20.0	**68**
10.0	**52**
6.30	**50**
3.35	**34**
2.00	**33**
1.18	**33**
0.630	**31**
0.425	**28**
0.200	**16**
0.150	**11**
0.063	**5**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.130**
D_{15} (mm)	**0.189**
D_{30} (mm)	**0.553**
D_{50} (mm)	**6.300**
D_{60} (mm)	**14.142**
D_{85} (mm)	**46.704**
D_{90} (mm)	**51.604**
C_U	**109**
C_C	**0.17**

Soil Description:

Brown very sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
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Contract: **2021OY102 WSP Eastern & Midlands Region - Lot 2**

Contract Ref: **785325**

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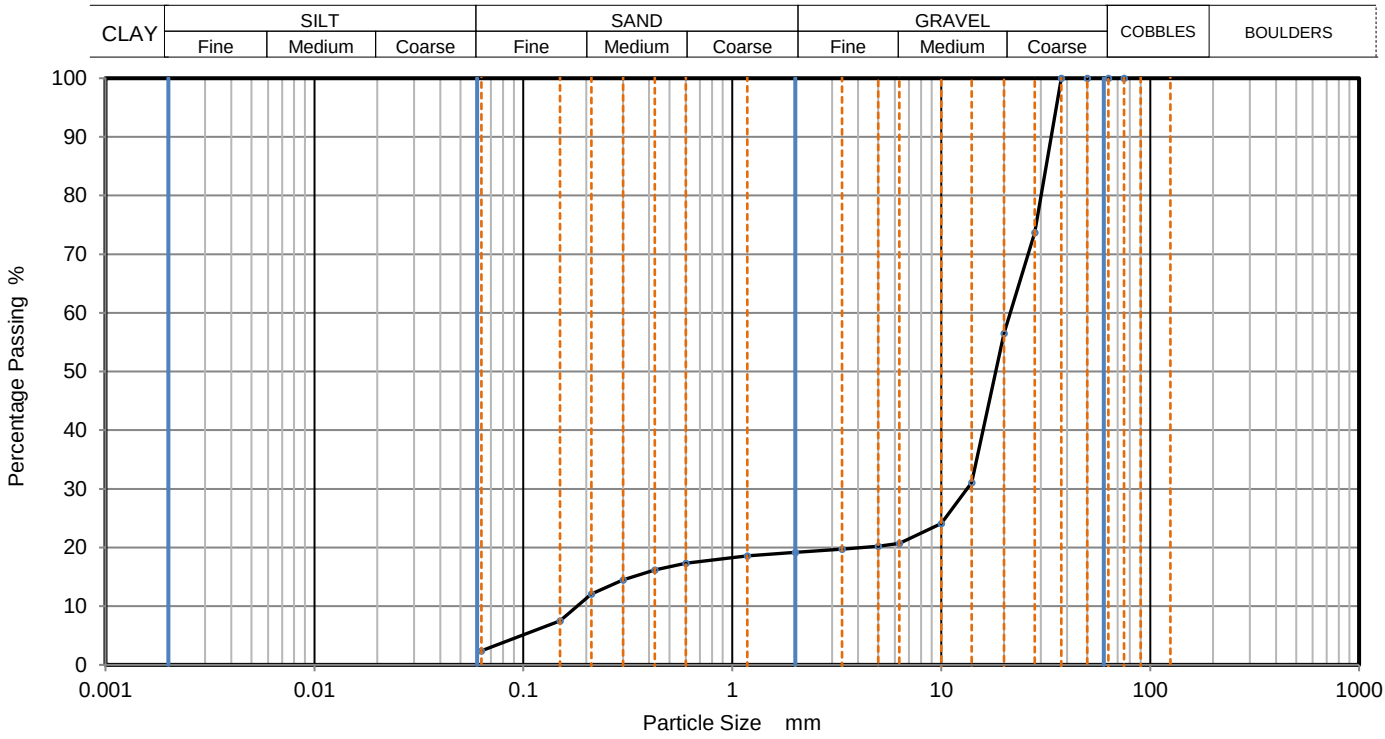
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-60805
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey slightly silty sandy medium and coarse GRAVEL.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202206217



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	74		
20	57		
14	31		
10	24		
6.3	21		
5	20		
3.35	20		
2	19		
1.18	19		
0.6	17		
0.425	16		
0.3	15		
0.212	12		
0.15	8		
0.063	2		

Dry Mass of sample, g	1009

Sample Proportions	% dry mass
Very coarse	0
Gravel	81
Sand	17
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	21.4
D_{30}	mm	13.3
D_{10}	mm	0.181
Uniformity Coefficient		120
Curvature Coefficient		45

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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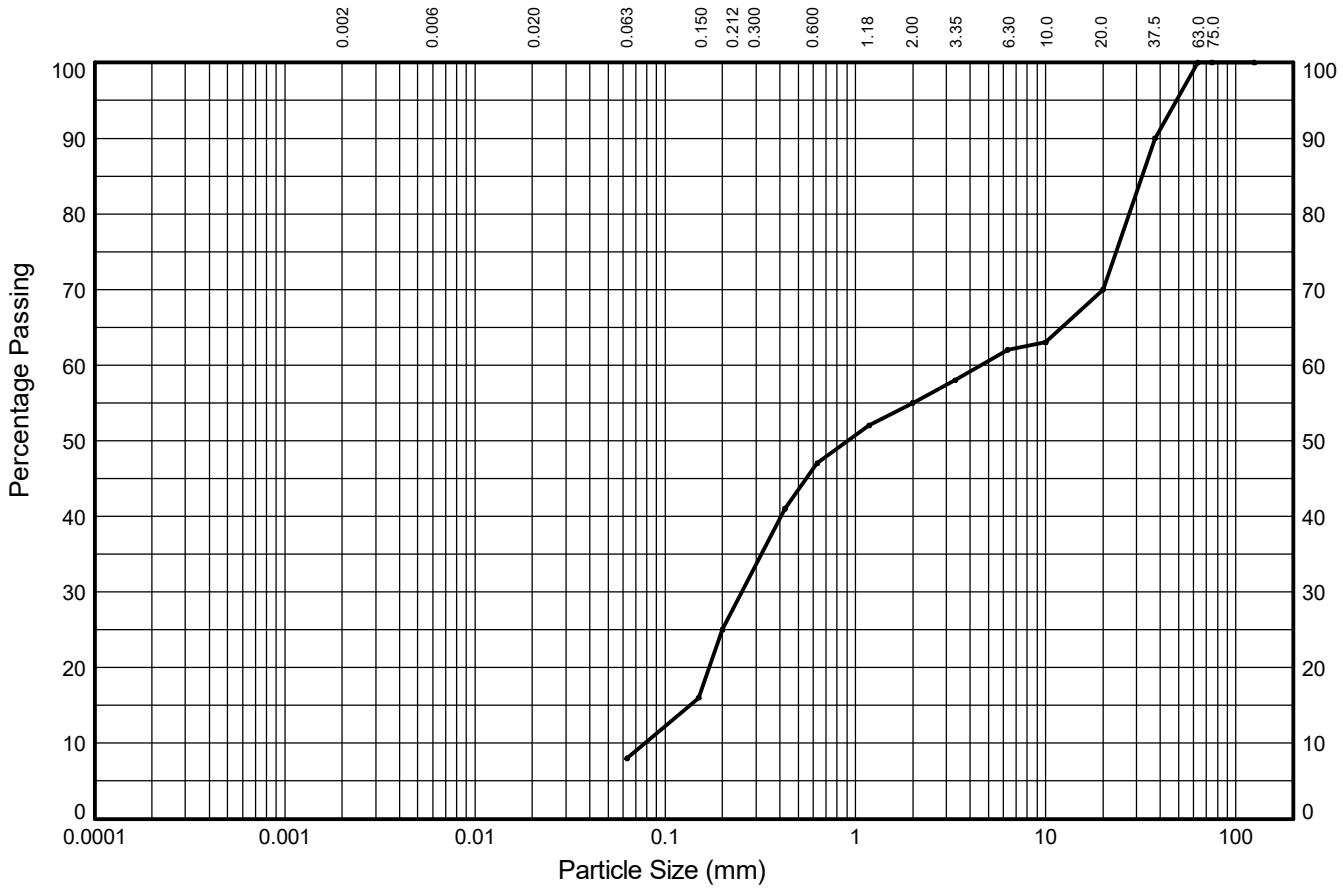
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-61136** Sample Ref: **5.0-6.5** Sample Type: **C** Depth (m): **5.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	17%	22%	8%	7%	8%	30%	
	SILT			SAND			GRAVEL			
8%				47%			45%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**90**
20.0	**70**
10.0	**63**
6.30	**62**
3.35	**58**
2.00	**55**
1.18	**52**
0.630	**47**
0.425	**41**
0.200	**25**
0.150	**16**
0.063	**8**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.078**
D_{15} (mm)	**0.135**
D_{30} (mm)	**0.253**
D_{50} (mm)	**0.918**
D_{60} (mm)	**4.594**
D_{85} (mm)	**32.047**
D_{90} (mm)	**37.500**
C_U	**59**
C_C	**0.18**

Soil Description:

Grey very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
LORNA WHITWORTH	01/03/23

Contract	Contract Ref:
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PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-61136** Sample Ref: **6.5-8.0** Sample Type: **C** Depth (m): **6.50**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	2%	4%	1%	1%	8%	81%	
	SILT			SAND			GRAVEL			
3%				7%			90%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**41**
20.0	**19**
10.0	**12**
6.30	**11**
3.35	**10**
2.00	**10**
1.18	**10**
0.630	**9**
0.425	**7**
0.200	**5**
0.150	**4**
0.063	**3**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**1.180**
D_{15} (mm)	**13.459**
D_{30} (mm)	**27.386**
D_{50} (mm)	**40.588**
D_{60} (mm)	**44.319**
D_{85} (mm)	**55.215**
D_{90} (mm)	**57.697**
C_U	**38**
C_C	**14**

Soil Description:

Brown grey sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	01/03/23

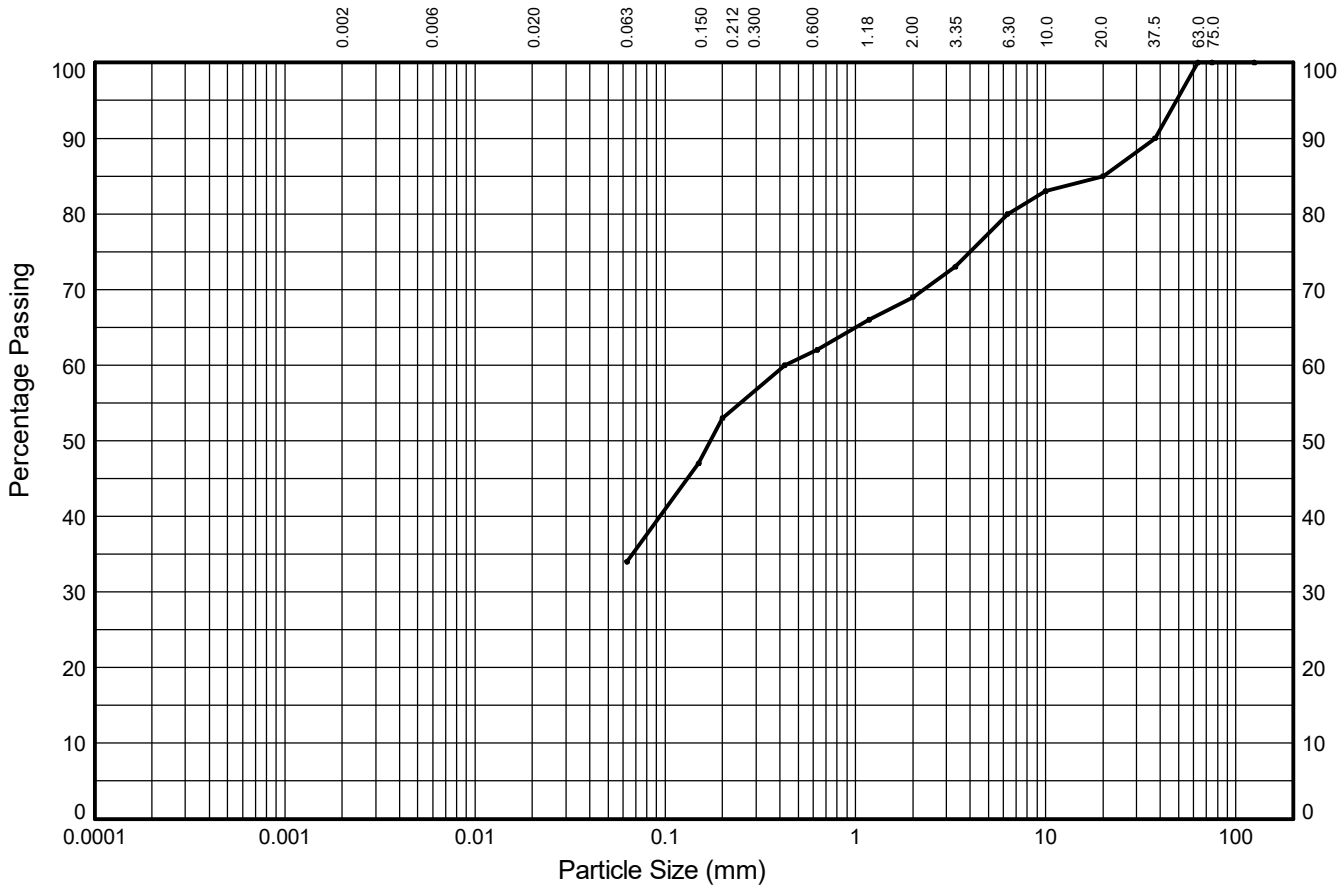
Contract	Contract Ref:
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - PSD - A4P | 785325 - 2021OY102WSP2-BPT SECTION.GPJ - v10_01
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 01/03/23 - 15:23 | LS5 |

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-61515** Sample Ref: **0.0-2.0** Sample Type: **C** Depth (m): **0.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	19%	9%	7%	11%	5%	15%	
	SILT			SAND			GRAVEL			
34%				35%			31%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**90**
20.0	**85**
10.0	**83**
6.30	**80**
3.35	**73**
2.00	**69**
1.18	**66**
0.630	**62**
0.425	**60**
0.200	**53**
0.150	**47**
0.063	**34**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.173**
D_{60} (mm)	**0.425**
D_{85} (mm)	**20.000**
D_{90} (mm)	**37.500**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Castleford
W. Yorkshire WF10 1NJ

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LAURA SCHRAMM	**01/03/23**

Contract: **2021OY102 WSP Eastern & Midlands Region - Lot 2**

Contract Ref: **785325**

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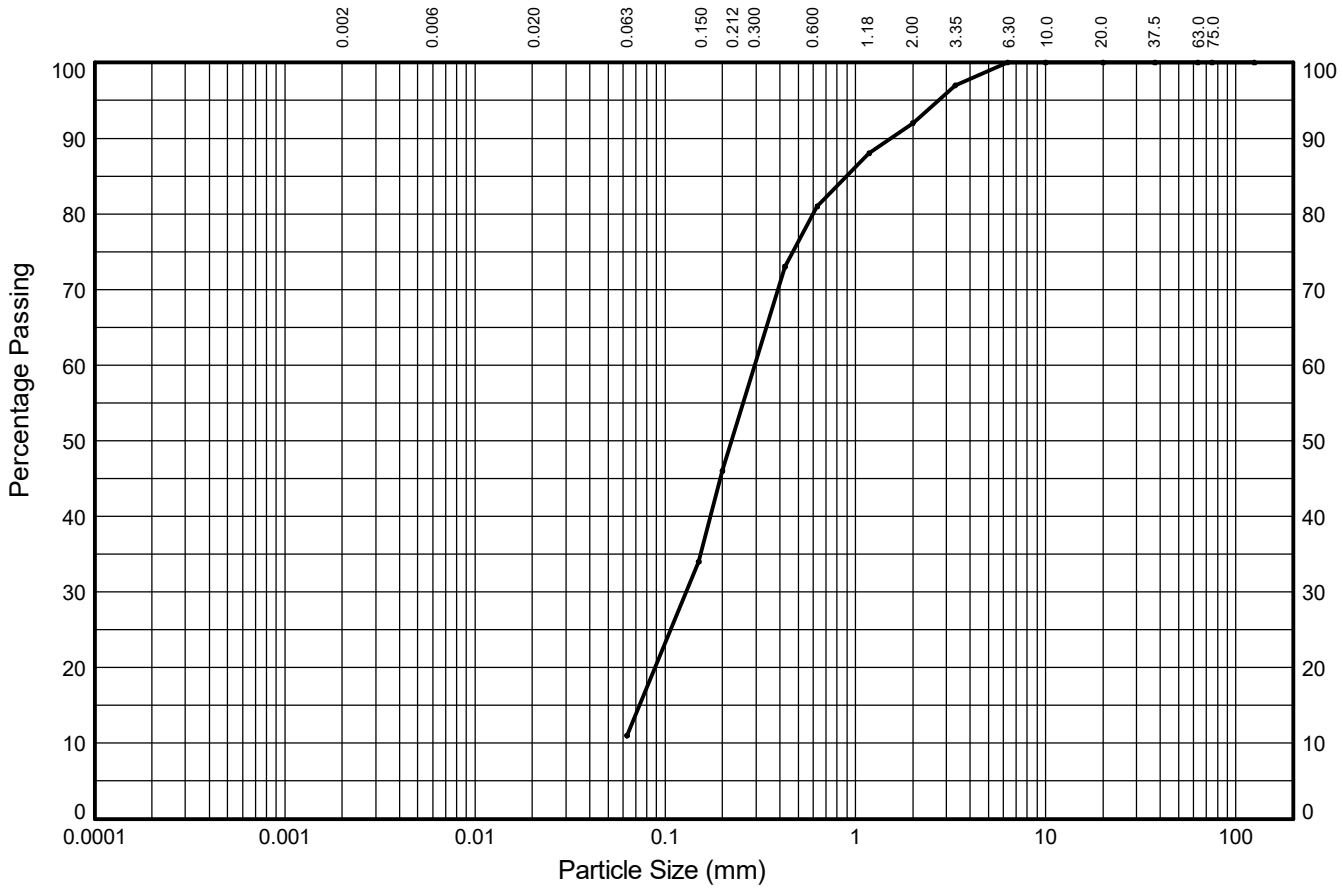
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-61515** Sample Ref: **5.0-6.5** Sample Type: **C** Depth (m): **5.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	35%	35%	11%	8%	0%	0%	
	SILT			SAND			GRAVEL			
11%				81%			8%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**100**
3.35	**97**
2.00	**92**
1.18	**88**
0.630	**81**
0.425	**73**
0.200	**46**
0.150	**34**
0.063	**11**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.073**
D_{30} (mm)	**0.129**
D_{50} (mm)	**0.224**
D_{60} (mm)	**0.296**
D_{85} (mm)	**0.902**
D_{90} (mm)	**1.536**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Pottery Street
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Compiled By	Date
LAURA SCHRAMM	01/03/23

Contract: **2021OY102 WSP Eastern & Midlands Region - Lot 2**

Contract Ref: **785325**

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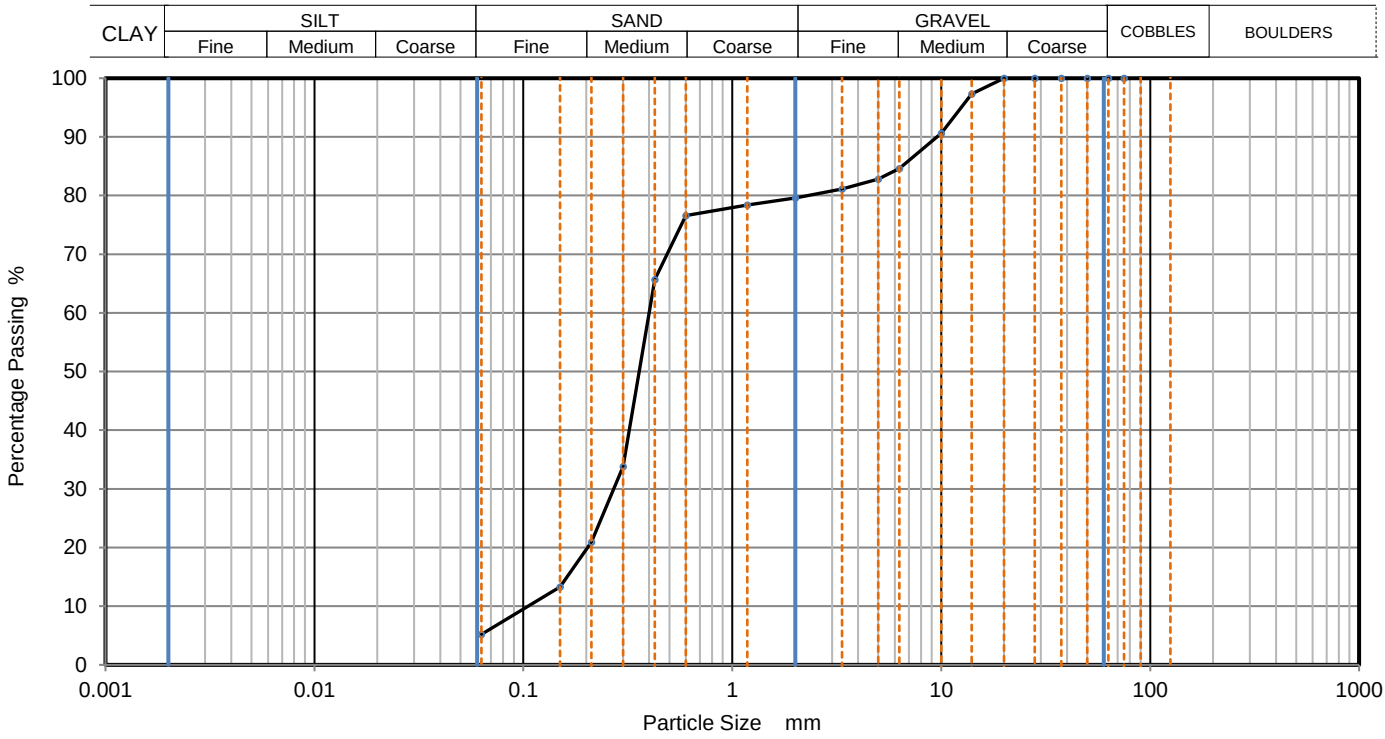
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61605
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey silty very gravelly medium SAND.			Depth, m	5.10
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220406110



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	91		
6.3	85		
5	83		
3.35	81		
2	80		
1.18	78		
0.6	77		
0.425	66		
0.3	34		
0.212	21		
0.15	13		
0.063	5		

Dry Mass of sample, g	240

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	74
Fines <0.063mm	5

Grading Analysis		
D100	mm	
D60	mm	0.399
D30	mm	0.271
D10	mm	0.106
Uniformity Coefficient		3.8
Curvature Coefficient		1.7

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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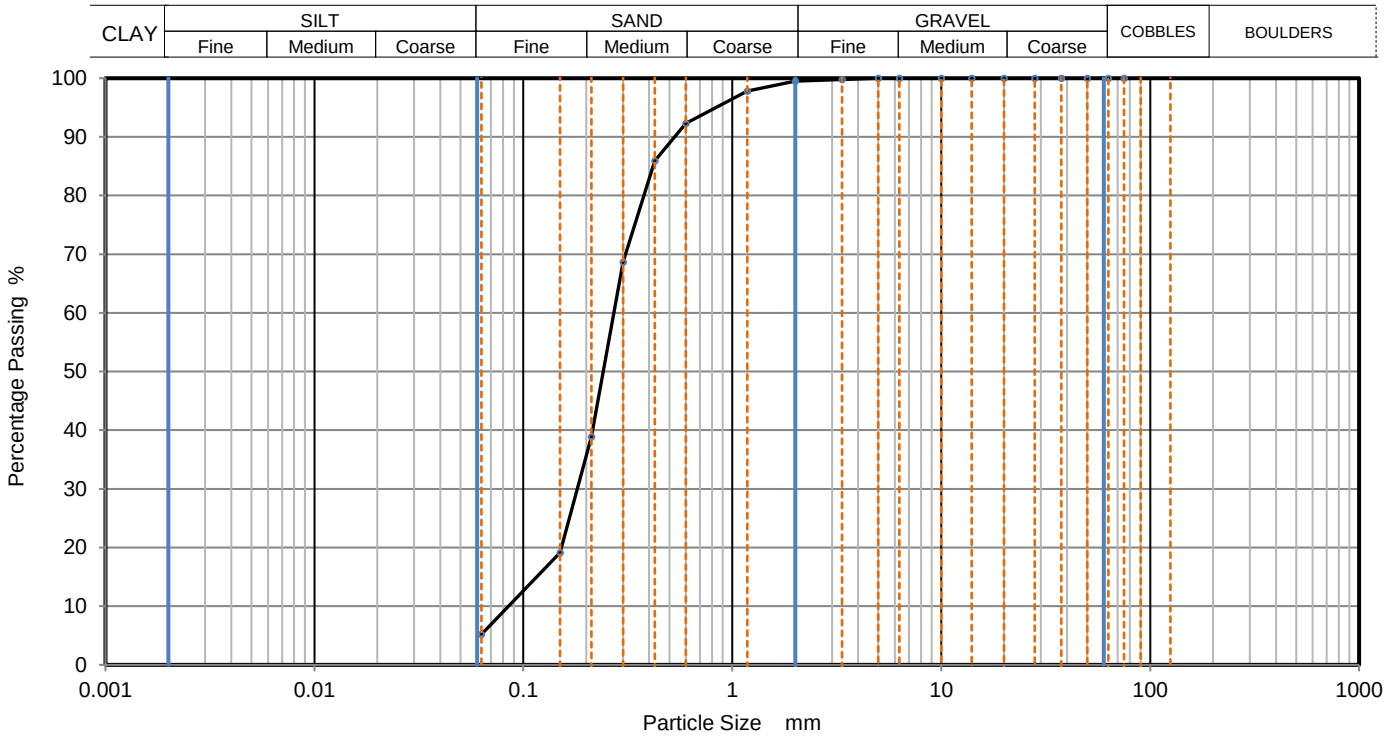
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-61605
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey slightly gravelly silty fine and medium SAND.			Depth, m	6.60
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220406112



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	98		
0.6	92		
0.425	86		
0.3	69		
0.212	39		
0.15	19		
0.063	5		

Dry Mass of sample, g	229

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	94
Fines <0.063mm	5

Grading Analysis		
D100	mm	
D60	mm	0.271
D30	mm	0.181
D10	mm	0.0849
Uniformity Coefficient		3.2
Curvature Coefficient		1.4

Remarks

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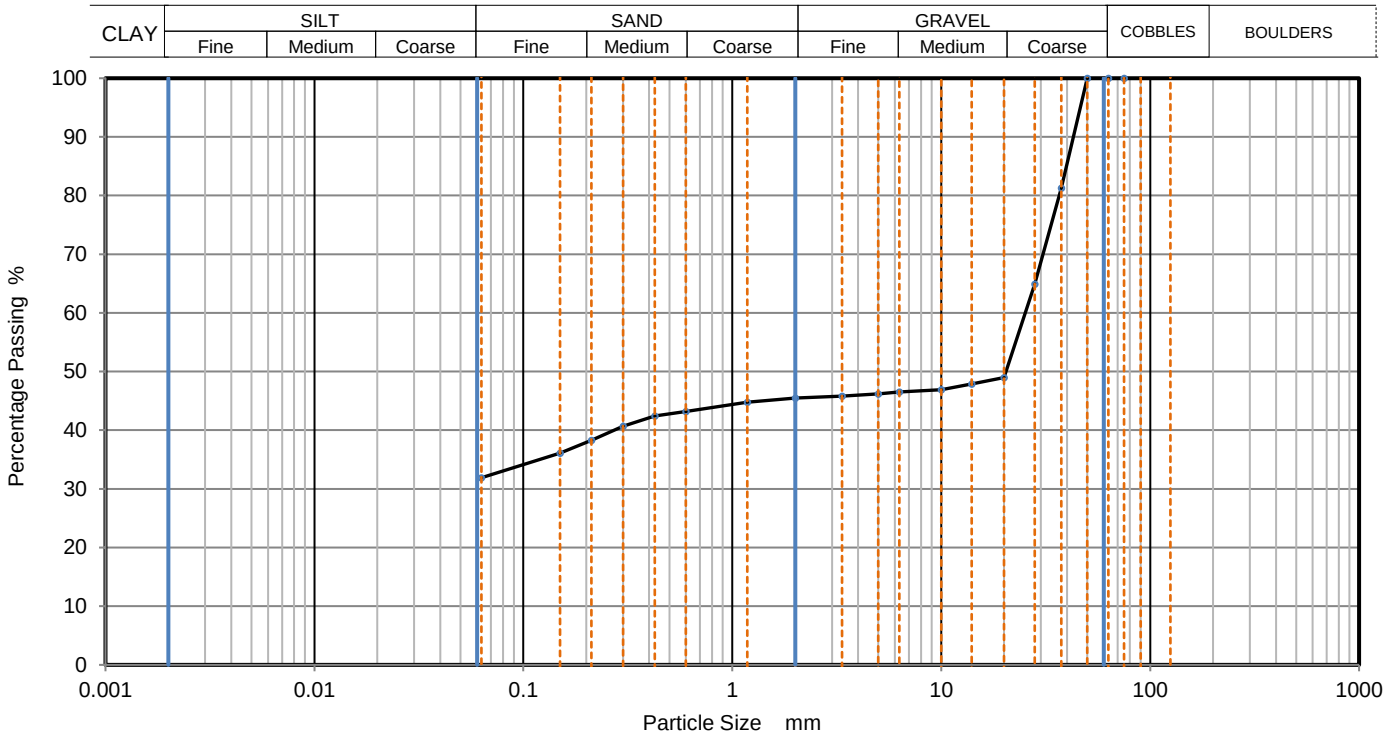
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-63008
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Brown sandy very silty coarse GRAVEL.			Depth, m	4.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220406139



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	81		
28	65		
20	49		
14	48		
10	47		
6.3	47		
5	46		
3.35	46		
2	46		
1.18	45		
0.6	43		
0.425	42		
0.3	41		
0.212	38		
0.15	36		
0.063	32		

Dry Mass of sample, g	984

Sample Proportions	% dry mass
Very coarse	0
Gravel	55
Sand	14
Fines <0.063mm	32

Grading Analysis		
D100	mm	
D60	mm	25.2
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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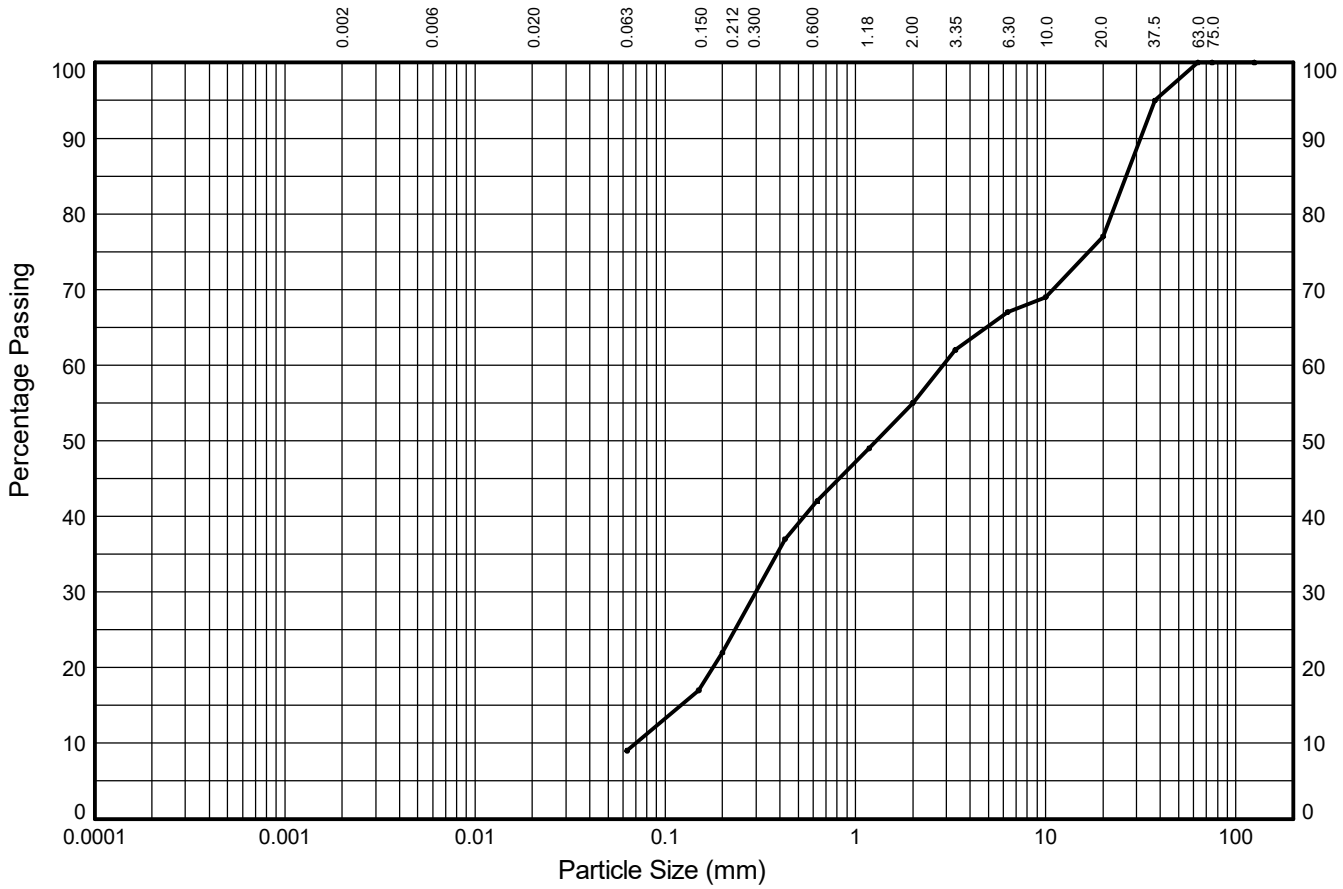
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-68009** Sample Ref: **3.5-5.0** Sample Type: **C** Depth (m): **3.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	13%	20%	13%	12%	10%	23%	
	SILT			SAND			GRAVEL			
9%				46%			45%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**95**
20.0	**77**
10.0	**69**
6.30	**67**
3.35	**62**
2.00	**55**
1.18	**49**
0.630	**42**
0.425	**37**
0.200	**22**
0.150	**17**
0.063	**9**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.070**
D_{15} (mm)	**0.121**
D_{30} (mm)	**0.299**
D_{50} (mm)	**1.288**
D_{60} (mm)	**2.891**
D_{85} (mm)	**26.446**
D_{90} (mm)	**31.492**
C_U	**41**
C_C	**0.44**

Soil Description:

Brown very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
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W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	01/03/23

Contract	Contract Ref:
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - PSD - A4P | 785325 - 2021OY102WSP2-BPT SECTION.GPJ - v10_01
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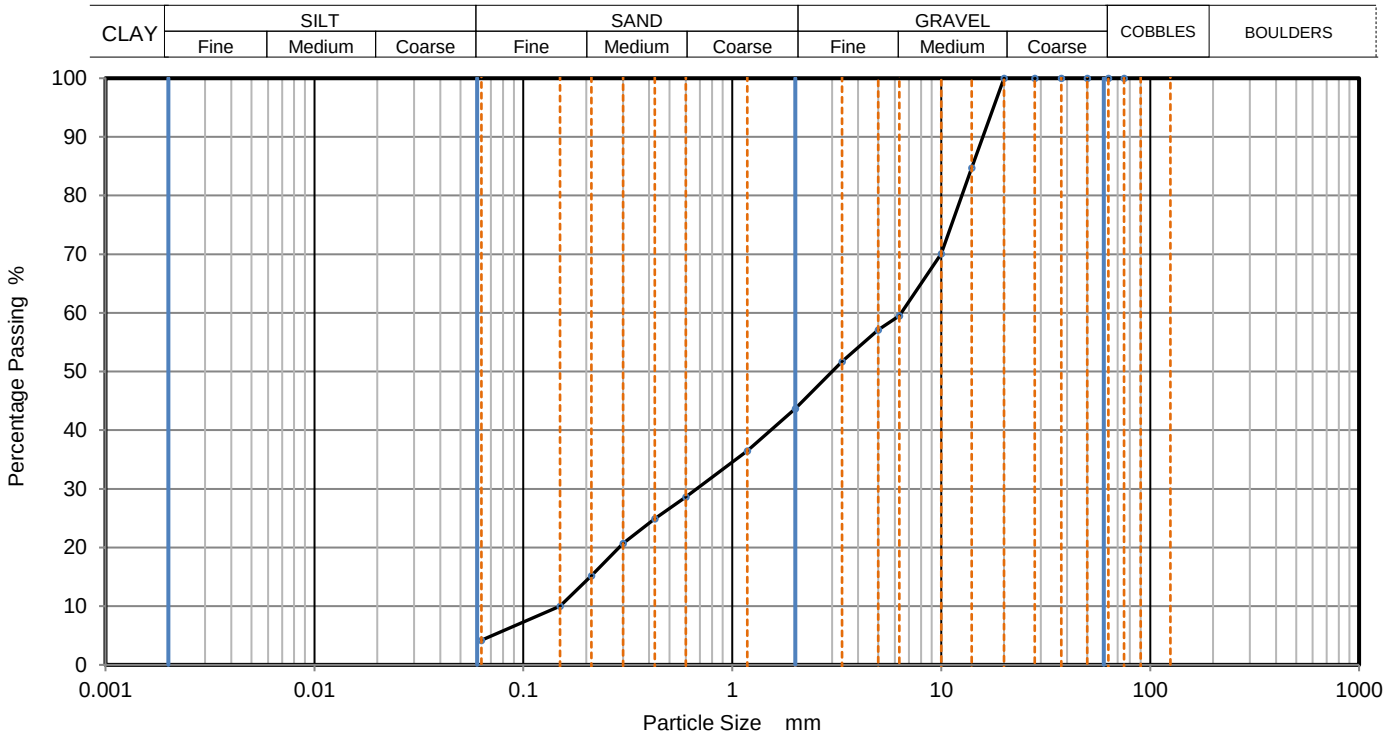
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-69561
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey slightly silty very sandy medium GRAVEL.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220505143



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	85		
10	70		
6.3	60		
5	57		
3.35	52		
2	44		
1.18	37		
0.6	29		
0.425	25		
0.3	21		
0.212	15		
0.15	10		
0.063	4		

Dry Mass of sample, g	299

Sample Proportions	% dry mass
Very coarse	0
Gravel	56
Sand	40
Fines <0.063mm	4

Grading Analysis		
D100	mm	
D60	mm	6.43
D30	mm	0.677
D10	mm	0.149
Uniformity Coefficient		43
Curvature Coefficient		0.48

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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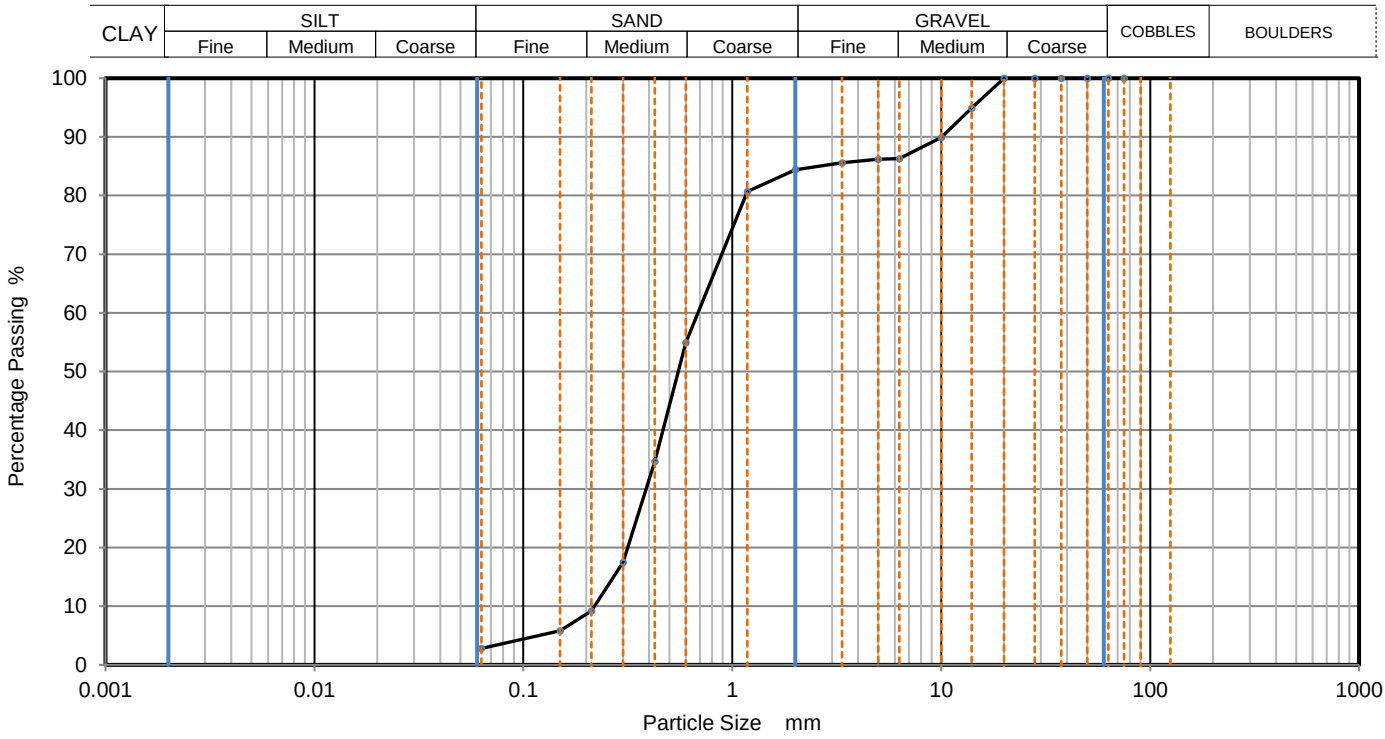
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-69703
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey slightly silty gravelly coarse and medium SAND.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022071582



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	90		
6.3	86		
5	86		
3.35	86		
2	84		
1.18	81		
0.6	55		
0.425	35		
0.3	18		
0.212	9		
0.15	6		
0.063	3		

Dry Mass of sample, g	266

Sample Proportions	% dry mass
Very coarse	0
Gravel	16
Sand	82
Fines <0.063mm	3

Grading Analysis		
D100	mm	
D60	mm	0.687
D30	mm	0.387
D10	mm	0.219
Uniformity Coefficient		3.1
Curvature Coefficient		0.99

Remarks

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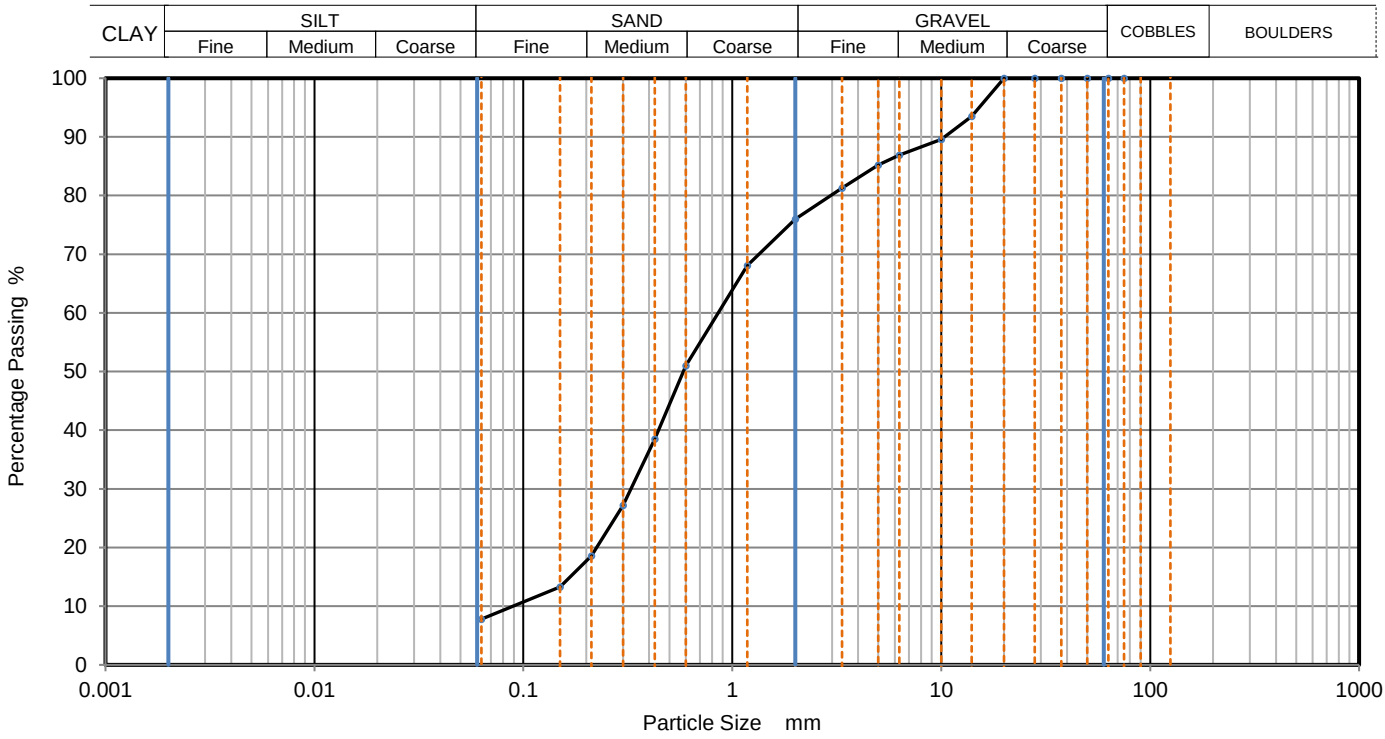
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-71124
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Bluish-grey silty very gravelly coarse and medium SAND.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022071592



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	90		
6.3	87		
5	85		
3.35	81		
2	76		
1.18	68		
0.6	51		
0.425	39		
0.3	27		
0.212	19		
0.15	13		
0.063	8		

Dry Mass of sample, g	275

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	68
Fines <0.063mm	8

Grading Analysis		
D100	mm	
D60	mm	0.856
D30	mm	0.327
D10	mm	0.089
Uniformity Coefficient		9.6
Curvature Coefficient		1.4

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
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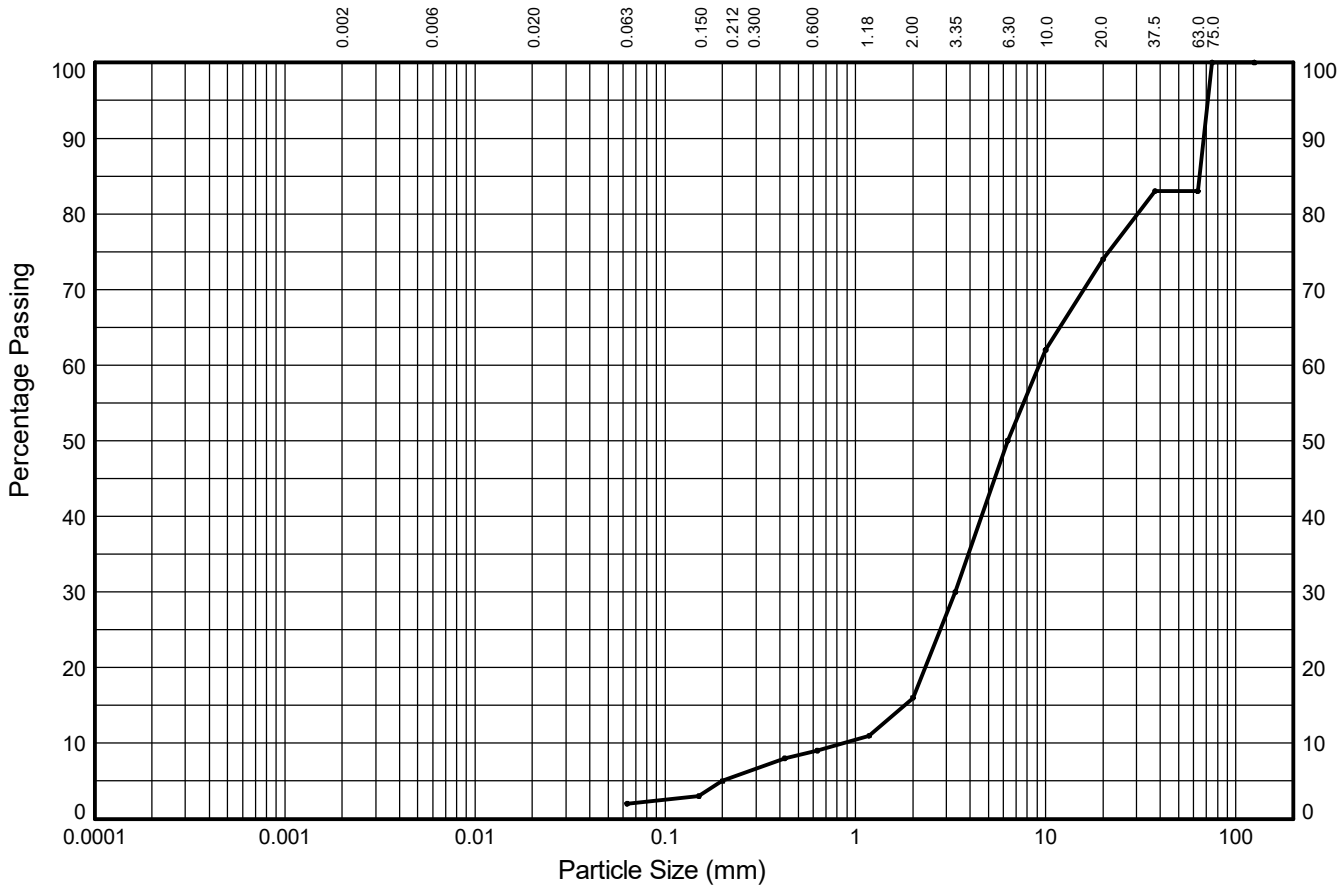
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-71656** Sample Ref: **2.0-3.5** Sample Type: **C** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	3%	4%	7%	34%	24%	9%	
	SILT			SAND			GRAVEL			
2%				14%			67%			17%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**83**
37.5	**83**
20.0	**74**
10.0	**62**
6.30	**50**
3.35	**30**
2.00	**16**
1.18	**11**
0.630	**9**
0.425	**8**
0.200	**5**
0.150	**3**
0.063	**2**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.862**
D_{15} (mm)	**1.800**
D_{30} (mm)	**3.350**
D_{50} (mm)	**6.300**
D_{60} (mm)	**9.259**
D_{85} (mm)	**64.306**
D_{90} (mm)	**67.689**
C_U	**11**
C_C	**1**

Soil Description:

Grey black sandy slightly silty/clayey GRAVEL with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Compiled By	Date
LAURA SCHRAMM	01/03/23

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PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-71656** Sample Ref: **3.5** Sample Type: **C** Depth (m): **3.50**

CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	6%	4%	3%	11%	3%	7%	
	SILT			SAND			GRAVEL			
66%				13%			21%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**93**
10.0	**91**
6.30	**90**
3.35	**81**
2.00	**79**
1.18	**78**
0.630	**76**
0.425	**75**
0.200	**72**
0.150	**68**
0.063	**66**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**NA**
D_{60} (mm)	**NA**
D_{85} (mm)	**4.436**
D_{90} (mm)	**6.300**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey slightly sandy slightly gravelly CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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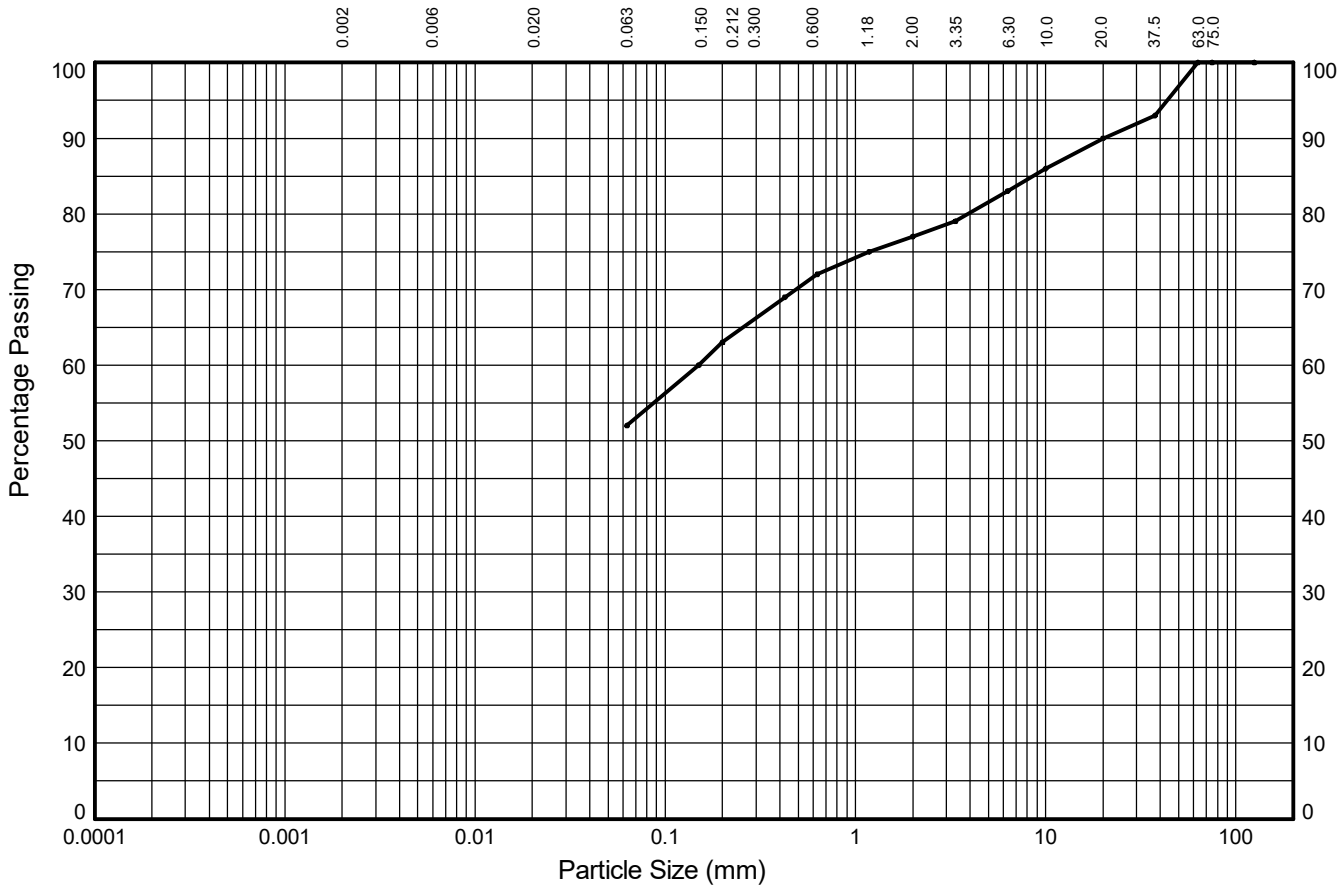
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-72207** Sample Ref: **5.0-6.5(U)** Sample Type: **C** Depth (m): **5.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	11%	9%	5%	6%	7%	10%	
	SILT			SAND			GRAVEL			
52%				25%			23%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**93**
20.0	**90**
10.0	**86**
6.30	**83**
3.35	**79**
2.00	**77**
1.18	**75**
0.630	**72**
0.425	**69**
0.200	**63**
0.150	**60**
0.063	**52**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**NA**
D_{60} (mm)	**0.150**
D_{85} (mm)	**8.573**
D_{90} (mm)	**20.000**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey slightly gravelly slightly sandy CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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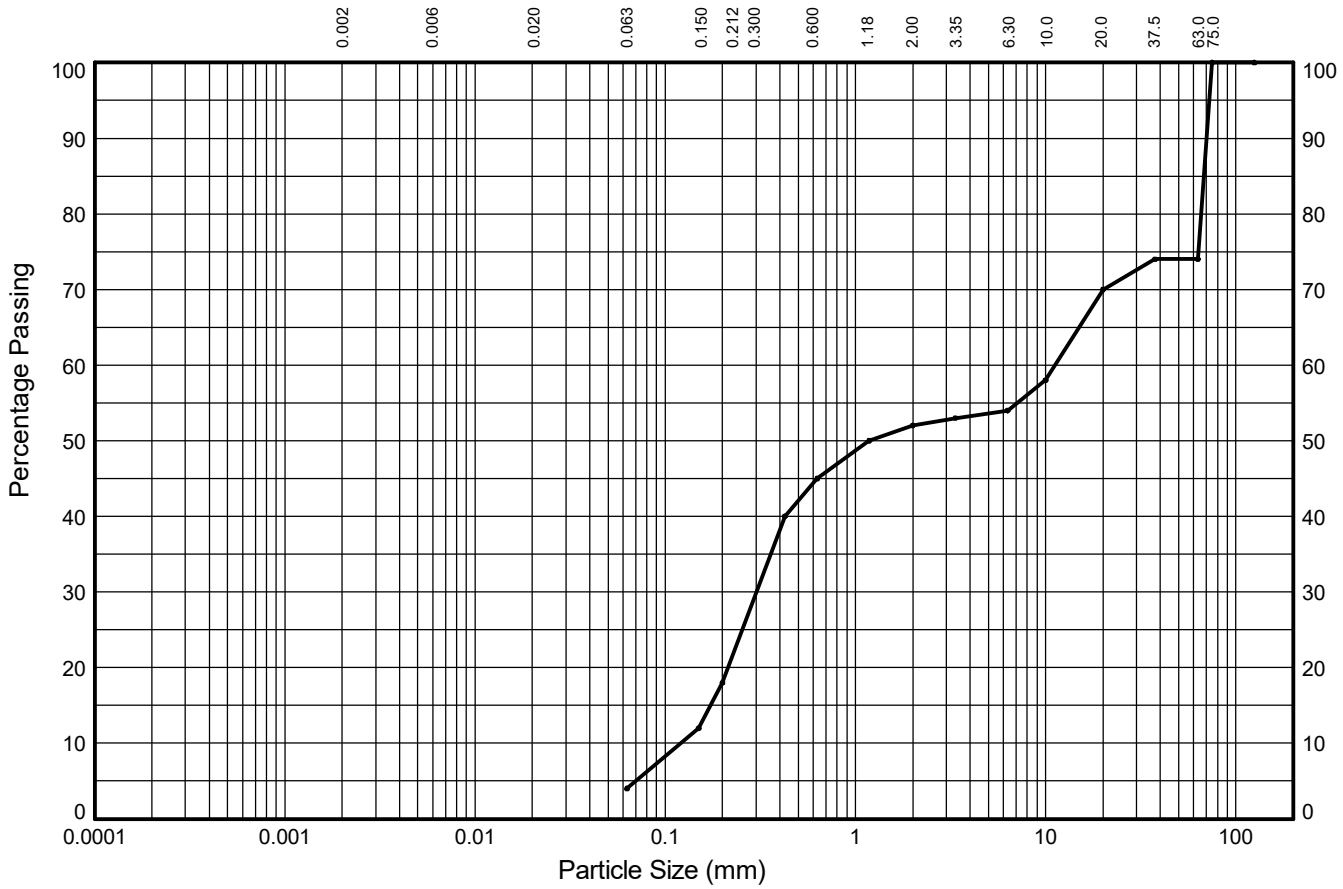
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-74851** Sample Ref: **3.0-5.8** Sample Type: **C** Depth (m): **3.00**



CLAY										COBBLES
	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	
	-	-	-	14%	27%	7%	2%	16%	4%	
	SILT			SAND			GRAVEL			
4%				48%			22%			26%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**74**
37.5	**74**
20.0	**70**
10.0	**58**
6.30	**54**
3.35	**53**
2.00	**52**
1.18	**50**
0.630	**45**
0.425	**40**
0.200	**18**
0.150	**12**
0.063	**4**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.121**
D_{15} (mm)	**0.173**
D_{30} (mm)	**0.302**
D_{50} (mm)	**1.180**
D_{60} (mm)	**11.225**
D_{85} (mm)	**67.823**
D_{90} (mm)	**70.136**
C_U	**93**
C_C	**0.07**

Soil Description:

Grey very gravelly slightly silty/clayey SAND with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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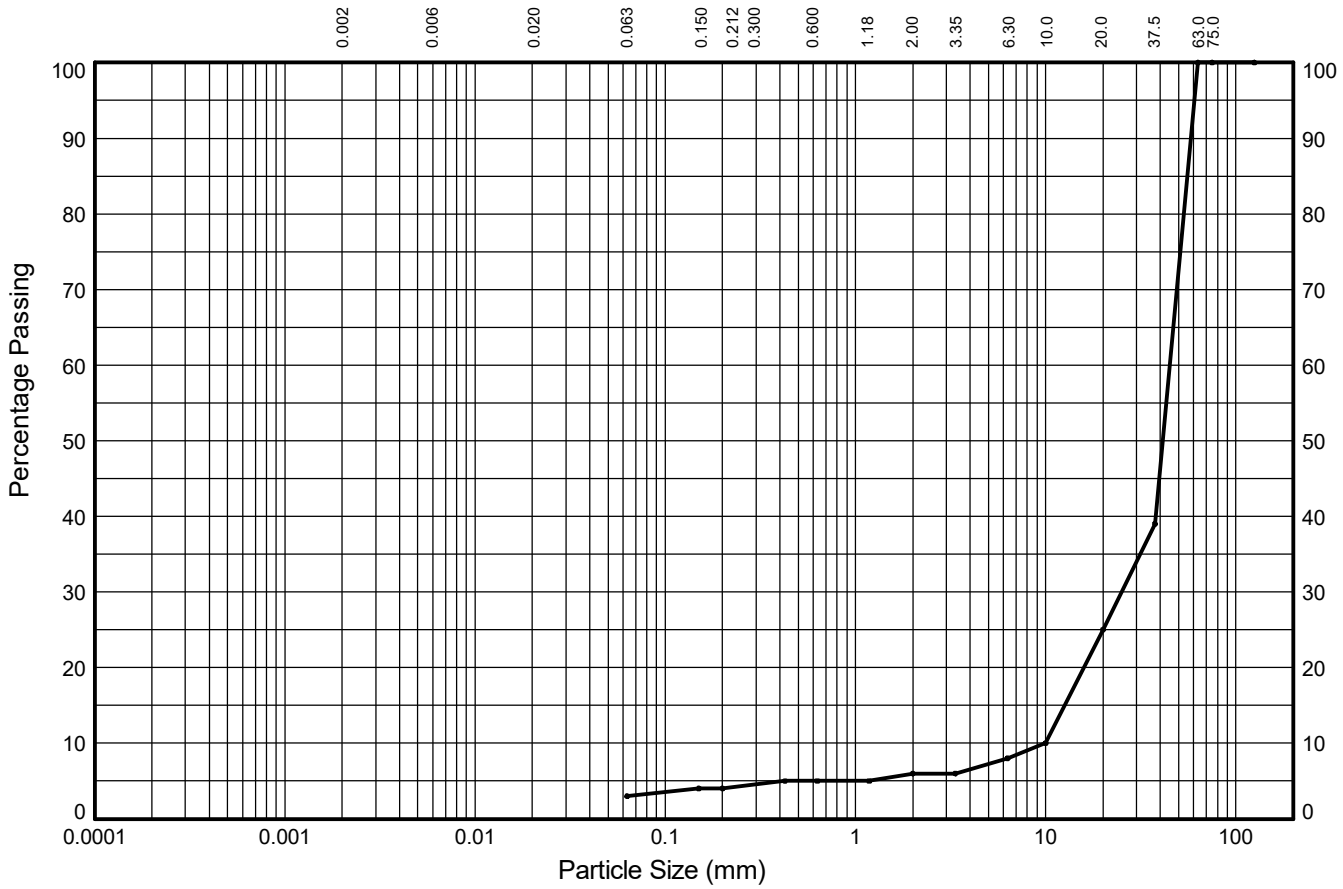
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-74851** Sample Ref: **8.8-10.3** Sample Type: **C** Depth (m): **8.80**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	1%	1%	2%	17%	75%	
	SILT			SAND			GRAVEL			
3%				3%			94%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**39**
20.0	**25**
10.0	**10**
6.30	**8**
3.35	**6**
2.00	**6**
1.18	**5**
0.630	**5**
0.425	**5**
0.200	**4**
0.150	**4**
0.063	**3**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**10.000**
D_{15} (mm)	**12.599**
D_{30} (mm)	**25.034**
D_{50} (mm)	**41.178**
D_{60} (mm)	**44.833**
D_{85} (mm)	**55.454**
D_{90} (mm)	**57.863**
C_U	**4.5**
C_C	**1.4**

Soil Description:

Grey slightly sandy slightly silty GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Contract Ref: **785325**

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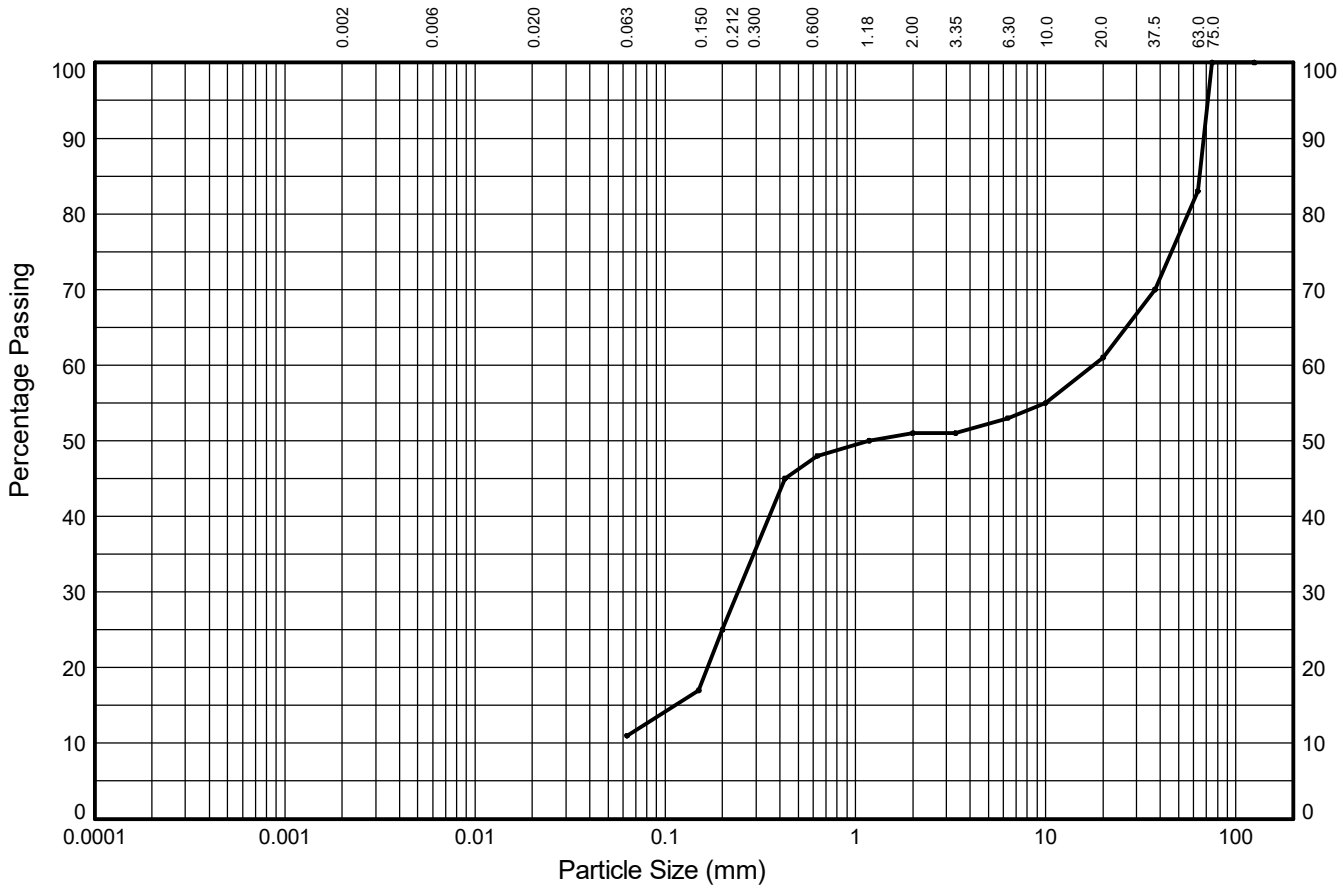
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-75808** Sample Ref: **4.3-5.8** Sample Type: **C** Depth (m): **4.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	14%	23%	3%	2%	8%	22%	
	SILT			SAND			GRAVEL			
11%				40%			32%			17%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**83**
37.5	**70**
20.0	**61**
10.0	**55**
6.30	**53**
3.35	**51**
2.00	**51**
1.18	**50**
0.630	**48**
0.425	**45**
0.200	**25**
0.150	**17**
0.063	**11**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.112**
D_{30} (mm)	**0.241**
D_{50} (mm)	**1.180**
D_{60} (mm)	**17.818**
D_{85} (mm)	**64.306**
D_{90} (mm)	**67.689**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown very gravelly silty/clayey SAND with medium cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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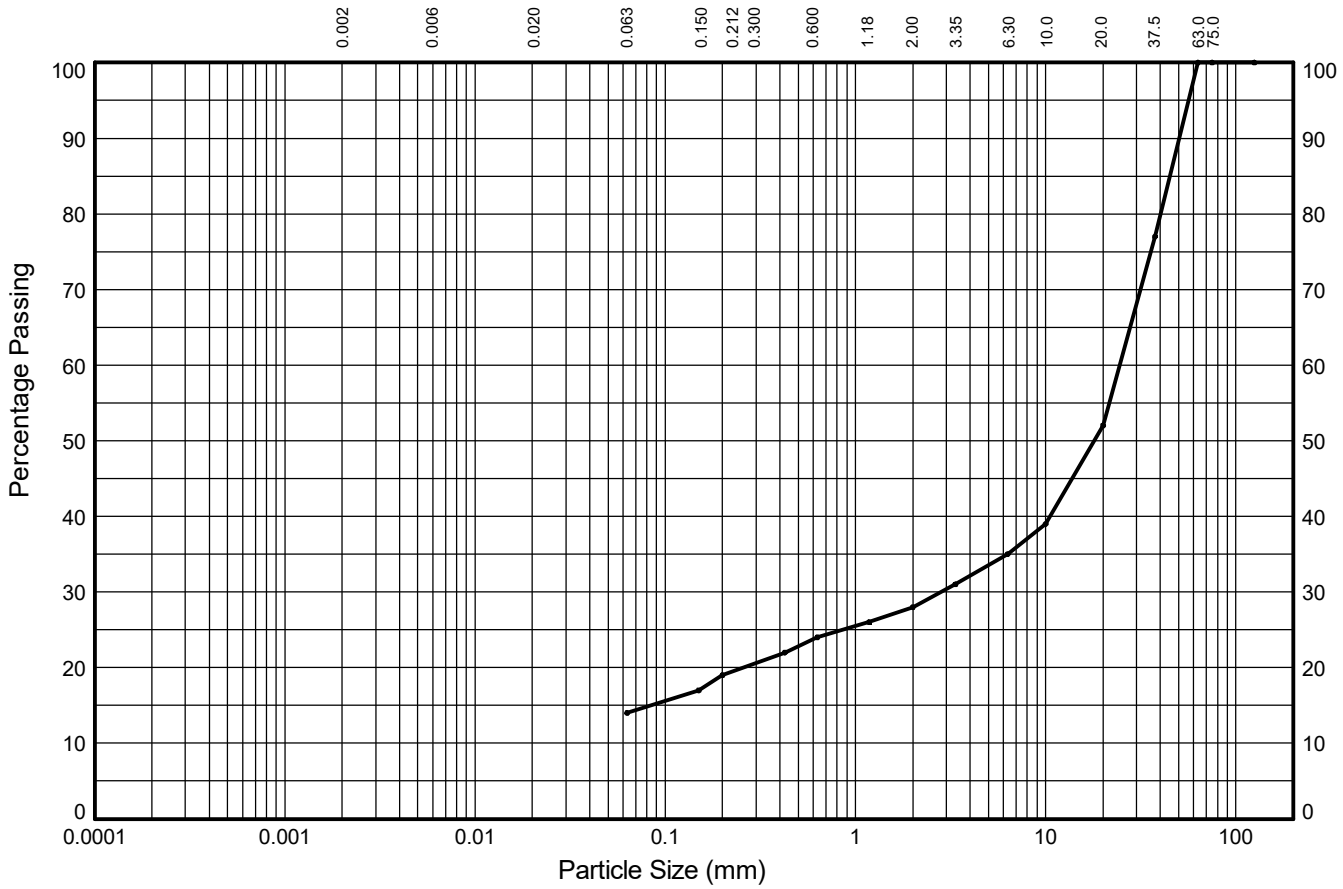
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-76545** Sample Ref: **7.3-15.1** Sample Type: **C** Depth (m): **7.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	5%	5%	4%	7%	17%	48%	
	SILT			SAND			GRAVEL			
14%				14%			72%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**77**
20.0	**52**
10.0	**39**
6.30	**35**
3.35	**31**
2.00	**28**
1.18	**26**
0.630	**24**
0.425	**22**
0.200	**19**
0.150	**17**
0.063	**14**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.084**
D_{30} (mm)	**2.821**
D_{50} (mm)	**17.977**
D_{60} (mm)	**24.456**
D_{85} (mm)	**44.916**
D_{90} (mm)	**50.278**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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Contract Ref: **785325**

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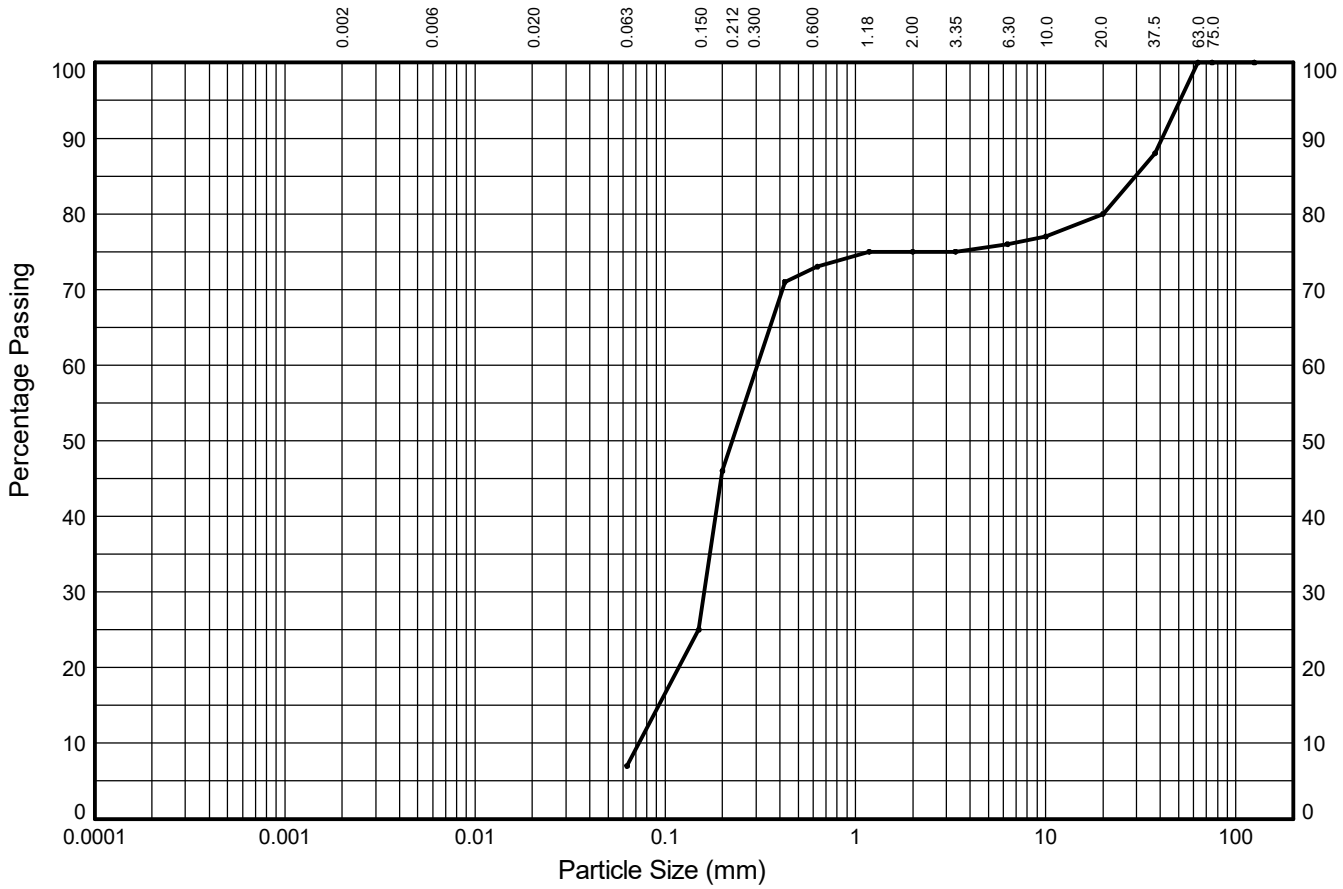
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-76601** Sample Ref: **1.5-12.0** Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	39%	27%	2%	1%	4%	20%	
	SILT			SAND			GRAVEL			
7%				68%			25%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**88**
20.0	**80**
10.0	**77**
6.30	**76**
3.35	**75**
2.00	**75**
1.18	**75**
0.630	**73**
0.425	**71**
0.200	**46**
0.150	**25**
0.063	**7**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.073**
D_{15} (mm)	**0.093**
D_{30} (mm)	**0.161**
D_{50} (mm)	**0.226**
D_{60} (mm)	**0.305**
D_{85} (mm)	**29.625**
D_{90} (mm)	**40.887**
C_U	**4.2**
C_C	**1.2**

Soil Description:

Grey very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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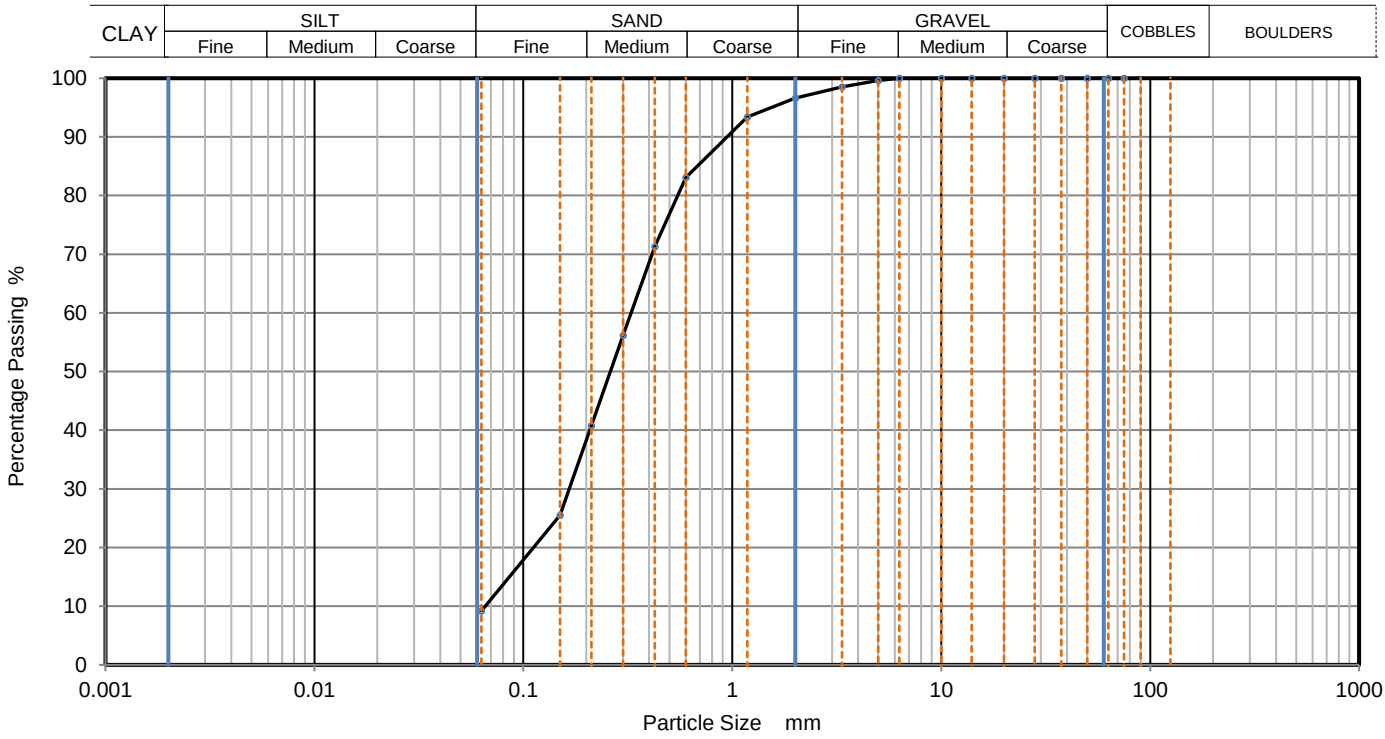
PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-77631
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown slightly gravelly silty medium SAND.			Depth, m	4.30
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220505187



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	97		
1.18	93		
0.6	83		
0.425	71		
0.3	56		
0.212	41		
0.15	26		
0.063	9		

Dry Mass of sample, g: 208

Sample Proportions	% dry mass
Very coarse	0
Gravel	3
Sand	88
Fines <0.063mm	9

Grading Analysis		
D100	mm	
D60	mm	0.327
D30	mm	0.166
D10	mm	0.0659
Uniformity Coefficient		5
Curvature Coefficient		1.3

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	25/11/2022 14:43	**1**
				QC From No:R2

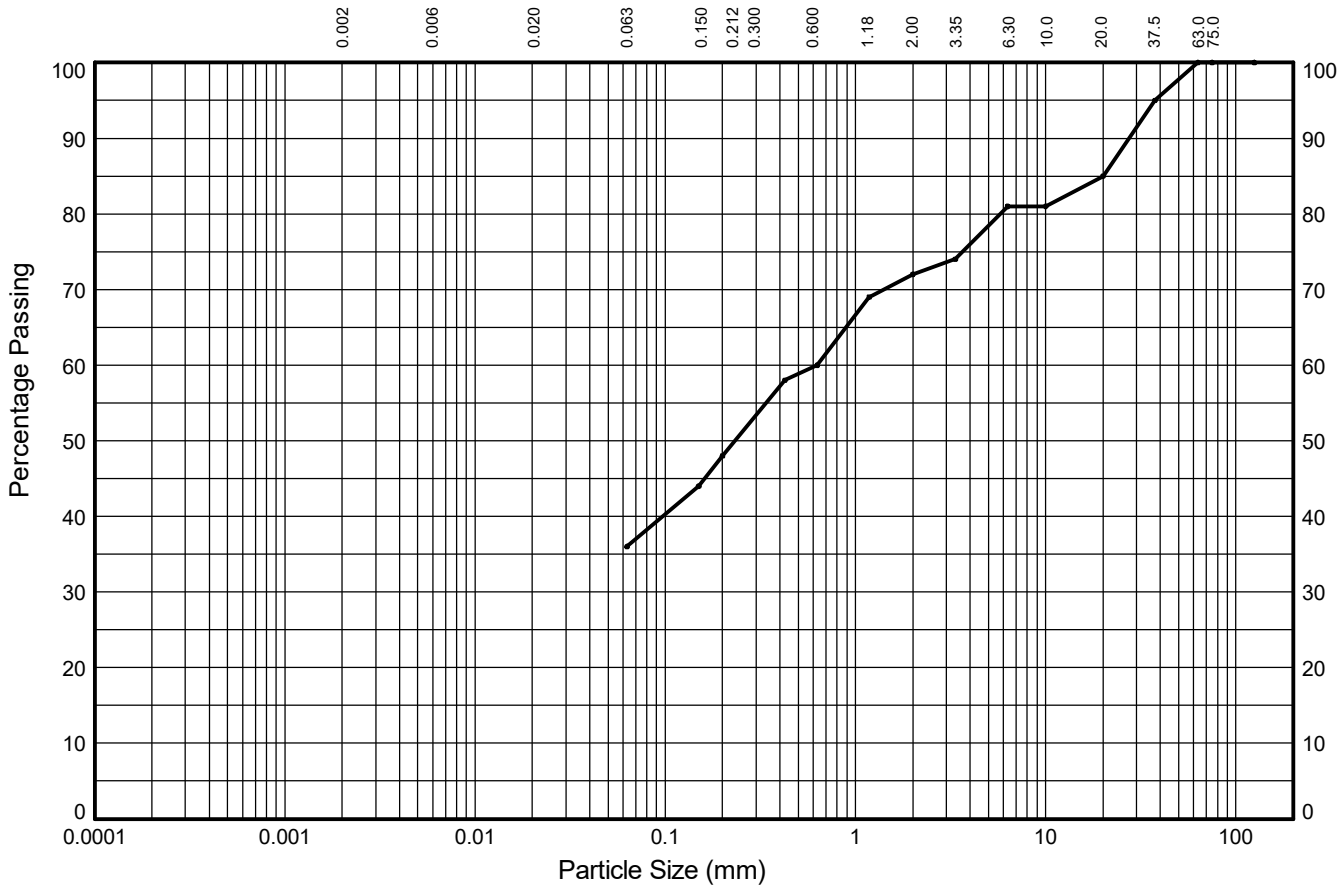
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016

Borehole: **BH-78204** Sample Ref: **4.3-8.8** Sample Type: **C** Depth (m): **4.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	12%	12%	12%	9%	4%	15%	
	SILT			SAND			GRAVEL			
36%				36%			28%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**95**
20.0	**85**
10.0	**81**
6.30	**81**
3.35	**74**
2.00	**72**
1.18	**69**
0.630	**60**
0.425	**58**
0.200	**48**
0.150	**44**
0.063	**36**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**0.233**
D_{60} (mm)	**0.630**
D_{85} (mm)	**20.000**
D_{90} (mm)	**27.386**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey slightly gravelly sandy CLAY

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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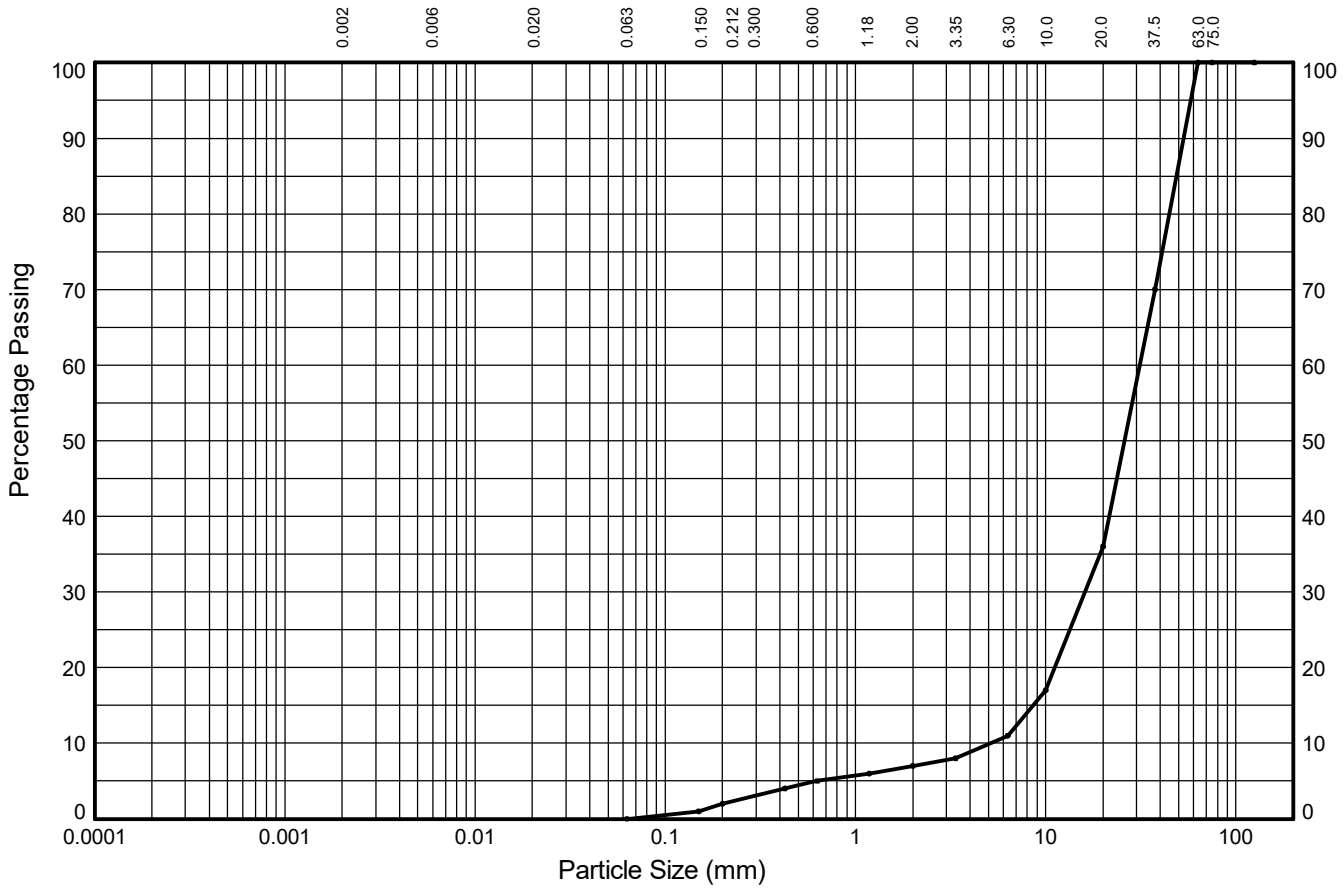
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78204** Sample Ref: **8.8-10.3** Sample Type: **C** Depth (m): **8.80**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	2%	3%	2%	4%	25%	64%	
	SILT			SAND			GRAVEL			
0%				7%			93%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**70**
20.0	**36**
10.0	**17**
6.30	**11**
3.35	**8**
2.00	**7**
1.18	**6**
0.630	**5**
0.425	**4**
0.200	**2**
0.150	**1**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**5.104**
D_{15} (mm)	**8.573**
D_{30} (mm)	**16.068**
D_{50} (mm)	**25.909**
D_{60} (mm)	**31.170**
D_{85} (mm)	**48.606**
D_{90} (mm)	**52.995**
C_U	**6.1**
C_C	**1.6**

Soil Description:
Grey sandy GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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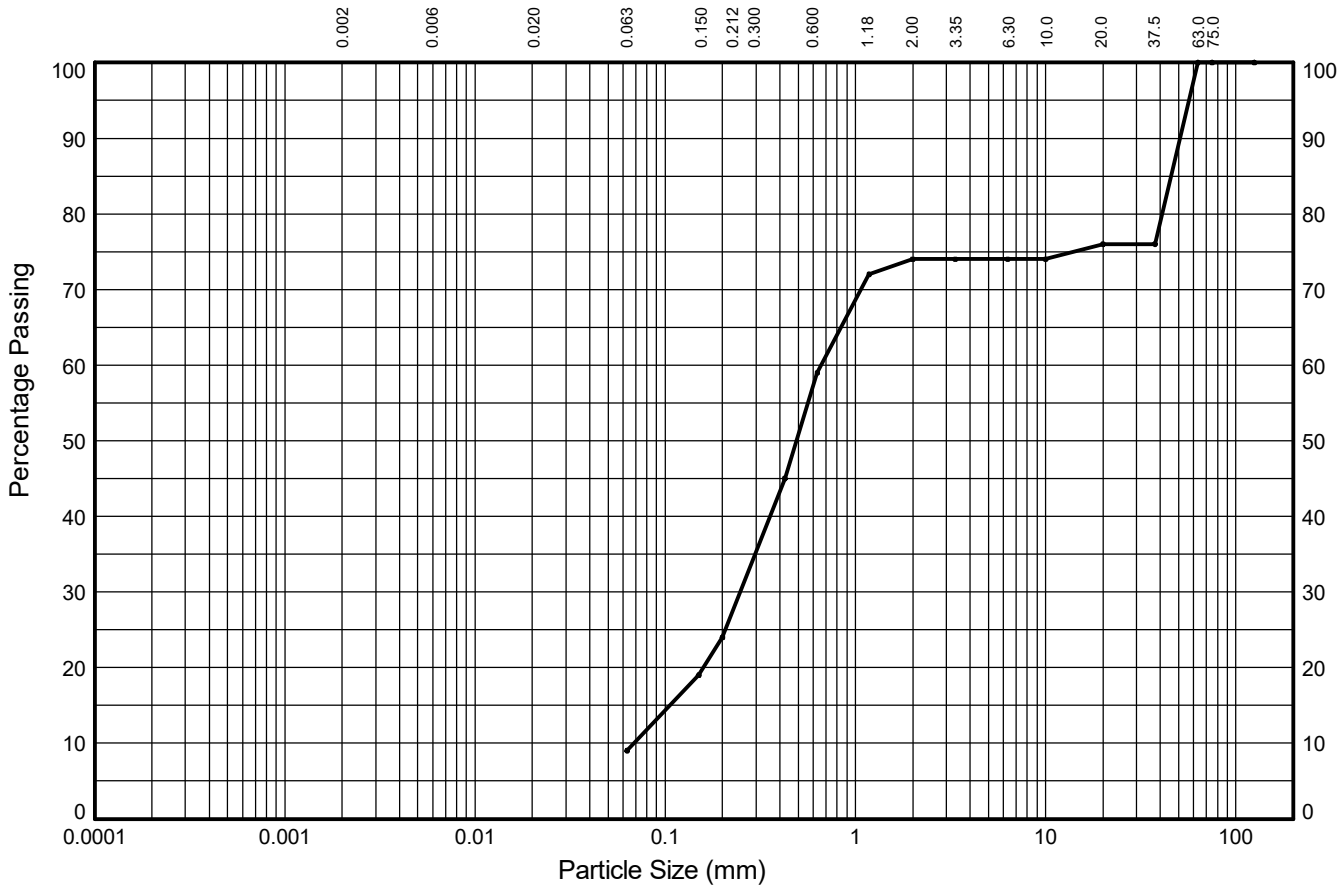
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78412** Sample Ref: **2.0-3.3** Sample Type: **C** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	15%	35%	15%	0%	2%	24%	
	SILT			SAND			GRAVEL			
9%				65%			26%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**76**
20.0	**76**
10.0	**74**
6.30	**74**
3.35	**74**
2.00	**74**
1.18	**72**
0.630	**59**
0.425	**45**
0.200	**24**
0.150	**19**
0.063	**9**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.069**
D_{15} (mm)	**0.106**
D_{30} (mm)	**0.248**
D_{50} (mm)	**0.489**
D_{60} (mm)	**0.661**
D_{85} (mm)	**45.554**
D_{90} (mm)	**50.753**
C_U	**9.6**
C_C	**1.4**

Soil Description:

Grey very gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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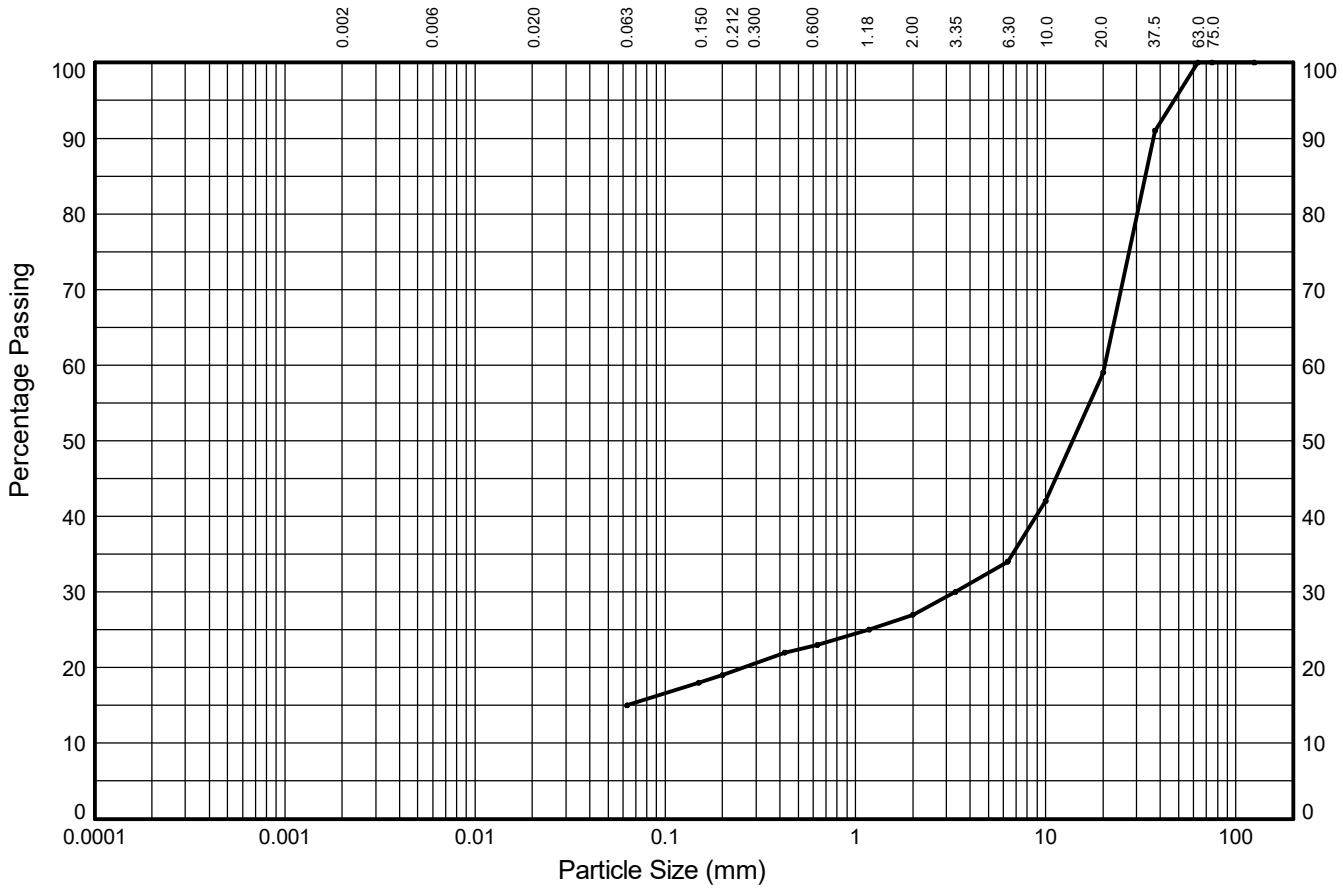
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78579** Sample Ref: **5.8-8.8** Sample Type: **C** Depth (m): **4.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	4%	4%	4%	7%	25%	41%	
	SILT			SAND			GRAVEL			
15%				12%			73%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**91**
20.0	**59**
10.0	**42**
6.30	**34**
3.35	**30**
2.00	**27**
1.18	**25**
0.630	**23**
0.425	**22**
0.200	**19**
0.150	**18**
0.063	**15**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.063**
D_{30} (mm)	**3.350**
D_{50} (mm)	**13.857**
D_{60} (mm)	**20.397**
D_{85} (mm)	**33.331**
D_{90} (mm)	**36.771**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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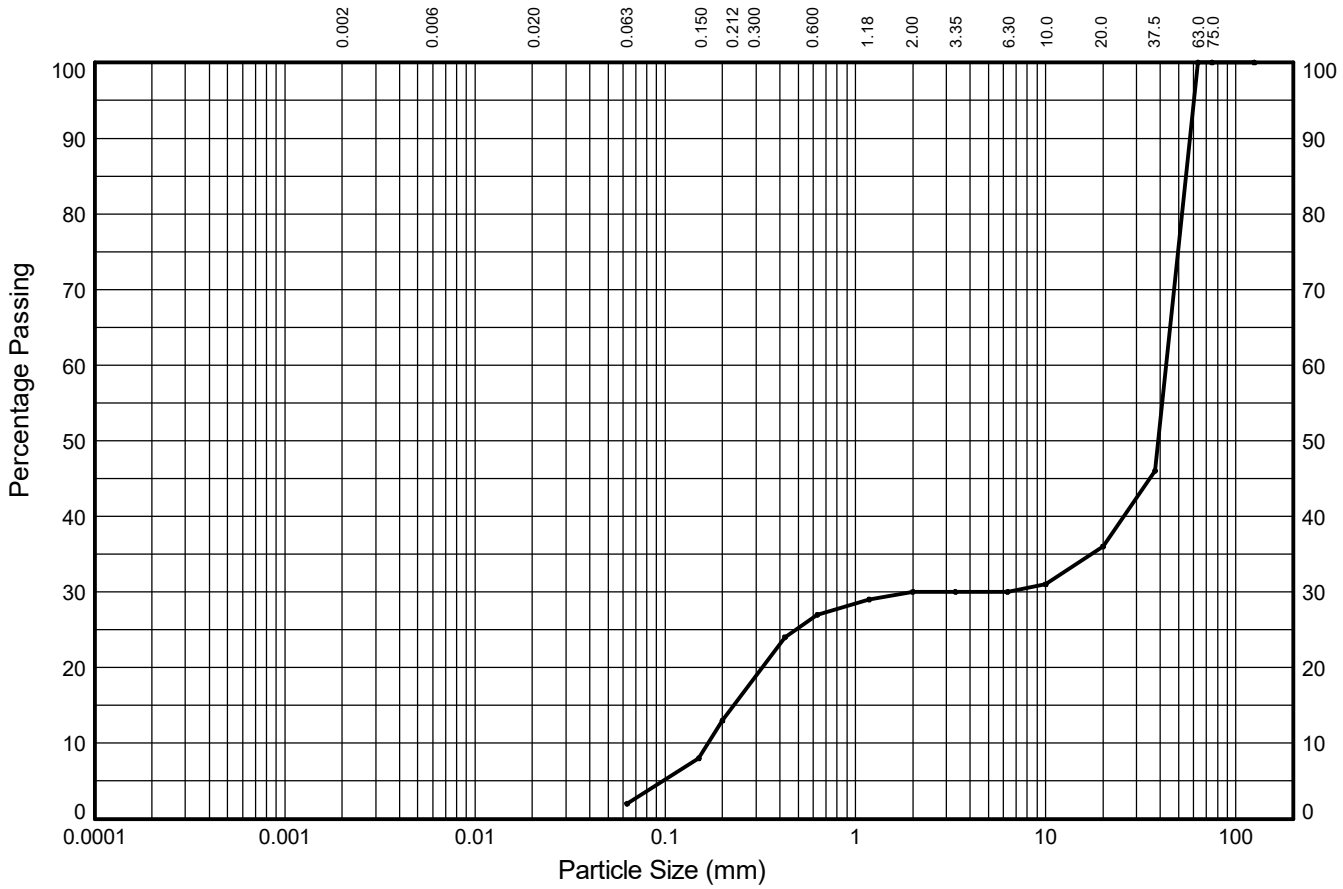
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78694** Sample Ref: **5.8-8.8** Sample Type: **C** Depth (m): **5.80**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	11%	14%	3%	0%	6%	64%	
	SILT			SAND			GRAVEL			
2%				28%			70%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**46**
20.0	**36**
10.0	**31**
6.30	**30**
3.35	**30**
2.00	**30**
1.18	**29**
0.630	**27**
0.425	**24**
0.200	**13**
0.150	**8**
0.063	**2**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.168**
D_{15} (mm)	**0.229**
D_{30} (mm)	**2.000**
D_{50} (mm)	**38.969**
D_{60} (mm)	**42.899**
D_{85} (mm)	**54.545**
D_{90} (mm)	**57.229**
C_U	**255**
C_C	**0.55**

Soil Description:

Grey brown very sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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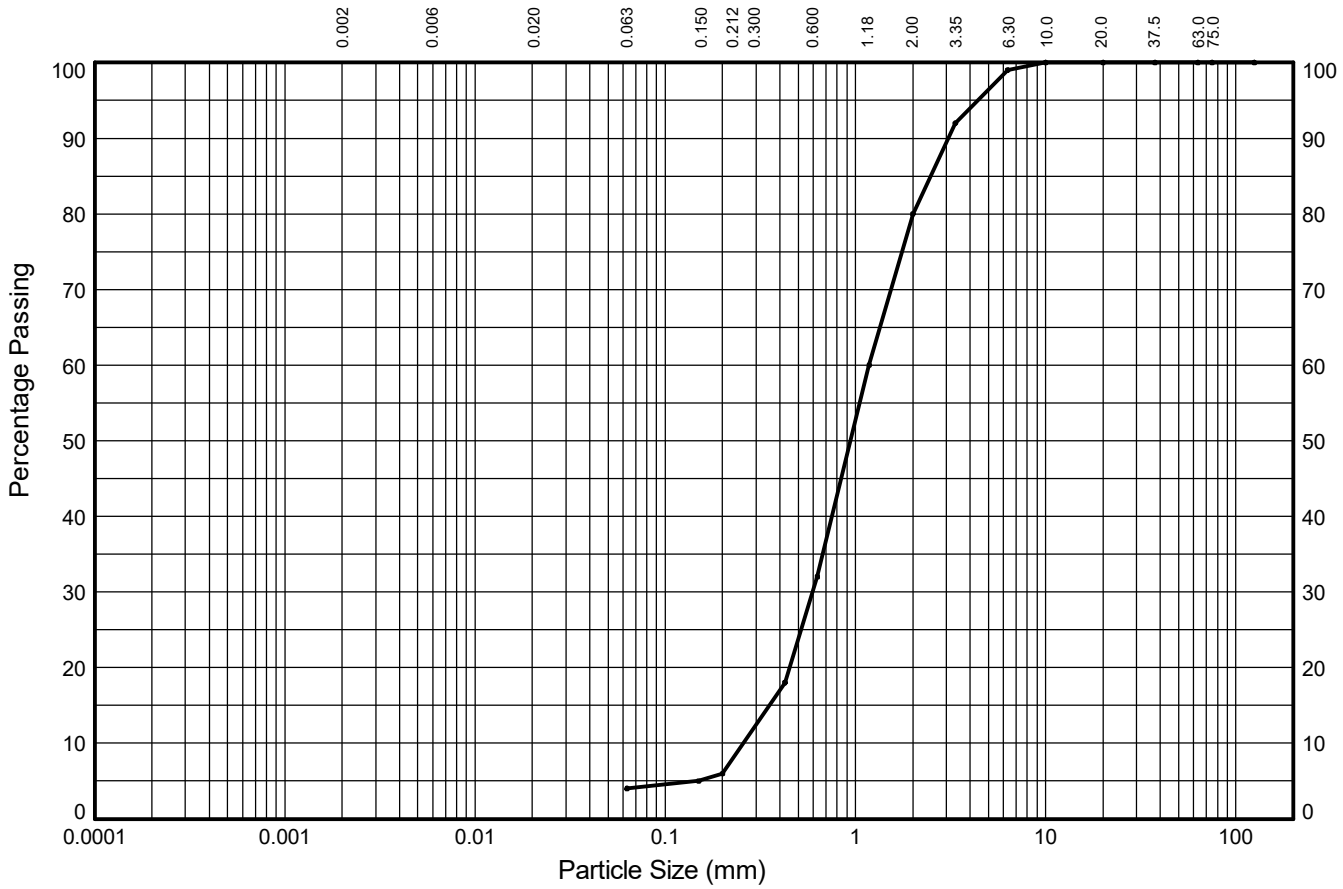
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78790A** Sample Ref: **1.5-3.0** Sample Type: **C** Depth (m): **1.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	2%	26%	48%	19%	1%	0%	
	SILT			SAND			GRAVEL			
4%				76%			20%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**100**
10.0	**100**
6.30	**99**
3.35	**92**
2.00	**80**
1.18	**60**
0.630	**32**
0.425	**18**
0.200	**6**
0.150	**5**
0.063	**4**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.257**
D_{15} (mm)	**0.352**
D_{30} (mm)	**0.596**
D_{50} (mm)	**0.943**
D_{60} (mm)	**1.180**
D_{85} (mm)	**2.480**
D_{90} (mm)	**3.074**
C_U	**4.6**
C_C	**1.2**

Soil Description:

Grey gravelly slightly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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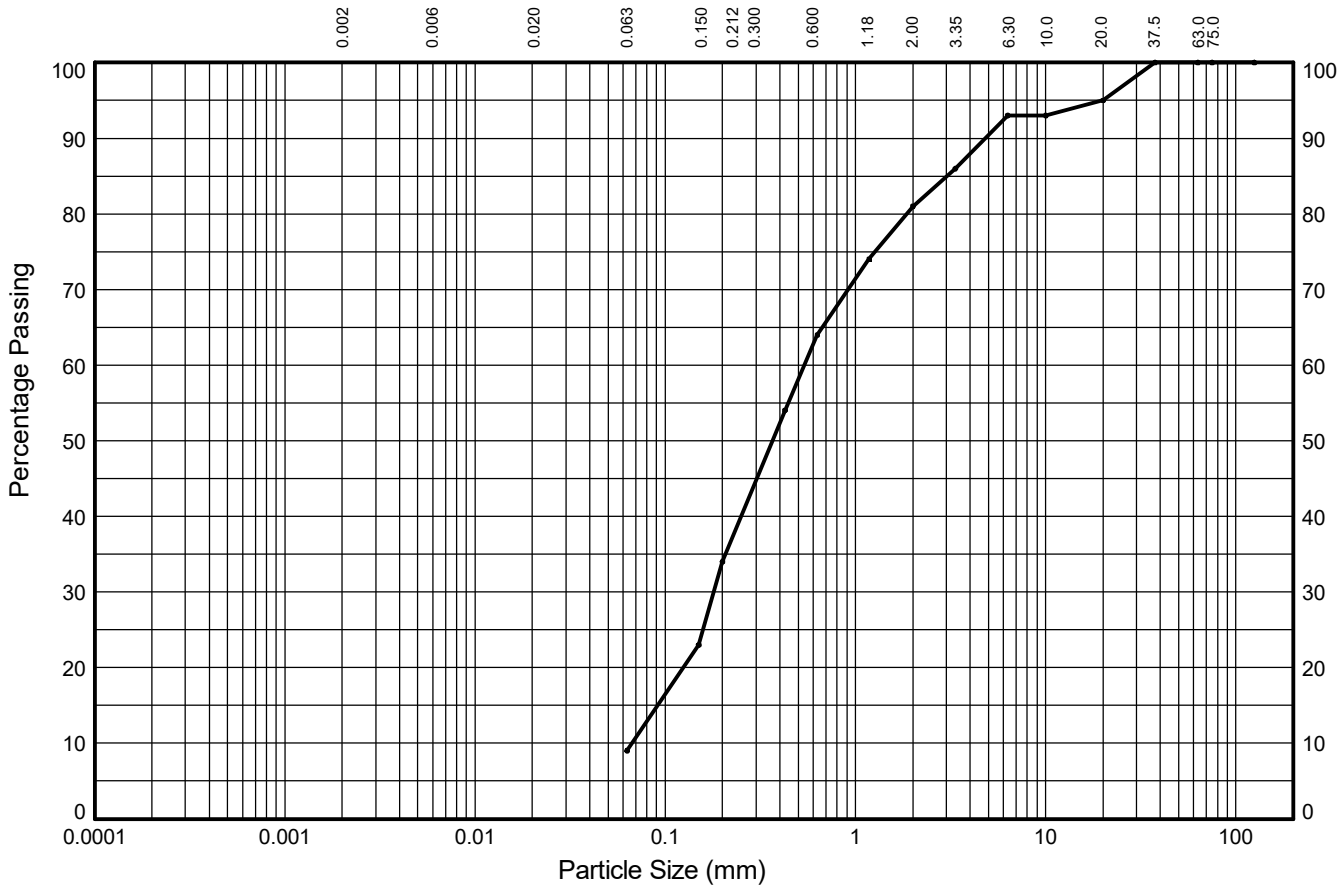
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78790A** Sample Ref: **3.0-5.8** Sample Type: **C** Depth (m): **3.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	25%	30%	17%	12%	2%	5%	
	SILT			SAND			GRAVEL			
9%				72%			19%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**95**
10.0	**93**
6.30	**93**
3.35	**86**
2.00	**81**
1.18	**74**
0.630	**64**
0.425	**54**
0.200	**34**
0.150	**23**
0.063	**9**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.067**
D_{15} (mm)	**0.091**
D_{30} (mm)	**0.180**
D_{50} (mm)	**0.366**
D_{60} (mm)	**0.538**
D_{85} (mm)	**3.022**
D_{90} (mm)	**4.806**
C_U	**8.0**
C_C	**0.90**

Soil Description:

Grey gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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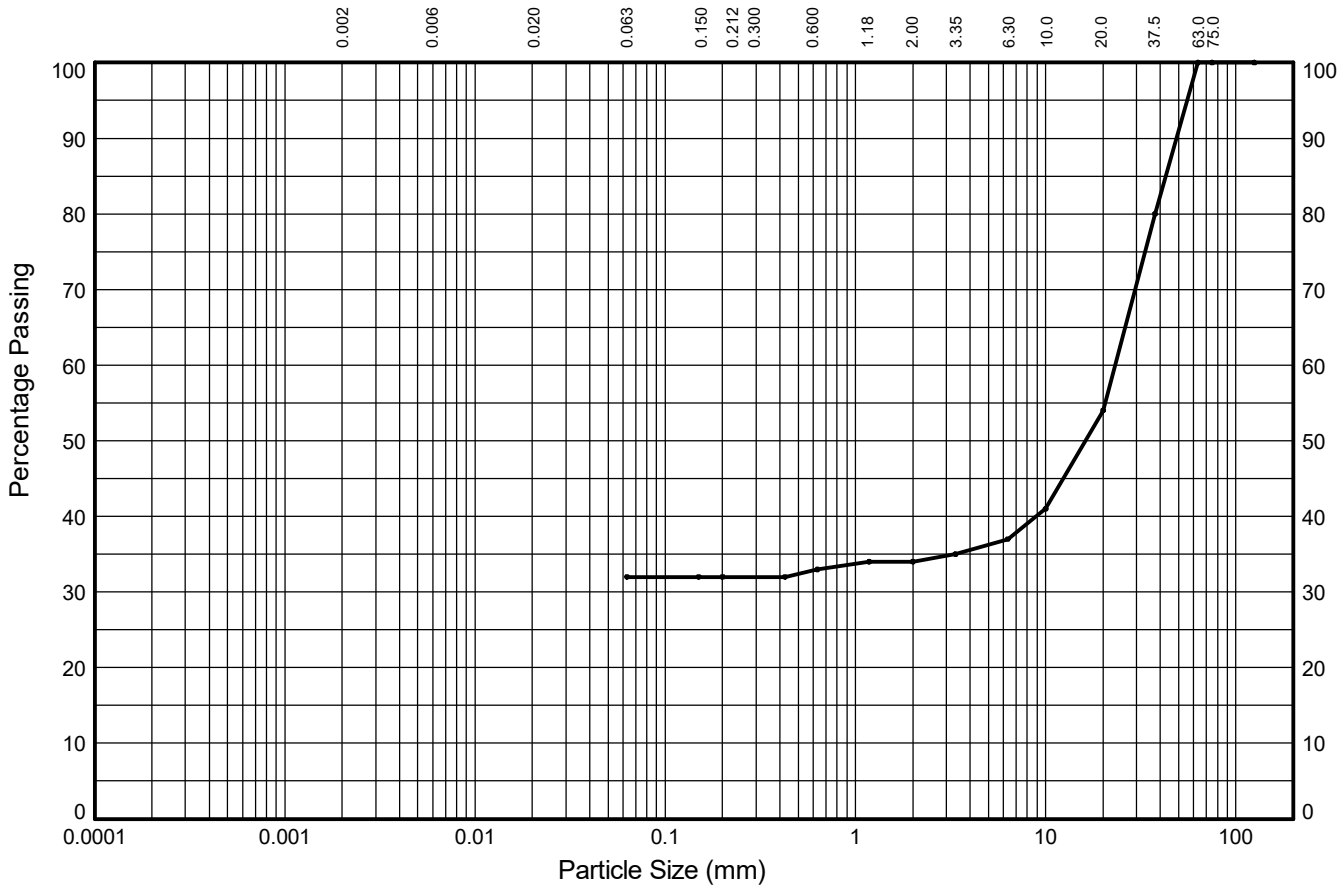
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78790A** Sample Ref: **7.3-10.3** Sample Type: **C** Depth (m): **7.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	1%	1%	3%	17%	46%	
	SILT			SAND			GRAVEL			
32%				2%			66%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**80**
20.0	**54**
10.0	**41**
6.30	**37**
3.35	**35**
2.00	**34**
1.18	**34**
0.630	**33**
0.425	**32**
0.200	**32**
0.150	**32**
0.063	**32**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**NA**
D_{30} (mm)	**NA**
D_{50} (mm)	**16.159**
D_{60} (mm)	**23.122**
D_{85} (mm)	**42.693**
D_{90} (mm)	**48.606**
C_U	**NA**
C_C	**NA**

Soil Description:

Grey slightly sandy very silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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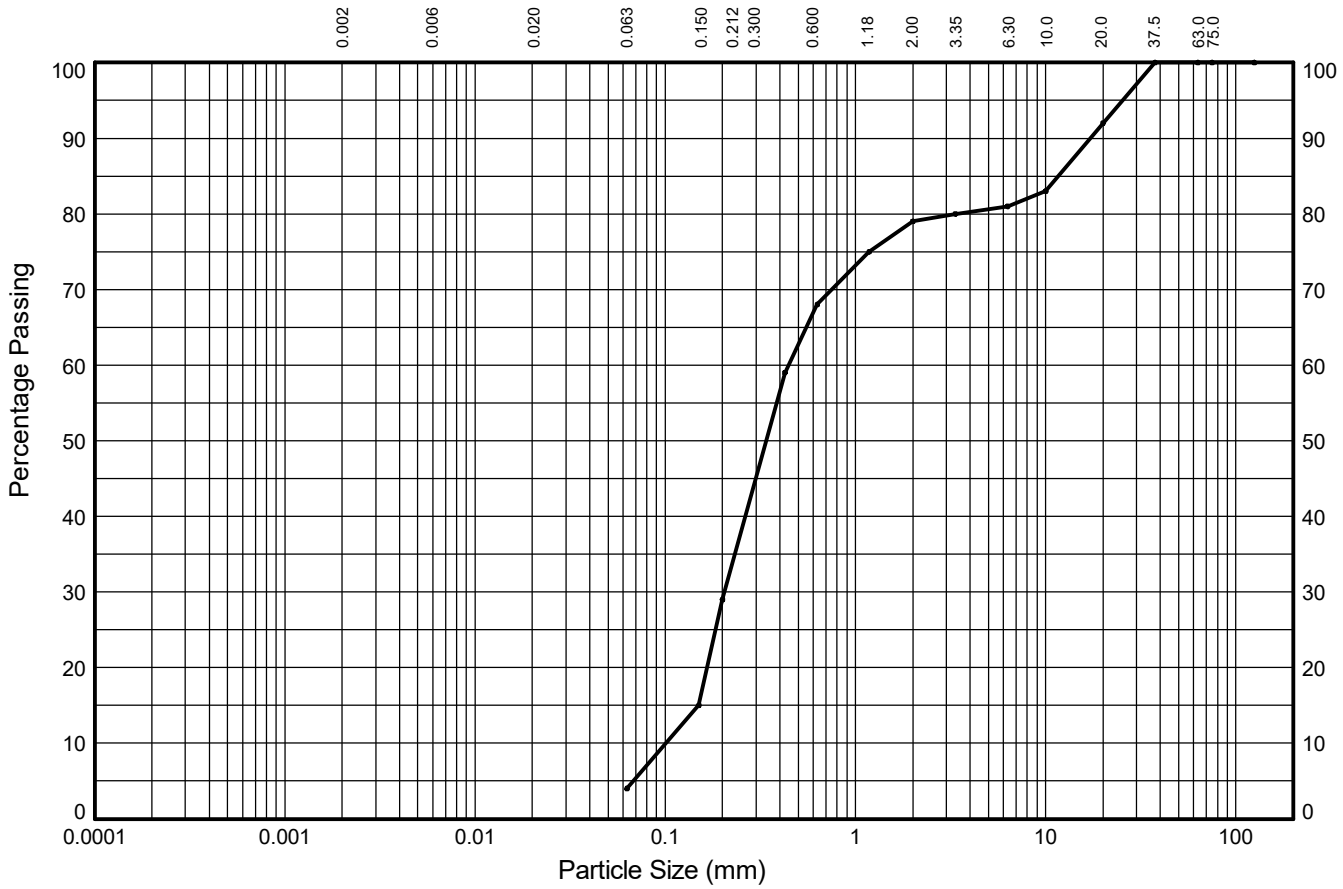
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-78862** Sample Ref: **5.8-8.8** Sample Type: **C** Depth (m): **5.80**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	25%	39%	11%	2%	11%	8%	
	SILT			SAND			GRAVEL			
4%				75%			21%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**100**
20.0	**92**
10.0	**83**
6.30	**81**
3.35	**80**
2.00	**79**
1.18	**75**
0.630	**68**
0.425	**59**
0.200	**29**
0.150	**15**
0.063	**4**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.101**
D_{15} (mm)	**0.150**
D_{30} (mm)	**0.205**
D_{50} (mm)	**0.339**
D_{60} (mm)	**0.444**
D_{85} (mm)	**11.665**
D_{90} (mm)	**17.145**
C_U	**4.4**
C_C	**0.94**

Soil Description:

Grey very gravelly slightly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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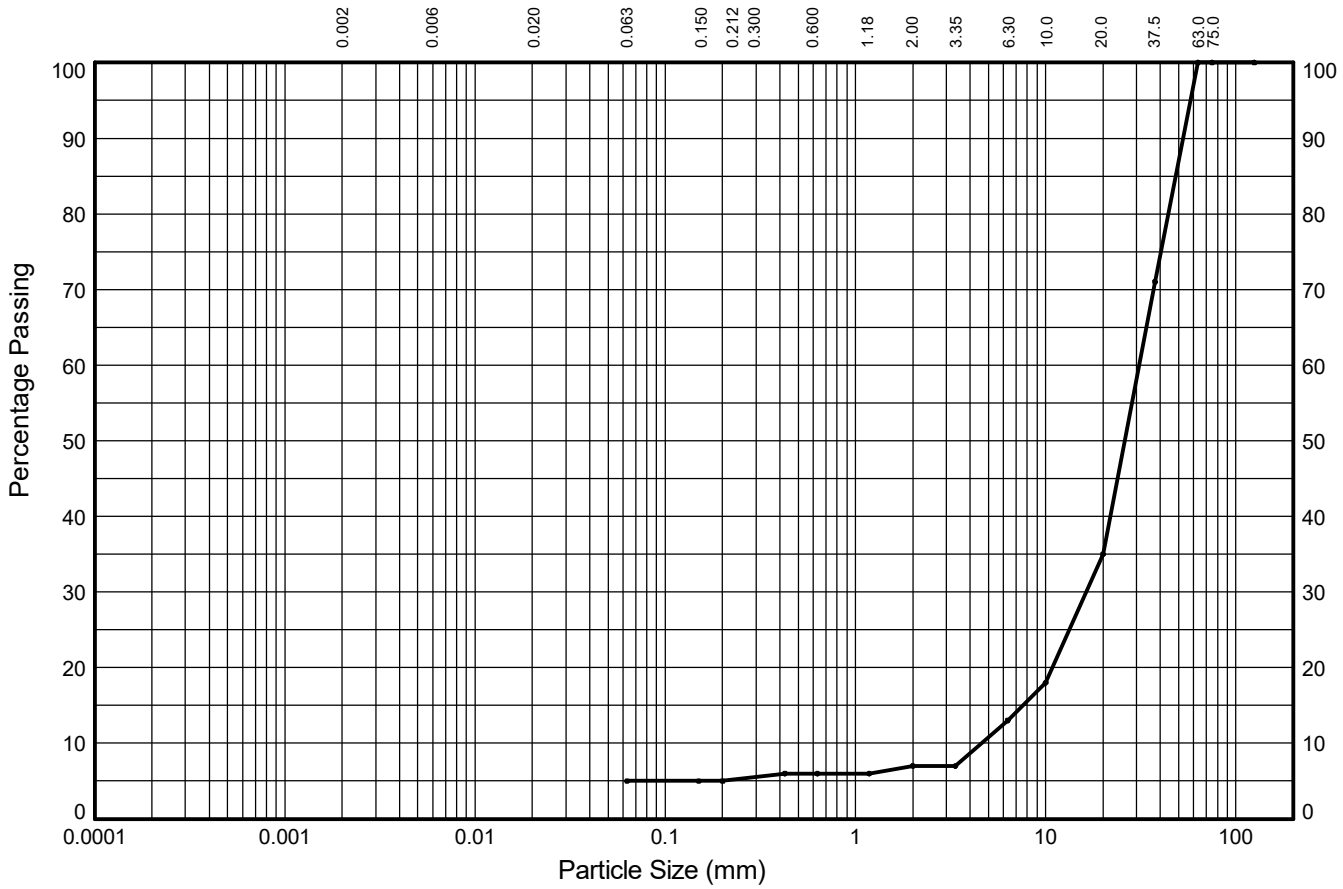
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-79209** Sample Ref: **4.3-7.8** Sample Type: **C** Depth (m): **4.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	1%	1%	6%	22%	65%	
	SILT			SAND			GRAVEL			
5%				2%			93%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**71**
20.0	**35**
10.0	**18**
6.30	**13**
3.35	**7**
2.00	**7**
1.18	**6**
0.630	**6**
0.425	**6**
0.200	**5**
0.150	**5**
0.063	**5**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**4.594**
D_{15} (mm)	**7.579**
D_{30} (mm)	**16.311**
D_{50} (mm)	**25.988**
D_{60} (mm)	**30.947**
D_{85} (mm)	**48.173**
D_{90} (mm)	**52.680**
C_U	**6.7**
C_C	**1.9**

Soil Description:

Grey slightly sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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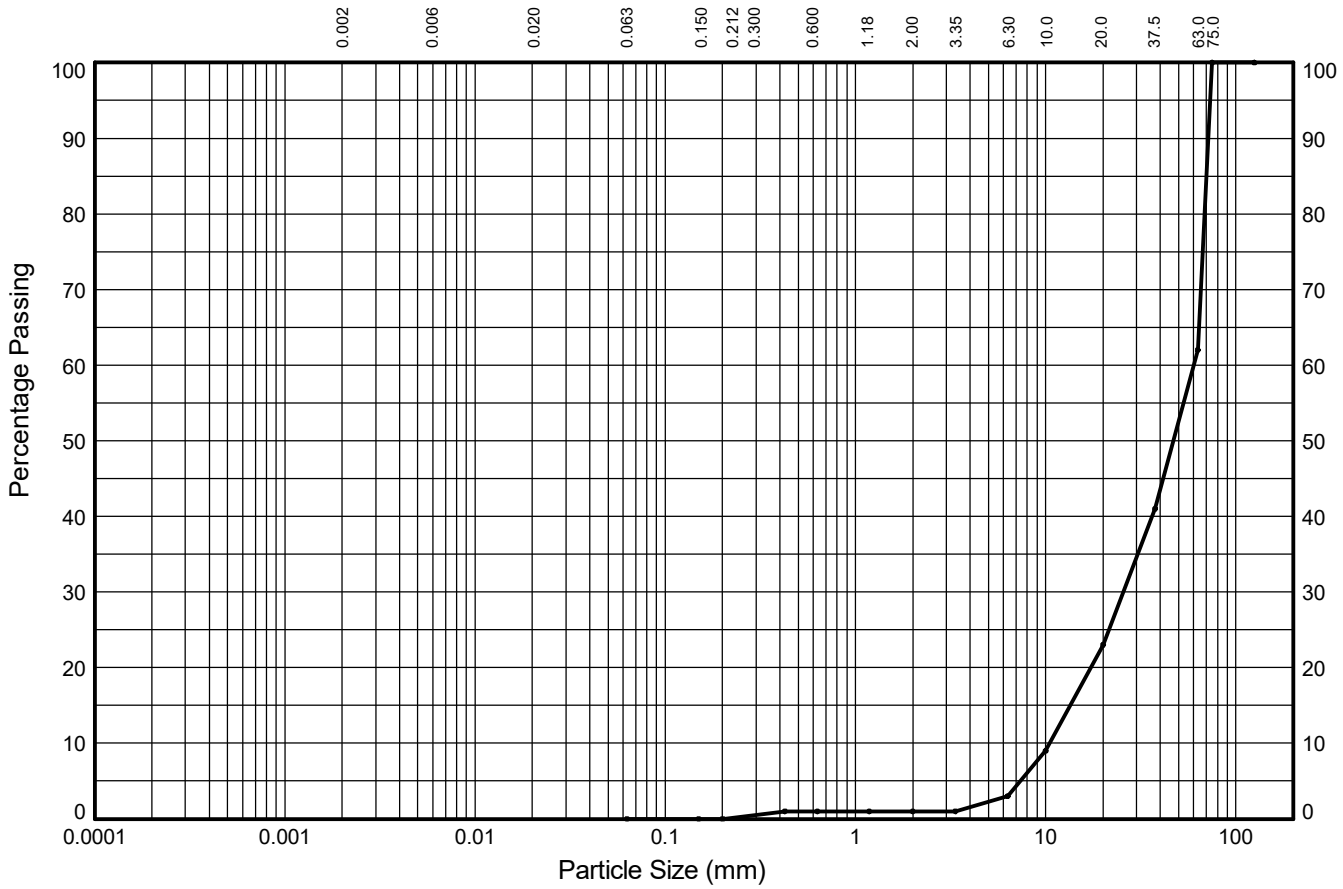
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-79273** Sample Ref: **4.3-5.6** Sample Type: **C** Depth (m): **4.30**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	1%	0%	2%	20%	39%	
	SILT			SAND			GRAVEL			
0%				1%			61%			38%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**62**
37.5	**41**
20.0	**23**
10.0	**9**
6.30	**3**
3.35	**1**
2.00	**1**
1.18	**1**
0.630	**1**
0.425	**1**
0.200	**0**
0.150	**0**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**10.508**
D_{15} (mm)	**13.459**
D_{30} (mm)	**25.539**
D_{50} (mm)	**46.837**
D_{60} (mm)	**59.963**
D_{85} (mm)	**70.012**
D_{90} (mm)	**71.637**
C_U	**5.7**
C_C	**1.0**

Soil Description:

Black grey slightly sandy GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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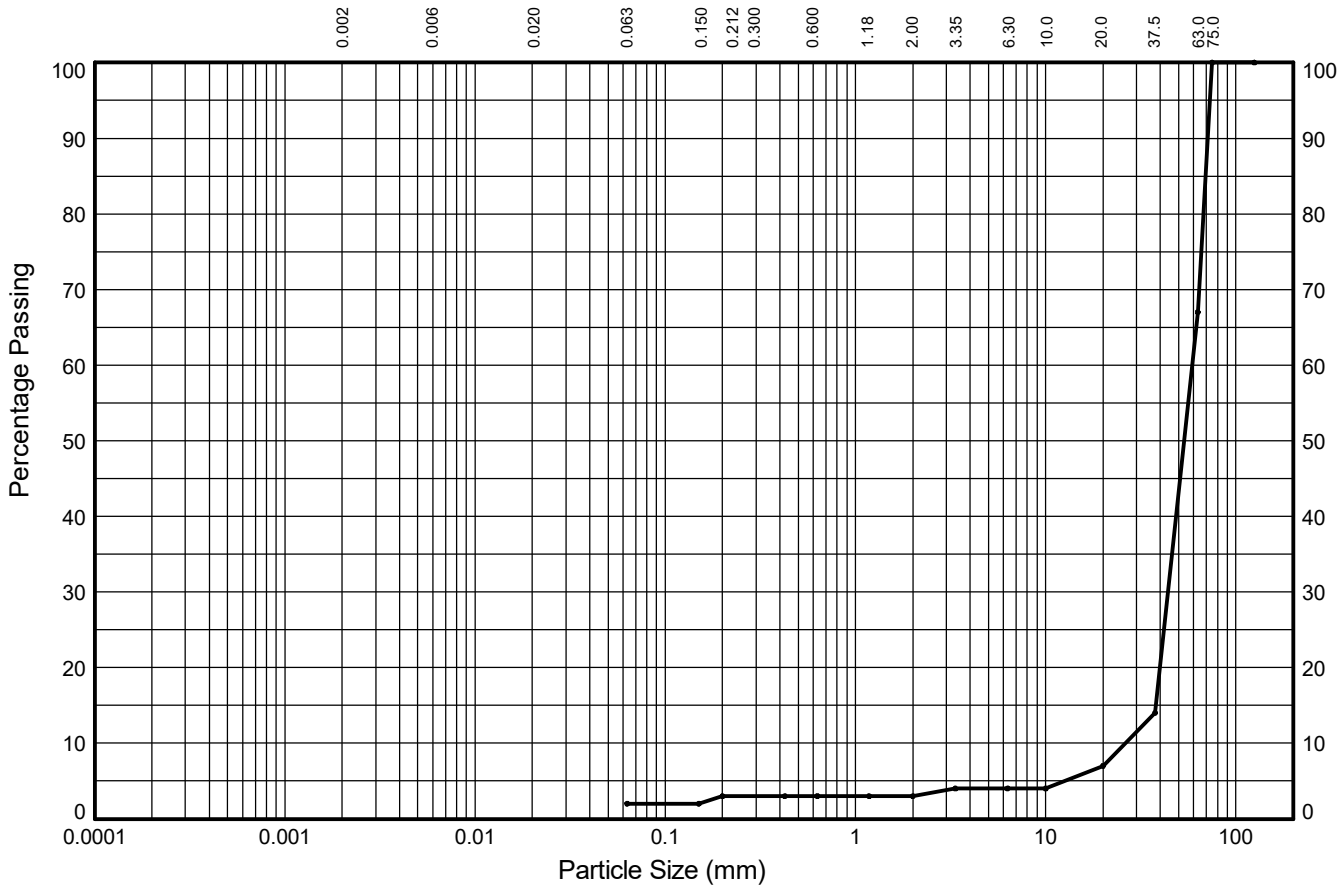
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-79441** Sample Ref: **5.00** Sample Type: **C** Depth (m): **3.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	1%	0%	0%	1%	3%	60%	
	SILT			SAND			GRAVEL			
2%				1%			64%			33%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**67**
37.5	**14**
20.0	**7**
10.0	**4**
6.30	**4**
3.35	**4**
2.00	**3**
1.18	**3**
0.630	**3**
0.425	**3**
0.200	**3**
0.150	**2**
0.063	**2**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**26.184**
D_{15} (mm)	**37.869**
D_{30} (mm)	**43.858**
D_{50} (mm)	**53.342**
D_{60} (mm)	**58.828**
D_{85} (mm)	**69.286**
D_{90} (mm)	**71.140**
C_U	**2.2**
C_C	**1.2**

Soil Description:

Grey slightly sandy slightly silty/clayey GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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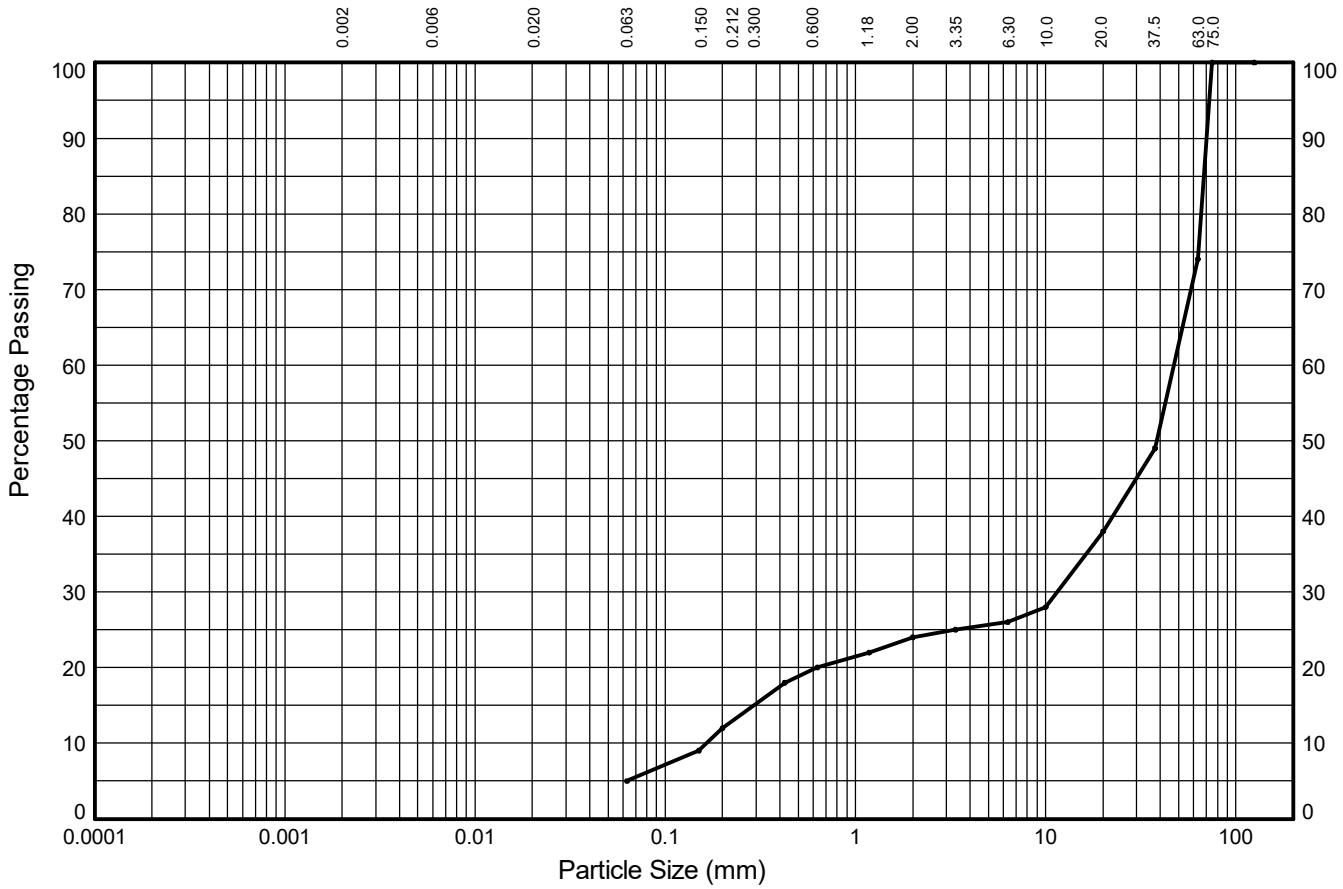
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-79595** Sample Ref: **0-10** Sample Type: **C** Depth (m): **5.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	7%	8%	4%	2%	12%	36%	
	SILT			SAND			GRAVEL			
5%				19%			50%			26%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**74**
37.5	**49**
20.0	**38**
10.0	**28**
6.30	**26**
3.35	**25**
2.00	**24**
1.18	**22**
0.630	**20**
0.425	**18**
0.200	**12**
0.150	**9**
0.063	**5**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.165**
D_{15} (mm)	**0.292**
D_{30} (mm)	**11.487**
D_{50} (mm)	**38.286**
D_{60} (mm)	**47.116**
D_{85} (mm)	**67.823**
D_{90} (mm)	**70.136**
C_U	**285**
C_C	**17**

Soil Description:

Grey sandy silty/clayey GRAVEL with high cobble content

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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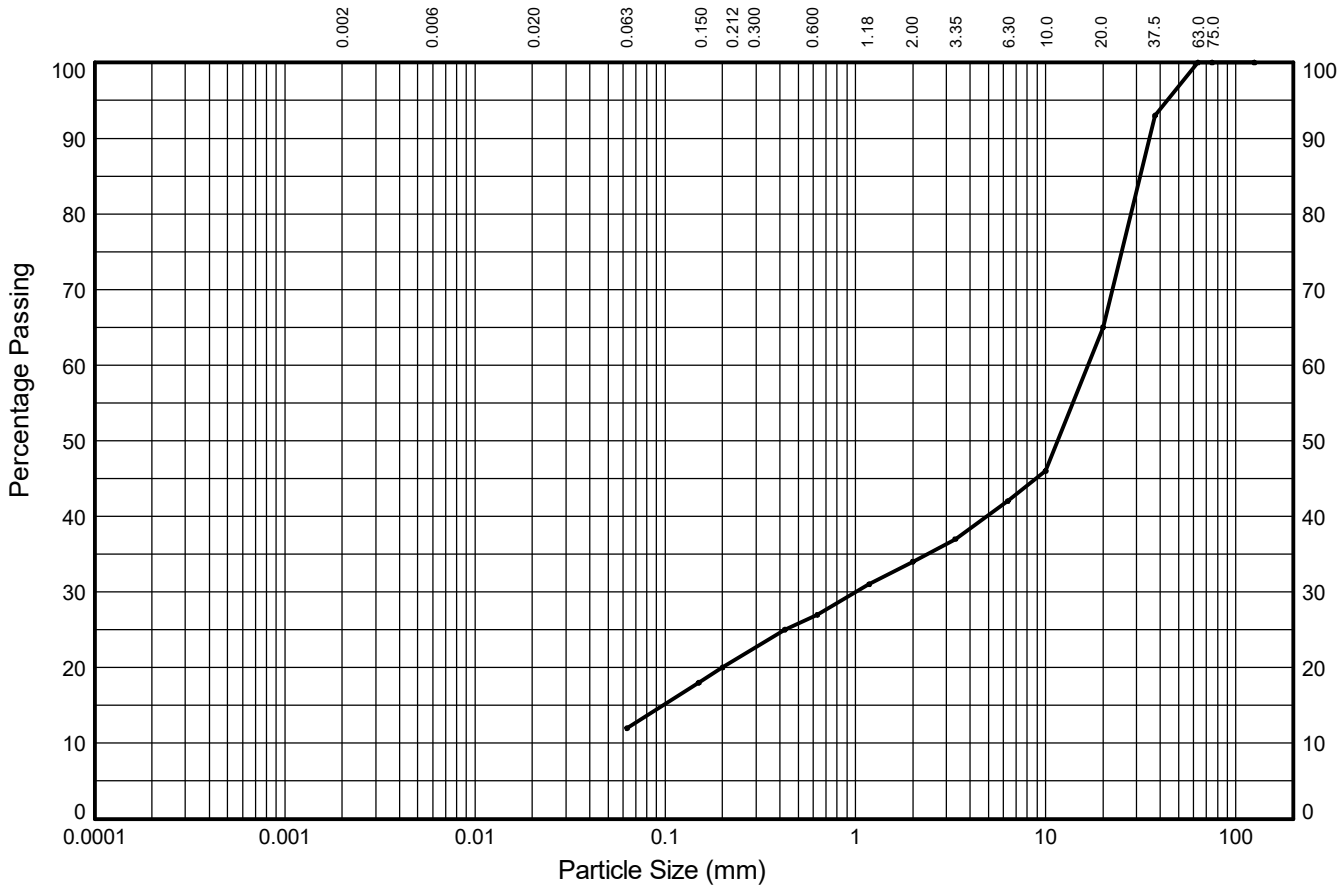
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-80439** Sample Ref: **2.0-3.5** Sample Type: **C** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	8%	7%	7%	8%	23%	35%	
	SILT			SAND			GRAVEL			
12%				22%			66%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**93**
20.0	**65**
10.0	**46**
6.30	**42**
3.35	**37**
2.00	**34**
1.18	**31**
0.630	**27**
0.425	**25**
0.200	**20**
0.150	**18**
0.063	**12**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.097**
D_{30} (mm)	**1.009**
D_{50} (mm)	**11.571**
D_{60} (mm)	**16.665**
D_{85} (mm)	**31.335**
D_{90} (mm)	**35.058**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown very sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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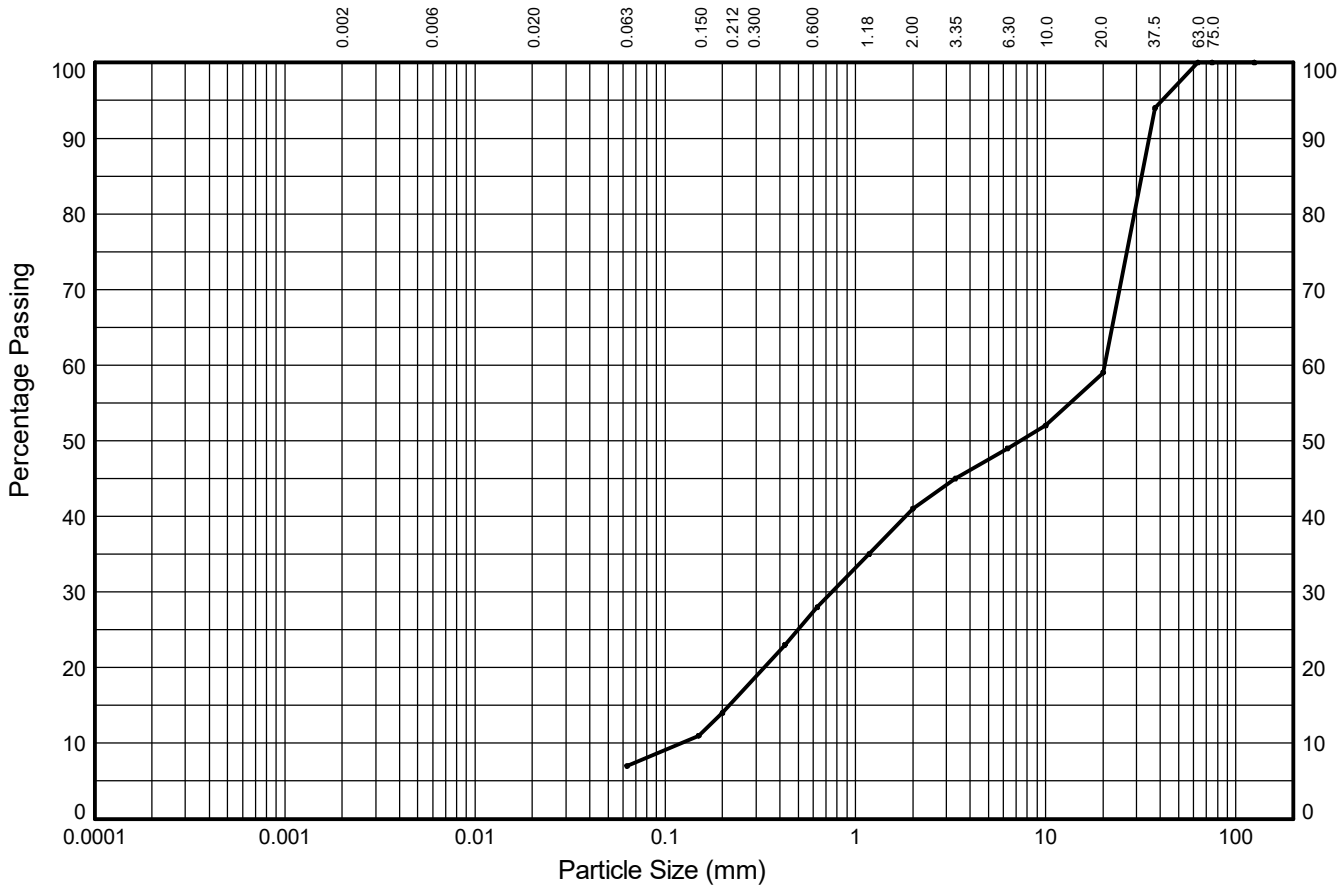
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-80546** Sample Ref: **2.0-3.5** Sample Type: **C** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	7%	14%	13%	8%	10%	41%	
	SILT			SAND			GRAVEL			
7%				34%			59%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**94**
20.0	**59**
10.0	**52**
6.30	**49**
3.35	**45**
2.00	**41**
1.18	**35**
0.630	**28**
0.425	**23**
0.200	**14**
0.150	**11**
0.063	**7**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.121**
D_{15} (mm)	**0.217**
D_{30} (mm)	**0.754**
D_{50} (mm)	**7.349**
D_{60} (mm)	**20.362**
D_{85} (mm)	**31.903**
D_{90} (mm)	**34.900**
C_U	**169**
C_C	**0.23**

Soil Description:

Light brown grey very sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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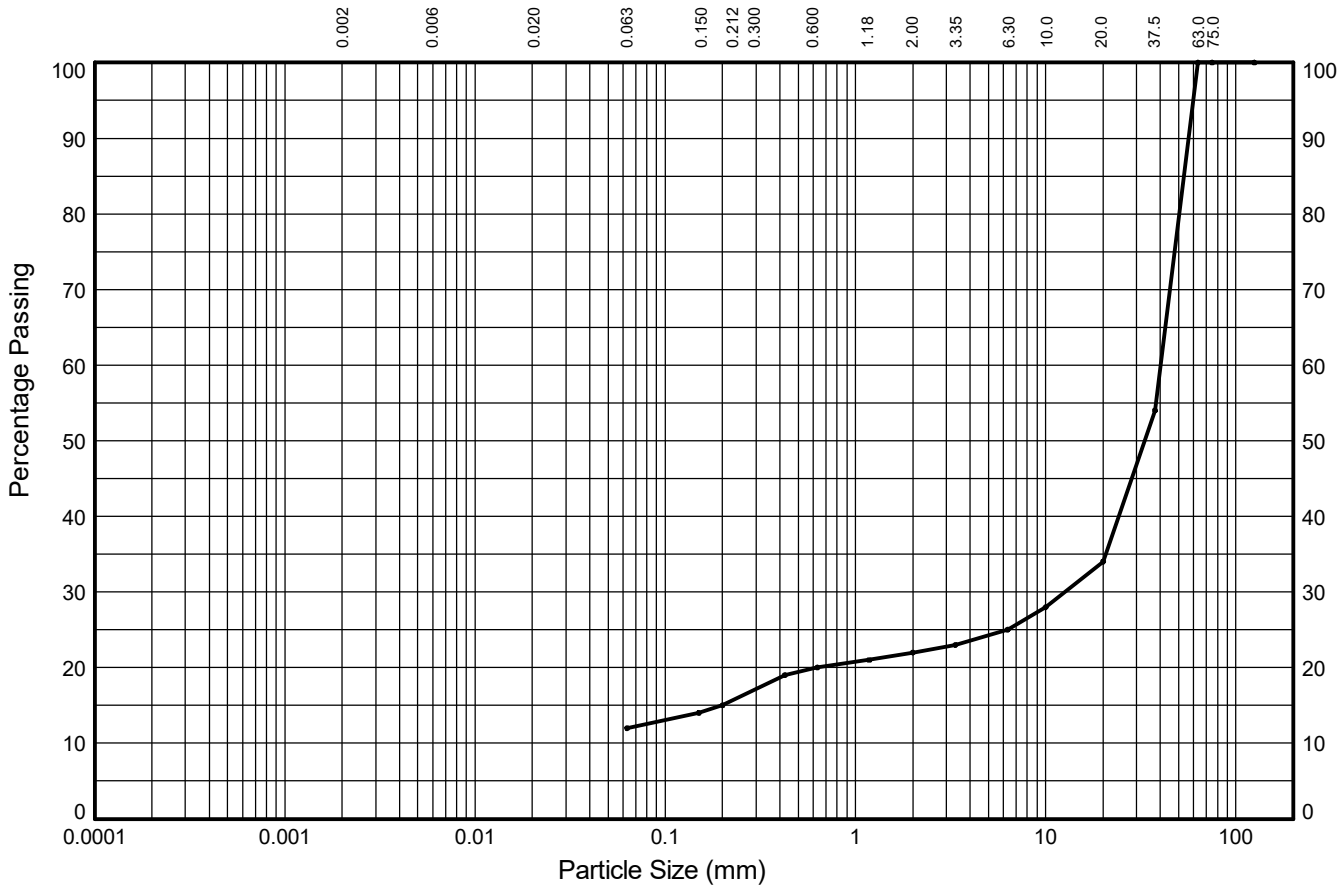
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-80546** Sample Ref: **3.5-5.0(u)** Sample Type: **C** Depth (m): **3.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	3%	5%	2%	3%	9%	66%	
	SILT			SAND			GRAVEL			
12%				10%			78%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**54**
20.0	**34**
10.0	**28**
6.30	**25**
3.35	**23**
2.00	**22**
1.18	**21**
0.630	**20**
0.425	**19**
0.200	**15**
0.150	**14**
0.063	**12**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**NA**
D_{15} (mm)	**0.200**
D_{30} (mm)	**12.599**
D_{50} (mm)	**33.070**
D_{60} (mm)	**40.125**
D_{85} (mm)	**53.195**
D_{90} (mm)	**56.281**
C_U	**NA**
C_C	**NA**

Soil Description:

Brown sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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PARTICLE SIZE DISTRIBUTION TEST

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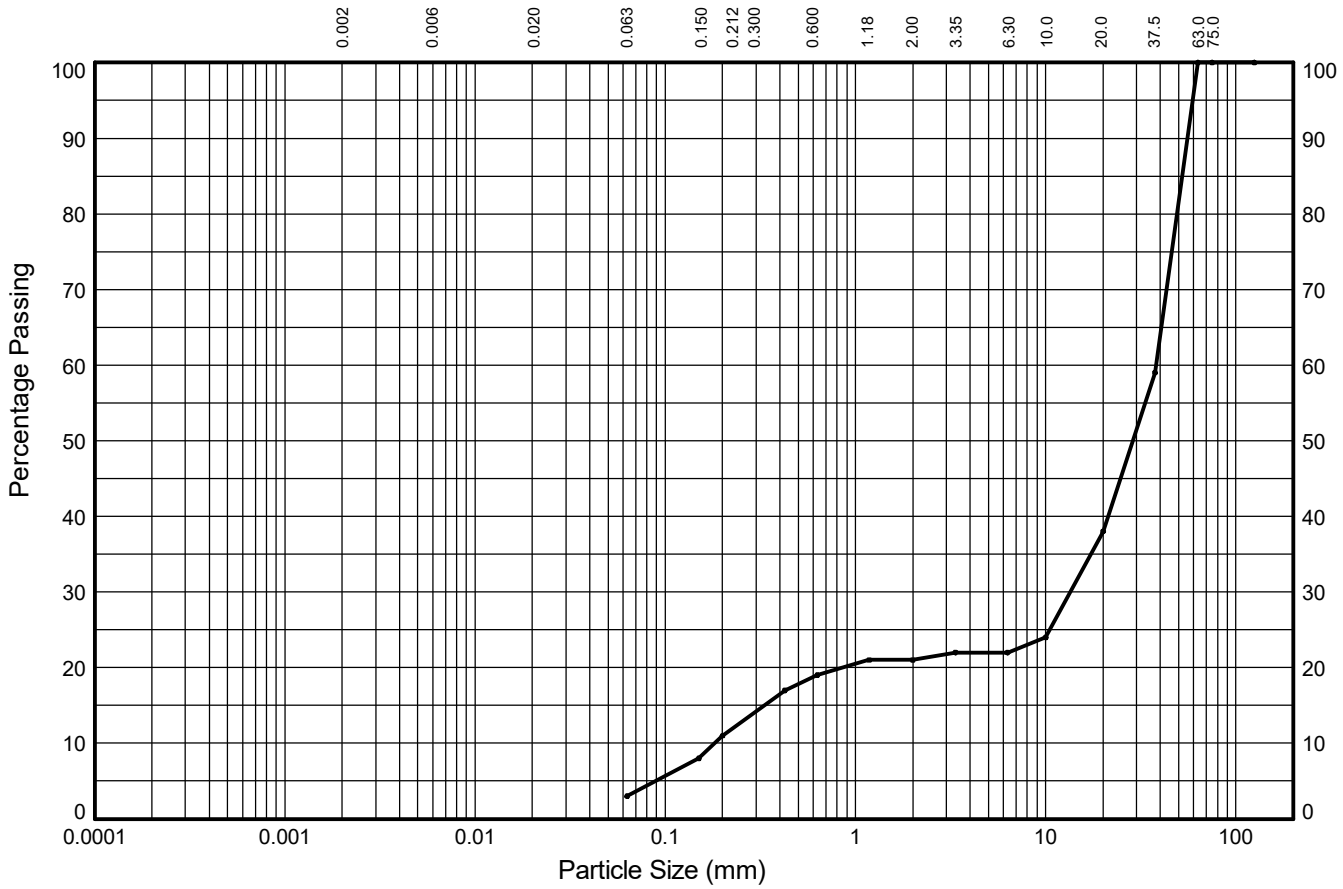
NON-STANDARD TEST

Borehole: **BH-80546** Sample Ref: **8.0-10.0** Sample Type: **C** Depth (m): **8.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	8%	8%	2%	1%	16%	62%	
	SILT			SAND			GRAVEL			
3%				18%			79%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**59**
20.0	**38**
10.0	**24**
6.30	**22**
3.35	**22**
2.00	**21**
1.18	**21**
0.630	**19**
0.425	**17**
0.200	**11**
0.150	**8**
0.063	**3**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.182**
D_{15} (mm)	**0.331**
D_{30} (mm)	**13.459**
D_{50} (mm)	**28.644**
D_{60} (mm)	**37.978**
D_{85} (mm)	**52.109**
D_{90} (mm)	**55.512**
C_U	**209**
C_C	**26**

Soil Description:

Grey sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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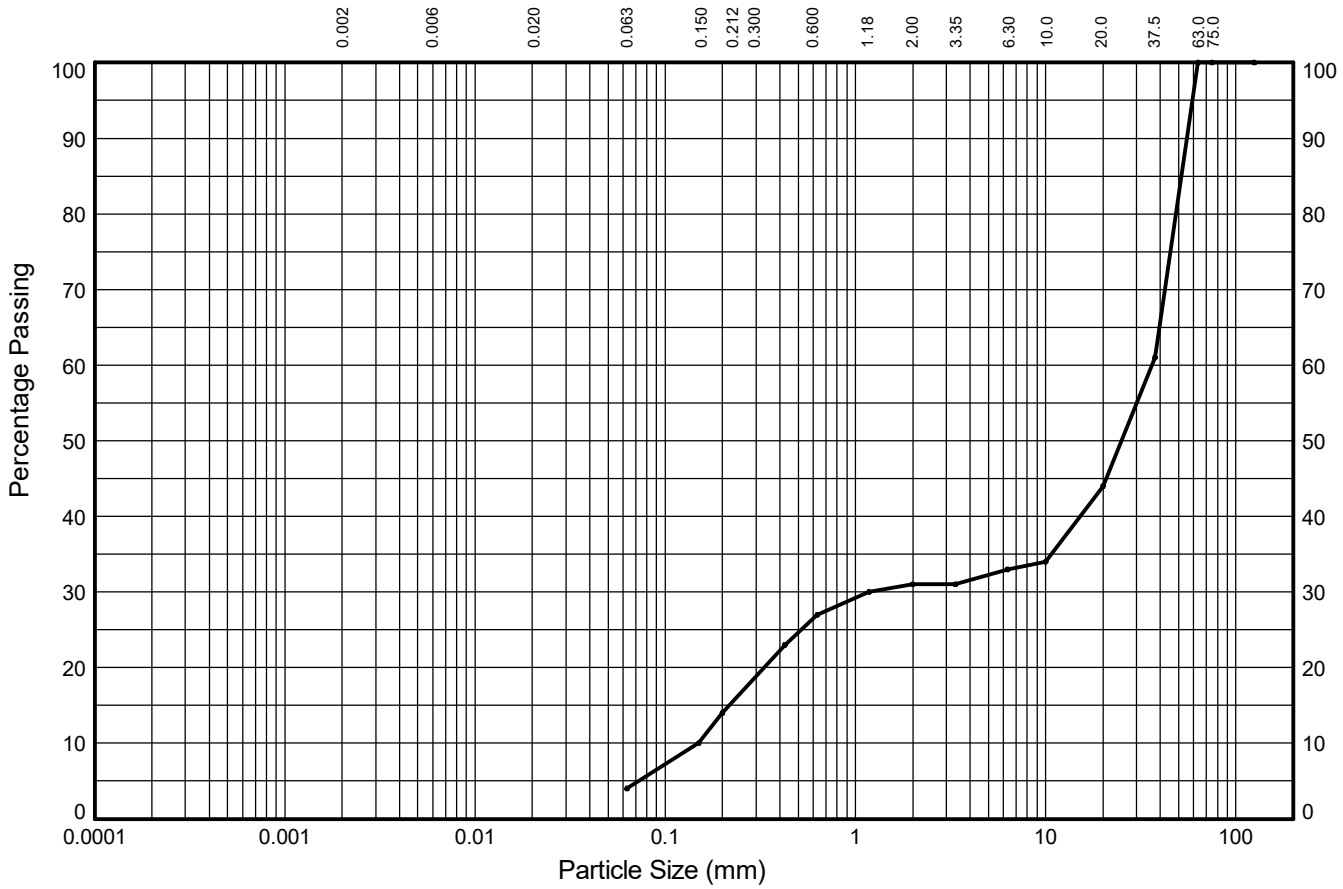
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-81459** Sample Ref: **2.0-3.5 2-10** Sample Type: **C** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	10%	13%	4%	2%	11%	56%	
	SILT			SAND			GRAVEL			
4%				27%			69%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**61**
20.0	**44**
10.0	**34**
6.30	**33**
3.35	**31**
2.00	**31**
1.18	**30**
0.630	**27**
0.425	**23**
0.200	**14**
0.150	**10**
0.063	**4**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.150**
D_{15} (mm)	**0.217**
D_{30} (mm)	**1.180**
D_{50} (mm)	**24.968**
D_{60} (mm)	**36.139**
D_{85} (mm)	**51.604**
D_{90} (mm)	**55.153**
C_U	**241**
C_C	**0.26**

Soil Description:

Greyish light brown very sandy slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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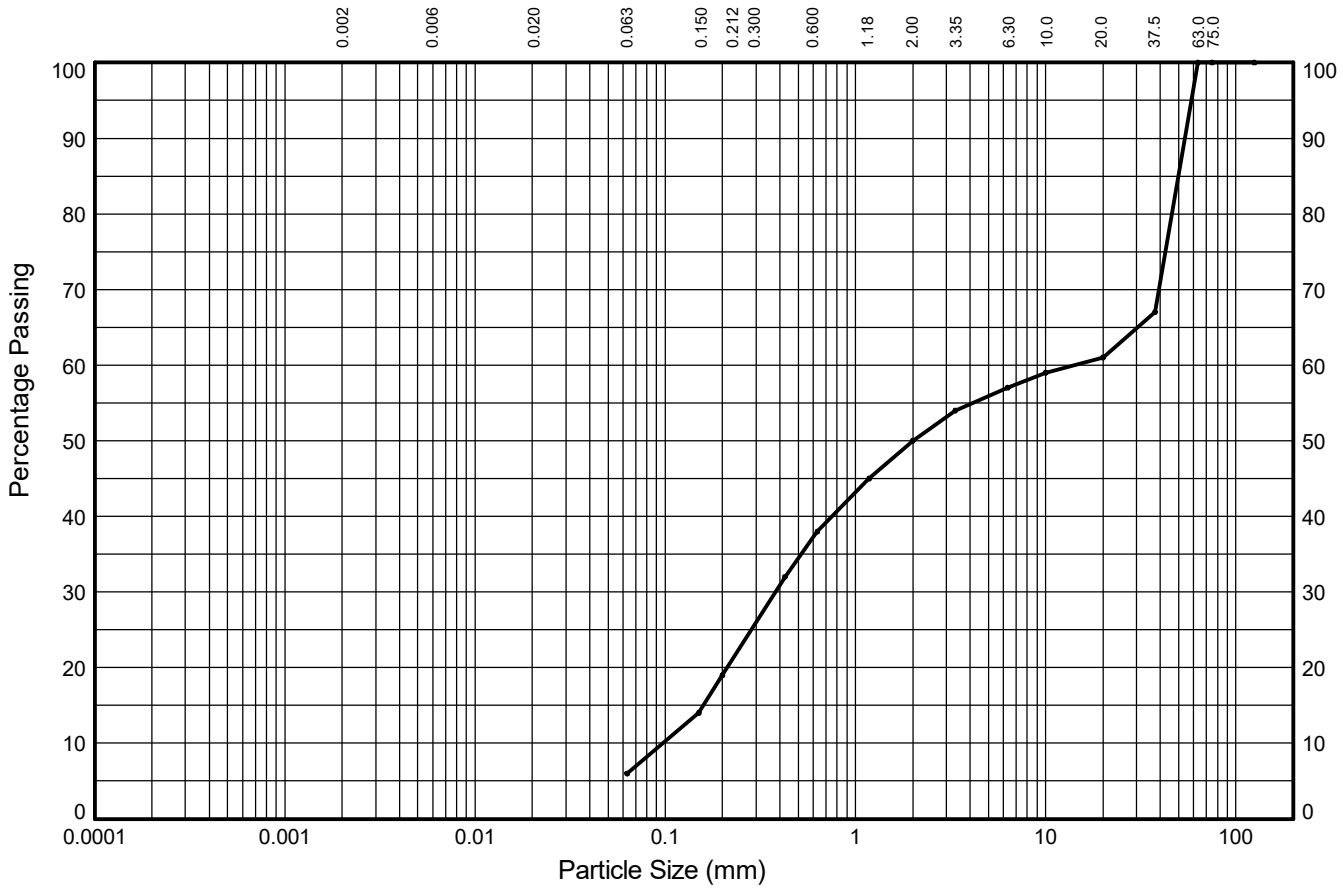
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-81864** Sample Ref: **2.0-5.0** Sample Type: **C** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	13%	19%	12%	7%	4%	39%	
	SILT			SAND			GRAVEL			
6%				44%			50%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**67**
20.0	**61**
10.0	**59**
6.30	**57**
3.35	**54**
2.00	**50**
1.18	**45**
0.630	**38**
0.425	**32**
0.200	**19**
0.150	**14**
0.063	**6**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.097**
D_{15} (mm)	**0.159**
D_{30} (mm)	**0.378**
D_{50} (mm)	**2.000**
D_{60} (mm)	**14.142**
D_{85} (mm)	**49.765**
D_{90} (mm)	**53.835**
C_U	**145**
C_C	**0.10**

Soil Description:

Grey very sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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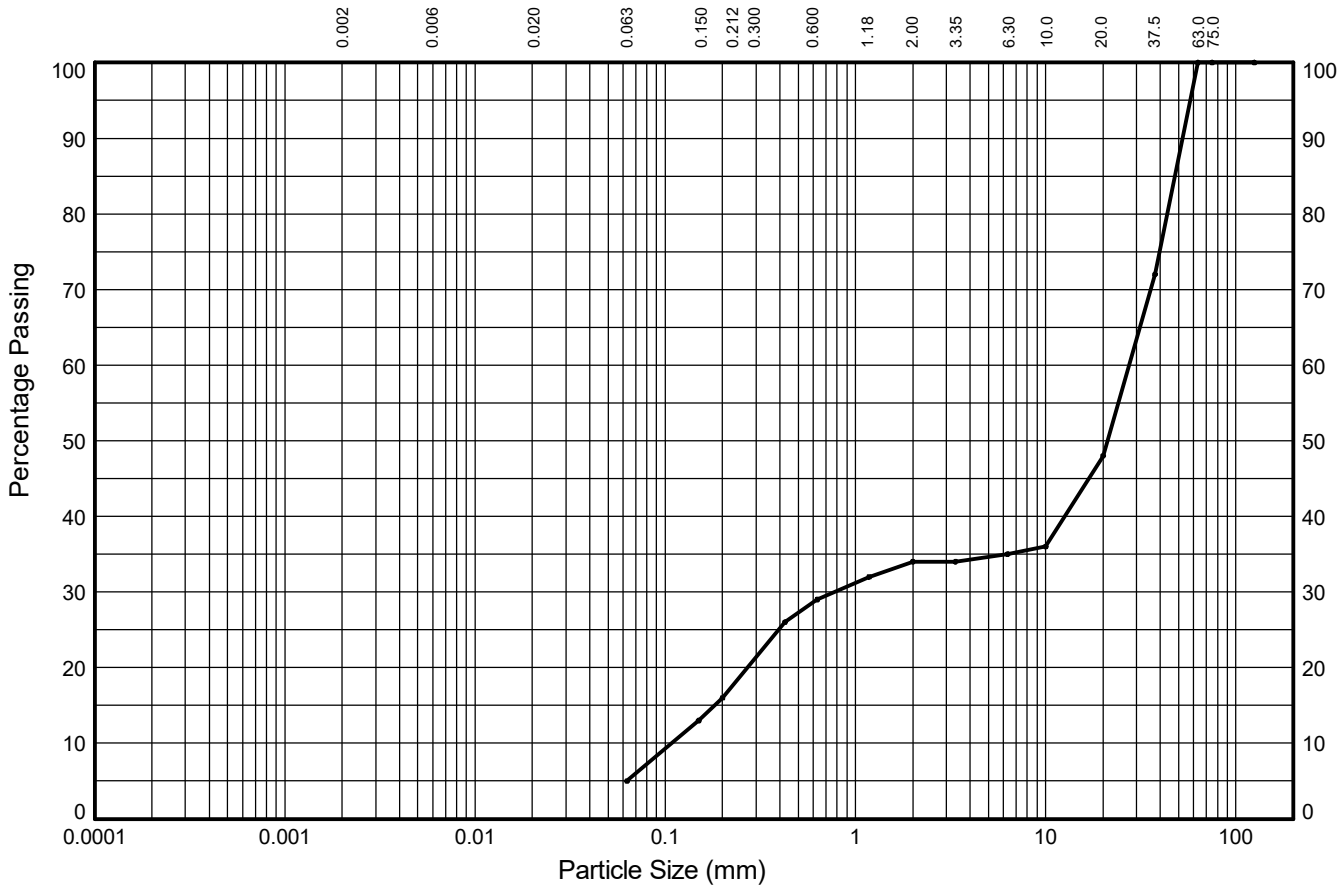
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-81864** Sample Ref: **8.0-10.0** Sample Type: **C** Depth (m): **8.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	11%	13%	5%	1%	13%	52%	
	SILT			SAND			GRAVEL			
5%				29%			66%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**72**
20.0	**48**
10.0	**36**
6.30	**35**
3.35	**34**
2.00	**34**
1.18	**32**
0.630	**29**
0.425	**26**
0.200	**16**
0.150	**13**
0.063	**5**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.108**
D_{15} (mm)	**0.182**
D_{30} (mm)	**0.777**
D_{50} (mm)	**21.076**
D_{60} (mm)	**27.386**
D_{85} (mm)	**47.713**
D_{90} (mm)	**52.345**
C_U	**253**
C_C	**0.20**

Soil Description:

Grey brown very sandy silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	01/03/23

Contract: **2021OY102 WSP Eastern & Midlands Region - Lot 2**

Contract Ref: **785325**

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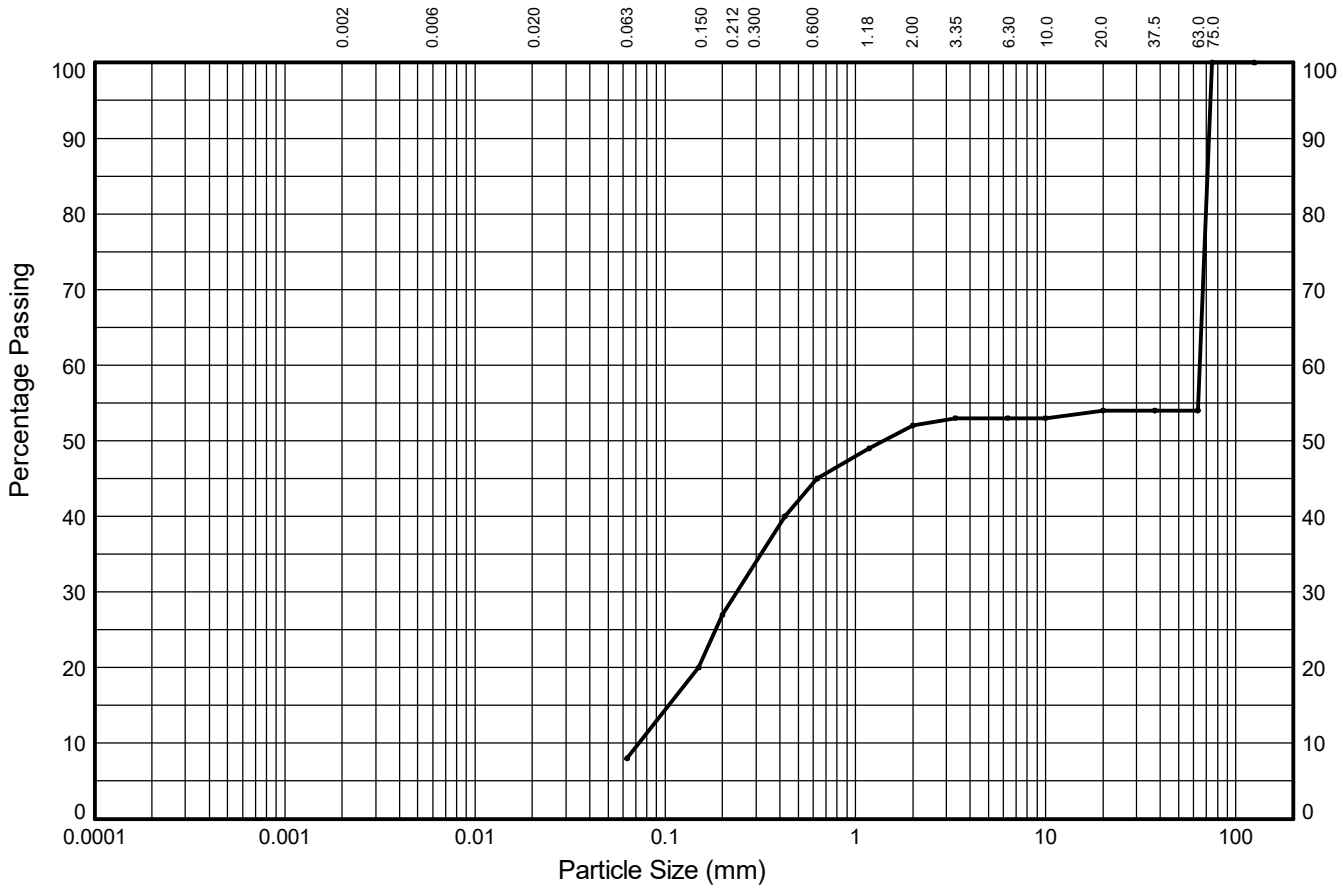
PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-82198** Sample Ref: **2.0-3.5** Sample Type: **C** Depth (m): **2.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	19%	18%	7%	1%	1%	0%	
	SILT			SAND			GRAVEL			
8%				44%			2%			46%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**54**
37.5	**54**
20.0	**54**
10.0	**53**
6.30	**53**
3.35	**53**
2.00	**52**
1.18	**49**
0.630	**45**
0.425	**40**
0.200	**27**
0.150	**20**
0.063	**8**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**0.073**
D_{15} (mm)	**0.104**
D_{30} (mm)	**0.238**
D_{50} (mm)	**1.407**
D_{60} (mm)	**64.449**
D_{85} (mm)	**70.855**
D_{90} (mm)	**72.210**
C_U	**885**
C_C	**0.01**

Soil Description:

Brown COBBLES with much slightly gravelly silty/clayey SAND

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

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The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	01/03/23

Contract: **2021OY102 WSP Eastern & Midlands Region - Lot 2**

Contract Ref: **785325**

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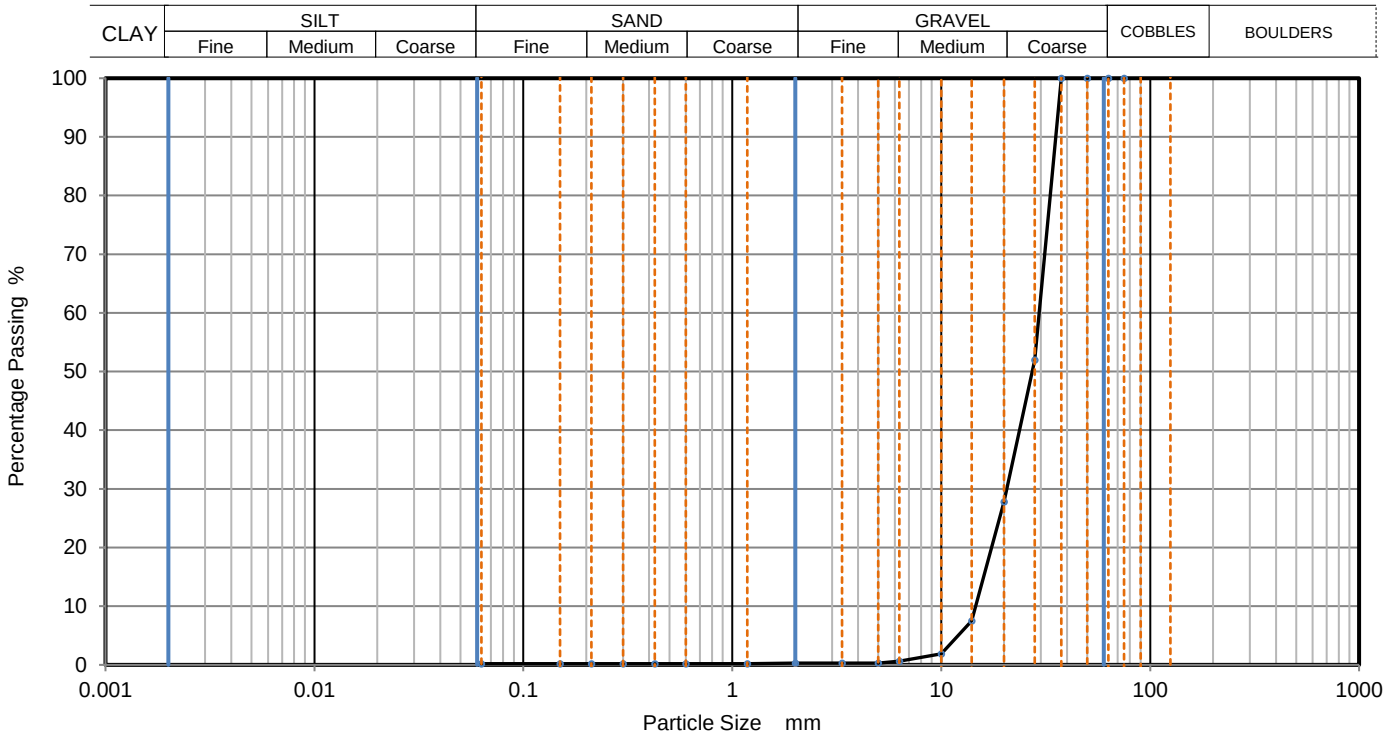
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-82621
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core:Bluish-grey coarse GRAVEL.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062113



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	52		
20	28		
14	8		
10	2		
6.3	1		
5	0		
3.35	0		
2	0		
1.18	0		
0.6	0		
0.425	0		
0.3	0		
0.212	0		
0.15	0		
0.063	0		

Dry Mass of sample, g	718

Sample Proportions	% dry mass
Very coarse	0
Gravel	100
Sand	0
Fines <0.063mm	0

Grading Analysis		
D_{100}	mm	
D_{60}	mm	29.4
D_{30}	mm	20.6
D_{10}	mm	14.6
Uniformity Coefficient		2
Curvature Coefficient		0.99

Remarks

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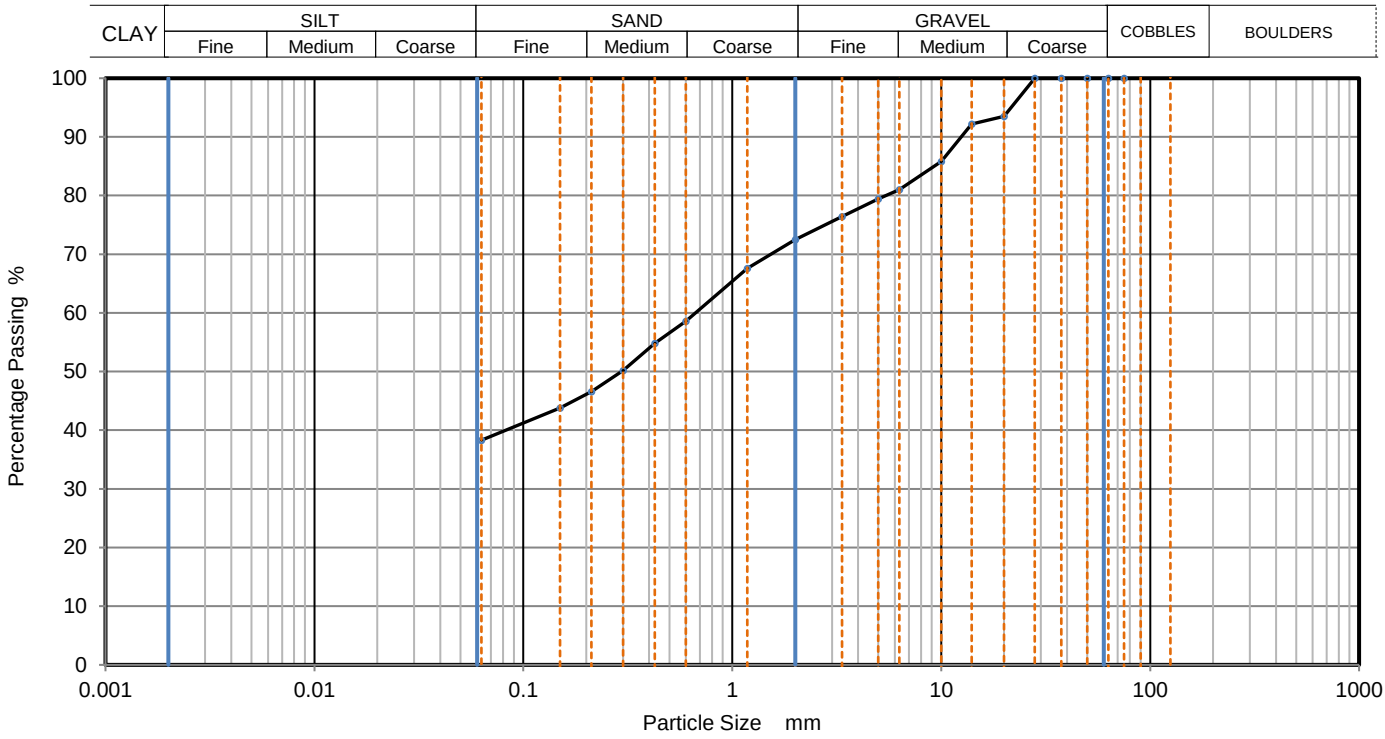
Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-82621
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light brown slightly gravelly sandy SILT.			Depth, m	8.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062120



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	92		
10	86		
6.3	81		
5	79		
3.35	76		
2	73		
1.18	68		
0.6	59		
0.425	55		
0.3	50		
0.212	47		
0.15	44		
0.063	38		

Dry Mass of sample, g	747

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	34
Fines <0.063mm	38

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.666
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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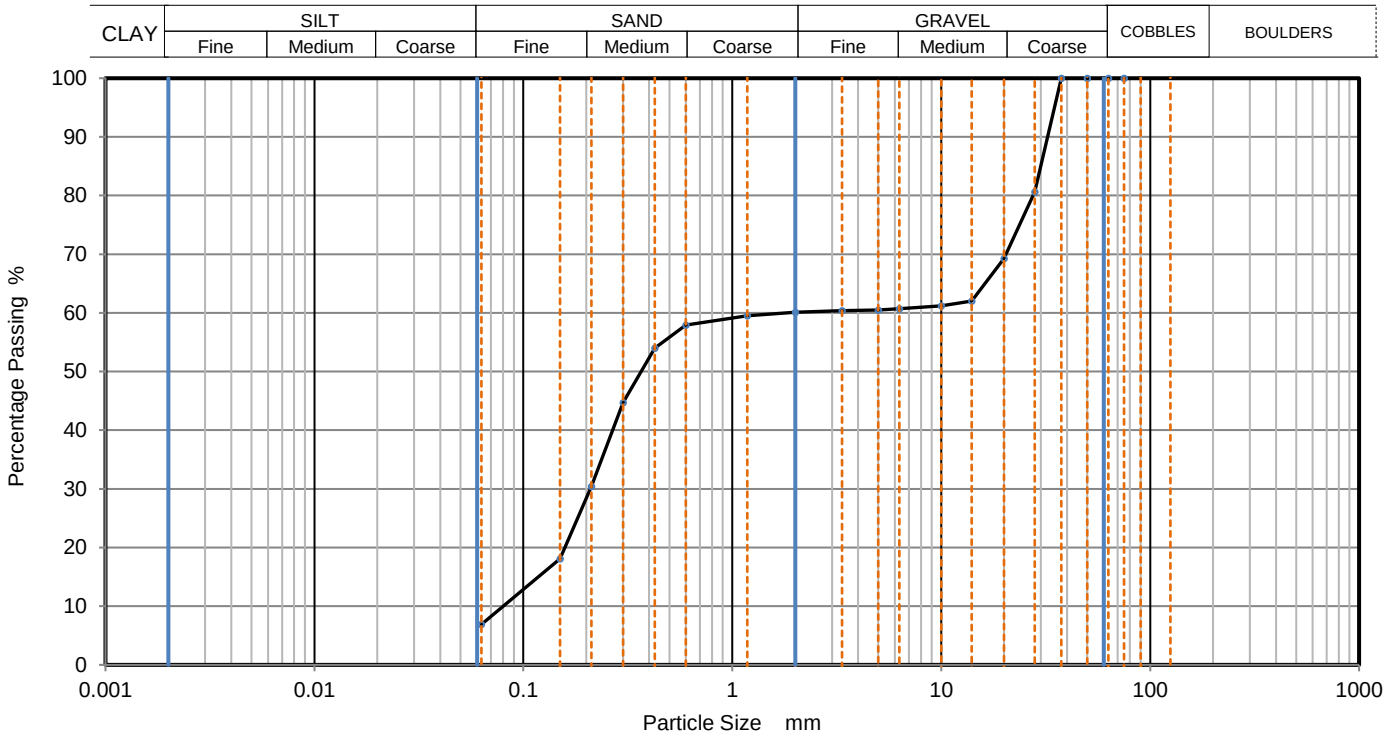
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-82974
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-brown silty very gravelly fine and medium SAND. Gravel is coarse.			Depth, m	6.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062126



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	81		
20	69		
14	62		
10	61		
6.3	61		
5	61		
3.35	60		
2	60		
1.18	60		
0.6	58		
0.425	54		
0.3	45		
0.212	30		
0.15	18		
0.063	7		

Dry Mass of sample, g	836

Sample Proportions	% dry mass
Very coarse	0
Gravel	40
Sand	53
Fines <0.063mm	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	1.76
D_{30}	mm	0.21
D_{10}	mm	0.0798
Uniformity Coefficient		22
Curvature Coefficient		0.31

Remarks

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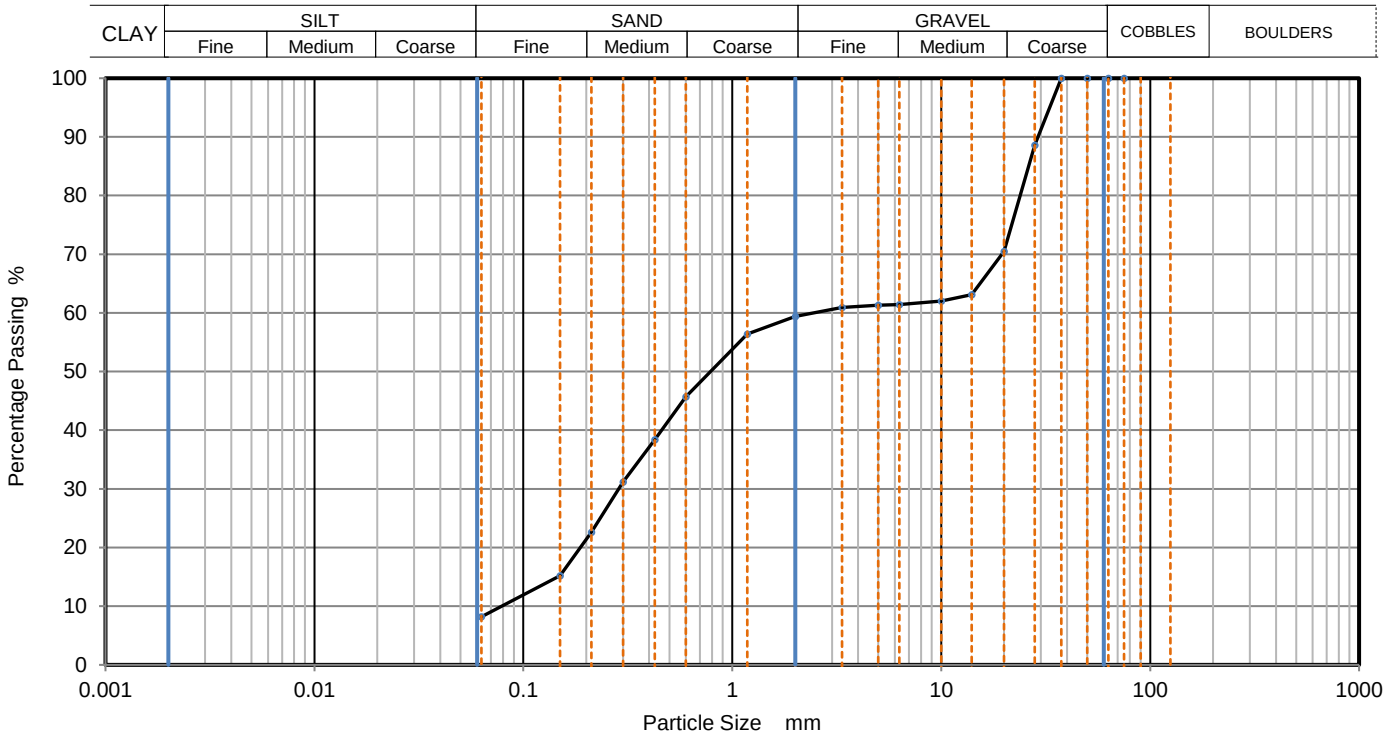
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-83591
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-brown sandy very gravelly medium SAND.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062133



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	89		
20	71		
14	63		
10	62		
6.3	61		
5	61		
3.35	61		
2	59		
1.18	56		
0.6	46		
0.425	38		
0.3	31		
0.212	23		
0.15	15		
0.063	8		

Dry Mass of sample, g	800

Sample Proportions	% dry mass
Very coarse	0
Gravel	41
Sand	51
Fines <0.063mm	8

Grading Analysis		
D_{100}	mm	
D_{60}	mm	2.47
D_{30}	mm	0.286
D_{10}	mm	0.079
Uniformity Coefficient		31
Curvature Coefficient		0.42

Remarks

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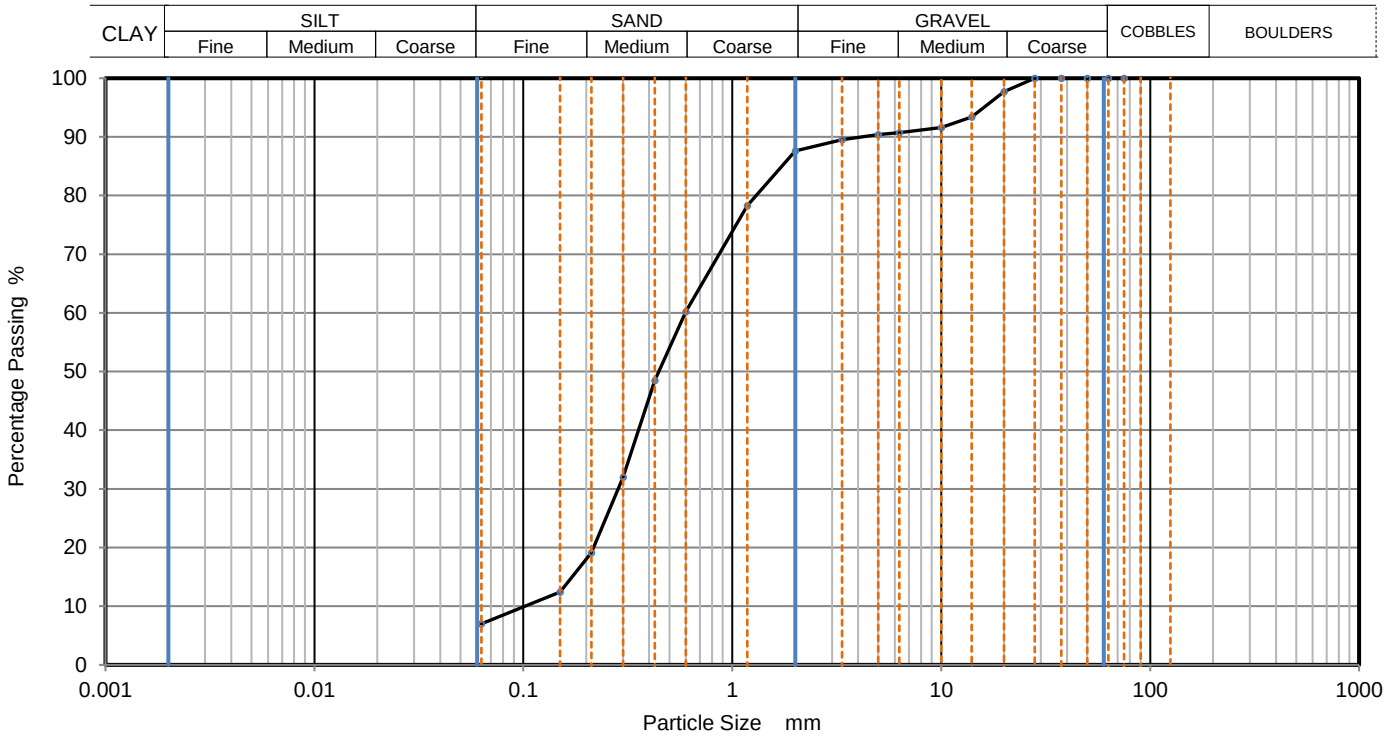
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-85791
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-brown silty gravelly medium SAND.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062142



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	93		
10	92		
6.3	91		
5	90		
3.35	90		
2	88		
1.18	78		
0.6	60		
0.425	49		
0.3	32		
0.212	19		
0.15	12		
0.063	7		

Dry Mass of sample, g	648

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	81
Fines <0.063mm	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.597
D_{30}	mm	0.284
D_{10}	mm	0.103
Uniformity Coefficient		5.8
Curvature Coefficient		1.3

Remarks

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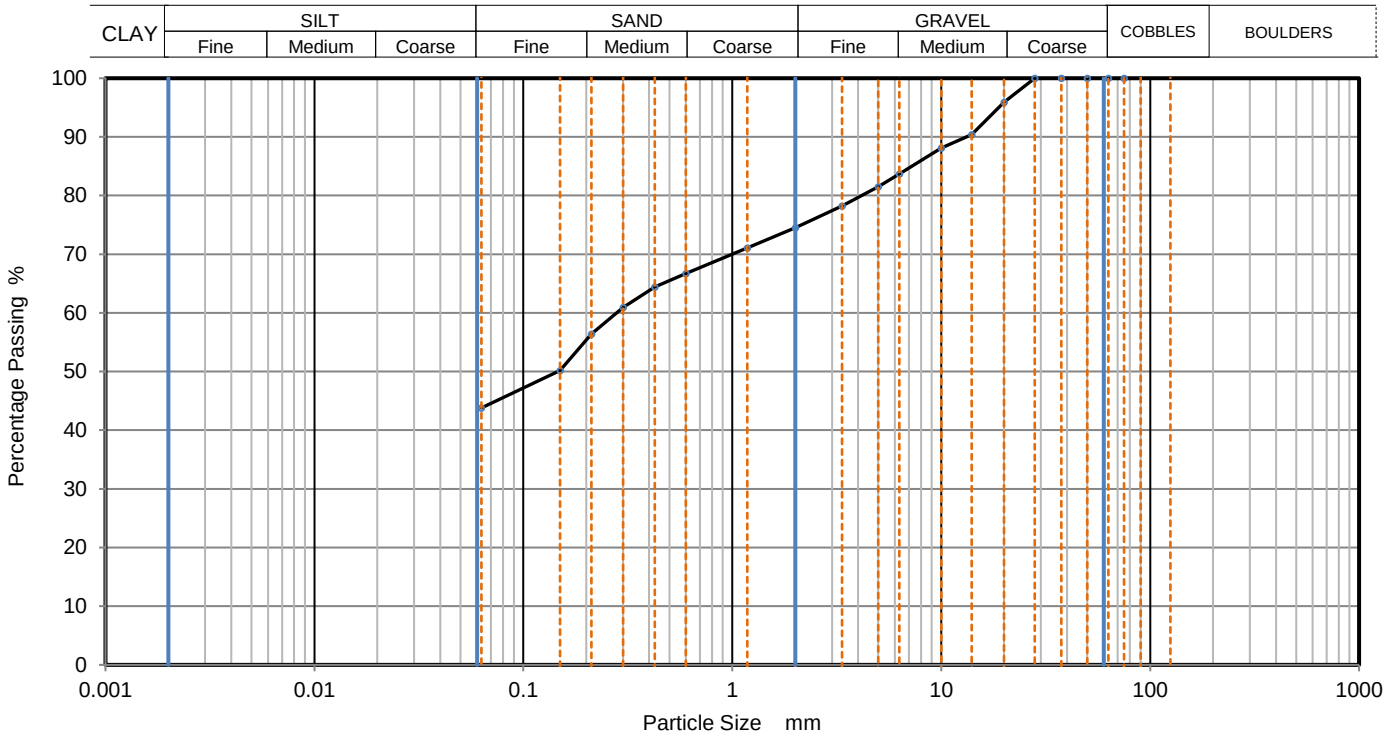
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-87006
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Brownish-grey slightly gravelly slightly sandy SILT.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062149



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	90		
10	88		
6.3	84		
5	82		
3.35	78		
2	75		
1.18	71		
0.6	67		
0.425	64		
0.3	61		
0.212	56		
0.15	50		
0.063	44		

Dry Mass of sample, g	933

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	31
Fines <0.063mm	44

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.28
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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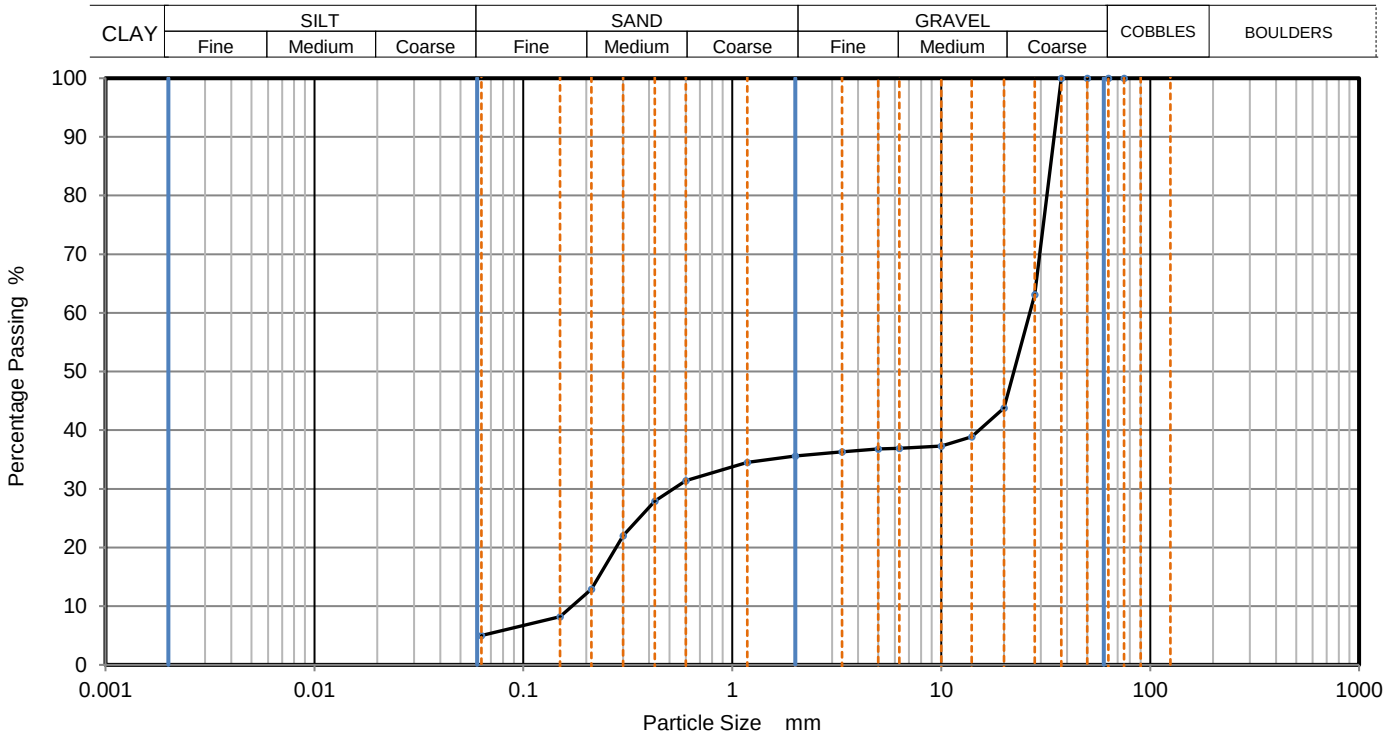
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-87006
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey silty very sandy coarse GRAVEL. Sand is medium.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062150



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	63		
20	44		
14	39		
10	37		
6.3	37		
5	37		
3.35	36		
2	36		
1.18	35		
0.6	31		
0.425	28		
0.3	22		
0.212	13		
0.15	8		
0.063	5		

Dry Mass of sample, g	901

Sample Proportions	% dry mass
Very coarse	0
Gravel	64
Sand	31
Fines <0.063mm	5

Grading Analysis		
D_{100}	mm	
D_{60}	mm	26.5
D_{30}	mm	0.523
D_{10}	mm	0.171
Uniformity Coefficient		160
Curvature Coefficient		0.06

Remarks

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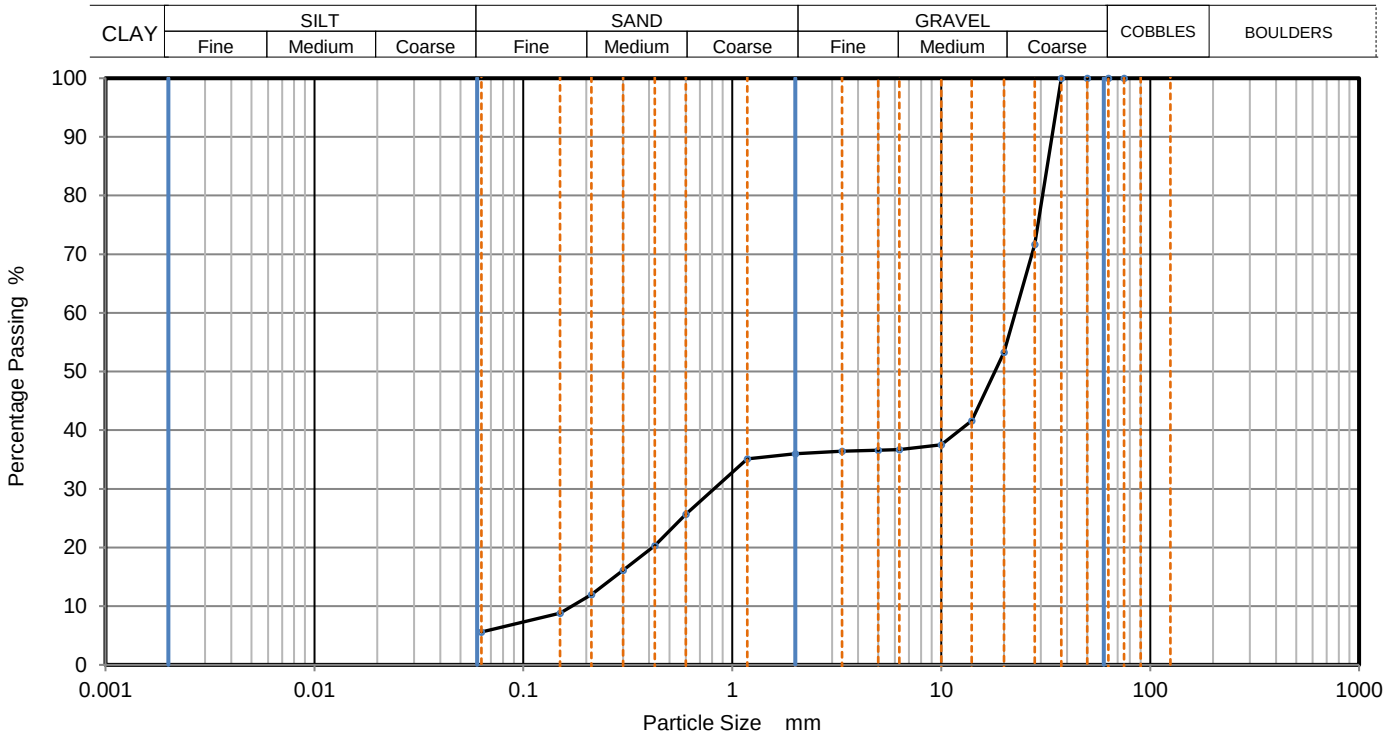
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-87006
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-brown silty very sandy coarse GRAVEL.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062154



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	72		
20	53		
14	42		
10	38		
6.3	37		
5	37		
3.35	36		
2	36		
1.18	35		
0.6	26		
0.425	20		
0.3	16		
0.212	12		
0.15	9		
0.063	6		

Dry Mass of sample, g	1077

Sample Proportions	% dry mass
Very coarse	0
Gravel	64
Sand	30
Fines <0.063mm	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	22.6
D_{30}	mm	0.819
D_{10}	mm	0.171
Uniformity Coefficient		130
Curvature Coefficient		0.17

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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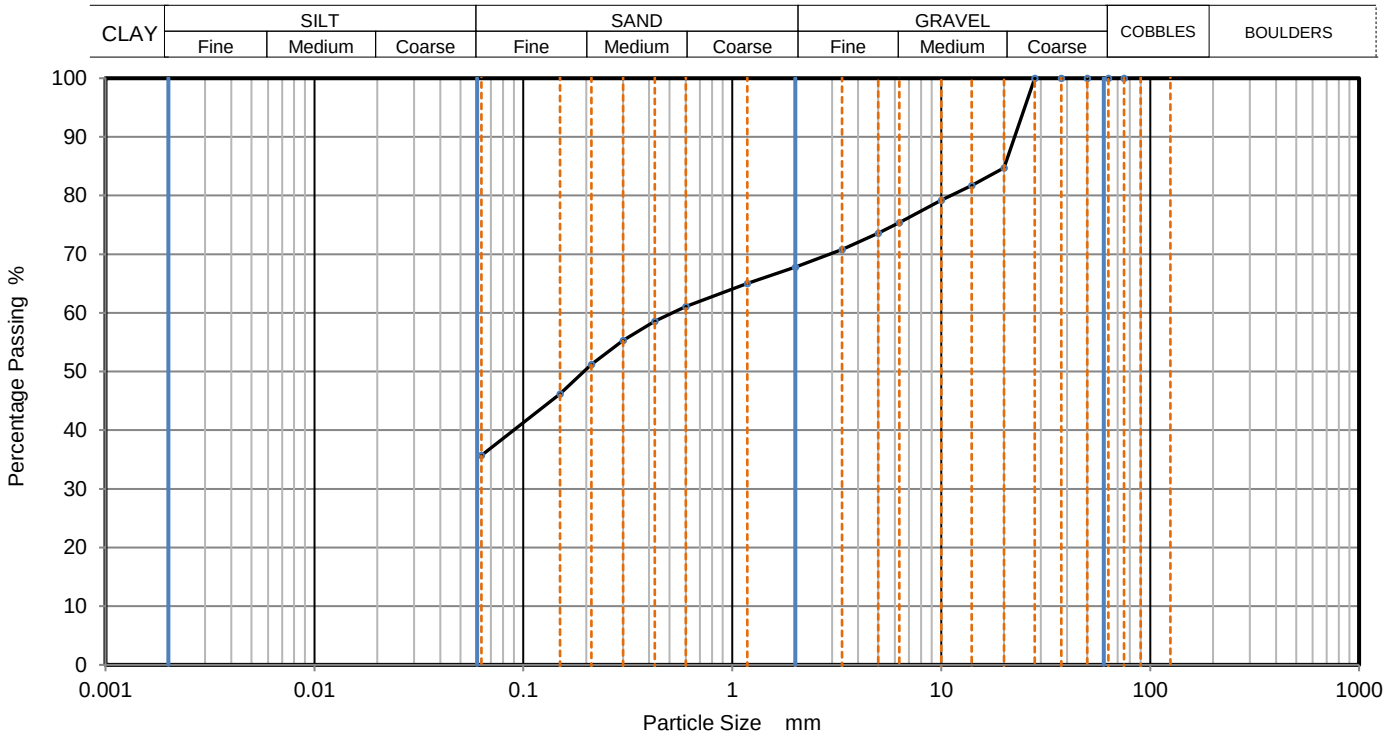
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-87006
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-brown slightly gravelly slightly sandy SILT.			Depth, m	8.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062158



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	85		
14	82		
10	79		
6.3	75		
5	74		
3.35	71		
2	68		
1.18	65		
0.6	61		
0.425	59		
0.3	55		
0.212	51		
0.15	46		
0.063	36		

Dry Mass of sample, g	912

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	32
Fines <0.063mm	36

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.516
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	02/03/2023 17:22	**1**
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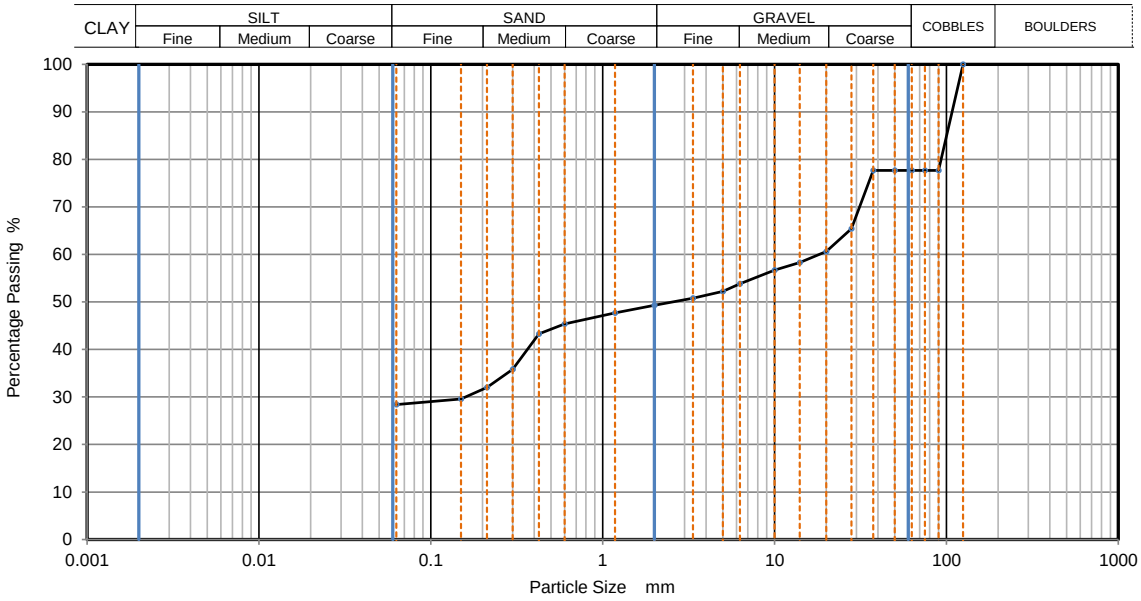
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	32840
				Borehole/Pit No.	BH-87006
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	8.00 m
Soil Description	Extremely high strength dark grey slightly sandy gravelly silty CLAY with numerous cobbles (gravel is fmc and angular to sub-rounded)			Depth Base	9.50 m
				Sample Type	C
				Samples received	10/01/2023
				Schedules received	10/01/2023
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	10/01/2023
				Date tested	16/01/2023

These results only apply to the items tested



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	78		
75	78		
63	78		
50	78		
37.5	78		
28	65		
20	61		
14	58		
10	57		
6.3	54		
5	52		
3.35	51		
2	49		
1.18	48		
0.6	45		
0.425	43		
0.3	36		
0.212	32		
0.15	30		
0.063	28		

Sample Proportions	% dry mass
Very coarse	22.3
Gravel	28.4
Sand	20.9
Fines <0.063mm	28.4

Grading Analysis		
D100	mm	125
D60	mm	18.3
D30	mm	0.16
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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K4 Soils Laboratory

Unit 8, Olds Close, Watford, Herts, WD18 9RU

Email: james@k4soils.com

Tel: 01923 711288

Checked and Approved

Initials: **J.P**

Date: 23/01/2023

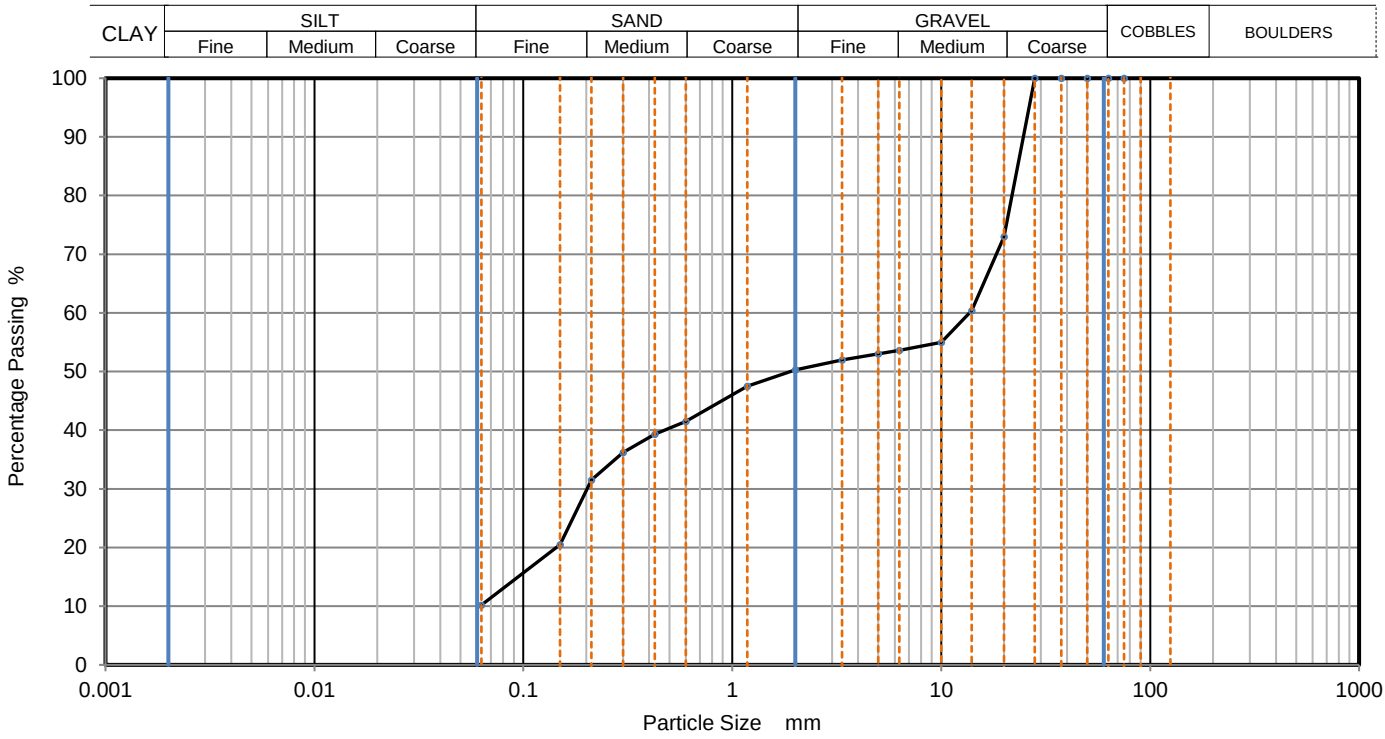
UKAS TESTING

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-88759
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Greyish-brown silty very sandy coarse and medium GRAVEL. Sand is fine.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062165



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	73		
14	60		
10	55		
6.3	54		
5	53		
3.35	52		
2	50		
1.18	48		
0.6	42		
0.425	39		
0.3	36		
0.212	32		
0.15	21		
0.063	10		

Dry Mass of sample, g	943

Sample Proportions	% dry mass
Very coarse	0
Gravel	50
Sand	40
Fines <0.063mm	10

Grading Analysis		
D_{100}	mm	
D_{60}	mm	13.7
D_{30}	mm	0.202
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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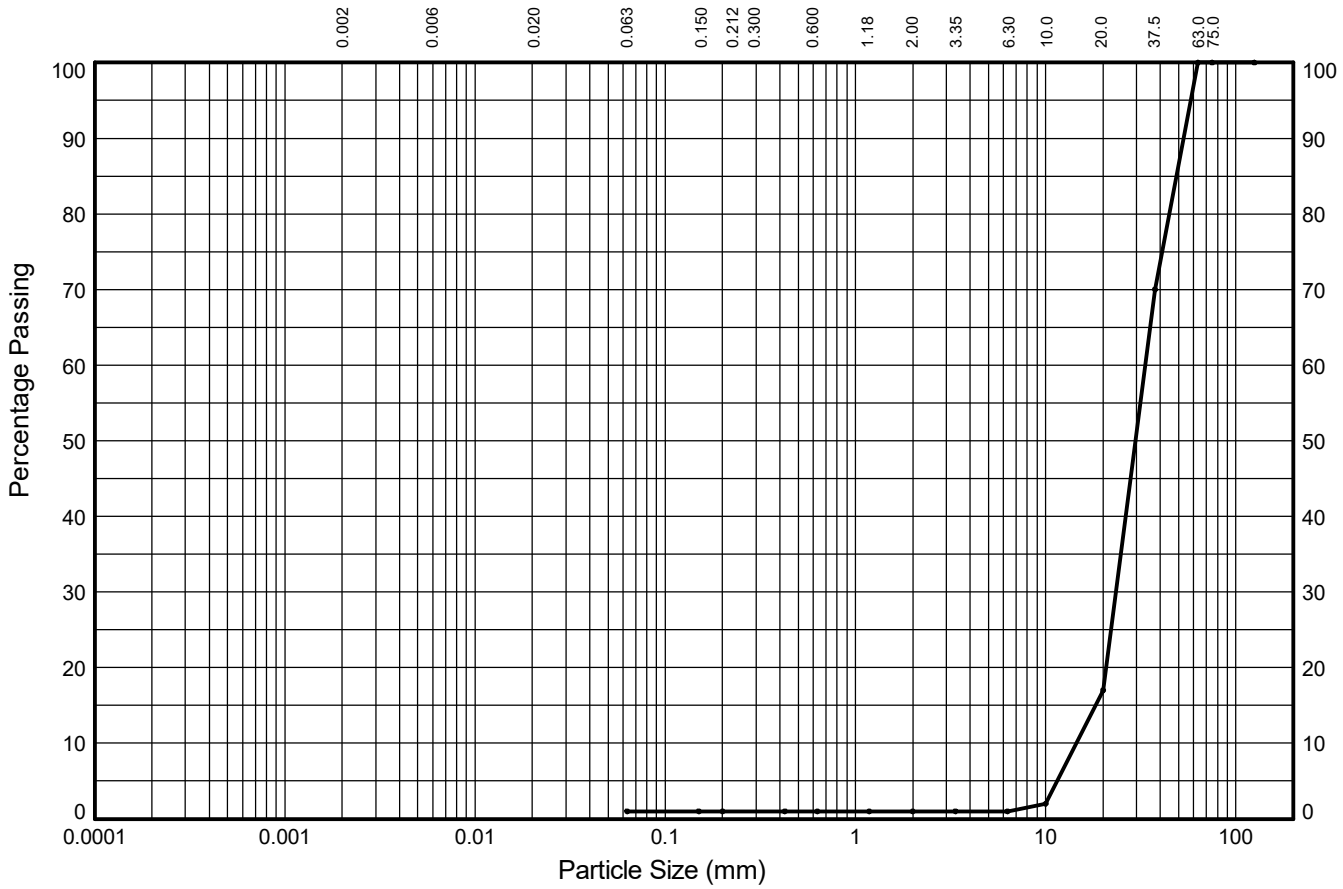
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-90402** Sample Ref: **6.5-8.0** Sample Type: **C** Depth (m): **6.50**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	0%	0%	16%	83%	
	SILT			SAND			GRAVEL			
1%				0%			99%			0%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**100**
37.5	**70**
20.0	**17**
10.0	**2**
6.30	**1**
3.35	**1**
2.00	**1**
1.18	**1**
0.630	**1**
0.425	**1**
0.200	**1**
0.150	**1**
0.063	**1**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**14.473**
D_{15} (mm)	**18.234**
D_{30} (mm)	**23.334**
D_{50} (mm)	**29.581**
D_{60} (mm)	**33.306**
D_{85} (mm)	**48.606**
D_{90} (mm)	**52.995**
C_U	**2.3**
C_C	**1.1**

Soil Description:

Dark grey black slightly silty/clayey GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	**01/03/23**

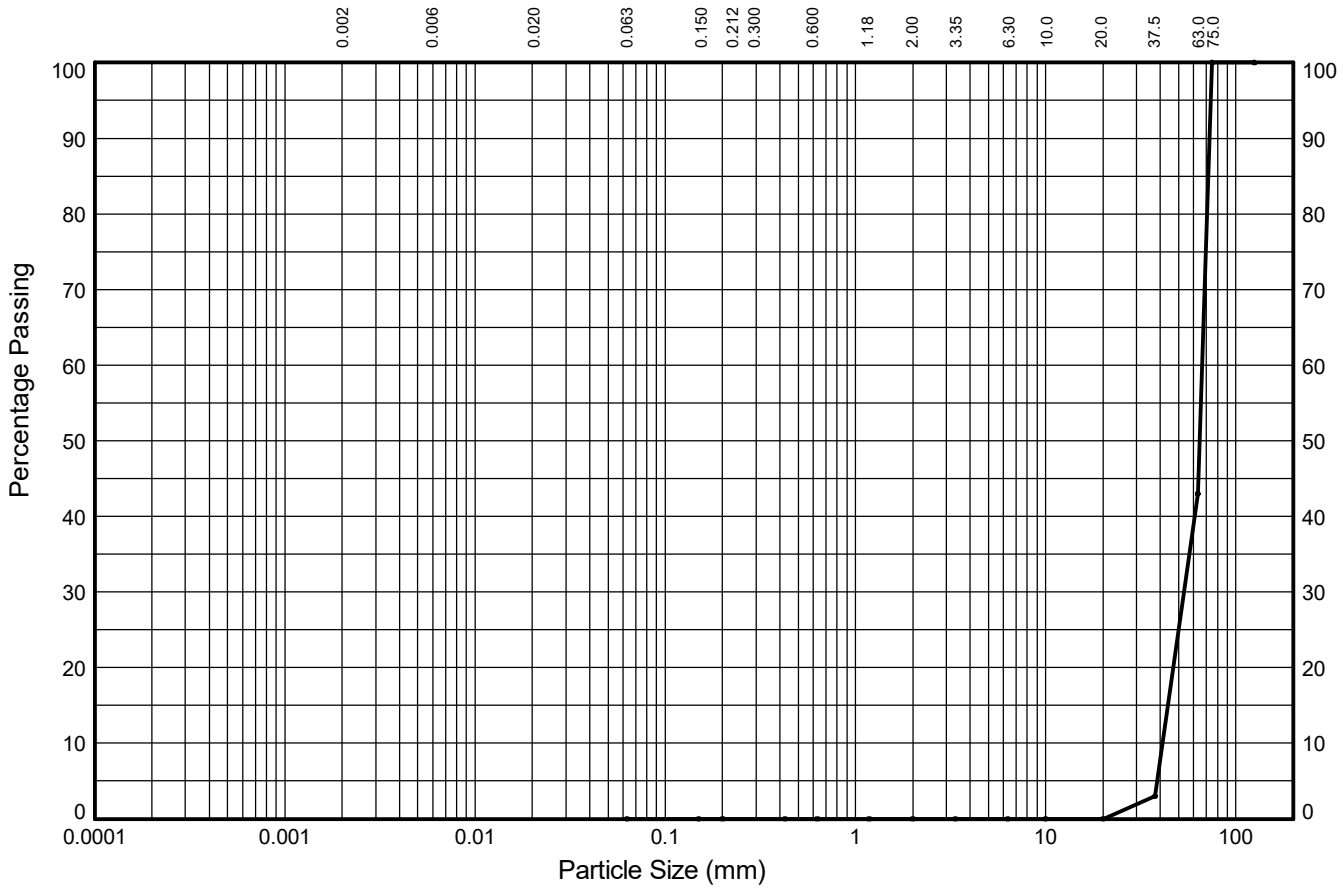
Contract	Contract Ref:
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - PSD - A4P | 785325 - 2021OY102WSP2-BPT SECTION.GPJ - v10_01
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 01/03/23 - 15:25 | LS5 |

PARTICLE SIZE DISTRIBUTION TEST

In accordance with clauses 5.2 of BS EN ISO 17892:Part 4:2016
NON-STANDARD TEST

Borehole: **BH-90402** Sample Ref: **8.0-10.0** Sample Type: **C** Depth (m): **8.00**



CLAY	fine	medium	coarse	fine	medium	coarse	fine	medium	coarse	COBBLES
	-	-	-	0%	0%	0%	0%	0%	43%	
	SILT			SAND			GRAVEL			
0%				0%			43%			57%

Test Sieve (mm)	Percent Passing (%)
125.0	**100**
75.0	**100**
63.0	**43**
37.5	**3**
20.0	**0**
10.0	**0**
6.30	**0**
3.35	**0**
2.00	**0**
1.18	**0**
0.630	**0**
0.425	**0**
0.200	**0**
0.150	**0**
0.063	**0**

Particle Diameter (mm)	Percent Passing (%)

Sedimentation sample was not pre-treated

Coefficients	
D_{10} (mm)	**41.064**
D_{15} (mm)	**43.815**
D_{30} (mm)	**53.225**
D_{50} (mm)	**64.363**
D_{60} (mm)	**66.363**
D_{85} (mm)	**71.637**
D_{90} (mm)	**72.741**
C_U	**1.6**
C_C	**1.0**

Soil Description:

Grey COBBLE with much GRAVEL

Key: C_U = Uniformity coefficient. C_C = Coefficient of curvature as defined in BS EN ISO 14688-2:2018

STRUCTURAL SOILS
The Potteries
Pottery Street
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W. Yorkshire WF10 1NJ

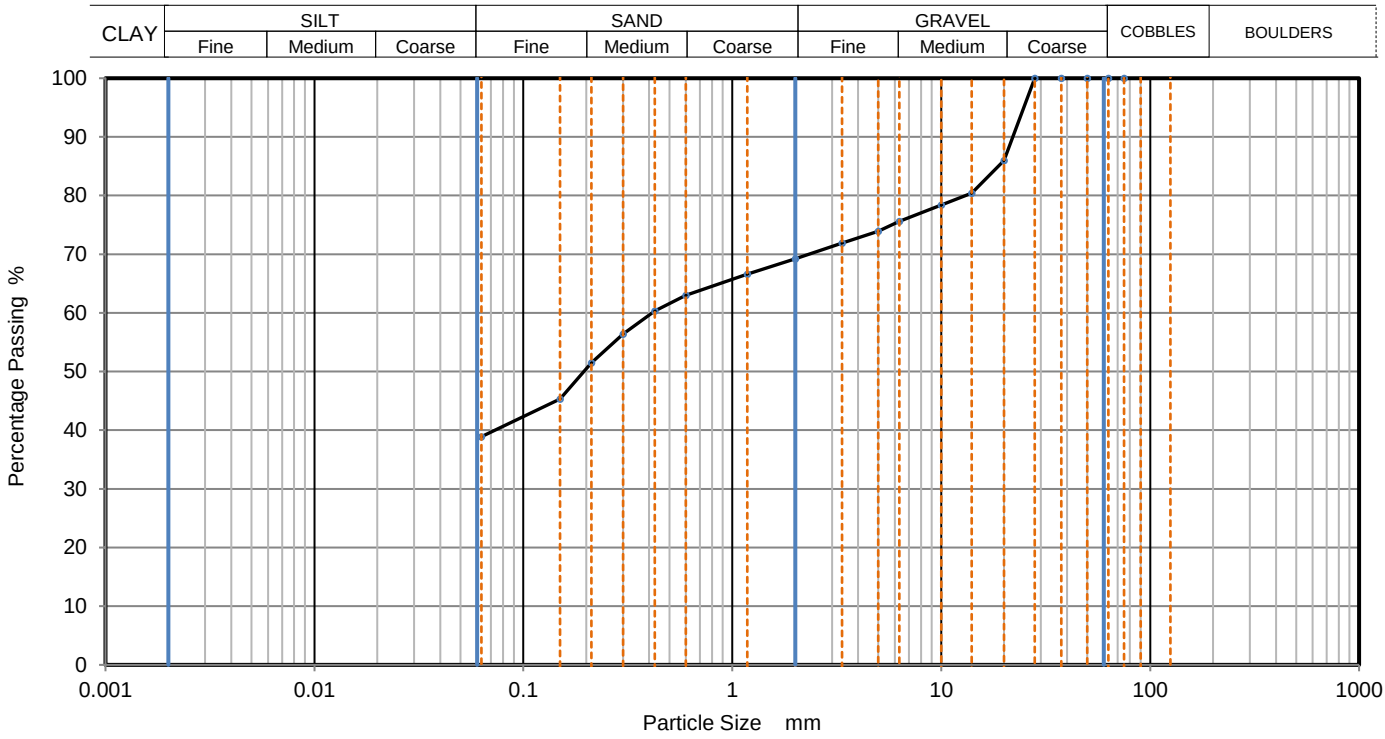
Compiled By		Date
	LAURA SCHRAMM	**01/03/23**

Contract	Contract Ref:
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | Graph L - PSD - A4P | 785325 - 2021OY102WSP2-BPT SECTION.GPJ - v10_01
Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 01/03/23 - 15:25 | LS5 |

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-92626
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Golden brown slightly sandy slightly gravelly SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062348



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	86		
14	80		
10	78		
6.3	76		
5	74		
3.35	72		
2	69		
1.18	67		
0.6	63		
0.425	60		
0.3	56		
0.212	52		
0.15	45		
0.063	39		

Dry Mass of sample, g	1072

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	30
Fines <0.063mm	39

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.414
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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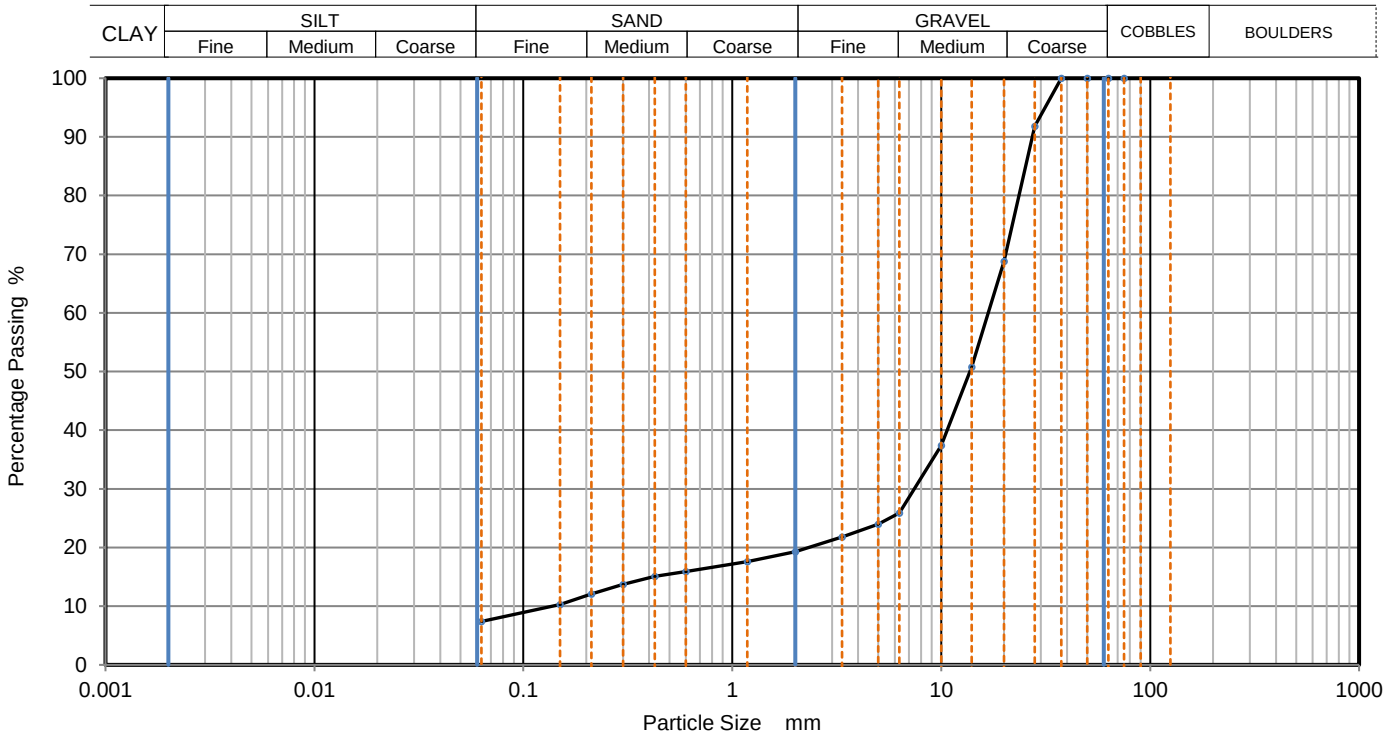
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-93803
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey silty sandy medium and coarse GRAVEL.			Depth, m	3.20
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062180



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	69		
14	51		
10	37		
6.3	26		
5	24		
3.35	22		
2	19		
1.18	18		
0.6	16		
0.425	15		
0.3	14		
0.212	12		
0.15	10		
0.063	7		

Dry Mass of sample, g	1069

Sample Proportions	% dry mass
Very coarse	0
Gravel	81
Sand	12
Fines <0.063mm	7

Grading Analysis		
D_{100}	mm	
D_{60}	mm	16.8
D_{30}	mm	7.43
D_{10}	mm	0.137
Uniformity Coefficient		120
Curvature Coefficient		24

Remarks

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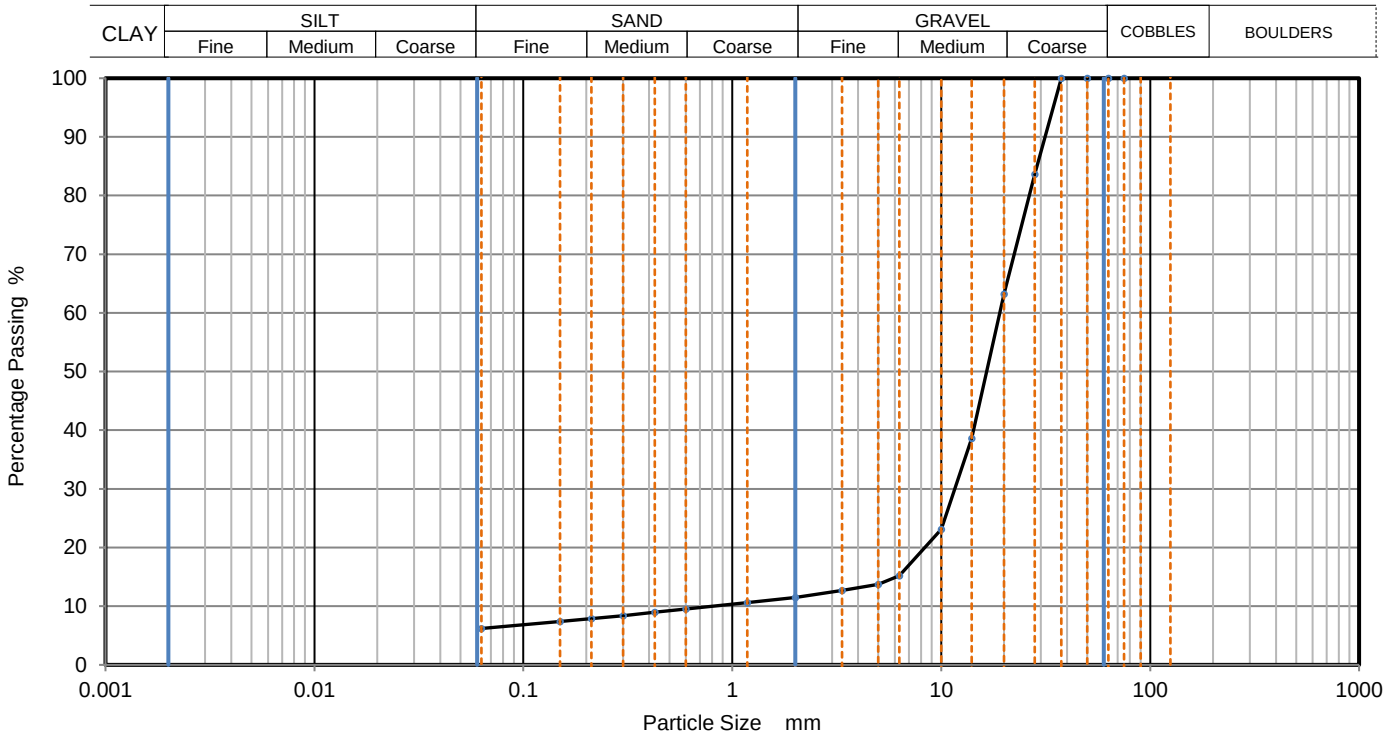
IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-96858
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey sandy silty coarse and medium GRAVEL.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202206291



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	84		
20	63		
14	39		
10	23		
6.3	15		
5	14		
3.35	13		
2	12		
1.18	11		
0.6	10		
0.425	9		
0.3	8		
0.212	8		
0.15	7		
0.063	6		

Dry Mass of sample, g	1032

Sample Proportions	% dry mass
Very coarse	0
Gravel	89
Sand	5
Fines <0.063mm	6

Grading Analysis		
D_{100}	mm	
D_{60}	mm	19.1
D_{30}	mm	11.6
D_{10}	mm	0.809
Uniformity Coefficient		24
Curvature Coefficient		8.7

Remarks

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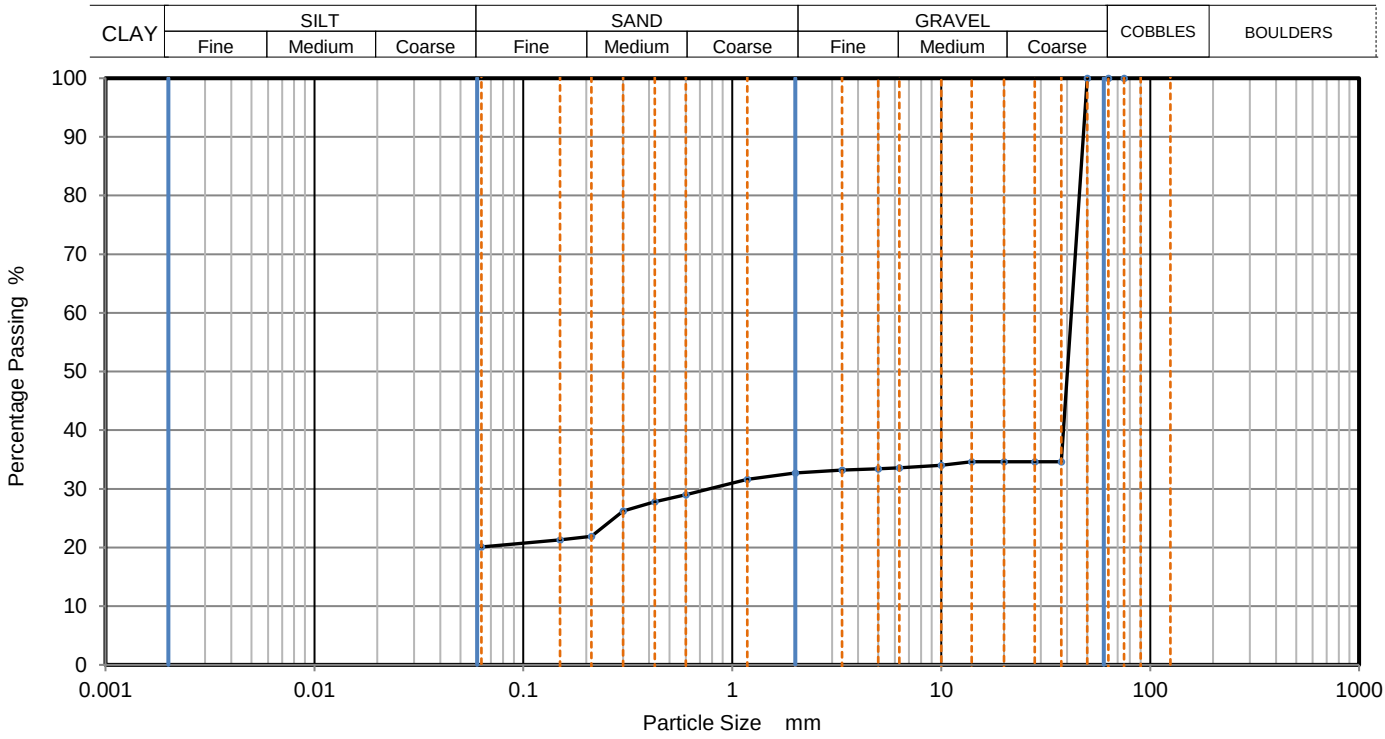
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-97423
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Brownish-grey sandy very silty coarse GRAVEL.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062386



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	35		
28	35		
20	35		
14	35		
10	34		
6.3	34		
5	33		
3.35	33		
2	33		
1.18	32		
0.6	29		
0.425	28		
0.3	26		
0.212	22		
0.15	21		
0.063	20		

Dry Mass of sample, g	822

Sample Proportions	% dry mass
Very coarse	0
Gravel	67
Sand	13
Fines <0.063mm	20

Grading Analysis		
D_{100}	mm	
D_{60}	mm	41.9
D_{30}	mm	0.772
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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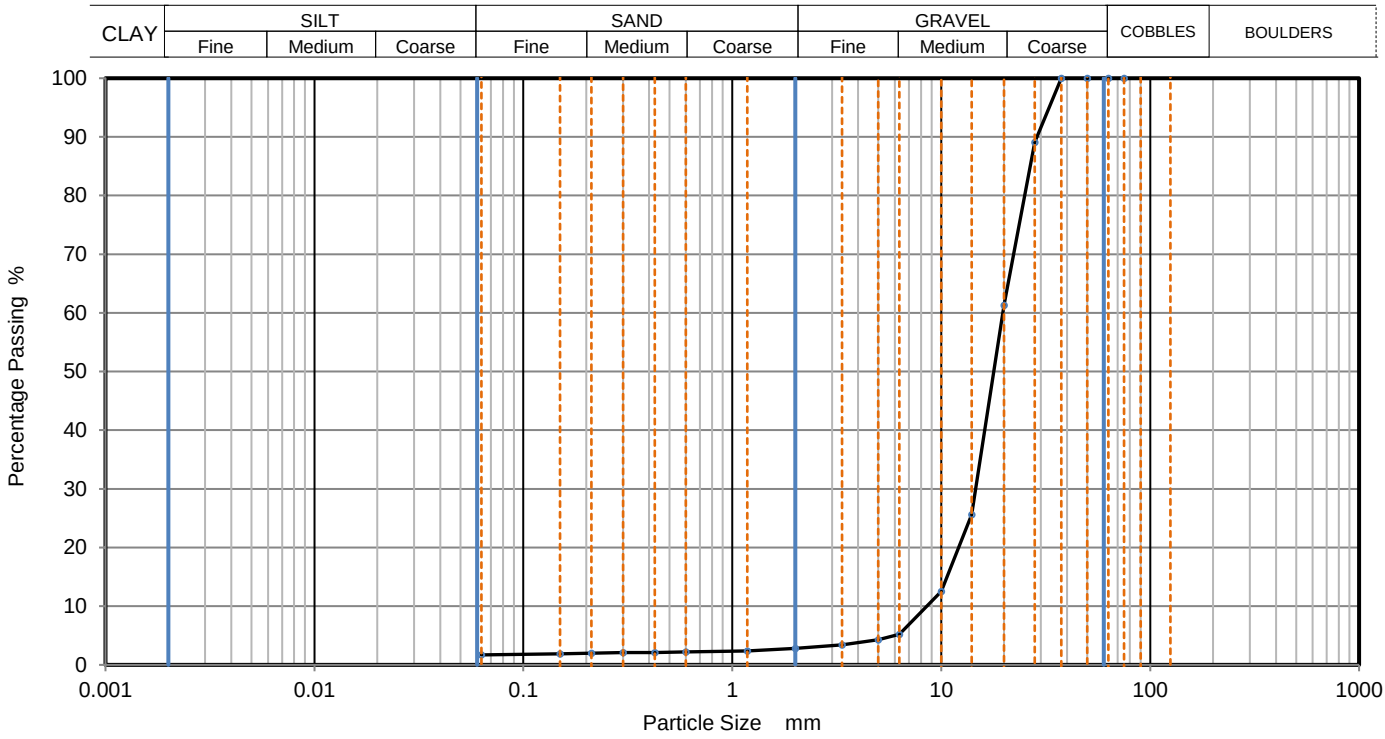
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-97837
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Bluish-grey slightly silty coarse and medium GRAVEL.			Depth, m	9.80
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120220623103



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	89		
20	61		
14	26		
10	13		
6.3	5		
5	4		
3.35	3		
2	3		
1.18	2		
0.6	2		
0.425	2		
0.3	2		
0.212	2		
0.15	2		
0.063	2		

Dry Mass of sample, g	1158

Sample Proportions	% dry mass
Very coarse	0
Gravel	97
Sand	1
Fines <0.063mm	2

Grading Analysis		
D_{100}	mm	
D_{60}	mm	19.7
D_{30}	mm	14.6
D_{10}	mm	8.52
Uniformity Coefficient		2.3
Curvature Coefficient		1.3

Remarks

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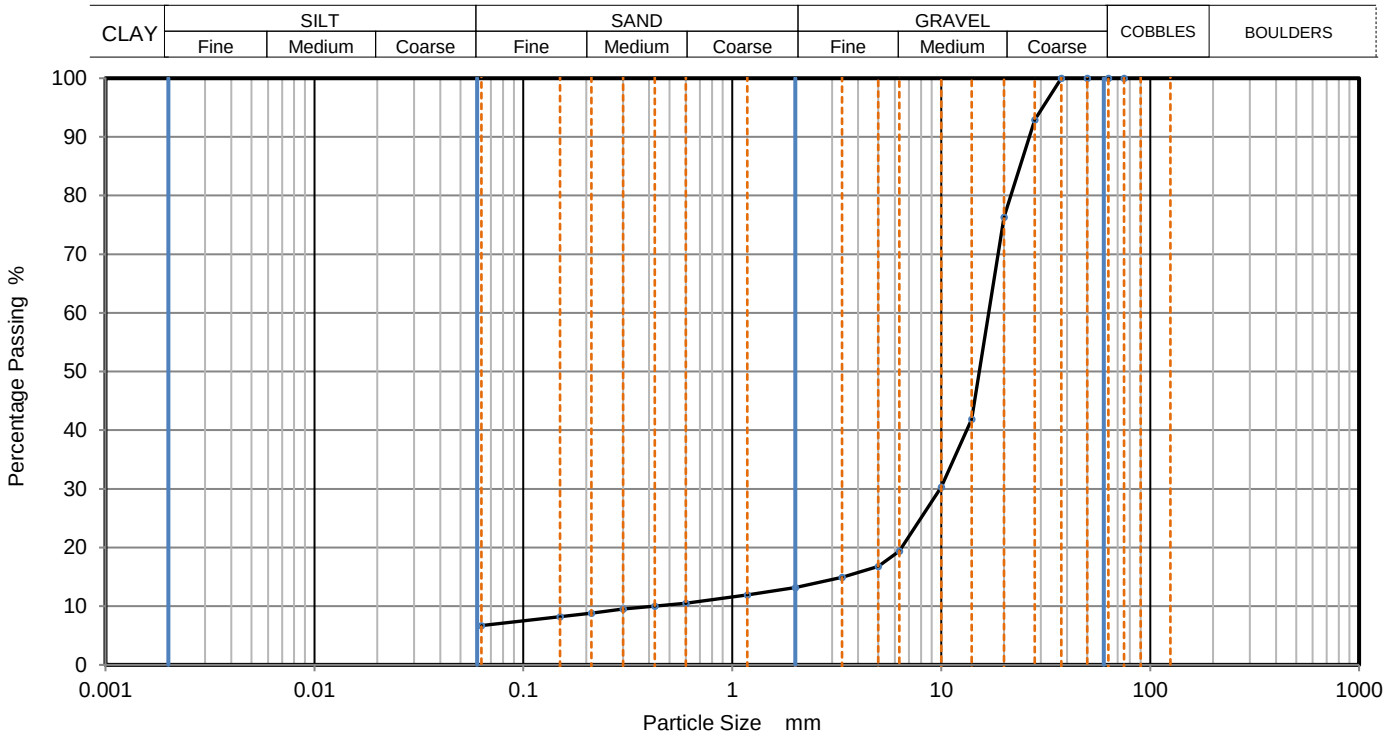
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-100203
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core:Bluish-grey silty sandy medium GRAVEL.			Depth, m	6.90
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202206211



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	76		
14	42		
10	30		
6.3	19		
5	17		
3.35	15		
2	13		
1.18	12		
0.6	11		
0.425	10		
0.3	10		
0.212	9		
0.15	8		
0.063	7		

Dry Mass of sample, g	990

Sample Proportions	% dry mass
Very coarse	0
Gravel	87
Sand	7
Fines <0.063mm	7

Grading Analysis		
D100	mm	
D60	mm	16.9
D30	mm	9.88
D10	mm	0.427
Uniformity Coefficient		40
Curvature Coefficient		14

Remarks

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		Dympna Darcy B.Sc.	03/03/2023 09:18	**1** QC From No:R2

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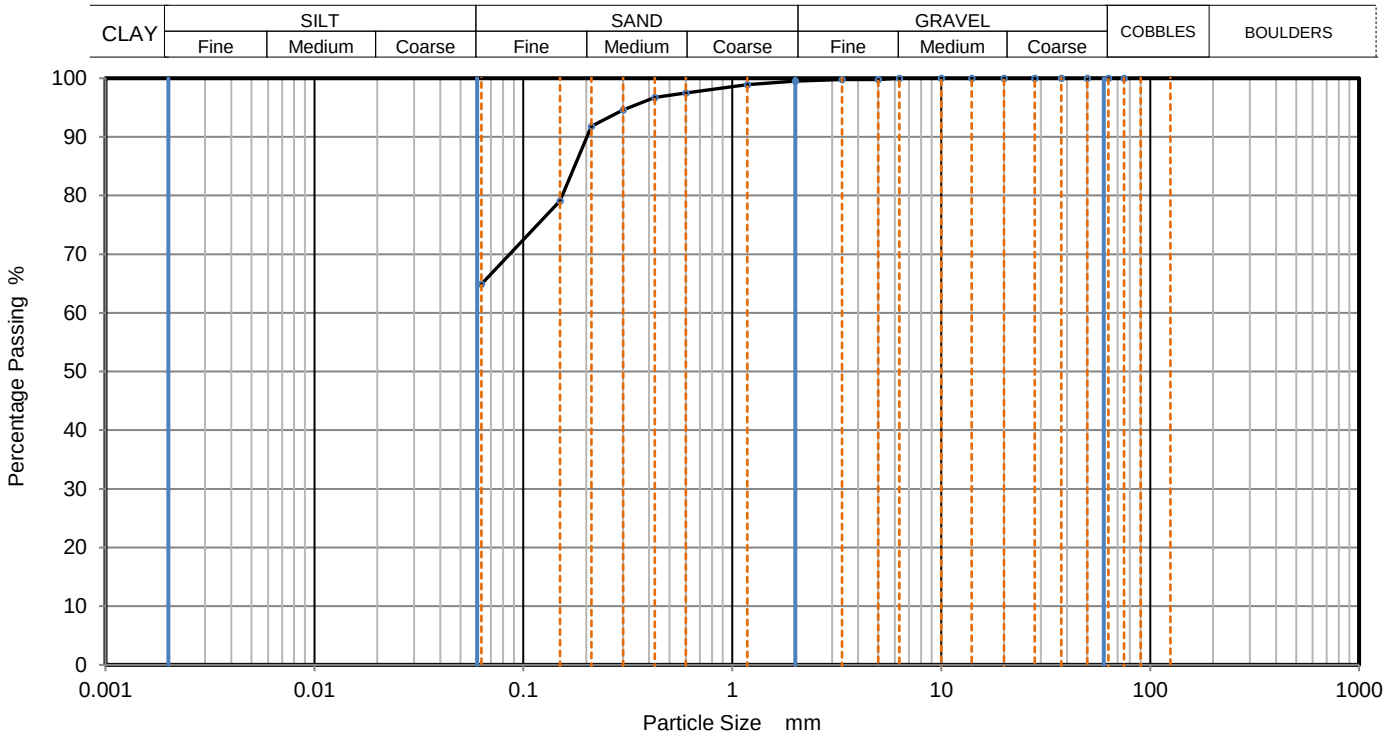
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-101953
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Light grey sandy SILT. Sand is fine.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL1202206233



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	95		
0.212	92		
0.15	79		
0.063	65		

Dry Mass of sample, g	1130

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	35
Fines <0.063mm	65

Grading Analysis		
D_{100}	mm	
D_{60}	mm	
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

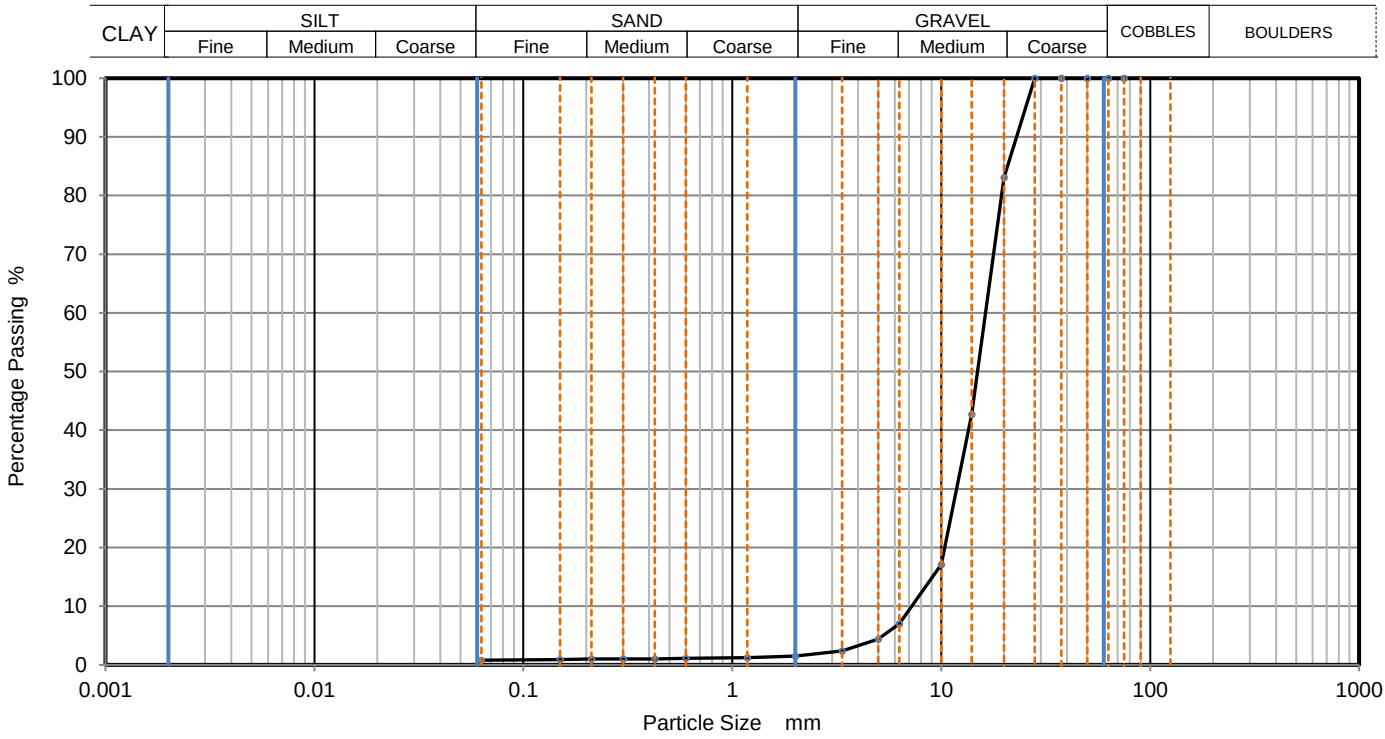
Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2023 09:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

PARTICLE SIZE DISTRIBUTION

				Job Ref	**2021OY102**
				Borehole/Pit No.	BH-102037
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core:Bluish-grey slightly silty slightly sandy medium GRAVEL.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062312



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	83		
14	43		
10	17		
6.3	7		
5	4		
3.35	2		
2	2		
1.18	1		
0.6	1		
0.425	1		
0.3	1		
0.212	1		
0.15	1		
0.063	1		

Dry Mass of sample, g	1016

Sample Proportions	% dry mass
Very coarse	0
Gravel	99
Sand	1
Fines <0.063mm	1

Grading Analysis		
D_{100}	mm	
D_{60}	mm	16.3
D_{30}	mm	11.8
D_{10}	mm	7.24
Uniformity Coefficient		2.3
Curvature Coefficient		1.2

Remarks

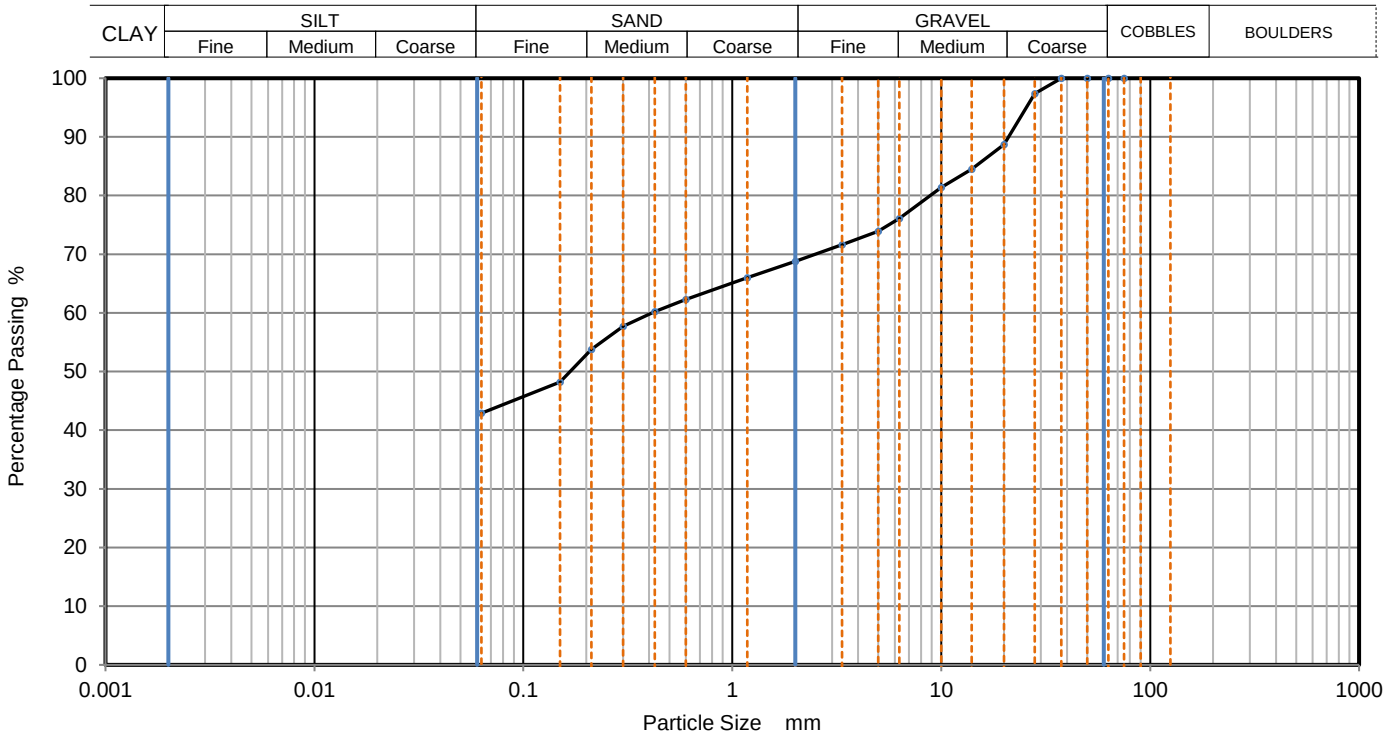
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	03/03/2023 09:02	**1** QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	**PARTICLE SIZE DISTRIBUTION**			Job Ref	**2021OY102**
				Borehole/Pit No.	BH-102528
Site Name	WSP Eastern & Midlands Region			Sample No.	
Soil Description	Core: Grey-brown slightly sandy slightly gravelly SILT.			Depth, m	0.00
Specimen Reference		Specimen Depth	m	Sample Type	C
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12022062317



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	89		
14	85		
10	81		
6.3	76		
5	74		
3.35	72		
2	69		
1.18	66		
0.6	62		
0.425	60		
0.3	58		
0.212	54		
0.15	48		
0.063	43		

Dry Mass of sample, g	1070

Sample Proportions	% dry mass
Very coarse	0
Gravel	31
Sand	26
Fines <0.063mm	43

Grading Analysis		
D_{100}	mm	
D_{60}	mm	0.412
D_{30}	mm	
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
		Dympna Darcy B.Sc.	14/03/2023 15:45	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/11464
Issue Number: 1 **Date:** 30 November, 2022

Client:
Structural Soils Limited (Castleford Lab)
The Potteries
Pottery Street
Castleford
West Yorkshire
UK
WF10 1NJ

Project Manager: Castleford Lab/Jessica Robertson/Luke Fisher; Laur
Project Name: 2021OY102:WSP2-BPT section
Project Ref: 785325
Order No: N/A
Date Samples Received: 21/11/22
Date Instructions Received: 22/11/22
Date Analysis Completed: 30/11/22

Approved by:

Gemma Berrisford
Client Manager

Envirolab Job Number: 22/11464

Client Project Name: 2021OY102:WSP2-BPT section

Client Project Ref: 785325

Lab Sample ID	22/11464/1	22/11464/2	22/11464/3	22/11464/4	22/11464/5	22/11464/6	22/11464/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BPT-BH-001	BPT-BH-004	BPT-BH-004	BPT-BH-005	BPT-BH-007	BPT-BH-007	BPT-BH-008			
Depth to Top	0.00	0.00	6.50	2.50	0.60	15.00	5.10			
Depth To Bottom	2.00	2.00	8.00	3.20	2.10	16.60	6.60			
Date Sampled		18-May-22	18-May-22	17-Jun-22			20-Jun-22			
Sample Type	Solid	Soil - B	Soil - B	Solid	Solid	Solid	Soil - B			
Sample Matrix Code	7	6A	4A	7	7	7	6			
% Stones >10mm$_A$	<0.1	9.8	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	10.98	8.78	9.17	9.32	9.58	9.19	9.11	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	<10	<10	<10	<10	<10	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.01	-	<0.01	-	<0.01	<0.01	<0.01	% w/w	0.01	A-T-024s

Envirolab Job Number: 22/11464

Client Project Name: 2021OY102:WSP2-BPT section

Client Project Ref: 785325

Lab Sample ID	22/11464/8	22/11464/9	22/11464/10	22/11464/11	22/11464/12	22/11464/13	22/11464/14	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BPT-BH-010	BPT-BH-012	BPT-BH-013	BPT-BH-014	BPT-BH-016	BPT-BH-018	BPT-BH-020			
Depth to Top	1.10	0.00	0.00	2.10	0.00	3.50	3.50			
Depth To Bottom	2.30	1.50	1.10	3.70	2.00	5.00	5.00			
Date Sampled	23-May-22	27-Jun-22	28-Jun-22	29-Jun-22	11-Jul-22	12-Oct-22				
Sample Type	Solid	Solid	Solid	Solid	Soil - B	Soil - B	Soil - B			
Sample Matrix Code	7	7	7	7	4AE	4A	6A			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	8.4	<0.1	13.3	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	9.41	9.27	9.59	9.59	6.24	8.54	8.81	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	<10	<10	<10	<10	<10	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	<0.02	-	-	-	-	-	-	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	<0.01	-	-	-	-	-	-	% w/w	0.01	A-T-024s

Envirolab Job Number: 22/11464

Client Project Name: 2021OY102:WSP2-BPT section

Client Project Ref: 785325

Lab Sample ID	22/11464/15	22/11464/16	22/11464/17	22/11464/18	22/11464/19			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	~~BPT-BH-021~~	BH36789	BH36789	BH36789	~~BPT-BH-003~~					
Depth to Top	~~5.00~~	9.50	18.60	15.70	~~3.60~~					
Depth To Bottom	~~6.60~~	11.00	20.00	17.10	~~5.10~~					
Date Sampled	~~05-Oct-22~~	11-Oct-22		11-Oct-22	~~11-Oct-22~~					
Sample Type	~~Solid~~	Solid	Solid	Solid	~~Solid~~					
Sample Matrix Code	~~7~~	7	7	7	~~7~~					
% Stones >10mm$_A$	~~<0.1~~	<0.1	<0.1	<0.1	~~<0.1~~			% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	~~9.34~~	8.64	8.57	9.47	~~9.58~~			pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	~~<10~~	<10	<10	<10	~~10~~			mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	-	-	<0.02	-	~~<0.02~~			% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	-	-	<0.02	-	~~0.01~~			% w/w	0.01	A-T-024s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
Subscript "^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Structural Soils Limited (Castleford Lab), The Potteries, Pottery Street, Castleford, West Yorkshire, UK, WF10 1NJ

Project: 2021OY102:WSP2-BPT section

Clients Project No: 785325

Project No: 22/11464

Date Received: 22/11/2022 (am)

Cool Box Temperatures (°C): 7.9 & 8.1

Lab Sample ID	22/11464/1	22/11464/2	22/11464/3	22/11464/4	22/11464/5	22/11464/6	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11
Client Sample No											
Client Sample ID/Depth	BPT-BH-001 0.00-2.00m	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-007 0.60-2.10m	BPT-BH-007 15.00-16.60m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m
Date Sampled		18/05/22	18/05/22	17/06/22			20/06/22	23/05/22	27/06/22	28/06/22	29/06/22
Deviation Code											
E (no date)	✓				✓	✓					
F		✓	✓	✓			✓	✓	✓	✓	✓

Lab Sample ID	22/11464/12	22/11464/13	22/11464/14	22/11464/15	22/11464/16	22/11464/17	22/11464/18	22/11464/19
Client Sample No								
Client Sample ID/Depth	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-020 3.50-5.00m	BPT-BH-021 5.00-6.60m	BH36789 9.50-11.00m	BH36789 18.60-20.00m	BH36789 15.70-17.10m	BPT-BH-003 3.60-5.10m
Date Sampled	11/07/22	12/10/22		05/10/22	11/10/22		11/10/22	11/10/22
Deviation Code								
E (no date)			✓			✓		
F	✓	✓		✓	✓		✓	✓

Key

E (no date) *No sampling date provided (all results affected if not provided)*

F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	22/11464/2	22/11464/3	22/11464/4	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11	22/11464/12	22/11464/13	22/11464/15
Client Sample No											
Client Sample ID/Depth	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-021 5.00-6.60m
Date Sampled	18/05/22	18/05/22	17/06/22	20/06/22	23/05/22	27/06/22	28/06/22	29/06/22	11/07/22	12/10/22	05/10/22
pH BRE	✓	✓			✓						

Lab Sample ID	22/11464/2	22/11464/3	22/11464/4	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11	22/11464/12	22/11464/13	22/11464/15
Client Sample No											
Client Sample ID/Depth	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-021 5.00-6.60m
Date Sampled	18/05/22	18/05/22	17/06/22	20/06/22	23/05/22	27/06/22	28/06/22	29/06/22	11/07/22	12/10/22	05/10/22
Sulphate BRE (water sol 2:1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulphate BRE (acid sol)		✓		✓	✓						
Sulphur BRE (total)		✓			✓						

Lab Sample ID	22/11464/16	22/11464/18	22/11464/19
Client Sample No			
Client Sample ID/Depth	BH36789 9.50-11.00m	BH36789 15.70-17.10m	BPT-BH-003 3.60-5.10m
Date Sampled	11/10/22	11/10/22	11/10/22
pH BRE			
Sulphate BRE (water sol 2:1)	✓	✓	✓
Sulphate BRE (acid sol)			✓
Sulphur BRE (total)			

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/11464/1	22/11464/2	22/11464/3	22/11464/4	22/11464/5	22/11464/6	22/11464/7	22/11464/8	22/11464/9	22/11464/10	22/11464/11
Client Sample No											
Client Sample ID/Depth	BPT-BH-001 0.00-2.00m	BPT-BH-004 0.00-2.00m	BPT-BH-004 6.50-8.00m	BPT-BH-005 2.50-3.20m	BPT-BH-007 0.60-2.10m	BPT-BH-007 15.00-16.60m	BPT-BH-008 5.10-6.60m	BPT-BH-010 1.10-2.30m	BPT-BH-012 0.00-1.50m	BPT-BH-013 0.00-1.10m	BPT-BH-014 2.10-3.70m
Date Sampled		18/05/22	18/05/22	17/06/22			20/06/22	23/05/22	27/06/22	28/06/22	29/06/22
A-T-024s	28/11/2022		28/11/2022		28/11/2022	28/11/2022	30/11/2022	28/11/2022			
A-T-026s	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022
A-T-028s	29/11/2022		29/11/2022		29/11/2022	29/11/2022	29/11/2022	29/11/2022			
A-T-031s	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
A-T-044	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022

Lab Sample ID	22/11464/12	22/11464/13	22/11464/14	22/11464/15	22/11464/16	22/11464/17	22/11464/18	22/11464/19
Client Sample No								
Client Sample ID/Depth	BPT-BH-016 0.00-2.00m	BPT-BH-018 3.50-5.00m	BPT-BH-020 3.50-5.00m	BPT-BH-021 5.00-6.60m	BH36789 9.50-11.00m	BH36789 18.60-20.00m	BH36789 15.70-17.10m	BPT-BH-003 3.60-5.10m
Date Sampled	11/07/22	12/10/22		05/10/22	11/10/22		11/10/22	11/10/22
A-T-024s						29/11/2022		30/11/2022
A-T-026s	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	28/11/2022	29/11/2022
A-T-028s						30/11/2022		30/11/2022
A-T-031s	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022	29/11/2022
A-T-044	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	25/11/2022	28/11/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	03 October 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220926-32
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	663383
Order Number:	10808

We received 11 samples on Monday September 26, 2022 and 11 of these samples were scheduled for analysis which was completed on Monday October 03, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220926-32 **Report Number:** 663383 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26925628	BH-36920	C1	0.00 - 2.00	15/03/2022
26925634	BH-46402	C1	3.90 - 5.00	20/01/2022
26925636	BH-46715	C1	4.20 - 5.60	24/01/2022
26925638	BH-47262	C1	3.60 - 5.00	25/01/2022
26925641	BH-53713	C1	5.00 - 6.50	21/03/2022
26925643	BH-56060	C1	3.50 - 5.00	24/03/2022
26925645	BH-56645	C1	2.00 - 3.50	29/03/2022
26925647	BH-56857	C1	2.00 - 3.50	28/03/2022
26925649	BH-69646	C1	2.80 - 4.30	21/03/2022
26925630	BH-69646	C1	5.80 - 6.30	21/03/2022
26925632	BH-77631	C1	3.00 - 4.30	13/04/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220926-32 **Report Number:** 663383 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			26925628	BH-36920	C1	0.00 - 2.00	250g Amber Jar (ALE210)	S
			26925634	BH-46402	C1	3.90 - 5.00	250g Amber Jar (ALE210)	S
			26925636	BH-46715	C1	4.20 - 5.60	250g Amber Jar (ALE210)	S
			26925638	BH-47262	C1	3.60 - 5.00	250g Amber Jar (ALE210)	S
			26925641	BH-53713	C1	5.00 - 6.50	250g Amber Jar (ALE210)	S
			26925643	BH-56060	C1	3.50 - 5.00	250g Amber Jar (ALE210)	S
			26925645	BH-56645	C1	2.00 - 3.50	250g Amber Jar (ALE210)	S
			26925647	BH-56857	C1	2.00 - 3.50	250g Amber Jar (ALE210)	S
			26925649	BH-69646	C1	2.80 - 4.30	250g Amber Jar (ALE210)	S
			26925630	BH-69646	C1	5.80 - 6.30	250g Amber Jar (ALE210)	S
			26925632	BH-77631	C1	3.00 - 4.30	250g Amber Jar (ALE210)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 8	X		X	X	X	X		X	X		X
Total Sulphate	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 11	X	X	X	X	X	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 220926-32 **Report Number:** 663383 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26925628	BH-36920	0.00 - 2.00	Light Brown	Dry Sample Received	Stones	Vegetation
26925634	BH-46402	3.90 - 5.00	Grey	N/A	Stones	None
26925636	BH-46715	4.20 - 5.60	Light Brown	Dry Sample Received	Stones	None
26925638	BH-47262	3.60 - 5.00	Grey	Dry Sample Received	Stones	None
26925641	BH-53713	5.00 - 6.50	Beige	Dry Sample Received	Stones	None
26925643	BH-56060	3.50 - 5.00	Grey	Sand	Stones	None
26925645	BH-56645	2.00 - 3.50	Grey	N/A	Stones	None
26925647	BH-56857	2.00 - 3.50	Grey	Dry Sample Received	Stones	None
26925630	BH-69646	5.80 - 6.30	Grey	N/A	Stones	None
26925649	BH-69646	2.80 - 4.30	Grey	Dry Sample Received	Stones	None
26925632	BH-77631	3.00 - 4.30	Beige	Dry Sample Received	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220926-32 **Report Number:** 663383 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-36920	BH-46402	BH-46715	BH-47262	BH-53713	BH-56060
			Depth (m)	0.00 - 2.00	3.90 - 5.00	4.20 - 5.60	3.60 - 5.00	5.00 - 6.50	3.50 - 5.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	15/03/2022	20/01/2022	24/01/2022	25/01/2022	21/03/2022	24/03/2022
			Sample Time	-	-	-	-	-	-
			Date Received	26/09/2022	26/09/2022	26/09/2022	26/09/2022	26/09/2022	26/09/2022
			SDG Ref	220926-32	220926-32	220926-32	220926-32	220926-32	220926-32
			Lab Sample No.(s)	26925628	26925634	26925636	26925638	26925641	26925643
			AGS Reference	C1	C1	C1	C1	C1	C1
Moisture Content Ratio (% of as received sample)	%	PM024		0.42	0	0.073	0	0.16	0
Sulphur, Total	<0.02 %	TM132		0.0206 @ #	<0.02 @	0.0202 @ #	0.0294 @ #	<0.02 @ #	0.0259 @ #
Sulphate, Total potential	<0.06 %	TM132		0.0618 @	0.06 @	0.0606 @	0.0882 @	0.06 @	0.0777 @
pH	1 pH Units	TM133		8.08 @ #	9.59 @	9.04 @ #	8.98 @ #	8.95 @ #	9.18 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		<0.0048 @ #	<0.0048 @	<0.0048 @ #	0.0367 @ #	<0.0048 @ #	0.0246 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0109 @ #	0.0056 @	0.0075 @ #	0.0155 @ #	0.0093 @ #	0.0166 @ M

CERTIFICATE OF ANALYSIS

SDG: 220926-32 **Report Number:** 663383 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-56645	BH-56857	BH-69646	BH-69646	BH-77631
			Depth (m)	2.00 - 3.50	2.00 - 3.50	2.80 - 4.30	5.80 - 6.30	3.00 - 4.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/03/2022	28/03/2022	21/03/2022	21/03/2022	13/04/2022
			Sample Time	-	-	-	-	-
			Date Received	26/09/2022	26/09/2022	26/09/2022	26/09/2022	26/09/2022
			SDG Ref	220926-32	220926-32	220926-32	220926-32	220926-32
			Lab Sample No.(s)	26925645	26925647	26925649	26925630	26925632
			AGS Reference	C1	C1	C1	C1	C1
Moisture Content Ratio (% of as received sample)	%	PM024		0	0	0	0	0.03
Sulphur, Total	<0.02 %	TM132		0.0312 @	0.0301 @ #	0.0595 @ #	0.0743 @	0.0251 @ #
Sulphate, Total potential	<0.06 %	TM132		0.0936 @	0.0903 @	0.179 @	0.223 @	0.0753
pH	1 pH Units	TM133		9.49 @	8.85 @ #	9.49 @ #	9.49 @	8.97 @ #
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.00689 @	0.0503 @ #	0.037 @ #	0.0504 @	0.00857 #
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0066 @	0.0138 @ #	0.0205 @ #	0.0156 @	0.0088 @ #

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220926-32 **Report Number:** 663383 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26925628	26925634	26925636	26925638	26925641	26925643	26925645	26925647	26925630	26925649
Customer Sample Ref.	BH-36920	BH-46402	BH-46715	BH-47262	BH-53713	BH-56060	BH-56645	BH-56857	BH-69646	BH-69646
AGS Ref.	C1	C1	C1	C1	C1	C1	C1	C1	C1	C1
Depth	0.00 - 2.00	3.90 - 5.00	4.20 - 5.60	3.60 - 5.00	5.00 - 6.50	3.50 - 5.00	2.00 - 3.50	2.00 - 3.50	5.80 - 6.30	2.80 - 4.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022	03-Oct-2022
pH	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022
Sample description	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022	27-Sep-2022
Total Sulphate	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022
Total Sulphur	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022	29-Sep-2022

Lab Sample No(s)	26925632
Customer Sample Ref.	BH-77631
AGS Ref.	C1
Depth	3.00 - 4.30
Type	Soil/Solid (S)
Anions by Kone (soil)	03-Oct-2022
pH	27-Sep-2022
Sample description	27-Sep-2022
Total Sulphate	29-Sep-2022
Total Sulphur	29-Sep-2022

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	30 June 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220624-152
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	652661
Order Number:	10808

We received 9 samples on Friday June 24, 2022 and 9 of these samples were scheduled for analysis which was completed on Thursday June 30, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

1291

CERTIFICATE OF ANALYSIS

SDG: 220624-152 **Report Number:** 652661 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26487587	BH-40830	CORE1	2.00 - 3.50	23/02/2022
26487591	BH-41053	CORE1	2.00 - 3.50	22/02/2022
26487593	BH-42062	CORE1	0.00 - 2.00	17/02/2022
26487596	BH-54059	CORE1	0.00 - 2.00	22/03/2022
26487599	BH-62325	CORE1	3.00 - 4.50	14/03/2022
26487603	BH-62456	CORE1	3.00 - 4.10	14/03/2022
26487605	BH-62606	CORE1	4.50 - 5.70	15/03/2022
26487608	BH-70701	CORE1	0.00 - 1.50	24/03/2022
26487611	BH-72683	CORE1	0.00 - 1.50	25/03/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220624-152 **Report Number:** 652661 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			26487587	26487591	26487593	26487596	26487599	26487603	26487605	26487608	26487611
Customer Sample Reference			BH-40830	BH-41053	BH-42062	BH-54059	BH-62325	BH-62456	BH-62606	BH-70701	BH-72683
AGS Reference			CORE1	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1
Depth (m)			2.00 - 3.50	2.00 - 3.50	0.00 - 2.00	0.00 - 2.00	3.00 - 4.50	3.00 - 4.10	4.50 - 5.70	0.00 - 1.50	0.00 - 1.50
Container			1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S	S	S	S	S	S
Sample description	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 220624-152 **Report Number:** 652661 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	**fine**	0.063mm - 0.1mm	**medium**	0.1mm - 2mm	**coarse**	2mm - 10mm	**very coarse**	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26487587	BH-40830	2.00 - 3.50	Grey	Stone/Soil	None	None
26487591	BH-41053	2.00 - 3.50	Grey	Stone/Soil	None	None
26487593	BH-42062	0.00 - 2.00	Dark Brown	Sand	Stones	None
26487596	BH-54059	0.00 - 2.00	Light Brown	Sandy Loam	Stones	Vegetation
26487599	BH-62325	3.00 - 4.50	Light Brown	Sand	Stones	Vegetation
26487603	BH-62456	3.00 - 4.10	Light Brown	Sand	Stones	Vegetation
26487605	BH-62606	4.50 - 5.70	Light Brown	Sand	Stones	None
26487608	BH-70701	0.00 - 1.50	Light Brown	Sand	Stones	Vegetation
26487611	BH-72683	0.00 - 1.50	Light Brown	Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220624-152 **Report Number:** 652661 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-40830	BH-41053	BH-42062	BH-54059	BH-62325	BH-62456
						BH-42602			
			Depth (m)	2.00 - 3.50	2.00 - 3.50	0.00 - 2.00	0.00 - 2.00	3.00 - 4.50	3.00 - 4.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	23/02/2022	22/02/2022	17/02/2022	22/03/2022	14/03/2022	14/03/2022
			Sample Time	-	-	-	-	-	-
			Date Received	24/06/2022	24/06/2022	24/06/2022	24/06/2022	24/06/2022	24/06/2022
			SDG Ref	220624-152	220624-152	220624-152	220624-152	220624-152	220624-152
			Lab Sample No.(s)	26487587	26487591	26487593	26487596	26487599	26487603
			AGS Reference	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1
Moisture Content Ratio (% of as received sample)	%	PM024		0	0	0.32	1.7	0.14	0.12
Sulphate, Total	<48 mg/kg	TM221		319 #	<48 #	381 M	518 M	90.3 M	96.8 M

Validated

CERTIFICATE OF ANALYSIS

SDG: 220624-152 **Report Number:** 652661 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	BH-62606	BH-70701	BH-72683			
Customer Sample Ref.								
Depth (m)			4.50 - 5.70	0.00 - 1.50	0.00 - 1.50			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			15/03/2022	24/03/2022	25/03/2022			
Sample Time			-	-	-			
Date Received			24/06/2022	24/06/2022	24/06/2022			
SDG Ref			220624-152	220624-152	220624-152			
Lab Sample No.(s)			26487605	26487608	26487611			
AGS Reference			CORE1	CORE1	CORE1			
Moisture Content Ratio (% of as received sample)	%	PM024	0.073	0.17	0.078			
Sulphate, Total	<48 mg/kg	TM221	93.3 M	236 M	248 M			

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220624-152 **Report Number:** 652661 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26487587	26487591	26487593	26487596	26487599	26487603	26487605	26487608	26487611
Customer Sample Ref.	BH-40830	BH-41053	BH-42062	BH-54059	BH-62325	BH-62456	BH-62606	BH-70701	BH-72683
AGS Ref.	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1	CORE1
Depth	2.00 - 3.50	2.00 - 3.50	0.00 - 2.00	0.00 - 2.00	3.00 - 4.50	3.00 - 4.10	4.50 - 5.70	0.00 - 1.50	0.00 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Sample description	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022	27-Jun-2022
Total Sulphate	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022	30-Jun-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	17 January 2023
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	230110-34
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	675352
Order Number:	10808

We received 21 samples on Tuesday January 10, 2023 and 21 of these samples were scheduled for analysis which was completed on Tuesday January 17, 2023. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

ALS Laboratories (UK) Limited. Registered Office: Torrington Avenue, Coventry CV4 9GU. Registered in England and Wales No. 02391955.

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27385107	BH-44177	C1	0.00 - 1.50	14/02/2022
27385109	BH-44177	C2	1.50 - 2.60	14/02/2022
27385114	BH-52008	C1	0.00 - 2.00	09/02/2022
27385117	BH-58807	C3	3.50 - 5.00	04/04/2022
27385119	BH-60805	C2	2.00 - 3.50	08/04/2022
27385076	BH-85791	C2	2.00 - 3.50	12/05/2022
27385079	BH-87006	C2	2.00 - 3.50	18/05/2022
27385081	BH-87455	C2	2.00 - 3.50	13/05/2022
27385083	BH-91011	C3	3.50 - 5.00	23/05/2022
27385085	BH-92626	C3	3.50 - 5.00	25/05/2022
27385087	BH-93803	C3	3.20 - 5.00	05/05/2022
27385089	BH-94016	C3	3.50 - 5.00	06/05/2022
27385102	BH-95064	C2	1.70 - 2.60	04/05/2022
27385091	BH-95595	C3	3.60 - 5.00	03/05/2022
27385093	BH-96858	C3	3.50 - 5.00	06/01/2023
27385095	BH-97423	C4	4.00 - 5.50	26/04/2022
27385074	BH-101953	C1	0.00 - 2.00	12/05/2022
27385097	BH-101953	C2	2.00 - 3.50	12/05/2022
27385100	BH-102528	C3	3.50 - 5.00	16/05/2022
27385105	BH-103234	C4	4.50 - 6.10	17/05/2022
27385112	BH-44534A	C1	0.00 - 2.00	11/02/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			27385107	BH-44177	C1	0.00 - 1.50	250g Amber Jar (ALE210)	S
			27385109	BH-44177	C2	1.50 - 2.60	250g Amber Jar (ALE210)	S
			27385114	BH-52008	C1	0.00 - 2.00	250g Amber Jar (ALE210)	S
			27385117	BH-58807	C3	3.50 - 5.00	1kg TUB with Handle (ALE260)	S
			27385119	BH-60805	C2	2.00 - 3.50	1kg TUB with Handle (ALE260)	S
			27385076	BH-85791	C2	2.00 - 3.50	1kg TUB with Handle (ALE260)	S
			27385079	BH-87006	C2	2.00 - 3.50	250g Amber Jar (ALE210)	S
			27385081	BH-87455	C2	2.00 - 3.50	1kg TUB with Handle (ALE260)	S
			27385083	BH-91011	C3	3.50 - 5.00	1kg TUB with Handle (ALE260)	S
			27385085	BH-92626	C3	3.50 - 5.00	1kg TUB with Handle (ALE260)	S
			27385087	BH-93803	C3	3.20 - 5.00	1kg TUB with Handle (ALE260)	S
			27385089	BH-94016	C3	3.50 - 5.00	1kg TUB with Handle (ALE260)	S
			27385102	BH-95064	C2	1.70 - 2.60	1kg TUB with Handle (ALE260)	S
			27385091	BH-95595	C3	3.60 - 5.00	1kg TUB with Handle (ALE260)	S
			27385093	BH-96858	C3	3.50 - 5.00	1kg TUB with Handle (ALE260)	S
			27385095	BH-97423	C4	4.00 - 5.50	1kg TUB with Handle (ALE260)	S
			27385074	BH-101953	C1	0.00 - 2.00	1kg TUB with Handle (ALE260)	S
			27385097	BH-101953	C2	2.00 - 3.50	1kg TUB with Handle (ALE260)	S
			27385100	BH-102528	C3	3.50 - 5.00	1kg TUB with Handle (ALE260)	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 19		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Loss on Ignition in soils	All	NDPs: 0 Tests: 2	X																	X		
pH	All	NDPs: 0 Tests: 19		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X
Sample description	All	NDPs: 0 Tests: 19	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 2	X																	X		
Total Sulphate	All	NDPs: 0 Tests: 14		X	X	X	X	X	X		X		X	X	X	X	X	X				
Total Sulphur	All	NDPs: 0 Tests: 14		X	X	X	X	X	X		X		X	X	X	X	X	X				

27385112	BH-44534A	C1	0.00 - 2.00	250g Amber Jar (ALE210)	S		X				X		X				X		X
27385105	BH-103234	C4	4.50 - 6.10	1kg TUB with Handle (ALE260)	S		X				X								

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
27385107	BH-44177	0.00 - 1.50	Light Brown	Sandy Loam	Stones	Vegetation
27385109	BH-44177	1.50 - 2.60	Light Brown	Sand	Stones	Vegetation
27385114	BH-52008	0.00 - 2.00	Grey	Silty Sand	Stones	None
27385117	BH-58807	3.50 - 5.00	Grey	Ballast	Stones	Vegetation
27385119	BH-60805	2.00 - 3.50	Grey	Sand	Stones	None
27385076	BH-85791	2.00 - 3.50	Grey	Ballast	Stones	None
27385079	BH-87006	2.00 - 3.50	Dark Brown	Sandy Silt Loam	Stones	Vegetation
27385081	BH-87455	2.00 - 3.50	Grey	Stone/Soil	Stones	Vegetation
27385083	BH-91011	3.50 - 5.00	Grey	Ballast	Stones	None
27385085	BH-92626	3.50 - 5.00	Grey	N/A	Stones	None
27385087	BH-93803	3.20 - 5.00	Grey	Stone/Soil	Stones	Vegetation
27385089	BH-94016	3.50 - 5.00	Grey	Ballast	Stones	None
27385102	BH-95064	1.70 - 2.60	Grey	Ballast	Stones	None
27385091	BH-95595	3.60 - 5.00	Grey	Ballast	Stones	None
27385093	BH-96858	3.50 - 5.00	Grey	Ballast	Stones	None
27385095	BH-97423	4.00 - 5.50	Dark Brown	Stone/Soil	None	None
27385074	BH-101953	0.00 - 2.00	Dark Brown	Silt Loam	Vegetation	None
27385097	BH-101953	2.00 - 3.50	Light Brown	Loamy Sand	Stones	None
27385100	BH-102528	3.50 - 5.00	Grey	Stone/Soil	Stones	Vegetation
27385105	BH-103234	4.50 - 6.10	Grey	Stone/Soil	Stones	Vegetation
27385112	BH-44534A	0.00 - 2.00	Grey	Silty Sand	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-44177	BH-44177	BH-52008	BH-58807	BH-60805	BH-85791
			Depth (m)	0.00 - 1.50	1.50 - 2.60	0.00 - 2.00	3.50 - 5.00	2.00 - 3.50	2.00 - 3.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	14/02/2022	14/02/2022	09/02/2022	04/04/2022	08/04/2022	12/05/2022
			Sample Time	-	-	-	-	-	-
			Date Received	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023
			SDG Ref	230110-34	230110-34	230110-34	230110-34	230110-34	230110-34
			Lab Sample No.(s)	27385107	27385109	27385114	27385117	27385119	27385076
			AGS Reference	C1	C2	C1	C3	C2	C2
Moisture Content Ratio (% of as received sample)	%	PM024		0.62	0.58	0.071	0.029	0.068	0.012
Loss on ignition	<0.7 %	TM018		11.5 @ M					
Sulphur, Total	<0.02 %	TM132			0.0236 @ #	0.0203 @ #	0.0467 @ #	0.0294 @ #	0.0388 @ #
Sulphate, Total potential	<0.06 %	TM132			0.0708 @	0.0609 @	0.14 @	0.0882 @	0.116 @
Soil Organic Matter (SOM)	<0.35 %	TM132		6.96 @ #					
pH	1 pH Units	TM133			8.72 @ M	9.13 @ M	9.21 @ #	9.26 @ M	9.62 @ #
Sulphate, acid soluble (total)	<0.0048 %	TM221			0.0314 @ M	0.0208 @ M	0.0775 @ #	0.0299 @ M	0.0428 @ #
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243			0.0127 @ M	0.0162 @ M	0.0091 @ #	0.0085 @ M	0.0109 @ #

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-87006	BH-87455	BH-91011	BH-92626	BH-93803	BH-94016
			Depth (m)	2.00 - 3.50	2.00 - 3.50	3.50 - 5.00	3.50 - 5.00	3.20 - 5.00	3.50 - 5.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	18/05/2022	13/05/2022	23/05/2022	25/05/2022	05/05/2022	06/05/2022
			Sample Time	-	-	-	-	-	-
			Date Received	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023
			SDG Ref	230110-34	230110-34	230110-34	230110-34	230110-34	230110-34
			Lab Sample No.(s)	27385079	27385081	27385083	27385085	27385087	27385089
			AGS Reference	C2	C2	C3	C3	C3	C3
Moisture Content Ratio (% of as received sample)	%	PM024		38	0.36	0	0	0.22	0.13
Sulphur, Total	<0.02 %	TM132		0.0479 @ #		0.0457 @ #		0.192 @ #	0.0329 @ #
Sulphate, Total potential	<0.06 %	TM132		0.144 @		0.137 @		0.576 @	0.0987 @
pH	1 pH Units	TM133		7.15 @ M	8.65 @ #	9.59 @ #	9.52 @	8.88 @ #	8.47 @ #
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0841 @ M		0.0608 @ #		0.0829 @ #	0.0416 @ #
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243			0.0223 @ #		0.0051 @		
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.043 @ M		0.0069 @ #		0.0607 @ #	0.0047 @ #

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-95064	BH-95595	BH-96858	BH-97423	BH-101953	BH-101953
			Depth (m)	1.70 - 2.60	3.60 - 5.00	3.50 - 5.00	4.00 - 5.50	0.00 - 2.00	2.00 - 3.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	04/05/2022	03/05/2022	06/01/2023	26/04/2022	12/05/2022	12/05/2022
			Sample Time	-	-	-	-	-	-
			Date Received	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023	10/01/2023
			SDG Ref	230110-34	230110-34	230110-34	230110-34	230110-34	230110-34
			Lab Sample No.(s)	27385102	27385091	27385093	27385095	27385074	27385097
			AGS Reference	C2	C3	C3	C4	C1	C2
Moisture Content Ratio (% of as received sample)	%	PM024		0.27	1.1	0	2.4	82	0
Loss on ignition	<0.7 %	TM018						86.3 @ M	
Sulphur, Total	<0.02 %	TM132		0.0417 @ #	0.0553 @ #	0.106 #	0.0417 @ #		
Sulphate, Total potential	<0.06 %	TM132		0.125 @	0.166 @	0.318	0.125 @		
Soil Organic Matter (SOM)	<0.35 %	TM132						80.2 @ #	
pH	1 pH Units	TM133		9.46 @ #	8.21 @ #	9.37 #	8.19 @ #		8.07 @ M
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.0283 @ #	0.0325 @ #	0.0608 #	0.0194 @ #		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243							0.116 @ M
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0084 @ #	0.0596 @ #	0.011 #	0.0413 @ #		

Validated

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend
- # ISO17025 accredited.
- M mCERTS accredited.
- aq Aqueous / settled sample.
- diss.filt Dissolved / filtered sample.
- tot.unfilt Total / unfiltered sample.
- * Subcontracted - refer to subcontractor report for accreditation status.
- ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
- (F) Trigger breach confirmed
- 1-4+$@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-102528	BH-103234	BH-44534A			
			Depth (m)	3.50 - 5.00	4.50 - 6.10	0.00 - 2.00			
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
			Date Sampled	16/05/2022	17/05/2022	11/02/2022			
			Sample Time	-	-	-			
			Date Received	10/01/2023	10/01/2023	10/01/2023			
			SDG Ref	230110-34	230110-34	230110-34			
			Lab Sample No.(s)	27385100	27385105	27385112			
			AGS Reference	C3	C4	C1			
Moisture Content Ratio (% of as received sample)	%	PM024		0	0.13	0.14			
Sulphur, Total	<0.02 %	TM132				0.0298 @ #			
Sulphate, Total potential	<0.06 %	TM132				0.0894 @			
pH	1 pH Units	TM133		8.85 @ #	9.13 @ #	8.94 @ M			
Sulphate, acid soluble (total)	<0.0048 %	TM221				0.0318 @ M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.133 @ #	0.0333 @ #				
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243				0.0253 @ M			

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 230110-34 **Report Number:** 675352 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	27385107	27385109	27385114	27385117	27385119	27385076	27385079	27385081	27385083	27385085
Customer Sample Ref.	BH-44177	BH-44177	BH-52008	BH-58807	BH-60805	BH-85791	BH-87006	BH-87455	BH-91011	BH-92626
AGS Ref.	C1	C2	C1	C3	C2	C2	C2	C2	C3	C3
Depth	0.00 - 1.50	1.50 - 2.60	0.00 - 2.00	3.50 - 5.00	2.00 - 3.50	2.00 - 3.50	2.00 - 3.50	2.00 - 3.50	3.50 - 5.00	3.50 - 5.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)		11-Jan-2023	11-Jan-2023	16-Jan-2023	11-Jan-2023	11-Jan-2023	16-Jan-2023	11-Jan-2023	11-Jan-2023	16-Jan-2023
Loss on Ignition in soils	12-Jan-2023									
pH		11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023
Sample description	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	11-Jan-2023
Total Organic Carbon	12-Jan-2023									
Total Sulphate		11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	16-Jan-2023		11-Jan-2023	
Total Sulphur		12-Jan-2023	12-Jan-2023	13-Jan-2023	12-Jan-2023	12-Jan-2023	16-Jan-2023		12-Jan-2023	

Lab Sample No(s)	27385087	27385089	27385102	27385091	27385093	27385095	27385074	27385097	27385100	27385105
Customer Sample Ref.	BH-93803	BH-94016	BH-95064	BH-95595	BH-96858	BH-97423	BH-101953	BH-101953	BH-102528	BH-103234
AGS Ref.	C3	C3	C2	C3	C3	C4	C1	C2	C3	C4
Depth	3.20 - 5.00	3.50 - 5.00	1.70 - 2.60	3.60 - 5.00	3.50 - 5.00	4.00 - 5.50	0.00 - 2.00	2.00 - 3.50	3.50 - 5.00	4.50 - 6.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	16-Jan-2023	16-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023		11-Jan-2023	16-Jan-2023	16-Jan-2023
Loss on Ignition in soils							17-Jan-2023			
pH	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023		11-Jan-2023	11-Jan-2023	11-Jan-2023
Sample description	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023	10-Jan-2023
Total Organic Carbon							16-Jan-2023			
Total Sulphate	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023	11-Jan-2023				
Total Sulphur	13-Jan-2023	13-Jan-2023	12-Jan-2023	12-Jan-2023	12-Jan-2023	12-Jan-2023				

Lab Sample No(s)	27385112
Customer Sample Ref.	BH-44534A
AGS Ref.	C1
Depth	0.00 - 2.00
Type	Soil/Solid (S)
Anions by Kone (soil)	11-Jan-2023
pH	11-Jan-2023
Sample description	10-Jan-2023
Total Sulphate	11-Jan-2023
Total Sulphur	13-Jan-2023

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
email: hawardencustomerservices@alsglobal.com
Website: www.alsenvironmental.co.uk

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	17 September 2022
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	220913-14
Your Reference:	2021OY102
Location:	WSP Lot2: Eastern and Midlands
Report No:	661595
Order Number:	10808

We received 4 samples on Monday September 12, 2022 and 4 of these samples were scheduled for analysis which was completed on Saturday September 17, 2022. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG: 220913-14 **Report Number:** 661595 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26864526	BH-46402	CORE1	3.90 - 5.00	21/01/2022
26864530	BH-46715	CORE1	4.20 - 5.60	24/01/2022
26864528	BH-47262	CORE1	3.60 - 5.00	25/01/2022
26864524	BH-47812	CORE1	0.00 - 2.00	27/01/2022

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG: 220913-14 **Report Number:** 661595 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			2686526	2686530	2686528	2686524
Customer Sample Reference			BH-46402	BH-46715	BH-47262	BH-47812
AGS Reference			CORE1	CORE1	CORE1	CORE1
Depth (m)			3.90 - 5.00	4.20 - 5.60	3.60 - 5.00	0.00 - 2.00
Container			1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4	X	X	X	X
pH	All	NDPs: 0 Tests: 4	X	X	X	X
Sample description	All	NDPs: 0 Tests: 4	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 4	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 4	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG: 220913-14 **Report Number:** 661595 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
26864526	BH-46402	3.90 - 5.00	Light Brown	Silty Sand	Stones	None
26864530	BH-46715	4.20 - 5.60	Light Brown	Silty Sand	Stones	None
26864528	BH-47262	3.60 - 5.00	Light Brown	Sand	Stones	None
26864524	BH-47812	0.00 - 2.00	Light Brown	Sandy Silt Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG: 220913-14 **Report Number:** 661595 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH-46402	BH-46715	BH-47262	BH-47812		
			Depth (m)	3.90 - 5.00	4.20 - 5.60	3.60 - 5.00	0.00 - 2.00		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	21/01/2022	24/01/2022	25/01/2022	27/01/2022		
			Sample Time	-	-	-	-		
			Date Received	12/09/2022	12/09/2022	12/09/2022	12/09/2022		
			SDG Ref	220913-14	220913-14	220913-14	220913-14		
			Lab Sample No.(s)	26864526	26864530	26864528	26864524		
			AGS Reference	CORE1	CORE1	CORE1	CORE1		
Moisture Content Ratio (% of as received sample)	%	PM024		0.057	0	0.04	0.73		
Sulphur, Total	<0.02 %	TM132		<0.02 @ #	0.0429 @ #	<0.02 @ #	0.0231 @ #		
pH	1 pH Units	TM133		9.12 @ M	9.14 @ M	9.01 @ M	8.48 @ M		
Sulphate, acid soluble (total)	<0.0048 %	TM221		0.017 @ M	0.0161 M	0.0116 @ M	0.0132 M		
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243		0.0065 @ M	0.014 @ M	0.0102 @ M	0.0163 @ M		

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid Extractable Sulphate in Soils by ICP OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 220913-14 **Report Number:** 661595 **Superseded Report:**
Client Ref.: 2021OY102 **Location:** WSP Lot2: Eastern and Midlands

Test Completion Dates

Lab Sample No(s)	26864526	26864530	26864528	26864524
Customer Sample Ref.	BH-46402	BH-46715	BH-47262	BH-47812
AGS Ref.	CORE1	CORE1	CORE1	CORE1
Depth	3.90 - 5.00	4.20 - 5.60	3.60 - 5.00	0.00 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	14-Sep-2022	14-Sep-2022	17-Sep-2022	14-Sep-2022
pH	15-Sep-2022	16-Sep-2022	15-Sep-2022	15-Sep-2022
Sample description	13-Sep-2022	13-Sep-2022	13-Sep-2022	13-Sep-2022
Total Sulphate	15-Sep-2022	14-Sep-2022	15-Sep-2022	14-Sep-2022
Total Sulphur	15-Sep-2022	15-Sep-2022	16-Sep-2022	15-Sep-2022

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

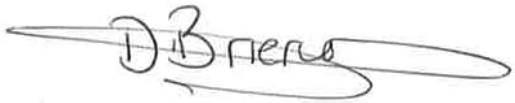
FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/00985
Issue Number: 1 **Date:** 09 February, 2023

Client: Structural Soils Limited (Castleford Lab)
The Potteries
Pottery Street
Castleford
West Yorkshire
UK
WF10 1NJ

Project Manager: Jessica Robertson/Luke Fisher; Laura Schramm
Project Name: 785325-2
Project Ref: 201Y102.WSP
Order No: N/A
Date Samples Received: 06/02/23
Date Instructions Received: 07/02/23
Date Analysis Completed: 09/02/23

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 23/00985

Client Project Name: 785325-2

Client Project Ref: 201Y102.WSP

Lab Sample ID	23/00985/1	23/00985/2	23/00985/3	23/00985/4	23/00985/5	23/00985/6	23/00985/7	Units	Limit of Detection	Method ref
Client Sample No	3.50-5.0	3.50-5.0	2.20	2	3.5	2.0-3.5	3.0,2.0-3.5			
Client Sample ID	BH36879	BH36956	BH37230	BH38106	BH38523	BH38786	BH39229			
Depth to Top	3.50	3.50	2.00	2.00	2.00	2.00	2.00			
Depth To Bottom	5.00	5.00	3.50	3.50	3.50	3.50	3.50			
Date Sampled										
Sample Type	Solid	Solid	Solid	Solid	Solid	Solid	Solid			
Sample Matrix Code	7	7	7	7	7	7	7			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D^{M\#}$	8.93	9.06	8.99	9.01	9.04	8.95	8.93	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	<10	<10	<10	<10	<10	<10	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	% w/w	0.01	A-T-024s

Envirolab Job Number: 23/00985

Client Project Name: 785325-2

Client Project Ref: 201Y102.WSP

Lab Sample ID	23/00985/8	23/00985/9	23/00985/10	23/00985/11	23/00985/12	23/00985/13	23/00985/14	Units	Limit of Detection	Method ref
Client Sample No	2.0-3.5	3.5	3.5-5.0	0.0-2.0	2.0-3.5	3.5	2.0-3.5			
Client Sample ID	BH40004	BH40405	BH60345	BH61515	BH61515	BH66007	BH71656			
Depth to Top	2.00	2.00	3.50	0.00	2.00	3.50	2.00			
Depth To Bottom	3.50	3.50	5.00	2.00	3.50	5.00	3.50			
Date Sampled										
Sample Type	Solid	Solid	Solid	Soil - C	Solid	Solid	Soil - C			
Sample Matrix Code	7	7	7	4A	7	7	4A			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	8.74	8.20	8.85	-	8.65	8.85	8.83	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	15	<10	13	-	64	19	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.03	0.03	0.03	-	0.08	0.06	0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.05	0.03	0.05	-	0.20	0.08	0.03	% w/w	0.01	A-T-024s
Loss on ignition (550degC)$_D$$^{M\#}$	-	-	-	1.9	-	-	-	% w/w	0.6	A-T-030s
Organic Matter$_D$$^{M\#}$	-	-	-	2.7	-	-	-	% w/w	0.1	A-T-032s

Envirolab Job Number: 23/00985 **Client Project Name: 785325-2**

Client Project Ref: 201Y102.WSP

Lab Sample ID	23/00985/15	23/00985/16	23/00985/17	23/00985/18	23/00985/19	23/00985/20	23/00985/21	Units	Limit of Detection	Method ref
Client Sample No	3.5	4.5	2.6	3.5	3.5-3.9	4.1	3.0-5.8			
Client Sample ID	BH72207	BH73135	BH73604	BH73966	BH74205	BH74403	BH74851			
Depth to Top	3.50	4.50	1.50	3.00	3.00	4.10	3.00			
Depth To Bottom	5.00	5.60	2.50	4.50	4.10	5.60	4.30			
Date Sampled										
Sample Type	Solid	Soil - C	Soil - C	Solid	Solid	Soil - C	Soil - C			
Sample Matrix Code	7	4ABE	6A	7	7	4A	4A			
% Stones >10mm$_A$	<0.1	33.2	17.1	<0.1	<0.1	2.9	27.9	% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	8.88	8.86	8.68	8.90	8.99	8.90	8.87	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	<10	<10	<10	<10	12	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	0.02	0.02	<0.02	0.03	0.02	0.03	<0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.04	0.02	0.02	0.04	0.02	0.04	0.01	% w/w	0.01	A-T-024s

Envirolab Job Number: 23/00985 **Client Project Name: 785325-2**

Client Project Ref: 201Y102.WSP

Lab Sample ID	23/00985/22	23/00985/23	23/00985/24	23/00985/25	23/00985/26	23/00985/27	23/00985/28	Units	Limit of Detection	Method ref
Client Sample No	4.3	1.5-3.0	2.0-3.3	3.5-5.0	2.0-3.5	5.0-6.5	2.0-3.5,2.1			
Client Sample ID	BH75490	BH76601	BH78412	BH79441	BH80439	BH80546	BH81459			
Depth to Top	3.00	1.50	3.00	3.50	2.00	5.00	2.00			
Depth To Bottom	4.30	3.00	4.30	5.00	3.50	6.50	3.50			
Date Sampled										
Sample Type	Soil - C	Soil - C	Soil - C	Solid	Solid	Solid	Solid			
Sample Matrix Code	4A	4A	4A	7	7	7	7			
% Stones >10mm$_A$	31.3	13.9	34.7	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH BRE$_D^{M\#}$	8.87	8.78	8.74	8.90	8.89	8.87	8.91	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	<10	<10	14	<10	<10	<10	<10	mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D^{M\#}$	0.02	<0.02	<0.02	0.02	0.02	0.04	<0.02	% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	0.03	<0.01	0.03	0.02	0.02	0.06	<0.01	% w/w	0.01	A-T-024s

Envirolab Job Number: 23/00985

Client Project Name: 785325-2

Client Project Ref: 201Y102.WSP

Lab Sample ID	23/00985/29	23/00985/30	23/00985/31	23/00985/32				Units	Limit of Detection	Method ref
Client Sample No	2.0-5.0	2.0-3.5	1.1-2.0	0.0-2.0						
Client Sample ID	BH81864	BH82198	BH97104	BH71656						
Depth to Top	2.00	2.00	1.10	0.00						
Depth To Bottom	3.50	3.50	2.00	2.00						
Date Sampled										
Sample Type	Soil - C	Soil - C	Solid	Soil - C						
Sample Matrix Code	4AE	4A	7	5A						
% Stones >10mm$_A$	33.6	<0.1	<0.1	27.3				% w/w	0.1	A-T-044
pH BRE$_D$$^{M\#}$	8.92	9.14	9.04	8.66				pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	<10	<10	17	<10				mg/l	10	A-T-026s
Sulphate BRE (acid sol)$_D$$^{M\#}$	<0.02	<0.02	0.07	<0.02				% w/w	0.02	A-T-028s
Sulphur BRE (total)$_D$	<0.01	0.02	0.14	<0.01				% w/w	0.01	A-T-024s
Loss on ignition (550degC)$_D$$^{M\#}$	-	-	-	1.8				% w/w	0.6	A-T-030s
Organic Matter$_D$$^{M\#}$	-	-	-	1.5				% w/w	0.1	A-T-032s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,
E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve
Subscript "^" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.
EPH CWG results have humics mathematically subtracted through instrument calculation
TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

v2

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Structural Soils Limited (Castleford Lab), The Potteries, Pottery Street, Castleford, West Yorkshire, UK, WF10 1NJ

Project: 785325-2

Clients Project No: 201Y102.WSP

Project No: 23/00985

Date Received: 07/02/2023 (am)

Cool Box Temperatures (°C): 6.6, 7.0, 7.0

Lab Sample ID	23/00985/1	23/00985/2	23/00985/3	23/00985/4	23/00985/5	23/00985/6	23/00985/7	23/00985/8	23/00985/9	23/00985/10	23/00985/11	23/00985/12
Client Sample No	3.50-5.0	3.50-5.0	2.20	2	3.5	2.0-3.5	3.0,2.0-3.5	2.0-3.5	3.5	3.5-5.0	0.0-2.0	2.0-3.5
Client Sample ID/Depth	BH36879 3.50-5.00m	BH36956 3.50-5.00m	BH37230 2.00-3.50m	BH38106 2.00-3.50m	BH38523 2.00-3.50m	BH38786 2.00-3.50m	BH39229 2.00-3.50m	BH40004 2.00-3.50m	BH40405 2.00-3.50m	BH60345 3.50-5.00m	BH61515 0.00-2.00m	BH61515 2.00-3.50m
Date Sampled												
Deviation Code												
E (no date)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Lab Sample ID	23/00985/13	23/00985/14	23/00985/15	23/00985/16	23/00985/17	23/00985/18	23/00985/19	23/00985/20	23/00985/21	23/00985/22	23/00985/23	23/00985/24
Client Sample No	3.5	2.0-3.5	3.5	4.5	2.6	3.5	3.5-3.9	4.1	3.0-5.8	4.3	1.5-3.0	2.0-3.3
Client Sample ID/Depth	BH66007 3.50-5.00m	BH71656 2.00-3.50m	BH72207 3.50-5.00m	BH73135 4.50-5.60m	BH73604 1.50-2.50m	BH73966 3.00-4.50m	BH74205 3.00-4.10m	BH74403 4.10-5.60m	BH74851 3.00-4.30m	BH75490 3.00-4.30m	BH76601 1.50-3.00m	BH78412 3.00-4.30m
Date Sampled												
Deviation Code												
E (no date)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Lab Sample ID	23/00985/25	23/00985/26	23/00985/27	23/00985/28	23/00985/29	23/00985/30	23/00985/31	23/00985/32
Client Sample No	3.5-5.0	2.0-3.5	5.0-6.5	2.0-3.5,2.1	2.0-5.0	2.0-3.5	1.1-2.0	0.0-2.0
Client Sample ID/Depth	BH79441 3.50-5.00m	BH80439 2.00-3.50m	BH80546 5.00-6.50m	BH81459 2.00-3.50m	BH81864 2.00-3.50m	BH82198 2.00-3.50m	BH97104 1.10-2.00m	BH71656 0.00-2.00m
Date Sampled								
Deviation Code								
E (no date)	✓	✓	✓	✓	✓	✓	✓	✓

Key
E (no date) *No sampling date provided (all results affected if not provided)*

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/00985/1	23/00985/2	23/00985/3	23/00985/4	23/00985/5	23/00985/6	23/00985/7	23/00985/8	23/00985/9	23/00985/10	23/00985/11	23/00985/12
Client Sample No	3.50-5.0	3.50-5.0	2.20	2	3.5	2.0-3.5	3.0,2.0-3.5	2.0-3.5	3.5	3.5-5.0	0.0-2.0	2.0-3.5
Client Sample ID/Depth	BH36879 3.50-5.00m	BH36956 3.50-5.00m	BH37230 2.00-3.50m	BH38106 2.00-3.50m	BH38523 2.00-3.50m	BH38786 2.00-3.50m	BH39229 2.00-3.50m	BH40004 2.00-3.50m	BH40405 2.00-3.50m	BH60345 3.50-5.00m	BH61515 0.00-2.00m	BH61515 2.00-3.50m
Date Sampled												
A-T-024s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023		09/02/2023
A-T-026s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023		09/02/2023
A-T-028s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023		09/02/2023
A-T-030s											09/02/2023	
A-T-031s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023		09/02/2023
A-T-032s											09/02/2023	
A-T-044	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023

Lab Sample ID	23/00985/13	23/00985/14	23/00985/15	23/00985/16	23/00985/17	23/00985/18	23/00985/19	23/00985/20	23/00985/21	23/00985/22	23/00985/23	23/00985/24
Client Sample No	3.5	2.0-3.5	3.5	4.5	2.6	3.5	3.5-3.9	4.1	3.0-5.8	4.3	1.5-3.0	2.0-3.3
Client Sample ID/Depth	BH66007 3.50-5.00m	BH71656 2.00-3.50m	BH72207 3.50-5.00m	BH73135 4.50-5.60m	BH73604 1.50-2.50m	BH73966 3.00-4.50m	BH74205 3.00-4.10m	BH74403 4.10-5.60m	BH74851 3.00-4.30m	BH75490 3.00-4.30m	BH76601 1.50-3.00m	BH78412 3.00-4.30m
Date Sampled												
A-T-024s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-026s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-028s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-030s												
A-T-031s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-032s												
A-T-044	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023

Lab Sample ID	23/00985/25	23/00985/26	23/00985/27	23/00985/28	23/00985/29	23/00985/30	23/00985/31	23/00985/32
Client Sample No	3.5-5.0	2.0-3.5	5.0-6.5	2.0-3.5,2.1	2.0-5.0	2.0-3.5	1.1-2.0	0.0-2.0
Client Sample ID/Depth	BH79441 3.50-5.00m	BH80439 2.00-3.50m	BH80546 5.00-6.50m	BH81459 2.00-3.50m	BH81864 2.00-3.50m	BH82198 2.00-3.50m	BH97104 1.10-2.00m	BH71656 0.00-2.00m
Date Sampled								
A-T-024s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-026s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-028s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-030s								09/02/2023
A-T-031s	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023
A-T-032s								09/02/2023
A-T-044	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023	09/02/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - Multistage test

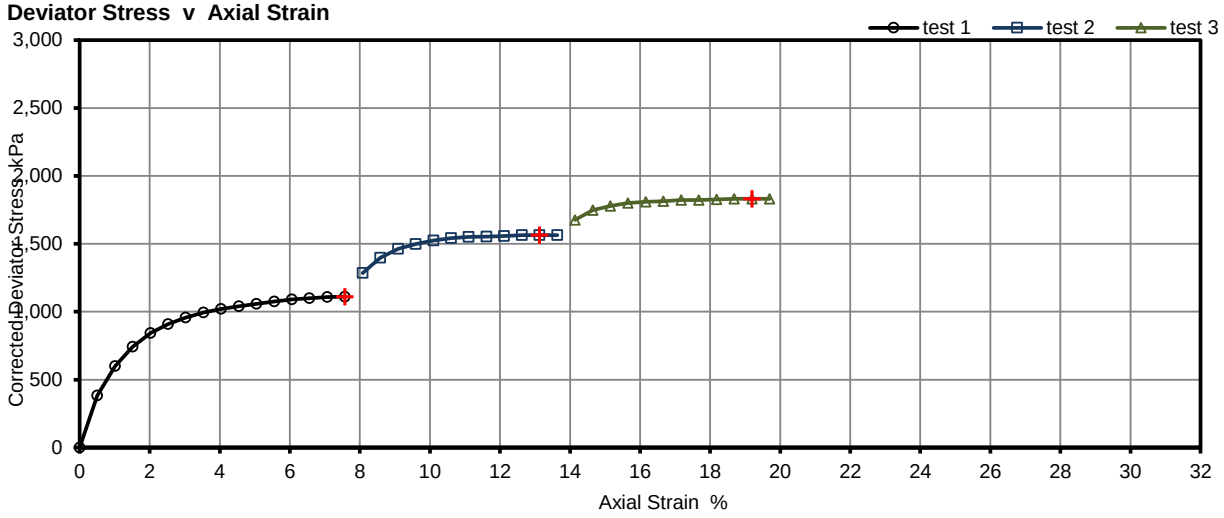
Job Ref	32840				
Borehole/Pit No.	BH-87006				
Site Name	WSP Eastern & Midlands Region			Sample No.	-
Project No.	2021OY102	Client	Irish Drilling	Depth Top	8.00 m
Soil Description	Extremely high strength dark grey slightly sandy gravelly silty CLAY with numerous cobbles (gravel is fmc and angular to sub-rounded)			Depth Base	9.50 m
				Sample Type	C
				Samples received	10/01/2023
				Schedules received	10/01/2023
Test Method	BS1377:Part 7:1990, clause 9, multistage test on a single specimen			Date of test	12/01/2023

Remarks

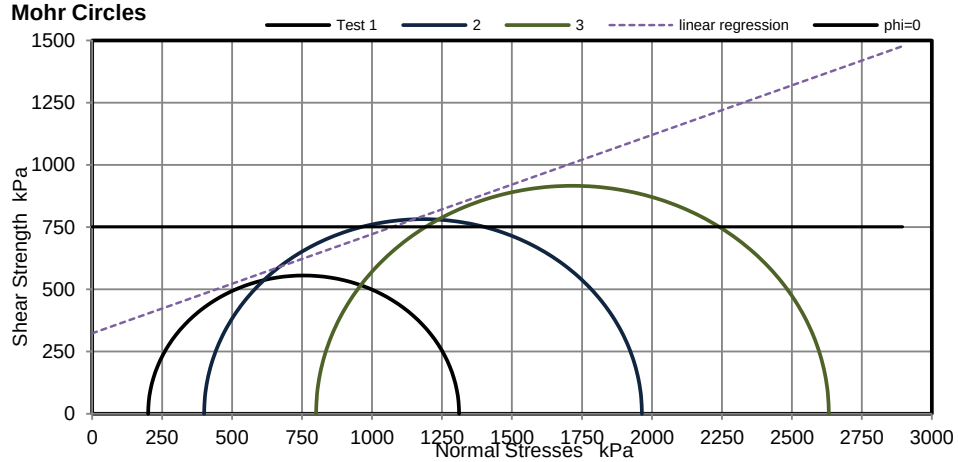
Length	mm	198.0		
Diameter	mm	102.0		
Bulk Density	Mg/m3	2.30		
Moisture Content	%	7.0		
Dry Density	Mg/m3	2.15		
Rate of Strain	%/min	2.00		
Stage Number		1	2	3
Cell Pressure	kPa	200	400	800
Axial Strain	%	7.6	13	19
Deviator Stress, (σ1 - σ3)f	kPa	1111	1564	1832
Shear strength, cu	kPa	556	782	916
Mode of failure		Compound		

Position within sample

Deviator Stress v Axial Strain



Mohr Circles



ϕu = 0

Average cu 751 kPa

Linear Regression

ϕu 21.7 °

cu 323 kPa

Mohr circles and their interpretation is not covered by BS1377. These are provided for information only.

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU
Tel: 01923 711 288 Email: James@k4soils.com

Checked and Approved

Initials: J.P

Date: 23/01/2023

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

Unconsolidated Undrained Triaxial Compression tests without measurement of pore pressure
Summary of Results

Tests carried out in accordance with BS1377:Part 7 : 1990 clause 8 or 9 as appropriate to test

Job No.	Project Name	Programme	
32840	WSP Eastern & Midlands Region	Samples received	10/01/2023
		Schedule received	10/01/2023
Project No.	Client	Project started	10/01/2023
2021OY102	Irish Drilling	Testing Started	12/01/2023

Hole No.	Sample Ref	Top m	Base m	Type	Soil Description	Test Type	Density bulk Mg/m3	Density dry Mg/m3	w %	Length mm	Diameter mm	σ3 kPa	At failure: Axial strain %	At failure: σ1 - σ3 kPa	At failure: cu kPa	At failure: Mode	Remarks
BH-87006	-	8.00	9.50	C	Extremely high strength dark grey slightly sandy gravelly silty CLAY with numerous cobbles (gravel is fmc and angular to sub-rounded)	UUM	2.30	2.15	7.0	198	102	200 400 800	7.6 13.1 19.2	1,111 1,564 1,832	556 782 916	C	
BH-97788	-	6.80	8.00	C	Cobble sized LIMESTONE fragments with grey silty clay pockets	-	-	-	-	-	-	-	-	-	-	-	Unsuitable for TXL

Legend
UU - single stage test (single and multiple specimens) σ3 Cell pressure Mode of failure ; B - Brittle
UUM - Multistage test on a single specimen σ1 - σ3 Maximum corrected deviator stress P - Plastic
suffix R - remoulded or recompacted cu Undrained shear strength, ½ (σ1 - σ3) C - Compound

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com

Checked and Approved
Initials: J.P
Date: 23/01/2023

These results only apply to the items tested. The report shall not be reproduced except in full without authority of the laboratory

IDL

Point Load Strength Index Tests
Summary of Results

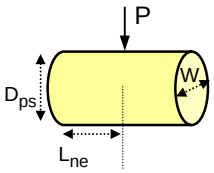
Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

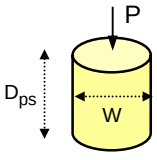
Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-101953	5.00	6.5	C	5.6	5.80		D	U	YES		101.1		101.1	28.4	101.1	2.8	3.8	Strong
BH-103234	6.10	7.6	C	6.75	6.80		D	U	YES		63.4		63.4	16.0	63.4	4.0	4.4	Very Strong
BH-36789	12.50	14	C	13.5	13.65		D	U	YES		63.4		63.4	9.6	63.4	2.4	2.7	Strong
BH-36789	17.00	18.6	C	17	17.10		D	U	YES		63.4		63.4	12.7	63.4	3.2	3.5	Strong
BH-36789	18.60	20	C	19	19.05		D	U	YES		63.4		63.4	18.5	63.4	4.6	5.1	Very Strong
BH-36789	18.60	20	C	19.05	19.10		D	U	YES		63.4		63.4	13.6	63.4	3.4	3.8	Strong
BH-36789	20.00	21.6	C	21	21.05		D	U	YES		63.4		63.4	0.9	63.4	0.2	0.3	Weak
BH-36829	2.10	3.5	C	3	3.05		I	U	YES		63.4		50.0	18.5	63.5	4.6	5.1	Very Strong
BH-36829	8.10	9.7	C	8.1	8.20		A	U	YES		63.4		70.0	15.7	75.2	2.8	3.3	Strong
BH-36829	15.70	17.1	C	16	16.10		A	U	YES		63.4		50.0	3.6	63.5	0.9	1.0	Medium Strong
BH-36829	17.10	18.7	C	18	18.10		D	U	YES		63.4		63.4	23.6	63.4	5.9	6.5	Very Strong
BH-36829	17.10	18.7	C	18.1	18.20		D	U	YES		63.4		63.4	16.3	63.4	4.1	4.5	Very Strong
BH-36829	18.70	20.1	C	20	20.10		D	U	YES		63.4		63.4	15.7	63.4	3.9	4.3	Very Strong
BH-36879	2.00	3.5	C	3.4	3.50		D	U	YES		63.4		63.4	10.3	63.4	2.6	2.9	Strong
BH-36879	5.00	6.5	C	5.5	5.60		D	U	YES		63.4		63.4	2.1	63.4	0.5	0.6	Weak
BH-36883	5.00	6.5	C	5	5.10		D	U	YES		63.4		63.4	17.4	63.4	4.3	4.8	Very Strong
BH-36920	2.00	3.5	C	2	2.10		D	U	YES		101.0		101.0	21.1	101.0	2.1	2.8	Strong
BH-36920	2.00	3.5	C	3	3.10		D	U	YES		101.0		101.0	25.7	101.0	2.5	3.5	Strong
BH-36920	3.50	5	C	3.8	3.90		D	U	YES		63.4		63.4	16.2	63.4	4.0	4.5	Very Strong
BH-36920	3.50	5	C	4	4.10		D	U	YES		63.4		63.4	22.5	63.4	5.6	6.2	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

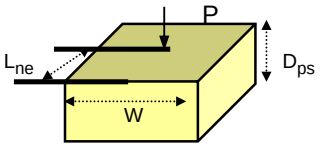
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table 1 sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

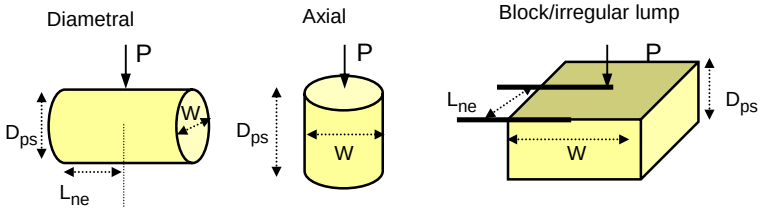
Point Load Strength Index Tests
Summary of Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-36920	5.00	6.5	C	5	5.30		D	U	YES		63.4		63.4	18.9	63.4	4.7	5.2	Very Strong
BH-36920	5.00	6.5	C	6.2	6.50		D	U	YES		63.4		63.4	24.5	63.4	6.1	6.8	Very Strong
BH-36956	2.00	3.5	C	2.2	2.30		D	U	YES		63.4		63.4	17.2	63.4	4.3	4.8	Very Strong
BH-36956	5.00	6.5	C	6	6.10		D	U	YES		63.4		63.4	15.3	63.4	3.8	4.2	Very Strong
BH-37230	5.00	6.5	C	5	5.20		D	U	YES		63.4		63.4	23.4	63.4	5.8	6.5	Very Strong
BH-37230	5.00	6.5	C	5.5	5.70		D	U	YES		63.4		63.4	24.1	63.4	6.0	6.7	Very Strong
BH-37778	8.00	9.5	C	8.4	8.60		D	U	YES		63.4		63.4	21.1	63.4	5.3	5.9	Very Strong
BH-38106	5.00	6.5	C	6.4	6.50		D	U	YES		63.4		63.4	19.1	63.4	4.8	5.3	Very Strong
BH-38106	8.00	9.5	C	8	8.20		D	U	YES		63.4		63.4	12.1	63.4	3.0	3.3	Strong
BH-38523	5.00	6.5	C	5.3	5.45		D	U	YES		63.4		63.4	20.4	63.4	5.1	5.6	Very Strong
BH-38523	6.50	8	C	7	7.16		D	U	YES		63.4		63.4	14.4	63.4	3.6	4.0	Very Strong
BH-38786	3.50	5	C	4.5	4.60		D	U	YES		63.4		63.4	8.0	63.4	2.0	2.2	Strong
BH-39229	3.50	5	C	4.8	5.00		D	U	YES		63.4		63.4	15.0	63.4	3.7	4.1	Very Strong
BH-39518	5.00	6.5	C	5	5.10		D	U	YES		63.4		63.4	18.2	63.4	4.5	5.0	Very Strong
BH-39518	8.00	9.5	C	8.5	8.60		D	U	YES		63.4		63.4	19.1	63.4	4.8	5.3	Very Strong
BH-40004	2.00	3.5	C	2.7	2.80		D	U	YES		63.4		63.4	16.2	63.4	4.0	4.5	Very Strong
BH-40004	2.00	3.5	C	3.5	3.60		D	U	YES		63.4		63.4	12.1	63.4	3.0	3.3	Strong
BH-40004	6.50	8	C	6.5	6.70		D	U	YES		63.4		63.4	26.2	63.4	6.5	7.2	Very Strong
BH-40405	8.00	9.5	C	8.5	8.60		D	U	YES		63.4		63.4	18.9	63.4	4.7	5.2	Very Strong
BH-40405	9.50	10	C	9.5	9.70		D	U	YES		63.4		63.4	19.4	63.4	4.8	5.4	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

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Approved By: Administrator

Table 1 sheet 2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

Point Load Strength Index Tests
Summary of Results

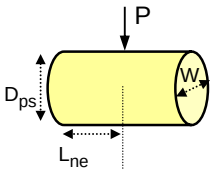
Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

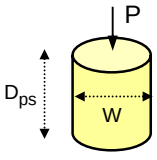
Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth m	Base Depth m	Type	Top m	Base m		Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN	mm	Is MPa	Is(50) MPa	
BH-40830	3.50	5	C	3.5	3.62		D	U	YES		63.4		63.4	18.6	63.4	4.6	5.1	Very Strong
BH-40830	3.50	5	C	3.62	3.72		D	U	YES		63.4		63.4	10.1	63.4	2.5	2.8	Strong
BH-40830	3.50	5	C	4	4.10		D	U	YES		63.4		63.4	16.5	63.4	4.1	4.6	Very Strong
BH-40830	3.50	5	C	4.85	5.00		D	U	YES		63.4		63.4	18.1	63.4	4.5	5.0	Very Strong
BH-40830	5.00	6.5	C	6.1	6.24		D	U	YES		63.4		63.4	16.4	63.4	4.1	4.5	Very Strong
BH-41053	2.00	3.5	C	2.5	2.66		D	U	YES		63.4		63.4	14.5	63.4	3.6	4.0	Very Strong
BH-41053	5.00	6.5	C	5.55	5.66		D	U	YES		63.4		63.4	21.0	63.4	5.2	5.8	Very Strong
BH-41053	9.50	10	C	9.5	9.70		D	U	YES		63.4		63.4	23.0	63.4	5.7	6.4	Very Strong
BH-42851A	3.50	5	C	4.8	5.00		D	U	YES		63.4		63.4	15.4	63.4	3.8	4.3	Very Strong
BH-42851A	6.50	8	C	7.3	7.50		D	U	YES		63.4		63.4	14.2	63.4	3.5	3.9	Strong
BH-43817	2.00	3.5	C	2.1	2.20		D	U	YES		63.4		63.4	6.3	63.4	1.6	1.8	Medium Strong
BH-43817	2.00	3.5	C	2.3	2.40		D	U	YES		63.4		63.4	6.4	63.4	1.6	1.8	Medium Strong
BH-43817	2.00	3.5	C	2.4	2.50		D	U	YES		63.4		63.4	5.4	63.4	1.3	1.5	Medium Strong
BH-43817	2.00	3.5	C	2.5	2.60		D	U	YES		63.4		63.4	6.0	63.4	1.5	1.6	Medium Strong
BH-43817	2.00	3.5	C	2.6	2.70		D	U	YES		63.4		63.4	5.3	63.4	1.3	1.5	Medium Strong
BH-43817	2.00	3.5	C	2.7	2.80		D	U	YES		63.4		63.4	5.1	63.4	1.3	1.4	Medium Strong
BH-43817	2.00	3.5	C	2.8	2.90		D	U	YES		63.4		63.4	4.4	63.4	1.1	1.2	Medium Strong
BH-43817	2.00	3.5	C	3	3.13		D	U	YES		63.4		63.4	2.7	63.4	0.7	0.7	Weak
BH-43817	2.00	3.5	C	3.4	3.50		D	U	YES		63.4		63.4	1.1	63.4	0.3	0.3	Weak
BH-43817	5.00	6.5	C	5.4	5.55		D	U	YES		63.4		63.4	7.8	63.4	1.9	2.2	Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

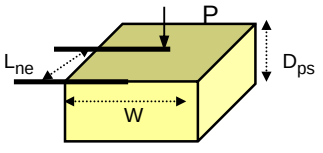
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table 1 sheet 3

IDL

Point Load Strength Index Tests
Summary of Results

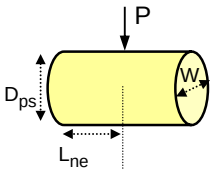
Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

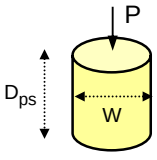
Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-47262	7.50	9.1	C	7.9	8.10		D	U	YES		63.4		63.4	11.1	63.4	2.8	3.1	Strong
BH-47262	9.80	11	C	10.5	10.67		D	U	YES		63.4		63.4	14.1	63.4	3.5	3.9	Strong
BH-47812	3.50	5	C	3.9	4.40		I	U	YES		65.0	145.0	60.0	21.6	70.5	4.4	5.1	Very Strong
BH-48400	6.50	8	C	6.5	6.65		D	U	YES		63.4		63.4	22.1	63.4	5.5	6.1	Very Strong
BH-48400	9.50	10	C	9.5	9.60		D	U	YES		63.4		63.4	11.0	63.4	2.7	3.1	Strong
BH-48795	3.50	5	C	3.5	3.63		D	U	YES		63.4		63.4	23.1	63.4	5.7	6.4	Very Strong
BH-48795	5.00	6.5	C	6	6.10		D	U	YES		63.4		63.4	14.8	63.4	3.7	4.1	Very Strong
BH-48795	8.00	9.5	C	8	8.10		D	U	YES		63.4		63.4	4.3	63.4	1.1	1.2	Medium Strong
BH-49214	0.00	5	C	4.32	4.47		D	U	YES		63.4		63.4	16.3	63.4	4.1	4.5	Very Strong
BH-50608A	2.00	3.5	C	3.35	3.40		D	U	YES		63.4		63.4	18.6	63.4	4.6	5.1	Very Strong
BH-50608A	6.50	8	C	7.2	7.33		D	U	YES		63.4		63.4	21.6	63.4	5.4	6.0	Very Strong
BH-50885	5.00	6.5	C	5	5.10		D	U	YES		63.4		63.4	15.9	63.4	3.9	4.4	Very Strong
BH-50885	5.00	6.5	C	5.2	5.30		D	U	YES		63.4		63.4	12.6	63.4	3.1	3.5	Strong
BH-50885	5.00	6.5	C	5.3	5.40		D	U	YES		63.4		63.4	13.8	63.4	3.4	3.8	Strong
BH-50885	5.00	6.5	C	6	6.10		D	U	YES		63.4		63.4	15.2	63.4	3.8	4.2	Very Strong
BH-50885	5.00	6.5	C	6.1	6.20		D	U	YES		63.4		63.4	17.2	63.4	4.3	4.8	Very Strong
BH-50885	5.00	6.5	C	6.3	6.40		D	U	YES		63.4		63.4	15.1	63.4	3.8	4.2	Very Strong
BH-50885	5.00	6.5	C	6.4	6.50		D	U	YES		63.4		63.4	16.1	63.4	4.0	4.5	Very Strong
BH-50885	6.50	8	C	6.5	6.65		D	U	YES		63.4		63.4	19.1	63.4	4.7	5.3	Very Strong
BH-50885	6.50	8	C	6.65	6.80		D	U	YES		63.4		63.4	17.3	63.4	4.3	4.8	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

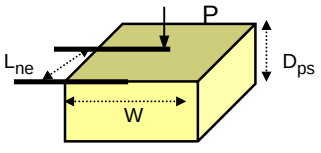
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table 1 sheet 4

IDL

Point Load Strength Index Tests
Summary of Results

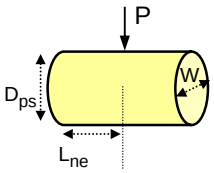
Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

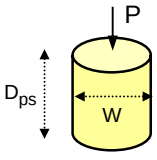
Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-50885	6.50	8	C	6.8	6.90		D	U	YES		63.4		63.4	18.6	63.4	4.6	5.2	Very Strong
BH-50885	6.50	8	C	6.9	7.00		A	U	YES		63.4		63.4	16.1	71.5	3.2	3.7	Strong
BH-50885	6.50	8	C	7.7	7.80		D	U	YES		63.4		63.4	20.5	63.4	5.1	5.7	Very Strong
BH-50885	6.50	8	C	7.8	7.90		D	U	YES		63.4		63.4	19.0	63.4	4.7	5.3	Very Strong
BH-50885	6.50	8	C	7.9	8.00		D	U	YES		63.4		63.4	18.3	63.4	4.6	5.1	Very Strong
BH-50885	9.50	11	C	10.1	10.20		D	U	YES		63.4		63.4	13.9	63.4	3.5	3.9	Strong
BH-50885	9.50	11	C	10.5	10.60		D	U	YES		63.4		63.4	14.1	63.4	3.5	3.9	Strong
BH-50885	9.50	11	C	10.6	10.70		D	U	YES		63.4		63.4	16.3	63.4	4.1	4.5	Very Strong
BH-50885	9.50	11	C	10.7	10.80		D	U	YES		63.4		63.4	21.1	63.4	5.2	5.8	Very Strong
BH-50885	9.50	11	C	10.8	10.90		D	U	YES		63.4		63.4	13.9	63.4	3.4	3.8	Strong
BH-50885	9.50	11	C	9.9	10.10		D	U	YES		63.4		63.4	13.1	63.4	3.3	3.6	Strong
BH-50920	3.50	5	C	3.7	3.80		D	U	YES		63.4		63.4	16.2	63.4	4.0	4.5	Very Strong
BH-50920	5.00	6.5	C	5.3	5.40		D	U	YES		63.4		63.4	15.1	63.4	3.7	4.2	Very Strong
BH-50920	6.50	8	C	6.9	7.00		D	U	YES		63.4		63.4	14.0	63.4	3.5	3.9	Strong
BH-50920	6.50	8	C	7.1	7.20		D	U	YES		63.4		63.4	19.4	63.4	4.8	5.4	Very Strong
BH-50920	6.50	8	C	7.7	7.80		D	U	YES		63.4		63.4	17.3	63.4	4.3	4.8	Very Strong
BH-50920	6.50	8	C	7.8	7.90		D	U	YES		63.4		63.4	13.4	63.4	3.3	3.7	Strong
BH-50920	6.50	8	C	7.9	8.00		D	U	YES		63.4		63.4	15.7	63.4	3.9	4.3	Very Strong
BH-50920	9.50	11	C	10	10.10		D	U	YES		63.4		63.4	16.9	63.4	4.2	4.7	Very Strong
BH-50920	9.50	11	C	10.1	10.20		D	U	YES		63.4		63.4	18.8	63.4	4.7	5.2	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

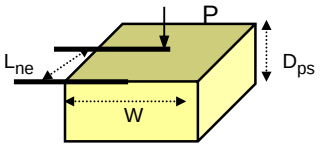
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table 1 sheet 5

IDL

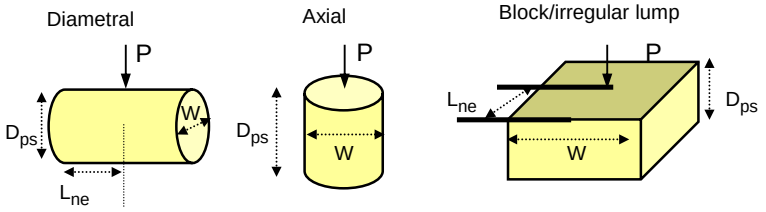
Point Load Strength Index Tests
Summary of Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-50920	9.50	11	C	10.2	10.30		D	U	YES		63.4		63.4	12.4	63.4	3.1	3.4	Strong
BH-50920	9.50	11	C	10.3	10.40		D	U	YES		63.4		63.4	16.8	63.4	4.2	4.7	Very Strong
BH-50920	9.50	11	C	10.4	10.50		D	U	YES		63.4		63.4	19.0	63.4	4.7	5.3	Very Strong
BH-50920	9.50	11	C	9.5	9.60		D	U	YES		63.4		63.4	13.7	63.4	3.4	3.8	Strong
BH-50920	9.50	11	C	9.6	9.70		D	U	YES		63.4		63.4	15.5	63.4	3.9	4.3	Very Strong
BH-50920	9.50	11	C	9.7	9.80		D	U	YES		63.4		63.4	19.3	63.4	4.8	5.3	Very Strong
BH-50920	9.50	11	C	9.8	9.80		D	U	YES		63.4		63.4	16.7	63.4	4.1	4.6	Very Strong
BH-50920	9.50	11	C	9.9	10.00		D	U	YES		63.4		63.4	16.9	63.4	4.2	4.7	Very Strong
BH-50920	11.00	12.5	C	11	11.10		D	U	YES		63.4		63.4	13.9	63.4	3.5	3.9	Strong
BH-50920	11.00	12.5	C	11.1	11.25		D	U	YES		63.4		63.4	15.1	63.4	3.8	4.2	Very Strong
BH-50920	11.00	12.5	C	11.35	11.45		D	U	YES		63.4		63.4	16.7	63.4	4.1	4.6	Very Strong
BH-50920	11.00	12.5	C	11.45	11.55		D	U	YES		63.4		63.4	21.0	63.4	5.2	5.8	Very Strong
BH-50920	11.00	12.5	C	11.55	11.65		D	U	YES		63.4		63.4	16.4	63.4	4.1	4.5	Very Strong
BH-50920	11.00	12.5	C	11.65	11.80		D	U	YES		63.4		63.4	18.9	63.4	4.7	5.2	Very Strong
BH-50920	11.00	12.5	C	12.3	12.40		D	U	YES		63.4		63.4	16.2	63.4	4.0	4.5	Very Strong
BH-50920	14.00	15	C	14	14.10		D	U	YES		63.4		63.4	13.4	63.4	3.3	3.7	Strong
BH-50920	14.00	15	C	14.3	14.40		D	U	YES		63.4		63.4	17.9	63.4	4.4	4.9	Very Strong
BH-50920	14.00	15	C	14.4	14.50		D	U	YES		63.4		63.4	15.4	63.4	3.8	4.3	Very Strong
BH-50920	14.00	15	C	14.5	14.60		D	U	YES		63.4		63.4	14.2	63.4	3.5	3.9	Strong
BH-50920	14.00	15	C	14.85	14.95		D	U	YES		63.4		63.4	17.8	63.4	4.4	4.9	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table 1 sheet 6

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

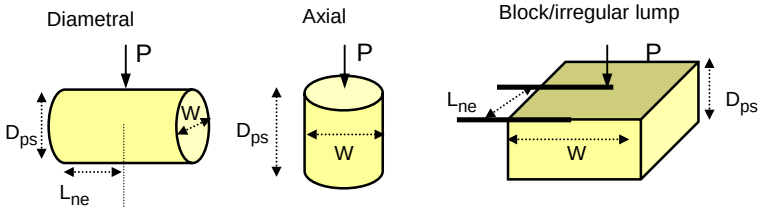
Point Load Strength Index Tests
Summary of Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-53713	5.00	6.5	C	6.1	6.30		D	U	YES		63.4		63.4	18.0	63.4	4.5	5.0	Very Strong
BH-53713	6.50	8	C	7.8	7.95		D	U	YES		63.4		63.4	14.1	63.4	3.5	3.9	Strong
BH-54059	5.00	6.5	C	5	5.16		D	U	YES		63.4		63.4	27.5	63.4	6.8	7.6	Very Strong
BH-55944	4.50	6	C	6	6.20		D	U	YES		63.4		63.4	4.7	63.4	1.2	1.3	Medium Strong
BH-55944	7.50	9	C	8.2	8.30		D	U	YES		63.4		63.4	10.8	63.4	2.7	3.0	Strong
BH-55944	9.00	10	C	9.5	9.70		D	U	YES		63.4		63.4	17.1	63.4	4.2	4.7	Very Strong
BH-58414	3.50	5	C	3.5	3.60		D	U	YES		100.0		100.0	37.1	100.0	3.7	5.1	Very Strong
BH-58414	3.50	5	C	4.8	5.00		D	U	YES		100.0		100.0	34.8	100.0	3.5	4.8	Very Strong
BH-58807	5.00	6.5	C	5.6	5.74		D	U	YES		63.4		63.4	14.6	63.4	3.6	4.0	Very Strong
BH-58807	6.50	8	C	6.8	6.90		D	U	YES		63.4		63.4	14.9	63.4	3.7	4.1	Very Strong
BH-60641	3.50	5	C	3.7	3.80		D	U	YES		63.4		63.4	14.7	63.4	3.6	4.1	Very Strong
BH-60641	6.50	8	C	6.6	6.70		D	U	YES		63.4		63.4	7.2	63.4	1.8	2.0	Strong
BH-60805	6.50	8	C	7.8	8.00		D	U	YES		63.4		63.4	18.1	63.4	4.5	5.0	Very Strong
BH-60805	8.00	9.5	C	8.9	9.00		D	U	YES		63.4		63.4	14.0	63.4	3.5	3.9	Strong
BH-61136	9.50	11	C	10.3	10.50		D	U	YES		63.4		63.4	11.9	63.4	3.0	3.3	Strong
BH-61805	3.50	5.1	C	3.7	3.80		D	U	YES		63.4		63.4	27.6	63.4	6.9	7.6	Very Strong
BH-61805	6.60	8.1	C	6.6	6.70		D	U	YES		63.4		63.4	19.2	63.4	4.8	5.3	Very Strong
BH-61869	2.00	2.6	C	2	2.10		D	U	YES		63.4		63.4	14.1	63.4	3.5	3.9	Strong
BH-61869	2.00	2.6	C	2.1	2.20		D	U	YES		63.4		63.4	16.7	63.4	4.1	4.6	Very Strong
BH-61869	2.00	2.6	C	2.2	2.30		D	U	YES		63.4		63.4	17.9	63.4	4.5	5.0	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

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Table 1 sheet 7

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

Point Load Strength Index Tests
Summary of Results

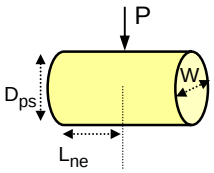
Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

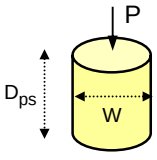
Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-61869	2.00	2.6	C	2.3	2.40		D	U	YES		63.4		63.4	18.5	63.4	4.6	5.1	Very Strong
BH-61869	2.00	2.6	C	2.4	2.50		D	U	YES		63.4		63.4	16.4	63.4	4.1	4.5	Very Strong
BH-61869	2.00	2.6	C	2.5	2.60		D	U	YES		63.4		63.4	13.0	63.4	3.2	3.6	Strong
BH-61869	4.10	5.6	C	4.5	4.60		D	U	YES		63.4		63.4	19.8	63.4	4.9	5.5	Very Strong
BH-61869	4.10	5.6	C	4.6	4.70		D	U	YES		63.4		63.4	16.9	63.4	4.2	4.7	Very Strong
BH-61869	4.10	5.6	C	4.7	4.80		D	U	YES		63.4		63.4	14.5	63.4	3.6	4.0	Very Strong
BH-61869	4.10	5.6	C	4.8	4.90		D	U	YES		63.4		63.4	17.4	63.4	4.3	4.8	Very Strong
BH-61869	4.10	5.6	C	4.9	5.00		D	U	YES		63.4		63.4	23.7	63.4	5.9	6.5	Very Strong
BH-61869	4.10	5.6	C	5	5.10		D	U	YES		63.4		63.4	23.7	63.4	5.9	6.6	Very Strong
BH-61869	4.10	5.6	C	5.1	5.20		D	U	YES		63.4		63.4	19.2	63.4	4.8	5.3	Very Strong
BH-61869	4.10	5.6	C	5.2	5.30		D	U	YES		63.4		63.4	20.7	63.4	5.1	5.7	Very Strong
BH-61869	4.10	5.6	C	5.3	5.40		D	U	YES		63.4		63.4	17.3	63.4	4.3	4.8	Very Strong
BH-61869	4.10	5.6	C	5.4	5.50		D	U	YES		63.4		63.4	19.3	63.4	4.8	5.3	Very Strong
BH-61869	5.60	7.1	C	5.6	7.10		D	U	YES		63.4		63.4	12.2	63.4	3.0	3.4	Strong
BH-61869	5.60	7.1	C	5.7	5.80		D	U	YES		63.4		63.4	19.1	63.4	4.7	5.3	Very Strong
BH-61869	5.60	7.1	C	5.8	5.90		D	U	YES		63.4		63.4	19.5	63.4	4.9	5.4	Very Strong
BH-61869	5.60	7.1	C	5.9	6.00		D	U	YES		63.4		63.4	22.5	63.4	5.6	6.2	Very Strong
BH-61869	5.60	7.1	C	6.1	6.20		D	U	YES		63.4		63.4	17.5	63.4	4.4	4.9	Very Strong
BH-61869	5.60	7.1	C	6.2	6.30		D	U	YES		63.4		63.4	19.5	63.4	4.9	5.4	Very Strong
BH-61869	5.60	7.1	C	6.3	6.40		D	U	YES		63.4		63.4	17.3	63.4	4.3	4.8	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

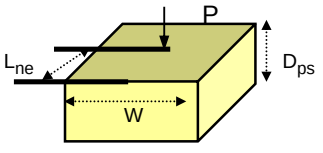
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

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Table 1 sheet 8

IDL

Point Load Strength Index Tests
Summary of Results

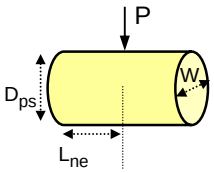
Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

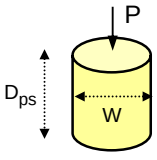
Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-61869	5.60	7.1	C	6.4	6.50		D	U	YES		63.4		63.4	14.0	63.4	3.5	3.9	Strong
BH-61869	5.60	7.1	C	6.7	6.80		D	U	YES		63.4		63.4	20.3	63.4	5.1	5.6	Very Strong
BH-61869	5.60	7.1	C	6.8	6.90		D	U	YES		63.4		63.4	31.1	63.4	7.7	8.6	Very Strong
BH-61869	8.60	10.1	C	8.6	8.70		D	U	YES		63.4		63.4	16.2	63.4	4.0	4.5	Very Strong
BH-61869	8.60	10.1	C	8.7	8.80		D	U	YES		63.4		63.4	13.1	63.4	3.3	3.6	Strong
BH-61869	8.60	10.1	C	8.8	8.90		D	U	YES		63.4		63.4	20.2	63.4	5.0	5.6	Very Strong
BH-61869	8.60	10.1	C	9	9.10		D	U	YES		63.4		63.4	26.4	63.4	6.6	7.3	Very Strong
BH-61869	8.60	10.1	C	9.1	9.20		D	U	YES		63.4		63.4	18.9	63.4	4.7	5.2	Very Strong
BH-61869	8.60	10.1	C	9.5	9.60		D	U	YES		63.4		63.4	14.5	63.4	3.6	4.0	Very Strong
BH-61869	8.60	10.1	C	9.6	9.70		D	U	YES		63.4		63.4	16.1	63.4	4.0	4.4	Very Strong
BH-61869	8.60	10.1	C	9.7	9.80		D	U	YES		63.4		63.4	16.5	63.4	4.1	4.6	Very Strong
BH-61869	8.60	10.1	C	9.8	9.90		D	U	YES		63.4		63.4	23.7	63.4	5.9	6.6	Very Strong
BH-61869	11.60	13.1	C	13	13.10		D	U	YES		63.4		63.4	19.8	63.4	4.9	5.5	Very Strong
BH-63008	6.60	8.1	C	6.8	6.90		D	U	YES		63.4		63.4	20.6	63.4	5.1	5.7	Very Strong
BH-65612	8.00	9.5	C	9.3	9.50		D	U	YES		63.4		63.4	20.0	63.4	5.0	5.5	Very Strong
BH-68306	2.00	3.5	C	3.2	3.36		D	U	YES		63.4		63.4	19.0	63.4	4.7	5.2	Very Strong
BH-68306	5.00	6.5	C	5.8	6.00		D	U	YES		63.4		63.4	21.4	63.4	5.3	5.9	Very Strong
BH-68804	3.50	5	C	4	4.10		D	U	YES		63.4		63.4	17.3	63.4	4.3	4.8	Very Strong
BH-69646	1.50	2.8	C	2.7	2.80		D	U	YES		63.4		63.4	13.7	63.4	3.4	3.8	Strong
BH-70701	8.80	10.3	C	9.8	10.00		D	U	YES		63.4		63.4	14.6	63.4	3.6	4.1	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

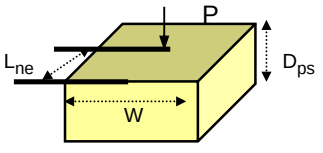
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

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Approved By: Administrator

Table 1 sheet 9

IDL

Point Load Strength Index Tests
Summary of Results

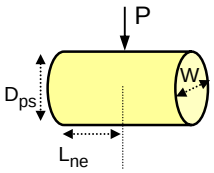
Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-73135	7.00	8.5	C	7	7.30		D	U	YES		63.4		63.4	17.3	63.4	4.3	4.8	Very Strong
BH-73604	7.10	8.6	C	7.3	7.40		D	U	YES		63.4		63.4	4.4	63.4	1.1	1.2	Medium Strong
BH-73604	8.60	10.1	C	9.8	10.00		D	U	YES		63.4		63.4	7.9	63.4	2.0	2.2	Strong
BH-73966	7.10	8.6	C	7.4	7.50		D	U	YES		63.4		63.4	9.8	63.4	2.4	2.7	Strong
BH-73966	8.60	10.1	C	9.35	9.50		D	U	YES		63.4		63.4	15.3	63.4	3.8	4.2	Very Strong
BH-74205	8.60	10.1	C	9.8	10.00		D	U	YES		63.4		63.4	15.7	63.4	3.9	4.4	Very Strong
BH-74403	7.10	8.6	C	7.6	7.80		D	U	YES		63.4		63.4	12.7	63.4	3.1	3.5	Strong
BH-74403	10.10	11.6	C	10.3	10.50		D	U	YES		63.4		63.4	4.7	63.4	1.2	1.3	Medium Strong
BH-79026	5.40	7	C	5.45	5.55		D	U	YES		63.4		63.4	15.1	63.4	3.7	4.2	Very Strong
BH-79026	8.60	10.2	C	9.3	9.45		D	U	YES		63.4		63.4	12.2	63.4	3.0	3.4	Strong
BH-79026	13.40	15	C	13.8	13.90		D	U	YES		63.4		63.4	13.8	63.4	3.4	3.8	Strong
BH-79209	7.80	9	C	8.77	9.00		D	U	YES		63.4		63.4	14.6	63.4	3.6	4.1	Very Strong
BH-79273	5.60	7.4	C	5.6	5.80		D	U	YES		63.4		63.4	12.7	63.4	3.1	3.5	Strong
BH-80338	6.50	8	C	7	7.10		D	U	YES		63.4		63.4	14.3	63.4	3.6	4.0	Very Strong
BH-80439	6.50	8	C	7.7	7.80		D	U	YES		63.4		63.4	18.9	63.4	4.7	5.2	Very Strong
BH-80439	8.00	9.5	C	9.1	9.20		D	U	YES		63.4		63.4	21.4	63.4	5.3	5.9	Very Strong
BH-82621	9.50	10	C	9.5	9.60		D	U	YES		63.4		63.4	14.6	63.4	3.6	4.0	Strong
BH-83591	11.00	12.5	C	11.6	11.80		D	U	YES		63.4		63.4	20.4	63.4	5.1	5.7	Very Strong
BH-83591	12.50	14	C	13.7	13.82		D	U	YES		63.4		63.4	14.3	63.4	3.6	4.0	Very Strong
BH-85791	6.50	8	C	6.85	7.10		D	U	YES		63.4		63.4	13.1	63.4	3.3	3.6	Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

Diametral



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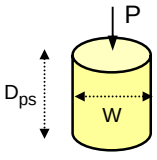
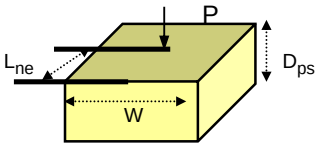


Block/irregular lump



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Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

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Table: 1 sheet 10

IDL

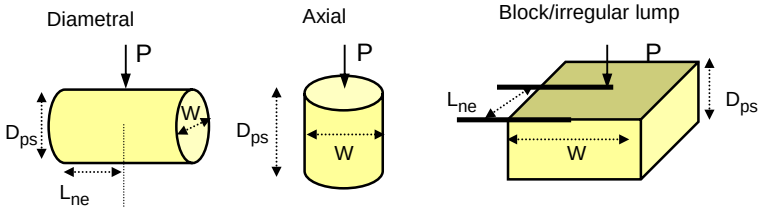
Point Load Strength Index Tests
Summary of Results

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH-85791	9.50	10	C	9.86	10.00		D	U	YES		63.4		63.4	2.9	63.4	0.7	0.8	Weak
BH-92626	5.00	6.5	C	6	6.20		D	U	YES		101.0		101.0	36.9	101.0	3.6	5.0	Very Strong
BH-92680	8.00	9.6	C	8.4	8.60		D	U	YES		63.4		63.4	11.4	63.4	2.8	3.1	Strong
BH-92680	9.60	11	C	10	10.30		D	U	YES		63.4		63.4	9.4	63.4	2.3	2.6	Strong
BH-94016	8.00	9.4	C	8.3	8.40		D	U	YES		63.4		63.4	21.5	63.4	5.3	5.9	Very Strong
BH-95064	1.70	2.6	C	2.4	2.60		D	U	YES		63.4		63.4	4.6	63.4	1.2	1.3	Medium Strong
BH-95064	3.60	5.1	C	3.9	4.00		D	U	YES		63.4		63.4	1.4	63.4	0.3	0.4	Weak
BH-95595	3.60	5	C	4.2	4.40		D	U	YES		63.4		63.4	16.6	63.4	4.1	4.6	Very Strong
BH-95595	5.00	6.5	C	5	5.10		D	U	YES		63.4		63.4	18.7	63.4	4.6	5.2	Very Strong
BH-96005	4.50	6	C	5.6	5.75		D	U	YES		63.4		63.4	23.6	63.4	5.9	6.5	Very Strong
BH-96005	6.00	7.5	C	6.84	7.00		D	U	YES		63.4		63.4	4.6	63.4	1.1	1.3	Medium Strong
BH-96364	5.00	6.5	C	6.2	6.40		D	U	YES		63.4		63.4	11.4	63.4	2.8	3.2	Strong
BH-96364	8.00	9.5	C	8.4	8.55		D	U	YES		63.4		63.4	13.2	63.4	3.3	3.7	Strong
BH-96858	8.00	9.5	C	9	9.15		D	U	YES		63.4		63.4	25.4	63.4	6.3	7.0	Very Strong
BH-97104	3.50	5	C	4.1	4.20		D	U	YES		63.4		63.4	20.4	63.4	5.1	5.7	Very Strong
BH-97104	5.00	6.5	C	5.34	5.53		D	U	YES		63.4		63.4	27.4	63.4	6.8	7.6	Very Strong
BH-97423	7.00	8	C	7.4	7.50		D	U	YES		101.0		101.0	23.1	101.0	2.3	3.1	Strong
BH-97837	12.10	13.6	C	12.1	12.30		D	U	YES		63.4		63.4	22.6	63.4	5.6	6.3	Very Strong

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table 1 sheet 11

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

UNIAXIAL COMPRESSION TEST ON ROCK - SUMMARY OF RESULTS

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample				Specimen Depth (m)	Specimen Dimensions2			Bulk Density2	Water Content 1	Uniaxial Compression3				Remarks
	Ref	Top	Base	Type		Dia. mm	Length mm	H/D	Mg/m3	%	Condition	Stress Rate MPa/s	Mode of failure	UCS MPa	
BH-101953		5.00	6.50	C	5.8-6.3	101.1	259.7	2.6	2.73		as received	0.2490	F	96.9	Strong
BH-103234		6.10	7.60	C	7.2-7.5	63.4	169.3	2.7	2.69		as received	0.3589	AC	158.0	Very Strong
BH-36789		18.60	20.00	C	19.3-19.5	63.4	166.5	2.6	2.69		as received	0.6619	AC	115.0	Very Strong
BH-36829		17.10	18.70	C	17.1-17.3	63.3	168.3	2.7	2.70		as received	0.5457	S	56.8	Strong
BH-36879		3.50	5.00	C	3.6-4.0	63.4	165.2	2.6	2.55		as received	0.1497	AC	37.7	Medium Strong
BH-36883		3.50	5.00	C	4.0-4.2	63.4	166.3	2.6	2.68		as received	0.1825	S	46.2	Medium Strong
BH-36956		3.50	5.00	C	4.1-4.3	63.4	153.6	2.4	2.69		as received	0.3642	AC	60.1	Strong
BH-37230		3.50	5.00	C	4.6-4.8	63.4	161.1	2.5	2.58		as received	0.5079	F	118.0	Strong
BH-37230		5.00	6.50	C	5.9-6.2	63.4	152.7	2.4	2.65		as received	0.4488	AC	90.2	Strong
BH-38106		6.50	8.00	C	6.7-7.0	63.4	172.0	2.7	2.52		as received	0.3643	AC	56.1	Strong
BH-38106		6.50	8.00	C	7.0-7.2	63.4	169.6	2.7	2.50		as received	0.2126	AC	30.8	Medium Strong
BH-38523		5.00	6.50	C	5.4-5.8	63.4	160.8	2.5	2.61		as received	0.4422	AC	66.3	Strong
BH-38523		6.50	8.00	C	6.5-6.8	63.4	154.0	2.4	2.70		as received	0.4900	AC	104.0	Very Strong
BH-38786		5.00	6.50	C	5.5-5.7	63.4	163.3	2.6	2.65		as received	0.2221	AC	56.6	Strong
BH-39229		3.50	5.00	C	4.0-4.2	63.4	164.9	2.6	2.62		as received	0.4338	AC	86.3	Strong
BH-39518		8.00	9.50	C	8.8-9.16	63.4	177.1	2.8	2.67		as received	0.6708	AC	110.0	Very Strong
BH-40004		2.00	3.50	C	3.77-4.00	63.4	172.3	2.7	2.70		as received	0.4966	AC	77.0	Strong
BH-40405		8.00	9.50	C	8.6-8.8	63.4	167.7	2.6	2.62		as received	0.4843	AC	87.2	Strong
BH-40405		9.50	10.00	C	9.5-10.0	63.4	159.1	2.5	2.50		as received	0.3766	AC	85.5	Strong
BH-40830		3.50	5.00	C	4.1-4.35	63.4	168.6	2.7	2.69		as received	0.5176	MS	105.0	Very Strong
BH-40830		5.00	6.50	C	5.5-5.7	63.4	166.2	2.6	2.60		as received	0.2803	AC	68.4	Strong
BH-41053		2.00	3.50	C	3.1-3.34	63.4	169.0	2.7	2.68		as received	0.2240	AC	58.7	Strong
BH-41053		5.00	6.50	C	5.83-6.05	63.4	169.9	2.7	2.67		as received	0.7350	F	105.0	Very Strong

Notes

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

Test Specification: International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table: sheet 1 of 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

UNIAXIAL COMPRESSION TEST ON ROCK - SUMMARY OF RESULTS

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample				Specimen Depth (m)	Specimen Dimensions2			Bulk Density2	Water Content 1	Uniaxial Compression3				Remarks
	Ref	Top	Base	Type		Dia. mm	Length mm	H/D	Mg/m3	%	Condition	Stress Rate MPa/s	Mode of failure	UCS MPa	
BH-42851A		3.50	5.00	C	3.5-3.8	63.4	168.8	2.7	2.69		as received	0.5555	F	137.0	Very Strong
BH-43817		2.00	3.50	C	3.14-3.36	63.4	166.3	2.6	2.67		as received	0.4552	S	44.2	Medium Strong
BH-48400		6.50	8.00	C	7.0-7.27	63.4	155.0	2.4	2.64		as received	0.2338	S + AC	76.7	Strong
BH-48795		5.00	6.50	C	5.27-5.51	63.4	168.5	2.7	2.71		as received	0.3277	F	81.3	Strong
BH-49214		0.00	5.00	C	4.73-5.0	63.4	165.4	2.6	2.75		as received	0.2900	AC	100.0	Very Strong
BH-50608A		2.00	3.50	C	2.0-2.25	63.4	164.7	2.6	2.58		as received	0.4230	SMS	58.8	Strong
BH-50608A		6.50	8.00	C	6.5-6.73	63.4	166.3	2.6	2.68		as received	0.4740	F	96.2	Strong
BH-50885		6.50	8.00	C	7.5-7.7	63.4	164.7	2.6	2.67		as received	0.4200	AC	84.4	Strong
BH-50885		9.50	11.00	C	9.7-9.9	63.4	172.0	2.7	2.69		as received	0.1731	MS	42.8	Medium Strong
BH-50920		6.50	8.00	C	6.5-6.9	63.4	164.5	2.6	2.66		as received	0.4193	F	91.4	Strong
BH-50920		14.00	15.00	C	14.6-14.85	63.4	167.6	2.6	2.68		as received	0.3178	AC	50.2	Strong
BH-55944		7.50	9.00	C	7.6-8.0	63.4	169.7	2.7	2.67		as received	0.4053	AC	87.1	Strong
BH-55944		9.00	10.00	C	9.7-10.0	63.4	169.2	2.7	2.69		as received	0.5407	F	130.0	Very Strong
BH-58807		6.50	8.00	C	6.5-6.9	63.4	167.0	2.6	2.69		as received	0.5983	F	164.0	Very Strong
BH-61136		8.00	9.50	C	8.0-8.25	63.4	169.8	2.7	2.67		as received	0.5581	AC	109.0	Very Strong
BH-61805		3.50	5.10	C	3.83-4.1	63.4	164.7	2.6	2.65		as received	0.4642	MS	103.0	Very Strong
BH-61869		4.10	5.60	C	4.27-4.48	63.4	166.2	2.6	2.64		as received	0.3152	MS	64.6	Strong
BH-61869		8.60	10.10	C	9.8-10.1	63.4	161.7	2.6	2.61		as received	0.3398	AC	92.4	Strong
BH-68306		2.00	3.50	C	2.1-2.4	63.4	168.9	2.7	2.70		as received	0.5569	F	107.0	Very Strong
BH-68804		3.50	5.00	C	4.1-4.3	63.4	150.1	2.4	2.65		as received	0.4054	AC	68.1	Strong
BH-73135		7.00	8.50	C	7.3-7.75	63.4	168.3	2.7	2.67		as received	0.4589	MS	101.0	Very Strong
BH-73604		7.10	8.60	C	7.5-7.7	63.4	143.2	2.3	2.69		as received	0.4456	F	119.0	Very Strong
BH-73604		8.60	10.10	C	9.1-9.36	63.4	165.0	2.6	2.70		as received	0.3068	AC	122.0	Very Strong

Notes

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

Test Specification: International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table sheet 1 2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

UNIAXIAL COMPRESSION TEST ON ROCK - SUMMARY OF RESULTS

Project No.: 2021OY102

Project Name: WSP Eastern & Midlands Region

Hole No.	Sample				Specimen Depth (m)	Specimen Dimensions2			Bulk Density2	Water Content 1	Uniaxial Compression3				Remarks
	Ref	Top	Base	Type		Dia. mm	Length mm	H/D	Mg/m3	%	Condition	Stress Rate MPa/s	Mode of failure	UCS MPa	
BH-73966		8.60	10.10	C	8.8-9.1	63.4	167.5	2.6	2.69		as received	0.4395	AC	81.8	Strong
BH-74205		8.60	10.10	C	9.4-9.6	63.4	167.6	2.6	2.68		as received	0.3339	F	112.0	Very Strong
BH-74403		10.10	11.60	C	10.4-10.6	63.4	169.9	2.7	2.67		as received	0.3491	AC	85.1	Strong
BH-79026		5.40	7.00	C	6.0-6.25	63.4	165.6	2.6	2.66		as received	0.2262	S	70.6	Strong
BH-79273		5.60	7.40	C	6.0-6.24	63.4	167.5	2.6	2.70		as received	0.3018	AC	89.9	Strong
BH-80439		9.50	10.00	C	9.5-9.8	63.4	169.5	2.7	2.69		as received	0.2906	AC	75.0	Strong
BH-82621		8.00	9.50	C	9.10-9.35	63.4	166.4	2.6	2.69		as received	0.3854	AC	112.0	Very Strong
BH-83591		9.50	11.00	C	9.6-9.88	63.4	167.3	2.6	2.71		as received	0.4259	AC	118.0	Very Strong
BH-85791		6.50	8.00	C	7.13-7.34	63.4	146.5	2.3	2.51		as received	0.2058	AC	30.3	Medium Strong
BH-92626		5.00	6.50	C	6.2-6.5	101.1	258.7	2.6	2.73		as received	0.2421	AC	94.2	Strong
BH-92680		8.00	9.60	C	8.87-9.20	63.4	161.3	2.5	2.63		as received	0.1737	AC	49.2	Medium Strong
BH-95064		1.70	2.60	C	2.2-2.4	63.4	155.1	2.4	2.67		as received	0.1108	AC	24.9	Medium Strong
BH-95595		3.60	5.00	C	4.0-4.2	63.4	141.0	2.2	2.66		as received	0.3785	F	136.0	Very Strong
BH-96364		8.00	9.50	C	8.6-8.8	63.4	160.8	2.5	2.70		as received	0.4844	F	122.0	Very Strong
BH-96858		8.00	9.50	C	8.2-8.5	63.4	168.8	2.7	2.70		as received	0.2913	AC	71.1	Strong
BH-97104		3.50	5.00	C	4.4-4.7	63.4	168.7	2.7	2.73		as received	0.4792	F	114.0	Very Strong
BH-97104		5.00	6.50	C	5.35-5.58	63.4	159.8	2.5	2.67		as received	0.4247	S	90.5	Strong

Notes

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

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Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

Test Specification: International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

Date Printed: 03/03/2023 00:00

Approved By: Administrator

Table: sheet 1 of 3

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

LOS ANGELES COEFFICIENT (LA)

In accordance with BS EN 1097-2:2020

Sample Details

Sample Description: **Grey Limestone**

Sample Location: **BH36789**

Sample ID

Sample Ref: **3**

Sample Type: **B**

Sample Depth (m): **17.00**

Test Details

Size fractions from which the portion was obtained: **10/11.2mm 11.2/14mm**

Test Result

Los Angeles Value (LAV): **24**

Remarks

Non-standard notes: **Non Standard Test**

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	11/01/23
Contract: **2021OY102WSP2-BPT section**	Job No: **785325**	

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Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 11/01/23 - 10:53 | LS5 |

RSK Environment Ltd
Tel: +44 (0) 1442 437500
Fax: +44 (0) 1442 437550
Email: info2@rsk.co.uk
Web: www.rsk.co.uk

Materials & Structures
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT

UKAS TESTING 0278

Certificate of Examination
BS EN 932-3: 1997
Simplified Petrographic Description of Rock

Your Ref.	785325-R	**RSK Sample Ref.**	20366/ST3
Client	Structural Soils Limited The Potteries Pottery Street Castleford West Yorkshire WF10 1NJ	**Client Ref./Site Mark**	BH36789 17.00-18.60C
		Sampled By/Date	Client/Not advised
		Date Received	13.01.2023
		Condition	Dry rock core section
		Examined by/Date	AS/02.02.2023
		Advised Source	Not advised
		Advised Rock Name	Not advised

SAMPLE

One tub totalling approximately 640 g in mass, which contained a 60 mm diameter, 90 mm long rock core, was received in our laboratory for examination. The mass of the material received in the laboratory was smaller than the minimum mass requirement of 5 kg stated in BS EN 932-3: 1997 for rock samples.

METHODS OF EXAMINATION

The submitted sample was subjected to simplified petrographic description following methods given in BS EN 932-3: 1997, Procedure and Terminology for Simplified Petrographic Description.

SUMMARY OF FINDINGS

Aggregate Property	Observations
Rock type	Limestone
Rock Description	Moderately hard, dark grey, mid grey and greyish purple coloured, very fine to coarse grained, carbonate sedimentary rock exhibiting effervescence with dilute HCl. The rock displayed irregular soft sediment or bioturbation pattern picked out by pale yellowish brown/grey colouration. The rock appeared to be primarily composed of calcite (possible dolomite content). Carbonate content was estimated to be 90-98 %. Sporadic to common crystalline calcite and iron oxide/hydroxide (2 %) veins were randomly orientated. Pore space was estimated to be <1 %. Fresh to slightly altered/weathered state observed.

NOTE

We would advise further investigation through more detailed thin section examination to clarify and expand on petrographic details.

Certificate prepared by

Alex Smith
Principal Geomaterials Scientist

Certificate reviewed and authorised by

Kathleen Smith
Senior Geomaterials Scientist

Date of issue: 17 February 2023

TEST REPORT

SLAKE DURABILITY INDEX

In accordance with ISRM 2007

Location ID: **BH-36789**

Sample Ref:

Sample Type: **C**

Depth (m): **17.00**

Sample Description: **Grey LIMESTONE**

Slaking Fluid Used: **Tap water**

Slaking Fluid Temperature (°C): **20**

First Cycle

Slake Durability (%): **99.7**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

Second Cycle

Slake Durability (%): **99.4**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**17/03/23**

Contract	Job No
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

AGS

GINT_LIBRARY_V10_01.GLB LibVersion: v8_07_001 PrjVersion: v8_07 | GrfcText L - SLAKE DURABILITY - A4P | 785325 - 2021OY102WSP2-BPT SECTION.GPJ - v10_01
Structural Soils Ltd, Branch Office - Bristol Lab: 1a Princess Street, Bedminster, Bristol, BS3 4AG. Tel: 0117-947-1000, Fax: 0117-947-1004, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 17/03/23 - 10:06 | AF3 |

SUMMARY OF INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

In accordance with ISRM Suggested Methods

Borehole: **BH36789** Sample Type: **C** Depth (m): **18.60**

Bulk Density (Mg/m^3): **2.69** Dry Density (Mg/m^3): **2.68** Moisture Content (%): **0.09**

Sample Diameter (mm): **63.43** Sample Thickness (mm): **27.56** Thickness/Diameter Ratio: **0.43**

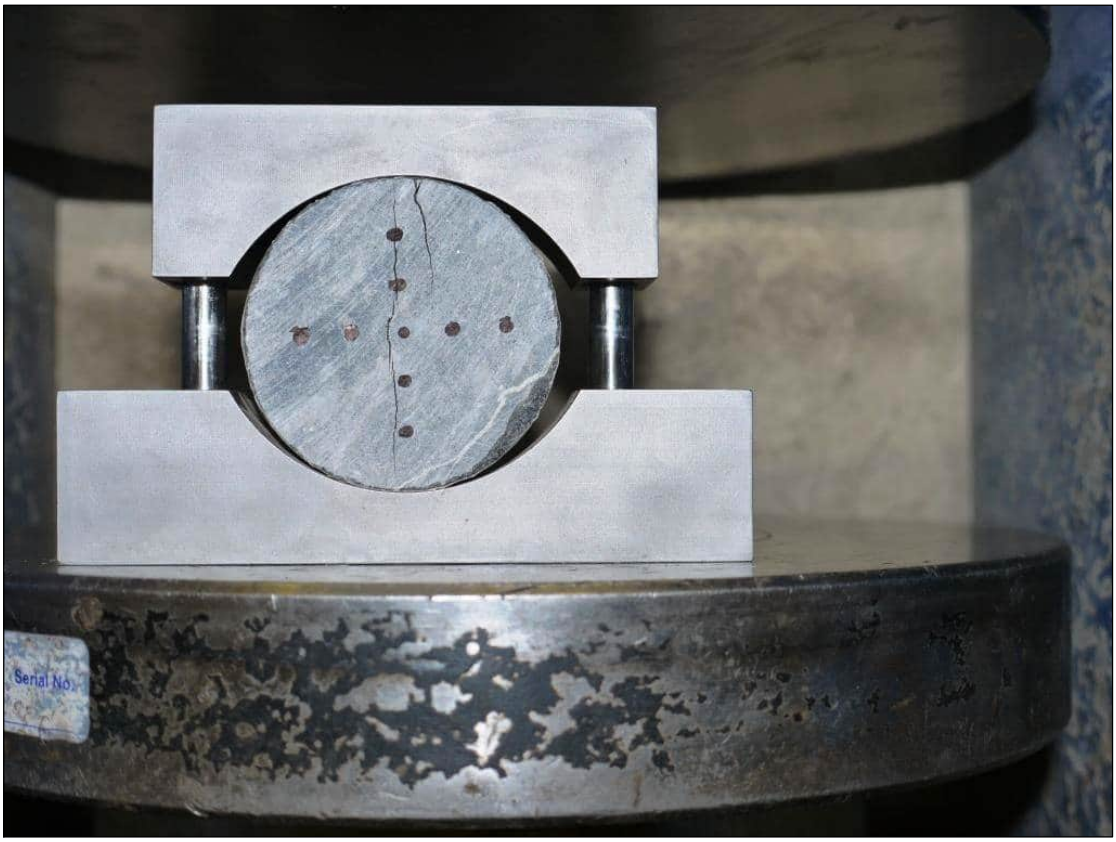
Orientation of loading: **Diametral** Load Rate (kN/s): **0.30** Test duration (secs): **89**

Load at Failure (kN): **30.0** Tensile Strength (MPa): **10.9**

Description: **Grey Limestone**

Loading / Foliation relationship: **NA**

Failure notes: **None**



Post-test photo

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**05/02/23**

Contract	Job No
2021OY102WSP2-BPT section	**785325**

AGS

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SUMMARY OF INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

In accordance with ISRM Suggested Methods

Borehole: **BH36829** Sample Type: **C** Depth (m): **14.10**

Bulk Density (Mg/m^3): **2.68** Dry Density (Mg/m^3): **2.68** Moisture Content (%): **0.06**

Sample Diameter (mm): **63.42** Sample Thickness (mm): **27.74** Thickness/Diameter Ratio: **0.44**

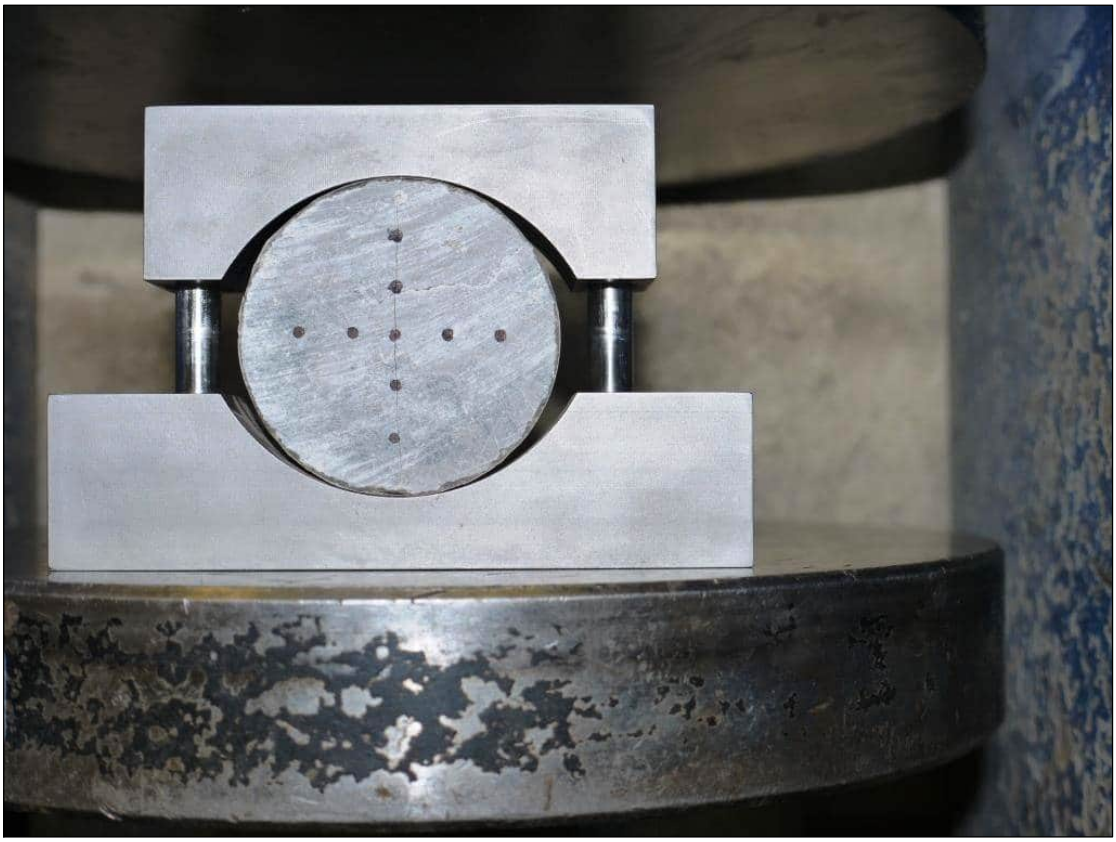
Orientation of loading: **Diametral** Load Rate (kN/s): **0.20** Test duration (secs): **78**

Load at Failure (kN): **28.3** Tensile Strength (MPa): **10.2**

Description: **Grey Limestone**

Loading / Foliation relationship: **NA**

Failure notes: **None**



Post-test photo

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**05/02/23**

Contract	Job No
2021OY102WSP2-BPT section	**785325**

AGS

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LOS ANGELES COEFFICIENT (LA)

In accordance with BS EN 1097-2:2020

Sample Details

Sample Description: **Grey Limestone**

Sample Location: **BH36829**

Sample ID

Sample Ref: **3**

Sample Type: **B**

Sample Depth (m): **17.10**

Test Details

Size fractions from which the portion was obtained: **10/11.2mm 11.2/14mm**

Test Result

Los Angeles Value (LAV): **25**

Remarks

Non-standard notes: **Non Standard Test**

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By		Date
	LAURA SCHRAMM	11/01/23
Contract: **2021OY102WSP2-BPT section**	Job No: **785325**	

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Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 11/01/23 - 10:53 | LS5 |

TEST REPORT

SLAKE DURABILITY INDEX

In accordance with ISRM 2007

Location ID: **BH-39518**

Sample Ref: **BAG**

Sample Type: **C**

Depth (m): **2.00**

Sample Description: **Grey LIMESTONE**

Slaking Fluid Used: **Tap water**

Slaking Fluid Temperature (°C): **20**

First Cycle

Slake Durability (%): **99.6**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

Second Cycle

Slake Durability (%): **99.4**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

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Bristol
BS3 4AG

Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**17/03/23**

Contract	Job No
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

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TEST REPORT

SLAKE DURABILITY INDEX

In accordance with ISRM 2007

Location ID: **BH-58414**

Sample Ref: **2.0-3.5**

Sample Type: **C**

Depth (m): **2.00**

Sample Description: **Grey LIMESTONE**

Slaking Fluid Used: **Tap water**

Slaking Fluid Temperature (°C): **20**

First Cycle

Slake Durability (%): **99.6**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

Second Cycle

Slake Durability (%): **99.3**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

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Bedminster
Bristol
BS3 4AG

Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**17/03/23**

Contract	Job No
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

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TEST REPORT

SLAKE DURABILITY INDEX

In accordance with ISRM 2007

Location ID: **BH-58414**

Sample Ref: **0.9-2.0**

Sample Type: **C**

Depth (m): **0.90**

Sample Description: **Grey LIMESTONE**

Slaking Fluid Used: **Tap water**

Slaking Fluid Temperature (°C): **20**

First Cycle

Slake Durability (%): **99.3**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

Second Cycle

Slake Durability (%): **99.0**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

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Bedminster
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Contract	Job No
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

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TEST REPORT

SLAKE DURABILITY INDEX

In accordance with ISRM 2007

Location ID: **BH-68306**

Sample Ref: **3.5-5.0**

Sample Type: **C**

Depth (m): **3.50**

Sample Description: **Grey LIMESTONE**

Slaking Fluid Used: **Tap water**

Slaking Fluid Temperature (°C): **20**

First Cycle

Slake Durability (%): **99.4**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

Second Cycle

Slake Durability (%): **99.1**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

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1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**17/03/23**

Contract	Job No
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

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TEST REPORT

Analysing
Testing
Consulting
Calibration

Client:	Irish Drilling Ltd	**BHP Ref. No.**:	23/01/0641
	Loughrea	**Order No.:**	Not Supplied
	Loughrea	**Date Received**:	06/01/2023
	Galway	**Date Tested**:	16/01/2023
	Galway	**Test Spec.**:	Customer Spec.
F.T.A.O.:	Dympna Darcy	**Item**:	Rock Core

Project: WSP Eastern & Midlands Region
Client Ref: 2021OY102
Location Ref: BH - 95595 (2.0-8.4m)

BHP Laboratories Ltd
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax +353 61 455447
E Mail
seamusoconnell@bhp.ie

Sampling Certificate Provided: No

DETERMINATION OF AGGREGATE ABRASION VALUE TO BS EN 1097-8 : 2009 Annex A

Date Sampled	:	Not Stated
Client Reference	:	2021OY102
Location	:	BH - 95595 (2.0-8.4m)
Source of Material	:	Not Stated
Nominal size of aggregate	:	None

Results:

	A	**B**
Aggregate Abrasion Value	4.40	4.29
Mean Aggregate Abrasion Value	4.3	

Remarks:
The report has been reissued due to incorrect client reference.

Seamus O' Connell
Laboratory Technical Manager
For and On Behalf of BHP Laboratories

Issue Date: 07/02/2023

Test results relate to the samples as supplied. This test report shall not be duplicated,except in full and only with the permission of the test laboratory.
Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.', 'Test Spec.', 'Item', 'Sample Location', 'Source of Material'
and information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

TEST REPORT

Analysing
Testing
Consulting
Calibration

Client:	Irish Drilling Ltd Loughrea Loughrea Galway Galway	**BHP Ref. No.**:	23/01/0641
		Order No.:	Not Supplied
		Date Received:	06/01/2023
		Date Tested:	14/01/2023
		Test Spec:	Customer Spec.
F.T.A.O.:	Dympna Darcy	**Item**:	Rock Core

Project: WSP Eastern & Midlands Region
Client Ref: 2021OY102
Location Ref: BH - 95595 (2.0-8.4m)

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New Road
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Tel +353 61 455399
Fax +353 61 455447
E Mail
seamusoconnell@bhp.ie

Sampling Certificate Provided: No

DETERMINATION OF FLAKINESS INDEX TO EN 933-3 : 2012

Date Sampled	:	Not Stated
Client Reference	:	2021OY102
Location	:	BH - 95595 (2.0-8.4m)
Source of Material	:	Not Stated
Deviation from Test Method	:	None
Mass of Test Portion (g)	:	1438.9

Results:

Flakiness Index	:	27%

Remarks:
The report has been reissued due to incorrect client reference.

Seamus O'Connell
Laboratory Technical Manager
For and On Behalf of BHP Laboratories

Issue Date: 07/02/2023

Test results relate to the samples as supplied. This test report shall not be duplicated,except in full and only with the permission of the test laboratory.
Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.', 'Test Spec.', 'Item', 'Sample Location', 'Source of Material'
and information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

TEST REPORT

Analysing
Testing
Consulting
Calibration

Client: Irish Drilling Ltd
Loughrea
Loughrea
Galway
Galway
F.T.A.O.: Dympna Darcy

BHP Ref. No.: 23/01/0641 issue 2
Order No.: Not Supplied
Date Received: 06/01/2023
Date Tested: 26/01/2023
Test Spec: Customer Spec.
Item: Rock Core

Project: WSP Eastern & Midlands Region
Client Ref: 2021OY102
Location Ref: BH - 95595 (2.0-8.4m)

Sampling Certificate Provided: No

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seamusoconnell@bhp.ie

DETERMINATION OF MAGNESIUM SULPHATE SOUNDNESS TO EN 1367-2 : 2009

Date Sampled	:	Not Stated	
Client Reference	:	2021OY102	
Location	:	BH - 95595 (2.0-8.4m)	
Source of Material	:	Not Stated	
Bulk Sample Nominal Material Size	:	Not Applicable	
Deviation from Test Method	:	None	

Results:

Portion 1 (MS1)	:	2.7	%
Portion 2 (MS2)	:	2.0	%
Magnesium SulfateValue (MS)	:	2	%

Remarks:
The report has been reissued due to incorrect client reference.

Seamus O'Connell
Laboratory Technical Manager
For and On Behalf of BHP Laboratories

Issue Date: 07/02/2023

Test results relate to the samples as supplied. This test report shall not be duplicated,except in full and only with the permission of the test laboratory.
Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.', 'Test Spec.', 'Item', 'Sample Location', 'Source of Material'
and information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

TEST REPORT

Analysing
Testing
Consulting
Calibration

Client: Irish Drilling Ltd
Loughrea
Loughrea
Galway
Co. Galway
F.T.A.O.: Dympna Darcy

BHP Ref. No.: 23/01/0641 isuue 2
Order No: Not supplied
Date Received: 06/01/2023
Date Tested: 26/01/2023
Test Spec.: Customer
Item : Rock Core

BHP
New road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax +353 61 455447
E Mail
seamusoconnell@bhp.ie

Project: WSP Eastern & Midlands Region
Client Ref: 2021OY102
Location Ref: BH - 95595 (2.0-8.4m)

Sampling Certificate Provided: No

DETERMINATION OF MOHS HARDNESS TO ISRM GUIDELINES

Date Sampled	:	Not Stated
Client Reference	:	2021OY102
Location	:	BH - 95595 (2.0-8.4m)
Source of Material	:	Not Stated

Results:

Sample Number	Initial check (Calcite)	Final check (Fluorite)
1	< 4	> 3
2	< 4	> 3
3	< 4	> 3

Remarks:

The samples, as supplied were compared to the mineral scale provided by Ward's Natural Science Establishment Inc.
This rock sample has a Mohs hardness values in the range 3.0 - 4.0.
The report has been reissued due to incorrect client reference.

Seamus O'Connell
Laboratory Technical Manager
For and On Behalf of BHP Laboratories

Issue Date: 07/02/2023

Test results relate to the samples as supplied. This test report shall not be duplicated,except in full and only with the permission of the test laboratory.
Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.', 'Test Spec.', 'Item', 'Sample Location', 'Source of Material'
and information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

TEST REPORT

Analysing
Testing
Consulting
Calibration

Client:	Irish Drilling Ltd Loughrea Loughrea Galway Galway	**BHP Ref. No.**: **Order No.:** **Date Received**: **Date Tested**: **Test Spec**:	23/01/0641 issue 2 Not Supplied 06/01/2023 17/01/2023 Customer Spec.
F.T.A.O.:	Dympna Darcy	**Item**:	Rock Core

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Fax +353 61 455447
E Mail
seamusoconnell@bhp.ie

Project: WSP Eastern & Midlands Region
Client Ref: 2021OY102
Location Ref: BH - 95595 (2.0-8.4m)

Sampling Certificate Provided: No

DETERMINATION OF PARTICLE DENSITY AND WATER ABSORPTION TO EN 1097-6:2013

Date Sampled	:	Not Stated
Client Reference	:	2021OY102
Location	:	BH - 95595 (2.0-8.4m)
Source of Material	:	Not Stated
Deviation from Test Method	:	None
Artificially heated before test	:	No

Results:

Apparent Particle Density	:	2.73 Mg/m^3
Particle Density on an oven-dried basis	:	2.66 Mg/m^3
Particle Density on a saturated and surface-dried basis	:	2.68 Mg/m^3
Water Absorption	:	1.0 %

Remarks:
The report has been reissued due to incorrect client reference.

Seamus O'Connell
Laboratory Technical Manager
For and On Behalf of BHP Laboratories

Issue Date: 07/02/2023

Test results relate to the samples as supplied. This test report shall not be duplicated,except in full and only with the permission of the test laboratory.

Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.', 'Test Spec.', 'Item', 'Sample Location', 'Source of Material' and information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

TEST REPORT

Analysing
Testing
Consulting
Calibration

Client: Irish Drilling Ltd
Loughrea
Loughrea
Galway
Galway
F.T.A.O.: Dympna Darcy

BHP Ref. No.: 23/01/0641 issue 2
Order No.: Not Supplied
Date Received: 06/01/2023
Date Tested: 15/01/2023
Test Spec: Customer Spec.
Item: Rock Core

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Fax +353 61 455447
E Mail
seamusoconnell@bhp.ie

Project: WSP Eastern & Midlands Region
Client Ref: 2021OY102
Location Ref: BH - 95595 (2.0-8.4m)

Sampling Certificate Provided: No

DETERMINATION OF THE RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD TO EN 1097-2 : 2020

Date Sampled	:	Not Stated
Client Reference	:	2021OY102
Location	:	BH - 95595 (2.0-8.4m)
Source of Material	:	Not Stated
Deviation from Test Method	:	None
Bulk Sample Nominal Material Size	:	Not Applicable
Nominal size of aggregate	:	14mm

Results:

Los Angeles Coefficient (LA) = 15

Remarks:
The report has been reissued due to incorrect client reference.

Seamus O' Connell
Laboratory Technical Manager
BHP Laboratories Ltd.

Issue Date: 07/02/2023

Test results relate to the samples as supplied. This test report shall not be duplicated,except in full and only with the permission of the test laboratory.
Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.', 'Test Spec.', 'Item', 'Sample Location', 'Source of Material'
and information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

TEST REPORT

Analysing
Testing
Consulting
Calibration

Client: Irish Drilling Ltd
Loughrea
Loughrea
Galway
Galway
F.T.A.O.: Dympna Darcy

Project: WSP Eastern & Midlands Region
Client Ref: 2021OY102
Location Ref: BH - 95595 (2.0-8.4m)

Sampling Certificate Provided: No

BHP Ref. No.: 23/01/0641 issue 2
Order No.: Not Supplied
Date Received: 06/01/2023
Date Tested: 20/01/2023
Test Spec.: Customer Spec.
Item: Rock Core

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DETERMINATION OF SLAKE DURABILITY TO ASTM D4644-16

Date Sampled	:	Not Stated
Client Reference	:	2021OY102
Location	:	BH - 95595 (2.0-8.4m)
Source of Material	:	Not Stated
Deviation from Test Method	:	None

Results:

Slake Durability 1st Cycle	99.1
Slake Durability 2nd Cycle	98.8
Slake Durability Index	98.8

Remarks:
The report has been reissued due to incorrect client reference.

Seamus O' Connell
Laboratory Technical Manager
BHP Laboratories Ltd.

Issue Date: 07/02/2023

Test results relate to the samples as supplied. This test report shall not be duplicated,except in full and only with the permission of the test laboratory.
Information identifying the 'Client', 'FTAO', 'Project', 'Client Ref.', 'Order No.', 'Test Spec.', 'Item', 'Sample Location', 'Source of Material'
and information regarding the supply of a 'Sampling Certificate', has been supplied by the customer.

TEST REPORT

SLAKE DURABILITY INDEX

In accordance with ISRM 2007

Location ID: **BH-96005**

Sample Ref: **3.0-4.5**

Sample Type: **C**

Depth (m): **3.00**

Sample Description: **Grey LIMESTONE**

Slaking Fluid Used: **Tap water**

Slaking Fluid Temperature (°C): **20**

First Cycle

Slake Durability (%): **99.6**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

Second Cycle

Slake Durability (%): **99.4**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

STRUCTURAL SOILS
1a Princess Street
Bedminster
Bristol
BS3 4AG

Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**17/03/23**

Contract	Job No
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

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TEST REPORT

SLAKE DURABILITY INDEX

In accordance with ISRM 2007

Location ID: **BH-97104**

Sample Ref: **2.0-3.5**

Sample Type: **C**

Depth (m): **2.00**

Sample Description: **Grey LIMESTONE**

Slaking Fluid Used: **Tap water**

Slaking Fluid Temperature (°C): **20**

First Cycle

Slake Durability (%): **99.2**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

Second Cycle

Slake Durability (%): **99.1**

Description of Fragments in Drum: **Angular**

Description of Material Passing Drum: **Fine sand and silt**

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1a Princess Street
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Bristol
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Compiled By		Date
Francesca Bennett	**FRANCESCA BENNETT**	**17/03/23**

Contract	Job No
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

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SUMMARY OF MOHS HARDNESS TESTS

Exploratory Position ID	Sample Ref	Depth (m)	Sample Type	Mohs Hardness	Lab	
BH-39518	**BAG**	**2.00**	**C**	**3**	**C**	
BH-58414	**0.9-2.0**	**0.90**	**C**	**3**	**C**	
BH-58414	**2.0-3.5**	**2.00**	**C**	**3**	**C**	
BH-68306	**3.5-5.0**	**3.50**	**C**	**3**	**C**	
BH-96005	**3.0-4.5**	**3.00**	**C**	**3**	**C**	
BH-97104	**2.0-3.5**	**2.00**	**C**	**3**	**C**	

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	**09/03/23**

Contract:	Contract Ref:
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 09/03/23 - 13:47 | LS5 |

SUMMARY OF MOHS HARDNESS TESTS

Exploratory Position ID	Sample Ref	Depth (m)	Sample Type	Mohs Hardness	Lab
BH36789		**17.00**	**LB**	**4**	**C**
BH36829		**17.10**	**LB**	**3**	**C**

Lab location: B = Bristol (BS3 4AG), C = Castleford (WF10 1NJ), H = Hemel Hempstead (HP3 9RT), T = Tonbridge (TN11 9HU)

STRUCTURAL SOILS
The Potteries
Pottery Street
Castleford
W. Yorkshire WF10 1NJ

Compiled By	Date
LAURA SCHRAMM	**09/03/23**

Contract:	Contract Ref:
2021OY102 WSP Eastern & Midlands Region - Lot 2	**785325**

Structural Soils Ltd, Branch Office - Castleford: The Potteries, Pottery Street, Castleford, West Yorkshire, WF10 1NJ. Tel: 01977-552255, Fax: 01977-552299, Web: www.soils.co.uk, Email: ask@soils.co.uk. | 09/03/23 - 13:39 | LS5 |

Appendix 6I
Photographs
Part 1: Rotary Core

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 6 3 9 1
Box
1, 2.
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 6 3 9 1
Box
3 4.
9.5m
11m
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36789
Box 1.2.3

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36789
Box 4.5.6

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36789
Box
7. 8
20m
21.6 m
23m
25 m
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36829
Box
1. 2. 3
1m
1.7m
2.1 m
3.5 m
4.8 m
7m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36829
Box
4.5 6
8.1 m
9.7m
11.1 m
12.7m
14.1m
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36829
Box
7 8
16.7 m
17.7m
18.7 m
20.1 m
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36829
Box
9. 10.
21.7m
23.1
24.6
25.2m
EOH
E.O.H
24.6m
10 20 30 40 50 60 70 80 90 100 110 120 130 140

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36879
Box
1. 2. 3.
2m
3.5m
5m
8m
11m
15m
10 20 30 40 50 60 70 80 90 100 110 120 130 140

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36883
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36883
Box
3. 4.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 36920
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 6 9 2 0
Box
4. 5. 6
8m
9.5
11m
12.5
14m
15m
15m EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 6 9 5 6
Box
1. 2. 3.
START
2m
3.5m
5m
6.5m
8m
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 6 9 5 6
Box
4 5

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 7 2 3 0
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 7 2 3 0
Box
4 5
9.5
11
12.5
14
15
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 3 7 7 7 8
Box
1. 2.
2
3.5
6.5
9.5
10
10m EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 38106
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH38523
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 38786
Box
1. 2. 3.
2m
3.5m
5.0m
6.5m
8.0m
9.5m
10.1m
EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 39229
Box
1.
2m
3.5m
5m
6.5m
8m
9.5m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 39518
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 40004
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 0 4 0 5
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 0 8 3 0
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 40830
Box
45

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 41053
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 42602
Box
1.2.
START

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 42851A
Box
1.2.3.
START

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 43407
Box
1. 2. 3.
START
2M
3.5M
5M
6M
8M
9.5M
10M
10m EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 43817
Box
1. 2.
2m
3.5m
5m
6.5m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 43817
Box
3. 4.
8m
9.5m
10m
10m EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH44177
Box
1.
1.5m
2.6m
3.5m
5m
5.5m
8m
9.5m
10m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH44534A
Box
1. 2.
2m
3.5m
5m
6.5m
8m
9.5m
10m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 6 1 3 1
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 6 4 0 2
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 6 7 1 5
Box
1. 2. 3.
1.7 m
3.2 m
2.6 m
4.2 m
5.6 m
8.5 m
7 m
10 m
EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 7 2 6 2
Box
1. 2. 3.
2 m
3.6 m
5 m
6.1 m
6.7 m
7.5 m
9.1 m
9.8 m
11 m
EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 7 6 5 0
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
-BH 4 7 8 1 2
Box
1. 2. 3.

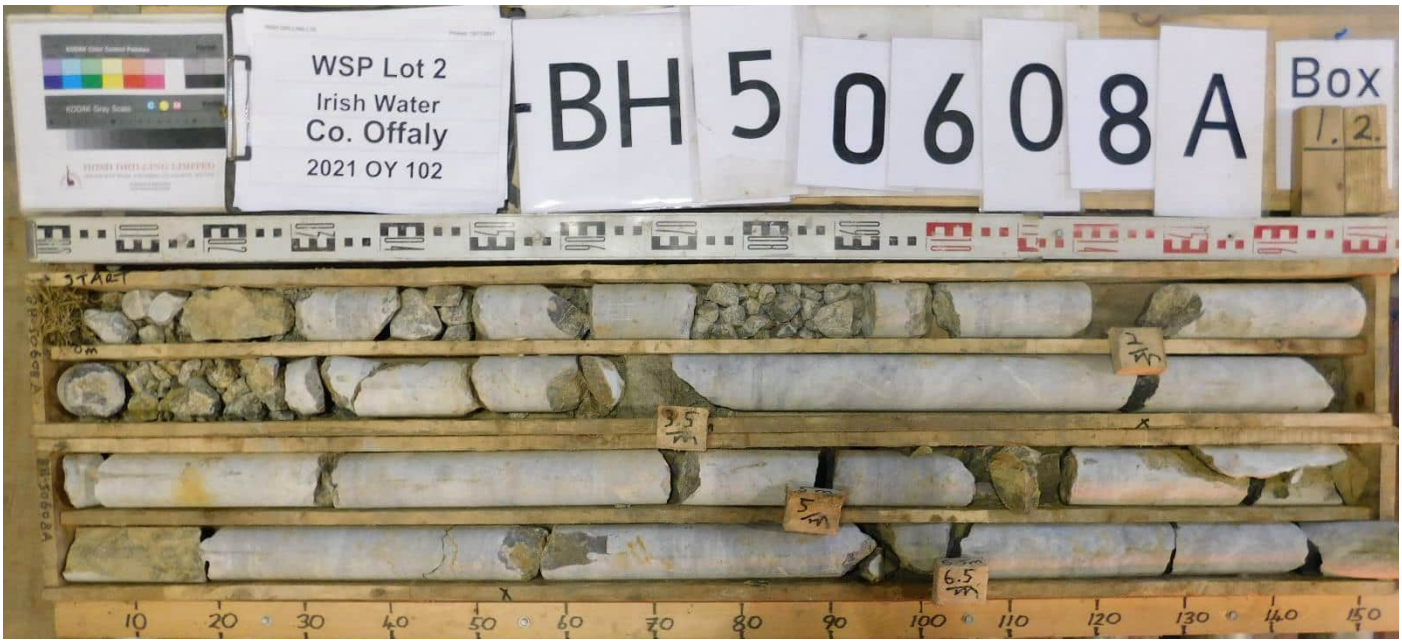
WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
-BH 4 7 8 1 2
Box
4. 5.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 8 1 3 9
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 8 4 0 0
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 8 7 9 5
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 4 9 2 1 4
Box
1. 2. 3.


WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 0608A
Box
1. 2.
START
3.5
5
6.5
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 0608A
Box
3. 4
8
9.5
10.2
2m EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 50885
Box
1.2.3

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 50920
Box
1.2.3

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 50920
Box
4 5
12.5 m
14 m
15 m EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 51386
Box
1. 2.
2 m
3.5 m
5 m
6.5 m
8 m
9.5 m
10 m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 52008
Box
1. 2.
START
2 m
3.5 m
5 m
6.5 m
9.5 m
12 m EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 52406
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 53713
Box 1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 54059
Box 1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 55944
Box
1.
2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 56060
Box
1.

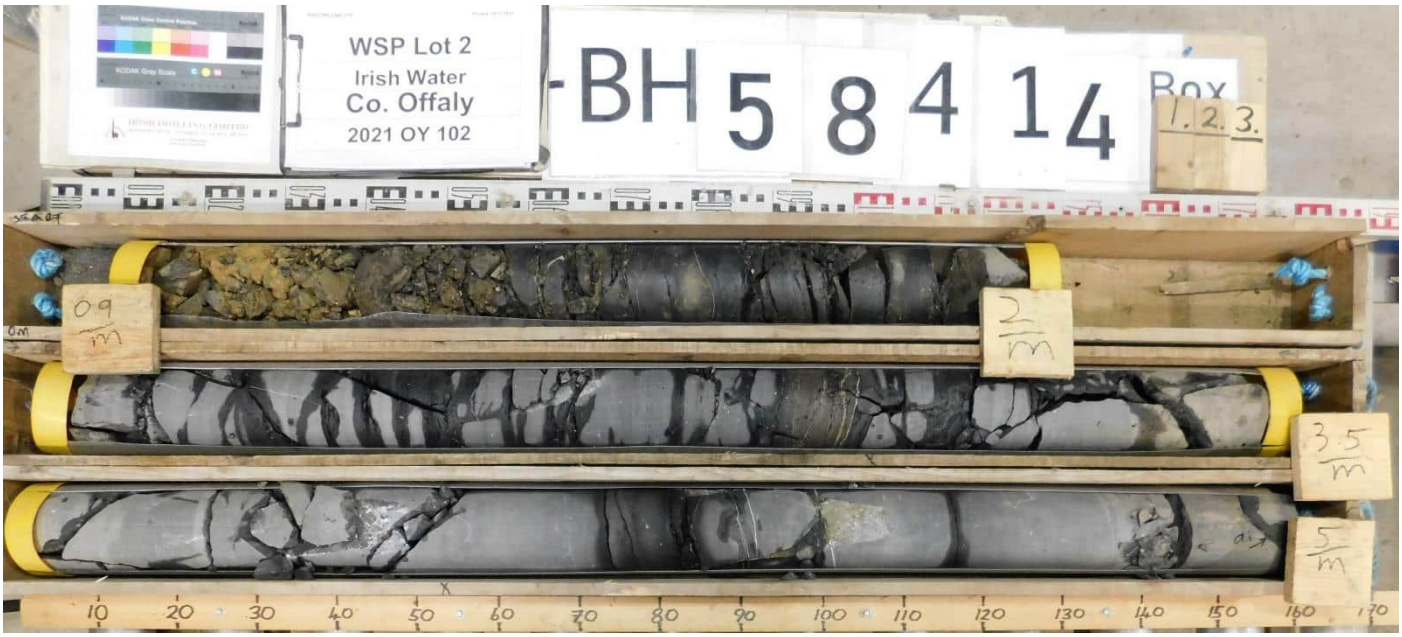
WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 56109
Box
1.
2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 56645
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 56857
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 57037
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 7 4 2 8
Box 1.


WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 8 4 1 4
Box 1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 8 4 1 4
Box 4. 5. 6

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 8 4 1 4
Box 7

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 8 8 0 7
Box 1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 9 4 7 4
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 5 9 9 3 2
Box
1. 2.
EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 0 3 4 5
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 06 4 1
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 0 8 0 5
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 1 1 3 6
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 1 5 1 5
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 1 6 0 5
Box
1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 1 8 0 5
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 1869
Box
1. 2. 3.
START 1M
1M
2M
2.6M
4M
5.6M
7.1M
8.6M
10.1M
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 1869
Box
4 5 6
11.6M
13.1M
14.6M
16.1M
M EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 62325
Box 1.

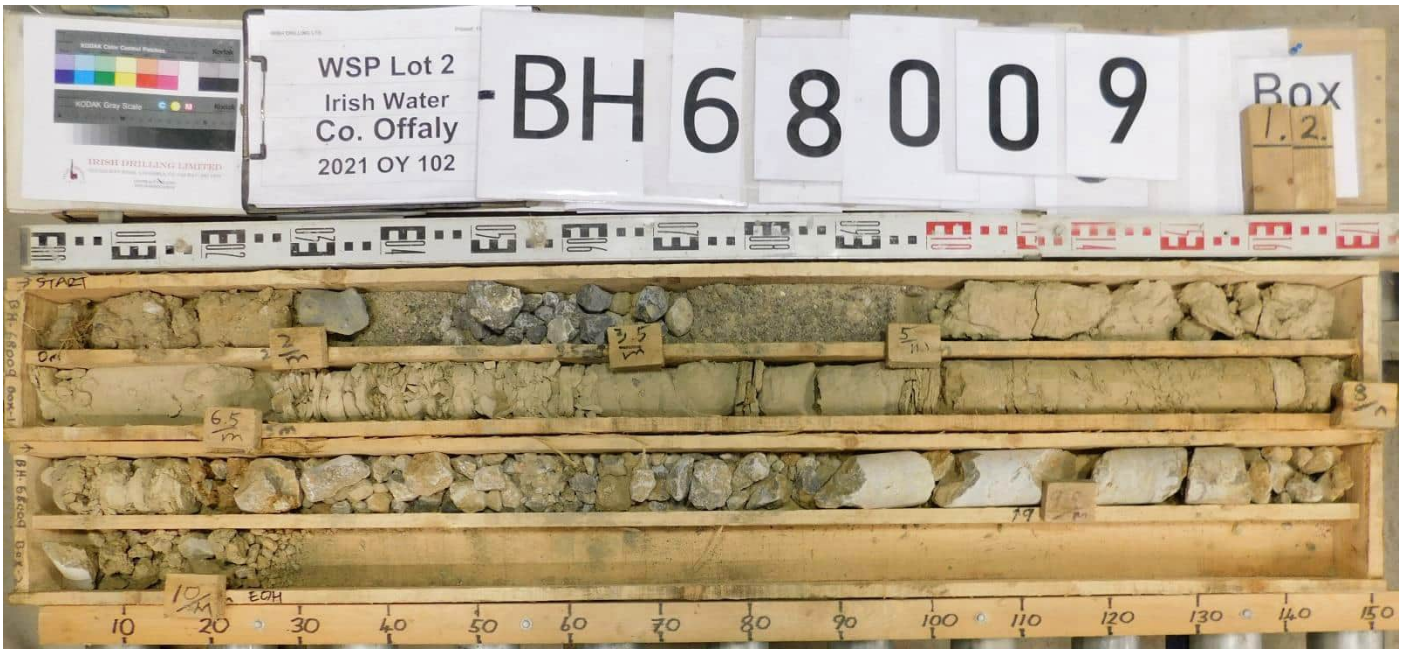
WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 62456
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 62606
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 63008
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 5 6 1 2
Box
1.2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 6 0 0 7
Box
1.2.3.


WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 6 8 0 0 9
Box
1.2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH68306
Box
1. 2. 3.
10 20 30 40 50 60 70 80 90 100 110 120 130 140

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH68804
Box
1. 2. 3.
START
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 69561
Box 1.
1.5M START
3M
4.2M
5.8M
7.3M
8.8M
10.3M END BH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 69646
Box 1.
1.5M START
2.8M
4.3M
5.8M
6.3M
8.8M
10.3M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 69703
Box 1. 2.
1.5M START
3M
4.5M
5.8M
7.3M
8.8M
10.4M
12M
13.5M
15M END BH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH70205
Box
1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH70701
Box
1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH71124
Box
1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH71656
Box
1.2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 1 6 5 6
Box
3. 4
6.5 m
9.5 m
10 m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 2 2 0 7
Box
1. 2. 3.
2 m
3.5 m
5 m
6.5 m
8 m
9.5 m
10 m
11.5 m
13 m
14.5 m
15 m

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 2 6 8 3
Box
1.
1.5 START
3 M
4.3 M
5.8 M
7.3 M
8.8 M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 3 1 3 5
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 3 6 0 4
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 3 9 6 6
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 4 1 0 0
Box
1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 4 2 0 5
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH74403
Box
1. 2. 3.
11.6M END HOLE

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH74851
Box
1.
START

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH74995
Box
1. 2. 3.
START
Ground
LEVEL

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 5 4 9 0
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 5 8 0 8
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 6 5 4 5
Box 1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 76601
Box
1. 2. 3.
1.5M START
3M
4.5M
6M
7.5M
9M
10.5M
12M
13.5M
15M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 77631
Box
1.
1.5M START
3M
4.3M
5.8M
7.3M
10.3M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 78204
Box
1.
1.5M
3M
4.3M
5.8M
7.3M
8.8M
10.3M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 8 4 1 2
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 8 5 7 9
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 8 6 9 4
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 7 8 7 9 0 A
Box 1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 78862
Box
1.

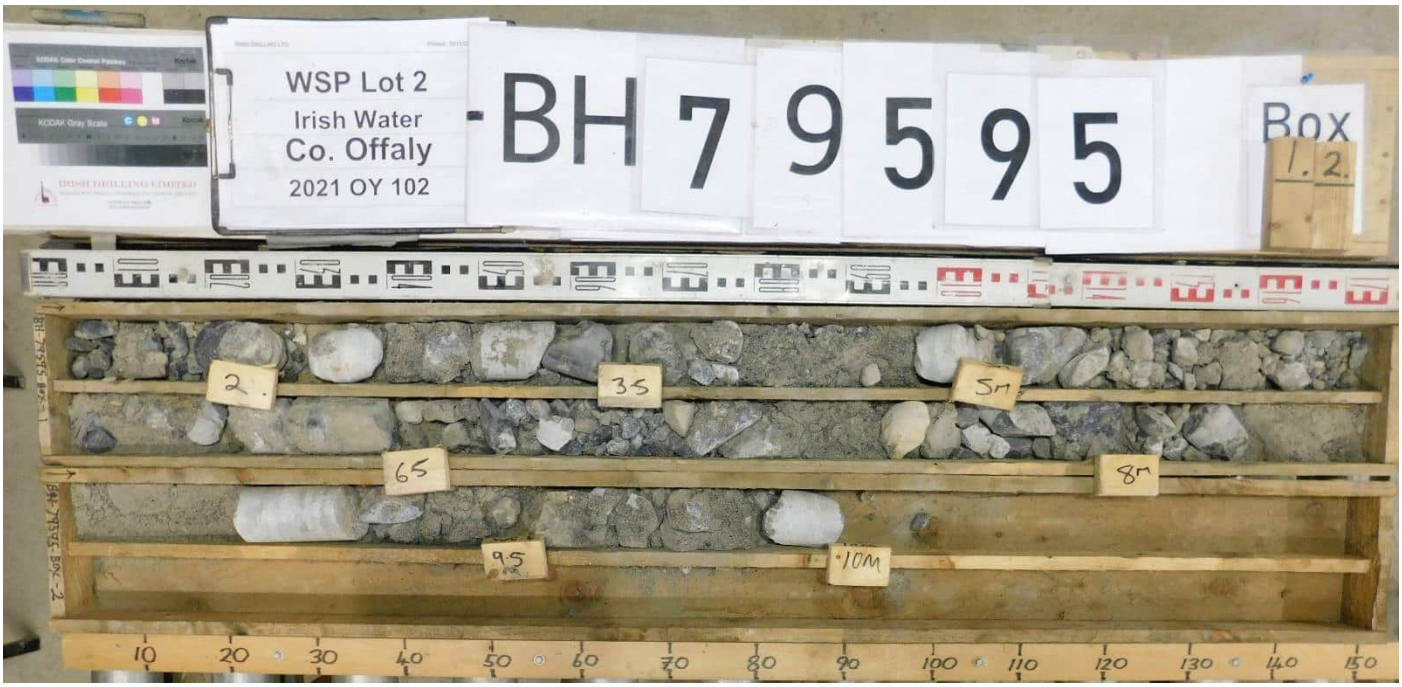
WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 79026
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 79026
Box
3. 4.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH79209
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH79273
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH79441
Box
1. 2.


WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 79595
Box
1.2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 80338
Box
1.2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 80439
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 80546
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 81459
Box 1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 81864
Box 1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 82198
Box 1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 82621
Box
1.2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 82974
Box
1.2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 83591
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 85791
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 8 7 0 0 6
Box
1. 2. 3.
2m
3·5
5m
6·5

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 8 7 0 0 6
Box
4. 5. 6.
9·5
10m
10m EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 8 7 4 5 5
Box
1. 2.
START
0m
2m
3.5m
5m
6.5m
8m
9.5m
10m
EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 88759
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 90402
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 91011
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 92626
Box
1. 2. 3.
2·0
3·5
5·0
5·0
6·5

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 92626
Box
4. 5. 6.
6·5
8M
11·1
12·2
13·7
15·1

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 92680
Box
1. 2.
2M
2.5 M
5M
6.5 M
8M
9.6 M
11M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 92680
Box
3. 4
12.5 M
14M
15M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 93803
Box
1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 94016
Box
1. 2.
2M
3.5
6.5
8M
10-1

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 95064
Box
1. 2. 3.
1.7
2.6M
3.6 M
5.1 M
6.6 M
8M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 5 5 9 5
Box
1. 2. 3.
START
2M
35
5M
6.5
8M
EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
-BH 9 6 0 0 5
Box
1. 2.
2M
2.6M
3M
4.5M
6M
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 96005
Box
3. 4

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 96364
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 96858
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 7 1 0 4
Box
1. 2. 3.
START
2M
3.5
5M
6.5
8M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 7 4 2 3
Box
1. 2.
1.0
2.5
5.5
8.0

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 7 4 2 3
Box
3. 4.
9.5
10.5

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 7 7 8 8
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 7 8 3 7
Box
1. 2.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 7 8 3 7
Box
4 5
157
172
187
187 EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 9 7 8 8 1
Box
1 2
10·2
MO·2M START
11M
12·4
12·4M
14M
15·6
15·6m EOH
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 97914
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 100203
Box
1.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 101953
Box
1. 2. 3.

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 101953
Box
4.5.6.
10M

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 102037
Box
1.2.3.
START
2M
3.5
5M
6.5M
8M
9.5
10M
10M EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 102528
Box
1.2.
START
2M
3.5
5M
6.5
8M
10M
10m EOH

WSP Lot 2
Irish Water
Co. Offaly
2021 OY 102
BH 103234
Box
1.2.
4.5
6.1
7.6
9.1
10.3
EOH

Appendix 6I
Photographs
Part 2: Trial Pits

Figure 1 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36504 (1).JPG

Figure 2 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36504 (3).JPG

Figure 3 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36504 (5).JPG

Figure 4 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36504 (6).JPG

Figure 5 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36595 (1).JPG

Figure 6 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36595 (3).JPG

Figure 7 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36595 (4).JPG

Figure 8 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36595 (5).JPG

Figure 9 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36679 (1).JPG

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Figure 11 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36679 (4).JPG

Figure 12 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36679 (5).JPG

Figure 13 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36861 (1).jpg

Figure 14 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36861 (3).jpg

Figure 16 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36861 (5).jpg

Figure 15 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP36861 (4).jpg

Figure 17 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37001 (1).jpg

Figure 18 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37001 (3).jpg

Figure 20 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37001 (5).jpg

Figure 19 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37001 (4).jpg

Figure 21 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37102 (1).jpg

Figure 22 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37102 (3).jpg

Figure 24 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37102 (8).jpg

Figure 23 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37102 (7).jpg

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Figure 26 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37201 (3).jpg

Figure 28 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37201 (5).jpg

Figure 27 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37201 (4).jpg

Figure 29 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37302 (1).jpg

Figure 30 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37302 (4).jpg

Figure 32 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37302 (7).jpg

Figure 31 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37302 (5).jpg

Figure 33 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37302.jpg

Figure 34 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37698 (3).jpg

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Figure 35 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37698 (4).jpg

Figure 37 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37698 (6).jpg

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Figure 39 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37778 (3).jpg

Figure 41 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37903 (1).jpg

Figure 42 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37903 (2).jpg

Figure 44 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37903 (4).jpg

Figure 43 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP37903 (3).jpg

Figure 45 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38100 (2).jpg

Figure 46 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38100 (3).jpg

Figure 48 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38100 (5).jpg

Figure 47 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38100 (4).jpg

Figure 49 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38205 (1).jpg

Figure 50 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38205 (3).jpg

Figure 52 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38205 (5).jpg

Figure 51 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38205 (4).jpg

Figure 53 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38313 (1).jpg

Figure 54 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38313 (2).jpg

Figure 56 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38313 (4).jpg

Figure 55 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38313 (3).jpg

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Figure 58 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38500 (3).jpg

Figure 60 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38500 (5).jpg

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Figure 63 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38604 (4).jpg

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Figure 66 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38700 (3).jpg

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Figure 67 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP38700 (4).jpg

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Figure 76 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39006 (3).jpg

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Figure 78 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39006 (5).jpg

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Figure 87 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39300 (1).jpg

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Figure 90 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39403 (2).jpg

Figure 92 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39503 (2).jpg

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Figure 96 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39601 (1).jpg

Figure 95 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39503 (5).jpg

Figure 97 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39601 (2).jpg

Figure 98 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39601 (3).jpg

Figure 100 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39706 (3).jpg

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Figure 104 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39805 (3).jpg

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Figure 110 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\TP30000\TP39906 (6).jpg

Figure 1 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40001 (1).jpg

Figure 3 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40001 (3).jpg

Figure 2 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40001 (2).jpg

Figure 4 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40001 (4).jpg

Figure 5 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40205 (2).jpg

Figure 7 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40205 (4).jpg

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Figure 9 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40305 (2).jpg

Figure 11 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40305 (4).jpg

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Figure 12 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40305 (5).jpg

Figure 13 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40404 (2).jpg

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Figure 16 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40404 (5).jpg

Figure 17 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40505 (1).jpg

Figure 19 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40505 (4).jpg

Figure 18 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40505 (2).jpg

Figure 20 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40505 (5).jpg

Figure 21 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40605 (2).jpg

Figure 23 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40605 (4).jpg

Figure 22 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40605 (3).jpg

Figure 24 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP40605 (5).jpg

Figure 25 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43108 (1).jpg

Figure 27 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43108 (5).jpg

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Figure 28 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43108.jpg

Figure 29 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43207 (2).jpg

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Figure 30 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43207 (3).jpg

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Figure 33 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43308 (1).jpg

Figure 35 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43308 (4).jpg

Figure 34 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43308 (2).jpg

Figure 36 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43308 (5).jpg

Figure 37 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43406 (1).jpg

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Figure 49 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43708 (1).jpg

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Figure 52 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43708 (5).jpg

Figure 53 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43815 (2).jpg

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Figure 57 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP43905 (1).jpg

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Figure 65 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44104 (1).jpg

Figure 67 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44104 (4).jpg

Figure 66 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44104 (2).jpg

Figure 68 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44214 (1).jpg

Figure 69 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44214 (2).jpg

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Figure 72 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44309 (1).jpg

Figure 73 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44309 (2).jpg

Figure 75 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44309 (4).jpg

Figure 74 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44309 (3).jpg

Figure 76 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44408 (1).jpg

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Figure 79 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44408 (5).jpg

Figure 78 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44408 (4).jpg

Figure 80 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44508 (3).jpg

Figure 81 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP44508 (4).jpg

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Figure 92 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46502 (2).jpg

Figure 93 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46502 (3).jpg

Figure 95 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46502 (5).jpg

Figure 94 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46502 (4).jpg

Figure 96 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46603 (1).jpg

Figure 97 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46603 (2).jpg

Figure 99 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46603 (4).jpg

Figure 98 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46603 (3).jpg

Figure 100 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46717 (1).jpg

Figure 101 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46717 (2).jpg

Figure 103 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46717 (4).jpg

Figure 102 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46717 (3).jpg

Figure 104 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46801 (1).jpg

Figure 105 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46801 (2).jpg

Figure 107 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46801 (5).jpg

Figure 106 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46801 (3).jpg

Figure 108 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46901 (1).jpg

Figure 109 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46901 (3).jpg

Figure 111 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47102 (1).jpg

Figure 110 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP46901 (4).jpg

Figure 112 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47102 (2).jpg

Figure 113 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47102 (3).jpg

Figure 115 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47202 (2).jpg

Figure 114 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47102 (4).jpg

Figure 116 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47202 (3).jpg

Figure 117 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47202 (4).jpg

Figure 119 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47308 (1).jpg

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Figure 120 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47308 (3).jpg

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Figure 123 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47392 (1).jpg

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Figure 124 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47392 (3).jpg

Figure 125 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47392 (4).jpg

Figure 127 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47507 (1).jpg

Figure 126 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47392 (5).jpg

Figure 128 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47507 (2).jpg

Figure 129 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47507 (3).jpg

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Figure 131 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47507 (6).jpg

Figure 132 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47615 (1).jpg

Figure 133 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47615 (2).jpg

Figure 135 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47615 (5).jpg

Figure 134 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47615 (4).jpg

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Figure 137 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47705 (1).jpg

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Figure 138 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47705 (3).jpg

Figure 140 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47705 (5).jpg

Figure 141 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47801 (1).jpg

Figure 142 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47801 (3).jpg

Figure 143 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47801 (4).jpg

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Figure 148 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP47902 (5).jpg

Figure 149 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48001 (1).jpg

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Figure 155 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48102 (4).jpg

Figure 154 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48102 (3).jpg

Figure 156 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48102 (5).jpg

Figure 157 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48302 (1).jpg

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Figure 158 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48302 (3).jpg

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Figure 161 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48401 (1).jpg

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Figure 166 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48500 (2).jpg

Figure 168 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48596 (3).jpg

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Figure 171 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48701 (2).jpg

Figure 170 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48596 (5).jpg

Figure 172 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48701 (3).jpg

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Figure 175 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48701 (6).jpg

Figure 174 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48701 (5).jpg

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Figure 182 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP48900 (5).jpg

Figure 184 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP49000 (3).jpg

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Figure 189 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP49102 (4).jpg

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Figure 202 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\.TP49408.jpg

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Figure 3 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50309 (5).jpg

Figure 4 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50309 (6).jpg

Figure 5 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50309 (7).jpg

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Figure 21 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50707 (7).jpg

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Figure 26 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50921 (1).jpg

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Figure 37 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50964 (5).jpg

Figure 38 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50987 (1).JPG

Figure 39 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50987 (2).JPG

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Figure 41 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50987 (5).JPG

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Figure 43 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP50998 (3).jpg

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Figure 46 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51019 (1).JPG

Figure 47 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51019 (2).JPG

Figure 48 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51019 (4).JPG

Figure 49 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51019 (5).JPG

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Figure 52 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51052 (3).jpg

Figure 53 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51052 (5).jpg

Figure 54 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51059 (1).JPG

Figure 55 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51059 (2).JPG

Figure 56 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51059 (4).JPG

Figure 57 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51059 (5).JPG

Figure 58 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51061 (1).jpg

Figure 59 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51061 (2).jpg

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Figure 60 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51061 (3).jpg

Figure 62 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51107 (1).JPG

Figure 63 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51107 (2).JPG

Figure 64 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51107 (4).JPG

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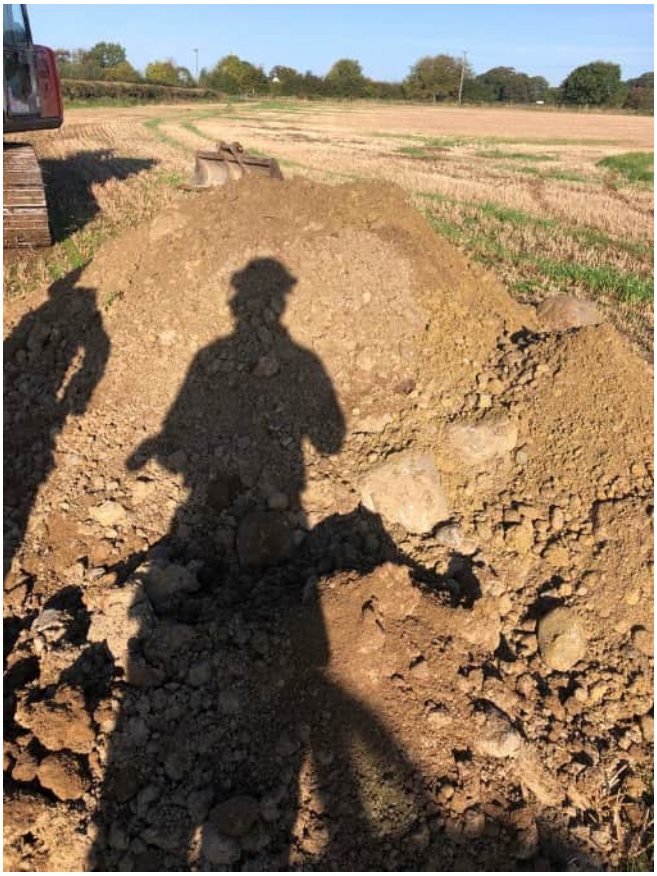

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Figure 69 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51116 (6).jpg

Figure 70 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51138 (1).JPG

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Figure 73 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51138 (5).JPG

Figure 74 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51201 (1).jpg

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Figure 77 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51201 (5).jpg

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Figure 84 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51385 (4).jpg

Figure 86 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51603 (1).jpg

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Figure 88 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51603 (5).jpg

Figure 90 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51603.jpg

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Figure 92 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51705 (4).jpg

Figure 94 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51705 (6).jpg

Figure 95 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51705 (8).jpg

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Figure 99 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP51801 (5).jpg

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Figure 133 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP52709 (5).jpg

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Figure 135 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP52910 (3).JPG

Figure 136 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP52910 (4).JPG

Figure 137 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP52910 (5).JPG

Figure 138 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53110 (1).jpg

Figure 139 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53110 (2).jpg

Figure 140 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53110 (4).jpg

Figure 141 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53211 (1).jpg

Figure 143 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53211 (4).jpg

Figure 142 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53211 (3).jpg

Figure 144 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53211.jpg

Figure 145 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53310 (2).jpg

Figure 147 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53310 (4).jpg

Figure 146 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53310 (3).jpg

Figure 148 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53310 (5).jpg

Figure 149 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53371 (1).JPG

Figure 150 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53371 (2).JPG

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Figure 152 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53371 (4).JPG

Figure 153 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53510 (2).JPG

Figure 154 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53510 (3).JPG

Figure 155 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53510 (4).JPG

Figure 156 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53510 (5).JPG

Figure 157 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53609 (2).JPG

Figure 158 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53609 (3).JPG

Figure 159 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53609 (4).JPG

Figure 160 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53609 (5).JPG

Figure 161 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53692 (2).JPG

Figure 162 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53692 (4).JPG

Figure 163 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53692 (5).JPG

Figure 164 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53692 (6).JPG

Figure 165 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53810 (2).JPG

Figure 168 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53810 (5).JPG

Figure 166 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53810 (3).JPG

Figure 169 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54012 (1).JPG

Figure 167 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP53810 (4).JPG

Figure 170 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54012 (2).JPG

Figure 171 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54012 (3).JPG

Figure 172 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54012 (5).JPG

Figure 173 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54012 (6).JPG

Figure 174 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54109 (1).JPG

Figure 175 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54109 (2).JPG

Figure 176 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54109 (5).JPG

Figure 177 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54109 (7).JPG

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Figure 179 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54109 (9).JPG

Figure 180 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54309 (1).JPG

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Figure 182 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54309 (4).JPG

Figure 183 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54309 (6).JPG

Figure 184 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54309 (7).JPG

Figure 185 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54411 (1).JPG

Figure 186 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54411 (2).JPG

Figure 187 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54411 (4).JPG

Figure 188 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54411 (5).JPG

Figure 189 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54511 (1).JPG

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Figure 191 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54511 (3).JPG

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Figure 193 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54611 (2).JPG

Figure 194 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54611 (4).JPG

Figure 195 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54611 (5).JPG

Figure 196 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54809 (1).JPG

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Figure 202 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54922 (5).JPG

Figure 205 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP55008 (4).JPG

Figure 203 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP54922 (6).JPG

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Figure 235 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP55711 (5).JPG

Figure 236 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP55806 (1).JPG

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Figure 269 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP56709 (3).JPG

Figure 270 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP56709 (5).JPG

Figure 271 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP56709 (6).JPG

Figure 272 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP56709 (7).JPG

Figure 273 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57107 (1).JPG

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Figure 284 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57307 (5).JPG

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Figure 288 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57417 (5).JPG

Figure 289 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57510 (1).JPG

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Figure 291 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57510 (6).JPG

Figure 292 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57510 (7).JPG

Figure 293 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57602 (1).JPG

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Figure 295 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57602 (6).JPG

Figure 296 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57708 (1).JPG

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Figure 298 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57708 (4).JPG

Figure 299 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP57708 (5).JPG

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Figure 307 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58505 (3).JPG

Figure 308 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58505 (5).JPG

Figure 309 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58505 (6).JPG

Figure 310 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58606 (1).JPG

Figure 311 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58606 (2).JPG

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Figure 313 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58606 (5).JPG

Figure 314 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58702 (1).JPG

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Figure 316 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58702 (4).JPG

Figure 317 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58702 (5).JPG

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Figure 320 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58814 (5).JPG

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Figure 325 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP58904 (2).JPG

Figure 326 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59203 (1).JPG

Figure 327 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59203 (4).JPG

Figure 328 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59203 (6).JPG

Figure 329 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59203 (7).JPG

Figure 330 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59305 After.JPG

Figure 332 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59305(1).JPG

Figure 331 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59305 Before.JPG

Figure 333 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59305(2).JPG

Figure 334 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59407 After.JPG

Figure 336 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59407(1).JPG

Figure 335 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59407 Before.JPG

Figure 337 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59407(2).JPG

Figure 338 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59504 After.JPG

Figure 340 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59504(1).JPG

Figure 339 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59504 Before.JPG

Figure 341 H:\21OY102_WSP LOT 2 Photos\Trial_Pits_WSP\Tp50000\TP59504(2).JPG

Figure 1 H:\21OY102_WSP LOT 2 TP60003 (1).JPG

Figure 2 H:\21OY102_WSP LOT 2 TP60003 (2).JPG

Figure 3 H:\21OY102_WSP LOT 2 TP60003 (4).JPG

Figure 4 H:\21OY102_WSP LOT 2 TP60003 (5).JPG

Figure 5 H:\21OY102_WSP LOT 2 TP60106 (1).JPG

Figure 6 H:\21OY102_WSP LOT 2 TP60106 (2).JPG

Figure 7 H:\21OY102_WSP LOT 2 TP60106 (4).JPG

Figure 8 H:\21OY102_WSP LOT 2 TP60106 (5).JPG

Figure 9 H:\21OY102_WSP LOT 2 TP60212 (1).JPG

Figure 10 H:\21OY102_WSP LOT 2 TP60212 (2).JPG

Figure 11 H:\21OY102_WSP LOT 2 TP60212 (4).JPG

Figure 12 H:\21OY102_WSP LOT 2 TP60212 (5).JPG

Figure 13 H:\21OY102_WSP LOT 2 TP60269 (1).JPG

Figure 14 H:\21OY102_WSP LOT 2 TP60269 (4).JPG

Figure 15 H:\21OY102_WSP LOT 2 TP60269 (6).JPG

Figure 16 H:\21OY102_WSP LOT 2 TP60269 (7).JPG

Figure 17 H:\21OY102_WSP LOT 2 TP60312 (1).JPG

Figure 18 H:\21OY102_WSP LOT 2 TP60312 (2).JPG

Figure 19 H:\21OY102_WSP LOT 2 TP60312 (4).JPG

Figure 20 H:\21OY102_WSP LOT 2 TP60312 (5).JPG

Figure 21 H:\21OY102_WSP LOT 2 TP60709 (1).JPG

Figure 22 H:\21OY102_WSP LOT 2 TP60709 (4).JPG

Figure 23 H:\21OY102_WSP LOT 2 TP60709 (5).JPG

Figure 24 H:\21OY102_WSP LOT 2 TP60805 (1).JPG

Figure 25 H:\21OY102_WSP LOT 2 TP60805 (2).JPG

Figure 26 H:\21OY102_WSP LOT 2 TP60805 (3).JPG

Figure 27 H:\21OY102_WSP LOT 2 TP60805 (5).JPG

Figure 28 H:\21OY102_WSP LOT 2 TP60805 (6).JPG

Figure 29 H:\21OY102_WSP LOT 2 TP60905 (1).JPG

Figure 30 H:\21OY102_WSP LOT 2 TP60905 (2).JPG

Figure 31 H:\21OY102_WSP LOT 2 TP60905 (4).JPG

Figure 32 H:\21OY102_WSP LOT 2 TP60905 (5).JPG

Figure 33 H:\21OY102_WSP LOT 2 TP61007 (1).JPG

Figure 34 H:\21OY102_WSP LOT 2 TP61007 (2).JPG

Figure 35 H:\21OY102_WSP LOT 2 TP61007 (4).JPG

Figure 36 H:\21OY102_WSP LOT 2 TP61007 (5).JPG

Figure 37 H:\21OY102_WSP LOT 2 TP61133 (1).JPG

Figure 38 H:\21OY102_WSP LOT 2 TP61133 (2).JPG

Figure 39 H:\21OY102_WSP LOT 2 TP61133 (4).JPG

Figure 40 H:\21OY102_WSP LOT 2 TP61133 (5).JPG

Figure 41 H:\21OY102_WSP LOT 2 TP61201 (1).JPG

Figure 42 H:\21OY102_WSP LOT 2 TP61201 (2).JPG

Figure 43 H:\21OY102_WSP LOT 2 TP61201 (4).JPG

Figure 44 H:\21OY102_WSP LOT 2 TP61201 (5).JPG

Figure 45 H:\21OY102_WSP LOT 2 TP61521 (4).JPG

Figure 46 H:\21OY102_WSP LOT 2 TP61521 (6).JPG

Figure 47 H:\21OY102_WSP LOT 2 TP61521 (7).JPG

Figure 48 H:\21OY102_WSP LOT 2 TP61521 (8).JPG

Figure 49 H:\21OY102_WSP LOT 2 TP61706 (1).JPG

Figure 50 H:\21OY102_WSP LOT 2 TP61706 (2).JPG

Figure 51 H:\21OY102_WSP LOT 2 TP61706 (4).JPG

Figure 52 H:\21OY102_WSP LOT 2 TP61706 (5).JPG

Figure 53 H:\21OY102_WSP LOT 2 TP61904 (1).JPG

Figure 54 H:\21OY102_WSP LOT 2 TP61904 (2).JPG

Figure 55 H:\21OY102_WSP LOT 2 TP61904 (4).JPG

Figure 56 H:\21OY102_WSP LOT 2 TP61904 (5).JPG

Figure 57 H:\21OY102_WSP LOT 2 TP62004 (1).JPG

Figure 58 H:\21OY102_WSP LOT 2 TP62004 (2).JPG

Figure 59 H:\21OY102_WSP LOT 2 TP62004 (3).JPG

Figure 60 H:\21OY102_WSP LOT 2 TP62004 (5).JPG

Figure 61 H:\21OY102_WSP LOT 2 TP62004 (6).JPG

Figure 62 H:\21OY102_WSP LOT 2 TP62205 (1).JPG

Figure 63 H:\21OY102_WSP LOT 2 TP62205 (2).JPG

Figure 64 H:\21OY102_WSP LOT 2 TP62205 (4).JPG

Figure 65 H:\21OY102_WSP LOT 2 TP62305 (1).JPG

Figure 66 H:\21OY102_WSP LOT 2 TP62305 (3).JPG

Figure 67 H:\21OY102_WSP LOT 2 TP62305 (5).JPG

Figure 68 H:\21OY102_WSP LOT 2 TP62305 (6).JPG

Figure 69 H:\21OY102_WSP LOT 2 TP62417 (1).JPG

Figure 70 H:\21OY102_WSP LOT 2 TP62417 (2).JPG

Figure 71 H:\21OY102_WSP LOT 2 TP62417 (4).JPG

Figure 72 H:\21OY102_WSP LOT 2 TP62417 (5).JPG

Figure 73 H:\21OY102_WSP LOT 2 TP62608 (1).JPG

Figure 74 H:\21OY102_WSP LOT 2 TP62608 (2).JPG

Figure 75 H:\21OY102_WSP LOT 2 TP62608 (4).JPG

Figure 76 H:\21OY102_WSP LOT 2 TP62608 (5).JPG

Figure 77 H:\21OY102_WSP LOT 2 TP62608 (6).JPG

Figure 78 H:\21OY102_WSP LOT 2 TP62608 (7).JPG

Figure 79 H:\21OY102_WSP LOT 2 TP62706 (1).JPG

Figure 80 H:\21OY102_WSP LOT 2 TP62706 (2).JPG

Figure 81 H:\21OY102_WSP LOT 2 TP62706 (4).JPG

Figure 82 H:\21OY102_WSP LOT 2 TP62706 (5).JPG

Figure 83 H:\21OY102_WSP LOT 2 TP62907 (1).JPG

Figure 84 H:\21OY102_WSP LOT 2 TP62907 (2).JPG

Figure 85 H:\21OY102_WSP LOT 2 TP62907 (4).JPG

Figure 86 H:\21OY102_WSP LOT 2 TP62907 (5).JPG

Figure 87 H:\21OY102_WSP LOT 2 TP63205 (1).JPG

Figure 88 H:\21OY102_WSP LOT 2 TP63205 (2).JPG

Figure 89 H:\21OY102_WSP LOT 2 TP63205 (3).JPG

Figure 90 H:\21OY102_WSP LOT 2 TP63205 (5).JPG

Figure 91 H:\21OY102_WSP LOT 2 TP63510 (1).JPG

Figure 92 H:\21OY102_WSP LOT 2 TP63510 (3).JPG

Figure 93 H:\21OY102_WSP LOT 2 TP63510 (5).JPG

Figure 94 H:\21OY102_WSP LOT 2 TP63510 (6).JPG

Figure 95 H:\21OY102_WSP LOT 2 TP63610 (1).JPG

Figure 96 H:\21OY102_WSP LOT 2 TP63610 (2).JPG

Figure 97 H:\21OY102_WSP LOT 2 TP63610 (4).JPG

Figure 98 H:\21OY102_WSP LOT 2 TP63610 (5).JPG

Figure 99 H:\21OY102_WSP LOT 2 TP63711 (1).JPG

Figure 100 H:\21OY102_WSP LOT 2 TP63711 (2).JPG

Figure 101 H:\21OY102_WSP LOT 2 TP63711 (3).JPG

Figure 102 H:\21OY102_WSP LOT 2 TP63711 (5).JPG

Figure 103 H:\21OY102_WSP LOT 2 TP63711 (6).JPG

Figure 104 H:\21OY102_WSP LOT 2 TP63812 (1).JPG

Figure 105 H:\21OY102_WSP LOT 2 TP63812 (2).JPG

Figure 106 H:\21OY102_WSP LOT 2 TP63812 (4).JPG

Figure 107 H:\21OY102_WSP LOT 2 TP63812 (5).JPG

Figure 108 H:\21OY102_WSP LOT 2 TP63911 (1).JPG

Figure 109 H:\21OY102_WSP LOT 2 TP63911 (2).JPG

Figure 110 H:\21OY102_WSP LOT 2 TP63911 (4).JPG

Figure 111 H:\21OY102_WSP LOT 2 TP63911 (5).JPG

Figure 112 H:\21OY102_WSP LOT 2 TP65707 (1).JPG

Figure 113 H:\21OY102_WSP LOT 2 TP65707 (3).JPG

Figure 114 H:\21OY102_WSP LOT 2 TP65707 (5).JPG

Figure 115 H:\21OY102_WSP LOT 2 TP65707 (6).JPG

Figure 116 H:\21OY102_WSP LOT 2 TP65805 (1).JPG

Figure 117 H:\21OY102_WSP LOT 2 TP65805 (2).JPG

Figure 118 H:\21OY102_WSP LOT 2 TP65805 (4).JPG

Figure 119 H:\21OY102_WSP LOT 2 TP65805 (5).JPG

Figure 120 H:\21OY102_WSP LOT 2 TP65906 (1).JPG

Figure 121 H:\21OY102_WSP LOT 2 TP65906 (2).JPG

Figure 122 H:\21OY102_WSP LOT 2 TP65906 (4).JPG

Figure 123 H:\21OY102_WSP LOT 2 TP65906 (5).JPG

Figure 124 H:\21OY102_WSP LOT 2 TP66005 (1).JPG

Figure 125 H:\21OY102_WSP LOT 2 TP66005 (2).JPG

Figure 126 H:\21OY102_WSP LOT 2 TP66005 (4).JPG

Figure 127 H:\21OY102_WSP LOT 2 TP66005.JPG

Figure 128 H:\21OY102_WSP LOT 2 TP67410 (1).jpg

Figure 129 H:\21OY102_WSP LOT 2 TP67410 (2).jpg

Figure 130 H:\21OY102_WSP LOT 2 TP67410 (4).jpg

Figure 131 H:\21OY102_WSP LOT 2 TP67410 (5).jpg

Figure 132 H:\21OY102_WSP LOT 2 TP67511 (2).jpg

Figure 133 H:\21OY102_WSP LOT 2 TP67511 (3).jpg

Figure 134 H:\21OY102_WSP LOT 2 TP67511 (4).jpg

Figure 135 H:\21OY102_WSP LOT 2 TP67511 (5).jpg

Figure 136 H:\21OY102_WSP LOT 2 TP67630 (1).jpg

Figure 137 H:\21OY102_WSP LOT 2 TP67630 (2).jpg

Figure 138 H:\21OY102_WSP LOT 2 TP67630 (3).jpg

Figure 139 H:\21OY102_WSP LOT 2 TP67630 (5).jpg

Figure 140 H:\21OY102_WSP LOT 2 TP67708 (2).jpg

Figure 142 H:\21OY102_WSP LOT 2 TP67708 (4).jpg

Figure 141 H:\21OY102_WSP LOT 2 TP67708 (3).jpg

Figure 143 H:\21OY102_WSP LOT 2 TP67708 (5).jpg

Figure 144 H:\21OY102_WSP LOT 2 TP67809 (1).jpg

Figure 145 H:\21OY102_WSP LOT 2 TP67809 (2).jpg

Figure 146 H:\21OY102_WSP LOT 2 TP67809 (4).jpg

Figure 147 H:\21OY102_WSP LOT 2 TP67809 (5).jpg

Figure 148 H:\21OY102_WSP LOT 2 TP67908 (1).JPG

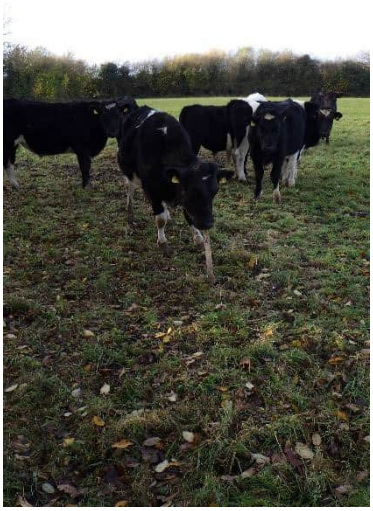


Figure 149 H:\21OY102_WSP LOT 2 TP67908 (2).JPG

Figure 150 H:\21OY102_WSP LOT 2 TP67908 (4).JPG

Figure 151 H:\21OY102_WSP LOT 2 TP67908 (5).JPG

Figure 152 H:\21OY102_WSP LOT 2 TP68007 (1).JPG

Figure 153 H:\21OY102_WSP LOT 2 TP68007 (2).JPG

Figure 154 H:\21OY102_WSP LOT 2 TP68007 (4).JPG

Figure 155 H:\21OY102_WSP LOT 2 TP68007 (5).JPG

Figure 156 H:\21OY102_WSP LOT 2 TP68108 (1).JPG

Figure 157 H:\21OY102_WSP LOT 2 TP68108 (2).JPG

Figure 158 H:\21OY102_WSP LOT 2 TP68108 (4).JPG

Figure 159 H:\21OY102_WSP LOT 2 TP68108 (5).JPG

Figure 160 H:\21OY102_WSP LOT 2 TP68210 (1).JPG

Figure 161 H:\21OY102_WSP LOT 2 TP68210 (2).JPG

Figure 162 H:\21OY102_WSP LOT 2 TP68210 (4).JPG

Figure 163 H:\21OY102_WSP LOT 2 TP68210 (5).JPG

Figure 164 H:\21OY102_WSP LOT 2 TP68405 (1).JPG

Figure 165 H:\21OY102_WSP LOT 2 TP68405 (2).JPG

Figure 166 H:\21OY102_WSP LOT 2 TP68405 (4).JPG

Figure 167 H:\21OY102_WSP LOT 2 TP68405 (5).JPG

Figure 168 H:\21OY102_WSP LOT 2 TP68505 (1).JPG

Figure 169 H:\21OY102_WSP LOT 2 TP68505 (2).JPG

Figure 170 H:\21OY102_WSP LOT 2 TP68505 (4).JPG

Figure 171 H:\21OY102_WSP LOT 2 TP68505 (5).JPG

Figure 172 H:\21OY102_WSP LOT 2 TP68607 (1).JPG

Figure 173 H:\21OY102_WSP LOT 2 TP68607 (2).JPG

Figure 174 H:\21OY102_WSP LOT 2 TP68607 (4).JPG

Figure 175 H:\21OY102_WSP LOT 2 TP68607 (5).JPG

Figure 176 H:\21OY102_WSP LOT 2 TP68705 (1).JPG

Figure 177 H:\21OY102_WSP LOT 2 TP68705 (2).JPG

Figure 178 H:\21OY102_WSP LOT 2 TP68705 (4).JPG

Figure 179 H:\21OY102_WSP LOT 2 TP68705 (5).JPG

Figure 180 H:\21OY102_WSP LOT 2 TP68806 (1).JPG

Figure 181 H:\21OY102_WSP LOT 2 TP68806 (2).JPG

Figure 182 H:\21OY102_WSP LOT 2 TP68806 (4).JPG

Figure 183 H:\21OY102_WSP LOT 2 TP68806 (5).JPG

Figure 184 H:\21OY102_WSP LOT 2 TP68905 (1).jpg

Figure 185 H:\21OY102_WSP LOT 2 TP68905 (2).jpg

Figure 187 H:\21OY102_WSP LOT 2 TP68905 (5).jpg

Figure 186 H:\21OY102_WSP LOT 2 TP68905 (4).jpg

Figure 188 H:\21OY102_WSP LOT 2 TP69006 (1).jpg

Figure 189 H:\21OY102_WSP LOT 2 TP69006 (2).jpg

Figure 191 H:\21OY102_WSP LOT 2 TP69006 (5).jpg

Figure 190 H:\21OY102_WSP LOT 2 TP69006 (3).jpg

Figure 192 H:\21OY102_WSP LOT 2 TP69106 (1).jpg

Figure 193 H:\21OY102_WSP LOT 2 TP69106 (2).jpg

Figure 195 H:\21OY102_WSP LOT 2 TP69106 (6).jpg

Figure 194 H:\21OY102_WSP LOT 2 TP69106 (4).jpg

Figure 196 H:\21OY102_WSP LOT 2 TP69203 (1).jpg

Figure 197 H:\21OY102_WSP LOT 2 TP69203 (2).jpg

Figure 198 H:\21OY102_WSP LOT 2 TP69203 (3).jpg

Figure 199 H:\21OY102_WSP LOT 2 TP69203 (4).jpg

Figure 200 H:\21OY102_WSP LOT 2 TP69203.jpg

Figure 201 H:\21OY102_WSP LOT 2 TP69306 (2).jpg

Figure 202 H:\21OY102_WSP LOT 2 TP69306 (3).jpg

Figure 203 H:\21OY102_WSP LOT 2 TP69306 (4).jpg

Figure 204 H:\21OY102_WSP LOT 2 TP69306 (5).jpg

Figure 205 H:\21OY102_WSP LOT 2 TP69407 (2).jpg

Figure 206 H:\21OY102_WSP LOT 2 TP69407 (4).jpg

Figure 207 H:\21OY102_WSP LOT 2 TP69407 (5).jpg

Figure 208 H:\21OY102_WSP LOT 2 TP69407.jpg

Figure 209 H:\21OY102_WSP LOT 2 TP69505 (1).JPG

Figure 210 H:\21OY102_WSP LOT 2 TP69505 (2).JPG

Figure 211 H:\21OY102_WSP LOT 2 TP69505 (4).JPG

Figure 212 H:\21OY102_WSP LOT 2 TP69505 (5).JPG

Figure 213 H:\21OY102_WSP LOT 2 TP69703 (1).JPG

Figure 214 H:\21OY102_WSP LOT 2 TP69703 (2).JPG

Figure 215 H:\21OY102_WSP LOT 2 TP69703 (4).JPG

Figure 216 H:\21OY102_WSP LOT 2 TP69703 (5).JPG

Figure 219 H:\21OY102_WSP LOT 2 TP69806 (4).JPG

Figure 217 H:\21OY102_WSP LOT 2 TP69806 (1).JPG

Figure 220 H:\21OY102_WSP LOT 2 TP69806 (5).JPG

Figure 218 H:\21OY102_WSP LOT 2 TP69806 (2).JPG

Figure 221 H:\21OY102_WSP LOT 2 TP69905 (1).JPG

Figure 222 H:\21OY102_WSP LOT 2 TP69905 (2).JPG

Figure 223 H:\21OY102_WSP LOT 2 TP69905 (4).JPG

Figure 224 H:\21OY102_WSP LOT 2 TP69905 (5).JPG

Figure 1 H:\21OY102_WSP LOT 2 TP70005 (1).JPG

Figure 2 H:\21OY102_WSP LOT 2 TP70005 (2).JPG

Figure 3 H:\21OY102_WSP LOT 2 TP70005 (4).JPG

Figure 4 H:\21OY102_WSP LOT 2 TP70005 (5).JPG

Figure 5 H:\21OY102_WSP LOT 2 TP70104 (1).JPG

Figure 6 H:\21OY102_WSP LOT 2 TP70104 (2).JPG

Figure 7 H:\21OY102_WSP LOT 2 TP70104 (4).JPG

Figure 8 H:\21OY102_WSP LOT 2 TP70104 (5).JPG

Figure 9 H:\21OY102_WSP LOT 2 TP70204 (1).JPG

Figure 10 H:\21OY102_WSP LOT 2 TP70204 (2).JPG

Figure 11 H:\21OY102_WSP LOT 2 TP70204 (4).JPG

Figure 12 H:\21OY102_WSP LOT 2 TP70204 (5).JPG

Figure 13 H:\21OY102_WSP LOT 2 TP70304 (1).JPG

Figure 14 H:\21OY102_WSP LOT 2 TP70304 (2).JPG

Figure 15 H:\21OY102_WSP LOT 2 TP70304 (4).JPG

Figure 16 H:\21OY102_WSP LOT 2 TP70304 (5).JPG

Figure 17 H:\21OY102_WSP LOT 2 TP70393 (1).JPG

Figure 18 H:\21OY102_WSP LOT 2 TP70393 (2).JPG

Figure 19 H:\21OY102_WSP LOT 2 TP70393 (4).JPG

Figure 20 H:\21OY102_WSP LOT 2 TP70393 (5).JPG

Figure 21 H:\21OY102_WSP LOT 2 TP70504 (1).JPG

Figure 22 H:\21OY102_WSP LOT 2 TP70504 (2).JPG

Figure 23 H:\21OY102_WSP LOT 2 TP70504 (4).JPG

Figure 24 H:\21OY102_WSP LOT 2 TP70504 (5).JPG

Figure 25 H:\21OY102_WSP LOT 2 TP70608 (1).JPG

Figure 26 H:\21OY102_WSP LOT 2 TP70608 (2).JPG

Figure 27 H:\21OY102_WSP LOT 2 TP70608 (4).JPG

Figure 28 H:\21OY102_WSP LOT 2 TP70608 (5).JPG

Figure 29 H:\21OY102_WSP LOT 2 TP70716 (1).JPG

Figure 30 H:\21OY102_WSP LOT 2 TP70716 (2).JPG

Figure 31 H:\21OY102_WSP LOT 2 TP70716 (4).JPG

Figure 32 H:\21OY102_WSP LOT 2 TP70716 (5).JPG

Figure 33 H:\21OY102_WSP LOT 2 TP71808 (1).JPG

Figure 34 H:\21OY102_WSP LOT 2 TP71808 (3).JPG

Figure 35 H:\21OY102_WSP LOT 2 TP71808 (4).JPG

Figure 36 H:\21OY102_WSP LOT 2 TP71907 (1).JPG

Figure 37 H:\21OY102_WSP LOT 2 TP71907 (2).JPG

Figure 38 H:\21OY102_WSP LOT 2 TP71907 (4).JPG

Figure 39 H:\21OY102_WSP LOT 2 TP71907 (5).JPG

Figure 40 H:\21OY102_WSP LOT 2 TP72009 (1).JPG

Figure 41 H:\21OY102_WSP LOT 2 TP72009 (2).JPG

Figure 42 H:\21OY102_WSP LOT 2 TP72009 (4).JPG

Figure 43 H:\21OY102_WSP LOT 2 TP72009 (5).JPG

Figure 44 H:\21OY102_WSP LOT 2 TP72108 (1).JPG

Figure 45 H:\21OY102_WSP LOT 2 TP72108 (2).JPG

Figure 46 H:\21OY102_WSP LOT 2 TP72108 (4).JPG

Figure 47 H:\21OY102_WSP LOT 2 TP72108 (5).JPG

Figure 48 H:\21OY102_WSP LOT 2 TP72160 (1).JPG

Figure 49 H:\21OY102_WSP LOT 2 TP72160 (2).JPG

Figure 50 H:\21OY102_WSP LOT 2 TP72160 (4).JPG

Figure 51 H:\21OY102_WSP LOT 2 TP72160 (5).JPG

Figure 52 H:\21OY102_WSP LOT 2 TP72289 (1).JPG

Figure 53 H:\21OY102_WSP LOT 2 TP72289 (2).JPG

Figure 54 H:\21OY102_WSP LOT 2 TP72289 (4).JPG

Figure 55 H:\21OY102_WSP LOT 2 TP72289 (5).JPG

Figure 56 H:\21OY102_WSP LOT 2 TP72403 (1).JPG

Figure 57 H:\21OY102_WSP LOT 2 TP72403 (2).JPG

Figure 58 H:\21OY102_WSP LOT 2 TP72403 (4).JPG

Figure 59 H:\21OY102_WSP LOT 2 TP72403 (5).JPG

Figure 60 H:\21OY102_WSP LOT 2 TP72603 (1).JPG

Figure 61 H:\21OY102_WSP LOT 2 TP72603 (2).JPG

Figure 62 H:\21OY102_WSP LOT 2 TP72603 (4).JPG

Figure 63 H:\21OY102_WSP LOT 2 TP72603 (5).JPG

Figure 64 H:\21OY102_WSP LOT 2 TP72703 (1).JPG

Figure 65 H:\21OY102_WSP LOT 2 TP72703 (2).JPG

Figure 66 H:\21OY102_WSP LOT 2 TP72703 (4).JPG

Figure 67 H:\21OY102_WSP LOT 2 TP72703 (5).JPG

Figure 68 H:\21OY102_WSP LOT 2 TP72801 (1).JPG

Figure 69 H:\21OY102_WSP LOT 2 TP72801 (3).JPG

Figure 70 H:\21OY102_WSP LOT 2 TP72801 (4).JPG

Figure 71 H:\21OY102_WSP LOT 2 TP72801 (5).JPG

Figure 72 H:\21OY102_WSP LOT 2 TP72903 (1).JPG

Figure 73 H:\21OY102_WSP LOT 2 TP72903 (2).JPG

Figure 74 H:\21OY102_WSP LOT 2 TP72903 (4).JPG

Figure 75 H:\21OY102_WSP LOT 2 TP72903 (5).JPG

Figure 76 H:\21OY102_WSP LOT 2 TP73001 (1).JPG

Figure 77 H:\21OY102_WSP LOT 2 TP73001 (2).JPG

Figure 78 H:\21OY102_WSP LOT 2 TP73001 (4).JPG

Figure 79 H:\21OY102_WSP LOT 2 TP73103 (1).JPG

Figure 80 H:\21OY102_WSP LOT 2 TP73103 (2).JPG

Figure 81 H:\21OY102_WSP LOT 2 TP73103 (4).JPG

Figure 82 H:\21OY102_WSP LOT 2 TP73103 (5).JPG

Figure 83 H:\21OY102_WSP LOT 2 TP73202 (1).JPG

Figure 84 H:\21OY102_WSP LOT 2 TP73202 (2).JPG

Figure 85 H:\21OY102_WSP LOT 2 TP73202 (4).JPG

Figure 86 H:\21OY102_WSP LOT 2 TP73202 (5).JPG

Figure 87 H:\21OY102_WSP LOT 2 TP73303 (1).JPG

Figure 88 H:\21OY102_WSP LOT 2 TP73303 (2).JPG

Figure 89 H:\21OY102_WSP LOT 2 TP73303 (4).JPG

Figure 90 H:\21OY102_WSP LOT 2 TP73303 (5).JPG

Figure 91 H:\21OY102_WSP LOT 2 TP73403 (1).JPG

Figure 92 H:\21OY102_WSP LOT 2 TP73403 (2).JPG

Figure 93 H:\21OY102_WSP LOT 2 TP73403 (4).JPG

Figure 94 H:\21OY102_WSP LOT 2 TP73403 (5).JPG

Figure 95 H:\21OY102_WSP LOT 2 TP73504 (1).JPG

Figure 96 H:\21OY102_WSP LOT 2 TP73504 (2).JPG

Figure 97 H:\21OY102_WSP LOT 2 TP73504 (4).JPG

Figure 98 H:\21OY102_WSP LOT 2 TP73504 (5).JPG

Figure 99 H:\21OY102_WSP LOT 2 TP73602 (1).JPG

Figure 100 H:\21OY102_WSP LOT 2 TP73602 (2).JPG

Figure 101 H:\21OY102_WSP LOT 2 TP73602 (4).JPG

Figure 102 H:\21OY102_WSP LOT 2 TP73602 (5).JPG

Figure 103 H:\21OY102_WSP LOT 2 TP73704 (1).JPG

Figure 104 H:\21OY102_WSP LOT 2 TP73704 (2).JPG

Figure 105 H:\21OY102_WSP LOT 2 TP73704 (4).JPG

Figure 106 H:\21OY102_WSP LOT 2 TP73704 (5).JPG

Figure 107 H:\21OY102_WSP LOT 2 TP74102 (1).JPG

Figure 108 H:\21OY102_WSP LOT 2 TP74102 (2).JPG

Figure 109 H:\21OY102_WSP LOT 2 TP74102 (4).JPG

Figure 110 H:\21OY102_WSP LOT 2 TP74102 (5).JPG

Figure 111 H:\21OY102_WSP LOT 2 TP74170 (1).JPG

Figure 112 H:\21OY102_WSP LOT 2 TP74170 (2).JPG

Figure 113 H:\21OY102_WSP LOT 2 TP74170 (4).JPG

Figure 114 H:\21OY102_WSP LOT 2 TP74170 (5).JPG

Figure 115 H:\21OY102_WSP LOT 2 TP74416 (1).JPG

Figure 116 H:\21OY102_WSP LOT 2 TP74416 (2).JPG

Figure 117 H:\21OY102_WSP LOT 2 TP74416 (4).JPG

Figure 118 H:\21OY102_WSP LOT 2 TP74416 (5).JPG

Figure 119 H:\21OY102_WSP LOT 2 TP74503 (1).JPG

Figure 120 H:\21OY102_WSP LOT 2 TP74503 (2).JPG

Figure 121 H:\21OY102_WSP LOT 2 TP74503 (4).JPG

Figure 122 H:\21OY102_WSP LOT 2 TP74503 (5).JPG

Figure 123 H:\21OY102_WSP LOT 2 TP74601 (1).JPG

Figure 124 H:\21OY102_WSP LOT 2 TP74601 (2).JPG

Figure 125 H:\21OY102_WSP LOT 2 TP74601 (3).JPG

Figure 126 H:\21OY102_WSP LOT 2 TP74601 (4).JPG

Figure 127 H:\21OY102_WSP LOT 2 TP74702 (1).JPG

Figure 128 H:\21OY102_WSP LOT 2 TP74702 (2).JPG

Figure 129 H:\21OY102_WSP LOT 2 TP74702 (4).JPG

Figure 130 H:\21OY102_WSP LOT 2 TP74702 (5).JPG

Figure 131 H:\21OY102_WSP LOT 2 TP74804 (1).JPG

Figure 132 H:\21OY102_WSP LOT 2 TP74804 (2).JPG

Figure 133 H:\21OY102_WSP LOT 2 TP74804 (4).JPG

Figure 134 H:\21OY102_WSP LOT 2 TP74804 (5).JPG

Figure 135 H:\21OY102_WSP LOT 2 TP74902 (1).JPG

Figure 136 H:\21OY102_WSP LOT 2 TP74902 (2).JPG

Figure 137 H:\21OY102_WSP LOT 2 TP74969 (1).JPG

Figure 138 H:\21OY102_WSP LOT 2 TP74969 (2).JPG

Figure 139 H:\21OY102_WSP LOT 2 TP74969 (3).JPG

Figure 140 H:\21OY102_WSP LOT 2 TP74969 (5).JPG

Figure 141 H:\21OY102_WSP LOT 2 TP75104 (1).JPG

Figure 142 H:\21OY102_WSP LOT 2 TP75104 (2).JPG

Figure 143 H:\21OY102_WSP LOT 2 TP75104 (4).JPG

Figure 144 H:\21OY102_WSP LOT 2 TP75104 (5).JPG

Figure 145 H:\21OY102_WSP LOT 2 TP75197 (1).JPG

Figure 146 H:\21OY102_WSP LOT 2 TP75197 (2).JPG

Figure 147 H:\21OY102_WSP LOT 2 TP75197 (3).JPG

Figure 148 H:\21OY102_WSP LOT 2 TP75197 (5).JPG

Figure 149 H:\21OY102_WSP LOT 2 TP75305 (1).JPG

Figure 150 H:\21OY102_WSP LOT 2 TP75305 (2).JPG

Figure 151 H:\21OY102_WSP LOT 2 TP75305 (4).JPG

Figure 152 H:\21OY102_WSP LOT 2 TP75305 (5).JPG

Figure 153 H:\21OY102_WSP LOT 2 TP75404 (1).JPG

Figure 154 H:\21OY102_WSP LOT 2 TP75404 (2).JPG

Figure 155 H:\21OY102_WSP LOT 2 TP75404 (4).JPG

Figure 156 H:\21OY102_WSP LOT 2 TP75404 (5).JPG

Figure 157 H:\21OY102_WSP LOT 2 TP75508 (1).JPG

Figure 158 H:\21OY102_WSP LOT 2 TP75508 (2).JPG

Figure 159 H:\21OY102_WSP LOT 2 TP75508 (3).JPG

Figure 160 H:\21OY102_WSP LOT 2 TP75605 (1).JPG

Figure 161 H:\21OY102_WSP LOT 2 TP75605 (2).JPG

Figure 162 H:\21OY102_WSP LOT 2 TP75605 (4).JPG

Figure 163 H:\21OY102_WSP LOT 2 TP75605 (5).JPG

Figure 164 H:\21OY102_WSP LOT 2 TP75908 (1).JPG

Figure 165 H:\21OY102_WSP LOT 2 TP75908 (2).JPG

Figure 166 H:\21OY102_WSP LOT 2 TP75908 (4).JPG

Figure 167 H:\21OY102_WSP LOT 2 TP75908 (5).JPG

Figure 168 H:\21OY102_WSP LOT 2 TP76006 (1).JPG

Figure 169 H:\21OY102_WSP LOT 2 TP76006 (2).JPG

Figure 170 H:\21OY102_WSP LOT 2 TP76006 (3).JPG

Figure 171 H:\21OY102_WSP LOT 2 TP76086 (5).JPG

Figure 172 H:\21OY102_WSP LOT 2 TP76087 (1).JPG

Figure 173 H:\21OY102_WSP LOT 2 TP76212 (1).JPG

Figure 174 H:\21OY102_WSP LOT 2 TP76212 (2).JPG

Figure 175 H:\21OY102_WSP LOT 2 TP76212 (4).JPG

Figure 176 H:\21OY102_WSP LOT 2 TP76212 (5).JPG

Figure 177 H:\21OY102_WSP LOT 2 TP76309 (1).JPG

Figure 178 H:\21OY102_WSP LOT 2 TP76309 (2).JPG

Figure 179 H:\21OY102_WSP LOT 2 TP76309 (4).JPG

Figure 180 H:\21OY102_WSP LOT 2 TP76309 (5).JPG

Figure 181 H:\21OY102_WSP LOT 2 TP76440 (1).JPG

Figure 182 H:\21OY102_WSP LOT 2 TP76440 (2).JPG

Figure 183 H:\21OY102_WSP LOT 2 TP76440 (4).JPG

Figure 184 H:\21OY102_WSP LOT 2 TP76440 (5).JPG

Figure 185 H:\21OY102_WSP LOT 2 TP76508 (1).JPG

Figure 186 H:\21OY102_WSP LOT 2 TP76508 (2).JPG

Figure 187 H:\21OY102_WSP LOT 2 TP76508 (4).JPG

Figure 188 H:\21OY102_WSP LOT 2 TP76508 (5).JPG

Figure 189 H:\21OY102_WSP LOT 2 TP76641 (1).JPG

Figure 190 H:\21OY102_WSP LOT 2 TP76641 (2).JPG

Figure 191 H:\21OY102_WSP LOT 2 TP76641 (4).JPG

Figure 192 H:\21OY102_WSP LOT 2 TP76641 (5).JPG

Figure 193 H:\21OY102_WSP LOT 2 TP76707 (1).JPG

Figure 194 H:\21OY102_WSP LOT 2 TP76707 (2).JPG

Figure 195 H:\21OY102_WSP LOT 2 TP76707 (4).JPG

Figure 196 H:\21OY102_WSP LOT 2 TP76707 (5).JPG

Figure 197 H:\21OY102_WSP LOT 2 TP76805 (1).JPG

Figure 198 H:\21OY102_WSP LOT 2 TP76805 (2).JPG

Figure 201 H:\21OY102_WSP LOT 2 TP76805 (6).JPG

Figure 199 H:\21OY102_WSP LOT 2 TP76805 (3).JPG

Figure 202 H:\21OY102_WSP LOT 2 TP76907 (1).JPG

Figure 200 H:\21OY102_WSP LOT 2 TP76805 (5).JPG

Figure 203 H:\21OY102_WSP LOT 2 TP76907 (2).JPG

Figure 204 H:\21OY102_WSP LOT 2 TP76907 (4).JPG

Figure 205 H:\21OY102_WSP LOT 2 TP76907 (5).JPG

Figure 206 H:\21OY102_WSP LOT 2 TP77008 (1).JPG

Figure 207 H:\21OY102_WSP LOT 2 TP77008 (2).JPG

Figure 208 H:\21OY102_WSP LOT 2 TP77008 (4).JPG

Figure 209 H:\21OY102_WSP LOT 2 TP77008 (5).JPG

Figure 210 H:\21OY102_WSP LOT 2 TP77008 (6).JPG

Figure 211 H:\21OY102_WSP LOT 2 TP77107 (1).JPG

Figure 212 H:\21OY102_WSP LOT 2 TP77107 (2).JPG

Figure 213 H:\21OY102_WSP LOT 2 TP77107 (4).JPG

Figure 214 H:\21OY102_WSP LOT 2 TP77107 (5).JPG

Figure 215 H:\21OY102_WSP LOT 2 TP77175 (1).JPG

Figure 216 H:\21OY102_WSP LOT 2 TP77175 (2).JPG

Figure 217 H:\21OY102_WSP LOT 2 TP77175 (4).JPG

Figure 218 H:\21OY102_WSP LOT 2 TP77175 (5).JPG

Figure 219 H:\21OY102_WSP LOT 2 TP77304 (1).JPG

Figure 220 H:\21OY102_WSP LOT 2 TP77304 (2).JPG

Figure 221 H:\21OY102_WSP LOT 2 TP77304 (4).JPG

Figure 222 H:\21OY102_WSP LOT 2 TP77304 (5).JPG

Figure 223 H:\21OY102_WSP LOT 2 TP77416 (1).JPG

Figure 224 H:\21OY102_WSP LOT 2 TP77416 (2).JPG

Figure 225 H:\21OY102_WSP LOT 2 TP77416 (4).JPG

Figure 226 H:\21OY102_WSP LOT 2 TP77416 (5).JPG

Figure 227 H:\21OY102_WSP LOT 2 TP77504 (1).JPG

Figure 228 H:\21OY102_WSP LOT 2 TP77504 (2).JPG

Figure 229 H:\21OY102_WSP LOT 2 TP77504 (4).JPG

Figure 230 H:\21OY102_WSP LOT 2 TP77504 (5).JPG

Figure 231 H:\21OY102_WSP LOT 2 TP77705 (1).JPG

Figure 232 H:\21OY102_WSP LOT 2 TP77705 (2).JPG

Figure 233 H:\21OY102_WSP LOT 2 TP77705 (4).JPG

Figure 234 H:\21OY102_WSP LOT 2 TP77705 (5).JPG

Figure 235 H:\21OY102_WSP LOT 2 TP77808 (1).JPG

Figure 236 H:\21OY102_WSP LOT 2 TP77808 (2).JPG

Figure 237 H:\21OY102_WSP LOT 2 TP77808 (4).JPG

Figure 238 H:\21OY102_WSP LOT 2 TP77808 (5).JPG

Figure 239 H:\21OY102_WSP LOT 2 TP77808 (6).JPG

Figure 240 H:\21OY102_WSP LOT 2 TP77903 (1).JPG

Figure 241 H:\21OY102_WSP LOT 2 TP77903 (2).JPG

Figure 242 H:\21OY102_WSP LOT 2 TP77903 (4).JPG

Figure 243 H:\21OY102_WSP LOT 2 TP77903 (5).JPG

Figure 244 H:\21OY102_WSP LOT 2 TP78507 (1).JPG

Figure 245 H:\21OY102_WSP LOT 2 TP78507 (2).JPG

Figure 246 H:\21OY102_WSP LOT 2 TP78507 (3).JPG

Figure 247 H:\21OY102_WSP LOT 2 TP78507 (5).JPG

Figure 248 H:\21OY102_WSP LOT 2 TP78507 (6).JPG

Figure 249 H:\21OY102_WSP LOT 2 TP78697 (1).JPG

Figure 250 H:\21OY102_WSP LOT 2 TP78697 (2).JPG

Figure 251 H:\21OY102_WSP LOT 2 TP78697 (4).JPG

Figure 252 H:\21OY102_WSP LOT 2 TP78697 (5).JPG

Figure 253 H:\21OY102_WSP LOT 2 TP78784 (1).JPG

Figure 254 H:\21OY102_WSP LOT 2 TP78784 (2).JPG

Figure 255 H:\21OY102_WSP LOT 2 TP78784 (4).JPG

Figure 256 H:\21OY102_WSP LOT 2 TP78784 (5).JPG

Figure 257 H:\21OY102_WSP LOT 2 TP79208 (1).JPG

Figure 258 H:\21OY102_WSP LOT 2 TP79208 (2).JPG

Figure 259 H:\21OY102_WSP LOT 2 TP79208 (4).JPG

Figure 260 H:\21OY102_WSP LOT 2 TP79208 (5).JPG

Figure 261 H:\21OY102_WSP LOT 2 TP79309 (1).JPG

Figure 262 H:\21OY102_WSP LOT 2 TP79309 (2).JPG

Figure 263 H:\21OY102_WSP LOT 2 TP79309 (4).JPG

Figure 264 H:\21OY102_WSP LOT 2 TP79309 (5).JPG

Figure 265 H:\21OY102_WSP LOT 2 TP79425 (1).JPG

Figure 266 H:\21OY102_WSP LOT 2 TP79425 (2).JPG

Figure 267 H:\21OY102_WSP LOT 2 TP79425 (4).JPG

Figure 268 H:\21OY102_WSP LOT 2 TP79425 (5).JPG

Figure 269 H:\21OY102_WSP LOT 2 TP79507 (1).JPG

Figure 270 H:\21OY102_WSP LOT 2 TP79507 (2).JPG

Figure 271 H:\21OY102_WSP LOT 2 TP79507 (4).JPG

Figure 272 H:\21OY102_WSP LOT 2 TP79507 (5).JPG

Figure 1 H:\21OY102_WSP LOT 2 TP80306 (1).JPG

Figure 2 H:\21OY102_WSP LOT 2 TP80306 (2).JPG

Figure 3 H:\21OY102_WSP LOT 2 TP80306 (3).JPG

Figure 4 H:\21OY102_WSP LOT 2 TP80306 (5).JPG

Figure 5 H:\21OY102_WSP LOT 2 TP80442 (1).JPG

Figure 6 H:\21OY102_WSP LOT 2 TP80442 (2).JPG

Figure 7 H:\21OY102_WSP LOT 2 TP80442 (4).JPG

Figure 8 H:\21OY102_WSP LOT 2 TP80442 (5).JPG

Figure 9 H:\21OY102_WSP LOT 2 TP80508 After.JPG

Figure 10 H:\21OY102_WSP LOT 2 TP80508 Before.JPG

Figure 11 H:\21OY102_WSP LOT 2 TP80508(1).JPG

Figure 13 H:\21OY102_WSP LOT 2 TP80634 After.JPG

Figure 12 H:\21OY102_WSP LOT 2 TP80508(2).JPG

Figure 14 H:\21OY102_WSP LOT 2 TP80634 Before.JPG

Figure 15 H:\21OY102_WSP LOT 2 TP80634(1).JPG

Figure 16 H:\21OY102_WSP LOT 2 TP80634(2).JPG

Figure 17 H:\21OY102_WSP LOT 2 TP80800 after.JPG

Figure 18 H:\21OY102_WSP LOT 2 TP80800 before.JPG

Figure 19 H:\21OY102_WSP LOT 2 TP80800(1).JPG

Figure 21 H:\21OY102_WSP LOT 2 TP80800(3).JPG

Figure 20 H:\21OY102_WSP LOT 2 TP80800(2).JPG

Figure 22 H:\21OY102_WSP LOT 2 TP80903 after.JPG

Figure 23 H:\21OY102_WSP LOT 2 TP80903 before.JPG

Figure 25 H:\21OY102_WSP LOT 2 TP80903(2).JPG

Figure 24 H:\21OY102_WSP LOT 2 TP80903(1).JPG

Figure 26 H:\21OY102_WSP LOT 2 TP80903(3).JPG

Figure 27 H:\21OY102_WSP LOT 2 TP80972 after.JPG

Figure 28 H:\21OY102_WSP LOT 2 TP80972 before.JPG

Figure 29 H:\21OY102_WSP LOT 2 TP80972(1).JPG

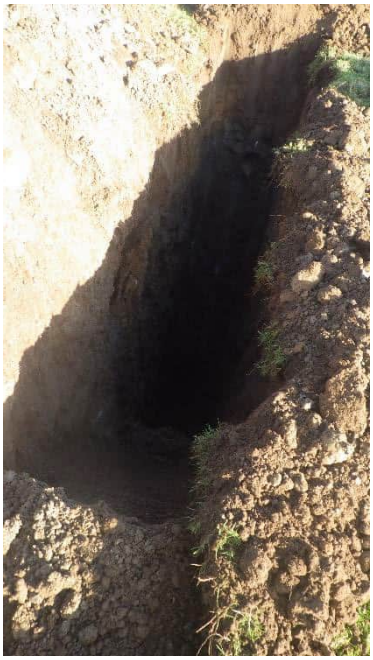


Figure 30 H:\21OY102_WSP LOT 2 TP80972(2).JPG

Figure 31 H:\21OY102_WSP LOT 2 TP80972(3).JPG

Figure 33 H:\21OY102_WSP LOT 2 TP81064(2).JPG

Figure 32 H:\21OY102_WSP LOT 2 TP81064(1).JPG

Figure 34 H:\21OY102_WSP LOT 2 TP81064(3).JPG

Figure 35 H:\21OY102_WSP LOT 2 TP81064after.JPG

Figure 36 H:\21OY102_WSP LOT 2 TP81064before.JPG

Figure 37 H:\21OY102_WSP LOT 2 TP81071 after.JPG

Figure 38 H:\21OY102_WSP LOT 2 TP81071(1).JPG

Figure 39 H:\21OY102_WSP LOT 2 TP81071(2).JPG

Figure 40 H:\21OY102_WSP LOT 2 TP81071(3).JPG

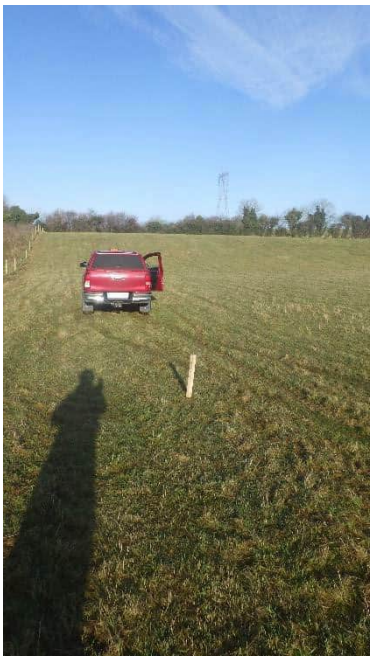


Figure 41 H:\21OY102_WSP LOT 2 TP81071before.JPG

Figure 42 H:\21OY102_WSP LOT 2 TP81202 After.JPG

Figure 43 H:\21OY102_WSP LOT 2 TP81202 Before.JPG

Figure 45 H:\21OY102_WSP LOT 2 TP81202(2).JPG

Figure 44 H:\21OY102_WSP LOT 2 TP81202(1).JPG

Figure 46 H:\21OY102_WSP LOT 2 TP81300 after.JPG

Figure 47 H:\21OY102_WSP LOT 2 TP81300 before.JPG

Figure 49 H:\21OY102_WSP LOT 2 TP81300(2).JPG

Figure 48 H:\21OY102_WSP LOT 2 TP81300(1).JPG

Figure 50 H:\21OY102_WSP LOT 2 TP81300(3).JPG

Figure 51 H:\21OY102_WSP LOT 2 TP81404 after.JPG

Figure 53 H:\21OY102_WSP LOT 2 TP81404(1).JPG

Figure 52 H:\21OY102_WSP LOT 2 TP81404 before.JPG

Figure 54 H:\21OY102_WSP LOT 2 TP81404(2).JPG

Figure 55 H:\21OY102_WSP LOT 2 TP81404(3).JPG

Figure 57 H:\21OY102_WSP LOT 2 TP81501 before.JPG

Figure 56 H:\21OY102_WSP LOT 2 TP81501 after.JPG

Figure 58 H:\21OY102_WSP LOT 2 TP81501(1).JPG

Figure 59 H:\21OY102_WSP LOT 2 TP81501(2).JPG

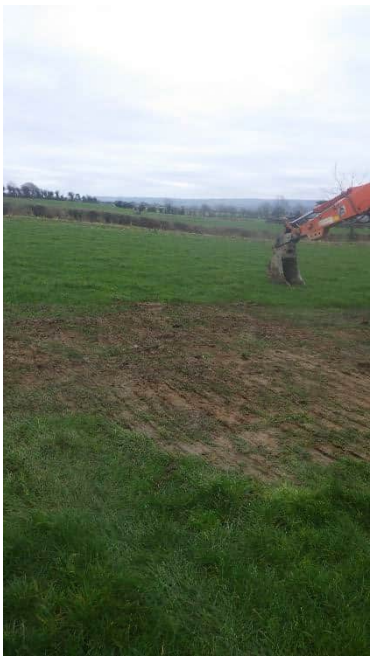


Figure 61 H:\21OY102_WSP LOT 2 TP81601 after.JPG

Figure 60 H:\21OY102_WSP LOT 2 TP81501(3).JPG

Figure 62 H:\21OY102_WSP LOT 2 TP81601 before.JPG

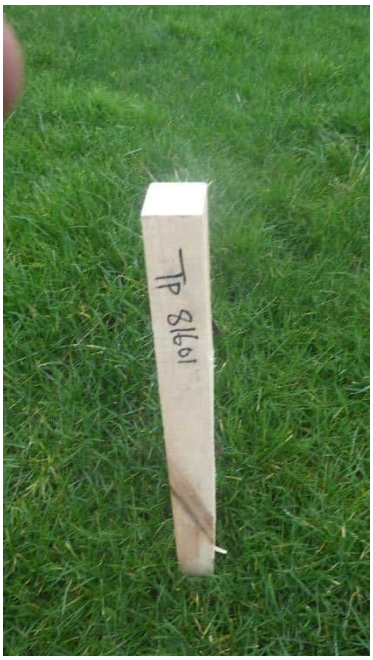


Figure 63 H:\21OY102_WSP LOT 2 TP81601(1).JPG

Figure 64 H:\21OY102_WSP LOT 2 TP81601(2).JPG

Figure 65 H:\21OY102_WSP LOT 2 TP81601(3).JPG

Figure 66 H:\21OY102_WSP LOT 2 TP81702 After.JPG

Figure 67 H:\21OY102_WSP LOT 2 TP81702 Before.JPG

Figure 69 H:\21OY102_WSP LOT 2 TP81702(2).JPG

Figure 68 H:\21OY102_WSP LOT 2 TP81702(1).JPG

Figure 70 H:\21OY102_WSP LOT 2 TP81802 After.JPG

Figure 71 H:\21OY102_WSP LOT 2 TP81802 Before.JPG

Figure 73 H:\21OY102_WSP LOT 2 TP81802(2).JPG

Figure 72 H:\21OY102_WSP LOT 2 TP81802(1).JPG

Figure 74 H:\21OY102_WSP LOT 2 TP81902 (1).JPG

Figure 75 H:\21OY102_WSP LOT 2 TP81902 (2).JPG

Figure 76 H:\21OY102_WSP LOT 2 TP81902 (4).JPG

Figure 77 H:\21OY102_WSP LOT 2 TP81902 (5).JPG

Figure 78 H:\21OY102_WSP LOT 2 TP82001 (1).JPG

Figure 79 H:\21OY102_WSP LOT 2 TP82001 (2).JPG

Figure 80 H:\21OY102_WSP LOT 2 TP82001 (4).JPG

Figure 81 H:\21OY102_WSP LOT 2 TP82001 (5).JPG

Figure 82 H:\21OY102_WSP LOT 2 TP82102 (1).JPG

Figure 83 H:\21OY102_WSP LOT 2 TP82102 (2).JPG

Figure 84 H:\21OY102_WSP LOT 2 TP82102 (4).JPG

Figure 85 H:\21OY102_WSP LOT 2 TP82102 (5).JPG

Figure 86 H:\21OY102_WSP LOT 2 TP82207 (1).JPG

Figure 87 H:\21OY102_WSP LOT 2 TP82207 (2).JPG

Figure 88 H:\21OY102_WSP LOT 2 TP82207 (4).JPG

Figure 89 H:\21OY102_WSP LOT 2 TP82207 (5).JPG

Figure 90 H:\21OY102_WSP LOT 2 TP82303 (1).JPG

Figure 91 H:\21OY102_WSP LOT 2 TP82303 (2).JPG

Figure 92 H:\21OY102_WSP LOT 2 TP82303 (4).JPG

Figure 93 H:\21OY102_WSP LOT 2 TP82303 (5).JPG

Figure 94 H:\21OY102_WSP LOT 2 TP82400 (1).JPG

Figure 95 H:\21OY102_WSP LOT 2 TP82400 (2).JPG

Figure 96 H:\21OY102_WSP LOT 2 TP82400 (4).JPG

Figure 97 H:\21OY102_WSP LOT 2 TP82400 (5).JPG

Figure 98 H:\21OY102_WSP LOT 2 TP82502 (1).JPG

Figure 99 H:\21OY102_WSP LOT 2 TP82502 (2).JPG

Figure 100 H:\21OY102_WSP LOT 2 TP82502 (4).JPG

Figure 101 H:\21OY102_WSP LOT 2 TP82502 (5).JPG

Figure 102 H:\21OY102_WSP LOT 2 TP82590 (1).JPG

Figure 103 H:\21OY102_WSP LOT 2 TP82590 (2).JPG

Figure 104 H:\21OY102_WSP LOT 2 TP82590 (4).JPG

Figure 105 H:\21OY102_WSP LOT 2 TP82590 (5).JPG

Figure 106 H:\21OY102_WSP LOT 2 TP82702 (1).JPG

Figure 107 H:\21OY102_WSP LOT 2 TP82702 (2).JPG

Figure 108 H:\21OY102_WSP LOT 2 TP82702 (4).JPG

Figure 109 H:\21OY102_WSP LOT 2 TP82702 (5).JPG

Figure 110 H:\21OY102_WSP LOT 2 TP82812 (1).JPG

Figure 111 H:\21OY102_WSP LOT 2 TP82812 (2).JPG

Figure 112 H:\21OY102_WSP LOT 2 TP82812 (4).JPG

Figure 113 H:\21OY102_WSP LOT 2 TP82812 (6).JPG

Figure 114 H:\21OY102_WSP LOT 2 TP82902 (1).JPG

Figure 115 H:\21OY102_WSP LOT 2 TP82902 (2).JPG

Figure 116 H:\21OY102_WSP LOT 2 TP82902 (5).JPG

Figure 117 H:\21OY102_WSP LOT 2 TP82979 (1).JPG

Figure 118 H:\21OY102_WSP LOT 2 TP82979 (2).JPG

Figure 119 H:\21OY102_WSP LOT 2 TP82979 (4).JPG

Figure 120 H:\21OY102_WSP LOT 2 TP82979 (5).JPG

Figure 121 H:\21OY102_WSP LOT 2 TP83101 (1).JPG

Figure 122 H:\21OY102_WSP LOT 2 TP83101 (2).JPG

Figure 123 H:\21OY102_WSP LOT 2 TP83101 (3).JPG

Figure 124 H:\21OY102_WSP LOT 2 TP83101 (5).JPG

Figure 125 H:\21OY102_WSP LOT 2 TP83303 (1).JPG

Figure 128 H:\21OY102_WSP LOT 2 TP83303 (5).JPG

Figure 126 H:\21OY102_WSP LOT 2 TP83303 (2).JPG

Figure 129 H:\21OY102_WSP LOT 2 TP84901 (2).JPG

Figure 127 H:\21OY102_WSP LOT 2 TP83303 (4).JPG

Figure 130 H:\21OY102_WSP LOT 2 TP84901 (4).JPG

Figure 131 H:\21OY102_WSP LOT 2 TP84901 (5).JPG

Figure 132 H:\21OY102_WSP LOT 2 TP85005 (1).JPG

Figure 133 H:\21OY102_WSP LOT 2 TP85005 (2).JPG

Figure 134 H:\21OY102_WSP LOT 2 TP85005 (3).JPG

Figure 135 H:\21OY102_WSP LOT 2 TP85005 (4).JPG

Figure 136 H:\21OY102_WSP LOT 2 TP85102 (1).JPG

Figure 137 H:\21OY102_WSP LOT 2 TP85102 (2).JPG

Figure 138 H:\21OY102_WSP LOT 2 TP85102 (4).JPG

Figure 139 H:\21OY102_WSP LOT 2 TP85102 (5).JPG

Figure 140 H:\21OY102_WSP LOT 2 TP85302 (1).JPG

Figure 141 H:\21OY102_WSP LOT 2 TP85302 (2).JPG

Figure 142 H:\21OY102_WSP LOT 2 TP85302 (4).JPG

Figure 143 H:\21OY102_WSP LOT 2 TP85302 (5).JPG

Figure 144 H:\21OY102_WSP LOT 2 TP85383 (1).JPG

Figure 145 H:\21OY102_WSP LOT 2 TP85383 (2).JPG

Figure 146 H:\21OY102_WSP LOT 2 TP85383 (3).JPG

Figure 147 H:\21OY102_WSP LOT 2 TP85383 (5).JPG

Figure 148 H:\21OY102_WSP LOT 2 TP86302 (1).JPG

Figure 149 H:\21OY102_WSP LOT 2 TP86302 (2).JPG

Figure 150 H:\21OY102_WSP LOT 2 TP86302 (5).JPG

Figure 151 H:\21OY102_WSP LOT 2 TP86302 (6).JPG

Figure 152 H:\21OY102_WSP LOT 2 TP87206 (1).JPG

Figure 153 H:\21OY102_WSP LOT 2 TP87206 (2).JPG

Figure 154 H:\21OY102_WSP LOT 2 TP87206 (4).JPG

Figure 155 H:\21OY102_WSP LOT 2 TP87206 (5).JPG

Figure 156 H:\21OY102_WSP LOT 2 TP87304 (1).JPG

Figure 157 H:\21OY102_WSP LOT 2 TP87304 (2).JPG

Figure 158 H:\21OY102_WSP LOT 2 TP87304 (4).JPG

Figure 159 H:\21OY102_WSP LOT 2 TP87304 (5).JPG

Figure 160 H:\21OY102_WSP LOT 2 TP87706 (1).JPG

Figure 161 H:\21OY102_WSP LOT 2 TP87706 (2).JPG

Figure 162 H:\21OY102_WSP LOT 2 TP87706 (4).JPG

Figure 163 H:\21OY102_WSP LOT 2 TP87706 (5).JPG

Figure 164 H:\21OY102_WSP LOT 2 TP87803 (1).JPG

Figure 165 H:\21OY102_WSP LOT 2 TP87803 (2).JPG

Figure 166 H:\21OY102_WSP LOT 2 TP87803 (4).JPG

Figure 167 H:\21OY102_WSP LOT 2 TP87803 (5).JPG

Figure 168 H:\21OY102_WSP LOT 2 TP87803 (6).JPG

Figure 169 H:\21OY102_WSP LOT 2 TP87905 (1).JPG

Figure 170 H:\21OY102_WSP LOT 2 TP87905 (3).JPG

Figure 171 H:\21OY102_WSP LOT 2 TP87905 (4).JPG

Figure 172 H:\21OY102_WSP LOT 2 TP88503 (2).JPG

Figure 173 H:\21OY102_WSP LOT 2 TP88503 (4).JPG

Figure 174 H:\21OY102_WSP LOT 2 TP88503 (5).JPG

Figure 175 H:\21OY102_WSP LOT 2 TP88601 (1).JPG

Figure 176 H:\21OY102_WSP LOT 2 TP88601 (2).JPG

Figure 177 H:\21OY102_WSP LOT 2 TP88601 (4).JPG

Figure 178 H:\21OY102_WSP LOT 2 TP88601 (5).JPG

Figure 179 H:\21OY102_WSP LOT 2 TP88703 (1).JPG

Figure 180 H:\21OY102_WSP LOT 2 TP88703 (2).JPG

Figure 181 H:\21OY102_WSP LOT 2 TP88703 (4).JPG

Figure 182 H:\21OY102_WSP LOT 2 TP88703 (5).JPG

Figure 183 H:\21OY102_WSP LOT 2 TP88802 (2).JPG

Figure 184 H:\21OY102_WSP LOT 2 TP88802 (4).JPG

Figure 185 H:\21OY102_WSP LOT 2 TP88802 (5).JPG

Figure 186 H:\21OY102_WSP LOT 2 TP88904 (1).JPG

Figure 187 H:\21OY102_WSP LOT 2 TP88904 (2).JPG

Figure 188 H:\21OY102_WSP LOT 2 TP88904 (4).JPG

Figure 189 H:\21OY102_WSP LOT 2 TP88904 (5).JPG

Figure 190 H:\21OY102_WSP LOT 2 TP89003 (1).JPG

Figure 191 H:\21OY102_WSP LOT 2 TP89003 (2).JPG

Figure 192 H:\21OY102_WSP LOT 2 TP89003 (4).JPG

Figure 193 H:\21OY102_WSP LOT 2 TP89003 (5).JPG

Figure 194 H:\21OY102_WSP LOT 2 TP89003 (6).JPG

Figure 195 H:\21OY102_WSP LOT 2 TP89104 (1).JPG

Figure 196 H:\21OY102_WSP LOT 2 TP89104 (2).JPG

Figure 197 H:\21OY102_WSP LOT 2 TP89104 (3).JPG

Figure 198 H:\21OY102_WSP LOT 2 TP89104 (5).JPG

Figure 199 H:\21OY102_WSP LOT 2 TP89205 (1).JPG

Figure 200 H:\21OY102_WSP LOT 2 TP89205 (2).JPG

Figure 201 H:\21OY102_WSP LOT 2 TP89205 (3).JPG

Figure 202 H:\21OY102_WSP LOT 2 TP89205 (4).JPG

Figure 203 H:\21OY102_WSP LOT 2 TP89303 (1).JPG

Figure 204 H:\21OY102_WSP LOT 2 TP89303 (2).JPG

Figure 205 H:\21OY102_WSP LOT 2 TP89303 (4).JPG

Figure 206 H:\21OY102_WSP LOT 2 TP89303 (5).JPG

Figure 207 H:\21OY102_WSP LOT 2 TP89405 (1).JPG

Figure 208 H:\21OY102_WSP LOT 2 TP89405 (2).JPG

Figure 209 H:\21OY102_WSP LOT 2 TP89405 (4).JPG

Figure 210 H:\21OY102_WSP LOT 2 TP89405 (5).JPG

Figure 211 H:\21OY102_WSP LOT 2 TP89504 (1).JPG

Figure 212 H:\21OY102_WSP LOT 2 TP89504 (2).JPG

Figure 213 H:\21OY102_WSP LOT 2 TP89504 (4).JPG

Figure 214 H:\21OY102_WSP LOT 2 TP89504 (5).JPG

Figure 215 H:\21OY102_WSP LOT 2 TP89504 (6).JPG

Figure 1 H:\21OY102_WSP LOT 2 TP90401 (1).JPG

Figure 2 H:\21OY102_WSP LOT 2 TP90401 (2).JPG

Figure 3 H:\21OY102_WSP LOT 2 TP90401 (4).JPG

Figure 4 H:\21OY102_WSP LOT 2 TP90401 (5).JPG

Figure 5 H:\21OY102_WSP LOT 2 TP90503 (1).JPG

Figure 6 H:\21OY102_WSP LOT 2 TP90503 (2).JPG

Figure 7 H:\21OY102_WSP LOT 2 TP90503 (4).JPG

Figure 8 H:\21OY102_WSP LOT 2 TP90503 (5).JPG

Figure 9 H:\21OY102_WSP LOT 2 TP90604 (1).JPG

Figure 10 H:\21OY102_WSP LOT 2 TP90604 (2).JPG

Figure 11 H:\21OY102_WSP LOT 2 TP90604 (4).JPG

Figure 12 H:\21OY102_WSP LOT 2 TP90604 (5).JPG

Figure 13 H:\21OY102_WSP LOT 2 TP90800 (1).JPG

Figure 14 H:\21OY102_WSP LOT 2 TP90800 (3).JPG

Figure 15 H:\21OY102_WSP LOT 2 TP90800 (5).JPG

Figure 16 H:\21OY102_WSP LOT 2 TP90800 (6).JPG

Figure 17 H:\21OY102_WSP LOT 2 TP90894 (1).JPG

Figure 18 H:\21OY102_WSP LOT 2 TP90894 (2).JPG

Figure 19 H:\21OY102_WSP LOT 2 TP90894 (4).JPG

Figure 20 H:\21OY102_WSP LOT 2 TP90894 (5).JPG

Figure 21 H:\21OY102_WSP LOT 2 TP91012 (1).JPG

Figure 22 H:\21OY102_WSP LOT 2 TP91012 (2).JPG

Figure 23 H:\21OY102_WSP LOT 2 TP91012 (3).JPG

Figure 24 H:\21OY102_WSP LOT 2 TP91012 (5).JPG

Figure 25 H:\21OY102_WSP LOT 2 TP91104 (2).JPG

Figure 26 H:\21OY102_WSP LOT 2 TP91104 (4).JPG

Figure 27 H:\21OY102_WSP LOT 2 TP91193 (1).JPG

Figure 28 H:\21OY102_WSP LOT 2 TP91193 (2).JPG

Figure 29 H:\21OY102_WSP LOT 2 TP91193 (4).JPG

Figure 30 H:\21OY102_WSP LOT 2 TP91193 (5).JPG

Figure 31 H:\21OY102_WSP LOT 2 TP91305 (1).JPG

Figure 32 H:\21OY102_WSP LOT 2 TP91305 (2).JPG

Figure 33 H:\21OY102_WSP LOT 2 TP91305 (4).JPG

Figure 34 H:\21OY102_WSP LOT 2 TP91305 (5).JPG

Figure 35 H:\21OY102_WSP LOT 2 TP91406 (1).JPG

Figure 36 H:\21OY102_WSP LOT 2 TP91406 (2).JPG

Figure 37 H:\21OY102_WSP LOT 2 TP91406 (4).JPG

Figure 38 H:\21OY102_WSP LOT 2 TP91406 (5).JPG

Figure 39 H:\21OY102_WSP LOT 2 TP91504 (1).JPG

Figure 40 H:\21OY102_WSP LOT 2 TP91504 (2).JPG

Figure 41 H:\21OY102_WSP LOT 2 TP91504 (4).JPG

Figure 42 H:\21OY102_WSP LOT 2 TP91504 (5).JPG

Figure 43 H:\21OY102_WSP LOT 2 TP91603 (1).JPG

Figure 44 H:\21OY102_WSP LOT 2 TP91603 (2).JPG

Figure 45 H:\21OY102_WSP LOT 2 TP91603 (4).JPG

Figure 46 H:\21OY102_WSP LOT 2 TP91603 (5).JPG

Figure 47 H:\21OY102_WSP LOT 2 TP91705 (2).JPG

Figure 48 H:\21OY102_WSP LOT 2 TP91705 (3).JPG

Figure 49 H:\21OY102_WSP LOT 2 TP91705 (4).JPG

Figure 50 H:\21OY102_WSP LOT 2 TP91705 (5).JPG

Figure 51 H:\21OY102_WSP LOT 2 TP91705 (6).JPG

Figure 52 H:\21OY102_WSP LOT 2 TP91805 (1).JPG

Figure 53 H:\21OY102_WSP LOT 2 TP91805 (2).JPG

Figure 54 H:\21OY102_WSP LOT 2 TP91805 (4).JPG

Figure 55 H:\21OY102_WSP LOT 2 TP91805 (5).JPG

Figure 56 H:\21OY102_WSP LOT 2 TP91905 (1).JPG

Figure 57 H:\21OY102_WSP LOT 2 TP91905 (2).JPG

Figure 58 H:\21OY102_WSP LOT 2 TP91905 (4).JPG

Figure 59 H:\21OY102_WSP LOT 2 TP91905 (5).JPG

Figure 60 H:\21OY102_WSP LOT 2 TP92029 (1).JPG

Figure 61 H:\21OY102_WSP LOT 2 TP92029 (2).JPG

Figure 62 H:\21OY102_WSP LOT 2 TP92029 (3).JPG

Figure 63 H:\21OY102_WSP LOT 2 TP92029 (5).JPG

Figure 64 H:\21OY102_WSP LOT 2 TP92106 (1).JPG

Figure 65 H:\21OY102_WSP LOT 2 TP92106 (2).JPG

Figure 66 H:\21OY102_WSP LOT 2 TP92209 (1).JPG

Figure 67 H:\21OY102_WSP LOT 2 TP92209 (2).JPG

Figure 68 H:\21OY102_WSP LOT 2 TP92209 (4).JPG

Figure 69 H:\21OY102_WSP LOT 2 TP92209 (5).JPG

Figure 70 H:\21OY102_WSP LOT 2 TP92306 (1).JPG

Figure 71 H:\21OY102_WSP LOT 2 TP92306 (3).JPG

Figure 72 H:\21OY102_WSP LOT 2 TP92306 (4).JPG

Figure 73 H:\21OY102_WSP LOT 2 TP92407 (1).JPG

Figure 74 H:\21OY102_WSP LOT 2 TP92407 (2).JPG

Figure 75 H:\21OY102_WSP LOT 2 TP92407 (4).JPG

Figure 76 H:\21OY102_WSP LOT 2 TP92407 (5).JPG

Figure 77 H:\21OY102_WSP LOT 2 TP92506 (1).JPG

Figure 78 H:\21OY102_WSP LOT 2 TP92506 (2).JPG

Figure 79 H:\21OY102_WSP LOT 2 TP92506 (4).JPG

Figure 80 H:\21OY102_WSP LOT 2 TP92506 (5).JPG

Figure 81 H:\21OY102_WSP LOT 2 TP92706 (1).JPG

Figure 82 H:\21OY102_WSP LOT 2 TP92706 (2).JPG

Figure 83 H:\21OY102_WSP LOT 2 TP92706 (4).JPG

Figure 84 H:\21OY102_WSP LOT 2 TP92706 (5).JPG

Figure 85 H:\21OY102_WSP LOT 2 TP92804 (1).JPG

Figure 86 H:\21OY102_WSP LOT 2 TP92804 (2).JPG

Figure 87 H:\21OY102_WSP LOT 2 TP92804 (4).JPG

Figure 88 H:\21OY102_WSP LOT 2 TP92804 (5).JPG

Figure 89 H:\21OY102_WSP LOT 2 TP92904 (1).JPG

Figure 90 H:\21OY102_WSP LOT 2 TP92904 (2).JPG

Figure 91 H:\21OY102_WSP LOT 2 TP92904 (4).JPG

Figure 92 H:\21OY102_WSP LOT 2 TP92904 (5).JPG

Figure 93 H:\21OY102_WSP LOT 2 TP93003 (1).JPG

Figure 94 H:\21OY102_WSP LOT 2 TP93003 (2).JPG

Figure 95 H:\21OY102_WSP LOT 2 TP93003 (4).JPG

Figure 96 H:\21OY102_WSP LOT 2 TP93003 (5).JPG

Figure 97 H:\21OY102_WSP LOT 2 TP93106 (1).JPG

Figure 98 H:\21OY102_WSP LOT 2 TP93106 (2).JPG

Figure 99 H:\21OY102_WSP LOT 2 TP93106 (4).JPG

Figure 100 H:\21OY102_WSP LOT 2 TP93106 (5).JPG

Figure 101 H:\21OY102_WSP LOT 2 TP93174 (1).JPG

Figure 102 H:\21OY102_WSP LOT 2 TP93174 (2).JPG

Figure 103 H:\21OY102_WSP LOT 2 TP93174 (4).JPG

Figure 104 H:\21OY102_WSP LOT 2 TP93174 (5).JPG

Figure 105 H:\21OY102_WSP LOT 2 TP93352 (1).JPG

Figure 106 H:\21OY102_WSP LOT 2 TP93352 (2).JPG

Figure 107 H:\21OY102_WSP LOT 2 TP93352 (4).JPG

Figure 108 H:\21OY102_WSP LOT 2 TP93352 (5).JPG

Figure 109 H:\21OY102_WSP LOT 2 TP93505 (1).JPG

Figure 110 H:\21OY102_WSP LOT 2 TP93505 (2).JPG

Figure 111 H:\21OY102_WSP LOT 2 TP93602 (1).JPG

Figure 112 H:\21OY102_WSP LOT 2 TP93602 (2).JPG

Figure 113 H:\21OY102_WSP LOT 2 TP93602 (4).JPG

Figure 114 H:\21OY102_WSP LOT 2 TP93602 (5).JPG

Figure 115 H:\21OY102_WSP LOT 2 TP93703 (1).JPG

Figure 116 H:\21OY102_WSP LOT 2 TP93703 (2).JPG

Figure 117 H:\21OY102_WSP LOT 2 TP93703 (4).JPG

Figure 118 H:\21OY102_WSP LOT 2 TP93703 (5).JPG

Figure 119 H:\21OY102_WSP LOT 2 TP93803 (2).JPG

Figure 120 H:\21OY102_WSP LOT 2 TP93803 (4).JPG

Figure 121 H:\21OY102_WSP LOT 2 TP93803 (5).JPG

Figure 122 H:\21OY102_WSP LOT 2 TP93902 (1).JPG

Figure 123 H:\21OY102_WSP LOT 2 TP93902 (2).JPG

Figure 124 H:\21OY102_WSP LOT 2 TP93902 (4).JPG

Figure 125 H:\21OY102_WSP LOT 2 TP93902 (5).JPG

Figure 126 H:\21OY102_WSP LOT 2 TP94015 (1).JPG

Figure 127 H:\21OY102_WSP LOT 2 TP94015 (2).JPG

Figure 128 H:\21OY102_WSP LOT 2 TP94015 (4).JPG

Figure 129 H:\21OY102_WSP LOT 2 TP94015 (5).JPG

Figure 130 H:\21OY102_WSP LOT 2 TP94103 (1).JPG

Figure 131 H:\21OY102_WSP LOT 2 TP94103 (3).JPG

Figure 132 H:\21OY102_WSP LOT 2 TP94103 (4).JPG

Figure 133 H:\21OY102_WSP LOT 2 TP94103 (5).JPG

Figure 134 H:\21OY102_WSP LOT 2 TP94198 (1).JPG

Figure 135 H:\21OY102_WSP LOT 2 TP94198 (2).JPG

Figure 136 H:\21OY102_WSP LOT 2 TP94198 (4).JPG

Figure 137 H:\21OY102_WSP LOT 2 TP94198 (5).JPG

Figure 138 H:\21OY102_WSP LOT 2 TP94401 (1).JPG

Figure 139 H:\21OY102_WSP LOT 2 TP94401 (2).JPG

Figure 140 H:\21OY102_WSP LOT 2 TP94401 (4).JPG

Figure 141 H:\21OY102_WSP LOT 2 TP94401 (5).JPG

Figure 142 H:\21OY102_WSP LOT 2 TP94504 (1).JPG

Figure 143 H:\21OY102_WSP LOT 2 TP94504 (2).JPG

Figure 144 H:\21OY102_WSP LOT 2 TP94504 (4).JPG

Figure 145 H:\21OY102_WSP LOT 2 TP94504 (5).JPG

Figure 146 H:\21OY102_WSP LOT 2 TP94504 (6).JPG

Figure 147 H:\21OY102_WSP LOT 2 TP94608 (1).JPG

Figure 148 H:\21OY102_WSP LOT 2 TP94608 (2).JPG

Figure 149 H:\21OY102_WSP LOT 2 TP94608 (4).JPG

Figure 150 H:\21OY102_WSP LOT 2 TP94608 (5).JPG

Figure 151 H:\21OY102_WSP LOT 2 TP94704 (1).JPG

Figure 152 H:\21OY102_WSP LOT 2 TP94704 (2).JPG

Figure 153 H:\21OY102_WSP LOT 2 TP94704 (3).JPG

Figure 154 H:\21OY102_WSP LOT 2 TP94704 (4).JPG

Figure 155 H:\21OY102_WSP LOT 2 TP94704 (6).JPG

Figure 158 H:\21OY102_WSP LOT 2 TP94809 (3).JPG

Figure 156 H:\21OY102_WSP LOT 2 TP94704 (7).JPG

Figure 159 H:\21OY102_WSP LOT 2 TP94809 (4).JPG

Figure 157 H:\21OY102_WSP LOT 2 TP94809 (1).JPG

Figure 160 H:\21OY102_WSP LOT 2 TP94809.JPG

Figure 161 H:\21OY102_WSP LOT 2 TP94905 (1).JPG

Figure 162 H:\21OY102_WSP LOT 2 TP94905 (2).JPG

Figure 163 H:\21OY102_WSP LOT 2 TP94905 (4).JPG

Figure 164 H:\21OY102_WSP LOT 2 TP94905 (5).JPG

Figure 165 H:\21OY102_WSP LOT 2 TP95003 (1).JPG

Figure 166 H:\21OY102_WSP LOT 2 TP95003 (2).JPG

Figure 167 H:\21OY102_WSP LOT 2 TP95003 (4).JPG

Figure 168 H:\21OY102_WSP LOT 2 TP95003 (5).JPG

Figure 169 H:\21OY102_WSP LOT 2 TP95408 (1).JPG

Figure 170 H:\21OY102_WSP LOT 2 TP95408 (2).JPG

Figure 171 H:\21OY102_WSP LOT 2 TP95408 (4).JPG

Figure 172 H:\21OY102_WSP LOT 2 TP95408 (5).JPG

Figure 173 H:\21OY102_WSP LOT 2 TP95504 (1).JPG

Figure 174 H:\21OY102_WSP LOT 2 TP95504 (2).JPG

Figure 175 H:\21OY102_WSP LOT 2 TP95504 (4).JPG

Figure 176 H:\21OY102_WSP LOT 2 TP95504 (5).JPG

Figure 177 H:\21OY102_WSP LOT 2 TP95600 (1).JPG

Figure 178 H:\21OY102_WSP LOT 2 TP95600 (2).JPG

Figure 179 H:\21OY102_WSP LOT 2 TP95600 (4).JPG

Figure 180 H:\21OY102_WSP LOT 2 TP95600 (5).JPG

Figure 181 H:\21OY102_WSP LOT 2 TP95705 (1).JPG

Figure 182 H:\21OY102_WSP LOT 2 TP95705 (2).JPG

Figure 183 H:\21OY102_WSP LOT 2 TP95705 (4).JPG

Figure 184 H:\21OY102_WSP LOT 2 TP95705 (5).JPG

Figure 185 H:\21OY102_WSP LOT 2 TP95806 (1).JPG

Figure 188 H:\21OY102_WSP LOT 2 TP95806 (5).JPG

Figure 186 H:\21OY102_WSP LOT 2 TP95806 (2).JPG

Figure 189 H:\21OY102_WSP LOT 2 TP95905 (1).JPG

Figure 187 H:\21OY102_WSP LOT 2 TP95806 (4).JPG

Figure 190 H:\21OY102_WSP LOT 2 TP95905 (2).JPG

Figure 191 H:\21OY102_WSP LOT 2 TP95905 (4).JPG

Figure 192 H:\21OY102_WSP LOT 2 TP95905 (5).JPG

Figure 193 H:\21OY102_WSP LOT 2 TP95999 (1).JPG

Figure 194 H:\21OY102_WSP LOT 2 TP95999 (2).JPG

Figure 195 H:\21OY102_WSP LOT 2 TP95999 (4).JPG

Figure 196 H:\21OY102_WSP LOT 2 TP95999 (5).JPG

Figure 197 H:\21OY102_WSP LOT 2 TP96105 (1).JPG

Figure 198 H:\21OY102_WSP LOT 2 TP96105 (2).JPG

Figure 199 H:\21OY102_WSP LOT 2 TP96105 (4).JPG

Figure 200 H:\21OY102_WSP LOT 2 TP96105 (5).JPG

Figure 201 H:\21OY102_WSP LOT 2 TP96204 (1).JPG

Figure 202 H:\21OY102_WSP LOT 2 TP96204 (2).JPG

Figure 203 H:\21OY102_WSP LOT 2 TP96204 (4).JPG

Figure 204 H:\21OY102_WSP LOT 2 TP96204 (5).JPG

Figure 205 H:\21OY102_WSP LOT 2 TP96304 (1).JPG

Figure 206 H:\21OY102_WSP LOT 2 TP96304 (2).JPG

Figure 207 H:\21OY102_WSP LOT 2 TP96304 (4).JPG

Figure 208 H:\21OY102_WSP LOT 2 TP96304 (5).JPG

Figure 209 H:\21OY102_WSP LOT 2 TP96387 (1).JPG

Figure 210 H:\21OY102_WSP LOT 2 TP96387 (2).JPG

Figure 211 H:\21OY102_WSP LOT 2 TP96505 (1).JPG

Figure 212 H:\21OY102_WSP LOT 2 TP96505 (2).JPG

Figure 213 H:\21OY102_WSP LOT 2 TP96505 (4).JPG

Figure 214 H:\21OY102_WSP LOT 2 TP96505 (5).JPG

Figure 215 H:\21OY102_WSP LOT 2 TP96608 (1).JPG

Figure 216 H:\21OY102_WSP LOT 2 TP96608 (2).JPG

Figure 217 H:\21OY102_WSP LOT 2 TP96608 (4).JPG

Figure 218 H:\21OY102_WSP LOT 2 TP96608 (5).JPG

Figure 219 H:\21OY102_WSP LOT 2 TP96705 (1).JPG

Figure 220 H:\21OY102_WSP LOT 2 TP96705 (2).JPG

Figure 221 H:\21OY102_WSP LOT 2 TP96705 (3).JPG

Figure 222 H:\21OY102_WSP LOT 2 TP96705 (5).JPG

Figure 223 H:\21OY102_WSP LOT 2 TP96705 (6).JPG

Figure 224 H:\21OY102_WSP LOT 2 TP96831 (1).JPG

Figure 225 H:\21OY102_WSP LOT 2 TP96831 (2).JPG

Figure 226 H:\21OY102_WSP LOT 2 TP96831 (4).JPG

Figure 227 H:\21OY102_WSP LOT 2 TP96831 (5).JPG

Figure 228 H:\21OY102_WSP LOT 2 TP96905 (1).JPG

Figure 229 H:\21OY102_WSP LOT 2 TP96905 (2).JPG

Figure 230 H:\21OY102_WSP LOT 2 TP96905 (4).JPG

Figure 231 H:\21OY102_WSP LOT 2 TP96905 (5).JPG

Figure 232 H:\21OY102_WSP LOT 2 TP97009 (1).JPG

Figure 233 H:\21OY102_WSP LOT 2 TP97009 (2).JPG

Figure 234 H:\21OY102_WSP LOT 2 TP97009 (4).JPG

Figure 235 H:\21OY102_WSP LOT 2 TP97009 (5).JPG

Figure 236 H:\21OY102_WSP LOT 2 TP97108 (1).JPG

Figure 237 H:\21OY102_WSP LOT 2 TP97108 (2).JPG

Figure 238 H:\21OY102_WSP LOT 2 TP97108 (4).JPG

Figure 239 H:\21OY102_WSP LOT 2 TP97108 (5).JPG

Figure 240 H:\21OY102_WSP LOT 2 TP97108 (6).JPG

Figure 241 H:\21OY102_WSP LOT 2 TP97206 (1).JPG

Figure 242 H:\21OY102_WSP LOT 2 TP97206 (2).JPG

Figure 243 H:\21OY102_WSP LOT 2 TP97206 (4).JPG

Figure 244 H:\21OY102_WSP LOT 2 TP97206 (5).JPG

Figure 245 H:\21OY102_WSP LOT 2 TP97309 (1).JPG

Figure 246 H:\21OY102_WSP LOT 2 TP97309 (2).JPG

Figure 247 H:\21OY102_WSP LOT 2 TP97383 (1).JPG

Figure 248 H:\21OY102_WSP LOT 2 TP97383 (2).JPG

Figure 249 H:\21OY102_WSP LOT 2 TP97383 (4).JPG

Figure 250 H:\21OY102_WSP LOT 2 TP97383 (5).JPG

Figure 251 H:\21OY102_WSP LOT 2 TP97505 (1).JPG

Figure 252 H:\21OY102_WSP LOT 2 TP97505 (2).JPG

Figure 253 H:\21OY102_WSP LOT 2 TP97505 (3).JPG

Figure 254 H:\21OY102_WSP LOT 2 TP97505 (4).JPG

Figure 255 H:\21OY102_WSP LOT 2 TP97505 (7).JPG

Figure 256 H:\21OY102_WSP LOT 2 TP97602 (2).JPG

Figure 257 H:\21OY102_WSP LOT 2 TP97602 (4).JPG

Figure 258 H:\21OY102_WSP LOT 2 TP97602 (5).JPG

Figure 259 H:\21OY102_WSP LOT 2 TP97602 (6).JPG

Figure 260 H:\21OY102_WSP LOT 2 TP97704 (1).JPG

Figure 261 H:\21OY102_WSP LOT 2 TP97704 (2).JPG

Figure 262 H:\21OY102_WSP LOT 2 TP97704 (4).JPG

Figure 263 H:\21OY102_WSP LOT 2 TP97704 (5).JPG

Figure 264 H:\21OY102_WSP LOT 2 TP97777 (1).JPG

Figure 265 H:\21OY102_WSP LOT 2 TP97777 (2).JPG

Figure 266 H:\21OY102_WSP LOT 2 TP97777 (4).JPG

Figure 267 H:\21OY102_WSP LOT 2 TP97777 (5).JPG

Figure 268 H:\21OY102_WSP LOT 2 TP97998 (1).JPG

Figure 269 H:\21OY102_WSP LOT 2 TP97998 (2).JPG

Figure 270 H:\21OY102_WSP LOT 2 TP97998 (4).JPG

Figure 271 H:\21OY102_WSP LOT 2 TP97998 (5).JPG

Figure 272 H:\21OY102_WSP LOT 2 TP98105 (1).JPG

Figure 273 H:\21OY102_WSP LOT 2 TP98105 (2).JPG

Figure 274 H:\21OY102_WSP LOT 2 TP98105 (4).JPG

Figure 275 H:\21OY102_WSP LOT 2 TP98105 (5).JPG

Figure 276 H:\21OY102_WSP LOT 2 TP98205 (1).JPG

Figure 277 H:\21OY102_WSP LOT 2 TP98205 (2).JPG

Figure 278 H:\21OY102_WSP LOT 2 TP98205 (4).JPG

Figure 279 H:\21OY102_WSP LOT 2 TP98205 (5).JPG

Figure 280 H:\21OY102_WSP LOT 2 TP98271 (1).JPG

Figure 281 H:\21OY102_WSP LOT 2 TP98271 (2).JPG

Figure 282 H:\21OY102_WSP LOT 2 TP98271 (4).JPG

Figure 283 H:\21OY102_WSP LOT 2 TP98271 (5).JPG

Figure 284 H:\21OY102_WSP LOT 2 TP98403 (1).JPG

Figure 285 H:\21OY102_WSP LOT 2 TP98403 (2).JPG

Figure 286 H:\21OY102_WSP LOT 2 TP98403 (4).JPG

Figure 287 H:\21OY102_WSP LOT 2 TP98403 (5).JPG

Figure 288 H:\21OY102_WSP LOT 2 TP98403 (6).JPG

Figure 289 H:\21OY102_WSP LOT 2 TP98502 (1).JPG

Figure 290 H:\21OY102_WSP LOT 2 TP98502 (2).JPG

Figure 291 H:\21OY102_WSP LOT 2 TP98502 (4).JPG

Figure 292 H:\21OY102_WSP LOT 2 TP98502 (5).JPG

Figure 293 H:\21OY102_WSP LOT 2 TP98602 (1).JPG

Figure 294 H:\21OY102_WSP LOT 2 TP98602 (2).JPG

Figure 295 H:\21OY102_WSP LOT 2 TP98602 (4).JPG

Figure 296 H:\21OY102_WSP LOT 2 TP98602 (5).JPG

Figure 297 H:\21OY102_WSP LOT 2 TP98702 (1).JPG

Figure 298 H:\21OY102_WSP LOT 2 TP98702 (2).JPG

Figure 299 H:\21OY102_WSP LOT 2 TP98702 (4).JPG

Figure 300 H:\21OY102_WSP LOT 2 TP98702 (5).JPG

Figure 301 H:\21OY102_WSP LOT 2 TP98805 (1).JPG

Figure 304 H:\21OY102_WSP LOT 2 TP98805 (5).JPG

Figure 302 H:\21OY102_WSP LOT 2 TP98805 (2).JPG

Figure 305 H:\21OY102_WSP LOT 2 TP98904 (1).JPG

Figure 303 H:\21OY102_WSP LOT 2 TP98805 (4).JPG

Figure 306 H:\21OY102_WSP LOT 2 TP98904 (2).JPG

Figure 307 H:\21OY102_WSP LOT 2 TP98904 (4).JPG

Figure 308 H:\21OY102_WSP LOT 2 TP98904 (5).JPG

Figure 309 H:\21OY102_WSP LOT 2 TP99004 (1).JPG

Figure 310 H:\21OY102_WSP LOT 2 TP99004 (2).JPG

Figure 311 H:\21OY102_WSP LOT 2 TP99004 (4).JPG

Figure 312 H:\21OY102_WSP LOT 2 TP99004 (5).JPG

Figure 313 H:\21OY102_WSP LOT 2 TP99105 (2).JPG

Figure 314 H:\21OY102_WSP LOT 2 TP99105 (4).JPG

Figure 315 H:\21OY102_WSP LOT 2 TP99105 (5).JPG

Figure 316 H:\21OY102_WSP LOT 2 TP99105 (6).JPG

Figure 317 H:\21OY102_WSP LOT 2 TP99206 (1).JPG

Figure 318 H:\21OY102_WSP LOT 2 TP99206 (2).JPG

Figure 319 H:\21OY102_WSP LOT 2 TP99206 (4).JPG

Figure 320 H:\21OY102_WSP LOT 2 TP99206 (5).JPG

Figure 321 H:\21OY102_WSP LOT 2 TP99304 (1).JPG

Figure 322 H:\21OY102_WSP LOT 2 TP99304 (2).JPG

Figure 323 H:\21OY102_WSP LOT 2 TP99304 (4).JPG

Figure 324 H:\21OY102_WSP LOT 2 TP99304 (5).JPG

Figure 325 H:\21OY102_WSP LOT 2 TP99400 (1).JPG

Figure 326 H:\21OY102_WSP LOT 2 TP99400 (2).JPG

Figure 327 H:\21OY102_WSP LOT 2 TP99400 (4).JPG

Figure 328 H:\21OY102_WSP LOT 2 TP99400 (5).JPG

Figure 329 H:\21OY102_WSP LOT 2 TP99505 (1).JPG

Figure 330 H:\21OY102_WSP LOT 2 TP99505 (2).JPG

Figure 331 H:\21OY102_WSP LOT 2 TP99505 (4).JPG

Figure 332 H:\21OY102_WSP LOT 2 TP99505 (5).JPG

Figure 333 H:\21OY102_WSP LOT 2 TP99599 (1).JPG

Figure 334 H:\21OY102_WSP LOT 2 TP99599 (2).JPG

Figure 335 H:\21OY102_WSP LOT 2 TP99599 (3).JPG

Figure 336 H:\21OY102_WSP LOT 2 TP99701 (1).JPG

Figure 337 H:\21OY102_WSP LOT 2 TP99701 (2).JPG

Figure 338 H:\21OY102_WSP LOT 2 TP99701 (4).JPG

Figure 339 H:\21OY102_WSP LOT 2 TP99701 (5).JPG

Figure 1 H:\21OY102_WSP LOT 2 TP100304 (1).JPG

Figure 2 H:\21OY102_WSP LOT 2 TP100304 (2).JPG

Figure 3 H:\21OY102_WSP LOT 2 TP100304 (4).JPG

Figure 4 H:\21OY102_WSP LOT 2 TP100304 (5).JPG

Figure 5 H:\21OY102_WSP LOT 2 TP100407 (1).JPG

Figure 6 H:\21OY102_WSP LOT 2 TP100407 (2).JPG

Figure 7 H:\21OY102_WSP LOT 2 TP100407 (4).JPG

Figure 8 H:\21OY102_WSP LOT 2 TP100407 (5).JPG

Figure 9 H:\21OY102_WSP LOT 2 TP100449 (1).JPG

Figure 10 H:\21OY102_WSP LOT 2 TP100449 (2).JPG

Figure 11 H:\21OY102_WSP LOT 2 TP100449 (4).JPG

Figure 12 H:\21OY102_WSP LOT 2 TP100449 (5).JPG

Figure 13 H:\21OY102_WSP LOT 2 TP100485 (1).JPG

Figure 14 H:\21OY102_WSP LOT 2 TP100485 (2).JPG

Figure 15 H:\21OY102_WSP LOT 2 TP100485 (4).JPG

Figure 16 H:\21OY102_WSP LOT 2 TP100485 (5).JPG

Figure 17 H:\21OY102_WSP LOT 2 TP100503 (1).JPG

Figure 18 H:\21OY102_WSP LOT 2 TP100503 (2).JPG

Figure 19 H:\21OY102_WSP LOT 2 TP100503 (3).JPG

Figure 20 H:\21OY102_WSP LOT 2 TP100503 (5).JPG

Figure 21 H:\21OY102_WSP LOT 2 TP100517 (1).JPG

Figure 22 H:\21OY102_WSP LOT 2 TP100517 (2).JPG

Figure 23 H:\21OY102_WSP LOT 2 TP100517 (3).JPG

Figure 24 H:\21OY102_WSP LOT 2 TP100517 (5).JPG

Figure 25 H:\21OY102_WSP LOT 2 TP100605 (1).JPG

Figure 26 H:\21OY102_WSP LOT 2 TP100605 (2).JPG

Figure 27 H:\21OY102_WSP LOT 2 TP100605 (4).JPG

Figure 28 H:\21OY102_WSP LOT 2 TP100605 (5).JPG

Figure 29 H:\21OY102_WSP LOT 2 TP101206 (1).JPG

Figure 30 H:\21OY102_WSP LOT 2 TP101206 (2).JPG

Figure 31 H:\21OY102_WSP LOT 2 TP101206 (4).JPG

Figure 32 H:\21OY102_WSP LOT 2 TP101206 (5).JPG

Figure 33 H:\21OY102_WSP LOT 2 TP101304 (1).JPG

Figure 34 H:\21OY102_WSP LOT 2 TP101304 (2).JPG

Figure 35 H:\21OY102_WSP LOT 2 TP101304 (4).JPG

Figure 36 H:\21OY102_WSP LOT 2 TP101304 (5).JPG

Figure 37 H:\21OY102_WSP LOT 2 TP101407 (1).JPG

Figure 38 H:\21OY102_WSP LOT 2 TP101407 (2).JPG

Figure 39 H:\21OY102_WSP LOT 2 TP101407 (5).JPG

Figure 40 H:\21OY102_WSP LOT 2 TP101407 (6).JPG

Figure 41 H:\21OY102_WSP LOT 2 TP101503 (1).JPG

Figure 42 H:\21OY102_WSP LOT 2 TP101503 (2).JPG

Figure 43 H:\21OY102_WSP LOT 2 TP101503 (4).JPG

Figure 44 H:\21OY102_WSP LOT 2 TP101503 (5).JPG

Figure 45 H:\21OY102_WSP LOT 2 TP101600 (1).JPG

Figure 46 H:\21OY102_WSP LOT 2 TP101600 (3).JPG

Figure 47 H:\21OY102_WSP LOT 2 TP101600 (4).JPG

Figure 48 H:\21OY102_WSP LOT 2 TP101704 (1).JPG

Figure 49 H:\21OY102_WSP LOT 2 TP101704 (2).JPG

Figure 50 H:\21OY102_WSP LOT 2 TP101704 (4).JPG

Figure 51 H:\21OY102_WSP LOT 2 TP101704 (5).JPG

Figure 52 H:\21OY102_WSP LOT 2 TP101804 (1).JPG

Figure 53 H:\21OY102_WSP LOT 2 TP101804 (2).JPG

Figure 54 H:\21OY102_WSP LOT 2 TP101804 (5).JPG

Figure 55 H:\21OY102_WSP LOT 2 TP101804 (6).JPG

Figure 56 H:\21OY102_WSP LOT 2 TP102105 (1).JPG

Figure 57 H:\21OY102_WSP LOT 2 TP102105 (2).JPG

Figure 58 H:\21OY102_WSP LOT 2 TP102105 (4).JPG

Figure 59 H:\21OY102_WSP LOT 2 TP102105 (5).JPG

Figure 60 H:\21OY102_WSP LOT 2 TP102204 (1).JPG

Figure 61 H:\21OY102_WSP LOT 2 TP102204 (2).JPG

Figure 62 H:\21OY102_WSP LOT 2 TP102204 (4).JPG

Figure 63 H:\21OY102_WSP LOT 2 TP102303 (1).JPG

Figure 64 H:\21OY102_WSP LOT 2 TP102303 (3).JPG

Figure 65 H:\21OY102_WSP LOT 2 TP102303 (4).JPG

Figure 66 H:\21OY102_WSP LOT 2 TP102405 (1).JPG

Figure 67 H:\21OY102_WSP LOT 2 TP102405 (2).JPG

Figure 68 H:\21OY102_WSP LOT 2 TP102405 (4).JPG

Figure 69 H:\21OY102_WSP LOT 2 TP102405 (5).JPG

Figure 70 H:\21OY102_WSP LOT 2 TP102488 (1).JPG

Figure 71 H:\21OY102_WSP LOT 2 TP102488 (2).JPG

Figure 72 H:\21OY102_WSP LOT 2 TP102488 (4).JPG

Figure 73 H:\21OY102_WSP LOT 2 TP102488 (5).JPG

Figure 74 H:\21OY102_WSP LOT 2 TP102617 (1).JPG

Figure 75 H:\21OY102_WSP LOT 2 TP102617 (3).JPG

Figure 76 H:\21OY102_WSP LOT 2 TP102617 (4).JPG

Figure 77 H:\21OY102_WSP LOT 2 TP102704 (1).JPG

Figure 78 H:\21OY102_WSP LOT 2 TP102704 (2).JPG

Figure 79 H:\21OY102_WSP LOT 2 TP102704 (4).JPG

Figure 80 H:\21OY102_WSP LOT 2 TP102704 (5).JPG

Appendix 6J
Groundwater Level Data

Groundwater Levels

Contract:	WSP Lot 2 Pipeline	*Test carried out by:*	**Irish Drilling Ltd.**
Location:	BPS SITE	*Operators:*	DOR
Client:	Irish Water		
Engineer:	Mott MacDonald	*Date:*	21.10.2022

Standpipes	03-05/05/2022 m +/-(gl)	28-30/06/2022 m +/-(gl)	08-30/08/2022 m +/-(gl)	12-18/10/2022 m +/-(gl)	mO.D. Ground Level
36789		DRY	DRY	DRY	151.08
38523	DRY	DRY	DRY	DRY	105.5
38786A	DRY	DRY	DRY	DRY	104.02
40004	1.4(87.03mOD)	1.78(86.65mOD)	2.20(86.23mOD)		88.43
42851A	7.3(72.88mOD)	7.22(72.96mOD)	7.30(72.88mOD)	6.70(73.48mOD)	80.18
43817	3.45(84.62mOD)	4.07(84mOD)	4.62(83.45mOD)	4.16(83.91mOD)	88.07
44676	1.36(73.68mOD	1.42(73.62mOD)	1.62(73.42mOD)	1.44(73.60mOD)	75.04
46402A	6.27(73.61mOD)	6.52(73.36mOD)	6.58(73.30mOD)		79.88
47262	1.12(74.25mOD)	1.25(74.12mOD)	1.67(73.70mOD)	1.47(73.90mOD)	75.37
47812	6.35(58.82mOD)	6.5(58.67mOD)	6.53(58.64mOD)	6.57(58.60mOD)	65.17
48139	4.38(55.65mOD)	4.76(55.27mOD)	5.90(54.13mOD)	6.60(53.43mOD)	60.03
49214	2.65(48.6mOD)	3.1(48.15mOD)	3.1(48.15mOD)	3.4(47.85mOD)	51.25
50608A	5.29(57.48mOD)	5.4(57.37mOD)	5.8(56.97mOD)	6.2(56.57mOD)	62.77
50885	9.3(61.76mOD)	9.39(61.67mOD)	9.80(61.26mOD)	9.68(61.38mOD)	71.06
56109	0.71(76.2mOD)	0.76(76.15mOD)	1.00(75.91mOD)	0.74(76.17mOD)	76.91
56857	0.46(73.1mOD)	0.43(73.13mOD)	0.78(72.78mOD)	0.73(72.83mOD)	73.56
59932	1.15(75.73mOD)	1.27(75.61mOD)	1.50(75.38mOD)	1.35(75.53mOD)	76.88
60345	0.86(74.86mOD)	1.19(74.53mOD)	DRY	DRY	75.72
61515	0.6(71.13mOD)	0.87(70.86mOD)	1.26(70.47mOD)	1.14(70.59mOD)	71.73
62741	1.32(70.18mOD)	1.43(70.07mOD)	1.57(69.93mOD)	1.57(69.93mOD)	71.5
63008	1.37(69.34mOD)	1.83(68.88mOD)	2.63(68.08mOD)	2.90(67.81mOD)	70.71
69405	1.11(79.43mOD)	1.38(79.16mOD)	1.50(79.04mOD)		80.54
69703	0.35(82.21mOD)	0.66(81.9mOD)	0.90(81.66mOD)	1.18(81.38mOD)	82.56
71397	0.97(86.53mOD)	1.30(86.20mOD)	1.66(85.84mOD)	1.67(85.83mOD)	87.5
72683		1.47(92.46mOD)	2.13(91.80mOD)	0.81(93.12mOD)	93.93
74851	1(89.43mOD)	1.29(89.14mOD)	1.90(88.53mOD)	0.77(89.66mOD)	90.43
76545	2.78(89.94mOD)	2.9(89.82mOD)	9.9(82.82mOD)	11.07(81.65mOD)	92.72
78412	0.71(81.67mOD)	1.02(81.36mOD)	1.73(80.65mOD)		82.38
78862	1.88(85.61mOD)	2.25(85.24mOD)	2.72(84.77mOD)	2.76(84.73mOD)	87.49
79595		2.8(87.23mOD)	3.6(86.43mOD)	2.82(87.21mOD)	90.03
81864	DRY	DRY	DRY	DRY	105.81
83591	0.86(97.41mOD)	1.31(96.96mOD)	1.92(96.35mOD)	1.17(97.10mOD)	98.27
84203	0.81(95.89mOD)	0.92(95.78mOD)	2.05(94.65mOD)	0.46(96.24mOD)	96.7
94016		1.03(102.93mOD)	1.25(102.71mOD)	1.36(102.60mOD)	103.96
96005	4.05(103.63mOD)	5.1(102.58mOD)	DRY	DRY	107.68
97837	0.95(83.55mOD)	1.61(82.89mOD)	No Access	No Access	84.5
97881	0.84(83.97mOD)	1.88(82.93mOD)	No Access	No Access	84.81
100203	0.56(89.94mOD)	0.46(90.04mOD)	0.70(89.80mOD)	0.70(89.82mOD)	90.5
102037		DRY	DRY	DRY	73.9

REMARKS:

Data Logger installed in following boreholes on August 8th, 19th, 12th and 30th:

40004
42851A
43817
44676
46402A
47262
47812
48139
49214
50608A
50885
56109
56857
59932
61515
62741
63008
69405
69703
71397
72683
74851
76545
78412
78862
79595
83591
84203
94016
100203

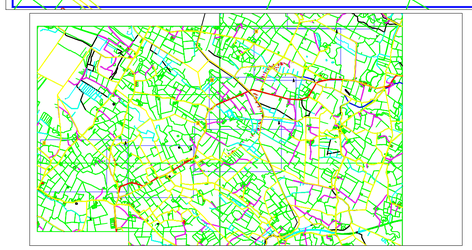
Appendix 6K
Drawings

1

2

N

TP-37201
TP-37302
A
B
TP-37102
ST-37000
BH-37230
(CP/RC)
TP-37001
BH-36879
(CP/RC)
BH-36920
(RC)
TP-36861
BH-36883
(CP/RC)
BH-36956
(CP/RC)
TP-36679
BH-36789
(CP/RC)
BH-36829
(CP/RC)
TP-36595
TP-36504
BH-36391
(CP+RC)



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion
BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core
BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample
DS-

Trial Pit
TP-

Peat Probes
PP

Russian Samples
RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
1 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
Approved By.		

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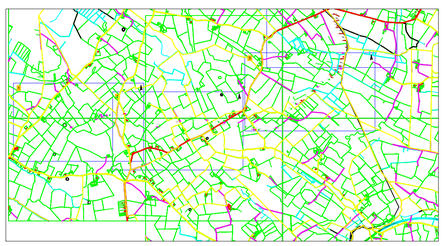
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No.	Revision.	Sheet
IDL-WSP-01	1	1 of 1

2

N

TP-37201
TP-37302
A
B
TP-37102
ST-37000
BH-37230
(CP/RC)
TP-37698
TP-37903
BH-37778
(CP/RC)
TP-37778
TP-38313
TP-38100
TP-38205
BH-38106
(CP/RC)
TP-38500
BH-38523
(CP/RC)
TP-38604
TP-38700
TP-38777
ST-38780
B
A
BH-38786A
(CP)
BH-38786
(CP/RC)
TP-38901
TP-39006
1818



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

BH-

Trial Pit

TP-

Peat Probes

PP

Russian Samples

RK

DS-

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
2 of 39

Dimensions in. mm

Scale. 1:5,000 @ A1

Drawn By. MM 20/07/2022

Checked By. RK 20/07/2022

Approved By.

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Drawing No. IDL-WSP-01

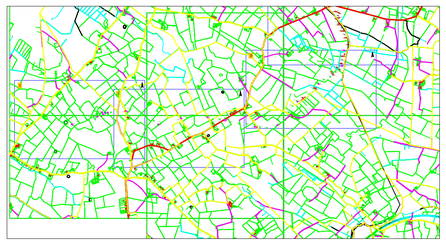
Revision. 1

Sheet 1 of 1

3

N

BH-41057 (CP/RC)
DS40097
DP+WS
PP40960
PP40965
PP40970
RK40911
PP40547
PP40857
PP40857A
BH-40830 (CP/RC)
RK40814
PP40766
PP40770
PP40772
PP40662
RK40713
PP40656
PP40652
TP-40605
TP-40505
TP-40404
BH-40405 (CP/RC)
PP40327
TP-40305
DS40341
DP+WS
PP40325
PP40323
TP-40205
PP40096
PP40131
DS40095
DP+WS
TP-40001
PP40068
BH-40004 (CP/RC)
TP-39906
TP-39805
TP-39601
TP-39706
TP-39101
TP-39218
ST-39250
BH-39229 (CP/RC)
A
B
TP-39300
TP-39403
TP-39503
BH-39518 (CP/RC)



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion — BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core — BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample — DS-

Trial Pit — TP-

Peat Probes — PP

Russian Samples — RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
3 of 39

Dimensions in. mm
Scale. 1:5,000 @ A1
Drawn By. MM 20/07/2022
Checked By. RK 20/07/2022
Approved By.

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Drawing No. IDL-WSP-01
Revision. 1
Sheet 1 of 1

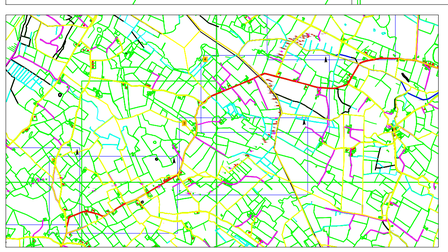
4

PP42060
PP42015
PP42016
PP42017

Black Dikes Drain

PP41649
PP41649A
PP41641
PP41627
RK41595
PP41548
PP41549
PP41552
RK41498
PP41441
PP41462
PP41439
RK41400
PP41357
PP41348
PP41345
RK41296
PP41244
PP41240
PP41150
BH-41053
(CP/RC)
DS40997
DP+WS
PP40960
PP40965
PP40970
RK40911
PP40647
PP40857
PP40857A
BH-40830
(CP/RC)
RK40814

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
4 of 39

Dimensions in.	mm		
Scale.	1:5,000 @ A1		
Drawn By.	MM	20/07/2022	
Checked By.	RK	20/07/2022	
Approved By.			

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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	1 of 1

5

N

TP-43607

TP-43507

Valley Pond

BH-43407
(CP/RC)

TP-43406

Valley Pond

TP-43308

TP-43207

TP-43108

Pond

Pond

Pond

BH-42851
CP

BH-42851A
(CP/RC)

PP42583

BH-42602
(CP/RC)

PP42653

PP42516

PP42584

PP42686

RK42551

DS42600
DP+WS

PP42416

PP42518

PP42578

RK42468

PP42519

PP42330

PP42418

PP42342

RK42381

PP42420

Black River
An Abhainn Dubh

PP42368

Ffloyd's Bridge

PP42456

PP42499

PP42248

PP42257

PP42413

PP42269

PP42454

RK42208

PP42161

PP42159

PP42160

Black River
An Abhainn Dubh

RK42107
(RC)

PP42056A

PP42056

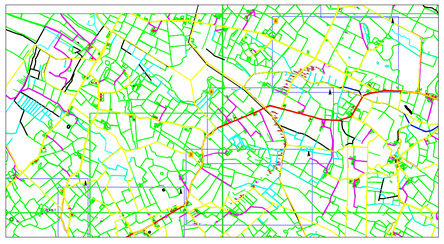
PP42060

PP42015

PP42016

PP42017

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion
BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core
BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample
DS-

Trial Pit
TP-

Peat Probes
PP

Russian Samples
RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
5 of 39

Dimensions in.	mm		
Scale.	1:5,000 @ A1		
Drawn By.	MM	20/07/2022	
Checked By.	RK	20/07/2022	
Approved By.			

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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	1 of 1

6

N

ST-44815
A
B

BH-44676
(CP)

TP-44611

BH-44534A
(CP/RC)
BH-44534
CP

TP-44508

TP-44408

TP-44309

TP-44211

BH-44177
(CP/RC)

TP-44104

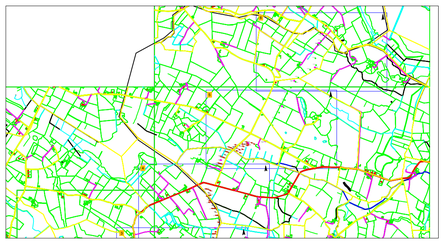
TP-44003

TP-43905

BH-43817
(CP/RC)

TP-43815

TP-43708



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion — BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core — BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample — DS-

Trial Pit — TP-

Peat Probes — PP

Russian Samples — RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
6 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
Approved By.		

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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	1 of 1

7

N

TP-47615

TP-47507

BH-47431
(CP)

TP-47392

TP-47308

BH-47262
(CP/RC)

TP-47202

TP-47102

TP-47003

TP-46801

TP-46901

BH-46715A
CP

BH-46715
(CP/RC)

TP-46717

TP-46603

TP-46502

BH-46402
(CP)

BH-46402A
(CP+RC)

TP-46303

PP46288

PP46288A

PP46192

RK46240

PP46286

PP46193

PP46194

BH-46131
(CP/RC)

PP46124

PP46148

PP46124A

PP46062

PP46066

PP46062A

PP45598

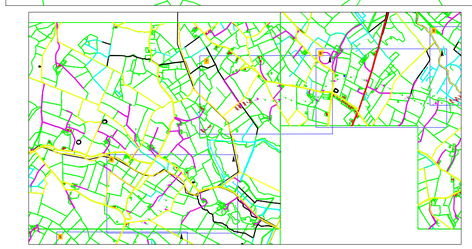
PP45570

PP45465

BH-45501
CP

PP45464

PP45469



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
7 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
Approved By.		

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
Tel. 091 841274. info@irishdrilling.ie

Drawing No.	Revision.	Sheet
IDL-WSP-01	1	7 of 39

8

N

Castle (in Ruins)

BH-47812 (RC)

TP-47801

TP-47902

TP-48001

TP-47705

TP-47615

BH-47650 (CP/RC)

TP-48102

BH-48139 (CP/RC)

TP-48302

BH-48400 (CP/RC)

TP-48401

TP-48500

TP-47507

BH-47431 (CP)

TP-47392

TP-48596

TP-48701

TP-48800

BH-48795 (CP/RC)

TP-48900

TP-47308

Pond

BH-47262 (CP/RC)

TP-49000

TP-49102

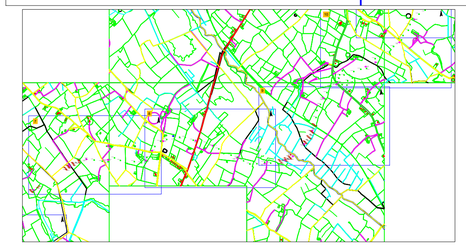
TP-49215

TP-49303

BH-49214 (CP/RC)

N

Lough Rea



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
8 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
Approved By.		

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OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	8 of 39

9

TP-50809

(CP/RC)

TP-50987

TP-50707

BH-50608
(CP)

BH-50608A
(CP/RC)

TP-50608

TP-50508

TP-50409

TP-50309

PP50207

PP50197

PP50191

RK50144

PP50099

BH-50108
(CP)

PP50091

PP50091A

RK50045

PP50005

PP49999

PP4999A

RK49954

PP49911

PP49910

PP49906

BH-49880
(CP)

DS49634
DP+WS

BH-49654
(CP)

PP49598

PP49593

PP49524

BH-49513
(CP)

RK49560

PP49596

PP49433

PP49527

RK49484

PP49439

PP49529

PP49455

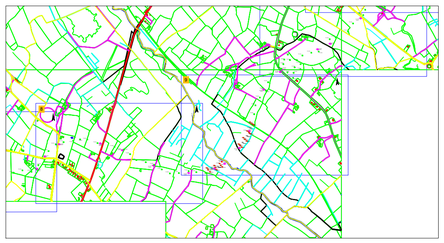
TP-49215

TP-49303

BH-49214
(CP/RC)

TP-49408

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
9 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
Approved By.		

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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	9 of 39

10

BH-52680
(CP)

TP-52609

TP-52507

N

TP-52400

BH-52406
(CP/RC)

TP-52308

TP-52207

TP-52108

TP-52050

BH-52008
(CP/RC)

TP-51906

TP-51801

TP-51705

TP-51603

BH-51540
(CP)

BH-51386
(CP/RC)

TP-51305

TP-51385

TP-51061

TP-51201

TP-50998

TP-51052

TP-51116

TP-50964

TP-51138

TP-51059

TP-50921

BH-50920
(CP/RC)

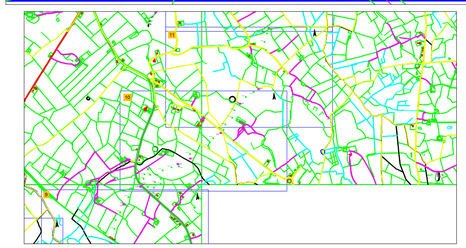
TP-51107

BH-50885
(CP/RC)

TP-50959

TP-51019

TP-50809



LEGEND

Cable Percussion Borehole with Rotary Follow- On **RC= Rotary Core** **CP=Cable Percussion**	BH-	**Trial Pit**	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) **RC= Rotary Core**	BH-	**Peat Probes**	PP
Dynamic Probes+Window Sampling **DP-Dynamic Probe** **WS-Window Sample**	DS-	**Russian Samples**	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
10 of 39

Dimensions in. mm

Scale. 1:5,000 @ A1

Drawn By. MM 20/07/2022

Checked By. RK 20/07/2022

Approved By.

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Drawing No. IDL-WSP-01

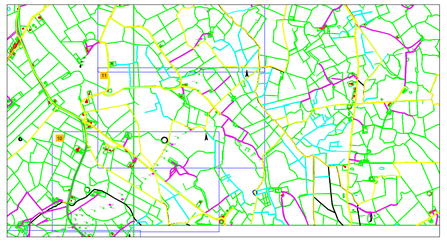
Revision. 1

Sheet 10 of 39

11

BH-53367
(CP)
TP-53371
TP-53310
TP-53211
TP-53110
TP-52910
TP-52709
BH-52680
(CP)
TP-52609
TP-52507
TP-52400
BH-52406
(CP/RC)
TP-52308
TP-52207
TP-52108

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
11 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	11 of 39

12

N

TP-54411

TP-54309

BH-54278
(CP)

DS54214
DP+WS

DS54163
DP+WS

TP-54109

TP-54012

BH-54059
(CP/RC)

Convent

TP-53810

BH-53713
(CP/RC)

TP-53692

TP-53609

TP-53510

BH-53367
(CP)

TP-53371

TP-53310

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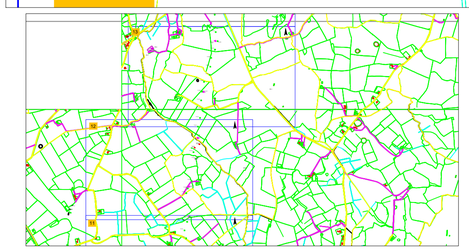

LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

REVISION	By	Date	Chk'd
IDL1	MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
12 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	12 of 39

13

Saint Eithnan's Catholic

Kilcolman

Graveyard

Church (Site of)

Well (Site of)

Graveyard

Cromlech (Site of)

Well (Site of)

TP-55612

TP-55510

BH-55410 (CP)

TP-55409

TP-55310

TP-55207

TP-55109

TP-55008

TP-54922

TP-54809

BH-54810 (CP)

TP-54710

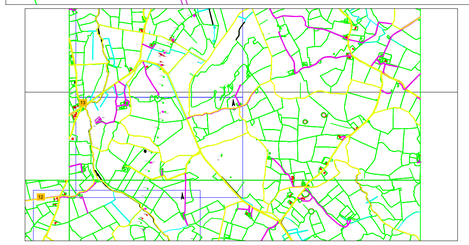
TP-54611

TP-54511

TP-54411

N

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

DS-

Trial Pit

TP-

Peat Probes

PP

Russian Samples

RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
13 of 39

Dimensions in. mm

Scale. 1:5,000 @ A1

Drawn By. MM 20/07/2022

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Drawing No. IDL-WSP-01

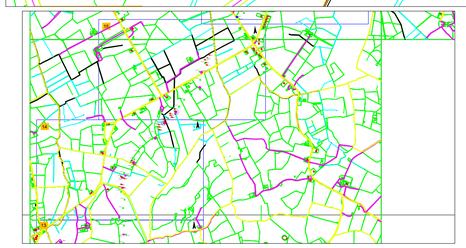
Revision. 1

Sheet 13 of 39

14

N

BH-56657 (CP/RC)
PP56871
PP56864
PP56800
RK56827
PP56784
PP56752
TP-56709
TP-56627
BH-56645 (CP/RC)
TP-56485
TP-56408
Pond
Pond
TP-56308
PP56284
PP56266
BH-56272 (CP)
PP56257
TP-56220
TP-56114
BH-56109 (CP/RC)
PP56069
PP56060
BH-56060 (CP/RC)
PP56065
PP55981
BH-55944 (CP/RC)
PP55941
TP-55897
TP-55806
TP-55711
TP-55612



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion — BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core — BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample — DS-

Trial Pit — TP-

Peat Probes — PP

Russian Samples — RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
14 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	14 of 39

15

View Mount

Beech Ave

St. Colman's

Cree House

PP57813

RK57778

PP57743

TP-57708

PP57721

PP57701

TP-57602

BH-57599
(CP)

TP-57510

BH-57428
(CP/RC)

TP-57417

TP-57307

TP-57203

TP-57107

PP57055

PP57039

BH-57037
(CP/RC)

PP57021

PP56981

PP56970

PP56964

RK56921

PP56883

BH-56857
(CP/RC)

PP56871

N

N

LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

DS-

Trial Pit

TP-

Peat Probes

PP

Russian Samples

RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
15 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	15 of 39

16

Fortel Cottage

N

TP-60003

TP-60109

PP59955

PP59976

RK59939

PP60008

PP59892

BH-59932
(CP/RC)

PP59901

PP59908

PP59841

PP59710

PP59778

RK59739

PP59771

PP59623

PP59700

RK59658

PP59545

PP59617

PP59688

TP-59504

RK59579

PP59542

PP59610

BH-59474
(CP/RC)

PP59520

TP-59407

TP-59305

TP-59203

TP-58702

TP-58814

TP-58904

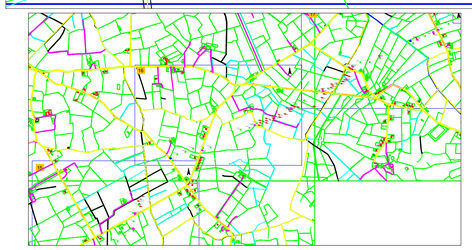
TP-58606

BH-58807
(CP/RC)

TP-58505

BH-58414
RC

TP-58419



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
16 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	16 of 39

17

N

Foxhawn River

TP-62205

TP-62004

TP-61904

BH-61869
(CP/RC)

BH-61805
(CP/RC)

DS61804
DP+WS

TP-61706

DS61602
DP+WS

BH-61605
(CP/RC)

BH-61515
(RC)

TP-61521

TP-61201

BH-61136
(CP/RC)

TP-61133

TP-60905

TP-61007

TP-60805

BH-60805
(CP/RC)

PP60766

PP60771

PP60784

(Site of)
Ringfort

TP-60709

RK60726

PP60683

PP60684

PP60681

BH-60641
(CP/RC)

RK60619

PP60569

RK60519

PP60572

PP60468

PP60470

PP60471

TP-60312

PP60349

RK60411

BH-60345
(CP/RC)

TP-60269

PP60341

TP-60212

PP60300

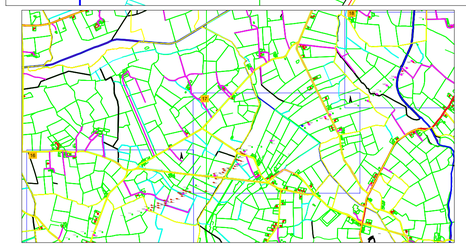
TP-60106

PP60175

PP60008

Foxhawn River

Foxhawn River



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
17 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	17 of 39

18

TP-63610

TP-63510

TP-63205

Ringfort
(Site of)

BH-63008
(CP/RC)

DS63008
DP+WS

TP-62907

DS62812
DP+WS

BH-62806
(CP)

BH-62741
(CP)

TP-62706

BH-62606
(CP/RC)

TP-62608

TP-62506

BH-62456
(CP/RC)

TP-62417

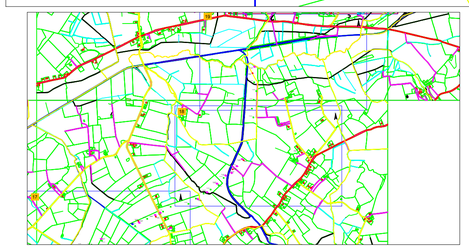
TP-62305

BH-62325
(CP/RC)

TP-62205

N

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

DS-

Trial Pit

TP-

Peat Probes

PP

Russian Samples

RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
18 of 39

Dimensions in.	mm		
Scale.	1:5,000 @ A1		
Drawn By.	MM	20/07/2022	
Checked By.	RK	20/07/2022	
Approved By.			

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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	18 of 39

19

Camcor River

Pond

BH-64085
CP

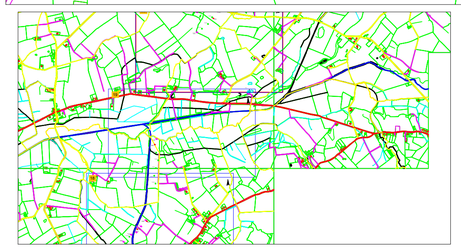
DS64012
DP+WS

TP-63911

TP-63812

TP-63711

TP-63610



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

Trial Pit

Peat Probes

Russian Samples

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
19 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No. IDL-WSP-01 | Revision. 1 | Sheet 19 of 39

20

N

TP-66005

BH-66007
(CP/RC)

TP-65906

DS65906
DP+WS

TP-65805

TP-65707

BH-65612
(CP/RC)

Pond

Quarry

Quarry
(Disused)

Quarry

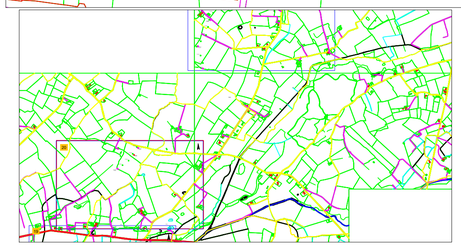
Quarry

Pond

Pond

Pond

Pond



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
20 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
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Drawing No. IDL-WSP-01 | Revision. 1 | Sheet 20 of 39

21

TP-68705

TP-68607

TP-68505

TP-68405

BH-68306
(CP/RC)

TP-68210

TP-68108

TP-68007

BH-68009
(CP/RC)

TP-67908

TP-67809

TP-67708

TP-67630

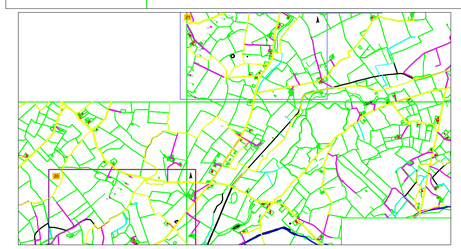
BH-67630
(CP)

TP-67511

TP-67410

BH-67338
(CP)

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
21 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No. IDL-WSP-01 | Revision. 1 | Sheet 21 of 39

22

BH-70701
(CP+RC)

TP-70716

TP-70608

TP-70504

TP-70393

TP-70304

BH-702205
(CP)

TP-70104

TP-70204

TP-70005

TP-69905

TP-69806

BH-69703
(CP/RC)

TP-69703

BH-69561
(CP/RC)

BH-69646
(CP/RC)

TP-69505

DS69559
DP+WS

BH-69405
CP

TP-69407

TP-69306

TP-69203

TP-69106

TP-69006

TP-68905

TP-68806

BH-68804
(CP/RC)

TP-68705

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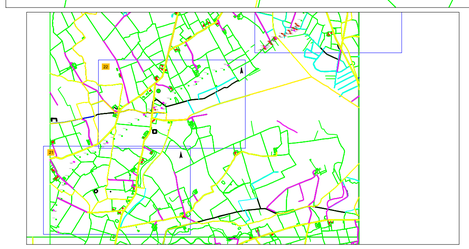

LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
22 of 39

Dimensions in. mm

Scale. 1:5,000 @ A1

Drawn By. MM 20/07/2022

Checked By. RK 20/07/2022

Approved By.

IRISH DRILLING LIMITED
OLD GALWAY ROAD, LOUGHREA, CO. GALWAY
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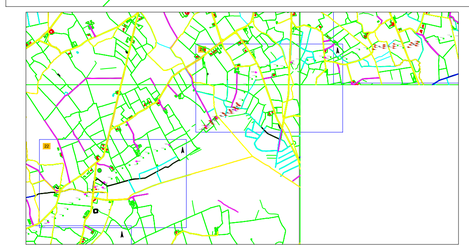
Drawing No. IDL-WSP-01 | Revision. 1 | Sheet 22 of 39

23

N

TP-72801
TP-72903
TP-73001
TP-73103
TP-73202
TP-73303
BH-73135 (CP+RC)
BH-72683 (CP+RC)
TP-72703
TP-72403
TP-72503
TP-72603
TP-72289
BH-72207 (CP+RC)
TP-72160
TP-72108
TP-72009
TP-71907
TP-71808
PP71738
PP71728
PP71727
PP71651
RK71700
PP71672
PP71676
RK71630
PP71587
BH-71656 (RC)
PP71592
PP71497
PP71500
RK71546
PP71596
PP71503
RK71450
PP71400
PP71399
BH-71397 (CP)
PP71999A
RK71350
PP71301
PP71299
PP71303
PP71205
RK71249
BH-71124 (CP+RC)
PP71199
PP71199A
RK71153



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

BH-

BH-

DS-

Trial Pit TP-

Peat Probes PP

Russian Samples RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
23 of 39

Dimensions in. mm
Scale. 1:5,000 @ A1
Drawn By. MM 20/07/2022
Checked By. RK 20/07/2022
Approved By.

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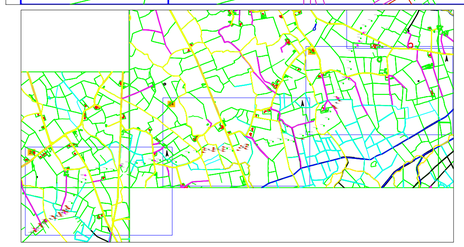
Drawing No. IDL-WSP-01
Revision. 1
Sheet 23 of 39

24

N

TP-73602
TP-73704
TP-73504
TP-73303
TP-73403
PP73812
PP73804
RK73864
PP73924
PP73922
PP73917
PP73780
RK73986
PP74049A
TP-74102
PP74049
TP-74170
PP74045
TP-74416
PP74351A
PP74285
PP74351
RK74308
PP74264
PP74336
PP74235
TP-74503
TP-74601
TP-74702
TP-74804
TP-74902
TP-74969
PP75077
TP-75104
TP-75197



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
24 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	24 of 39

25

(CP/RC)
TP-76508
TP-76440
TP-76309
TP-76212
BH-76085
(CP)
TP-76087
TP-76006
TP-75908
PP75810
BH-75808
(CP)
PP75795
PP75779
RK75738
PP75689
PP75682
PP76571
TP-75605
TP-75508
TP-75404
TP-75305
TP-75197

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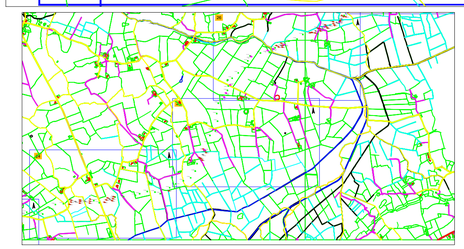

LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
25 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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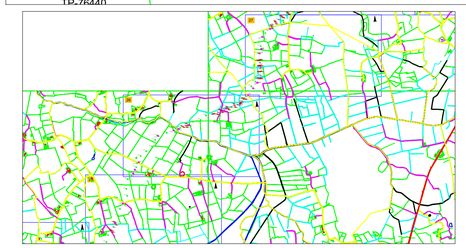
Drawing No.	Revision.	Sheet
IDL-WSP-01	1	25 of 39

26

N

Silver River - ABH-ainn Airgid

TP-78507
PP78490
PP78494
PP78508
RK78454
PP78426
PP78414
BH-78412 (CP/RC)
PP78325A
RK78369
PP78325
PP78329
PP78221
RK78274
BH-78204 (CP/RC)
PP78225
PP78232
PP78113
PP78135
RK78174
RK78075
PP78133
PP78015
PP78025
PP78060
TP-77903
TP-77808
TP-77705
PP77605
RK77588
PP77528
PP77627
BH-77631 (CP+RC)
PP77548
PP77591
TP-77504
BH-77477 (CP)
BH-77404 (CP)
TP-77304
TP-77416
TP-77175
BH-77176 (CP)
TP-77107
TP-77008
TP-76907
TP-76805
BH-76718 (CP)
TP-76707
TP-76641
BH-76601 (RC)
BH-76545 (CP/RC)
TP-76508
TP-76440
Area Under Construction



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
26 of 39

Dimensions in.	mm		
Scale.	1:5,000 @ A1		
Drawn By.	MM	20/07/2022	
Checked By.	RK	20/07/2022	
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	26 of 39

27

PP79929
PP79930
RK79882
PP79829
PP79835
PP79841
RK79775
PP79718
PP79714
PP79714A
RK79659
PP79599
PP79606
PP79611
BH-79595 (CP/RC)
TP-79507
BH-79441 (CP/RC)
TP-79425
TP-79309
BH-79273 (CP/RC)
TP-79208
BH-79209 (CP/RC)
PP79115
PP79120
PP79115A
RK79077
PP79040
PP79039
PP79036
BH-79026 (CP/RC)
RK78997
PP78951
PP78953
PP78957
RK78903
PP78844
BH-78790+78790A (CP/RC)
PP78853
PP78862
TP-78784
BH-78694 (CP/RC)
BH-78862 (CP/RC)
TP-78697
BH-78790 CP
BH-78579 (CP/RC)

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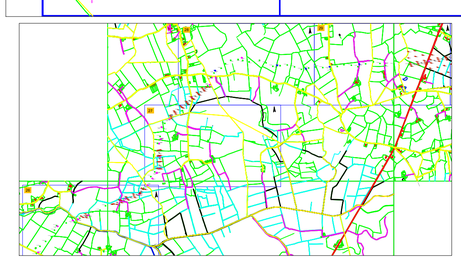

LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
27 of 39

Dimensions in. mm
Scale. 1:5,000 @ A1
Drawn By. MM 20/07/2022
Checked By. RK 20/07/2022
Approved By.

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Drawing No. IDL-WSP-01
Revision. 1
Sheet 27 of 39

28

N

Mount National Tennis Court

Mount Bolus

Quarry

TP-80634

TP-80508

BH-80546 (RC)

TP-80442

BH-80439 (CP/RC)

BH-80338 (CP/RC)

TP-80306

PP80283

PP80321

PP80229

RK80254

PP80224

PP80223

PP80129

RK80177

PP80130

PP80133

BH-80024 (CP)

PP80030

RK80079

PP80029

PP80035

RK79979

PP79929A

PP79929

PP79930

RK79882

PP79829

TP-80800

TP-80903

BH-80960 (CP)

TP-80972

TP-80718

TP-81064

TP-81202

TP-81300

TP-81404

TP-81501

BH-81459 (RC)

TP-81601

TP-81702

TP-81802

TP-81902

BH-81864 (RC)

TP-8200

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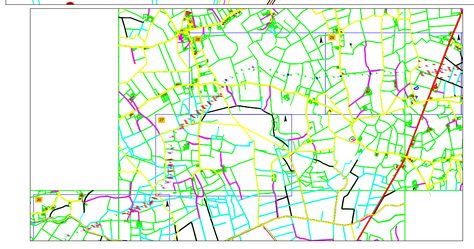

LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

DS-

Trial Pit

TP-

Peat Probes

PP

Russian Samples

RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
28 of 39

Dimensions in.	mm		
Scale.	1:5,000 @ A1		
Drawn By.	MM	20/07/2022	
Checked By.	RK	20/07/2022	
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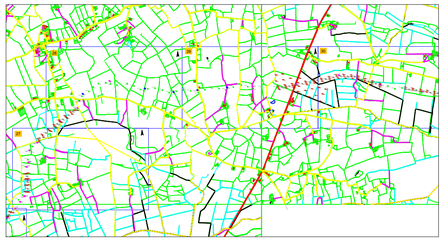
Drawing No.	Revision.	Sheet
IDL-WSP-01	1	28 of 39

29

N

TP-82001
TP-82102
BH-82198 (RC)
TP-82207
TP-82303
TP-82400
TP-82502
TP-82590
BH-82621 (RC)
TP-82702
TP-82812
TP-82902
BH-82974 (CP/RC)
TP-82979
TP-83101
TP-83303
PP83332A
PP83423
PP83521
PP83420
PP83319
PP83656
RK83894
PP83836
PP83838
PP83723
RK83783
PP83728
PP83843
PP83616
BH-83591 (CP/RC)
RK83674
PP83735
PP83533
RK83581
PP83538
PP83543
PP83621
PP83332
PP83439
RK83488
PP83333
RK83386
PP83442
PP83343
PP83431
PP83793
PP83697
PP83596
PP83826
PP83727
Lake
Lake



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
29 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
Approved By.		

IRISH DRILLING LIMITED
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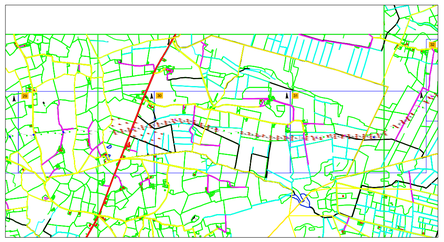
Drawing No.	Revision.	Sheet
IDL-WSP-01	1	29 of 39

30

N

PP84164 BH-84203 (CP) PP84260 PP84368 PP84058 PP84167 RK84220 PP84270 RK84322 PP84374 RK84421 PP84462 PP84061 RK84114 PP84182 PP84289 PP84389 PP84467 PP84469 RK84517 PP84564 PP84567 PP84573 RK84619 PP84671 PP84672 RK84728 PP84673 PP84781 PP84784 BH-84800 (CP) PP84795 TP-84901 TP-85005 TP-85102 PP83947 RK84005 PP83950 PP84065 PP83955 PP83893 PP83977 PP83926 PP83870 PP85141 PP85250 TP-85302 PP85149 RK85200 PP85253 RK85305 PP85361 PP85357 RK85403 BH-85383 (CP) TP-85383 PP85455 PP85448 RK85503 PP85554 PP85558 RK85607 PP85657A PP85657 RK85707 PP85756 BH-85791 (CP/RC) PP85757 RK85808 PP85561 PP85658 PP85759 PP85858A PP85859



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
30 of 39

Dimensions in.	mm		
Scale.	1:5,000 @ A1		
Drawn By.	MM	20/07/2022	
Checked By.	RK	20/07/2022	
Approved By.			

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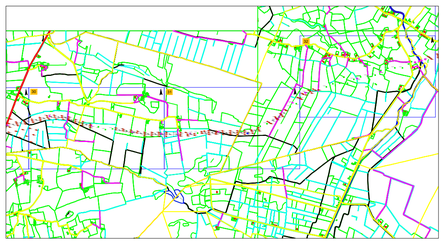
Drawing No. IDL-WSP-01 | Revision. 1 | Sheet 30 of 39

31

N

PP85858A
PP85858
PP85859
PP85958
PP85959
PP85961
RK85909
RK86008
PP86057A
PP86057
PP86058
PP861335
BH-86203 (CP)
PP86157
RK86207
PP86161
TP-86302
PP86256
PP86258
PP86397
PP86360A
PP86360
RK86409
PP86456
PP86457
PP86461
RK86508
PP86559C
BH-86592 (CP)
PP86559
PP86559A
RK86606
PP86651
PP86653
PP86656
RK86706
PP86758
PP86759
PP86761
RK86809
PP86859
PP86858
PP86860
RK86909
PP86958
PP86959
PP86960
RK87013
BH-87006 (RC)
PP87062
PP87064
RK87111
PP87066
PP87167
PP87165
PP87161
TP-87206
TP-87304
PP87326
PP873240
PP87353
PP87453
PP87457
BH-87455 (CP/RC)
RK87399
PP87462
RK87499
PP87542A
PP87542
PP87539
RK87586
PP87631A
PP87631
TP-87706
BH-87806 (CP)
TP-87803
PP87877
PP87889



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

Trial Pit

Peat Probes

Russian Samples

REVISION	By	Date	Chk'd
IDL1	MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
31 of 39

Dimensions in. mm
Scale. 1:5,000 @ A1
Drawn By. MM 20/07/2022
Checked By. RK 20/07/2022
Approved By.

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Drawing No. IDL-WSP-01
Revision. 1
Sheet 31 of 39

32

N

TP-89555
TP-89504
BH-89690 (CP)
BH-89747 (CP)
BH-89662 (CP)
BH-89604 (CP)
PP89800
PP89816
PP89833
TP-89205
TP-89303
TP-89405
TP-89104
BH-89092 (CP)
TP-89003
TP-88904
TP-88802
TP-88703
BH-88759 (CP/RC)
TP-88402
TP-88503
TP-88601
TP-88303
PP88116
PP88050
PP88143
PP88180
BH-87999 (CP)
RK88106
PP88070
PP87959
RK88021
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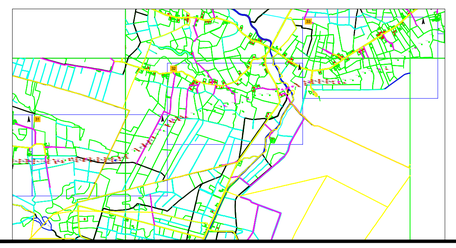
TP-87905
PP87899



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
32 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	32 of 39

33

N

TP-91905

TP-91805

TP-91705

TP-91603

BH-91604
(CP)

TP-91504

TP-91406

TP-91305

TP-91193

TP-91104

PP91102

BH-91011
(CP/RC)

TP-91012

TP-90894

TP-90800

TP-90704

TP-90604

TP-90503

TP-90401

BH-90402
(CP/RC)

PP90480

PP90411

PP90333

PP90238A

PP90324

PP90238

PP90237

RK90281

RK90185

PP90131

PP90132

PP90133

RK90081

PP90030

PP90032

PP90032A

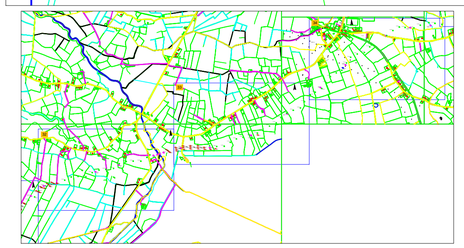
BH-90003
(CP)

RK89979

PP89929

PP89928

PP89927



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion
BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
RC= Rotary Core
BH-

Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample
DS-

Trial Pit TP-

Peat Probes PP

Russian Samples RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
33 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
Approved By.		

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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	33 of 39

34

N

Church Graveyard

Church Catholic Church

Well (Ruins)

Kilreigh Bridge

Cemetery

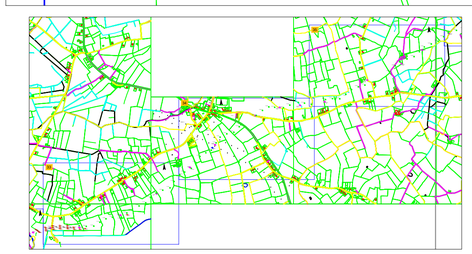
Enclosure (Site of)

Enclosure (Site of)

HILLVIEW CRESCENT

Pond

TP-94015
TP-94103
TP-94198
TP-93902
TP-93602
TP-93703
TP-93803
BH-94016 (CP/RC)
BH-93803 (CP/RC)
TP-93505
BH-93391 (CP)
TP-93352
TP-93174
TP-93106
TP-93003
TP-92904
TP-92804
TP-92706
BH-92680 (CP/RC)
BH-92626 (RC)
TP-92587
TP-92506
TP-92407
TP-92306
BH-92206 (CP)
TP-92209
TP-92106
TP-92029



LEGEND

Cable Percussion Borehole with Rotary Follow- On
RC= Rotary Core
CP=Cable Percussion

BH-

Soil/Rock Rotary Core Borehole (Geobore-S)
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Dynamic Probes+Window Sampling
DP-Dynamic Probe
WS-Window Sample

DS-

Trial Pit

TP-

Peat Probes

PP

Russian Samples

RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
34 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	34 of 39

35

N

TP-96304

TP-96204

TP-96105

TP-95999

BH-96005
(CP/RC)

TP-95905

TP-95806

Hinter House

TP-95705

TP-95600

BH-95595
(CP/RC)

TP-95504

TP-95408

BH-95064
(CP/RC)

TP-95003

TP-94905

TP-94809

TP-94704

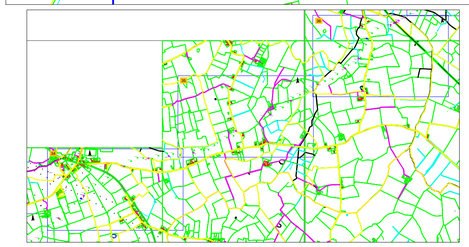
TP-94504

TP-94608

TP-94401

BH-94403
(CP)

TP-94198



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
35 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
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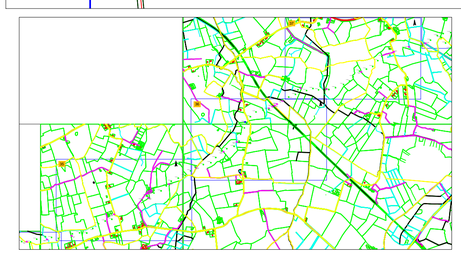
Drawing No.	Revision.	Sheet
IDL-WSP-01	1	35 of 39

36

N

TP-97998
BH-98002 (CP)
BH-97914 (CP/RC)
BH-97837 (CP/RC)
BH-97881 (CP/RC)
BH-97788 (CP/RC)
TP-97777
TP-97704
TP-97602
MP
TP-97505
BH-97423 (RC)
TP-97383
TP-97309
TP-97206
TP-97108
BH-97104 (CP/RC)
BH-97104A (CP)
TP-97009
TP-96905
TP-96831
BH-96858 (CP/RC)
TP-96705
TP-96608
TP-96505
TP-96387
BH-96364 (CP/RC)
TP-96304
Pond



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
Soil/Rock Rotary Core Borehole (Geobore-S) RC= Rotary Core	BH-	Peat Probes	PP
Dynamic Probes+Window Sampling DP-Dynamic Probe WS-Window Sample	DS-	Russian Samples	RK

	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
36 of 39

Dimensions in. mm
Scale. 1:5,000 @ A1
Drawn By. MM 20/07/2022
Checked By. RK 20/07/2022
Approved By.

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Drawing No. IDL-WSP-01
Revision. 1
Sheet 36 of 39

37

N

BH-100012
(CP)

BH-99777
(CP)

TP-99701

TP-99599

TP-99505

TP-99400

TP-99304

TP-99206

BH-99204
(CP)

TP-99105

TP-99004

TP-98904

TP-98805

TP-98702

BH-98602
(CP)

TP-98602

TP-98502

BH-98314
(CP)

TP-98403

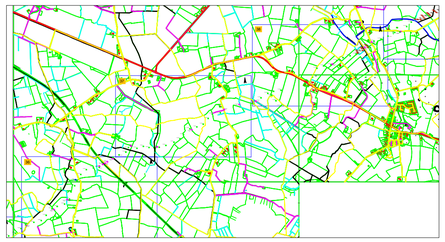
TP-98271

TP-98205

TP-98105

TP-97998

N



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
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	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
37 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
Drawn By.	MM	20/07/2022
Checked By.	RK	20/07/2022
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	37 of 39

38

N

Tullamore River

Tullamore River

Tullamore

Pond

TP-102204

TP-102105

BH-102037
(CP+RC)

PP101969

PP101978

RK101938

PP101899A

PP101978A

BH-101953
(RC)

PP101899

PP101824

RK101859

PP101897

PP101819

PP101814

TP-101804

TP-101704

TP-101600

TP-101503

TP-101407

BH-101404
(CP)

TP-101304

TP-101206

TP-100605

TP-100503

TP-100407

TP-100449

TP-100304

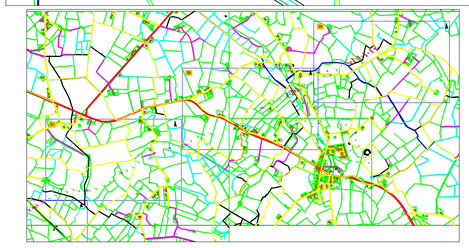
TP-100485

BH-100203
(CP)

TP-100517

Quarry

Quarry
(Disused)



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
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	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
38 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
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Checked By.	RK	20/07/2022
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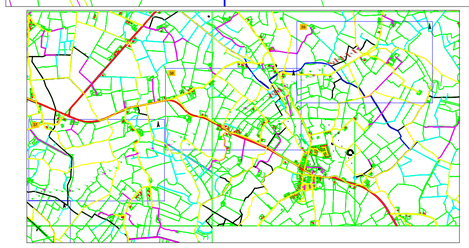
Drawing No.	Revision.	Sheet
IDL-WSP-01	1	38 of 39

39

BH-103234
(CP/RC)
RK103221
PP103163
PP103168
PP103174
RK103116
PP103053
PP103064
PP103077
RK103017
PP102962
PP102971
PP102978
RK102927
PP102879
PP102884
PP102890
RK102842
PP102769
PP102801
PP102835
TP-102704
TP-102617
TP-102488
TP-102405
BH-102528
(CP/RC)
TP-102303
TP-102204
Tullamore River
Tullamore River
Tullamore River
N



LEGEND

Cable Percussion Borehole with Rotary Follow- On RC= Rotary Core CP=Cable Percussion	BH-	Trial Pit	TP-
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	REVISION	By	Date	Chk'd
IDL1		MM	20/10/22	RK

Client: IRISH WATER

Title: Easter and Midlands Water Supply Project(Lot 2)
39 of 39

Dimensions in.	mm	
Scale.	1:5,000 @ A1	
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Drawing No.	Revision.	Sheet
IDL-WSP-01	1	of 39